May 23rd 2000

Netfinity Paper Configurator

EMEA

IBM Netfinity

Racks

Fibre Channel

Storage Enclosures

Clustering

Cables

Options

IBM Netfinity ServerProven

e business tools

IBM Netfinity 1000

IBM Netfinity 1000 Value Model

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IBM Netfinity EXP300 Storage Enclosure

IBM Netfinity FAStT EXP500 Storage Enclosure

Netfinity EXP200 Storage Enclosure

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Introduction/Postioning	❒	❒	❒
Sample Configurations	❒	❒	❒
Cabling	❒	❒	❒
Product Family Pages	❒	❒	❒
Storage Expansion Units	❒	❒	❒
Fibre Channel	❒	❒	❒
Clustering	❒	❒	❒
Tape Drives	❒	❒	❒
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5. Are you aware of the OrderBUILDER and Spreadsheet configurators that are available on PartnerInfo and the Web at URL: http://www.pc.ibm.com/europe/configurators

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IBM Netfinity Configurator Team

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Positioning of Configurator Aids

There are several sources of configuration assistance available which complement one another by providing aid at different levels and with different deliverables. Any combination of the configurators should be used depending on the situation. Always verify your hardware configurations with Network Operating System compatibility by accessing the ServerProven™ compatibility pages on the World Wide Web at URL http://www.pc.ibm.com/us/compat

OrderBUILDER Configurator: - a 32-bit Windows application containing local part numbers and prices, enabling the user to configure systems for all PSG brands. Configurations can be added to a formatted Quote and then either printed directly from OrderBUILDER or exported to another application. OrderBUILDER provides coverage for 29 country versions and weekly update files are distribuuted via the Web and Lotus Notes. See Distribution and Contact information below.

Spreadsheet Configurator:- a quick, easy to use tool that incorporates local part numbers and prices in 16 country versions. Euro pricing is also included and the tool enables the user to quickly perform most Netfinity System and Rack configurations with onscreen guidance provided. It is available in either Microsoft Excel or Lotus 1-2-3 formats and updated versions are distributed monthly via the Web and Lotus Notes. It is available for the following countries; Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, South Africa, Spain, Sweden, Switzerland UK .

Rack Configurator:- a graphical Windows application that can be used to configure solutions for the 42U and NetBAY22 Rack Units. It assists the user to decide optimum placement of items taking into account space, power and weight factors. It provides cabling recommendations and supplies detailed specification sheets, parts lists and floor plans. The Rack Configurator is distributed in one European version and is updated inline with new product announcements.

Netfinity Paper Configurator:- produced in Adobe Acrobat (.PDF) format that can be printed and used as hardcopy or viewed onscreen using Acrobat Reader. This configurator contains the complete range of currently marketed Netfinity products and gives, for example, information on which options are required to achieve total amounts of memory or storage, while indicating pre-requisite items such as cables. This is a powerful, complete, yet easy to use tool that is produced in one European version. Updated versions are available monthly without pricing.

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Configurator Distribution

All Users: Internet: http://www.pc.ibm.com/europe/configurators - OrderBUILDER Updates, latest versions of Spreadsheet Configurator, Paper Configurator, Rack Configurator.

Business Partners: Lotus Notes: PC PartnerInfo, Marketing Essentials Database: OrderBUILDER Updates, latest versions of Spreadsheet Configurator, Paper Configurator, Rack Configurator.

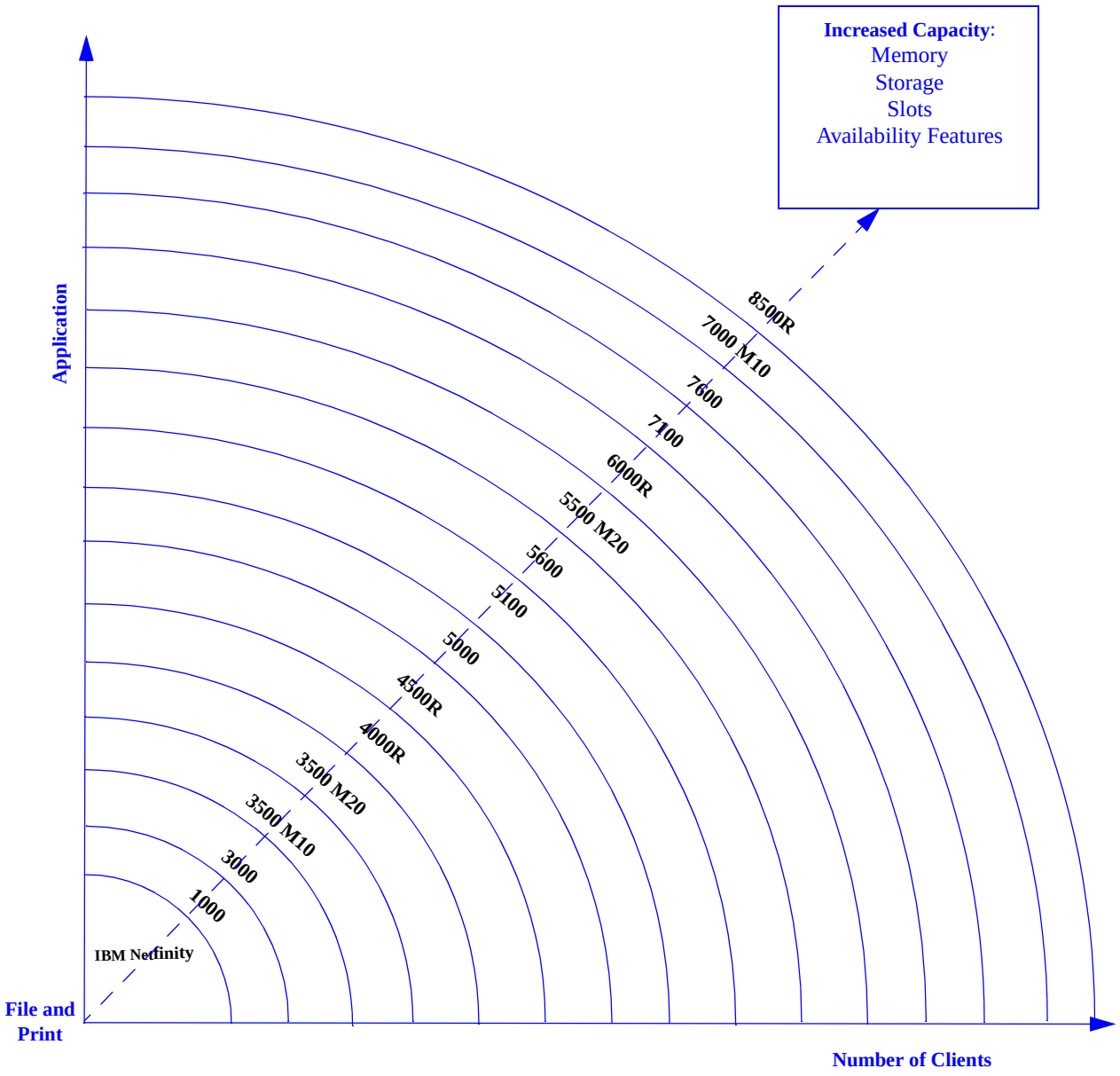
IBM Internal: Netfinity EMEA Intranet site: OrderBUILDER Application and Updates, latest versions of Spreadsheet Configurator, Paper Configurator, Rack Configurator.

The OrderBUILDER application is available on CD - to receive your copy, send an e-mail to the address below with your name, company and full address details (not PO Box numbers)

For further information contact:-

e-mail: psg_configure@uk.ibm.com
Notes Mail: EMEA PSG-Configuration-Support/UK/IBM@IBMGB

Netfinity Product Positioning



When in a competitive situation, this table suggests the appropriate IBM Netfinity server to bid against other vendors' equipment. However, as an IBM business partner, you may determine that customer specific requirements may make an alternative IBM solution a better choice

	Value	Price Performance	Mission Critical	Rack Optimized
8-way			**Netfinity**: 8500R Compaq: ProLiant 8000 Dell: No Offering HP: NetServer LH 6000	**Netfinity**: 8500R Compaq:ProLiant 8500 Dell: PowerEdge 8450 HP: NetServer LXr 8500
4-way		**Netfinity**: 7100 Compaq: ProLiant 5500 Dell: PowerEdge 6300 HP: NetServer LH4	**Netfinity**: 7600 Compaq: No Offering Dell: No Offering HP: NetServer LXr 8000	**Netfinity**: 6000R Rack Compaq: ProLiant 6400 Dell: PowerEdge 6350 HP: NetServer LH4r
2-way	**Netfinity**:3500 M20 Compaq: ProLiant ML350 Dell: PowerEdge 1300 HP: NetServer E60	**Netfinity**:5100 Compaq: ProLiant ML370 Dell: PowerEdge 2400 HP: NetServer LC2000	**Netfinity**:5600 Compaq: ProLiant ML530 Dell: PowerEdge 4400 HP: NetServer LH 3000	**Netfinity**: 4000R, 4500R Compaq: ProLiant DL380, Photon Dell: PowerEdge 2450 HP: NetServer LPr
Uni	**Netfinity**: 1000 Compaq: ProSignia 720 Dell: No Offering HP: No Offering	**Netfinity**: 3000 Compaq: ProLiant 400 Dell: No Offering HP: No Offering		

Netfinity Selection Guidance

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This chart represents general guidelines for selecting the appropriate server based on the number of users that can be supported in a particular application environment. This chart is for general guidance since each customer environment is unique and is unlikely to be precisely represented by any of the specific applications in the chart, but by using the chart, a reasonable approximation can be derived. External Storage Units are utilized when internal capacities are exceeded. Utilize the chart by following the steps outlined on the following page. These are not published benchmark results. Access http://www.ibm.com/pc/us/techlink/srvperf.html to obtain benchmark data.

Application/Expectation of Maximum # of Users		Netfinity 1000 Value Model Uni-Pentium III 600 MHz/ 512KB	Netfinity 1000 Uni-Pentium III 550 MHz/ 512 KB	Netfinity 3000 Uni-Pentium III 700 MHz/ 256 KB	Netfinity 3500 M10 Dual Pentium III 600 MHz/ 512 KB	Netfinity 3500 M20 Dual Pentium III 800 MHz/ 256 KB	Netfinity 4500R Dual Pentium III 866 MHz/ 256 KB	Netfinity 5000 Dual Pentium III 700 MHz/ 256 KB
DB Transaction Processing Select, Update and Delete; Does not include image or Decision Support	# of Users	50	975	1125	1675	1950	2010	1775
	# of processors	1	1	1	2	2	2	2
	Memory (MB)	384	384	512	1 GB	2 GB	2 GB	1 GB
	# Hard Disk Drives	3	4 to 8	12 to 18	24 to 36	36 to 48	36 to 48	24 to 36
	# RAID Adapters	-	≥ 1 SCSI	≥ 2 SCSI	≥3	≥3	≥3	≥3
	#Network Connections	1	1	1	1	1	1	1
File and Print Application is stored locally. (For server stored applications - cut number of users in half).	# of Users	100	1000	1000	2000	2000	2100	2000
	# of Processors	1	1	1	2	2	2	2
	Memory (MB)	512	512	512	1 GB	1 GB	1 to 2 GB	1 GB
	# Hard Disk Drives	3	3 to 4	3 to 4	16 to 24	16 to 24	20 to 30	16 to 24
	# RAID Adapters	-	≥ 1 SCSI	≥ 1 SCSI	2	2	2	2
	# 100Mbps Ethernet Connections	≥ 2	≥ 2	≥ 2	4	4	4	4
Lotus Notes 10% Power Users 40% Mail 50% Mail & DB	# of Users	100	525	675	1400	1800	1975	1500
	# of Processors	1	1	1	2	2	2	2
	Memory (MB)	384	384	384	1 GB	2 GB	2 to 3 GB	1 GB
	# Hard Disk Drives	3	3 to 4	3 to 4	18	18	20 to 30	18
	# RAID Adapters	-	≥ 1 SCSI	≥ 1 SCSI	1	1	2	1
	# Network Connections	≥ 1	≥ 1	≥ 1	≥2	≥2	≥1	≥2
Microsoft Exchange Server 5.5 100% Med Users 30 MB Mailbox	# of Users	525	500	700	1800	1980	2130	2100
	# of Processors	1	1	1	2	2	2	2
	Memory (MB)	256	256	384	1 GB	1 GB	2 GB	1 GB
	# Hard Disk Drives	3	3 to 4	3 to 4	9	9	9	9
	# RAID Adapters	-	≥ 1 SCSI	≥ 1 SCSI	1	1	1	1
	# Network Connections	≥ 1	≥ 1	≥ 1	≥1	≥1	≥1	≥1
SAP 3-Tier Distributed Ver 4.x Processing Sales and Distribution Application (Minimum of 16-20 Servers)	# of Users	-	-	-	-	-	-	-
	# of Processors	-	-	-	-	-	-	-
	Memory (MB)	-	-	-	-	-	-	-
	# Hard Disk Drives	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	# RAID Adapters	-	-	-	-	-	-	-
	# Network Connections	-	-	-	-	-	-	-
SAP Central Version 4.x Processing Sales and Distribution Application (One Server)	# Users	-	-	-	104	139	142	120
	# Processors	-	-	-	2	2	2	2
	Memory (MB)	-	-	-	1 GB	1 GB	1 GB	1 GB
	# Hard Disk Drives	N/A	N/A	N/A	12 to 24	12 to 24	12 to 24	12 to 24
	# RAID Adapters	-	-	-	≥1	≥1	≥1	≥1
	# Network Connections	-	-	-	1	1	1	1
High Availability Features	Hot-Swap HDD Bays	-	-	-	-	-	X	X
	Hot-Plug PCI Slots	-	-	-	-	-	-	-
	Hot-Swap Power	-	-	-	-	-	X	X
	Hot-Swap Fans	-	-	-	-	-	X	-
	RAID	-	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
	Clustering Support	-	-	-	-	-	X	X
	Sys. Mgt. Processor	-	Opt.	Opt.	-	-	X	X
Other Distinquishing Features	Max # Processors	1	1	1	2	2	2	2
	Max Memory (MB)	768	768	768	1 GB	2 GB	4 GB	2 GB
	Max Int. Storage (GB)	30.3	145.6	145.6	145.6	145.6	218.4	91
	Max Int. Storage (GB) with Int. Tape drive	30.3	109.2	109.2	109.2	145.6	109.2	91
	Available PCI Slots	3	2	2	5	5	5	5
	19" Rack Models	-	-	-	-	-	X	X
	NetBAY3x Support	-	-	-	-	-	-	-

1. With a single Netfinity EXP15 Storage unit installed in the standard NetBAY3 included with tower models.
2. With a Rack-to-Tower Kit installed.

Netfinity Selection Guidance

Application/Expectation of Maximum # of Users		Netfinity 5100 Dual Pentium III 866 MHz/ 256 KB	Netfinity 5600 Dual Pentium III 800 MHz/ 256 KB	Netfinity 5500 M20 Quad Pentium III Xeon 550MHz/ 1024 KB	Netfinity 6000R Quad Pentium III Xeon 700 MHz/ 1024 KB	Netfinity 7000 M10 Quad Pentium III Xeon 550 MHz/ 2048 KB	Netfinity 7100 Quad Pentium III Xeon 700 MHz/ 2048 KB	Netfinity 7600 Quad Pentium III Xeon 700 MHz/ 2048 KB	Netfinity 8500R Eight-Way Pentium III Xeon 700 MHz/ 2048 KB
DB Transaction Processing Select, Update and Delete; Does not include image or Decision Support	# of Users	2010	3265	5400	5400	6420	6420	6420	10,315
	# of processors	2	2	4	4	4	4	4	8
	Memory (MB)	2 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB
	# Hard Disk Drives	36 to 48	80 to 140	80 to 140	80 to 140	80 to 140	80 to 140	80 to 140	180 to 250
	# RAID Adapters	≥3	≥4	≥4	≥4	≥5	≥5	≥5	≥6 or Fibre
	#Network Connections	1	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3
File and Print Application is stored locally. (For server stored applications - cut number of users in half).	# of Users	2100	2100	2500	2500	5000	5000	5000	6000
	# of Processors	2	2	2	2	2	2	2	3-4
	Memory (MB)	1 to 2 GB	1 to 2 GB	1 to 2 GB	1 to 2 GB	3 to 4 GB	2 to 4 GB	1 to 2 GB	4 GB
	# Hard Disk Drives	20 to 30	20 to 30	20 to 30	20 to 30	50 to 90	50 to 90	20 to 30	75 to 150
	# RAID Adapters	2	2	2	2	≥4	≥4	≥4	≥4 or Fibre
	# 100Mbps Ethernet Conn.	4	4	4	4	8	8	8	10
Lotus Notes 10% Power Users 40% Mail 50% Mail & DB	# of Users	1975	1910	3500	3500	4215	4215	4215	6695
	# of Processors	2	2	4	4	4	4	4	8
	Memory (MB)	2 to 3 GB	3 GB	3 GB	3 GB	3 GB	3 GB	3 GB	4 GB
	# Hard Disk Drives	20 to 30	20 to 30	20 to 30	20 to 30	20 to 30	20 to 30	20 to 30	30 to 40
	# RAID Adapters	2	2	2	2	2	2	2	≥3
	# Network Connections	≥1	≥1	≥1	≥1	≥1	≥1	≥1	≥2
Microsoft Echange Server 5.5 100% Med Users 30 MB Mailbox	# of Users	2130	1970	4300	4300	6400	6600	7000	8000
	# of Processors	2	2	4	4	4	4	4	8
	Memory (MB)	2 GB	1.5 GB	2 GB	2 GB	3 GB	3 GB	3 GB	4 GB
	# Hard Disk Drives	12	12	24	24	30	30	30	36
	# RAID Adapters	1	2	2	2	2	≥2	≥2	≥3
	# Network Connections	≥1	≥1	≥2	≥2	≥2	≥2	≥2	≥2
SAP 3-Tier Distributed Ver 4.x Processing Sales and Distribution Application (Minimum of 16-20 Servers)	# of Users	2430	2260	3150	3150	4300	3150	3350	5100
	# of Processors	2	2	4	4	4	4	4	8
	Memory (MB)	1 to 2 GB	1 to 2 GB	2 to 4 GB	2 to 4 GB	≥4 GB	≥4 GB	≥4 GB	≥4 GB
	# Hard Disk Drives	24 to 36	24 to 36	48 to 60	48 to 60	48 to 60	48 to 60	48 to 60	48 to 60
	# RAID Adapters	≥2	≥2	≥3	≥3	≥3	≥3	≥3	≥3
	# Network Connections	1	1	1	1	1	1	1	1
SAP Central Version 4.x Processing Sales and Distribution Application (One Server)	# Users	142	146	220	312	245	245	245	375
	# Processors	2	2	4	4	4	4	4	8
	Memory (MB)	1 to 2 GB	1 to 2 GB	≥2 GB	≥2 GB	≥2 GB	≥2 GB	≥2 GB	≥4 GB
	# Hard Disk Drives	12 to 24	12 to 24	24 to 36	24 to 36	24 to 36	24 to 36	24 to 36	24 to 36
	# RAID Adapters	≥1	≥1	≥2	≥2	≥2	≥2	≥2	≥2
	# Network Connections	1	1	1	1	1	1	1	1
High Availability Features	Hot-Swap HDD Bays	X	X	X	X	X	X	X	X
	Hot-Plug PCI Slots	-	X	X	X	X	Opt.	X	X
	Hot-Swap Power	Opt.	X	X	X	X	X	X	X
	Hot-Swap Fans	-	X	X	X	X	X	X	X
	RAID	Opt.	Opt.	X	X	Opt.	Opt.	X	Opt.
	Clustering Support	X	X	X	X	-	X	X	X
	Sys. Mgt. Processor	X	X	X	X	X	X	X	X
Other Distinquishing Features	Max # Processors	2	2	4	4	4	4	4	8
	Max Memory (MB)	4 GB	4 GB	4 GB	4 GB	16 GB	16GB	16GB	16 GB
	Max Int. Storage (GB)	218.4	218.4	109, 473[1]	109, 473[1]	218.4	364	364	72.8
	Max Int. Storage (GB) with Int. Tape drive	218.4	218.4	109, 473[1]	109, 473[1]	N/A	364	364	N/A
	Available PCI Slots	5	5	5	5	6	6	5	12
	19" Rack Models	X	X	X	X	X	X	X	X
	NetBAY3x Support	-	-	X	X	-	X	X	X[2]

1. With a single Netfinity EXP200 Storage unit installed in the standard NetBAY3 included with tower models.
2. With a Rack-to-Tower Conversion Kit installed.

Procedure for Server Selection Guidance Chart

File and Print numbers are Novell Netware-based with all others based on Microsoft Windows NT. Other Networking Operating System (NOS) results could vary.
Extensive SAP sizings are available from IBM/SAP Competency Centres. Contact your IBM Marketing Representative for additional information**.**
Step 1: Determine which application (row) most closely represents the customer's environment.
Step 2: Move from left to right along the row (chosen in Step 1) noting which columns contain numbers that are equal to or greater than the maximum customer's planned number of users.
Step 3: Move up the columns (chosen in Step 2) to the top row to determine which IBM Netfinity Servers should be considered as possible solutions.
Step 4: Evaluate other features such as storage, memory capacity, high availability components, number of available expansion slots, etc., which are unique to each server, in order to determine which is the most appropriate to recommend.
For your reference, configuration information corresponding to the number of users is also provided.

IBM Netfinity Business Model Summary

Netfinity Model	Withdrawal Date: ddmmyy[16]	Part Number	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache. (KB)	Memory: (Std/Max)(R=RDIMM)	Form Factor	Power Supply Quantity (Std/Max)	Ethernet (Mbps)(OB=Onboard)	Additional SCSI Controller (Part Number)	Additional Internal HDD Std (Quan/P/N)	Bays (Total/Avail)	Slots (Total/Avail)	Std. Model P/N*
4500R	-	61SG9xx	733[5]	1/2	256	256MB[R]/4GB[7,17]	Rack(3U)	1/2	10/100[OB]	19K0564	3 x 37L7205[19]	8[18]/3	5/4	61RYMxx
4500R	-	62SG9xx	667[5]	1/2	256	256MB[R]/4GB[7,17]	Rack(3U)	1/2	10/100[OB]	19K0564	2 x 37L7204[19]	8[18]/4	5/4	62RYMxx
4500R	-	63SG9xx	800[5]	1/2	256	256MB[R]/4GB[7,17]	Rack(3U)	1/2	10/100[OB]	19K0564	3 x 37L7205[19]	8[18]/3	5/4	63RYTxx
4500R	-	64SG9xx	866[5]	1/2	256	256MB[R]/4GB[7,17]	Rack(3U)	1/2	10/100[OB]	19K0564	3 x 37L7205[19]	8[18]/3	5/4	64RYTxx
5000	30/05/00	951G9xx	550[1]	1/2	512	128MB[R]/2GB	Tower	1/2	10/100[OB]	01K7364	3 x 01K053	8/3	5/4	951YExx
5000	27/06/00	961G9xx	600[1]	1/2	512	128MB[R]/2GB	Tower	1/2	10/100[OB]	01K7364	3 x 01K053	8/3	5/4	961YExx
5000	-	971G9xx	650[12]	1/2	256	128MB[R]/2GB	Tower	1/2	10/100[OB]	01K7364	3 x 01K8053	8/3	5/4	971YExx
5000	-	981G9xx	700[12]	1/2	256	128MB[R]/2GB	Tower	1/2	10/100[OB]	01K7364	3 x 01K8053	8/3	5/4	981YExx
5100	-	812G9xx	667[5]	1/2	256	256MB[R]/4GB[7,17]	Tower	1/3	10/100[OB]	19K0564	2 x 36L9748	10/6	5/4	811YExx
5100	-	822G9xx	733[5]	1/2	256	256MB[R]/4GB[7,17]	Tower	1/3	10/100[OB]	19K0564	3 x 36L9749	10/5	5/4	821YExx
5100	-	832G9xx	800[5]	1/2	256	256MB[R]/4GB[7,17]	Tower	1/3	10/100[OB]	19K0564	3 x 37L7205[19]	10/5	5/4	831YExx
5100	-	842G9xx	866[5]	1/2	256	256MB[R]/4GB[7,17]	Tower	1/3	10/100[OB]	19K0564	3 x 37L7205[19]	10/5	5/4	841YExx
5600	27/06/00	421G9xx	600EB[5]	1/2	256	256MB[R,6]/4GB[7]	Tower	2/3	10/100[OB]	01K7364	3 x 36L9748	10/5	5/4	421YExx
5600	-	431G9xx	667[5]	1/2	256	256MB[R]/4GB[7]	Tower	2/3	10/100[OB]	01K7364	3 x 36L9748	10/5	5/4	431YExx
5600	-	441G9xx	733[5]	1/2	256	512MB[R]/4GB[7,13]	Tower	2/3	10/100[OB]	01K7364	3 x 36L9749	10/5	5/4	441YExx
5600	-	451G9xx	800[5]	1/2	256	512MB[R]/4GB[7,13]	Tower	2/3	10/100[OB]	01K7364	3 x 36L9749	10/5	5/4	451YExx
5500 M20	27/06/00	252G9xx	550[3]	2/4[4]	512	256MB[R]/4GB	Tower[2]	1/2	10/100[OB]	-	3 x 36L9806	10/5	6/6	251YExx
5500 M20	27/06/00	262G9xx	550[3]	2/4[4]	1024	256MB[R]/4GB	Tower[2]	1/2	10/100[OB]	-	3 x 36L9806	10/5	6/6	261YExx
6000R	-	21GG9xx	700[12]	2/4[4]	1024	512MB[R/]16GB[20]	Rack(4U)	1/3	10/100[OB]	19K0564	3 x 37L7205[19]	8/3[21]	6/5	21RYMxx
6000R	-	22GG9xx	700[12]	2/4[4]	2048	512MB[R/]16GB[20]	Rack(4U)	1/3	10/100[OB]	19K0564	3 x 37L7205[19]	8/3[21]	6/5	22RYMxx
7100	-	61TG9xx	550[12]	2/4[4]	512	512MB[14]/16GB[15]	Tower	2/4	10/100[OB]	01K7364	3 x 36L9749	14/9	6/5	611YExx
7100	-	62TG9xx	550[12]	2/4[4]	1024	512MB[14]/16GB[15]	Tower	2/4	10/100[OB]	01K7364	3 x 36L9749	14/9	6/5	621YExx
7100	-	63TG9xx	700[12]	2/4[4]	1024	512MB[14]/16GB[15]	Tower	2/4	10/100[OB]	19K0564	3 x 37L7205[19]	14/9	6/5	631YMxx
7100	-	64TG9xx	700[12]	2/4[4]	2048	512MB[14]/16GB[15]	Tower	2/4	10/100[OB]	19K0564	3 x 37L7205[19]	14/9	6/5	641YMxx
7100	-	61GG9xx	550[12]	2/4[4]	512	512MB[14]/16GB[15]	Rack(8U)	2/4	10/100[OB]	01K7364	3 x 36L9749	14/9	6/5	61RYExx
7100	-	62GG9xx	550[12]	2/4[4]	1024	512MB[14]/16GB[15]	Rack(8U)	2/4	10/100[OB]	01K7364	3 x 36L9749	14/9	6/5	62RYExx
7100	-	63GG9xx	700[12]	2/4[4]	1024	512MB[14]/16GB[15]	Rack(8U)	2/4	10/100[OB]	19K0564	3 x 37L7205[19]	14/9	6/5	63RYMxx
7100	-	64GG9xx	700[12]	2/4[4]	2048	512MB[14]/16GB[15]	Rack(8U)	2/4	10/100[OB]	19K0564	3 x 37L7205[19]	14/9	6/5	64RYMxx

Netfinity Business Models are standard Netfinity models shipped with additional options already installed. They provide popular starting configurations that give price&packaging advantages for easy installation.
1. Intel Pentium III Processor.
2. Tower models of the 5500 M20 come equipped with a single NetBAY3, 3U stackable enclosure. Up to a maximum of three are supported.
3. Intel Pentium III Xeon processor.
4.One additional processor (of the same type and speed as the standard one) is supplied already installed with this Business Model.
5. Intel Pentium III processor with 133MHz Front-side bus (FSB).
6. One additional 128MB memory option P/N 33L5058 is supplied already installed with this Business Model.
7. High-speed 133MHz SDRAM.
8. One additional 256MB Memory Expansion Kit P/N 01K8044 is supplied already installed with this Business Model.
9. Three additional processors of the same type and speed as the standard one (making a total of four, which is the maximum) are supplied already installed with this Business Model.
10. The standard memory is replaced in this model with two 512MB Advanced Memory Expansion Kits P/N 28L4732 - already installed.
11. This model is shipped with additional external options:- one EXP15 External Storage Enclosure P/N SE2RXxx, eight EXP15 9.1GB disks P/N 36L9806 and two Netfinity 2 metre Ultra2 SCSI Cables.
12. Intel Pentium III processor with advanced transfer (full speed) L2 cache and 100MHz access to memory and I/O buses.
13. One additional 256MB memory option P/N 33L3060 is supplied already installed with this Business Model.
14. The standard memory is replaced in these models with four 128MB memory options P/N 33L3113 - already installed.
15. Maximum capacity is dependent on future availability of Netfinity 1GB 100MHz ECC SDRAM RDIMM (P/N 33L3119).
16. Not available from IBM after this date: Business Partner inventory may be available.
17. The standard memory is replaced in this model with one 256MB RDIMM P/N 33L3125 - already installed
18. Assumes installation of optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) which converts the two available removable media bays into three slim-line (SL) hot-swap bays.
19. Some early systems may contain disks P/N 36L9748 (9.1GB) instead of P/N 37L7204 or P/N 36L9749 (18.2GB) instead of P/N 37L7205.
20. Advanced Chipkill ECC memory - corrects two, three or four-bit errors.
21. Assumes installation of optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) which enables hot-swap bays 4 to 6.

IBM Netfinity 1000 Configurator

Part Number *	Withdrawal Date: ddmmyy[3]	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache (KB)	Memory: std./max. (MB) 100MHz	Form Factor	Power Supply Quantity (Std/Max)	Onboard Ethernet	SCSI Controller (Dual, Ultra, RAID, LVD)	Removable Media Bays (Total//Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (Total/Avail)
721YExx	28/03/00	500[2]	1/1	512	64/768	Tower	1/1	10/100	U	4/2	0/145.6GB	32X-14X[1]	6/4	6/5
731YExx	30/05/00	550[2]	1/1	512	64/768	Tower	1/1	10/100	U	4/2	0/145.6GB	40X-17X[1]	6/4	6/5

* For IBM ServicePacs see Appendix G: IBM ServicePacs for Hardware Maintenance
1. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
2. Intel Pentium III processor .
3. Not available from IBM after this date. Business Partner inventory may be available.

Netfinity 1000 Processor Upgrades

Processor Upgrades with 512KB Cache	Part Numbers	Upgrade Support[1]
Netfinity 550MHz/512KB Pentium III Processor Upgrade	33L5112	All 1...2xY
Netfinity 600MHz/512KB Pentium III Processor Upgrade	33L5106	All 1...3xY

1. Requires removal of the standard processor. A maximum of one processor may be installed. Upgrades may require a BIOS update. To obtain the latest FLASH BIOS, access URL http://www.pc.ibm.com/pc/us, select PERSONAL SUPPORT then select IBM SERVER SUPPORT. Choose a machine type then select Downloadable files and choose the category labled “BIOS”..

Netfinity 1000 Memory Configurator

DIMM Socket
DIMM Socket
DIMM Socket

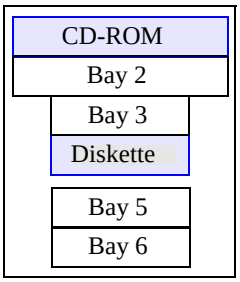
DIMM Description	Part Numbers
32MB 100MHz ECC SDRAM DIMM	01K1133
64MB 100MHz ECC SDRAM DIMM	01K1130
128MB 100MHz ECC SDRAM DIMM	01K1131
256MB 100MHz ECC SDRAM RDIMM[1]	01K1132

1. P/N 01K1132 is a registered DIMM and is not compatible with 01K1130, 01K1131 or 01K1133 Installation of this RDIMM requires replacement of the standard DIMM.

Total Memory	All Models
32MB	N/A
64MB	64MB DIMM Standard
128MB	1 x 01K1130
192MB	1 x 01K1131
256MB	1 x 01K1131, 1 x 01K1130
320MB	2 x 01K1131
384MB	3 x 01K1131[1]
512MB	2 x 01K1132[1]
768MB (max)	3 x 01K1132[1]

This table does not represent all possible memory configurations.
1. Replace standard DIMMS.

Netfinity 1000 Internal Hard Disk Drive Configurator



Open Bay Examples[2]			
Total Internal Storage[1]	7200RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 20L0553 or P/N 00N8204)	**18.2 GB (P/N 20L0554 or P/N 00N8205)**	**36.4 GB (P/N 00N8206)**
9.1 GB	1	-	-
18.2 GB	2	1	-
27.3 GB	3	-	-
36.4 GB	4	2	1
45.5 GB	-	-	-
54.6 GB	-	3	-
72.8 GB	-	4	2
91 GB	-	-	-
109.2 GB	-	-	3
145.6 GB (max)	-	-	4

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2. Select a total storage row and then select the quantity of HDDs from a column corresponding to the appropriate hard disk drive.

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25")	HH	yes	IDE CD-ROM
2	133 mm (5.25")[1]	HH	yes	open
3	89 mm (3.5")	SL	yes	open
5, 6	89 mm (3.5")	SL[2]	no	open

1. A 3.5" conversion kit is standard in Bay 2 for installation of 3.5" hard disk drives.
2. Two slim-line bays can be combined to support a single half-high (HH) device.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Ultra2 Hard Disk Drives (HDD)[1]					
20L0553	9.1 GB Wide Ultra2 SCSI HDD	7200	SL	2,3,5,6	4
20L0554	18.2 GB Wide Ultra2 SCSI HDD	7200	SL	2,3,5,6	4
Ultra160 Hard Disk Drives (HDD)[1]					
00N8204	9.1GB 7200 rpm Ultra160 SCSI HDD[5]	7200	SL	2,3,5,6	4
00N8205	18.2GB 7200 rpm Ultra160 SCSI HDD[5]	7200	SL	2,3,5,6	4
00N8206	36.4GB 7200 rpm Ultra160 SCSI HDD[4]	7200	SL	2,3,5,6	4
External Storage Expansion Units[2]		Form Factor			
00N6xxx[6]	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U)			
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	-			
37L0xxx[7]	Netfinity EXP200 350 W Redundant Power Supply	-			

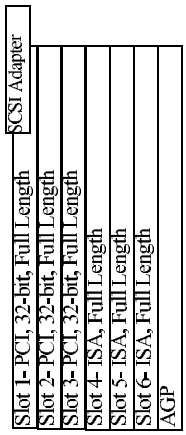
1. Netfinity 1000 contains an Ultra SCSI controller and cable which limits Ultra2 and Ultra160 HDDs to Ultra bus speeds.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to see Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP200 350W Redundant Power Supply (P/N 37L0xxx[7]) includes an additional power cord. To convert an EXP200 to match the system's tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
4. Planned availability of August, 2000.
5. Planned Availability of June 16, 2000.
6. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
7. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.

Internal SCSI Cabling

Netfinity 1000 systems have an IBM PCI Fast/Wide Ultra SCSI Adapter and support up to four internal SCSI devices through the 16-bit internal connector or 15 external SCSI devices through the 16-bit external 68-pin High Density connector; however, when internal SCSI devices are installed to the internal connector, only one SCSI device can be supported from the external connector. All models are cabled internally with a four-drop, 16-bit wide SCSI cable with a built-in active terminator at one end. The other end is attached to the internal 68-pin single-ended connector of the SCSI adapter. On the drive models, the hard disk drive (HDD) is attached to the cable connector closest to the active terminator. On open bay models the first disk drive installed should be attached in the same manner. In the event the standard four drop cable is attached to a RAID controller and a dedicated removable media attachment to the onboard controller is required, an optional, terminated, 16-bit cable is available (Netfinity Two-Drop Internal SCSI Cable P/N 36L9636). If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Netfinity 1000 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[2]	Full	32-bit	3
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	3
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[4, 9]	Full	32/64-bit	3
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1, 2, 3
	Networking[5]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1, 2, 3
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1, 2, 3
09N9901	10/100 Etherlink Server Adapter by 3Com	Half	32-bit	1, 2, 3
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1, 2, 3
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1, 2, 3
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1, 2, 3
	Communications			
37L14xx	Serial I/O SST8, 16 and 128 port adapters[6]	Half	32-bit	1, 2, 3
	Systems Management[7]			
94G7578	PC Server Advanced Systems Management Adapter	Full	ISA	4, 5, 6
94G5571	Advanced Systems Management Power Unit[8]	-	-	-



1. Netfinity1000 includes a single Wide Ultra SCSI PCI adapter.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external LVDS SCSI channel.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8mm VHDCI) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. Netfinity ServeRAID-4L Ultra160 SCSI Controller provides 16 MB of ECC cache and either one internal or one external Ultra160 channel. External connector is 0.8-mm VHDCI. Use of Netfinity 1000 standard wide SCSI cabling limits speeds to Ultra SCSI.
5. Netfinity 1000 has an integrated 10/100 PCI Ethernet Controller.
6. See Appendix F for details on Serial I/O options and configuration limitations.
7. Netfinity 1000 provides the following integrated system management features - Vital Product Data (VPD) plus thermal, voltage, and fan sensors. For additional functions, optional PC Server Advanced Systems Management (P/N 94G7578) may be utilized. To enable the adapter's Automated Restart and Alerting as well as Remote Power On/Off features, Advanced Systems Management Power Unit (P/N 94G5571) is required.
8. Provides continuous power to the PC Server Advanced Systems Management Adapter (P/N 94G7578) even when the system is powered off.
9. Planned availability of August 2000.

Netfinity 1000 Power, Monitors, Accessories

Part Number	Description
	Power[1]
	Uninterruptible Power Supply (UPS)[2]
SUP072Y	APC Smart-UPS 700
SUP102Y	APC Smart-UPS 1000
	Monitors
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black
4841Nxx	G76 Color Monitor 17" (15.9" Viewable Image Size), stealth black
494ANxx	G96 Color Monitor 19" (17.9" Viewable Image Size), stealth black
13AG1xx	T55A Flat Panel Color Monitor (15.0" Viewable Image Size), stealth black

1.Netfinity 1000 includes a 330 W voltage sensing power supply.
2. For runtimes and UPS attributes, see Appendix C: UPS Runtime Estimate.

Netfinity 1000 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin ConverterIncl.	Ext. Tape Enclosures[1]
01K1282	IBM12/24GB DDS/3 4mm Internal Tape Drive	2	8	3.5” HH or 5.25” HH	Y[2]	Y	10L7440
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	2	16 Ultra-2 LVD	3.5”HH or 5.25” HH	Y[2]	N	10L7740
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	2, 3	8	3.5” SL or 5.25” HH	Y[2]	Y	10L7440
	Associated Options						
32G3925	SCSI 68-pin to 50-pin Converter	-	8-16	Internal	N	Y	-
36L9636	Netfinity Two-Drop Internal SCSI Cable[3]	-	16	Internal	Y	N	-
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[4]	-	8/16	Desktop	N	N	-

1. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables - Storage Units - Controllers.
2. Tape drive is capable of self termination.
3. Netfinity Two-Drop Internal SCSI Cable (P/N36L9636) is a wide two-drop terminated cable and is required for attachment of intenal tape drives to the onboard SCSI controller of a Netfinity 3000 when the internal hard disk drives are attached to a RAID controller.
4. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).

NOTE: SCSI support is provided by system unit onboard (standard) controller (no RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Note: For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM Netfinity Servers, access the ServerProven™ compatibility pages on the Web at URL http://www.pc.ibm.com/us/compatt

Netfinity 1000 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Workgroup Internet Server

Part Number	Description	Quantity
731YExx	IBM Netfinity 1000 Pentium III 550/512KB L2, 64MB ECC, Open	1
01K1130	64MB 100MHz ECC SDRAM DIMM[1]	1
20L0553	IBM 9.1GB Wide Ultra-2 SCSI HDD	3
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth-black	1
SUP102Y	APC Smart-UPS 1000	1

1. For a total of 128MB of system memory.

An Internet server is a server that handles all requests from the Internet (Intranet or Extranet). Usually, this type of server has the same characteristics as a normal file server. The main difference is that an Internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider(ISP), instead of many clients like a file server does.
With this in mind, the IBM Netfinity 1000 was selected to provide an affordable price point for the growing Internet server market with Pentium III processing, 128MB of system memory (expandable to 768MB), integrated 100/10 ethernet controller, and high-performance storage, and power protection with an APC Smart-UPS.
The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File & Print Server

Part Number	Description	Quantity
711YExx	IBM Netfinity 1000 (Pentium II 400/64MB/0GB)	1
01K1130	64MB 100MHz ECC SDRAM DIMM[1]	1
20L0553	IBM 9.1GB Wide Ultra2 SCSI HDD	1
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth-black	1
SUP072Y	APC Smart-UPS 700	1

1. For a total of 128MB of system memory.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 50 users in a normal workgroup computing environment, but doesn’t require the high-end performance and fault tolerance properties of larger servers. The sample configuration above consists of an IBM Netfinity 1000 with 128MB of memory and 9.1GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional internal storage expansion still available. Demanding network traffic is effectively handled by the standard 100Mbps Ethernet connection. This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected from power surges and outages.

IBM Netfinity 1000 Value Model Configurator

Part Number *	Withdrawal Date: ddmmyy	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache (KB)	Memory: std./max. (MB) 100MHz	Form Factor	Power Supply Quantity (Std/Max)	Onboard Ethernet	Storage Controller	Removable Media Bays (Total//Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (Total/Avail)
742YExx	-	600[1]	1/1	512	64/768	Tower	1/1	10/100	IDE	4/2	10.1/ 30.3GB	40X-17X[2]	6/3	6/6

* For IBM ServicePacs see Appendix G: IBM ServicePacs for Hardware Maintenance
1. Intel Pentium III processor.
2. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

Netfinity 1000 Value Model Processor Upgrades

There are no processor upgrades available for the model 42Y at this time.

Netfinity 1000 Value Model Memory Configurator

DIMM Socket
DIMM Socket
DIMM Socket

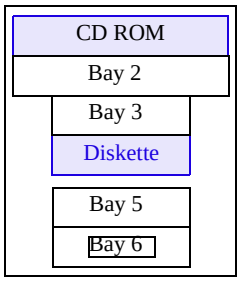
DIMM Description	Part Numbers
32MB 100MHz ECC SDRAM DIMM	01K1133
64MB 100MHz ECC SDRAM DIMM	01K1130
128MB 100MHz ECC SDRAM DIMM	01K1131
256MB 100MHz ECC SDRAM RDIMM[1]	01K1132

1. P/N 01K1132 is a registered DIMM and is not compatible with 01K1130, 01K1131 or 01K1133 Installation of this RDIMM requires replacement of the standard DIMM.

Total Memory	All Models
32MB	N/A
64MB	64MB DIMM Standard
128MB	1 x 01K1130
192MB	1 x 01K1131
256MB	1 x 01K1131, 1 x 01K1130
320MB	2 x 01K1131
384MB	3 x 01K1131[1]
512MB	2 x 01K1132[1]
768MB (max)	3 x 01K1132[1]

This table does not represent all possible memory configurations.
1. Replace standard DIMM.

Netfinity 1000 Value Model Internal Hard Disk Drive Configurator



Total Internal Disk Storage[1]	Model 42Y
10.1GB	Standard
20.2GB	1 x 33L4958
30.3GB	2 x 33L4958

1. Total Internal Storage listed is within ± 0.2GB unless otherwise noted.

Bays	Form Factor	Height	Front Access	Usage
1	5.25”	HH	yes	32x IDE CD-ROM
2	5.25”[1]	HH	yes	open
3	3.5”	SL	yes	open
4	3.5”	SL	yes	diskette
5	3.5”	SL[2]	no	open
6	3.5”	SL[2]	no	open

1. A 3.5” conversion kit is standard in Bay 2 for installation of 3.5” devices.
2. Two slim-line bays can be combined to support a single half-high (HH) device.

Part Numbers	Description	RPM	Height	Bays Supported	Max. Qty.
33L4958	10.1GB 7200rpm EIDE HDD[1]	7200	SL	2,3,5,6	3

1. This Hard Disk Drive is the only one supported in the Netfinity 1000 IDE Model P/N 742YExx.

Internal Cabling

The Netfinity 1000 Value model has an onboard IDE Storage Controller that provides support for up to four internal IDE devices. A two-drop IDE cable is attached to one of the IDE controller connectors and is used for the standard IDE CD-ROM drive and 10.1GB 7200rpm EIDE Hard Disk Drive. A second two-drop IDE cable is shipped with the server to be used for installing a second and third 10.1GB EIDE HDD as desired. This cable attaches to the second connector of the IDE controller.

Netfinity 1000 Value Model I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
02K3454	PCI Fast/Wide Ultra SCSI Adapter[2]	Half	32-bit	1, 2, 3
	Networking[3]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1, 2, 3
	Token Ring			
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1, 2, 3
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[4]	Half	32-bit	-
	Communications			
37L14xx	Serial I/O SST8, 16 and 128 port adapters[5]	Half	32-bit	1, 2, 3
	Systems Management[6]			

Slot 1- PCI, 32-bit, Full Length
Slot 2- PCI, 32-bit, Full Length
Slot 3- PCI, 32-bit, Full Length
Slot 4- ISA, Full Length
Slot 5- ISA, Full Length
Slot 6- ISA, Full Length
AGP

1. The Netfinity 1000 IDE model 42Y ships with integrated IDE controller and cable for support of up to 3 hard disk drives. Optional SCSI support is limited to Tape Drives only. No SCSI hard disk drives are supported.
2. Supports attachment of internal tape drive only. Includes 16-bit SCSI cable.
3.The Netfinity 1000 model 42Y has an integrated 10/100 PCI Ethernet Controller.
4.The Wake on LAN function of this option is not supported by Netfinity Servers.
5. See Appendix F for details on Serial I/O options and configuration limitations.
6. The Netfinity 1000 model 42Y provides the following integrated system management features - Vital Product Data (VPD) plus thermal, voltage, and fan sensors.

Netfinity 1000 Value Model Power, Monitors, Accessories

Part Number	Description
	Power[1]
	Uninterruptible Power Supply (UPS)[2]
SUP072Y	APC Smart-UPS 700
SUP102Y	APC Smart-UPS 1000
	Monitors
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black
4841Nxx	G76 Color Monitor 17” (15.9” Viewable Image Size), stealth black
494ANxx	G96 Color Monitor 19” (17.9” Viewable Image Size), stealth black
13AG1xx	T55A Flat Panel Color Monitor (15.0” Viewable Image Size), stealth black

1. The Netfinity 1000 model 42Y includes a 330 W voltage sensing power supply.
2. For runtimes and UPS attributes, see Appendix C: UPS Runtime Estimate.

Netfinity 1000 Value Model Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin ConverterIncl.	Ext. Tape Enclosures
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive[1]	2, 3	8	3.5” SL or 5.25” HH	Y[2]	Y	n/a

1. Requires PCI Fast/Wide Ultra SCSI Adapter P/N 02K3454, which includes a SCSI cable.
2. Tape drive is capable of self termination.

Note: For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM Netfinity Servers, access the ServerProven™ compatibility pages on the Web at URL http://www.pc.ibm.com/us/compatt

Netfinity 1000 Value Model Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Workgroup Internet Server

Part Number	Description	Quantity
742YExx	IBM Netfinity 1000 IDE Pentium III 600/512KB L2, 64MB ECC, 10.1GB	1
01K1130	64MB 100MHz ECC SDRAM DIMM[1]	1
33L4958	10.1GB 7200rpm EIDE HDD	1
02K3454[2]	PCI Fast/Wide Ultra SCSI Adapter	1
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth-black	1
SUP102Y	APC Smart-UPS 1000	1

1. For a total of 128MB of system memory.
2. Includes a 16-bit SCSI Cable

An Internet server is a server that handles all requests from the Internet (Intranet or Extranet). Usually, this type of server has the same characteristics as a normal file server. The main difference is that an Internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider(ISP), instead of many clients like a file server does.
With this in mind, the IBM Netfinity 1000 (IDE) was selected to provide an affordable price point for the growing Internet server market with Pentium III processing, 128MB of system memory (expandable to 768MB), integrated 100/10 Ethernet controller, high-performance storage, and power protection with an APC Smart-UPS.
The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File & Print Server

Part Number	Description	Quantity
742YExx	IBM Netfinity 1000 IDE Pentium III 600/512KB L2, 64MB ECC, 10.1GB	1
01K1130	64MB 100MHz ECC SDRAM DIMM[1]	1
02K3454[2]	PCI Fast/Wide Ultra SCSI Adapter	1
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth-black	1
SUP072Y	APC Smart-UPS 700	1

1. For a total of 128MB of system memory.
2. Includes a 16-bit SCSI Cable

A small business or departmental server is usually required to perform all typical server functions while servicing up to 50 users in a normal workgroup computing environment, but doesn't require the high-end performance and fault tolerance properties of larger servers. The sample configuration above consists of an IBM Netfinity 1000 IDE model with 128MB of memory and 10.1GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional internal storage expansion still available. Demanding network traffic is effectively handled by the standard 100Mbps Ethernet connection. This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected from power surges and outages.

IBM Netfinity 3000 Configurator

Part Number*	Withdrawal Date: ddmmyy[5]	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache. (KB)	Memory: std./max. (MB) 100MHz	Form Factor	Power Supply Quantity (Std/Max)	Onboard Ethernet (Mbps)	SCSI Controller (Ultra, Ultra2, Raid, LVD)	Removable Media Bays (Total//Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (T/A)
760UExx	30/05/00	550[3]	1/1	512	64/768	Tower	1/1	10/100	U	4/2	0/145.6 GB	40X-17X[1]	6/4	6/5
761UExx	-	550[3]	1/1	512	64/768	Tower	1/1	10/100	U	4/2	9.1/145.6 GB[2]	40X-17X[1]	6/3	6/5
770UExx	27/06/00	600[3]	1/1	512	64/768	Tower	1/1	10/100	U	4/2	0/145.6 GB	40X-17X[1]	6/4	6/5
771UExx	27/06/00	600[3]	1/1	512	64/768	Tower	1/1	10/100	U	4/2	9.1/145.6 GB[2]	40X-17X[1]	6/3	6/5
780UExx	-	650[4]	1/1	256	64/768	Tower	1/1	10/100	U2	4/2	0/145.6 GB	40X-17X[1]	6/4	6/5
781UExx	-	650[4]	1/1	256	128/768	Tower	1/1	10/100	U2	4/2	9.1/145.6 GB[2]	40X-17X[1]	6/3	6/5
790UExx	-	700[4]	1/1	256	64/768	Tower	1/1	10/100	U2	4/2	0/145.6 GB	40X-17X[1]	6/4	6/5
791UExx	-	700[4]	1/1	256	128/768	Tower	1/1	10/100	U2	4/2	9.1/145.6 GB[2]	40X-17X[1]	6/3	6/5

* For IBM ServicePacs see Appendix G: IBM ServicePacs for Hardware Maintenance
1. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
2. Standard Hard Disk Drives (HDD) are 7200 RPM. Maximum internal capacities assume replacement of standard hard disk drives with the largest supported IBM hard disk drives.
3. Intel Pentium III processor.
4. Intel Pentium III processor with advanced transfer (full speed) L2 cache.
5. Not available from IBM after this date. Business Partner inventory may be available.
.

Netfinity 3000 Processor Upgrades

Pentium II with 512KB Cache	Part Numbers	Upgrade Support[1]
Netfinity 600 MHz/512 KB Upgrade with Pentium III Processor	33L5106	All 1...6xx
Netfinity 700 MHz/256 KB Upgrade with Pentium III Processor[2]	10K2165	All 8xU

1. Requires removal of the standard processor. A maximum of one processor may be installed. Upgrades may require a BIOS update. To obtain the latest FLASH BIOS, access URL http://www.pc.ibm.com/europe/netfinity.html, then select SUPPORT. Choose a machine type then select Downloadable files and choose the category labled “BIOS”..
2. Cannot be used to upgrade models 1xX through 7xx.

Netfinity 3000 Memory Configurator

DIMM Socket
DIMM Socket
DIMM Socket

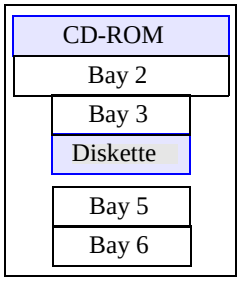
DIMM Description	Part Numbers
32MB 100MHz ECC SDRAM DIMM	01K1133
64MB 100MHz ECC SDRAM DIMM	01K1130
128MB 100MHz ECC SDRAM DIMM	01K1131
256MB 100MHz ECC SDRAM RDIMM[1]	01K1132

1. P/N 01K1132 is a registered DIMM and is not compatible with 01K1130, 01K1131 or 01K1133 Installation of this RDIMM requires replacement of the standard DIMM.

Total Memory	Models 71xxE to 77xxE and models 780UE and 790UE	Models 781UE and 791UE
64MB	64MB DIMM Standard	-
128MB	1 x 01K1130	128MB DIMM Standard
192MB	1 x 01K1131	1 x 01K1130
256MB	1 x 01K1131, 1 x 01K1130	1 x 01K1131
320MB	2 x 01K1131	1 x 01K1131, 1 x 01K1130
384MB	3 x 01K1131[1]	2 x 01K1131
512MB	2 x 01K1132[1]	2 x 01K1132[1]
768MB (max)	3 x 01K1132[1]	3 x 01K1132[1]

This table does not represent all possible memory configurations.
1. Replace standard DIMM.

Netfinity 3000 Internal Hard Disk Drive Configurator



Open Bay Examples[2]			
Total Internal Storage[1]	**7200RPM Hard Disk Drives (HDDs)**		
	9.1 GB (P/N 20L0553 or P/N 00N8204)	**18.2 GB (P/N 20L0554 or P/N 00N8205)**	**36.4 GB (P/N 00N8206)**
9.1 GB	Note: 1 x P/N 20L0553 Std. on models x1x	-	-
18.2 GB	2	1	-
27.3 GB	3	-	-
36.4 GB	4	2	1
45.5 GB	-	-	-
54.6 GB	-	3	-
72.8 GB	-	4	2
91 GB	-	-	-
109.2 GB	-	-	3
145.6 GB (max)	-	-	4

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2. Select a total storage row and then select the quantity of HDDs from a column corresponding to the appropriate hard disk drive. When configuring models which include a single 9.1 GB 7200 RPM HDD, use the 9.1 GB 7200 RPM column and order one less HDD than the table indicates.

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25")	HH	yes	IDE CD-ROM
2	133 mm (5.25")[1]	HH	yes	open
3	89 mm (3.5")	SL	yes	open
4	89mm (3.5")	SL	yes	diskette
5	89mm (3.5")	SL[2]	no	HDD on drive models
6	89 mm (3.5")	SL[2]	no	open

1. A 3.5" conversion kit is standard in Bay 2 for installation of 3.5" hard disk drives.
2. Two slim-line bays can be combined to support a single half-high (HH) device.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Ultra2 Hard Disk Drives (HDD)[1]					
20L0553	9.1 GB Wide Ultra2 SCSI HDD	7200	SL	2,3,5,6	4
20L0554	18.2 GB Wide Ultra2 SCSI HDD	7200	SL	2,3,5,6	4
Ultra160 Hard Disk Drives (HDD)[1]					
00N8204	9.1GB 7200 rpm Ultra160 SCSI HDD[5]	7200	SL	2,3,5,6	4
00N8205	18.2GB 7200 rpm Ultra160 SCSI HDD[5]	7200	SL	2,3,5,6	4
00N8206	36.4GB 7200 rpm Ultra160 SCSI HDD[4]	7200	SL	2,3,5,6	4

External Storage Expansion Units[2]		Form Factor
00N6xxx[6]	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit[3]	-
37L0xxx[7]	Netfinity EXP200 350 W Redundant Power Supply	-

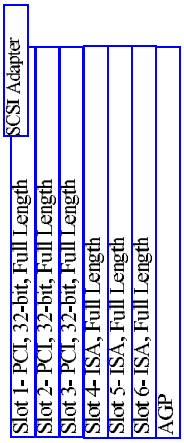
1. Netfinity 3000 models P/N 771UExx and earlier contain an Ultra SCSI controller and cable which limits Ultra2 and Ultra160 HDDs to Ultra bus speeds. Netfinity 3000 models P/N 780UExx and later contain an Ultra2 SCSI controller which limits Ultra160 HDDs to Ultra2 bus speeds.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to see Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP200 350W Redundant Power Supply (P/N 37L0xxx[7]) includes an additional power cord. To convert an EXP200 to match the system's tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
4. Planned Availability of August 2000.
5. Planned Availability of June 16, 2000.
6. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English - Line Cords/ Publication Country Kits are included throughout.
7. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.

Internal SCSI Cabling

Netfinity 3000 models 71xxE to 77xxE have a PCI Fast/Wide Ultra SCSI Adapter while models 78xxE and up have a PCI Wide Ultra2 SCSI Adapter. All models support up to four internal SCSI devices through the 16-bit internal connector or 15 external SCSI devices through the 16-bit external 68-pin High Density connector; however, when internal SCSI devices are installed to the internal connector, only one SCSI device can be supported from the external connector. All models are cabled internally with a four-drop, 16-bit wide SCSI cable (models 78xxE and up have an Ultra2 SCSI cable), with a built-in active terminator at one end. The other end is attached to the internal 68-pin single-ended connector of the SCSI adapter. On the drive models, the hard disk drive (HDD) is attached to the cable connector closest to the active terminator. On open bay models the first disk drive installed should be attached in the same manner. In the event the standard four drop cable is attached to a RAID controller and a dedicated removable media attachment to the onboard controller is required, an optional, terminated, 16-bit cable is available (Netfinity Two-Drop Internal SCSI Cable P/N 36L9636). This is not an Ultra2 cable, therefore attached devices will operate at Ultra (or slower) speeds. If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Netfinity 3000 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[2]	Full	32-bit	3
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	3
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[4, 10]	Full	32/64-bit	3
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1, 2, 3
	Networking[5]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1, 2, 3
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1, 2, 3
09N9901	10/100 Etherlink Server Adapter by 3Com	Half	32-bit	1, 2, 3
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1, 2, 3
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1, 2, 3
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1, 2, 3
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[6]	Half	32-bit	1, 2, 3
	Communications			
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[7]	Half	32-bit	1, 2, 3
	Systems Management[8]			
94G7578	PC Server Advanced Systems Management Adapter	Full	ISA	4, 5, 6
94G5571	Advanced Systems Management Power Unit[9]	-	-	-



1. Netfinity 3000 models P/N 771UExx and earlier contain a single Fast/Wide Ultra SCSI Adapter. Netfinity 3000 models P/N 780UExx and later contain a PCI Wide Ultra2 SCSI controller.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external LVDS SCSI channel.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8mm VHDCI) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. Netfinity ServeRAID-4L Ultra160 SCSI Controller provides 16 MB of ECC cache and either one internal or one external Ultra160 channel. External connector is 0.8-mm VHDCI. Use of Netfinity 3000 models P/N 771UExx and earlier standard wide SCSI cabling limits speeds to Ultra SCSI.
5. Netfinity 3000 has an integrated 10/100 PCI Ethernet Controller.
6. The Wake on LAN function of this option is not supported by Netfinity Servers.
7. See Appendix F for details on Serial I/O options and configuration limitations.
8. Netfinity 3000 provides the following integrated system management features - Vital Product Data (VPD) plus thermal, voltage, and fan sensors. For additional functions, optional PC Server Advanced Systems Management (P/N 94G7578) may be utilized. To enable the adapter's Automated Restart and Alerting as well as Remote Power On/Off features, Advanced Systems Management Power Unit (P/N 94G5571) is required.
9. Provides continuous power to the PC Server Advanced Systems Management Adapter (P/N 94G7578) even when the system is powered off.
10. Planned availability of August 2000.

Netfinity 3000 Power, Monitors, Accessories

Part Number	Description
	Power[1]
	Uninterruptible Power Supply (UPS)[2]
SUP072Y	APC Smart-UPS 700
SUP102Y	APC Smart-UPS 1000
	Monitors
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black
4841Nxx	G76 Color Monitor 17" (15.9" Viewable Image Size), stealth black
494ANxx	G96 Color Monitor 19" (17.9" Viewable Image Size), stealth black
13AG1xx	T55A Flat Panel Color Monitor (15.0" Viewable Image Size), stealth black

1.Netfinity 3000 includes a 330 W voltage sensing power supply.
2. For runtimes and UPS attributes, see Appendix C: UPS Runtime Estimate.

Netfinity 3000 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin ConverterIncl.	Ext. Tape Enclosures[1]
01K1282	12/24GB DDS/3 4mm Internal Tape Drive	2	8	3.5” HH or 5.25” HH	Y[2]	Y	10L7440
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	2	16 Ultra-2 LVD	3.5” HH or 5.25” HH	Y[2]	N	10L7440
01K1319	10/20GB NS Internal SCSI Tape Drive	2, 3	8	3.5” SL or 5.25” HH	Y[2]	Y	10L7440
01K1320	20/40GB DLT Internal SCSI Tape Drive	N/A[3]	8	5.25” FH	Y[4]	Y	03K8705
	Associated Options						
32G3925	SCSI 68-pin to 50-pin Converter	-	8-16	Internal	N	Y	-
36L9636	Netfinity Two-Drop Internal SCSI Cable[5]	-	16	Internal	Y	N	-
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[6]	-	8/16	Desktop	N	N	-
03K8705	DLT External SCSI Enclosure[7]	-	16	Desktop	N	N	-

1. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables - Storage Units - Controllers.
2. Tape drive is capable of self termination.
3. Netfinity 3000 does not support full-high (FH) devices internally. See External Tape Enclosures column.
4. A 16-bit terminator is included for attachment to an internal cable.
5. Netfinity Two-Drop Internal SCSI Cable (P/N36L9636) is a wide two-drop terminated cable and is required for attachment of intenal tape drives to the onboard SCSI controller of a Netfinity 3000 when the internal hard disk drives are attached to a RAID controller.
6. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
7. Provides a black desktop DLT Tape Enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator P/N 32G3918.

NOTE: SCSI support is provided by system unit onboard (standard) controller (no RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Netfinity 3000 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Workgroup Internet Server

Part Number	Description	Quantity
791UExx	IBM Netfinity 3000 Pentium III 700/256KB L2, 128MB ECC, 9.1GB	1
20L0553	IBM 9.1GB Wide Ultra-2 SCSI HDD	2
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1
SUP102Y	APC Smart-UPS 1000	1

An Internet server is a server that handles all requests from the Internet (Intranet or Extranet). Usually, this type of server has the same characteristics as a normal file server. The main difference is that an Internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider(ISP), instead of many clients like a file server does. With this in mind, the IBM Netfinity 3000 was selected to provide an affordable price point for the growing Internet server market with Pentium III processing, 128MB of system memory (expandable to 768MB), integrated 100/10 ethernet controller, high-performance storage, and power protection with an APC Smart-UPS. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File & Print Server

Part Number	Description	Quantity
781UExx	IBM Netfinity 3000 Pentium III 650/256KB L2, 128MB ECC, 9.1GB	1
20L0553	IBM 9.1GB Wide Ultra-2 SCSI HDD	1
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1
SUP072Y	APC Smart-UPS 700	1

A small business or departmental server is usually required to perform all typical server functions while servicing up to 50 users in a normal workgroup computing environment, but doesn’t require the high-end performance and fault tolerance properties of larger servers. The sample configuration above consists of an IBM Netfinity 3000 with 128MB of memory and 18.2GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional internal storage expansion still available. Demanding network traffic is effectively handled by the standard 100Mbps Ethernet connection. This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected from power surges and outages.

IBM Netfinity 3500 M10 Configurator

Part Number*	Withdrawal Date:ddmmyy[4]	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache. (KB)	Memory (Std./Max.)	Form Factor	Power Supply Quantity (Std/Max)	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID, LVD)	Removable Media Bays (Total/Avail.)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)
511YExx	28/03/00	500[2]	1/2	512	64 MB/1 GB	Tower	1/1	10/100	U	4/2	0/145.6 GB	40X-17X[1]
512YExx	28/03/00	500[2]	1/2	512	128 MB/1 GB	Tower	1/1	10/100	U	4/2	9.1/145.6 GB[3]	40X-17X[1]
521YExx	30/05/00	550[2]	1/2	512	128 MB/1 GB	Tower	1/1	10/100	U	4/2	0/145.6 GB	40X-17X[1]
522YExx	30/05/00	550[2]	1/2	512	128 MB/1 GB	Tower	1/1	10/100	U	4/2	9.1/145.6 GB[3]	40X-17X[1]
531YExx	27/06/00	600[2]	1/2	512	128 MB/1 GB	Tower	1/1	10/100	U	4/2	0/145.6 GB	40X-17X[1]
532YExx	27/06/00	600[2]	1/2	512	128 MB/1 GB	Tower	1/1	10/100	U	4/2	9.1/145.6 GB[3]	40X-17X[1]

* For IBM ServicePacs see Appendix G: IBM ServicePacs for Hardware Maintenance
1. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
2. Intel Pentium III processor.
3. Standard Hard Disk Drives (HDDs) are 7200 RPM. Maximum internal capacities assume replacement of standard hard disk drives with the largest supported IBM hard disk drives.
4. Not available from IBM after this date. Business Partner inventory may be available.

Netfinity 3500 M10 Processor Upgrades

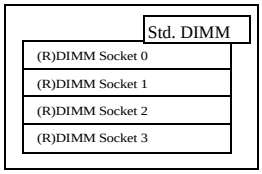
Part Number	Processor Upgrades with 512 KB Cache	SMP Support[1]	Processor Speed Upgrade[2]
36L9673	Netfinity 500 MHz/512 KB Upgrade with Pentium III Processor	All 1xY	-
33L5112	Netfinity 550 MHz/512 KB Upgrade with Pentium III Processor	All 2xY	All 1xY
33L5106	Netfinity 600 MHz/512 KB Upgrade with Pentium III Processor	All 3xY	All 1...2xY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest FLASH BIOS, access URL http://www.pc.ibm.com/europe/netfinity.html, then select SUPPORT. Choose a machine type then select Downloadable files and choose the category labled “BIOS”.

Netfinity 3500 M10 Memory Configurator

Part Number	Memory Description
01K1130	64 MB 100 MHz ECC SDRAM DIMM
01K1131	128 MB 100 MHz ECC SDRAM DIMM
01K1132	256 MB 100 MHz ECC SDRAM Registered DIMM[1]

1. P/N 01K1132 is a registered DIMM and is not compatible with 01K1130 or 01K1131. Installation of this RDIMM requires replacement of the standard DIMM.



Total Memory	Model 11Y	All Models Except 11Y
64 MB	64 MB DIMM standard	-
128 MB	1 x 01K1130	128 MB DIMM standard
192 MB	1 x 01K1131	1 x 01K1130
256 MB	1 x 01K1131, 1 x 01K1130	1 x 01K1131 or 1 x 01K1132[1]
320 MB	2 x 01K1131	1 x 01K1131, 1 x 01K1130
384 MB	2 x 01K1131, 1 x 01K1130	2 x 01K1131
448 MB	3 x 01K1131	2 x 01K1131, 1 x 01K1130
512 MB	4 x 01K1131 or 2 x 01K1132[2]	3 x 01K1131 or 2 x 01K1132[1]
768 MB	3 x 01K1132[1]	3 x 01K1132[1]
1024 MB (max)	4 x 01K1132[2]	4 x 01K1132[2]

This table does not represent all possible memory configurations.
1. P/N 01K1132 is a registered DIMM and is not compatible with 01K1130 or 01K1131. Installation of this RDIMM requires replacement of the standard DIMM.
2. Replace standard DIMM.

Netfinity 3500 M10 Internal Hard Disk Drive Configurator

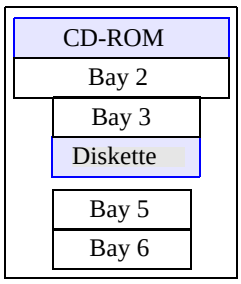
Open Bay Examples[2]						
Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 20L0553 or P/N 00N8204)	18.2 GB (P/N 20L0554 or P/N 00N8205)	36.4 GB (P/N 00N8206)	9.1 GB (P/N 00N8071 or P/N 00N8207)	18.2 GB (P/N 00N8072 or P/N 00N8208)	36.4 GB (P/N 00N8209)
9.1 GB	Note: 1 x P/N 20L0553 Std. on models x2Y	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	-	-	-	-	-	-
54.6 GB	-	3	-	-	3	-
72.8 GB	-	4	2	-	4	2
91 GB	-	-	-	-	-	-
109.2 GB	-	-	3	-	-	3
145.6 GB (max)	-	-	4	-	-	4

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2. Select a total storage row and then select the quantity of HDDs from a column corresponding to the appropriate hard disk drive. When configuring models which include a single 9.1 GB 7200 RPM HDD, use the 9.1 GB 7200 RPM column and order one less HDD than the table indicates.

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25")	HH	yes	IDE CD-ROM
2	133 mm (5.25")[1]	HH	yes	open
3	89 mm (3.5")	SL	yes	open
4	89 mm (3.5")	SL	yes	diskette
5	89 mm (3.5")	SL[2]	no	HDD on drive models
6	89 mm (3.5")	SL[2]	no	open

1. A 3.5" conversion kit is standard in Bay 2 for installation of 3.5" hard disk drives.
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.

Part Number	Description	RPM	Height	Bays Supported	Max Qty.
Ultra2 Hard Disk Drives (HDD)[1]					
20L0553	9.1 GB Wide Ultra2 SCSI HDD	7200	SL	2,3,5,6	4
20L0554	18.2 GB Wide Ultra2 SCSI HDD	7200	SL	2,3,5,6	4
Ultra160 Hard Disk Drives (HDD)[1]					
00N8204	9.1GB 7200 rpm Ultra160 SCSI HDD[8]	7200	SL	2,3,5,6	4
00N8205	18.2GB 7200 rpm Ultra160 SCSI HDD[8]	7200	SL	2,3,5,6	4
00N8206	36.4GB 7200 rpm Ultra160 SCSI HDD[6]	7200	SL	2,3,5,6	4
00N8071	9.1GB 10,000 rpm Ultra160 SCSI HDD[4]	10000	SL	2,3,5,6	4
00N8207	9.1GB 10,000 rpm Ultra160 SCSI HDD[4]	10000	SL	2,3,5,6	4



00N8072	18.2GB 10,000 rpm Ultra160 SCSI HDD[5]	10000	SL	2,3,5,6	4
00N8208	18.2GB 10,000 rpm Ultra160 SCSI HDD[5]	10000	SL	2,3,5,6	4
00N8209	36.4GB 10,000 rpm Ultra160 SCSI HDD[8]	10000	SL	2,3,5,6	4
External Storage Expansion Units[2]		**Form Factor**			
00N6xxx[9]	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U)			
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	-			
37L0xxx[10]	Netfinity EXP200 350 W Redundant Power Supply	-			

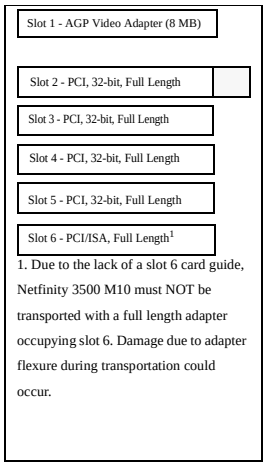
1. Netfinity 3500 M10 contains an Ultra SCSI controller and cable which limits Ultra2 and Ultra160 HDDs to Ultra bus speeds.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP200 350W Redundant Power Supply (P/N 37L0xxx[10]) includes an additional power cord. To convert an EXP200 to match the system's tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
4. P/N 00N8207 is a planned replacement for P/N 00N8071.
5. P/N 00N8208 is a planned replacement for P/N 00N8072.
6. Planned Availability of August 2000.
7. Planned Availability of June 30, 2000.
8. Planned Availability of June 16, 2000.
9. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English - Line Cords/ Publication Country Kits are included throughout.
10. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.

Netfinity 3500 M10 Internal SCSI Cabling

Netfinity 3500 M10 systems are cabled internally with a four-drop, 16-bit wide SCSI cable with a built-in active terminator at one end of the cable. The other end of the cable is attached to the internal 68-pin single-ended connector of the dual channel Ultra SCSI controller. On drive models the hard disk drive is attached to the cable connector closest to the active terminator. On open bay models the first disk drive installed should be attached in the same manner to ensure the highest signal quality. In the event the standard four-drop cable is attached to a RAID controller and a dedicated removable media attachment to the onboard controller is required, an optional, terminated, 16-bit cable is available (Netfinity Two-Drop Internal SCSI Cable P/N 36L9636). If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group. The second Ultra SCSI channel is available for external device support through an external 68-pin high density connector.

Netfinity 3500 M10 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
Storage Controllers[1]				
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[2]	Full	32-bit	3...6[4, 5]
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	3...6[4, 5]
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	2...6
Networking[6]				
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	2...6
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	2...6
09N9901	10/100 Etherlink Server Adapter by 3Com	Half	32-bit	2...6
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	3...6[5]
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	2...6
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	2...6
Communications[7]				
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[8]	Half	32-bit	2...6[8]
Systems Management[9]				



1. Due to the lack of a slot 6 card guide, Netfinity 3500 M10 must NOT be transported with a full length adapter occupying slot 6. Damage due to adapter flexure during transportation could occur.

1. Netfinity 3500 M10 has two integrated Wide Ultra SCSI channels. One is internal and the other is external with a 68-pin high density connector.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and two external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of three external LVDS SCSI channels. Includes 32 MB of mirrored battery backup cache, which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. Due to the lack of a slot 6 card guide, Netfinity 3500 M10 must NOT be transported with a full length adapter occupying slot 6. Damage due to adapter flexure during transportation could occur.
5. Slot 2 will not support installation of a RAID or 64-bit PCI adapter.
6. Netfinity 3500 M10 has an integrated 10/100 PCI Ethernet Controller.
7.Netfinity 3500 M10 includes two USB ports, two high-speed, NS16550A software-compatible serial ports, and one high-speed parallel port supporting devices using SSP/EPP/ECP protocols adhering to the IEEE 1284 standard.
8. See Appendix F for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, and 37L1423) may be installed.
9. Netfinity 3500 M10 integrated system management features include Vital Product Data (VPD) and alerts generated through Netfinity Manager from thermal, voltage and fan sensors.

Netfinity 3500 M10 Power, Monitors, Accessories

Part Number	Description
Power[1]	
	Uninterrupted Power Supply (UPS)[2]
SUP072Y	APC Smart-UPS 700
SUP102Y	APC Smart-UPS 1000
Monitors	
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black
4841Nxx	G76 Color Monitor 17” (15.9” Viewable Image Size), stealth black
494ANxx	G96 Color Monitor 19” (17.9” Viewable Image Size), stealth black
13AG1xx	T55A Flat Panel Color Monitor (15.0” Viewable Image Size), stealth black

1. Netfinity 3500 M10 includes a 330 W voltage sensing power supply.
2. Stated runtimes and power are for typical configurations (approximately 70% of maximum capacity). For additional information, see Appendix C: UPS Runtime Estimate.

Netfinity 3500 M10 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures[1]
01K1282	12/24GB DDS/3 4mm Internal Tape Drive	2	8	3.5” HH or 5.25” HH	Y[2]	Y	10L7440
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	2	16 Ultra-2 LVD	3.5” HH or 5.25” HH	Y[2]	N	10L7440, 03K8756
01K1319	10/20 GB NS Internal SCSI Tape Drive	2,3	8	3.5” SL or 5.25” HH	Y[2]	Y	10L7440, 03K8756
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	2	16	5.25”HH	N[3]	N	10L7440,[4] 03K8756
00N7990	40/80 GB DLT Internal SCSI Tape Drive	N/A[5]	16 LVD	5.25”FH	N	N	03K8705,[4] 03K8756
Associated Options							
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	10L7440
32G3925	SCSI 68-pin to 50-pin Converter	-	8-16	Internal	N	Y	03K8756
36L9636	Netfinity Two-Drop Internal SCSI Cable[6]	-	16	Internal	Y	N	-
External Tape Enclosures							
10L7440	External Half High SCSI Storage Enclosure[7]	-	8/16	Desktop	N	N	-
03K8756	NetMEDIA Storage Expansion Unit EL[8]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[9]	-	16 LVD	-	N	N	03K8756
03K8705	DLT External SCSI Enclosure[10]	-	16	Desktop	N	N	-

1. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables-Storage Units-Controllers.
2. Tape drive is capable of self termination.
3. Termination is provided by the system unit’s standard 4-drop SCSI cabling.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Netfinity 3500 M10 does not support full high devices internally. See External Tape Enclosure column.
6. Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636) is a wide two-drop terminated cable and is required for attachment of internal tape drives to the onboard SCSI controller of a Netfinity 3500 M10 when the hard disk drives are attached to a RAID Controller.
7. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
8. Provides a black 3U, 19” rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25” bays. External connector is 0.8-mm VHDCI. Includes two power supplies and two power cords.
9. Installs in an enclosure P/N 03K8756. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 03K8756 is powered off.
10. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918).

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Netfinity 3500 M10 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Description	Quantity
522YExx	Netfinity 3500 M10 (Pentium III 550/128 MB/9.1 GB)	1
01K1131	128 MB 100 MHz ECC SDRAM DIMM[1]	1
20L0553	9.1 GB Wide Ultra2 SCSI HDD[2]	2
01K1319	10/20 GB NS Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1
SUP072Y	APC Smart-UPS 700	1

1. For a total of 256 MB of system memory.
2. For a total of 27.3 GB of internal storage.

An Internet server is a server that handles all requests from the Internet (Intranet or Extranet). Usually, this type of server has the same characteristics as a normal file server. The main difference is that an Internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind, the IBM Netfinity 3500 M10 was selected to provide an affordable price point for the growing Internet server market with two-way Pentium III processing, 256 MB of system memory (expandable to 1 GB), and power protection with an APC Smart-UPS.

The network configuration depends on the method that will be used to connect the server to the Internet. Usually fast Ethernet routers are used, but if other methods are used, you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Part Number	Description	Quantity
511YExx	Netfinity 3500 M10 (Pentium III 500/64 MB/0 GB)	1
01K1131	128 MB 100 MHz ECC SDRAM DIMM[1]	1
20L0554	18.2 GB Wide Ultra2 SCSI HDD[2]	3
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1
SUP072Y	APC Smart-UPS 700	1

1. For a total of 192 MB of system memory.
2. For a total of 54.6 GB of internal storage.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 100 users in a normal workgroup computing environment, but doesn’t require the high-end performance and fault tolerance properties of larger servers.

The sample configuration above consists of an IBM Netfinity 3500 M10 with 192 MB of memory and 54.6 GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional external storage expansion still available. Demanding network traffic is effectively handled by the standard 100 Mbps Ethernet connection.

This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected during power surges and outages

Application Server

Part Number	Description	Quantity
532YExx	Netfinity 3500 M10 (Pentium III 600/128 MB/9.1 GB)	1
33L5106	Netfinity 600 MHz/512 KB Upgrade with Pentium III Processor	1
01K1132	256 MB 100 MHz ECC SDRAM Registered DIMM[1]	1
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
20L0553	9.1 GB Wide Ultra2 SCSI HDD[2]	2
01K1319	10/20 GB NS Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1
SUP072Y	APC Smart-UPS 700	1

1. For a total of 256 MB of registered system memory. Requires removal of standard memory.
2. For a total of 27.3 GB of internal storage .

An application server differs from a file server and print server in that it has a higher workload, in providing application serving requirements for users. With this in mind, the IBM Netfinity 3500 M10 was selected to provide an affordable price point for an application server, with two-way Pentium III processing, 256 MB of system memory (expandable to 1 GB), and availibilty features such as RAID protected internal storage and power protection with an APC Smart-UPS.

IBM Netfinity 3500 M20 Configurator

Part Number	Withdrawal Date:ddmmyy	Processor Speed (MHz)[2]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Onboard Ethernet (Mbps	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)[1]	Bays: (Tot/Av)	Slots: (Tot/Av)
721YMxx	-	667	1/2	256	128MB/2GB	Tower	1/1	10/100	U160	4/2	0/145.6GB	40X- 17X	7/5	5/5
722YMxx	-	667	1/2	256	128MB/2GB	Tower	1/1	10/100	U160	4/2	9.1/145.6GB[3]	40X- 17X	7/4	5/5
731YMxx	-	733	1/2	256	128MB/2GB	Tower	1/1	10/100	U160	4/2	0/145.6GB	40X- 17X	7/5	5/5
732YMxx	-	733	1/2	256	128MB/2GB	Tower	1/1	10/100	U160	4/2	9.1/145.6GB[3]	40X- 17X	7/4	5/5
741YMxx	-	800	1/2	256	128MB/2GB	Tower	1/1	10/100	U160	4/2	0/145.6GB	40X- 17X	7/5	5/5
742YMxx	-	800	1/2	256	128MB/2GB	Tower	1/1	10/100	U160	4/2	9.1/145.6GB[3]	40X- 17X	7/4	5/5

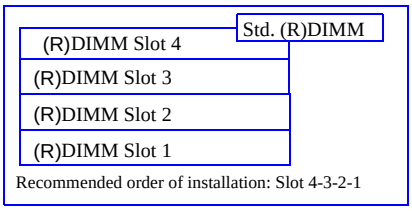
1. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
2. Intel Pentium III processor with 133 MHz front-side bus (FSB).
3. Standard Hard Disk Drives (HDD) are Ultra2 7200 RPM. Maximum internal capacities assume replacement of standard hard disk drives with the largest supported IBM hard disk drives.

Netfinity 3500 M20 Processor Upgrades

Part Number	Processor Upgrades with Full Speed Cache	SMP Support[1]	Processor Speed Upgrade[2]
10K3804	Netfinity 667 MHz/256 KB Upgrade with 133 MHz FSB Pentium III Processor	2xY	-
10K3805	Netfinity 733 MHz/256 KB Upgrade with 133 MHz FSB Pentium III Processor	3xY	2xY
10K3817	Netfinity 800 MHz/256 KB Upgrade with 133 MHz FSB Pentium III Processor	4xY	All 2...3xY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 3500 M20 Memory Configurator



Part Number	Memory Description[1]
33L3123	Netfinity 128 MB, 133 MHz SDRAM ECC RDIMM II
33L3125	Netfinity 256 MB, 133 MHz SDRAM ECC RDIMM II
33L3127	Netfinity 512 MB, 133 MHz SDRAM ECC RDIMM II

1. The recommended order of installation is in declining sequence from Slot 4 to Slot 1. Memory size is not a factor.

Total Memory[1]	Quantity of RDIMMs Added		
128 MB (1 x 128) Models	128 MB (P/N 33L3123)	256 MB (P/N 33L3125)	512 MB (P/N 33L3127)
256 MB	1	-	-
384 MB	2 or	1	-
512 MB	3	-	-
640 MB	-	2 or	1
896	-	3	-
1152 MB	-	-	2
1664 MB	-	-	3
2048 MB	-	-	4[2]

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.

1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. Requires removal of standard memory.

Netfinity 3500 M20 Internal Hard Disk Drive Configurator

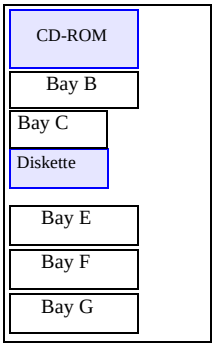
Open Bay Examples[2]						
Total Int. Storage[1]	**7200RPM Hard Disk Drives (HDDs)**			**10,000RPM Hard Disk Drives (HDDs)**		
	9.1 GB (P/N 20L0553 or P/N 00N8204)	**18.2 GB (P/N 20L0554 or P/N 00N8205)**	**36.4 GB (P/N 00N8206)**	**9.1 GB (P/N 00N8071 or P/N 00N8207)**	**18.2 GB (P/N 00N8072 or P/N 00N8208)**	**36.4 GB (P/N 00N8209)**
9.1 GB	Note: 1 x P/N 20L0553 Std. on models x2Y	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	-	-	-	-	-	-
54.6 GB	-	3	-	-	3	-
72.8 GB	-	4	2	-	4	2
91 GB	-	-	-	-	-	-
109.2 GB	-	-	3	-	-	3
145.6 GB (max)	-	-	4	-	-	4

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2. Select a total storage row and then select the quantity of HDDs from a column corresponding to the appropriate hard disk drive. When configuring disk drive models (8657-x2Y), which include a single 9.1 GB 7200 RPM HDD, use the 9.1 GB 7200 RPM column and order one less HDD than the table indicates.

Bay	Form Factor	Height	Front Access	Usage
A	133 mm (5.25”)	HH	Yes	IDE CD-ROM
B	133 mm (5.25”)[1]	HH	Yes	Open
C	89 mm (3.5”)	SL	Yes	Open
D	89 mm (3.5”)	SL	Yes	Diskette
E...F	89 mm (3.5”)	SL	No	Open
G	89 mm (3.5”)	SL	No	HDD on Drive Models

1. This bay does not support the installation of hard disk drives.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Ultra2 Hard Disk Drives (HDD)					
20L0553	9.1 GB Wide Ultra2 SCSI HDD	7200	SL	C,E,F,G	4
20L0554	18.2 GB Wide Ultra2 SCSI HDD	7200	SL	C,E,F,G	4
Ultra160 Hard Disk Drives (HDD)					
00N8204	9.1GB 7200 rpm Ultra160 SCSI HDD[8]	7200	SL	C,E,F,G	4
00N8205	18.2GB 7200 rpm Ultra160 SCSI HDD[8]	7200	SL	C,E,F,G	4
00N8206	36.4GB 7200 rpm Ultra160 SCSI HDD[6]	7200	SL	C,E,F,G	4
00N8071	9.1 GB 10,000 rpm Ultra160 SCSI HDD	10000	SL	C,E,F,G	4
00N8207	9.1GB 10,000 rpm Ultra160 SCSI HDD[4]	10000	SL	C,E,F,G	4
00N8072	18.2 GB 10,000 rpm Ultra160 SCSI HDD	10000	SL	C,E,F,G	4
00N8208	18.2GB 10,000 rpm Ultra160 SCSI HDD[5]	10000	SL	C,E,F,G	4
00N8209	36.4GB 10,000 rpm Ultra160 SCSI HDD[8]	10000	SL	C,E,F,G	4
External Storage Expansion Units[1]		**Form Factor**			
00N6xxx[9]	Netfinity EXP200 Storage Expansion Unit[2]	Rack (3U)			



37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	-
37L0xxx[10]	Netfinity EXP200 350 W Redundant Power Supply	-
19K11xx[11]	Netfinity EXP300 Storage Expansion Unit[3, 7]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[7]	-

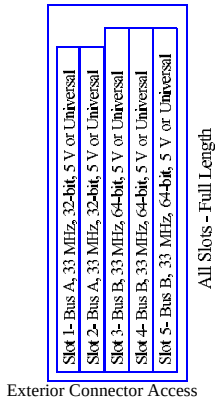
1. No external SCSI port is available. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
2. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP200 350W Redundant Power Supply (P/N 37L0xxx[10]) includes an additional power cord. To convert an EXP200 to match the 3500 M20's form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
3. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500W redundant power supplies, each with its own power cord. To convert an EXP300 to match the 3500 M20's form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
4. Planned replacement for P/N 00N8071.
5. Planned replacement for P/N 00N8072.
6. Planned Availability of August 2000.
7. Planned Availability of June 30, 2000.
8. Planned Availability of June 16, 2000.
9. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English - Line Cords/ Publication Country Kits are included throughout.
10. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
11.Where 'xx' represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.

Internal SCSI Cabling

Netfinity 3500 M20 systems are cabled internally with a five-drop, 16-bit wide LVD SCSI cable with a built-in active terminator at one end of the cable. The other end of the cable is attached to the internal connector of the integrated Wide Ultra160 SCSI controller. For RAID configurations, the cable can be moved from the onboard to the optional RAID controller. A tape drive can then be cabled directly to the onboard or other supported adapter with the terminated, two-drop, 16-bit, LVD SCSI cable available in the Netfinity Media Bay Conversion Kit (P/N 10K2340). No external SCSI port is included.

Netfinity 3500 M20 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
19K0564	Netfinity ServeRAID-3L Ultra2 SCSI Adapter II[2, 6]	Full	32-bit	1...5[6]
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3, 6]	Full	32/64-bit	1...5[6]
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[4, 9]	Full	32/64-bit	1...5
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[5, 9]	Full	32/64-bit	1...5
	Networking[7]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...5
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1...5
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...5
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5
	Communications[8]			



1. Netfinity 3500 M20 includes a single channel Ultra160 SCSI controller for internal use only. No standard external port is available. See "Internal SCSI Cabling" for cabling alternatives.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter II (P/N 19K0564) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of 3 external LVDS SCSI channels. Includes 32 MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. Netfinity ServeRAID-4L Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides a single channel, 16 MB of ECC cache and either one internal or one external Ultra160 connection. External connector is 0.8-mm VHDCI.
5. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
6. A total quantity of eight, in any combination of 01K7364, 19K0564, 37L6086 and 01K7207 is supported.
7. Netfinity 3500 M20 includes a full-duplex, 10/100 Mbps Ethernet PCI controller.
8. Netfinity 3500 M20 includes two USB ports, one serial and one parallel port.
9. Planned availability of August 2000.

Netfinity 3500 M20 Power, Monitors, Accessories

Part Number	Description
Power[1]	
Uninterruptible Power Supply (UPS)[2]	
SUP072Y	APC Smart-UPS 700
SUP102Y	APC Smart-UPS 1000
SUP142Y	APC Smart-UPS 1400
Monitors[3]	
31H2Nxx	E54 Color Monitor 15” (350-mm, 13.8” Viewable Image Size), stealth black
4841Nxx	G76 Color Monitor 17” (406-mm, 16” Viewable Image Size), stealth black
494ANxx	G96 Color Monitor 19” (454-mm, 17.9” Viewable Image Size), stealth black
13AG1xx	T55A Flat Panel Color Monitor (381-mm, 15” Viewable Image Size), stealth black

1. Netfinity 3500 M20 includes a 330 W voltage sensing power supply and a single line cord.
2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
3. Netfinity 3500 M20 uses an SVGA controller (S3 Savage4 chipset) with 8 MB of video memory.

Netfinity 3500 M20 Tape Options

Part Number	Tape Drives	Bays Supported[1]	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures
01K1282	12/24 GB DDS/3 4-mm Internal Tape Drive	B	8	89 mm (3.5”) HH or 133 mm (5.25”) HH	Y[2]	Y	-
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	B	16 Ultra2 LVD	89 mm (3.5”) HH or 133 mm (5.25”) HH	Y[2]	N	-
01K1319	10/20 GB NS Internal SCSI Tape Drive	B, C	8	89 mm (3.5”) SL or 133 mm (5.25”) HH	Y[2]	Y	-

Associated Options	
10K2340	Netfinity Media Bay Conversion Kit[3]

1. Configurations where the standard five-drop cable is connected to a RAID controller, require installation of the terminated, two-drop, 16-bit, LVD SCSI cable included with optional Netfinity Media Bay Conversion Kit (P/N 10K2340).
2. Tape drive is capable of self termination.
3. Contains a terminated, two-drop, 16-bit, LVD SCSI cable for attachment from an onboard SCSI controller or supported adapter to devices installed in the removable media bays. Netfinity 3500 M20 does not require installation of the remaining contents of this option.

Note: SCSI support for tape drives is provided by system unit onboard controller or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

Netfinity 3500 M20 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Description	Quantity
732YMxx	Netfinity 3500 M20 (Pentium III 733 MHz/128 MB/9.1 GB)	1
33L3123	128 MB, 133 MHz SDRAM ECC RDIMM II[1]	1
20L0553	9.1 GB Wide Ultra2 SCSI HDD[2]	2
01K1319	10/20 GB NS Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15” (350-mm, 13.8” Viewable Image Size), stealth black	1
SUP072Y	APC Smart-UPS 700	1

1. For a total of 256 MB of system memory.
2. For a total of 27.3 GB of internal storage.

An Internet server is a server that handles all requests from the Internet (Intranet or Extranet). Usually, this type of server has the same characteristics as a normal file server. The main difference is that an internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this is mind, the IBM Netfinity 3500 M20 was selected to provide an affordable price point for the growing Internet server market with two-way Pentium III processing, 256 MB of system memory (expandable to 1 GB), and power protection with an APC Smart-UPS.

The network configuration depends on the method that will be used to connect the server to the Internet. Usually fast Ethernet routers are used, but if other methods are used you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Part Number	Description	Quantity
8657-21Y	Netfinity 3500 M20 (Pentium III 667/128 MB/0 GB)	1
33L3123	128 MB, 133 MHz SDRAM ECC RDIMM II[1]	1
00N8072	18.2 GB 10,000 RPM Ultra 160 SCSI HDD[2]	3
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black	1
SUP072Y	APC Smart-UPS 700	1

1. For a total of 256 MB of system memory.
2. For a total of 54.6 GB of internal storage.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 100 users in a normal workgroup computing environment, but doesn't require the high-end performance and fault-tolerance properties of larger servers.

The sample configuration above consists of an IBM Netfinity 3500 M20 with 256 MB of memory and 54.6 GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional external storage expansion still available. Demanding network traffic is effectively handled by the standard 100 Mbps Ethernet connection.

This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected during power surges and outages.

Application Server

Part Number	Description	Quantity
8657-41Y	Netfinity 3500 M20 (Pentium III 800 MHz/128 MB/0 GB)	1
10K3817	Netfinity 800 MHz/256 KB Upgrade with 133 MHz FSB Pentium III Processor	1
33L3125	256 MB, 133 MHz SDRAM ECC RDIMM II[1]	1
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
00N8071	9.1 GB 10,000 RPM Ultra 160 SCSI HDD[2]	3
01K1319	10/20 GB NS Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black	1
SUP072Y	APC Smart-UPS 700	1

1. For a total of 384 MB of system memory.
2. For a total of 27.3 GB of internal storage.

An application server differs from a file and print server in that it has a higher workload, in providing application serving requirements for users. With this in mind, the IBM Netfinity 3500 M20 was selected to provide an affordable price point for an application server, with two-way Pentium III processing, 384 MB of system memory (expandable to 2 GB), and availability features such as RAID-protected internal storage and power protection with an APC Smart-UPS.

IBM Netfinity 4000R Configurator

Part Number*	Withdrawal Date: ddmmyy	Processor Speed (MHz)	Number of Processors (Std/Max)[1]	L2 ECC Cache. (KB)	Memory: std./max. (MB) RDIMM[1]	Form Factor	Power Supply Quantity (Std/Max)	Onboard Ethernet (Mbps)	SCSI Adapter (Ultra, Ultra2, Raid, LVD)	Removable Media Bays (Total//Avail)	Internal Hard Disk Storage (Std/Max)[1]	CD-ROM (IDE)	Bays: (Total/Avail)[1]	Slots: (T/A)[1]
865341Y	-	2 x 750[2]	2/2	256	512/2GB	Rack(1U)	1/1	2 x 10/100	U	1/0	18.2/36.4[4] GB	24X-10X[3]	3/0	2/1
865344Y[5]	-	2 x 750[2]	2/2	256	512/2GB	Rack(1U)	1/1	2 x 10/100	U	1/0	36.4/36.4[4] GB	24X-10X[3]	3/0	2/1
865345Y	-	2 x 750[2]	2/2	256	1GB/2GB	Rack(1U)	1/1	2 x 10/100	R-U2	1/0	18.2/36.4[4] GB	24X-10X[3]	3/0	2/1
865346Y	-	2 x 750[2]	2/2	256	2GB/2GB	Rack(1U)	1/1	2 x 10/100	R-U2	1/0	36.4/36.4[4] GB	24X-10X[3]	3/0	2/1
865351Y	-	1 x 650[2]	1/2	256	256/2GB	Rack(1U)	1/1	2 x 10/100	U	1/0	9.1/36.4[4] GB	24X-10X[3]	3/1	2/1
865361Y	-	2 x 650[2]	2/2	256	512/2GB	Rack(1U)	1/1	2 x 10/100	U	1/0	18.2/36.4[4] GB	24X-10X[3]	3/0	2/1
865362Y	-	2 x 650[2]	2/2	256	512/2GB	Rack(1U)	1/1	2 x 10/100	R-U2	1/0	18.2/36.4[4] GB	24X-10X[3]	3/0	2/1

* For IBM ServicePacs see Appendix G: IBM ServicePacs for Hardware Maintenance.
1. The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.
2. Intel Pentium III processor with advanced transfer (full speed) L2 cache.
3. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
4. Standard Hard Disk drives (HDD) are 7200 RPM. Maximum internal capacities assume factory replacement of standard hard disk drives with the largest supported IBM hard disk drives.
5. Announced as a Business Model in Europe.

Note: Availability of the Netfinity 4000R is limited to and supported in the following countries only at this time:- Austria, Luxembourg, Belgium, Netherlands, Denmark, Portugal, Spain, France, Sweden, Finland, Switzerland, Germany, Italy, UK, Ireland.

Netfinity 4000R Processor Upgrades

Part Number[1]	Pentium II with 512KB Cache	SMP Support
N/A	Netfinity 650 MHz/256 KB Upgrade with Pentium III Processor	51Y[2]

1. The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.
2. One additional processor can be installed, providing a maximum of two. all processors must be identical in type, speed and cache size.

Netfinity 4000R Memory Configurator

RDIMM Socket
RDIMM Socket
RDIMM Socket
RDIMM Socket

DIMM Description	Part Numbers
128MB 100MHz ECC SDRAM RDIMM	N/A[1]
256MB 100MHz ECC SDRAM RDIMM	N/A[1]
512MB 100MHz ECC SDRAM RDIMM	N/A[1]

1.The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.

Netfinity 4000R Internal Hard Disk Drive Configurator

Bays	Form Factor	Height	Front Access	Usage
1	5.25”	SL	yes	IDE CD-ROM
2[1]	3.5”	SL	no	HDD
3[1]	3.5”	SL	no	HDD

1. The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information

Part Numbers	Description	RPM	Height
N/A[1]	9.1GB 7200rpm SCSI HDD	7200	SL
N/A[1]	18.2GB 7200rpm SCSI HDD	7200	SL

1. A maximum of two SL HDDs may be installed. The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information

Internal SCSI Cabling

Netfinity 4000R models (except 865345Y, 46Y and 62Y) contain a single channel Wide Ultra SCSI adapter that has two 68-pin connectors to support SCSI device attachment. Up to two Wide Ultra SCSI HDDs can be supported internally. Models 865345Y, 46Y and 62Y contain a single ServeRAID-3L RAID adapter for internal use only. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.

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Netfinity 4000R I/O Options

Part Number	Description
Storage Controllers[2]	
N/A[1]	Netfinity ServeRAID-3L Ultra2 SCSI Adapter (i channel)
N/A[1]	PCI Fast/Wide Ultra SCSI Adapter (1 channel)
N/A[1]	Ultra SCSI Adapter (2 channel)
N/A[1]	Ultra2 SCSI Adapter (1 channel)
Networking[3]	
N/A[1]	Netfinity 10/100 Ethernet PCI Adapter 2
N/A[1]	Netfinity Gigabit Ethernet SX Adapter

1. The Netfinity 4000R does not support customer installation of adapters, HDDs, memory, processors, or any other devices that must be installed inside the server. Non-standard features must be installed at the factory. Contact your IBM Marketing Representative for more information.
2. Netfinity 4000R models 865345Y, 46Y and 62Y contain a single channel ServeRAID-3L adapter for internal use only. Other models contain a single channel Wide Ultra SCSI adapter with an internal 68-pin connector supporting up to two internal HDDs.
3. Netfinity 4000R contains two integrated 10/100 PCI Ethernet controllers.

Part Number	Description
	Power[1]
94G7448	Power Cable Type C12 (3.7m, 12 ft.)[2]
	Power Distribution Unit (PDU)
2PDUxxx	200-240V Power Distribution Unit[3]
	Uninterruptible Power Supply (UPS)
14RIxxx	APC Smart-UPS 1400RMiB[4]
30RIxxx	APC Smart-UPS 3000RMiB[5]
37L6862	APC Smart-UPS 5000RMiB[6]
	Monitors[7]
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black[8]
13AG1xx	T55A Flat Panel Color Monitor (15.0" Viewable Image Size), stealth black[9]
	Rack and NetBay[10]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack[11]
36L9703	Netfinity Rack Extension Kit
9306200	Netfinity NetBAY22[11]
36L9702	NetBAY22 Rack Extension Kit
	Keyboard and Mouse[12]
28L36xx[13]	Space Saver Keyboard[14, 17]
28L36xx[15]	Preferred Keyboard (stealth black)[16]
28L3675	Sleek 2-Button Stealth Black Mouse
	Console Options[7,19]
94G7445	Console Server Selector Switch (8-port)
28L0542	Netfinity Console Server Selector Switch (4-port)
94G7447	Console Cable Set - 12 ft. (3.66m)[18,19]

1. Netfinity 4000R includes a single 150W power supply and a single 2.8 m (9 ft.) power cord with an IEC 320-C14 connector on the outlet end for attachment to a high voltage UPS or PDU.
2. For attachment to a high voltage UPS or PDU or other IEC 320-C13 outlet.
3. Contains ten IEC 320-C13 outlets and three communication links, Supports up to 16 amps.
4. Height is 3U. See "Rack and NetBAY" for supported IBM racks. Contains six NEMA 5-15R outlets.
5. Height is 3U. See "Rack and NetBAY" for supported IBM racks. Contains eight NEMA 5-15R outlets.
6. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
7. An available port on a console switch is required for each Netfinity 4000R.
8. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
9. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit P/N 37L6857 and Netfinity Rack Keyboard Tray P/N 28L4707. A space saver keyboard may coexist within the same keyboard tray P/N 28L4707.
10. Netfinity 4000R is housed in a 19" rack mountable drawer and requires one of the racks listed here. See IBM Netfinity Rack cabinet and Options section for IBM rack supported devices. To provide adequate cooling, a blank filler panel should be placed on the front of any unused rack space. If non-IBM racks are to be used, assure that both front and rear doors offer approximately 60% open area uniformly distributed and in line with installed servers. A clearance of 51 to 64-mm (2 to 2-1/2 inches) must be maintained between the front door and the system unit's front bezel. The rear door must maintain the same or greater clearance. Clearance between the EIA mounting rails and rack side covers must be less than 13-mm (1/2-inch) to prevent air re-circulation from back to front. Non-rack installations are not supported.
11. Rack Extension kits 36L9703 and 36L9702 are recommended for 9306900 and 9306200 respectively, to provide sufficient room for cable management.
12. The Netfinity 4000R does not include a keyboard or mouse.
13. Where 'xx' represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
14. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
15. Where 'xx' represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch.
16. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
17. Advanced TrackPoint IV features are not available on IBM Netfinity sy.stems.
18. Required to connect server to console switch.
19. The Netfinity 4000R ships with a 4 foot console cable which should be sufficient for most customer's needs. One end of this cable plugs into the system unit, the other end has male connectors and plugs into the Console Switch, carrying the keyboard, mouse and video signals. In exceptional circumstances, should the longer 12 foot Console Cable P/N 94G7447 be required, a special adapter cable has to be ordered directly from the manufacturer. This adapter cable plugs into the system unit and has female connectors for keyboard, mouse and video on the outbound end, thus enabling it to be connected to the Console Cable P/N 94G7447. This adapter cable is known as the KVM cable, it has a vendor part number of 09N7179 and requests should be sent to Julie Laws at Airspeed LLC (julie.laws@airspeedllc.com) or telephone 00-1-919-644-1222.

IBM Netfinity 4500R Configurator

Part Number	Withdrawal Date: ddmmyy	Processor Speed (MHz)[2]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)[6]	Bays: (Total/Avail)	Slots: (T/A)
62RYMxx[1]	-	667	1/2	256	128MB(R)/ 4GB	Rack(3U)	1/2	P, H, F	O - Power[3] S- Fans	Y	10/100	D,U160	4/2[4]	0/218.4 GB[5]	24X-10X	8/6[5]	5/5
61RYMxx[1]	-	733	1/2	256	128MB(R)/ 4GB	Rack(3U)	1/2	P, H, F	O - Power[3] S - Fans	Y	10/100	D,U160	4/2[4]	0/218.4 GB[5]	24X-10X	8/6[5]	5/5
63RYTxx[1]	-	800	1/2	256	128MB(R)/ 4GB	Rack(3U)	1/2	P, H, F	O - Power[3] S - Fans	Y	10/100	D,U160	4/2[4]	0/218.4 GB[5]	24X-10X	8/6[5]	5/5
64RYTxx[1]	-	866	1/2	256	128MB(R)/ 4GB	Rack(3U)	1/2	P, H, F	O - Power[3] S - Fans	Y	10/100	D,U160	4/2[4]	0/218.4 GB[5]	24X-10X	8/6[5]	5/5

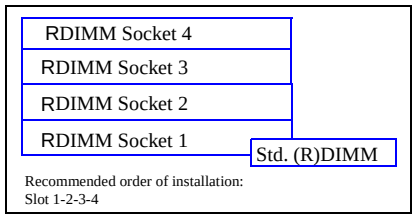
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 4500R Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III processor with 133 MHz front-side bus.
3. Power supply redundancy requires installation of optional Netfinity 270 W Hot-Swap Redundant Power Supply (P/N 37L6879).
4. Netfinity 4500R includes two available removable media bays that can be converted to three slim-line (SL) hot-swap bays with the addition of optional 3-Pack Hot-Swap DASD Upgrade (P/N 33L5050), thus doubling internal hard disk drive storage capacity.
5. Assumes installation of optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) which converts the two available removable media bays into three slim-line (SL) hot-swap bays.
6. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

Netfinity 4500R Processor Upgrades

Part Number	Processor Upgrades with 256 KB Cache (Full Speed)	SMP Support[1]	Processor Speed Upgrade[2]
00N7949	Netfinity 667 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	2RY	-
00N7943	Netfinity 733 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	1RY	2RY
10K2338	Netfinity 800 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	3RY	All 1...2RY
19K4630	Netfinity 866 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	4RY	All 1...3RY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 4500R Memory Configurator



Part Number	Memory Description[1]
33L3123	Netfinity 128 MB, 133 MHz SDRAM ECC RDIMM II
33L3125	Netfinity 256 MB, 133 MHz SDRAM ECC RDIMM II
33L3127	Netfinity 512 MB, 133 MHz SDRAM ECC RDIMM II
33L3129	Netfinity 1 GB, 133 MHz SDRAM ECC RDIMM II

1. The recommended order of installation is in sequence from Socket 1 to Socket 4. Memory size is not a factor.

Total Memory[1]	Quantity of RDIMMs Added			
128 MB (1 x 128) Models	128 MB (P/N 33L3123)	256 MB (P/N 33L3125)	512 MB (P/N 33L3127)	1 GB (P/N 33L3129)
256 MB	1	-	-	-
384 MB	2 or	1	-	-
512 MB	3	-	-	-
640 MB	-	2 or	1	-
896 MB	-	3	-	-
1024 MB	-	4[2]	-	-
1152 MB	-	-	2 or	1
1664 MB	-	-	3	-
2048 MB	-	-	4[2]	-
2176MB	-	-	-	2
3200 MB	-	-	-	3
4096 MB (max)	-	-	-	4[2]

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. Requires removal of standard memory.

Netfinity 4500R Internal Hard Disk Drive Configurator

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)	18.2 GB (P/N 36L9745 or P/N 37L7202)	36.4 GB (P/N 37L7203)	9.1 GB (P/N 36L9748 or P/N 37L7204)	18.2 GB (P/N 36L9749 or P/N 37L7205)	36.4 GB (P/N 37L7206)
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4[2]	2	1	4[2]	2	1
45.5 GB	5[2]	-	-	5[2]	-	-
54.6 GB	6[2]	3	-	6[2]	3	-
72.8 GB	-	4[2]	2	-	4[2]	2
91 GB	-	5[2]	-	-	5[2]	-
109.2 GB	-	6[2]	3	-	6[2]	3
145.6GB	-	-	4[2]	-	-	4[2]
182 GB	-	-	5[2]	-	-	5[2]
218.4 GB (max.)	-	-	6[2]	-	-	6[2]

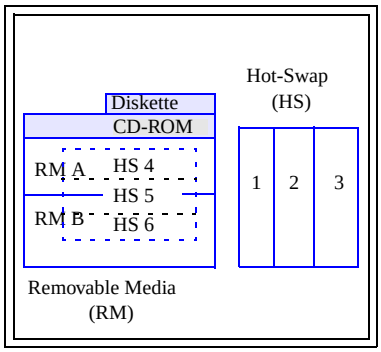
This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2. Requires Netfinity 3-Pack Ultra 160 Hot-Swap Expansion Kit (P/N 33L5050).

Bay	Form Factor	Height	Front Access	Usage
-	89 mm (3.5")	-	Yes	Diskette
-	133 mm (5.25")	-	Yes	IDE CD-ROM
1...3	HS	SL[1]	Yes	Open

Part Number	Description	RPM	Height	Bays Supported[2]	Max. Qty.
	Ultra2 Hard Disk Drives (HDD)				
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[1]
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[1]

A, B	133 mm (5.25")	HH[2]	Yes	Open
4...6[3]	HS	SL[1]	Yes	Open

1. Half-High devices are NOT supported.
2 Two half-high (HH) bays can be combined to support a single full-high (FH) device. By installing Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050), bays A and B are transformed into three SL hot-swap bays 4...6.
3. To enable bays 4...6, optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) is required.



36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...6	6[1]
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...6	6[1]
	Ultra160 Hard Disk Drives (HDD)				
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[1]
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[1]
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[12]	7200	SL	1...6	6[1]
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[13]	10,000	SL	1...6	6[1]
37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[13]	10,000	SL	1...6	6[1]
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD[13]	10,000	SL	1...6	6[1]
	Associated Options				
33L5050	Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit[2]	-	3 x SL	4...6	-

	External Storage Expansion Units[3]	**Form Factor**
00N6xxx[9]	Netfinity EXP200 Storage Expansion Unit[4]	Rack (3U)
37L0xxx[10]	Netfinity EXP200 350 W Redundant Power Supply	-
19K11xx[11]	Netfinity EXP300 Storage Expansion Unit[5, 7]	Rack (3U)
00N71xx[12]	Netfinity FAStT EXP500 Storage Expansion Unit[6]	Rack (3U)

1. Netfinity 4500R ships with Bays 1...3 enabled. To enable installation of greater than three HDDS requires Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050).
2. Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) includes a hot-swap backplane and associated components for two cabling options. The backplane may be cabled directly to the second integrated SCSI channel or be supported by the same SCSI channel as the standard backplane through the use of an included repeater card.
3. Select an optional SCSI controller and then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
4. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP200 350W Redundant Power Supply (P/N 37L0xxx[10]) includes an additional power cord.
5. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500W redundant power supplies, each with its own power cord.
6. Netfinity FAStT EXP500 Storage Expansion Unit (P/N 00N71xx[12]) includes dual hot-swap 350W power supplies, each with its own power cord.
7. Planned availability of June 30, 2000.
8. Planned availability of August 2000.
9. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
10. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
11.Where 'xx' represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.
12. Where 'xx' represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/ Language Line Cords/Publications are included as indicated.

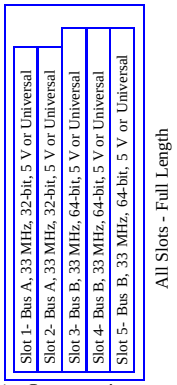
Netfinity 4500R Internal SCSI Cabling

Netfinity 4500R contains a DASD backplane supporting three hot-swap, SCA-2 compliant drive bays. The backplane is connected to one of the internal connectors of the integrated Ultra160 SCSI controller through a 16-bit LVD SCSI cable. A single-drop 16-bit SCSI cable is included with the server for attachment from the second internal Ultra160 connector to a removable media bay device. If an LVD attachment is required or more than one media bay device is required, a terminated two-drop 16-bit LVD SCSI cable available in the Netfinity Media Bay Conversion Kit (P/N 10K2340) must be ordered. No external SCSI port is included.

If optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) is installed in the removable media bays, four cabling options are possible. Included with this option is a 16-bit LVD SCSI cable, identical to the one used for attachment of the standard hot-swap backplane, which can be used to attach the optional 3-Pack Ultra160 Hot-Swap backplane directly to the second onboard SCSI connector or that of an optional RAID adapter. Alternatively, a repeater card and cable are included which may be used to link the standard hot-swap backplane and optional hot-swap backplane together while utilizing the standard SCSI cable for attachment of the repeater card to one of the onboard SCSI connectors or that of an optional RAID adapter.

Netfinity 4500R I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
19K0564	Netfinity ServeRAID-3L Ultra2 SCSI Adapter II[2]	Full	32-bit	1...5
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	1...5
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[4, 13]	Full	32/64-bit	1...5
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[5, 13]	Full	32/64-bit	1...5
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5
	Fibre Storage Controllers and Options[6]			
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...5
SFCU1xx[11]	Netfinity Fibre Channel RAID Controller Unit	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...5
00N69xx[12]	Netfinity FAStT500 RAID Controller	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-
	Networking[7]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...5
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...5
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5
	Communications[8]			
	Systems Management[9]			
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[10]	-	-	-



Exterior Connector Access

1. Netfinity 4500R includes a dual-port, dual-channel Ultra160 SCSI controller for internal use only. No standard external port is available. See “Internal SCSI Cabling” for cabling alternatives.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter II (P/N 19K0564) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal connector is not accessible due to a cabling interference. Includes 32 MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. Netfinity ServeRAID-4L Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides a single channel, 16 MB of ECC cache and either one internal or one external Ultra160 connection. External connector is 0.8-mm VHDCI.
5. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two external 0.8-mm VHDCI Ultra160 connectors. The internal connectors are not accessable due to cabling interference.
6. See Netfinity Fibre Array Solutions section for additional configuration information.
7. Netfinity 4500R includes a full-duplex, 10/100 Mbps Ethernet PCI controller.
8. Netfinity 4500R includes two USB ports, two serial and one parallel port.
9. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 4500R works with Netfinity Manager to provide significant system management function. When used with Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
10. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660- 1...4xU are not supported). Up to 12 processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
11. Where ’xx’ = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/English, EU=countries not covered previously.
12. Where ‘xx’ represents a country specific code as follows:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated
13. Planned availability of August 2000.

Netfinity 4500R Power, Monitors, Accessories

Part Number	Description
Power[1]	
37L6879	Netfinity 270 W Hot-Swap Redundant Power Supply
Uninterruptable Power Supply (UPS)[2]	
14RIxxx	APC Smart-UPS 1400RMiB[3]
30RIxxx	APC Smart-UPS 3000RMiB[3]
37L6862	APC Smart-UPS 5000RMiB[4]
Monitors[5]	
31H2Nxx	E54 Color Monitor 15” (350-mm, 13.8” Viewable Image Size), stealth black[6]
4841Nxx	G76 Color Monitor 17” (406-mm, 16” Viewable Image Size), stealth black[6]
494ANxx	G96 Color Monitor 19” (454-mm, 17.9” Viewable Image Size), stealth black[8]
13AG1xx	T55A Flat Panel Color Monitor (381-mm), stealth black[7]

1. Netfinity 4500R systems include a single 270 W, hot-swap power supply and a single 9 ft. 110 V power cord with an IEC 320-C13 connector on the system end and NEMA 5-15P on the other end. Power supply redundancy may be achieved with the addition of optional Netfinity 270 W Hot-Swap Redundant Supply (P/N 37L6879).
2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
3. Height is 3U. See “Rack and NetBAY” for supported IBM racks.
4. Height is 5U. See “Rack and NetBAY” for supported IBM racks.
5. Netfinity 4500R uses an SVGA controller (S3 Savage4 chipset) with 8 MB of video memory.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.

Part Number	Description
Rack and NetBAY[1]	
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
Keyboard and Mouse[2]	
28L36xx[6]	Space Saver II Keyboard[3, 5]
28L36xx[7]	Preferred Keyboard (stealth black)[4]
28L3675	Sleek 2-Button Stealth Black Mouse

1. Netfinity 4500R is housed in a 19” rack mountable drawer and requires one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices.
2. Netfinity 4500R ships without a keyboard or mouse.
3. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in “ready-to-use” position).
4. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
5. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
6. Where ‘xx’ represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
7. Where ‘xx’ represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch, 37=US.

Netfinity 4500R Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	A, B[1]	16 Ultra2 LVD	89 mm (3.5”) HH or 133 mm (5.25”) HH	Y[2]	N	-
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A, B[1]	16	133 mm (5.25”) HH	N[3]	N	-
01K1320	20/40 GB DLT Internal SCSI Tape Drive	A/B	8	133 mm (5.25”) FH	Y[2]	Y	-
00N7990	40/80 GB DLT Internal SCSI Tape Drive	A/B	16 Ultra2 LVD	133 mm (5.25”) FH	N[3]	N	-
Associated Options							
10K2340	Netfinity Media Bay Conversion Kit[4]						

1. Netfinity 4500R includes a single drop, 16-bit, non-terminated SCSI cable for attachment of a device in Bay A or B to the second integrated Ultra160 SCSI channel or supported adapter. The 16-bit LVD, two-drop, terminated SCSI cable included with optional Netfinity Media Bay Conversion Kit (P/N 10K2340) is required for any of the following configurations.
• Two removable media devices are to be installed.
• Support for Ultra2 or Ultra160 mode is desired. (Dependent on device support)
• Support for devices which do not include termination.
2. Tape drive is capable of self termination.
3. Installation in system unit’s removable media bays requires the terminated, two-drop, 16-bit, LVD SCSI cable included with optional Netfinity Media Bay Conversion Kit (P/N 10K2340).
4. Contains a terminated, two-drop, 16-bit, LVD SCSI cable for attachment from an onboard SCSI controller or supported adapter to devices installed in the removable media bays. Netfinity 4500R does not require installation of the remaining contents of this option.

Note: SCSI support for tape drives is provided by system unit onboard (standard) controller or PCI Fast Wide Ultra SCSI Adapter (P/N 02K3454).

Netfinity 4500R Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Description	Quantity
63RYTxx	Netfinity 4500R Pentium III 800 MHz/256 KB L2, 128 MB(R) ECC, OPEN, 24X, PCI (Rack 3U)	1
33L3123	Netfinity 128 MB SDRAM ECC RDIMM II[1]	1
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD[2]	3
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
10K2340	Netfinity Media Bay Conversion Kit	1
31H2Nxx	E54 Color Monitor 15” (350-mm, 13.8” Viewable Image Size), stealth black	1
14RIxxx	APC Smart-UPS 1400RMiB	1
Industry Standard 19” Rack, EIA-310D, min. depth of 28” (711 mm)		
9306200	Netfinity NetBAY22	1
28L36xx	Space Saver II Keyboard	1
94G6670	Blank Filler Kit	2

1. For a total of 256 MB of system memory.
2. For a total of 27.3 GB of RAID protected hot-swap, hot-spare internal storage.

An internet server is a server that handles all requests from the Internet (intranet or extranet). Usually this type of server has the same characteristics as a file server. The main difference is that an internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind the IBM Netfinity 4500R was selected to provide an affordable price point for the growing internet server market, 256 MB of system memory (expandable to 4 GB), and availability features such as RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.

The network configuration depends on the method that will be used to connect the server to the internet. Usually fast Ethernet routers are used, but if other methods are used, you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

Application Server

Part Number	Description	Quantity
64RYTxx	Netfinity 4500R Pentium III 866 MHz/256 KB L2, 128 MB ECC, OPEN, 24X, PCI/ISA (Rack 3U)	1
19K4630	Netfinity 866 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	1
33L3125	Netfinity 256 MB 133 MHz SDRAM ECC RDIMM II	1
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	3
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
10K2340	Netfinity Media Bay Conversion Kit	1
31H2Nxx	E54 Color Monitor 15” (350-mm, 13.8” Viewable Image Size), stealth black	1
37L6879	Netfinity 270 W Hot-Swap Redundant Power Supply	1
14RIxxx	APC Smart-UPS 1400RMiB	1
Industry Standard 19” Rack, EIA-310D, min. depth of 28” (711 mm)		
9306200	Netfinity NetBAY22	1
28L36xx	Space Saver II Keyboard	1
94G6670	Blank Filler Kit	2

1. For a total of 384 MB of system memory.
2. For a total of 54.6 GB of usable RAID 5 storage.

An application server is designed to handle a high workload while providing application serving requirements for users. With this in mind, the IBM Netfinity 4500R was selected to provide an affordable price point for an application server, with two-way Pentium III processing, 384 MB of system memory (expandable to 4 GB), and availability features such as battery-backed cache, RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.

IBM Netfinity 5000 Configurator

Part Number*	Withdrawal Date: ddmmyy[6]	Processor Speed (MHz)	Number of Processors (Std/Max)	L2 ECC Cache (KB)	Memory(Std/Max)(R=RDIMM)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID, LVD)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std/	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (T/A)
951YExx	30/05/00	550[4]	1/2	512	128 MB[R]/2 GB	Tower	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X-14X[3]	8/6	5/5
95RYExx[1]	30/05/00	550[4]	1/2	512	128 MB[R]/2 GB	Rack(5U)	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X-14X[3]	8/6	5/5
961YExx	27/06/00	600[4]	1/2	512	128 MB[R]/2 GB	Tower	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X-14X[3]	8/6	5/5
96RYExx[1]	27/06/00	600[4]	1/2	512	128 MB[R]/2 GB	Rack(5U)	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X-14X[3]	8/6	5/5
971YExx	-	650[5]	1/2	256	128MB[R]/2GB	Tower	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91 GB	32X-14X[3]	8/6	5/5
97RYExx	-	650[5]	1/2	256	128MB[R]/2GB	Rack(5U)	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91GB	32X-14X[3]	8/6	5/5
981YExx	-	700[5]	1/2	256	128MB[R]/2GB	Tower	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91GB	32X-14X[3]	8/6	5/5
98RYExx	-	700[5]	1/2	256	128MB[R]/2GB	Rack(5U)	1/2	H	S-Power[2]	Y	10/100	D,U	3/1	0/91GB	32X-14X[3]	8/6	5/5

* For IBM ServicePacs see Appendix G: IBM ServicePacs for Hardware Maintenance
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 5000 Power, Monitor & Accessories" for supported IBM racks.
2. Robust configurations may require optional Netfinity 175W Redundant Power Supply (P/N SPSR3xx) for redundancy. See the Power Section under "Netfinity 5000 Power, Monitors & Accessories" for additional information.
3. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
4. Intel Pentium III processor.
5. Intel Pentium III processor with advanced transfer (full speed) L2 cache.
6. Not available from IBM after this date. Business Partner inventory may be available.

Netfinity 5000 Processor Upgrades

Part Number	Processor Upgrades with 512 KB Cache	SMP Support[1]	Processor Speed Upgrade[2]
33L5112	Netfinity 550 MHz/512 KB Upgrade with Pentium III Processor	All 5xY	All 1...4xY
33L5106	Netfinity 600 MHz/512 KB Upgrade with Pentium III Processor	All 6xY	-
10K2164	Netfinity 650MHz/256KB Upgrade with Pentium III Processor	All 7xY	-
10K2165	Netfinity 700MHz/256KB Upgrade with Pentium III Processor	All 8xY	All 7xY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access URL http://www.pc.ibm.com/europe/netfinity.html, then select SUPPORT. Choose a machine-type model, then select Downloadable files and choose the category labeled "BIOS".

Netfinity 5000 Memory Configurator

RDIMM Socket - J15 Standard RDIMM
RDIMM Socket - J16
RDIMM Socket - J17
RDIMM Socket - J22

RDIMM Description	Part Numbers
Netfinity 64MB SDRAM ECC RDIMM	01K7241
Netfinity 128MB SDRAM ECC RDIMM	01K7262
Netfinity 256MB SDRAM ECC RDIMM	01K8043
Netfinity 512MB SDRAM ECC RDIMM	01K7263

Total Memory	Part Number(s) Required Models 1... 3xY	Part Number(s) Required Model 4...8xY
64MB	Std. on all models	-
128MB	1 x 01K7241	Std. on all models
192MB	1 x 01K7262	1 x 01K7241
256MB	1 x 01K7262, 1 x 01K7241	1 x 01K7262
320MB	1 x 01K8043	1 x 01K7262, 1 x 01K7241
384MB	1 x 01K8043, 1 x 01K7241	1 x 01K8043
512MB	1 x 01K8043, 1 x 01K7262, 1 x 01K7241	1 x 01K8043, 1 x 01K7262
576MB	1 x 01K7263	-
640MB	1 x 01K7263, 1 x 01K7241	1 x 01K7263
1088MB	2 x 01K7263	-
1152MB	2 x 01K7263, 1 x 01K7241	2 x 01K7263
1600MB	3 x 01K7263	-
1664MB	-	3 x 01K7263
2048MB(max)	4 x 01K7263[1]	4 x 01K7263[1]

This table does not represent all possible memory configurations.
1. Replace standard RDIMM.

Netfinity 5000 Internal Hard Disk Drive Configurator

Total Internal Disk Storage[1]	Part Number(s) Required (7200RPM)			Part Number(s) Required (10,000RPM)		
	9.1GB	18.2GB	36.4GB	9.1GB	18.2GB	36.4GB
0GB	Standard on Base Models			Standard on Base Models		
9.1GB	1 x 01K8053	-	-	1 x 36L9806	-	-
18.2GB	2 x 01K8053 or	1 x 02K0440	-	2 x36L9806 or	1 x36L9807	-
27.2GB	3 x 01K8053	-	-	3 x 36L9806	-	-
36.4GB	4 x 01K8053 or	2 x 02K0440 or	1 x 02K0441	4 x36L9806 or	2 x 36L9807 or	1 x 36L9808
45.5GB	5 x 01K8053	-	-	5 x 36L9806	-	-
54.6GB	-	3 x 02K0440	-	-	3 x 36L9807	-
72.8GB	-	4 x 02K0440 or	2 x 02K0441	-	4 x 36L9807 or	2 x 36L9808
91GB (max)	-	5 x 02K0440	-	-	5 x 36L9807	

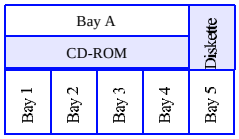
This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
A	5.25”	HH[1]	Yes	Open[2]
B	5.25”	HH[1]	Yes	IDE CD-ROM
C	3.5”	SL	Yes	Diskette
1...5	HS[1]	SL[3]	Yes	Open

1. Definitions: Half High (HH), Slim-Line (SL), Hot-Swap (HS)
2. Removable Media (RM) devices only.
3. Two slim-line (SL) can be combined to support a single half-high device.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Internal Hard Disk Drives (HDD)					
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	1...5	5
02K0440	Netfinity 18.2 GB Wide Ultra SCSI Hot-Swap SL HDD	7200	SL	1...5	5
02K0441	Netfinity 36.4 GB Wide Ultra SCSI Hot-Swap HDD	7200	HH[1]	1/2, 2/3, 3/4, 4/5	2
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...5	5
36L9807	Netfinity 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...5	5
36L9808	Netfinity 36.4 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	HH[1]	1/2, 2/3, 3/4, 4/5	2

External Storage Expansion Units[2]		Form Factor
00N6xxx[7]	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	Tower
37L0xxx[8]	Netfinity EXP200 350 W Redundant Power Supply	
19K11xx[9]	Netfinity EXP300 Storage Expansion Unit[4, 6]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[6]	-
00N71xx[10]	Netfinity FAStT EXP500 Storage Expansion Unit[5]	Rack (3U)



1. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0xxx) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
4. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
5. Netfinity FAStT EXP500 Storage Expansion Unit includes dual hot-swap 350 W power supplies, each with its own power cord.
6. Planned availability of June 30, 2000.
7. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English - Line Cords/ Publication Country Kits are included throughout.
8. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
9.Where 'xx' represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.
10. Where 'xx' represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/Language Line Cords/ Publications are included as indicated.

Internal SCSI Cabling

Netfinity 5000 systems contain a backplane supporting five hot-swap drive bays. The backplane has an integrated SCSI terminator and is connected to one of the two integrated dual-channel SCSI controller connectors by a two drop 16-bit SCSI cable. The second drop is available for supporting an internal removable media device. In the event the standard two-drop cable is attached to a RAID controller and a dedicated removable media attachment to the onboard controller is requrired, an optional terminated 16-bit cable is available (Netfinity Two-Drop Internal SCSI Cable P/N 36L9636). The second SCSI channel is available for external device attachment through a rear panel 68-pin high density connector.

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[2]	Full	32-bit	1...5
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	2...5[4]
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5
09L2123	Advanced SerialRAID/X Adapter[5, 6]	Full	32-bit	1...5[6]
	Fibre Storage Controllers and Options[7]			
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	2...5[4]
SFCU1xx[17]	Netfinity Fibre Channel RAID Controller Unit	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	2...5[4]
00N69xx[18]	Netfinity FAStT500 RAID Controller	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-
	Networking[8]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1....5
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...5
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1...5
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	2...5[4]
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5
	Communications			
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[9]	Half	32-bit	1...5[9]
	Systems Management[10]			
36L96xx[19]	Netfinity Advanced System Management PCI Adapter[11, 12]	Full	32-bit	1...5[12]
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[13]	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[14]	-	-	-
	Host Attach			
10L7368	Netfinity ESCON Adapter[15, 16]	Full	32-bit	1...5[16]

Slot 5- PCI, 32-bit, Full Length
Slot 4- PCI, 32-bit, Full Length
Slot 3- PCI, 32-bit, Full Length
Slot 2- PCI/ISA, Full Length
Slot 1- PCI/ISA, Full Length

1. Netfinity 5000 has two integrated Wide Ultra SCSI channels. One is internal and the other is external with a 68-pin High Density connector.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8 mm VHDCI) LVDS SCSI channel.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8mm VHDCI) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. 64-bit adapters will not fit in slot 1.
5. Requires system BIOS level of 7.0 or higher which can be found on BIOS Flash Update Diskette version 1.04 or higher. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" then "BIOS".
6. A maximum quantity of four is supported.
7. See Netfinity Fibre Channel Solutions section for additional configuration information.
8. Netfinity 5000 has an integrated 10/100 PCI Ethernet Controller.
9. See Appendix F for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.
10. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 5000 works with Netfinity Manager to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 36L96xx) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
11. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
12. A maximum quantity of one is supported.
13. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 1...4xX are not supported). Optional Netfinity Advanced System Management PCI Adapter (P/N 36L96xx) includes the contents of this option. Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 300 feet (91.4 meters). A customer-supplied Ethernet cable is required for each interconnection.
14. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter (P/N 36L96xx), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together.
15. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
16. A maximum of two 10L7568 adapters (installed in non-adjacent slots) are supported in a single Netfinity server.
17. Where 'xx' = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland-English, EU=countries not covered previously.
18. Where 'xx' represents a country specific code as follows:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated
19. Where 'xx' represents a country specific code: 57=Denmark, 58=South Africa/India, 59=UK, 60=Switzerland, 61=Italy, 62=Israel, 01K7310=Europe, 01K7209=US/Saudi Arabia.

Netfinity 5000 Power, Monitors, Accessories

Part Number	Description
	Power[1]
SPSR3xx[8]	Netfinity 175 W Redundant Power Supply
	Uninterruptable Power Supply (UPS)[2]
SUP102Y	APC Smart-UPS 1000
SUP142Y	APC Smart-UPS 1400
14RIxxx	APC Smart-UPS 1400 RMiB[3]
30RIxxx	APC Smart-UPS 3000 RMiB [3]
37L6862	APC Smart-UPS 5000 RMiB[7]
	Monitors
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black[4]
4841Nxx	G76 Color Monitor 17" (15.9" Viewable Image Size), stealth black[4]
494ANxx	G96 Color Monitor 19" (17.9" Viewable Image Size), stealth black[5]
13AG1xx	T55A Flat Panel Color Monitor (15.0" Viewable Image Size), stealth black[6]

1. Netfinity 5000 includes redundant 175W power supplies within a single 350W unit. This 350W unit is sufficient to operate fully configured systems, however optional Netfinity 175W Redundant Power Supply (P/N SPSR3xx) is required to preserve N+1 redundancy if any of the following are exceeded:
   - 512MB of memory
   - Three hard disk drives and/or tape drives
   - Two PCI or ISA adapters

Netfinity 175W Redundant Power Supply (P/N SPSR3xx) includes a power cord which requires an additional power source. An independent power source such as a 2nd UPS or 2nd circuit is not required.
2. For runtimes and UPS attributes, see Appendix C: UPS Runtime Estimates.
3. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
4. Installation within a rack requires optional Monitor Compartment (P/N 94G7444.
5. Not supported for installation in a 19" rack.
6. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
7. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
8. Where 'xx' = country codes as follows:- UK=United Kingdom, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland, EU=countries not covered previously.

Part Number	Description
	Conversion Kits
10L6972	Netfinity 5000 Rack-to-Tower Conversion Kit
10L7006	Netfinity 5000 Tower-to-Rack Conversion Kit
	Rack and NetBAY[1]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
	Keyboard and Mouse[2]
28L36xx[3]	Space Saver Keyboard[4, 6]
28L36xx[5]	Preferred Keyboard (stealth black)[7,]
28L3675	Sleek 2-Button Stealth Black Mouse

1. Netfinity 5000 rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices.
2. Tower models include both a mouse and keyboard. Rack models include neither.
3. Where 'xx' represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
4. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
5. Where 'xx' represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch, 37=US.
6. Advanced TrackPoint IV features are not available on IBM Netfinity systems
7. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.

Netfinity 5000 Tape Options

Part Number	Description	Bays Supported	Interface	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures[1]
01K1282	12/24GB DDS/3 4mm Internal Tape Drive	A	8	3.5” HH or 5.25” HH	Y[2]	Y	10L7440
01K1319	10/20GB NS Internal SCSI Tape Drive	A	8	3.5” SL or 5.25” HH	Y[2]	Y	10L7440, 03K8756
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	A	16 Ultra-2 LVD	3.5” HH or 5.25” HH	Y[2]	N	10L7440, 03K8756
01K1325	20/40GB 8mm SCSI Tape Drive	A	16	5.25” HH	N[3]	N	10L7440[4], 03K8756
01K1320	20/40GB DLT SCSI Tape Drive	N/A[10]	8	5.25” FH	Y[14]	Y	03K8705, 03K8756
00N7990	40/80 GB DLT Internal SCSI Tape Drive	N/A[10]	16 Ultra2 LVD	5.25” FH	N	N	03K8705[4], 03K8756
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	10L7440 03K8705
36L9636	Netfinity Two-Drop Internal SCSI Cable[5]	-	16	Internal	Y	N	-
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[6]	-	8/16	Desktop	N	N	-
03K8756	IBM NetMEDIA Storage Expansion Unit EL[7]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[8]	-	16	-	N	N	03K8756
03K8705	IBM DLT External SCSI Enclosure[9]	-	16	Desktop	N	N	-
	External Tape Libraries[11]						
00N79xx[12]	DLT Tape Autoloader	-	LVD	Desktop	Y	-	-
00N79xx[13]	DLT Tape Library	-	LVD	Desktop or Rack	Y	-	-

1. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables - Storage Units - Controllers.
2. Tape drive is capable of self termination.
3. Termination is provided by the system unit’s standard SCSI cabling.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636) is a wide two-drop terminated cable and is required for attachment of internal tape drives to the onboard SCSI controller of a Netfinity 5000 when the hot-swap backplane is attached to a RAID controller.
6. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918)
7. Provides a black 3U, 19” rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25” bays. External connector is 0.8mm VHDCI.
8. Installs in 03K8756. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 03K8756 is powered off.
9. Provides a black desktop DLT tape enclosure. External connector is 68-pin high density. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
10. The Netfinity 5000 does not support full-high (FH) devcies internally. See External Tape Enclosures column.
11. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes
12. Where ‘xx’ represents a country specific power cord code: 70=UK, 71=Swiss, 72=Italy, 73=Israel, 33L4981=EU1, 33L4982=Denmark, 33L4983=South Africa/India.
13. Where ‘xx’ represents a country specific power cord code: *Tower versions* - 74=EU1, 75=Denmark, 76=India/South Africa, 77=UK, 78=Swiss, 79=Italy, 80=Israel: *Rack versions* - 81=EU1, 82=Denmark, 83=India/South Africa, 84=UK, 85=Swiss, 86=Italy, 87=Israel.
14. A 16-bit terminator is included for attachment to an internal cable.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. When standard cabling is connected to a RAID controller, tape drives must utilize terminated Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636), and attach to the onboard or other supported controller. Additional tape attributes can be found in Appendix A: Tape Drive Attributes

Netfinity 5000 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Description	Quantity
971YExx	IBM Netfinity 5000 Pentium III 650/256KB L2, 128MB(R) ECC,/Open Bay)	1
01K7241	Netfinity 64MB SDRAM ECC RDIMM[1]	1
01K7364	IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter	1
01K8053	9.1GB Wide Ultra SCSI SCA-2 SL Hard Disk Drive[2]	4
01K1325	IBM 20/40 GB 8mm Internal SCSI Tape Drive	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1
SUP102Y	APC Smart-UPS 1000	1
SPSR3xx	Netfinity 175 W Redundant Power Supply	1

1. For a total of 192MB of system memory.
2. For a total of 36.4 GB of RAID protected Hot-Swap internal storage.

An internet server handles all requests from the internet (intranet or extranet). Usually, this type of server has the same characteristics as a file server. The main difference is that an internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). The internet server usually communicates with just one client, the Internet Service Provider (ISP), instead of many clients like a file server.

With this in mind the IBM Netfinity 5000 was selected to provide an affordable price point for the growing internet server market with two way Pentium II processing, 192MB of system memory (expandable to 2GB), and availability features such as RAID protected internal hot-swap storage and APC Smart-UPS power protection.
Network configuration depends on the method that will be used to connect the server to the internet. Usually fast Ethernet routers are used, but if other methods are utilised, you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Part Number	Description	Quantity
961YExx	IBM Netfinity 5000 Pentium III 600/512KB L2, 128MB(R) ECC, Open Bay)	1
01K7241	Netfinity 64MB SDRAM ECC RDIMM[1]	1
01K7364	IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter	1
01K8053	9.1GB Wide Ultra SCSI SCA-2 SL Hard Disk Drive[2]	5
01K1325	IBM 20/40GB 8mm Internal SCSI Tape Drive	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1
SUP102Y	APC Smart-UPS 1000	1

1. For a total of 192MB of system memory.
2. For a total of 44.5GB of RAID protected Hot-Swap internal storage.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 100 users in a normal workgroup computing environment, but doesn’t require the high-end performance and fault tolerance properties of larger servers.
The sample configuration above consists of an IBM Netfinity 5000 with 192MB of memory and 44.5GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional external storage expansion still available. Demanding network traffic is effectively handled by the standard 100 Mbps Ethernet connection.
This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected during power surges and outages.

Rack Mounted Application Server

Part Number	Description	Quantity
98RYExx	IBM Netfinity 5000 Pentium III 700MHz/256KB L2, 128MB(R) ECC, Open Bay/Rack	1
01K8043	IBM 256 MB SDRAM ECC RDIMM[1]	1
10K2165	Netfinity 700 MHz/256 KB Upgrade with Pentium III Processor	1
37L6086	IBM Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1
36L9806	IBM Netfinity 9.1GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD[2]	5
01K1325	IBM 20/40GB 8 mm Internal SCSI Tape Drive	1
36L9636	Netfinity Two-Drop Internal SCSI Cable	1
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1
14RIxxx	APC Smart-UPS 1400RMiB	1
SPSR3xx	Netfinity 175 W Redundant Power Supply	1
	Industry Standard 19” Rack, EIA-310D, Min. depth of 28” (711 mm)	
9306200	IBM Netfinity NetBAY22	1
28L36xx[3]	Space Saver Keyboard	1
94G6670	Blank Filler Kit	2

1. For a total of 384MB of system memory.
2. For a total of 36.4GB useable RAID 5 storage (45.5GB total disk).
3. Where ‘xx’ represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.

An application server differs from a File and Print server in that it has a higher work load, in providing application serving requirements for users. With this in mind the IBM Netfinity 5000 was selected to provide an affordable price point for an application server, with two way Pentium III processing, 384MB of system memory (expandable to 2GB), and availability features such as battery- backed cache RAID protected internal Hot-Swap storage and power protection with an APC Smart-UPS.

IBM Netfinity 5100 Configurator

Part Number	Withdrawal Date: ddmmyy	Processor Speed (MHz)[5]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)[2]	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)[3]	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)[4]	Bays: (Total/Avail)	Slots: (T/A)
811YExx	-	667	1/2	256	128MB (R)/4GB	Tower	1/3	O - Power S - HDD	O-Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X-17X	10/8	5/5
81RYExx[1]	-	667	1/2	256	128MB (R)/4GB	Rack (5U)	1/3	O - Power S - HDD	O-Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X-17X	10/8	5/5
821YExx	-	733	1/2	256	128MB (R)/4GB	Tower	1/3	O - Power S - HDD	O-Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X-17X	10/8	5/5
82RYExx[1]	-	733	1/2	256	128MB (R)/4GB	Rack(5U)	1/3	O - Power S - HDD	O-Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X-17X	10/8	5/5
831YExx	-	800	1/2	256	128MB (R)/4GB	Tower	1/3	O - Power S - HDD	O-Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X-17X	10/8	5/5
83RYExx[1]	-	800	1/2	256	128MB (R)/4GB	Rack(5U)	1/3	O - Power S - HDD	O-Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X-17X	10/8	5/5
841YExx	-	866	1/2	256	128MB (R)/4GB	Tower	1/3	O - Power S - HDD	O-Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X-17X	10/8	5/5
84RYExx[1]	-	866	1/2	256	128MB (R)/4GB	Rack(5U)	1/3	O - Power S - HDD	O-Power	Y	10/100	D,U160	4/2	0/218.4 GB	40X-17X	10/8	5/5

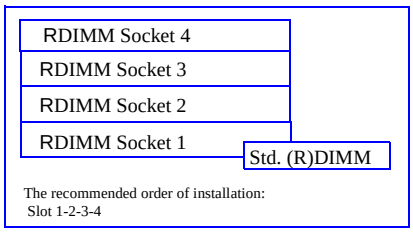
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 5100 Power, Monitor & Accessories" for supported IBM racks.
2. High-speed, 133 MHz SDRAM.
3. Up to two additional Netfinity 250 W Hot-Swap Redundant Power Supplies P/N 33L37xx and a single Netfinity Hot-Swap Power Supply Expansion Kit P/N 37L6881 are required for power supply redundancy. See Netfinity 5100 Power, Monitor & Accessories for additional information.
4. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
5. Intel Pentium III processor with advanced transfer (full-speed) L2 cache.

Netfinity 5100 Processor Upgrades

Part Number	Processor Upgrades with 256 KB Cache (Full Speed)	SMP Support[1]	Processor Speed Upgrade[2]
00N7949	Netfinity 667 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	1xY	-
00N7943	Netfinity 733 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	2xY	1xY
10K2338	Netfinity 800 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	3xY	All 1...2xY
19K4630	Netfinity 866 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	4xY	All 1...3xY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 5100 Memory Configurator



Part Number	Memory Description[1]
33L3123	Netfinity 128 MB, 133 MHz SDRAM ECC RDIMM II
33L3125	Netfinity 256 MB, 133 MHz SDRAM ECC RDIMM II
33L3127	Netfinity 512 MB, 133 MHz SDRAM ECC RDIMM II
33L3129	Netfinity 1 GB, 133 MHz SDRAM ECC RDIMM II

1. The recommended order of installation is in sequence from Socket 1 to Socket 4. Memory size is not a factor.

Total Memory[1]	Quantity of RDIMMs Added			
128 MB (1 x 128) Models	128 MB (P/N 33L3123)	256 MB (P/N 33L3125)	512 MB (P/N 33L3127)	1 GB (P/N 33L3129)
256 MB	1	-	-	-
384 MB	2 or	1	-	-
512 MB	3	-	-	-
640 MB	-	2 or	1	-
896 MB	-	3	-	-
1024 MB	-	4[2]	-	-
1152 MB	-	-	2 or	1
1664 MB	-	-	3	-
2048 MB	-	-	4[2]	-
2176MB	-	-	-	2
3200 MB	-	-	-	3
4096 MB (max)	-	-	-	4[2]

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. Requires removal of standard memory.

Netfinity 5100 Internal Hard Disk Drive Configurator

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)	18.2 GB (P/N 36L9745 or P/N 37L7202)	36.4 GB (P/N 37L7203)	9.1 GB (P/N 36L9748 or P/N 37L7204)	18.2 GB (P/N 36L9749 or P/N 37L7205)	36.4 GB (P/N 37L7206)
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	5	-	-	5	-	-
54.6 GB	6	3	-	6	3	-
72.8 GB	-	4	2	-	4	2
91 GB	-	5	-	-	5	-
109.2 GB	-	6	3	-	6	3
145.6 GB	-	-	4	-	-	4
182 GB	-	-	5	-	-	5
218.4 GB (max.)	-	-	6	-	-	6

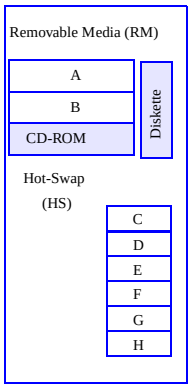
This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
A	133 mm (5.25")	HH[1]	Yes	Open
B	133 mm (5.25")	HH[1]	Yes	Open
-	133 mm (5.25")	SL	Yes	IDE CD-ROM
-	89 mm (3.5")	SL	Yes	Diskette
C...H	HS	SL[2]	Yes	Open

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
	Ultra2 Hard Disk Drives (HDD)				
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6

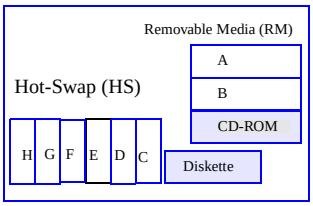
1. Two half-high (HH) bays can be combined to support a single full-high (FH) device. Installation of devices in Bays A or B requires Netfinity Hot-Swap Power Supply Expansion Kit P/N 37L6881 and at least one Netfinity 250 W Hot-Swap Redundant Power Supply P/N 33L37xx. Installation of HDDs in Bays A and B also requires Netfinity Media Bay Conversion Kit P/N 10K2340.
2. Two slim-line (SL) bays (C/D, E/F, G/H) can be combined to support a single half-high (HH) device.

Tower Model View



For clarity purposes, bay labels in these diagrams are for reference by the accompanying tables and are not the actual labels. Refer to the documentation shipped with the system for further details on actual labels.

Rack Model View



Ultra160 Hard Disk Drives (HDD)					
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[8]	7200	SL	C...H	6
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6
37L7205	Netfinity 18.2 GB 10K-4 Ultra160	10,000	SL	C...H	6
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6
Non-Hot-Swap Internal Hard Disk Drives (HDDs)					
20L0553	9.1 GB Wide Ultra2 SCSI HDD[1]	7200	SL	A, B[1]	1
20L0554	18.2 GB Wide Ultra2 SCSI HDD[1]	7200	SL	A, B[1]	2
Associated Options					
10K2340	Netfinity Media Bay Conversion Kit[1]	-	-	A/B	1
33L37xx[9]	Netfinity 250 W Hot-Swap Redundant Power Supply	-	-	-	-
37L6881[14]	Netfinity Hot-Swap Power Supply Expansion Kit	-	-	-	-

External Storage Expansion Units[3]		Form Factor
00N6xxx[10]	Netfinity EXP200 Storage Expansion Unit[4]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	-
37L0xxx[11]	Netfinity EXP200 350 W Redundant Power Supply	-
19K11xx[12]	Netfinity EXP300 Storage Expansion Unit[5, 7]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[7]	-
00N71xx[13]	Netfinity FAStT EXP500 Storage Expansion Unit[6]	Rack (3U)

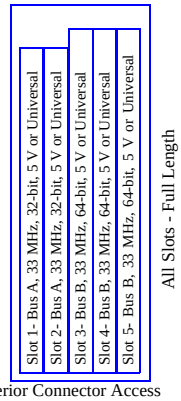
1. Requires Netfinity Media Bay Conversion Kit (P/N 10K2340), Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) and Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L37xx[9]).
2. Netfinity Media Bay Conversion Kit (P/N 10K2340) converts two half-high 5.25" removable media bay into two non-hot-swap HDD bays. Requires installation of both Netfinity Hot-Swap Power Supply Expansion Kit (P/N 37L6881) and at least one Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L37xx[9]).
3. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
4. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP200 350W Redundant Power Supply (P/N 37L0xxx[11]) includes an additional power cord.
5. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500W redundant power supplies, each with its own power cord.
6. Netfinity FAStT EXP500 Storage Expansion Unit includes dual hot-swap 350W power supplies, each with its own power cord.
7. Planned availability of June 30, 2000.
8. Planned availability of August 2000.
9. Where 'xx' refers to a country specific code: 60=Saudi Arabia, 61=Europe, 62=Denmark, 63=Israel, 64=Italy, 65=South Africa, 66=Switzerland, 67=United Kingdom&Arabia.
10. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
11. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
12.Where 'xx' represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.
13. Where 'xx' represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/ Language Line Cords/Publications are included as indicated.
14. Netfinity Hot-Swap Power Supply Expansion Kit (37L6881) contains a hot-swap power backplane that supports installation for up to three hot-swap power supplies. This option is designed to handle the following requirements: Robust configurations where power requirements exceed that of the single 250 W power supply: When an internal tape drive is added to the media bays: High-availablity applications where redundancy and hot-swap capability are needed.

Netfinity 5100 Internal SCSI Cabling

The Netfinity 5100 contains a DASD backplane supporting six hot-swap, SCA-2 compliant drive bays. The backplane is connected to channel A of the integrated dual-channel, Ultra160 SCSI controller connector through a 16-bit LVD SCSI cable. If internal RAID support is required, this cable can be used to connect to a supported RAID adapter rather than the integrated SCSI controller. No external SCSI port is included. A two-drop, 16-bit LVD SCSI cable with integrated terminator is also included with the Netfinity Hot-Swap Power Supply Expansion Kit P/N 37L6881.This cable is included in the expansion kit because installation of SCSI devices in bays A and B requires additional power. The two-drop cable supports up to two internal devices in these bays. This cable can be attached to channel B of the integrated dual-channel Ultra160 SCSI controller or to a supported SCSI adapter.

Netfinity 5100 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported
	Storage Controllers[1]			
19K0564	Netfinity ServeRAID-3L Ultra2 SCSI Adapter II[2]	Full	32-bit	1...5
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[3]	Full	32/64-bit	1...5
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[4, 17]	Full	32/64-bit	1...5
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[5, 17]	Full	32/64-bit	1...5
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[6]	Full	32/64-bit	1...5
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5
	Fibre Storage Conrollers and Options[7]			
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...5
SFCU1xx[14]	Netfinity Fibre Channel RAID Controller Unit	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...5
00N69xx[15]	Netfinity FAStT500 RAID Controller	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-
	Networking[8]			
	Ethernet			
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...5
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...5
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5
	Communications[9]			
	Systems Management[10]			
36L96xx[16]	Netfinity Advanced System Management PCI Adapter[11,12]	Full	32-bit	1...5[12]
36L9654	Netfinity Advanced System Management Token-RIng Connection[13]	-	-	-



1. Netfinity 5100 includes a dual-port, dual-channel Ultra160 SCSI controller for internal use only. No standard external port is available. See “Internal SCSI Cabling” for cabling alternatives.
2. Netfinity ServeRAID-3L Ultra2 SCSI Adapter II (P/N 19K0564) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel and is a planned replacement for P/N 01K7364.
3. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of 3 external LVDS SCSI channels. Includes 32 MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
4. Netfinity ServeRAID-4L Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides a single channel, 16 MB of ECC cache and either one internal or one external Ultra160 connection. External connector is 0.8-mm VHDCI.
5. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
6. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connector is 0.8-mm VHDCI.
7. See Netfinity Fibre Array Solutions section for additional configuration information.
8. Netfinity 5100 includes a full-duplex, 10/100 Mbps Ethernet PCI controller.
9. Netfinity 5100 includes two USB ports, one serial and one parallel port.
10. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 5100 works with Netfinity Manager to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 01K7209) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
11. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
12. A maximum quantity of one is supported.
13. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter (P/N 01K7209), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter’s integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together. To download the latest firmware access URL www.pc.ibm.com/us/netfinity. Select “Server Support”, “Family”, “Model”, “Downloadable files” and finally “Advanced Systems Management”.
14. Where ’xx’ = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/English, EU=countries not covered previously.
15. Where ‘xx’ represents a country specific code as follows:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated.
16. Where ‘xx’ represents a country specific code: 57=Denmark, 58=South Africa/India, 59=UK, 60=Switzerland, 61=Italy, 62=Israel, 01K7310=Europe, 01K7209=US/Saudi Arabia.
17. Planned availability of August 2000.

Netfinity 5100 Power, Monitors, Accessories

Part Number	Description
Power[1]	
33L37xx[11]	Netfinity 250 W Hot-Swap Redundant Power Supply[2]
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit[3]
Uninterruptable Power Supply (UPS)[4]	
SUP102Y	APC Smart-UPS 1000
SUP142Y	APC Smart-UPS 1400
14RIxxx	APC Smart-UPS 1400RMiB[5]
30RIxxx	APC Smart-UPS 3000RMiB[5]
37L6862	APC Smart-UPS 5000RMiB[6]
	Monitors[7]
31H2Nxx	E54 Color Monitor 15” (350-mm, 13.8” Viewable Image Size), stealth black[8]
4841Nxx	G76 Color Monitor 17” (406-mm, 16” Viewable Image Size), stealth black[8]
494ANxx	G96 Color Monitor 19” (454-mm, 17.9” Viewable Image Size), stealth black[10]
13AG1xx	T55A Flat Panel Color Monitor (381-mm, 15” Viewable Image Size)[8], stealth black[9]

1. Netfinity 5100 systems include a single 250 W, hot-swap power supply and a single 9 ft. 110 V power cord with an IEC 320-C13 connector on the system end and NEMA 5-15P on the other end. Power supply redundancy may be achieved with the addition of optional Netfinity 250 W Hot-Swap Redundant Supply P/N 33L37xx. Netfinity Hot-Swap Power Supply Expansion Kit P/N 37L6881 is required when optional power supplies are to be added. Redundancy for configurations of greater than 250 W requires installation of a second optional supply. Whenever devices are installed in bays A or B, both the expansion kit and a second power supply are required. Generally, configurations containing greater than six PCI adapters and HDDs, in any combination, will require the second power supply. To assist in determining when an additional power supply is required to preserve redundancy, a “Non-Redundant LED” is a standard feature of the Netfinity 5100.
2. Netfinity 250 W Hot-Swap Redundant Power Supply P/N 33L37xx includes a single 6 ft.power cord for connection to a low voltage wall outlet. Netfinity Hot-Swap Power Supply Expansion Kit P/N 37L6881 must be installed prior to adding optional power supplies.
3. Netfinity Hot-Swap Power Supply Expansion Kit P/N 37L6881 includes a hot-swap power backplane, terminated two-drop LVD SCSI cable, and mounting brackets for DLT tape drives. Required when installing a second power supply or devices in the 133-mm (5.25”) HH bays.
4. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
5. Height is 3U. See “Rack and NetBAY” for supported IBM racks.
6. Height is 5U. See “Rack and NetBAY” for supported IBM racks.
7. Netfinity 5100 uses an SVGA controller (S3 Savage4 chipset) with 8 MB of video memory.
8. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
9. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray P/N 28L4707. A space saver keyboard may coexist within the same keyboard tray P/N 28L4707.
10. Not supported for installation in a 19” rack.
11. Where ‘xx’ refers to a country specific code: 60=Saudi Arabia, 61=Europe, 62=Denmark, 63=Israel, 64=Italy, 65=South Africa, 66=Switzerland, 67=United Kingdom&Arabia.

Part Number	Description
Conversion Kits	
37L6858	Netfinity 5Ux24D Tower-to-Rack Kit
Rack and NetBAY[1]	
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
Keyboard and Mouse[2]	
28L36xx[6]	Space Saver II Keyboard[3, 5]
28L36xx[7]	Preferred Keyboard (stealth black)[4]
28L3675	Sleek 2-Button Stealth Black Mouse

1. Netfinity 5100 rack models are housed in a 19” rack mountable drawer and require one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices.
2. Tower models include both a keyboard and mouse. Rack models include neither.
3. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in “ready-to-use” position).
4. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
5. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
6. Where ‘xx’ represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
7. Where ‘xx’ represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch, 37=US.

Netfinity 5100 Tape Options

Part Number	Tape Drives	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	A, B[1]	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	N	-
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A, B[1]	16	133 mm (5.25") FH	N[2]	N	-
01K1320	20/40 GB DLT Internal SCSI Tape Drive	A/B[1]	8	133 mm (5.25") FH	Y[2]	Y	-
00N7990	40/80 GB DLT Internal SCSI Tape Drive	A/B[1]	16 Ultra2 LVD	133 mm (5.25") FH	N[2]	N	-
	Associated Options						
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit[3]	-	-	-	-	-	-
33L37xx[4]	Netfinity 250 W Hot-Swap Redundant Power Supply	-	-	-	-	-	-

1. Installation of devices in Bays A or B requires installation of both Netfinity Hot-Swap Power Supply Expansion Kit P/N 37L6881 and at least one Netfinity 250 W Hot-Swap Redundant Power Supply P/N 33L37xx[4].
2. Netfinity Hot-Swap Power Supply Expansion Kit P/N 37L6881 includes a terminated LVD SCSI cable.
3. Netfinity Hot-Swap Power Supply Expansion Kit P/N 37L6881 includes a hot-swap power backplane, terminated two-drop LVD SCSI cable, and mounting brackets for DLT tape drives. Required when installing a second power supply or devices in the 133 mm (5.25") HH bays.
4. Where 'xx' refers to a country specific code: 60=Saudi Arabia, 61=Europe, 62=Denmark, 63=Israel, 64=Italy, 65=South Africa, 66=Switzerland, 67=United Kingdom&Arabia.

Note: SCSI support for tape drives is provided by system unit onboard controller or PCI Fast Wide Ultra SCSI Adapter (P/N 02K3454).

Netfinity 5100 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Description	Quantity
841YExx	Netfinity 5100 866 MHz/256 KB, 128 MB ECC, OPEN, 40X, PCI	1
33L3123	Netfinity 128 MB SDRAM ECC RDIMM II[1]	1
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller	1
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD[2]	4
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black	1
SUP102Y	APC Smart-UPS 1000	1
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit	1
33L37xx	Netfinity 250 W Hot-Swap Redundant Power Supply	1

1. For a total of 256 MB of system memory.
2. For a total of 36.4 GB of RAID protected hot-swap, hot-spare internal storage.

An internet server is a server that handles all requests from the Internet (intranet or extranet). Usually this type of server has the same characteristics as a file server. The main difference is that an internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind the IBM Netfinity 5100 was selected to provide an affordable price point for the growing internet server market, 256 MB of system memory (expandable to 4 GB, and availability features such as RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.

The network configuration depends on the method that will be used to connect the server to the internet. Usually fast Ethernet routers are used, but if other methods are used, you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Part Number	Description	Quantity
831YExx	Netfinity 5100 800 MHz/256 KB, 128 MB ECC, OPEN, 40X, PCI	1
33L3123	Netfinity 128 MB SDRAM ECC RDIMM II[1]	1
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller	1
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD[2]	5
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black	1
SUP102Y	APC Smart-UPS 1000	1
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit	1
33L37xx	Netfinity 250 W Hot-Swap Redundant Power Supply	1

1. For a total of 256 MB of system memory.
2. For a total of 45.5 GB of RAID protected hot-swap, hot-spare internal storage.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 100 users in a normal workgroup computing environment, but doesn't require the high end performance and fault tolerance properties of larger servers.

The sample configuration above consists of an IBM Netfinity 5100 with 256 MB of memory (expandable to 4 GB) and 45.5 GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional external storage expansion still available. Demanding network traffic is effectively handled by the standard 100 Mbps Ethernet connection.

The configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected during power surges and outages.

Rack Mounted Application Server

Part Number	Description	Quantity
84RYExx	Netfinity 5100 866 MHz/256 KB, 128 MB ECC, OPEN, 40X, PCI (Rack 5U)	1
19K4630	Netfinity 866 MHz 133 FSB/256 KB Upgrade with Pentium III Processor	1
33L3125	Netfinity 256 MB 133 MHz SDRAM ECC RDIMM II[1]	1
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller	1
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD[2]	5
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
31H2Nxx	E54 Color Monitor 15" (350-mm, 13.8" Viewable Image Size), stealth black	1
14RIxxx	APC Smart-UPS 1400RMiB	1
33L3760	Netfinity 250 W Hot-Swap Redundant Power Supply	1
37L6881	Netfinity Hot-Swap Power Supply Expansion Kit	1
Industry Standard 19" Rack, EIA-310D, min. depth of 28" (711 mm)		
9306200	Netfinity NetBAY22	1
28L36xx	Space Saver II Keyboard	1
28L3645	Blank Filler Kit	2

1. For a total of 384 MB of system memory.
2. For a total of 36.4 GB of usable RAID 5 storage (45.5 GB total disk).

An application server differs from a file and print server in that it has a higher workload, in providing application serving requirements for users. With this in mind, the IBM Netfinity 5100 was selected to provide an affordable price point for an application server, with two-way Pentium III processing, 384 MB of system memory (expandable to 4 GB), and availability features such as battery-backed cache, RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.

IBM Netfinity 5600 Configurator

Part Number	Withdrawal Date: ddmmyy[6]	Processor Speed (MHz)[2]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps	SCSI Controller (Dual, Ultra2, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)	Bays: (Total/Avail) Slots: (T/A)
421YExx	27/06/00	600EB	1/2	256	128 MB[R]/4 GB[3]	Tower	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218GB	40X-17X[5]	10/8	5/5
42RYExx[1]	27/06/00	600EB	1/2	256	128 MB[R]/4 GB[3]	Rack(5U)	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218GB	40X-17X[5]	10/8	5/5
431YExx	-	667	1/2	256	256 MB[R]/4 GB[3]	Tower	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218GB	40X-17X[5]	10/8	5/5
43RYExx[1]	-	667	1/2	256	256 MB[R]/4 GB[3]	Rack(5U)	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218GB	40X-17X[5]	10/8	5/5
441YExx	-	733	1/2	256	256 MB[R]/4 GB[3]	Tower	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218GB	40X-17X[5]	10/8	5/5
44RYExx[1]	-	733	1/2	256	256 MB[R]/4 GB[3]	Rack(5U)	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218GB	40X-17X[5]	10/8	5/5
451YExx	-	800	1/2	256	256 MB[R]/4 GB[3]	Tower	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218GB	40X-17X[5]	10/8	5/5
45RYExx[1]	-	800	1/2	256	256 MB[R]/4 GB[3]	Rack(5U)	2/3	P, S,H,F	S-Power[4] S-Fans	Y	10/100	D,U2	4/2	0/218GB	40X-17X[5]	10/8	5/5

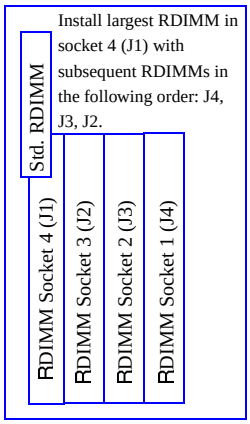
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 5600 Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III processor with 133MHz Front-side bus (FSB). Intel uses EB to designate the attributes of the 533MHz and 600MHz processors. E stands for advanced transfer (file speed) cache and B stands for 133MHz front-side bus.
3. High-speed, 133 MHz SDRAM.
4. Robust configurations may require optional Netfinity 250W Hot-Swap Redundant Power Supply (P/N 33L37xx) for redundancy. See "Power" under "Netfinity 5600 Power, Monitor & Accessories" for additional information.
5. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
6. Not available from IBM after this date. Business Partner inventory may be available.

Netfinity 5600 Processor Upgrades

Part Number	Processor Upgrades with 256 KB Cache	SMP Support[1]	Processor Speed Upgrade[2]
00N7948	Netfinity 600EB MHz 133FSB/256 KB Upgrade with Pentium III Processor	2xY	All 1xY
00N7949	Netfinity 667 MHz 133FSB/256 KB Upgrade with Pentium III Processor	3xY	All 1...2xY
00N7943	Netfinity 733 MHz 133FSB/256 KB Upgrade with Pentium III Processor	4xY	All 1...3xY
10K2338	Netfinity 800 MHz 133FSB/256 KB Upgrade with Pentium III Processor	5xY	All 1...4xY

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of two processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 5600 Memory Configurator



	Standard Memory							
	128MB Models				256MB Models			
Total Memory	**Quantity of RDIMMs to be added**							
256 MB	1	-	-	-	-	-	-	-
384 MB	-	1	-	-	1	-	-	-
512 MB	1	1	-	-	-	1	-	-
640 MB	-	-	1	-	1	1	-	-
896 MB	-	1	1	-	-	1	1	-
1024 MB	1	1	1	-	-	1	1	-
1152 MB	-	2	1	-	1	1	1	-
1664 MB	-	-	1	1	1	1	-	1
2048 MB	-	-	4[1]	-	-	1	1	1
2304MB	1	-	-	2	-	-	-	2
3200 MB	-	-	-	3	-	-	-	-
3328 MB	-	-	-	-	-	-	-	3
4096 MB (max)	-	-	-	4[1]	-	-	-	4[1]
	128MB	256MB	512MB	1GB	128MB	256MB	512MB	1GB
	Memory RDIMMs to be added							

This table does not represent all possible memory configurations. The sample choices of RDIMMs shown above are based mainly on slot usage and economic considerations.
1. Requires removal of standard memory.

Part Number	Memory Description[1]
33L3058	Netfinity 128 MB, 133 MHz SDRAM ECC RDIMM
33L3060	Netfinity 256 MB, 133 MHz SDRAM ECC RDIMM
33L3062	Netfinity 512 MB, 133 MHz SDRAM ECC RDIMM
33L3064	Netfinity 1 GB, 133 MHz SDRAM ECC RDIMM

1. Install largest RDIMM in socket 4 (J1) with subsequent RDIMMs in the following order: J4, J3, J2.

Netfinity 5600 Internal Hard Disk Drive Configurator

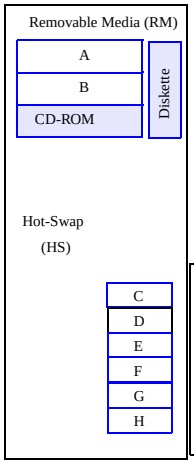
Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)[2]	18.2 GB (P/N 36L9745 or P/N 37L7202)[2]	36.4 GB (P/N 36L9746 or P/N 37L7203)[2]	9.1 GB (P/N 36L9748 or P/N 37L7204)[2]	18.2 GB (P/N 36L9749 or P/N 37L7205)[2]	36.4 GB (P/N 36L9750 or P/N 37L7206)[2]
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	5	-	-	5	-	-
54.6 GB	6	3	-	6	3	-
72.8 GB	-	4	2	-	4	2
91 GB	-	5	-	-	5	-
109.2 GB	-	6	3	-	6	3
145.6 GB	-	-	4[3]	-	-	4[3]
182 GB	-	-	5[3]	-	-	5[3]
218.4 GB (max.)	-	-	6[3]	-	-	6[3]

This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2.Netfinity 5600 contains an Ultra2 hot-swap backplane which limits Ultra160 HDDs to Ultra2 bus speeds.
3.Part numbers 36L9746 and 36L9750 are half-high devices and therefore cannot be utilised for configurations requiring greater than a quantity of three.

Bay	Form Factor	Height	Front Access	Usage
A	133 mm (5.25”)	HH[1]	Yes	Open
B	133 mm (5.25”)	HH[1]	Yes	Open
-	133 mm (5.25”)	HH	Yes	IDE CD-ROM
-	89 mm (3.5”)	SL	Yes	Diskette
C...H	HS	SL[2]	Yes	Open

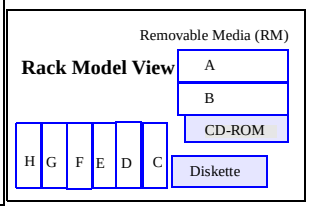
1. Two half-high (HH) bays can be combined to support a single full-high (FH) device
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.

Tower Model View



For clarity purposes, bay labels in these diagrams are for reference by the accompanying tables and are not the actual labels. Refer to the documentation shipped with the system for further details on actual labels.

Rack Model View



Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Ultra2 Hard Disk Drives (HDD)					
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
36L9746	Netfinity 36.4 GB Wide Ultra2 SCSI Hot-Swap HDD	7200	HH[2]	C/D, E/F, G/H	3
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6
36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10,000	HH[2]	C/D, E/F, G/H	3
Ultra160 Hard Disk Drives (HDD)[1]					
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	C...H	6
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[8]	7200	SL	C...H	6
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6
37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6
37L7206	Netfinity 36.4 GB 10-K Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	C...H	6

External Storage Expansion Units[3]		Form Factor
00N6xxx[9]	Netfinity EXP200 Storage Expansion Unit[4]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	Tower
37L0xxx[10]	Netfinity EXP200 350 W Redundant Power Supply	-
19K11xx[11]	Netfinity EXP300 Storage Expansion Unit[5, 7]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[7]	-
00N71xx[12]	Netfinity FAStT EXP500 Storage Expansion Unit[6]	Rack (3U)

1. Netfinity 5600 contains an Ultra2 hot-swap backplane which limits Ultra160 HDDs to Ultra2 bus speeds.
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
3. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to see Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
4. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP 350 W Redundant Power Supply (P/N 37L0xxx[10]) includes an additional power cord. To convert and EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
5. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W redundant power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
6. Netfinity FAStT EXP500 Storage Expansion Unit includes dual hot-swap 350 W power supplies, each with its own power cord.
7. Planned availability of June 30, 2000.
8. Planned availability of August, 2000.
9. Where ‘xxx’ represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
10. Where ‘xxx’ represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
11.Where ‘xx’ represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.
12. Where ‘xx’ represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/ Language Line Cords/Publications are included as indicated.

Internal SCSI Cabling

The Netfinity 5600 contains a backplane supporting six hot-swap drive bays. The backplane is connected to the integrated dual channel, wide Ultra2 SCSI controller connector through a 16-bit LVD SCSI cable. If internal RAID support is required, this cable can be used to connect to a supported RAID adapter rather than the integrated SCSI controller. A two-drop, 16-bit SCSI cable with integrated terminator is also included with the server to support up to two internal removable media devices. This cable can be attached to the integrated SCSI controller if a RAID adapter is used to support the internal hot-swap drive bays. It can also be used to attach to a supported SCSI adapter if the integrated Ultra2 SCSI controller is utilized for the hot-swap bays. The second channel is available through an industry-standard 0.8-mm very high density connector interface (VHDCI) located on the rear panel for external use.

Netfinity 5600 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug[2]
	Storage Controllers[1]				
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[3]	Full	32-bit	1...5	X
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[4]	Full	32/64-bit	1...5	X
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[5, 20]	Full	32/64-bit	1...5	X
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[6, 20]	Full	32/64-bit	1...5	X
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[7]	Full	32/64-bit	1...5	X
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5	-
09L2123	Advanced SerialRAID/X Adapter[8]	Full	32-bit	1...5[8]	-
	Fibre Storage Controllers and Options[9]				
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...5	-
SFCU1xx[21]	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...5	X
00N69xx[22]	Netfinity FAStT500 RAID Controller	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-
	Networking[10]				
	Ethernet				
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...5	X
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...5	X
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1...5	X
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...5	X
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5	-
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5	X
	Communications[11]				
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[12]	Half	32-bit	1...5	-
	Systems Management[13]				
36L96xx[23]	Netfinity Advanced System Management PCI Adapter[14, 15]	Full	32-bit	1...5[15]	-
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[16]	-	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[17]	-	-	-	-
	Host Attach				
10L7368	Netfinity ESCON Adapter[18,19]	Full	32-bit	1...5[19]	-

Rack Model

Slot 5- PCI, Hot-Plug, 32/64-bit, Full Length	Slot 4- PCI, Hot-Plug, 32/64-bit, Full Length	Slot 3- PCI, Hot-Plug, 32/64-bit, Full Length	Slot 2- PCI, 32-bit, Full Length	Slot 1- PCI, 32-bit, Full Length

1. Netfinity 5600 has two integrated Wide Ultra2 SCSI channels. One is internal and the other is external with a 0.8-mm Very High Density Connection Interface (VHDCI).
2. Three of the five PCI slots are 32/64-bit hot-plug capable using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat.
3. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
4. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
5. Netfinity ServeRAID-4L Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides a single channel, 16 MB of ECC cache and one internal or one external Ultra160 connection. External connectors are 0.8-mm VHDCI.
6. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
7. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
8. A maximum quantity of four is supported.
9. See Netfinity Fibre Channel Solutions section for additional configuration information.
10. Netfinity 5600 has an integrated 10/100 PCI Ethernet Controller.

11. Netfinity 5600 includes two USB ports, three high-speed serial/asynchronous ports, (two NS16550A compatible, one for the Advanced System Management Processor), and one high-speed (up to 2 MB/sec. data transfer speed) bi-directional parallel port supporting devices using ECP/EPP/SSP protocols adhering to the IEEE 1284 standard.

12. See Appendix F for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.

13. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 5600 works with Netfinity Manager to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 36L96xx) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.

14. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
15. A maximum quantity of one is supported.
16. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 1xX to 4xX are not supported). Optional Netfinity Advanced System Management PCI Adapter (P/N 36L96xx) includes the content of this option. Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.) A customer-supplied Ethernet cable is required for each interconnection.
17. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter (P/N 36L96xx), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together.
18. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
19. A maximum of two 10L7368 adapters (installed in non-adjacent slots) are supported in a single Netfinity server.
20. Planned availability of August 2000.
21. Where 'xx' = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/English, EU=countries not covered previously.
22. Where 'xx' represents a country specific code as follows:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated
23. Where 'xx' represents a country specific code: 57=Denmark, 58=South Africa/India, 59=UK, 60=Switzerland, 61=Italy, 62=Israel, 01K7310=Europe, 01K7209=US/Saudi Arabia.

Netfinity 5600 Power, Monitors, Accessories

Part Number	Description
Power[1]	
33L37xx[2]	Netfinity 250 W Hot-Swap Redundant Power Supply
Uninterruptable Power Supply (UPS)[3]	
SUP102Y	APC Smart-UPS 1000
SUP142Y	APC Smart-UPS 1400
14RIxxx	APC Smart-UPS 1400 RMiB[4]
30RIxxx	APC Smart-UPS 3000 RMiB[4]
37L6862	APC Smart-UPS 5000 RMiB[9]
Monitors[5]	
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black[4]
4841Nxx	G76 Color Monitor 17" (15.9" Viewable Image Size), stealth black[6]
494ANxx	G96 Color Monitor 19" (17.9" Viewable Image Size), stealth black[7]
13AG1xx	T55A Flat Panel Color Monitor (15.0" Viewable Image Size), stealth black[8]

Part Number	Description
Conversion Kits	
37L6858	Netfinity 5600 Tower-to-Rack Kit
Rack and NetBAY[1]	
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
Keyboard and Mouse[2]	
28L36xx[3]	Space Saver Keyboard[4, 6]
28L36xx[7]	Preferred Keyboard (stealth black)[5]
28L3675	Sleek 2-Button Stealth Black Mouse

1. Netfinity 5600 includes two 250W hot-swap power supplies, each with its own power cord. These standard power supplies are sufficient to operate fully configured systems; however optional Netfinity 250W Hot-Swap Redundant Power Supply (P/N 33L37xx) is required to preserve redundancy if any of the following are exceeded:
Single Processor Configuration
- Six SL hard disk drive (HDDs) and two PCI adapters
(1 HH HDD = 2 SL, 1 tape = 2 SL, 1 PCI adapter = 2 SL)
e.g. To preserve power supply redundancy with 3 PCI adapters only 4 SL HDDs can be installed before an optional power supply is required.

Dual Processor Configuration
-Four SL hard disk drives (HDDs) and two PCI adapters
(1 HH HDD = 2 SL, 1 tape = 2 SL, 1 PCI adapter = 2 SL)

A "non-redundant" LED on the system unit will indicate when 250W has been exceeded. Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L37xx) includes a power cord which requires an additional power source. An independent power source such as a second UPS or second circuit is not required.
2. Where 'xx' refers to a country specific code: 60=Saudi Arabia, 61=Europe, 62=Denmark, 63=Israel, 64=Italy, 65=South Africa, 66=Switzerland, 67=United Kingdom&Arabia.
3. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
4. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
5. Netfinity 5600 uses an SVGA controller (S3 Trio 3D chipset) with 4 MB of video memory.
6. Installation within a rack requires optioinal Monitor Compartment (P/N94G7444)
7. Not supported for installation in a 19" rack.
8. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
9. Height is 5U. See "Rack and NetBAY" for supported IBM racks.

1. Netfinity 5600 rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices.
2. Tower models include both a mouse and a keyboard. Rack models include neither.
3. Where 'xx' represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
4. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
5. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
6. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
7. Where 'xx' represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch, 37=US.

Netfinity 5600 Tape Options

Part Number	Tape Drives[2]	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures[1]
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	A, B	16 Ultra2 LVD[2]	3.5” SL or 5.25” HH	Y[3]	N	10L7440, 03K8756
01K1319	10/20 GB NS Internal SCSI Tape Drive	A, B	8	3.5” SL or 5.25” HH	Y[3]	Y	10L7440, 03K8756
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A, B	16[2]	5.25” HH	N[4]	N	10L7440[5], 03K8756
01K1320	20/40 GB DLT Internal SCSI Tape Drive	A/B[6]	8[2]	5.25” FH	Y[14]	Y	03K8705, 03K8756
00N7990	40/80 GB DLT Internal SCSI Tape Drive	A/B[6]	16 LVD[2]	5.25” FH	N[4]	N	03K8705[5], 03K8756
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	03K8705, 10L7440
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[7]	-	8/16	Desktop	N	N	-
03K8756	NetMEDIA Storage Expansion Unit EL[8]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[9]	-	16	-	N	N	03K8756
03K8705	DLT External SCSI Enclosure[10]	-	16	Desktop	N	N	-
	External Tape Libraries[11]						
00N79xx[12]	DLT Tape Autoloader	-	16	Desktop	Y	-	-
00N79xx[13]	DLT Tape Library	-	16	Desktop or Rack	Y	-	-

1. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables-Storage Units-Controllers.
2. Netfinity 5600 includes a wide two-drop terminated cable which is used for attachment of internal tape drives to a PCI Fast/Wide Ultra SCSI Adapter (P/N 02K3454) or, in the case where the hot-swap backplane is attached to a RAID controller, it attaches to the onboard wide Ultra2 LVD controller. This cable does not support LVD mode of operation.
3. Tape drive is capable of self termination.
4. Termination is provided by the system unit’s standard SCSI cabling.
5. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
6. Two half-high bays can be combined to support a full-high device.
7. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
8. Provides a black 3U, 19” rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25” bays. External connector is 0.8-mm VHDCI. Includes two power supplies and two power cords.
9. Installs in 03K8756. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 03K8756 is powered off.
10. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918)
11. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.
12. Where ‘xx’ represents a country specific power cord code: 70=UK, 71=Swiss, 72=Italy, 73=Israel, 33L4981=EU1, 33L4982=Denmark, 33L4983=South Africa/India.
13. Where ‘xx’ represents a country specific power cord code: *Tower versions* - 74=EU1, 75=Denmark, 76=India/South Africa, 77=UK, 78=Swiss, 79=Italy, 80=Israel: *Rack versions* - 81=EU1, 82=Denmark, 83=India/South Africa, 84=UK, 85=Swiss, 86=Italy, 87=Israel.
14. A 16-bit terminator is included for attachment to an internal cable.
NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM Netfinity Servers, access the ServerProven™ compatibility pages on the Web at URL www.ibm.com/pc/us/compat.

Netfinity 5600 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability Application Server

Part Number	Description	Quantity	Usage
441YExx	Netfinity 5600 733 MHz/256KB, 256MB ECC, Open, Tower	1	-
33L3060	Netfinity 256 MB, 133 MHz SDRAM ECC RDIMM	1	512 MB total system memory
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	2	9.1 mirrored for NOS
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	4	36 GB RAID 5 with hot-spare
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1	-
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID 1 for OS, RAID 5 for data
33L37xx[1]	Netfinity 250 W Hot-Swap Redundant Power Supply	1	Full power redundancy
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1	
SUP102Y	APC Smart-UPS 1000	1	UPS

1. Where ‘xx’ refers to a country specific code: 60=Saudi Arabia, 61=Europe, 62=Denmark, 63=Israel, 64=Italy, 65=South Africa, 66=Switzerland, 67=United Kingdom.

This tower server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power and UPS for power even during a blackout, this server represents the leading edge in high availability. An internal tape drive is included to back up that all important asset...data. A modem could be included to allow out-of-band (non-LAN) system management utilizing the integrated Netfinity Advanced System Management Processor.

High Availability File Server

Part Number	Description	Quantity	Usage
451YExx	Netfinity 5600 800 MHz/256KB, 256MB ECC, Open, Tower	1	-
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	6	45 GB available disk and one hot spare
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1	
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID 5 array, with hot-spare
33L37xx[1]	Netfinity 250 W Hot-Swap Redundant Power Supply	1	Full power redundancy
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1	-
SUP102Y	APC Smart-UPS 1000	1	-

1. Where ‘xx’ refers to a country specific code: 60=Saudi Arabia, 61=Europe, 62=Denmark, 63=Israel, 64=Italy, 65=South Africa, 66=Switzerland, 67=United Kingdom.

This tower model is configured to meet the need of server consolidation. Many businesses are trying to get their arms around the dispersed departmental servers that have grown up around the enterprise. By moving multiple servers onto one platform there is only one system to manage, both hardware and software. There is potentially less expensive for service, software licenses, etc., and there is no need to worry about putting all your eggs in one basket because the Netfinity 5600 is designed for high availability. This configuration includes 56 GB of internal HDD storage, features a third power supply which provides fully redundant power, a UPS to help protect the system against a momentary electricity loss, and an internal tape drive that backs up, up to 40 GB per tape...in addition to all the standard features of the Netfinity 5600.

IBM Netfinity 5500 M20 Configurator

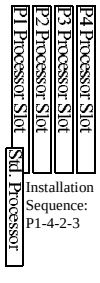
Part Number *	Withdrawal Date: ddmmyy[6]	Processor Speed (MHz)[2]	Number of Processors (Std/Max)	L2 ECC Cache (KB)	Memory (Std/Max) (R=RDIMM)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps	SCSI Controller (Dual, Ultra, RAID, LVD)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (T/A)
231YExx	28/03/00	500	1/4	512	256 MB[R] /4 GB	Tower[3]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109GB[4]	32X-14X[5]	10/ 8	6/6
23RYExx[1]	22/02/00	500	1/4	512	256 MB[R]/4 GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109GB	32X-14X[5]	10/ 8	6/6
241YExx	22/02/00	500	1/4	1024	256 MB[R]/4 GB	Tower[3]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109GB[4]	32X-14X[5]	10/ 8	6/6
24RYExx[1]	22/02/00	500	1/4	1024	256 MB[R]/4 GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109GB	32X-14X[5]	10/ 8	6/6
251YExx	27/06/00	550	1/4	512	256 MB[R]/4 GB	Tower[3]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109GB[4]	40X-17X[5]	10/ 8	6/6
25RYExx[1]	27/06/00	550	1/4	512	256 MB[R]/4 GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109GB	40X-17X[5]	10/ 8	6/6
261YExx	27/06/00	550	1/4	1024	256 MB[R]/4 GB	Tower[3]	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109GB[4]	40X-17X[5]	10/ 8	6/6
26RYExx[1]	27/06/00	550	1/4	1024	256 MB[R]/4 GB	Rack (8U)	1/2	P, S, H, F	S-Fans, O-Power	Y	10/100	D, R	4/2	0/109GB	40X-17X[5]	10/ 8	6/6

* For IBM ServicePacs see Appendix G: IBM ServicePacs for Hardware Maintenance
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 5500 M20 Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III Xeon processor.
3. Tower models come equipped with a single NetBAY3 (3U) stackable enclosure. Up to a maximum of three are supported.
4. With a single Netfinity EXP15 installed in the standard NetBAY3 the maximum internal storage increases by 364 GB.
5. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
6. Not available from IBM after this date. Business Partner inventory may be available.

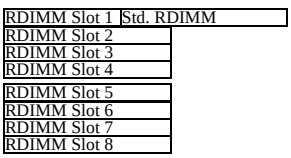
Netfinity 5500 M20 Processor Upgrades

Part Number	Processor Upgrades with 512KB or 1MB Cache	SMP Support[1]	Processor Speed/Cache Upgrade[2]
33L5053	Netfinity 500MHz/512KB Upgrade with Pentium III Xeon Processor	All 3xY	-
33L5054	Netfinity 500MHz/1MB Upgrade with Pentium III Xeon Processor	All 4xY	All 3xY
33L5107	Netfinity 550 MHz/512 KB Upgrade with Pentium III Xeon Processor	All 5xY	All 3...4xY
33L5108	Netfinity 550 MHz/1 MB Upgrade with Pentium III Xeon Processor	All 6xY	All 3...5xY

1. Up to three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed and cache size.
2. Requires removal of the standard processor. A maximum of four processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest flash BIOS, access URL http://www.pc.ibm.com/europe/netfinity.html, then select SUPPORT. Choose a machine-type model, then select Downloadable files and choose the category labeled "BIOS".



Netfinity 5500 M20 Memory Configurator



Memory Description	Part Number
Netfinity 128MB SDRAM ECC RDIMM[1]	01K7262
Netfinity 256MB SDRAM ECC RDIMM[1]	01K8043
Netfinity 512MB SDRAM ECC RDIMM[1]	01K7263

1. DIMMs should be installed in the following sequence beginning with Slot 1 and ordered from largest to smallest: 1-5-2-6-3-7-4-8.

Total Memory	All Models
256 MB	256 MB RDIMM Standard
384 MB	1 x 01K7262
512 MB	1 x 01K8043
768 MB	1 x 01K7263 or 2 x 01K8043[2]
1280 MB	2 x 01K7263 or 4 x 01K8043[2]
1792 MB	3 x 01K7263 or 6 x 01K8043[2]
2048 MB	(3 x 01K7263, 1 x 01K8043) or 7 x 01K8043[2]
3072 MB	5 x 01K7263, 1 x 01K8043
4096 MB	8 x 01K7263[1]

This table does not represent all possible memory configurations.
1. Replace standard DIMM.
2. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost effective alternative to using the largest RDIMMs and should be considered when anticipated future memory is 2 GB or less.

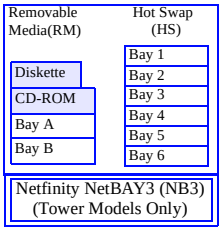
Netfinity 5500 M20 Internal Hard Disk Drive Configurator

Total Internal Storage[1]	7200 RPM Hard Disk Drives (HDDs)			10,000 RPM Hard Disk Drives (HDDs)		
	9.1 GB	18.2 GB	36.4 GB	9.1 GB	18.2 GB	36.4 GB
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1 x 01K8053	-	-	1 x 36L9806	-	-
18.2 GB	2 x 01K8053 or	1 x 02K0440		2 x 36L9806 or	1 x 36L9807	-
27.2 GB	3 x 01K8053	-	-	3 x 36L9806	-	-
36.4 GB	4 x 01K8053 or	2 x 02K0440 or	1 X 02K0441	4 x 36L9806 or	2 x 36L9807 or	1 x 36L9808
45.5 GB	5 x 01K8053	-	-	5 x 36L9806	-	-
54.6 GB	6 x 01K8053 or	3 x 02K0440	-	6 x 36L9806 or	3 x 36L9807	-
72.8 GB	-	4 x 02K0440 or	2 X 02K0441	-	4 x 36L9807 or	2 x 36L9808
91 GB	-	5 x 02K0440	-	-	5 x 36L9807	-
109 GB(max)	-	6 x 02K0440 or	3 X 02K0441	-	6 x 36L9807 or	3 x 36L9808

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
-	3.5”	SL	Yes	Diskette
-	5.25”	HH	Yes	IDE CD-ROM
A	5.25”	HH[1]	Yes	Open
B	5.25”	HH[1]	Yes	Open
1...6	HS	SL[2]	Yes	Open
NB3[3]	19” Rack	3U	Yes	Open

1. Two half-high (HH) bays can be combined to support a single full-high (FH) device.
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
3. One NetBAY3 is included with tower models and a total of three are supported. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.



Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
	Internal Hard Disk Drives				
01K8053	Netfinity 9.1 GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	1...6	6
02K0440	Netfinity 18.2 GB Wide Ultra SCSI Hot-Swap SL HDD	7200	SL	1...6	6
02K0441	Netfinity 36.4 GB Wide Ultra SCSI Hot-Swap HDD	7200	HH[1]	1/2, 3/4, 5/6	3
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...6	6
36L9807	Netfinity 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...6	6
36L9808	Netfinity 36.4 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	HH[1]	1/2, 3/4, 5/6	3
	External Storage Expansion Units[2]	**Form Factor**			
00N6xxx[7]	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U)			
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	Tower			
37L0xxx[8]	Netfinity EXP200 350 W Redundant Power Supply	-			
19K11xx[9]	Netfinity EXP300 Storage Expansion Unit[4, 6]	Rack (3U)			
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[6]	-			
00N71xx[10]	Netfinity FAStT EXP500 Storage Expansion Unit[5]	Rack (3U)			

1. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0xxx) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
4. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
5. Netfinity FAStT EXP500 Storage Expansion Unit includes dual hot-swap 350 W power supplies, each with its own power cord.
6. Planned availability of June 30, 2000.
7. Where ‘xxx’ represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
8. Where ‘xxx’ represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
9.Where ‘xx’ represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.
10. Where ‘xx’ represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/ English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/Language Line Cords/Publications are included as indicated.

Internal SCSI Cabling

Netfinity 5500 M20 systems contain a backplane supporting six hot-swap drive bays. The backplane is connected to one of the two connectors of the integrated dual-channel ServeRAID controller through a 16-bit SCSI cable. A two-drop 16-bit SCSI cable, with an integrated terminator, is included with the server to support up to two internal removable media devices connected to the second RAID connector or a supported SCSI adapter. The standard cabling routes the second RAID connector to the rear panel cutout providing an external 16-bit VHDCI 0.8mm connector. If internal removable media devices are required, in addition to external RAID device attachment, a supported SCSI adapter must be installed using the standard two-drop SCSI cable for device/adapter connection. If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Netfinity 5500 M20 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]
	Storage Controllers[3]				
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[4]	Full	32-bit	1...4	X
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[5]	Full	32/64-bit	1...4	X
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[6]	Full	32/64-bit	1...4	X
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5	-
09L2123	Advanced SerialRAID/X Adapter	Full	32-bit	1...4	-
	Fibre Storage Controllers and Options[7]				
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...5	-
SFCU1xx[17]	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...5	X
00N69xx[18]	Netfinity FAStT500 RAID Controller	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-
	Networking[8]				
	Ethernet				
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...5	X
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...5	X
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...5	X
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...5	-
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5	-
	Communications				
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[9]	Half	32-bit	1...5[9]	-
	Systems Management[10]				
36L96xx[19]	Netfinity Advanced System Management PCI Adapter[11, 12]	Full	32-bit	1...4[12]	
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[13]	-	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[14]	-	-	-	-
	Host Attach				
10L7368	Netfinity ESCON Adapter[15, 16]	Full	32-bit	1...4[16]	-

ISA - Full Length
Slot 1 - PCI, Hot- Plug, 32-bit, Full Length
Slot 2 - PCI, Hot- Plug, 32-bit, Full Length
Slot 3 - PCI, Hot- Plug, 32-bit, Full Length
Slot 4 - PCI, Hot- Plug, 32-bit, Full Length
Slot 5 - PCI, Primary Bus, Half Length

1. PCI Slots 1, 2, 3 and 4 support Hot Plug devices.
2. Hot Plug capable using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat.
3. Netfinity 5500 and 5500 Mxx have a dual channel ServeRAID II Wide Ultra SCSI controller.
4. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8 mm VHDCI) LVDS SCSI channel.
5. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and two external (0.8 mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8mm VHDCI connector) providing a total of three external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache, which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintanance.
6. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
7. See Netfinity Fibre Channel Solutions section for additional configuration information.
8. Netfinity 5500 and 5500 Mxx have an integrated 10/100 PCI Ethernet Controller.
9. See Appendix F for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed..
10. System Management firmware update diskette version 2.11 or later should be downloaded from www.pc.ibm.com/qtechinfo/SCOD-464NG3.html. The Netfinity Advanced System Management Processor and Interconnect Bus integrated into Netfinity 5500 (models 5...6xX) and 5500 Mxx works with Netfinity Manager to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 36L96xx) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible. Systems management options P/N 36L96xx, 03K9309 and 36L9654 are NOT supported by Netfinity 5500 models 1...4xX.
11. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter, which requires a separate power source. Provides an integrated 10/100 Ethernet port and a PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654). NOT supported by Netfinity models 1...4xX.
12. A maximum quantity of one is supported.
13. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 1...4xX are not supported). Optional Netfinity Advanced System Management PCI Adapter (P/N 36L96xx) includes the content of this option. Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.

14. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter (P/N 36L96xx), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together.
15. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
16. A maximum of two 10L7368 adapters (installed in non-adjacent slots) are supported in a single Netfinity server.
17. Where 'xx' = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/English, EU=countries not covered previously.
18. Where 'xx' represents a country specific code as follows:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated
19. Where 'xx' represents a country specific code: 57=Denmark, 58=South Africa/India, 59=UK, 60=Switzerland, 61=Italy, 62=Israel, 01K7310=Europe, 01K7209=US/Saudi Arabia.

Netfinity 5500 M20 Power, Monitors, Accessories

Part Number	Description
	Power[1]
33L37xx[2]	Netfinity 500 W Hot-Swap Redundant Power Supply II[3]
	Uninterruptible Power Supply (UPS)[4]
SUP142Y	APC Smart-UPS 1400
14RIxxx	APC Smart-UPS 1400RMiB[5]
30RIxxx	APC Smart-UPS 3000RMiB[5]
37L6862	APC Smart-UPS 5000RMiB[10]
	Monitors
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black[6]
4841Nxx	G76 Color Monitor 17" (15.9" Viewable Image Size), stealth black[6]
494ANxx	G96 Color Monitor 19" (17.9" Viewable Image Size), stealth black[7]
13AG1xx	T55A Flat Panel Color Monitor (15.0" Viewable Image Size), stealth black[8]
	Cables[9]
32G3925	SCSI 68-pin to 50-pin Converter

1. Netfinity 5500 M20 include a single 500 W power supply which is sufficient to operate fully configured systems. If power supply redundancy is desired, optional power supply P/N 33L37xx is required.
2. Where'xx' represents a specific country code: 50=Europe, 51=Denmark, 52=Israel, 53=Italy, 54=South Africa, 55=Switzerland, 56=UK/Arabia, 01K7953=Saudi Arabia.
3. Includes a power cord which requires an additional power source. Even though a second UPS provides a redundant power source, systems management software does not currently take advantage of its power outage alerts.
4. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
5. Height is 3U. See "Rack and NetBAY" for supported IBM racks or use an industry standard 19" Rack, EIA-310D.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Not supported for installation in a 19" rack.
8. Installation within a rack requires optional Netfinity Flat Panel Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
9. Netfinity 5500 M20 comes with an external 0.8mm VHDCI port cabled to the second onboard RAID SCSI port.
10. Height is 5U. See "Rack and NetBAY" for supported IBM racks.

Part Number	Description
	Conversion Kits
37L6860	Netfinity 8Ux24D Rack-to-Tower Kit[10]
01K8021	Netfinity 5500 Rack-to-Tower Kit[1]
37L6859	Netfinity 8Ux24D Tower-to-Rack Kit[11]
01K8020	Netfinity 5500 Tower-to-Rack Kit
	Rack and NetBAY[2]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
10L6912	Netfinity NetBAY3[3]
10L6913	Netfinity Caster Set
	Keyboard and Mouse[4]
28L36xx[5]	Space Saver Keyboard[6, 9]
28L36xx[7]	Preferred Keyboard (stealth black)[8]
28L3675	Sleek 2-Button Stealth Black Mouse

1. Includes one Netfinity NetBAY3 with skid pads. Optional casters (P/N 10L6913) are available.
2.Netfinity 5500 and 5500 Mxx rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. Tower models include a single NetBAY3 with skid pads. Optional casters (P/N 10L6913) are available. See IBM Netfinity Rack Cabinet and Options section for IBM rack NetBAY3 with skid pads. Optional casters (P/N 10L6913) are available. See IBM Netfinity Rack supported devices.
3 A maximum of three NetBAY3 enclosures (including the standard one) may be stacked beneath a supported Netfinity tower server. Casters are not included. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
4. Tower models include both a mouse and keyboard. Rack models include neither.
5. Where 'xx' represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
6. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
7. Where 'xx' represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch, 37=US.
8. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
9. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
10. Includes one Netfinity NetBAY3 with casters. Planned replacement for Netfinity Rack-to-Tower Kit P/N 01K8021.
11. Planned replacement for Netfinity Tower-to-Rack Kit P/N 01K8020.

Netfinity 5500 M20 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50- pin Converter Incl.	Ext. Tape Encl.[1]
01K1282	12/24 GB DDS/3 4-mm Internal Tape Drive	A, B	8	3.5" HH or 5.25" HH	Y[2]	Y	10L7440
01K1319	10/20GB NS Internal SCSI Tape Drive	A, B	8	3.5" SL or 5.25" HH	Y[2]	Y	10L7440[4], 03K8756
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	A, B	16	5.25" HH	N[3]	N	10L7440[4], 03K8756
01K1320	20/40 GB DLT Internal SCSI Tape Drive	A/B[5]	8	5.25" FH	Y[13]	Y	03K8705, 03K8756
00N7990	40/80 GB DLT Internal SCSI Tape Drive	A/B[5]	16 LVD	5.25" FH	N[3]	-	03K8705[4], 03K8756
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	10L7440, 03K8705
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[6]	-	8/16	Desktop	N	N	-
03K8756	NetMEDIA Storage Expansion Unit EL[7]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[8]	-	16	-	N	N	03K8756
03K8705	DLT External SCSI Enclosure[9]	-	16	Desktop	N	N	-
	External Tape Libraries[10]						
00N79xx[11]	DLT Tape Autoloader	-	LVD	Desktop	Y	-	-
00N79xx[12]	DLT Tape Library	-	LVD	Desktop or Rack	y	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure and then refer to Appendix D: Cables - Storage Units - Controllers.
2. Tape drive is capable of self termination.
3. Termination is provided by the system unit's standard SCSI cabling.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Two Half-High (HH) bays can be combined to support a single Full-High (FH) device.
6. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
7. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8 mm VHDCI.
8. Installs in a 03K8756. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 03K8756 is powered off.
9. Provides a black desktop DLT tape enclosure. External connector is 68-pin high density. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
10. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.
11. Where 'xx' represents a country specific power cord code: 70=UK, 71=Swiss, 72=Italy, 73=Israel, 33L4981=EU1, 33L4982=Denmark, 33L4983=South Africa/India.
12. Where 'xx' represents a country specific power cord code: *Tower versions* - 74=EU1, 75=Denmark, 76=India/South Africa, 77=UK, 78=Swiss, 79=Italy, 80=Israel: *Rack versions* - 81=EU1, 82=Denmark, 83=India/South Africa, 84=UK, 85=Swiss, 86=Italy, 87=Israel.
13. A 16-bit terminator is included for attachment to an internal cable.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Netfinity 5500 M20 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability

Part Number	Description	Quantity	Usage
231YExx	IBM Netfinity 5500 M20 (Pentium III Xeon 500/512KB 256MB Tower & NetBAY3)	1	-
01K8053	9.1GB Wide Ultra SCSI SCA-2 SL HDD	2	NOS on mirrored HDD's
36L9806	IBM Netfinity 9.1GB 10K Wide-3 Ultra SCSI Hot-Swap SL HDD	4	RAID 5 with Hot-Spare
01K1320	IBM 20/40GB DLT SCSI Tape Drive	1	-
OMOEAxx	External V.34 Data/Fax Modem	1	Remote Management
33L375x[1]	IBM Netfinity 500 W Hot-Swap Redundant Power Supply	1	-
10L6912	IBM Netfinity NetBAY3	1	Enclosure for second UPS
14RIxxx	APC Smart-UPS 1400 RMB[2]	2	Redundant UPS's
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black	1	-

1.Where 'x' represents a country specific code: 0=Europe, 1=Denmark, 2=Israel, 3=Italy, 4=South Africa, 5= Switzerland, 6=UK, Arabia, and 01K7953=Saudi Arabia.
2. Even though a second UPS provides a redundant power source, systems management software does not currently take advantage of its power outage alerts.

This tower server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power and redundant UPS's for power even during a blackout or in the event of a UPS or power cord failure, this server represents the leading edge in high availability. An internal tape drive is included to back-up that all important asset..... data, and a modem is included to allow out-of-band (non-LAN) system management utilizing the Netfinity Advanced System Management Processor.

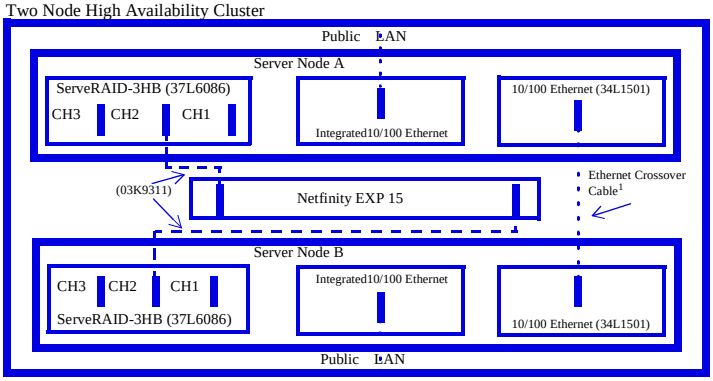
Consolidation Server

Part Number	Description	Quantity	Usage
261YExx	IBM Netfinity 5500 M20 (Pentium III Xeon 550/1MB 256MB Tower & NetBAY3)	1	-
33L5108	IBM Netfinity 500MHz/1MB Upgrade with Pentium III Xeon Processor	3	-
01K7263	IBM 512MB SDRAMM ECC RDIMM	3	Total Memory: 2GB
01K8043	IBM 256MB SDRAMM ECC RDIMM	1	Total Memory: 2GB
02K0440	IBM Netfinity 18.2GB Wide Ultra SCSI Hot-Swap SL HDD	6	> 100GB Interal Storage
00N7990	IBM 40/80 GB DLT SCSI Tape Drive	1	-
33L375x[1]	IBM Netfinity 500 W Hot-Swap Redundant Power Supply	1	-
30RIxxx	APC Smart-UPS 3000 RMB	1	Installed in NetBAY3
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black	1	-

1.Where 'x' represents a country specific code: 0=Europe, 1=Denmark, 2=Israel, 3=Italy, 4=South Africa, 5= Switzerland, 6=UK, Arabia, and 01K7953=Saudi Arabia

This tower model is configured to meet the need of server consolidation. Many businesses are trying to get their arms around the dispersed departmental servers that have grown-up around the enterprise. By moving multiple servers onto one platform there is only one system to manage, both hardware and software. There is potentially less expensive for service, software licenses, etc., and there is no need to worry about putting all your eggs in one basket because the Netfinity 5500 M20 is deisigned for high availability. This configuration can accommodate over 100GB of data electricity loss, and an internal tape drive that backs up to 70GB per tape...in addition to all the standard features of the Netfinity 5500 M20.

Two Node High Availability Cluster



1.Customer supplied Ethernet Crossover Cable may vary in length up to a maximum of 25 feet (7.6 m).

Two Node High Availability Cluster[1]

Part Number	Description	Qty.	Usage
	Server Nodes A & B		
26RYExx	IBM Netfinity 5500 M20 (Pentium III Xeon 550/1MB 256MB Rack)	2	-
33L5108	Netfinity 500MHz/1 MB Upgrade with Pentium III Xeon Processor	2	Dual SMP Processing
01K7262	Netfinity 128 MB SDRAM ECC RDIMM	2	Total Memory: 384MB (each)
01K8053	9.1GB Wide Ultra SCSI SCA-2 SL HDD	4	NOS on mirrored HDD's
37L6086	IBM Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[4]	2	Three channels for EXP15's
34L1501	Netfinity 10/100 Ethernet Adapter 2[2]	2	Private Interconnect
00N7990	IBM 40/80 GB DLT SCSI Tape Drive	1	-
02K3454	PCI Fast/Wide Ultra SCSI Adapter	1	Tape Drive Controller
OMOEAxx	External V.34 Data/Fax Modem	2	Remote Management
33L375x[3]	IBM Netfinity 500 W Hot-Swap Redundant Power Supply	2	-
30RIxxx	APC Smart-UPS 3000 RMB (3U)	2	-
	Storage Expansion Unit		
SE2RXxx	IBM Netfinity EXP15[4]	1	-
01K7959	IBM Netfinity EXP10 9.1GB Wide Ultra SCSI SCA-2 HDD[4]	5	RAID 5 Shared Storage
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable[4,6]	2	Attach EXP15 to Servers
	Shared (or single occurrence) Resources		
13AG1xx	T55A Flat Screen Colour Monitor (15.0" Viewable Image Size), stealth black	1	Mounts in keyboard tray
28L36xx[5]	Space Saver Keyboard (1U)	1	-
	Industry Standard 19" Rack, EIA-310D, Min. depth of 28"		
9306900	IBM 9306-900 Netfinity Rack	1	-
28L0542	Netfinity Console Server Selector Switch (4-port)	1	-
37L6857	Netfinity Flat Panel Monitor Rack-Mount Kit (3U)	1	Mounts in keyboard tray
28L4707	Netfinity Rack Keyboard Tray (2U)	1	-
94G7448	Power Cable-Type C12	8	-
94G7447	12ft. Console Cable Set	2	-
94G6669	Side Panel Kit	1	-
94G6670	Blank Filler Kit	2	-

1. Validated for Microsoft Cluster Server.
2. Requires customer supplied Ethernet Crossover Cable which may vary in length up to a maximum of 25 feet (7.6 m).
3. Where 'x' represents a country specific code: 0=Europe, 1=Denmark, 2=Israel, 3=Italy, 4=South Africa, 5= Switzerland, 6=UK, Arabia, and 01K7953=Saudi Arabia
4. By replicating these items, up to a total quantity of four ServeRAID-3HB Adapters (plus options) and eleven EXP15's can provide over 2 Terabytes of storage. Additional power and rack space will be required.
5. Where 'xx' represents country specific code: 46=Denmark, 47=France, 48=Germany, 49=Italy, 50=Spanish, 51=UK
6. Cable length requirements are dependent on component placement within the rack or rack suite. To determine specific configuration requirements use the Netfinity Rack and/or the Spreadshset Configurators which can be downloaded from Web site http://www.pc.ibm.com/europe/configurators

Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 5500 M20, provides a high availability solution to keep you in touch with the key applications you need to run your business.

This sample configuration consists of paired IBM Netfinity 5500 M20 cluster nodes equipped with two-way SMP capability and redundant power supplies. Microsoft Cluster Server (MSCS) has been validated on IBM Netfinity 5500 M20 servers, using the IBM ServeRAID-3HB with the EXP15 Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, an IBM EXP15 was selected and the IBM ServeRAID-3HB Ultra2 SCSI Adapters provided the I/O control. Netfinity ServeRAID-3HB handles the "SCSI heartbeat" connection without the need for a dedicated SCSI connection and logically attaches the quorum disk which allows arbitration when a failure occurs. Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL http://www.pc.ibm.com/us/netfinity/clustering.html.

IBM Netfinity 6000R Configurator

Part Number	Withdrawal Date: ddmmyy	Processor Speed (MHz)[2]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)[5]	Bays: (Total/Av)	Slots: (Total/Av
21RYMxx[1]	-	700	1/4	1024	512MB(R)/16GB[3]	Rack(4U)	1/3	P, S, H,F	S-Fans O-Power[4]	Y	10/100	D,U160	2/0	0/218 GB	40X- 17X	8/6[6]	6/6
22RYMxx[1]	-	700	1/4	2048	512MB(R)/16GB[3]	Rack(4U)	1/3	P, S, H,F	S-Fans O-Power[4]	Y	10/100	D,U160	2/0	0/218 GB	40X- 17X	8/6[6]	6/6

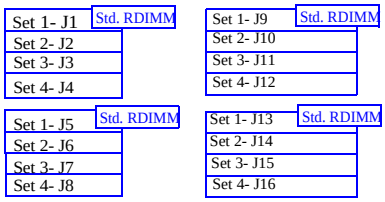
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 6000R Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III Xeon processor with full speed ECC L2 cache and 100 MHz access to memory and I/O buses. IBM intends to make available a Netfinity 6000R model containing an Intel 800 MHz/2 MB L2 Cache Pentium II Xeon processor when Intel makes this processor generally available to the marketplace.
3. Advanced Chipkill ECC memory corrects two-, three-, and four-bit memory errors.
4. N+1 power supply redundancy requires a minimum of one optional Netfinity 270 W Hot-Swap Redundant Power Supply (P/N 37L6879). Robust configurations may require two. See "Power" under "Netfinity 6000R Power, Monitors, Accessories" for additional information.
5. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
6. Netfinity 6000R includes three hot-swap bays. Optional Netfinity 3-Pack Ultra 160 Hot-Swap Expansion Kit (P/N 33L5050) expands the total hot-swap bays to six.

Netfinity 6000R Processor Upgrades

Part Number	Processor Upgrades with Full Speed Cache	SMP Support[1]	Processor Speed Upgrade[2]
00N7946	Netfinity 700 MHz/1 MB Upgrade with Pentium III Xeon Processor	1RY	-
00N7944	Netfinity 700 MHz/2 MB Upgrade with Pentium III Xeon Processor	2RY	1RY

1. Three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of four processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 6000R Memory Configurator



All RDIMMs installed in each set must be the same size, but all the sets do not have to contain RDIMMs of the same size. Install RDIMM sets in numerical sequence from 1 to 4.

Total Memory[1]	Quantity of RDIMMs Added[2]			
	128 MB (P/N 33L3113)	256 MB (P/N 33L3115)	512 MB (P/N 33L3117)	1 GB (P/N 33L3119)
512 MB	4 x 128 RDIMMs standard	-	-	-
1.0 GB	4	-	-	-
1.5 GB	-	4	-	-
2.0 GB	4	4	-	-
2.5 GB	-	8	-	-
3.0 GB	4	-	4	-
4 GB	4	4	4	-
5 GB	4	-	8	-
6 GB[3]	-	8	8	-
7 GB[3]	-	4	12	-
8 GB[3]	-	-	16	-
9 GB	4	-	-	8
10 GB[3]	-	-	12	4
12 GB[3]	-	-	8	8
14 GB[3]	-	-	4	12
16 GB[3] (max)	-	-	-	16

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.

1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. To obtain the quantity of memory identified in the "Total Memory" column, select the appropriate row and order the quantity of RDIMMs identified in all columns for that row. Example: For 2.0 GB, order 4 x 33L3113 plus 4 x 33l3115.
3. Requires removal of standard RDIMMs.

Part Number	Memory Description[1]
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM
33L3115	Netfinity 256 MB, 100 MHz ECC SDRAM RDIMM
33L3117	Netfinity 512 MB, 100 MHz ECC SDRAM RDIMM
33L3119	Netfinity 1 GB 100 MHz ECC SDRAM RDIMM

1. Due to four-way interleaving all RDIMMs installed in each set must be the same size, but all the sets do not have to contain RDIMMs of the same size. Install RDIMM sets in numerical sequence from 1 to 4. Chipkill support is provided on the memory card.

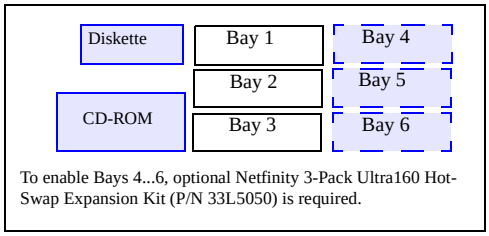
Netfinity 6000R Internal Hard Disk Drive Configurator

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)	18.2 GB (P/N 36L9745 or P/N 37L7202)	36.4 GB (P/N 37L7203)	9.1 GB (P/N 36L9748 or P/N 37L7204)	18.2 GB (P/N 36L9749 or P/N 37L7205)	36.4 GB (P/N 37L7206)
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4[2]	2	1	4[2]	2	1
45.5 GB	5[2]	-	-	5[2]	-	-
54.6 GB	6[2]	3	-	6[2]	3	-
72.8 GB	-	4[2]	2	-	4[2]	2
91 GB	-	5[2]	-	-	5[3]	-
109.2 GB	-	6[2]	3	-	6[3]	3
145.6GB	-	-	4[2]	-	-	4[2]
182GB	-	-	5[2]	-	-	5[2]
218.4GB (max)	-	-	6[2]	-	-	6[2]

This table does not represent all possible hard drive configurations.
1. Select a total storage row and then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2. Requires Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050).

Bay	Form Factor	Height	Front Access	Usage
-	89 mm (3.5")	SL	Yes	Diskette
-	133 mm (5.25")	HH	Yes	IDE CD-ROM
1...3	HS	SL[1]	Yes	Open
4...6[2]	HS	SL[1]	Yes	Open

1. Half-high (HH) devices are NOT supported.
2. To enable Bays 4...6, optional Netfinity 3-Pack Utra160 Hot-Swap Expansion Kit (P/N 33L5050) is required.



To enable Bays 4...6, optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) is required.

Part Number	Description	RPM	Height	Bays Supported[2]	Max. Qty.
Ultra2 Disk Drives (HDD)					
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[1]
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[1]
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...6	6[1]
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...6	6[1]
Ultra160 Hard Disk Drives (HDD)					
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[1]
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1...6	6[1]
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[8]	7200	SL	1...6	6[1]
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1...6	6[1]
37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1...6	6[1]
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1...6	6[1]
Associated Options					
33L5050	Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit[2]	-	3 x SL	4...6	-

	External Storage Expansion Units[3]	Form Factor
00N6xxx[9]	Netfinity EXP200 Storage Expansion Unit[4]	Rack (3U)
37L0xxx[10]	Netfinity EXP200 350 W Redundant Power Supply	-
19K11xx[11]	Netfinity EXP300 Storage Expansion Unit[5, 7]	Rack (3U)
00N71xx[12]	Netfinity FAStT EXP500 Storage Expansion Unit[6]	Rack (3U)

1. Netfinity 6000R ships with bays 1...3 enabled. To enable installation of greater than three HDDs requires Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050).
2. Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) includes a hot-swap backplane and associated components for two cabling options. Within the option are two 16-bit LVD SCSI cables. One can be attached from the 3-pack Ultra160 Hot-Swap backplane to the second connector of the dual-channel Ultra160 SCSI controller, the other, through the use of a repeater card included with the option, can be cabled directly to the standard backplane. Utilizing the second channel will eliminate the possibility of attaching external devices to that channel.
3. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
4. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP200 350W Redundant Power Supply (P/N 37L0xxx[10]) includes an additional power cord.
5. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500W redundant power supplies, each with its own power cord.
6. Netfinity FAStT EXP500 Storage Expansion Unit includes dual hot-swap 350W power supplies, each with its own power cord.
7. Planned availability of June 30, 2000.
8. Planned availability of August 2000.
9. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
10. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
11.Where 'xx' represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.
12. Where 'xx' represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/ Language Line Cords/Publications are included as indicated.

Internal SCSI Cabling

The Netfinity 6000R contains a DASD backplane supporting three hot-swap, SCA-2 compliant drive bays. The backplane is connected to one of the internal connectors of the integrated dual-channel Ultra160 SCSI controller through a 16-bit LVD SCSI cable. An optional Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit (P/N 33L5050) can be installed to provide additional internal HDD storage capacity. Within this option are two 16-bit LVD SCSI cables. One can be attached from the 3-Pack Ultra Hot-Swap backplane to the second connector of the dual-channel Ultra160 SCSI controller, the other, through the use of a repeater card included with the option, can be cabled directly to the standard backplane.

In configurations where external SCSI device attachment is required instead of additional internal HDD storage, a second 16-bit LVD SCSI cable is included with the server. One end of the cable can be attached to the second Ultra160 connector and the other is attached to the external 0.8-mm VHDCI connector on the back of the chassis. This provides an external connection to support LVDS devices.

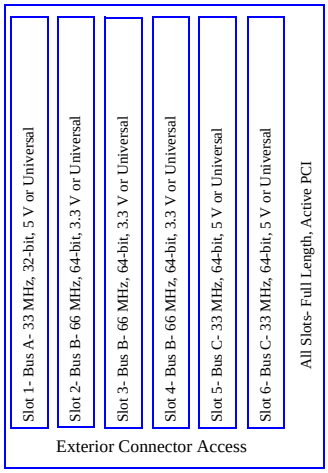
To access information on the World Wide Web, use address: http://www.pc.ibm.com

Netfinity 6000R I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]	PCI Voltage Key	MHz
	Storage Controllers[3]						
19K0564	Netfinity ServeRAID-3L Ultra2 SCSI Adapter II[5]	Full	32-bit	1, 5...6	X	5	33
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[6]	Full	32/64-bit	1, 5...6	X	5	33
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[7, 22]	Full	32/64-bit	1...6[4]	X	Universal	33
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[8, 22]		32/64-bit	1...6[4]	X	Universal	33
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[9]		32/64-bit	1...6[4]	X	Universal	33
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1, 5...6	-	5	33
33L5000	PCI Wide Ultra2 SCSI Adapter[10]	Half	32-bit	1...6[4]	-	Universal	33
	Fibre Storage Controllers and Options[11]						
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...6[4]	-	Universal	33
SFCU1xx[23]	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...6	X	Universal	66
00N69xx[24]	Netfinity FAStT500 RAID Controller	-	-	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-	-	-
	Networking[12]						
	Ethernet						
09N9901	Netfinity 10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1...6[4]	X	Universal	33
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...6[4]	X	Universal	33
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...6[4]	X	Universal	33
	Token Ring						
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...6[4]	-	Universal	33
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1, 5...6	X	5[13]	33
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[14]	Half	32-bit	1...6[4]	X	Universal	33
	Communications[15]						
37L14xx	Serial I/O SST 8, 16, and 128 port adapters[16]	Half	32-bit	1, 5...6[16]	-	5	33
	Systems Management[17]						
36L96xx[25]	Netfinity Advanced System Management PCI Adapter[18, 19]	Full	32-bit	1, 5...6[19]	-	5	33
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[20]	-	-	-	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[21]	-	-	-	-	-	-

1.The 5 V - 33 MHz slots support Universal or 5 V adapters. A universal voltage-66 MHz adapter plugged into these slots will operate at 33 MHz.The 3.3 V slots support universal or 3.3 V adapters. A universal voltage-33 MHz adapter plugged into these slots limits a 66 MHz PCI adapter installed on the same bus to 33 MHz.
2. All 6 slots are full length hot-plug capable using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat
3. Netfinity 6000R includes a dual-port, dual-channel Ultra160 SCSI controller. See "Internal SCSI Cabling" for cabling alternatives.
4. Installation of a 33 MHz adapter into a Bus B 66 MHz slot will slow operation of all Bus B slots to 33 MHz.
5. Netfinity ServeRAID-3L Ultra2 SCSI Adapter II (P/N 19K0564) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
6. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
7. Netfinity ServeRAID-4L Ultra160 SCSI controller is powered by a 100 MHz Intel i960 processor and provides a single channel, 16 MB of ECC cache and either one internal or one external Ultra160 connection. External connector is 0.8-mm VHDCI.
8. Netfinity ServeRAID-4M Ultra160 SCSI controller is powered by a 100MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
9. Netfinity ServeRAID-4H Ultra160 SCSI controller is powered by a 266MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
10. PCI Wide Ultra2 SCSI Adapter (P/N 33L5000) provides either one internal or one external LVDS SCSI channel.
11. See Netfinity Fibre Array Solutions section for additional configuration information.
12. Netfinity 6000R has an integrated 10/100 PCI Ethernet Controller.
13. Early versions of Token-Ring 16/4 PCI Adapter 2 (P/N 34L0601) were keyed as Universal, while current versions are keyed for 5 V. All versions are supported in 5 V PCI slots only.
14. The Wake on LAN function of this option is not supported by Netfinity servers.
15. Netfinity 6000R includes two USB ports, two serial and one parallel port.

16. See Appendix E for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.
17. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 6000R works with Netfinity Director to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 36L96xx) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
18. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
19. A maximum quantity of one is supported.
20. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 1xX to 4xX are not supported). Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
21. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter, and a PC Card to 9-pin D-Shell cable which is routed to an available adapter slot opening (reduces available slots by one). The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together.
22. Planned availability of August 2000.
23. Where 'xx' = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/English, EU=countries not covered previously.
24. Where 'xx' represents a country specific code as follows:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated
25. Where 'xx' represents a country specific code: 57=Denmark, 58=South Africa/India, 59=UK, 60=Switzerland, 61=Italy, 62=Israel, 01K7310=Europe, 01K7209=US/Saudi Arabia.



Netfinity 6000R Power, Monitors, Accessories

Part Number	Description
Power[1]	
37L6879	Netfinity 270 W Hot-Swap Redundant Power Supply[2]
Uninterruptible Power Supply (UPS)[3]	
14RIxxx	APC Smart-UPS 1400RMB[4]
30RIxxx	APC Smart-UPS 3000RMB[4]
37L6862	APC Smart-UPS 5000RMB[5]
Monitors[6]	
31H2Nxx	E54 Color Monitor 15” (350 mm, 13.8” Viewable Image Size), stealth black[7]
4841Nxx	G76 Color Monitor 17” (406-mm, 16” Viewable Image Size), stealth black[7]
494ANxx	G96 Color Monitor 19” (454-mm, 17.9” Viewable Image Size), stealth black[8]
13AG1xx	T55A Flat Panel Color Monitor (15.0” Viewable Image Size), stealth black[9]

Part Number	Description
Rack and NetBAY[1]	
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
36L9703	Netfinity Rack Extension Kit
9306200	Netfinity NetBAY22
36L9702	Netfinity NetBAY22 Rack Extension Kit
Keyboard and Mouse[2]	
28L36xx[6]	Space Saver II Keyboard[3, 4]
28L36xx[7]	Preferred Keyboard (stealth black)[5]
28L3675	Sleek 2-Button Stealth Black Mouse

1. Netfinity 6000R systems include a single 270 W, hot-swap power supply and two 9 ft. power cords, one high voltage IEC 320-C13 and one low voltage IEC 320-C13 to NEMA 5-15P. N+1 power supply redundancy may be achieved with the addition of optional Netfinity 270 W Hot-Swap Redundant Power Supply (P/N 37L6879). Redundancy for configurations of greater than 270 W requires installation of a second optional supply. To assist in determining when an additional power supply is required to preserve redundancy, a “Non-Redundant LED” is a standard feature of the Netfinity 6000R. The following table is provided as a reference.

Number of Power Supplies	System Configuration Supported
	Non-Redundant
	Up to two processors
1	Up to three PCI adapters
	Up to three HDDs
	Up to eight memory RDIMMs

2. Netfinity 270 W Hot-Swap Redundant Power Supply (P/N 37L6879) includes a single low voltage 9 ft. power cord.
3. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
4. Height is 3U. See “Rack and NetBAY” for supported IBM racks.
5. Height is 5U. See “Rack and NetBAY” for supported IBM racks.
6. Netfinity 6000R uses an SVGA controller (S3 Savage4 chipset) with 8 MB of video memory.
7. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
8. Not supported for installation in a 19” rack.
9. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.

1. Netfinity 6000R is housed in a 19” rack mountable drawer and requires one of the racks listed here. See “IBM Netfinity Rack Cabinet and Options” section for IBM rack supported devices.
2. Netfinity 6000R ships without a keyboard or mouse.
3. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in “ready-to-use” position).
4. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
5. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
6. Where ‘xx’ represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
7. Where ‘xx’ represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch, 37=US.

Netfinity 6000R Tape Options

Part Number	Tape Drives	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	N/A[1]	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[2]	N	03K8756
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	N/A[1]	16	133 mm (5.25") HH	N	N	03K8756
01K1320	20/40 GB DLT Internal SCSI Tape Drive	N/A[1]	8	133 mm (5.25")FH	Y[2]	Y	03K8756
00N7990	40/80 GB DLT Internal SCSI Tape Drive	N/A[1]	16 LVD	133 mm (5.25") FH	N	N	03K8756
	External Tape Enclosures						
03K8756	NetMEDIA Storage Expansion Unit EL[3]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[4]	-	16 LVD	-	N	N	03K8756
	External Tape Libraries[5]						
00N79xx[6]	DLT Tape Library	-	16	Desktop or Rack	Y	-	-

1. Netfinity 6000R does not support internal tape drives. An external tape or tape enclosure must be used. If not used internally, the second integrated Ultra160 connector may be routed to an external 0.8-mm VHDCI connector with a cable included with the server.
2. Tape drive is capable of self termination.
3. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 133 mm (5.25") bays. External connector is 0.8-mm VHDCI. Includes two power supplies and two power cords.
4. Installs in an enclosure P/N 03K8756. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 3551001 is powered off.
5. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.
6. Where 'xx' represents a country specific power cord code: *Tower versions* - 74=EU1, 75=Denmark, 76=India/South Africa, 77=UK, 78=Swiss, 79=Italy, 80=Israel: *Rack versions* - 81=EU1, 82=Denmark, 83=India/South Africa, 84=UK, 85=Swiss, 86=Italy, 87=Israel.

NOTE: SCSI support for tape drives is provided by system unit onboard controller or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

Netfinity 6000R Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Description	Quantity
21RYMxx	Netfinity 6000R 700/1 MB Xeon, 512 MB(R) ECC, Open, 40X, PCI (Rack 4U)	1
19K0564	Netfinity ServeRAID-3L Ultra2 SCSI Adapter II	1
33L5050	Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit	1
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD[1]	4
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1
03K8756	NetMEDIA Storage Expansion Unit EL	1
03K9310	Netfinity 2 M Ultra2 SCSI Cable	1
31H2Nxx	E54 Color Monitor 15" (350 mm, 13.8" Viewable Image Size), stealth black	1
14RIxxx	APC Smart-UPS 1400RMB	1
	Industry Standard 19" Rack, EIA-310D, min. depth of 28" (711 mm)	
9306200	Netfinity NetBAY22	1
28L36xx	Space Saver II Keyboard	1
94G6670	Blank Filler Panel Kit	2

1. For a total of 18.2 GB of RAID protected, hot-swap, hot-spare internal storage.

An Internet server is a server that handles all requests from the Internet (intranet or extranet). Usually, this type of server has the same characteristics as a file server. The main difference is that an internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind, the IBM Netfinity 6000R was selected to provide an affordable price point for the growing internet server market, 512 MB of system memory (expandable to 16 GB), and availability features such as RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.

The network configuration depends on the method that will be used to connect the server to the Internet. Usually fast Ethernet routers are used, but if other methods are used, you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

Application Server

Part Number	Description	Quantity
22RYMxx	Netfinity 6000R 700/2 MB Xeon, 512 MB(R) ECC, Open, 40X, PCI (Rack 4U)	1
00N7944	Netfinity 700 MHz/2 MB Upgrade with Pentium III Xeon Processor	3
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM[1]	4
33L3115	Netfinity 256 MB, 100 MHz ECC SDRAM RDIMM[1]	4
33L5050	Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit	1
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[2]	4
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1
03K8756	NetMEDIA Storage Expansion Unit EL	1
10L7113	NetMEDIA Systems Management Adapter	1
03K9310	Netfinity 2 M Ultra2 SCSI Cable	1
31H2Nxx	E54 Color Monitor 15” (350 mm, 13.8” Viewable Image Size), stealth black	1
14RIxxx	APC Smart-UPS 1400RMB	1
37L6879	Netfinity 270 W Hot-Swap Redundant Power Supply	2
Industry Standard 19” Rack, EIA-310D, min. depth of 28” (711 mm)		
9306200	Netfinity NetBAY22	1
28L36xx	Space Saver II Keyboard	1
94G6670	Blank Filler Panel Kit	2

1. For a total of 2 GB of system memory.
2. For a total of 109.2 GB usable RAID 5 storage.

An application server is designed to handle a high workload while providing application serving requirements for users. With this in mind, the IBM Netfinity 6000R was selected to provide an affordable price point for an application server, with four-way Pentium III Xeon processing, 2 GB of system memory (expandable to 16 GB), and availability features such as battery-backed cache RAID protected internal hot-swap storage and power protection with an APC Smart-UPS.

IBM Netfinity 7100 Configurator

Part Number	Withdrawal Date:ddmmyy	Processor Speed (MHz)[2]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots: (T/A)
611YExx	-	550	1/4	512	256MB(R)/16GB	Tower	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X-17X[3]	14/12	6/6
61RYExx[1]	-	550	1/4	512	256MB(R)/16GB	Rack(8U)	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X-17X[3]	14/12	6/6
621YExx	-	550	1/4	1024	256MB(R)/16GB	Tower	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X-17X[3]	14/12	6/6
62RYExx[1]	-	550	1/4	1024	256MB(R)/16GB	Rack(8U)	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X-17X[3]	14/12	6/6
631YMxx	-	700	1/4	1024	256MB(R)/16GB	Tower	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X-17X[3]	14/12	6/6
63RYMxx[1]	-	700	1/4	1024	256MB(R)/16GB	Rack(8U)	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X-17X[3]	14/12	6/6
641YMxx	-	700	1/4	2048	256MB(R)/16GB	Tower	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X-17X[3]	14/12	6/6
64RYMxx[1]	-	700	1/4	2048	256MB(R)/16GB	Rack(8U)	2/4	P, H,F	S-Fans S-Power	Y	10/100	D,U2	4/2	0/364GB	40X-17X[3]	14/12	6/6

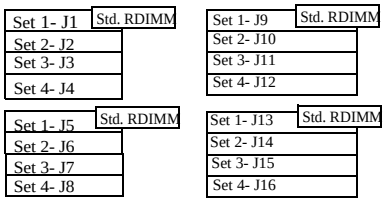
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 7100 Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III processor with advanced transfer (full speed) L2 cache and 100 MHz access to memory and I/O buses.
3. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

Netfinity 7100 Processor Upgrades

Part Number	Processor Upgrades with Full Speed Cache	SMP Support[1]	Processor Speed Upgrade[2]
33L5056	Netfinity 550 MHz/512 KB Upgrade II with Pentium III Xeon Processor	1xY	-
33L5057	Netfinity 550 MHz/1 MB Upgrade II with Pentium III Xeon Processor	2xY	All 1xY
10K2331	Netfinity 700 MHz/1 MB Upgrade II with Pentium III Xeon Processor	3xY	All 1...2xY
10K2332	Netfinity 700 MHz/2 MB Upgrade II with Pentium III Xeon Processor	4xY	All 1...3xY

1. Three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of four processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 7100 Memory Configurator



All RDIMMs installed in each set must be the same size, but all the sets do not have to contain RDIMMs of the same size. Install RDIMM sets in numerical sequence from 1 to 4.

Total Memory[1]	Quantity of RDIMMs Added[2]				
	64 MB (P/N 33L3067)	128 MB (P/N 33L3113)	256 MB (P/N 33L3115)	512 MB (P/N 33L3117)	1 GB (P/N 33L3119)
256 MB	4 x 64 RDIMMs Standard	-	-	-	-
512 MB	4	-	-	-	-
768 MB	-	4	-	-	-
1.0 GB	4	4	-	-	-
1.2 GB	-	-	4	-	-
1.7 GB	-	4	4	-	-
2.0 GB	4	4	4	-	-
2.7 GB	-	4	-	4	-
3.0 GB	4	4	-	4	-
3.2 GB	-	-	4	4	-
3.7 GB	-	4	4	4	-
4 GB[3]	-	8	4	4	-
5 GB[3]	-	-	12	4	-
6 GB[3]	-	-	8	8	-
7 GB[3]	-	-	4	12	-
8 GB[3]	-	-	-	16	-
9 GB[3]	-	-	4	8	4
10 GB[3]	-	-	-	12	4
12 GB[3]	-	-	-	8	8
14 GB[3]	-	-	-	4	12
16 GB[3] (max)	-	-	-	-	16

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. To obtain the quantity of memory identified in the "Total Memory" column, select the appropriate row and order the quantity of RDIMMs identified in all columns for that row. Example: For 1.0 GB, order 4 x 33L3067 and 4 x 33L3113.
3. Requires removal of standard memory DIMMs.

Part Number	Memory Description[1]	Upgrade 10K2169 Compatible[2]
33L3067	Netfinity 64 MB, 100 MHz ECC SDRAM RDIMM	-
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM	X
33L3115	Netfinity 256 MB, 100 MHz ECC SDRAM RDIMM	X
33L3117	Netfinity 512 MB, 100 MHz ECC SDRAM RDIMM	X
33L3119	Netfinity 1 GB 100 MHz ECC SDRAM RDIMM[3]	X
10K2169	Netfinity Active PCI/Chipkill Upgrade Kit[3]	X

1. Due to four-way interleaving all RDIMMs installed in each set must be the same size, but all the sets do not have to contain RDIMMs of the same size. Install RDIMM sets in numerical sequence from 1 to 4.
2. Memory designated by an "X" may be used with NetfinityActive PCI/Chipkill Upgrade Kit (P/N 10K2169)
3. Netfinity Active PCI/Chipkill Upgrade Kit (P/N 10K2169) provides an upgrade to hot-swap PCI slots and "Chipkill" ECC memory.

Netfinity 7100 Internal Hard Disk Drive Configurator

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)[2]	18.2 GB (P/N 36L9745 or P/N 37L7202)[2]	36.4 GB (P/N 36L9746 or P/N 37L7203)[2]	9.1 GB (P/N 36L9748 or P/N 37L7204)[2]	18.2 GB (P/N 36L9749 or P/N 37L7205)[2]	36.4 GB (P/N 36L9750 or P/N 37L7206)[2]
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	5	-	-	5	-	-
54.6 GB	6	3	-	6	3	-
63.7GB	7	-	-	7	-	-
72.8 GB	8	4	2	8	4	2
81.9GB	9	-	-	9	-	-
91 GB	10	5	-	10	5	-
109.2 GB	-	6	3	-	6	3
127.4GB	-	7	-	-	7	-
145.6GB	-	8	4	-	8	4
163.8GB	-	9	-	-	9	-
182GB	-	10	5	-	10	5
218.4GB	-	-	6	-	-	6
254.8GB	-	-	7	-	-	7
291.2 GB	-	-	8[3]	-	-	8[3]
327.6 GB	-	-	9[3]	-	-	9[3]
364 GB (max)	-	-	10[3]	-	-	10[3]

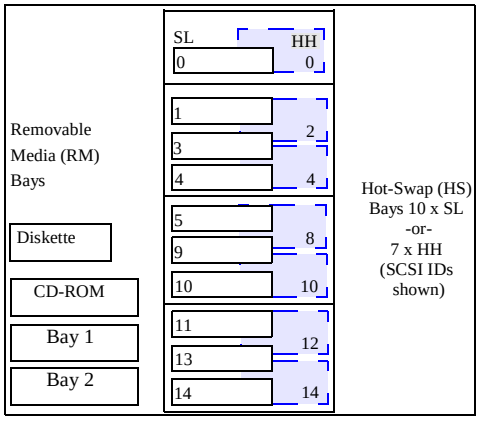
This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.
2. Netfinity 7100 contains an Ultra2 hot-swap backplane which limits Ultra160 HDDs to Ultra2 bus speeds.
3. Part numbers 36L9746 and 36L9750 are half-high devices and therefore cannot be utilized for configurations requiring greater than a quantity of seven.

Bay	Form Factor	Height	Front Access	Usage
-	89 mm (3.5")	SL	Yes	Diskette
-	133 mm (5.25")	HH	Yes	IDE CD-ROM
RM 1	133 mm (5.25")	HH[1]	Yes	Open
RM 2	133 mm (5.25")	HH[1]	Yes	Open
1...10 or 1...7	HS	SL or HH[2]	Yes	Open
NB3[3]	19" Rack	3U	Yes	Open

1. Two half-high (HH) bays can be combined to support a single full-high (FH) device

2. The top bay is HH; all others are configured in groups of 3 SL bays. When a HH drive is installed in one of these groups, only another HH or a single SL drive can be installed in the same group. For clarity, the SCSI IDs are identified.

3. Tower configured systems support installation of up to 3 NetBAY3s. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.



Netfinity NetBAY3 (NB3)
(Optional on Tower Configurations)

1. The top bay is HH; all others are configured in groups of three SL bays. When a HH drive is installed in one of these groups, only another HH or a single SL drive can be installed in the same group. For clarity, the SCSI IDs are identified.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
	Internal Hard Disk Drives (HDD)				
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
36L9746	Netfinity 36.4 GB Wide Ultra2 SCSI Hot-Swap HDD	7200	HH[2]	See diagram	7
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10
36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10,000	HH[2]	See diagram	7
	Ultra160 Hard Disk Drives (HDD)[1]				
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[8]	7200	SL	See diagram	10
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10
37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10

	External Storage Expansion Units[3]	**Form Factor**
00N6xxx[9]	Netfinity EXP200 Storage Expansion Unit[4]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	-
37L0xxx[10]	Netfinity EXP200 350 W Redundant Power Supply	-
35311RU	Netfinity EXP300 Storage Expansion Unit[5, 7]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[7]	-
00N71xx[11]	Netfinity FAStT EXP500 Storage Expansion Unit[6]	Rack (3U)

1. Netfinity 7100 contains an Ultra2 hot-swap backplane which limits Ultra160 HDDs to Ultra2 bus speeds.
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device. See Bay diagram for identification of which bays can be combined. A mixture of HH, SL, 10,000 rpm and 7,200 rpm drives is supported.
3. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
4. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0xxx) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
5. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
6. Netfinity FAStT EXP500 Storage Expansion Unit includes dual hot-swap 350 W power supplies, each with its own power cord.
7. Planned availability of June 30, 2000.
8. Planned availability of August 2000.
9. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
10. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
11. Where 'xx' represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/ Language Line Cords/Publications are included as indicated.

Internal SCSI Cabling

The Netfinity 7100 contains a DASD backplane supporting ten hot-swap, SCA-2 compliant drive bays. The backplane is connected to Channel B of the integrated dual-channel, Wide Ultra2 SCSI controller through a 16-bit LVD SCSI cable. Channel A only supports external SCSI attachment and is cabled directly to the external 0.8mm VHDCI SCSI connector. To support devices in the internal 133/89-mm (5.25/3.5-inch) half-high bays, a two-drop, 16-bit LVD SCSI cable with integrated terminator is included with the server. This cable can be used to connect to an optional SCSI adapter or, in the case of RAID configurations where the backplane cable is attached to an optional RAID adapter, it can be connected to the Channel B connector.

Netfinity 7100 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]	PCI Voltage Key	MHz
	Storage Controllers[3]						
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[4]	Full	32-bit	3...6	X[2]	5	33
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[5]	Full	32/64-bit	3...6	X[2]	5	33
37L6091	Netfinity ServeRAID-4L Ultra160 SCSI Controller[6, 18]	Full	32/64-bit	1...6	X	Universal	33
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[7, 18]	Full	32/64-bit	1...6	X	Universal	33
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[8]	Full	32/64-bit	1...6	X	Universal	33
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	3...6	-	5	33
	Fibre Storage Controllers and Options[9]						
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...6	-	Universal	33
SFCU1xx[19]	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...6	X[2]	Universal	66
00N69xx[20]	Netfinity FAStT500 RAID Controller	-	-	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-	-	-
	Networking[10]						
	Ethernet						
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...6	X[2]	Universal	33
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	3...6	X[2]	5	33
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...6	X[2]	Universal	33
	Token Ring						
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...6	-	Universal	33
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[11]	Half	32-bit	1...6	X[2]	Universal	33
	Communications[12]						
	Systems Management[13]						
36L96xx[21]	Netfinity Advanced System Management PCI Adapter[14,15]	Full	32-bit	3...6[15]	-	5	33
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[16]	-	-	-	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[17]	-	-	-	-	-	-
	Other						
10K2169	Netfinity Active PCI/Chipkill Upgrade Kit[2]	-	-	3...6	X	-	-

1.The 5 V slots support Universal or 5 V adapters. The 3.3 V slots support 3.3 V adapters. A Universal Keyed 66 MHz adapter plugged into a 33 MHz slot will operate at 33 MHz. A Universal Keyed 33 MHz adapter plugged into a 66 MHz slot limits other adapters installed on the same bus to 33 MHz.
2. Netfinity 7100 does not ship with hot-plug PCI slots. The addition of optional Netfinity Active PCI/Chipkill Upgrade Kit (P/N 10K2169) provides slots 3-6 with hot-plug capability using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat
3.Netfinity 7100 includes a dual-port, dual-channel, 64-bit Wide Ultra2 SCSI controller with one internal connector and one external port with a 0.8-mm Very High Density Connection Interface (VHDCI).
4. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel.
5. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
6. Netfinity ServeRAID-4L Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides a single channel, 16 MB of ECC cache and one internal or one external Ultra160 connection. External connectors are 0.8-mm VHDCI.
7. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
8. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
9. See Netfinity Fibre Array Solutions section for additional configuration information.
10. Netfinity 7100 includes a full-duplex, 10/100 Mbps Ethernet PCI Controller.
11. The Wake on LAN function of this option is not supported by Netfinity servers.
12. Netfinity 7100 includes two USB ports, two high-speed serial/asynchronous ports, (NS16550A compatible), and one high-speed (up to 2 MB/sec. data transfer speed) bi-directional parallel port supporting devices using ECP/EPP/SSP protocols adhering to the IEEE 1284 standard.
13. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 7100 works with Netfinity Director to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 36L96xx) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
14. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
15. A maximum quantity of one is supported.

16. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 8660-1...4xU are not supported). Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
17. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter), and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together. To download the latest firmware access URL www.pc.ibm.com/us/netfinity. Select "Server Support", "Family", "Model", "Downloadable files", and finally "Advanced Systems Management".
18. Planned availability of August 2000.
19. Where 'xx' = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/English, EU=countries not covered previously.
20. Where 'xx' represents a country specific code:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated
21. Where 'xx' represents a country specific code: 57=Denmark, 58=South Africa/India, 59=UK, 60=Switzerland, 61=Italy, 62=Israel, 01K7310=Europe, 01K7209=US/Saudi Arabia.

Slot 1- Bus A- 66 MHz- 3.3 V or Universal
Slot 2- Bus A- 66 MHz- 3.3 V or Universal
Slot 3- Bus B- 33 MHz- 5 V or Universal
Slot 4- Bus B- 33 MHz- 5 V or Universal
Slot 5- Bus B- 33 MHz- 5 V or Universal
Slot 6- Bus B- 33 MHz- 5 V or Universal
All Slots- Full Length, 64-bit

Netfinity 7100 Power, Monitors, Accessories

Part Number	Description
Power[1]	
33L37xx[10]	Netfinity 250 W Hot-Swap Redundant Power Supply
Uninterruptable Power Supply (UPS)[2]	
SUP142Y	APC Smart-UPS 1400
14RIxxx	APC Smart-UPS 1400RMB[3]
30RIxxx	APC Smart-UPS 3000RMB[3]
37L6862	APC Smart-UPS 5000RMB[4]
Monitors[5]	
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black[6]
4841Nxx	G76 UV-NH Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black[6]
494ANxx	G96 Color Monitor 19" (454-mm, 17.9" Viewable Image Size), stealth black[8]
13AG1xx	T55A Flat Panel Color Monitor (381-mm, 15.0" Viewable Image Size), stealth black[7]

1. Netfinity 7100 includes two 250W hot-swap redundant power supplies, with the ability to accept up to two additional Netfinity 250 W Hot-Swap Redundant Power Supplies (P/N 33L37xx). Each power Supply includes its own 9-foot power cord for attachment to a low voltage UPS, PDU or wall outlet. To assist in determining when an additional power supply is required to preserve redundancy, a "Non-Redundant LED" is a standard feature of the Netfinity 7100. Predicting whether or not a particular configuration will require an additional power supply for redundancy is very complex. However, once the system is installed, the "Non-Redundant LED" will indicate when an additional power supply is required. The following sample configuration is provided as a reference.

Number of Power Supplies	System Configuration Supported
Typical Non-Redundant Configuration	
	2 x Processors
2	3 x PCI Adapters
	4 x Half-High or 5 Slim-Line HDDs
	8 x 512 MB RDIMMs
	No Redundancy
Typical Redundant Configuration	
	4 x Processors
3[9]	6 x PCI Adapters
	7 x Half-High or 10 Slim-Line HDDs
	16 x 512 MB RDIMMs
4	Full Configuration with Redundancy

Part Number	Description
Conversion Kits	
37L6860	Netfinity 8Ux24D Rack-to-Tower Kit[1]
37L6859	Netfinity 8Ux24D Tower-to-Rack Kit
Rack and NetBAY[2]	
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
10L6912	Netfinity NetBAY3[3]
10L6913	Netfinity Caster Set
Keyboard and Mouse[4]	
28L36xx[8]	Space Saver II Keyboard[5, 7]
28L36xx[9]	Preferred Keyboard (stealth black)[6]
28L3675	Sleek 2-Button Stealth Black Mouse

1. Includes one Netfinity NetBAY3 with casters.
2. Netfinity 7100 rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. Tower models require Netfinity 8Ux24D Tower-to-Rack Kit (P/N 37L6859) for installation in a rack.
3. Netfinity 7100 tower models require Netfinity 8Ux24D Rack-to-Tower Kit (P/N 37L6860) for use with a NetBAY3. A maximum of three NetBAY3 enclosures, including the one which ships with the conversion kit, may be stacked beneath a supported Netfinity tower server. Optional NetBAY3s must be shipped separately and not while attached to the base configuration. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
4. Tower models includes both a mouse and keyboard. Rack models include neither.
5. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
6. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
7. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
8. Where 'xx' represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
9. Where 'xx' represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch, 37=US.

2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate
3. Height is 3U. See “Rack and NetBAY” for supported IBM racks.
4. Height is 5U. See “Rack and NetBAY” for supported IBM racks.
5. Netfinity 7100 uses an SVGA controller (S3 Trio 3D chipset) with 4 MB of video memory.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same keyboard tray P/B 28L4707.
8. Not supported for installation in a 19” rack.
9. The addition of a DLT tape drive may require a fourth power supply to preserve redundancy.
10. Where ‘xx’ refers to a country specific code: 60=Saudi Arabia, 61=Europe, 62=Denmark, 63=Israel, 64=Italy, 65=South Africa, 66=Switzerland, 67=United Kingdom&Arabia.

Netfinity 7100 Tape Options

Part Number	Tape Drives	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	1, 2	16 Ultra2 LVD	89 mm (3.5”) HH or 133 mm (5.25”)HH	Y[1]	N	10L7440, 03K8756
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1, 2	16	133 mm (5.25”) HH	N[2]	N	10L7440[4], 03K8756
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1/2	16 Ultra2 LVD	133-mm (5.25”) FH	N[1]	N	03K8705[4] 03K8756
Associated Options							
32G3918	SCSI-2 16-bit Active Terminator	-	16	Ext.	Y	N	10L7440, 03K8705
Tape Autoloaders							
00N79xx[5]	DLT Tape Autoloader	N/A	16	Desktop	Y	-	-
External Tape Libraries[3]							
00N79xx[6]	DLT Tape Library	-	16	Desktop or Rack	Y	-	-

1. Tape drive is capable of self termination.
2. Netfinity 7100 includes a terminated, 2-drop, 16-bit, LVD SCSI cable for attachment from the onboard SCSI controller or supported adapter to devices in the removable media bays.
3. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Where ‘xx’ represents a country specific power cord code: 70=UK, 71=Swiss, 72=Italy, 73=Israel, 33L4981=EU1, 33L4982=Denmark, 33L4983=South Africa/India.
6. Where ‘xx’ represents a country specific power cord code: *Tower versions* - 74=EU1, 75=Denmark, 76=India/South Africa, 77=UK, 78=Swiss, 79=Italy, 80=Israel: *Rack versions* - 81=EU1, 82=Denmark, 83=India/South Africa, 84=UK, 85=Swiss, 86=Italy, 87=Israel.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM Netfinity Servers, access the ServerProven™ compatibility pages on the Web at URL www.ibm.com/pc/us/compat.

Netfinity 7100 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability Application Server

Part Number	Description	Quantity	Usage
641YMxx	Netfinity 7100 700/2 MB Xeon, 256 MB(R) ECC, Open, 40X, PCI	1	-
33L3067	Netfinity 64 MB, 100 MHz ECC SDRAM RDIMM	4	-
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM	4	-
33L3115	Netfinity 256 MB, 100 MHz ECC SDRAM RDIMM	4	2 GB Total System Memory
10K2332	Netfinity 700 MHz/2 MB Upgrade II with Pentium III Xeon Processor	2	Total of 3 SMP processors
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	2	9.1 GB mirrored for NOS
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	6	72 GB RAID 5 with hot-spare
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	-
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID 1 for NOS, RAID 5 for data
33L37xx	Netfinity 250 W Hot-Swap Redundant Power Supply	1	Full power redundancy
4841Nxx	G76 UV-NH Color Monitor 17” (406 mm, 16” Viewable Image Size), stealth black	1	
14RIxxx	APC Smart-UPS 1400	1	UPS

This tower server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power and UPS for power even during a blackout, this server represents the leading edge in high availability. An internal tape drive is included to back up that all important asset...data. A modem could be included to allow out-of-band (non-LAN) system management utilizing the integrated Netfinity Advanced System Management Processor.

Server Consolidation

Part Number	Description	Quantity	Usage
631YMxx	Netfinity 7100 700 MHz/1 MB Xeon, 256 MB(R) ECC, Open, 40X, PCI (Rack 8U)	1	-
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM	4	768 MB Total System Memory
10K2331	Netfinity 700 MHz/1 MB Upgrade II with Pentium III Xeon Processor	1	Total of 2 SMP processors
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	2	9.1 GB mirrored for NOS
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	8	109 GB RAID 5 with hot-spare
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID 1 for NOS, RAID 5 for data
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	2	Total of 3 Ethernet connections
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	-
33L37xx	Netfinity 250 W Hot-Swap Redundant Power Supply	1	Full Power Redundancy
4841Nxx	G76 UV-NH Color Monitor 17” (406 mm, 16” Viewable Image Size), stealth black	1	-
14RIxxx	APC Smart-UPS 1400	1	UPS

This tower model is configured to meet the need of server consolidation. Many businesses are trying to get their arms around the dispersed departmental servers that have grown up around the enterprise. By moving multiple servers onto one platform there is only one system to manage, both hardware and software. There is potentially less expense for service, software licenses, etc., and there is no need to worry about putting all your eggs in one basket because the Netfinity 7100 is designed for high availability. This configuration includes 109 GB of internal HDD storage, features a third power supply which provides fully redundant power, a UPS to help protect the system against a momentary electricity loss, and an internal tape drive that backs up, up to 80 GB per tape...in addition to all the standard features of the Netfinity 7100.

IBM Netfinity 7600 Configurator

Part Number	Withdrawal Date:ddmmyy	Processor Speed (MHz)[2]	Number of Processors (Std./Max)	L2 ECC Cache (KB)	Memory (Std./Max) (R = RDIMM)	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std./Max)	CD-ROM (IDE)	Bays: (Total/Avail)	Slots:(T/A)
51RYExx[1]	-	550	1/4	1024	512MB(R)/16GB[3]	Rack(8U)	3/4	P, S, H,F	S-Fans S-Power[4]	Y	10/100	D,U2,R	4/2	0/364GB	40X-17X[5]	14/12	6/5
52RYExx[1]	-	550	1/4	2048	512MB(R)/16GB[3]	Rack(8U)	3/4	P, S, H,F	S-Fans S-Power[4]	Y	10/100	D,U2,R	4/2	0/364GB	40X-17X[5]	14/12	6/5
53RYExx[1]	-	700	1/4	2048	512MB(R)/16GB[3]	Rack(8U)	3/4	P, S, H,F	S-Fans S-Power[4]	Y	10/100	D,U2,R	4/2	0/364GB	40X-17X[5]	14/12	6/5

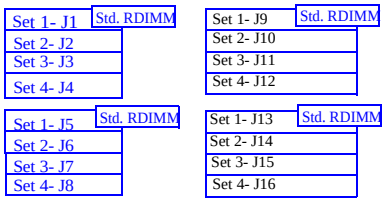
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity7600 Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III Xeon processor with advanced transfer (full speed) L2 cache and 100 MHz access to memory and I/O buses.
3. Advanced Chipkill ECC memory corrects two-, three-, and four-bit memory errors.
4. Robust configurations may require optional Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L37xx) for redundancy. See "Power" under Netfinity 7600 Power, Monitor & Accessories" for additional information.
5. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

Netfinity 7600 Processor Upgrades

Part Number	Processor Upgrades with Full Speed Cache	SMP Support[1]	Processor Speed Upgrade[2]
33L5057	Netfinity 550 MHz/1 MB Upgrade II with Pentium III Xeon Processor	1RY	-
33L5058	Netfinity 550 MHz/2 MB Upgrade II with Pentium III Xeon Processor	2RY	1RY
10K2331	Netfinity 700 MHz/1 MB Upgrade II with Pentium III Xeon Processor	-	1RY, 2RY
10K2332	Netfinity 700 MHz/2 MB Upgrade II with Pentium III Xeon Processor	3RY	1RY, 2RY

1. Three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of four processors may be installed. All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".

Netfinity 7600 Memory Configurator



All RDIMMs installed in each set must be the same size , but all the sets do not have to contain RDIMMs of the same size . Install RDIMM sets in numerical sequence from 1 to 4.

Total Memory[1]	Quantity of RDIMMs Added[2]			
	128 MB (P/N 33L3113)	256 MB (P/N 33L3115)	512 MB (P/N 33L3117)	1 GB (P/N 33L3119)
512 MB	4 x 128 RDIMMs standard	-	-	-
1.0 GB	4	-	-	-
1.5 GB	-	4	-	-
2.0 GB	4	4	-	-
2.5 GB	-	8	-	-
3.0 GB	4	-	4	-
4 GB	4	4	4	-
5 GB	4	-	8	-
6 GB[3]	-	8	8	-
7 GB[3]	-	4	12	-
8 GB[3]	-	-	16	-
9 GB	4	-	-	8
10 GB[3]	-	-	12	4
12 GB[3]	-	-	8	8
14 GB[3]	-	-	4	12
16 GB[3] (max)	-	-	-	16

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.
1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. To obtain the Quantity of memory identified in the “Total Memory” column, select the appropriate row and order the quantity of RDIMMs identified in all columns for that row. Example: For 2.0 GB, order 4 x 33L3113 plus 4 x 33l3115.
3. Requires removal of standard RDIMMs.

Part Number	Memory Description[1]
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM
33L3115	Netfinity 256 MB, 100 MHz ECC SDRAM RDIMM
33L3117	Netfinity 512 MB, 100 MHz ECC SDRAM RDIMM
33L3119	Netfinity 1 GB 100 MHz ECC SDRAM RDIMM

1. Due to four-way interleaving all RDIMMs installed in each set must be the same size, but all the sets do not have to contain RDIMMs of the same size. Install RDIMM sets in numerical sequence from 1 to 4. Chipkill support is provided on the memory card.

Netfinity 7600 Internal Hard Disk Drive Configurator

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)[2]	18.2 GB (P/N 36L9745 or P/N 37L7202)[2]	36.4 GB (P/N 36L9746 or P/N 37L7203)[2]	9.1 GB (P/N 36L9748 or P/N 37L7204)[2]	18.2 GB (P/N 36L9749 or P/N 37L7205)[2]	36.4 GB (P/N 36L9750 or P/N 37L7206)[2]
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	5	-	-	5	-	-
54.6 GB	6	3	-	6	3	-
63.7GB	7	-	-	7	-	-
72.8 GB	8	4	2	8	4	2
81.9GB	9	-	-	9	-	-
91 GB	10	5	-	10	5	-
109.2 GB	-	6	3	-	6	3
127.4GB	-	7	-	-	7	-
145.6GB	-	8	4	-	8	4
163.8GB	-	9	-	-	9	-
182GB	-	10	5	-	10	5
218.4GB	-	-	6	-	-	6
254.8GB	-	-	7	-	-	7
291.2 GB	-	-	8[3]	-	-	8[3]
327.6 GB	-	-	9[3]	-	-	9[3]
364 GB (max)	-	-	10[3]	-	-	10[3]

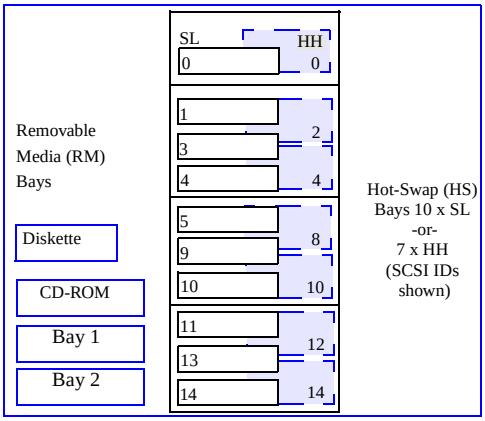
This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.
2. Netfinity 7600 contains an Ultra2 hot-swap backplane which limits Ultra160 HDDs to Ultra2 bus speeds.
3. Part numbers 36L9746 and 36L9750 are half-high devices and therefore cannot be utilized for configurations requiring greater than a quantity of seven.

Bay	Form Factor	Height	Front Access	Usage	Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
-	89 mm (3.5”)	SL	Yes	Diskette	**Ultra2 Hard Disk Drives (HDD)**					
-	133 mm (5.25”)	HH	Yes	IDE CD-ROM	36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
RM 1	133 mm (5.25”)	HH[1]	Yes	Open	36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
RM 2	133 mm (5.25”)	HH[1]	Yes	Open	36L9746	Netfinity 36.4 GB Wide Ultra2 SCSI Hot-Swap HDD	7200	HH[2]	See diagram	7
1...10 or 1...7	HS	SL or HH[2]	Yes	Open	36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10
NB3[3]	19” Rack	3U	Yes	Open	36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10

1. Two half-high (HH) bays can be combined to support a single full-high (FH) device
2. The top bay is HH; all others are configured in groups of 3 SL bays. When a HH drive is installed in one of these groups, only another HH or a single SL drive can be installed in the same group. For clarity, the SCSI IDs are identified.
3. Tower configured systems (Netfinity 8Ux24D Rack-to-Tower Kit, P/N 37L6860 is required and includes a single NetBAY3) support installation of up to three NetBAY3s. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.

36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10,000	HH[2]	See diagram	7
Ultra160 Hard Disk Drives (HDD)[1]					
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	See diagram	10
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[8]	7200	SL	See diagram	10
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10
37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	See diagram	10

External Storage Expansion Units[3]		**Form Factor**
00N6xxx[9]	Netfinity EXP200 Storage Expansion Unit[4]	Rack (3U)
37L5857	Netfiinity EXP200 Rack-to-Tower Conversion Kit	-
37L0xxx[10]	Netfinity EXP200 350 W Redundant Power Supply	-
19K11xx[11]	Netfinity EXP300 Storage Expansion Unit[5, 7]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[7]	-
00N71xx[12]	Netfinity FAStT EXP500 Storage Expansion Unit[6]	Rack (3U)



Netfinity NetBAY3 (NB3)
(Optional on Tower Configurations)

1. The top bay is HH; all others are configured in groups of three SL bays. When a HH drive is installed in one of these groups, only another HH or a single SL drive can be installed in the same group. For clarity, the SCSI IDs are identified.

1. Netfinity 7600 contains an Ultra2 hot-swap backplane which limits Ultra160 HDDs to Ultra2 bus speeds.
2. Two slim-line (SL) bays can be combined to support a single half-high (HH) device. See Bay diagram for identification of which bays can be combined. A mixture of HH, SL, 10,000 rpm and 7,200 rpm drives is supported.
3. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
4. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0xxx) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
5. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
6. Netfinity FAStT EXP500 Storage Expansion Unit includes dual hot-swap 350 W power supplies, each with its own power cord.
7. Planned availability of June 30, 2000.
8. Planned availability of August 2000.
9. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
10. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
11.Where 'xx' represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.
12. Where 'xx' represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/ Language Line Cords/Publications are included as indicated.

Internal SCSI Cabling

The Netfinity 7600 contains a DASD backplane supporting ten hot-swap, SCA-2 compliant drive bays. The backplane is connected to the internal connector of the standard Netfinity ServeRAID-3HB Ultra2 SCSI Adapter through a 16-bit LVD SCSI cable. External RAID support is provided through the two external 0.8-mm VHDCI connectors on the back of the adapter. To support SCSI devices in the internal 133/89-mm (5.25/3.5-inch) half-high bays, a two-drop, 16-bit LVD SCSI cable with integrated terminator is included with the server. This cable can be used to connect Channel B of the integrated Wide Ultra2 SCSI controller to SCSI devices in one or both of the removable media bays. Channel A, of the dual-channel, Wide Ultra2 SCSI controller, only supports external SCSI attachment and is cabled directly to an external 0.8-mm VHDCI SCSI connector.

Netfinity 7600 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]	PCI Voltage Key	MHz
	Storage Controllers[3]						
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[4]	Full	32/64-bit	3...6	X	5	33
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	3...6	-	5	33
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[5, 16]	Full	32/64-bit	1...6	X	Universal	33
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[6, 16]	Full	32/64-bit	1...6	X	Universal	33
	Fibre Storage Controllers and Options[7]						
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...6	-	Universal	33
SFCU1xx[17]	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...6	X	Universal	66
00N69xx[18]	Netfinity FastT500 RAID Controller	-	-	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-port	-	-	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-port	-	-	-	-	-	-
	Networking[8]						
	Ethernet						
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...6	X	Universal	33
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	3...6	X	5	33
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...6	X	Universal	33
	Token Ring						
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...6	-	Universal	33
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[9]	Half	32-bit	1...6	X	Universal	33
	Communications[10]						
	Systems Management[11]						
36L96xx[19]	Netfinity Advanced System Management PCI Adapter[12, 13]	Full	32-bit	3...6[13]	-	5	33
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[14]	-	-	-	-	-	-
36L9654	Netfinity Advanced System Management Token-RIng Connection[15]	-	-	-	-	-	-

1.The 5 V slots support Universal or 5 V adapters. The 3.3 V slots support universal or 3.3 V adapters. A Universal keyed 66 MHz adapter plugged into a 33 MHz slot will operate at 33 MHz. A Universal keyed 33 MHz adapter plugged into a 66 MHz slot limits other adapters installed on the same bus to 33 MHz.
2. Netfinity 7600 slots 3-6 include hot-plug capability using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat
3. Netfinity 7600 ships with a Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) installed in slot 6 and also includes a dual-port, dual-channel, 64-bit Wide Ultra2 SCSI controller with one internal connector and one external port with a 0.8-mm Very High Density Connection Interface (VHDCI).
4. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and 2 external (0.8-mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8-mm VHDCI connector) providing a total of 3 external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
5. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
6. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
7. See Netfinity Fibre Array Solutions section for additional configuration information.
8. Netfinity 7600 includes a full-duplex, 10/100 Mbps Ethernet PCI Controller.
9. The Wake on LAN function of this option is not supported by Netfinity servers.
10. Netfinity 7600 includes two USB ports, two high-speed serial/asynchronous ports (NS16550A compatible), and one high-speed (up to 2 MB/sec. data transfer speed) bi-directional parallel port supporting devices using ECP/EPP/SSP protocols adhering to the IEEE 1284 standard.
11. The Netfinity Advanced Systems Management Processor and Interconnect Bus integrated into Netfinity 7600 works with Netfinity Director to provide significant system management function. When used with optional Netfinity Advanced System Management PCI Adapter (P/N 36L96xx) and Netfinity Advanced System Management Interconnect Cable Kit (P/N 03K9309) additional management and control of up to 12 service processors from a remote console through a single modem or LAN connection is possible.
12. Includes PCI adapter, Netfinity Advanced System Management Interconnect Cable Kit components and 56-watt AC adapter which requires a separate power source. Provides an integrated 10/100 Ethernet port and PCMCIA slot to support optional Netfinity Advanced System Management Token-Ring Connection (P/N 36L9654).
13. A maximum quantity of one is supported.
14. Required for all Netfinity servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 1...4xX are not supported). Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft.). A customer-supplied Ethernet cable is required for each interconnection.
15. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter, and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together. To download the latest firmware access URL www.pc.ibm.com/us/netfinity. Select "Server Support", "Family", "Model", "Downloadable files", and finally "Advanced Systems Management".
16. Planned availability of August 2000.
17. Where 'xx' = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/English, EU=countries not covered previously.
18.Where 'xx' represents a country specific code as follows:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated
19. Where 'xx' represents a country specific code: 57=Denmark, 58=South Africa/India, 59=UK, 60=Switzerland, 61=Italy, 62=Israel, 01K7310=Europe, 01K7209=US/Saudi Arabia.

Netfinity 7600 Power, Monitors, Accessories

Part Number	Description
	Power[1]
33L37xx[10]	Netfinity 250 W Hot-Swap Redundant Power Supply
	Uninterruptable Power Supply (UPS)[2]
SUP142Y	APC Smart-UPS 1400
14RIxxx	APC Smart-UPS 1400RMB[3]
30RIxxx	APC Smart-UPS 3000RMB[3]
37L6862	APC Smart-UPS 5000RMB[4]
	Monitors[5]
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black[6]
4841Nxx	G76 UV-NH Color Monitor 17” (406-mm, 16” Viewable Image Size), stealth black[6]
494ANxx	G96 Color Monitor 19” (454-mm, 17.9” Viewable Image Size), stealth black[8]
13AG1xx	T55A Flat Panel Color Monitor (381-mm, 15.0” Viewable Image Size), stealth black[7]

Part Number	Description
	Conversion Kits
37L6860	Netfinity 8Ux24D Rack-to-Tower Kit[1]
	Rack and NetBAY[2]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
10L6912	Netfinity NetBAY3[3]
	Keyboard and Mouse[4]
28L36xx[8]	Space Saver II Keyboard[5, 7]
28L36xx[9]	Preferred Keyboard (stealth black)[6]
28L3675	Sleek 2-Button Stealth Black Mouse

1. Netfinity 7600 includes three 250W hot-swap redundant power supplies, with the ability to accept one additional Netfinity 250 W Hot-Swap Redundant Power Supply (P/N 33L3760. Each power Supply includes its own 9-foot power cord for attachment to a low voltage UPS, PDU or wall outlet. To assist in determining when an additional power supply is required to preserve redundancy, a “Non-Redundant LED” is a standard feature of the Netfinity 7600. Predicting whether or not a particular configuration will require an additional power supply for redundancy is very complex. However, once the system is installed, the“Non-Redundant LED” will indicate when an additional power supply is required. The following sample configuration is provided as a reference.

Number of Power Supplies	System Configuration Supported
	Typical Redundant Configuration
	4 x Processors
3[9]	6 x PCI Adapters
	7 x Half-High or 10 Slim-Line HDDs
	16 x 512 MB RDIMMs
4	**Full Configuration with Redundancy**

2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
3. Height is 3U. See “Rack and NetBAY” for supported IBM racks.
4. Height is 5U. See “Rack and NetBAY” for supported IBM racks.
5. Netfinity 7600 uses an SVGA controller (S3 Trio 3D chipset) with 4 MB of video memory.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
8. Not supported for installation in a 19” rack.
9. The addition of a DLT tape drive may require a fourth power supply to preserve redundancy.
10. Where ‘xx’ refers to a country specific code: 60=Saudi Arabia, 61=Europe, 62=Denmark, 63=Israel, 64=Italy, 65=South Africa, 66=Switzerland, 67=United Kingdom&Arabia.

1. Includes one Netfinity NetBAY3 with casters.
2. Netfinity 7600 rack models are housed in a 19” rack mountable drawer and require one of the racks listed here. See IBM Netfinity Rack Cabinet and Options section for IBM rack supported devices.
3. A maximum of three NetBAY3 enclosures may be stacked beneath a supported Netfinity tower server. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
4. Netfinity 7600 ships without a keyboard or mouse.
5. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in “ready-to-use” position).
6. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
7. Advanced TrackPoint IV features are not available on IBM Netfinity systems.
8. Where ‘xx’ represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
9. Where ‘xx’ represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch, 37=US.

Netfinity 7600 Tape Options

Part Number	Tape Drives	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	1, 2	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[1]	N	10L7440, 03K8756
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	1, 2	16	133 mm (5.25") HH	N[2]	N	10L7440[4], 03K8756
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1/2	16 Ultra2 LVD	133 mm (5.25") FH	N[2]	N	03K8705[4], 03K8756
Associated Options							
32G3918	SCSI-2 16-bit Active Terminator	-	16	Ext.	Y	N	10L7440, 03K8705
Tape Autoloaders							
00N79xx[5]	DLT Tape Autoloader	N/A	16	Desktop	Y	-	-
External Tape Libraries[3]							
00N79xx[6]	DLT Tape Library	-	16	Desktop or Rack	Y	-	-

1. Tape drive is capable of self termination.
2. Netfinity 7600 includes a terminated, 2-drop, 16-bit, LVD SCSI cable for attachment from the onboard SCSI controller or supported adapter to devices in the removable media bays.
3. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Where 'xx' represents a country specific power cord code: 70=UK, 71=Swiss, 72=Italy, 73=Israel, 33L4981=EU1, 33L4982=Denmark, 33L4983=South Africa/India.
6. Where 'xx' represents a country specific power cord code: *Tower versions* - 74=EU1, 75=Denmark, 76=India/South Africa, 77=UK, 78=Swiss, 79=Italy, 80=Israel: *Rack versions* - 81=EU1, 82=Denmark, 83=India/South Africa, 84=UK, 85=Swiss, 86=Italy, 87=Israel.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM Netfinity Servers, access the ServerProven™ compatibility pages on the Web at URL www.ibm.com/pc/us/compat.

Netfinity 7600 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability Application Server

Part Number	Description	Quantity	Usage
53RYExx	Netfinity 7600 700/2 MB Xeon, 512 MB(R) ECC,RAID, Open, 40X, PCI (Rack 8U)	1	-
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM	4	-
33L3115	Netfinity 256 MB, 100 MHz ECC SDRAM RDIMM	4	-
33L3117	Netfinity 512 MB, 100 MHz ECC SDRAM RDIMM	4	4 GB Total System Memory
10K2332	Netfinity 700 MHz/2 MB Upgrade II with Pentium III Xeon Processor	3	Total of 4 SMP processors
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	2	9.1 GB mirrored for NOS
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	6	72 GB RAID 5 with Hot-Spare
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	-
33L37xx	Netfinity 250 W Hot-Swap Redundant Power Supply	1	Full Power Redundancy
4841Nxx	G76 UV-NH Color Monitor 17" (406-mm, 16" Viewable Image Size), stealth black	1	-
28L36xx	Space Saver II Keyboard	1	-
14RIxxx	APC Smart-UPS 1400RMB	1	-
External Storage			
00N6xxx	Netfinity EXP200 Storage Expansion Unit	1	Includes 2-m Ultra2 cable
37L0xxx	Netfinity EXP200 350 W Redundant Power Supply	1	-
36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10	RAID 5 Data Storage with Hot-Spare
Rack			
9306200	Netfinity NetBAY22	1	
28L0542	Netfinity Console Server Selector Switch (4-port)	1	
94G7448	Power Cable - Type C12	1	
94G7447	12ft Console Cable Set	1	
94G6670	Blank Filler Panel Kit	1	

This rack server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power and UPS for power even during a blackout, this server represents the leading edge in high availability. An internal tape drive is included to back up that all important asset...data. A modem could be included to allow out-of-band (non-LAN) system management utilizing the integrated Netfinity Advanced System Management Processor.

Server Consolidation

Part Number	Description	Quantity	Usage
51RYExx	Netfinity 7600 550/1 MB Xeon, 512 MB(R) ECC, RAID, Open, 40X, PCI (Rack 8U)	1	-
33L3113	Netfinity 128 MB, 100 MHz ECC SDRAM RDIMM	4	1 GB Total System Memory
33L5057	Netfinity 550 MHz/1 MB Upgrade II with Pentium III Xeon Processor	1	Total of 2 SMP processors
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	2	9.1 GB mirrored for NOS
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	8	109 GB RAID 5 with Hot-Spare
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	3	Total of 4 Ethernet connections
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	-
4841Nxx	G76 UV-NH Color Monitor 17” (406 mm, 16” Viewable Image Size), stealth black	1	-
28L36xx	Space Saver II Keyboard	1	-
14RIxxx	APC Smart-UPS 1400RMB	1	-
Rack			
9306200	Netfinity NetBAY22	1	-
28L0542	Netfinity Console Server Selector Switch (4-port)	1	-
94G7448	Power Cable - Type C12	1	Attaches to monitor
94G7447	12ft Console Cable Set	1	-
94G6670	Blank Filler Panel Kit	2	-

This rack server is configured to meet the need of server consolidation. Many businesses are trying to get their arms around the dispersed departmental servers that have grown up around the enterprise. By moving multiple servers on to one platform there is only one system to manage, both hardware and software. There is potentially less expense for service, software licenses, etc., and there is no need to worry about putting all your eggs in one basket because the Netfinity 7600 is designed for high availability. This configuration includes 109 GB of internal HDD storage, features three power supplies which provide fully redundant power, a UPS to help protect the system against a momentary electricity loss, and an internal tape drive that backs up, up to 80 GB per tape...in addition to all the standard features of the Netfinity 7600.

IBM Netfinity 7000 M10 Configurator

Part Number *	Withdrawal Date: ddmmyy[8]	Processor Speed (MHz)	Number of Processors Std./Max	L2 ECC Cache (KB)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor[3]	Onboard Ethernet (Mbps)	SCSI Controller (Dual, Ultra, RAID, LVD)	Removable Media Bays (Total/Avail)	Internal Hard Disk Drive (Std/Max)	CD-ROM	Bays (Total/Avail)	Slots (T/A)
81SYNxx[1]	30/05/00	550	1/4	512	256 MB/8 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	40X-17X[5]	6/4	12/12
82SYNxx[1]	30/05/00	550	1/4	1024	256 MB/8 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	40X-17X[5]	6/4	12/12
83SYNxx[1]	30/05/00	550	1/4	2048	256 MB/8 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	40X-17X[5]	6/4	12/12
811YNxx[1,6]	30/05/00	550	1/4	512	512 MB[7]/ 4 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	40X-17X[5]	6/4	12/12
821YNxx[1,6]	30/05/00	550	1/4	1024	512 MB[7]/ 4 GB	Rack (11U)	2/3	P, S,H,F	S-Fans, S-Power[4]	Y	-	D,U	2/0	0/72.8 GB	40X-17X[5]	6/4	12/12

* For IBM ServicePacs see Appendix G: IBM ServicePacs for Hardware Maintenance

1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 7000 M10 Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III Xeon processor.
3. Netfinity 7000 M10 includes a systems management adapter equivalent to the one shipped with Netfinity Advanced System Management PCI Adapter P/N 36L96xx (where 'xx' represents a country specific code: 57=Denmark, 58=South Africa/India, 59=UK, 60=Switzerland, 61=Italy, 62=Israel, 01K7310=Europe, 01K7209=US/Saudi Arabia.).
4. Fully configured systems may require an optional 3rd power supply for redundancy. See footnotes in Power, Monitors, Accessories section for requirements.
5. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
6. These models include Advanced Chipkill memory, which provides a 100x improvement over standard ECC memory by detecting and correcting both single and double 4-bit memory errors.
7. The standard memory is replaced in this model with one 512MB advanced Memory Expansion Kit P/N 28L4732 - already installed. The largest supported Chipkill memory expansion kit is 512 MB, which lowers the maximum "Chipkill" memory capacity to 4 GB.
8. Not available from IBM after this date. Business Partner inventory may be available.

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Netfinity 7000 M10 Processor Upgrades

Pentium II Xeon Processors with 512KB, 1MB or 2MB Cache	Part Number	SMP Support[1]	Processor Speed/Cache Upgrade[2]
Netfinity 550 MHz /512 KB Upgrade with Pentium III Xeon Processor	33L5107	11Y, 1SY	-
Netfinity 550 MHz /1 MB Upgrade with Pentium III Xeon Processor	33L5108	21Y, 2SY	11Y, 1SY
Netfinity 550 MHz /2 MB Upgrade with Pentium III Xeon Processor	33L5109	3SY	11Y, 21Y, 1SY, 2SY

1. Up to three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed, and cache size.
2. Requires removal of the standard processor. A maximum of four processors may be installed. Upgrades may require a BIOS update. To obtain the latest flash BIOS, access URL http://www.pc.ibm.com/europe/netfinity then select SUPPORT. Choose a machine-type model, then select Downloadable files and choose the category labeled "BIOS".

Netfinity 7000 M10 Memory Configurator

Total Memory[1]	All Models (Except 11Y, 21Y)	Chipkill Models 11Y, 21Y
128MB	-	-
256MB	4 x 64MB DIMMs Std.	-
384MB	-	-
512MB	1 x 01K8044[2]	4 x 128 DIMMs Standard
640MB	-	-
768MB	1 x 01K8045	-
896MB	-	-
1024MB	3 x 01K8044[3]	1 x 28L4732[2]
1408MB	-	-
1536MB	1 x 01K8044, 2 x 01K8045[2]	2 x 28L4732[2]
2048MB	4 x 01K8045[3, 4]	3 x 28L4732[3]
3072MB	2 x 01K8045, 2 x 01K8046[2, 4]	5 x 28L4732, 1 x 01K8004[5]
4096MB	4 x 01K8045, 2 x 01K8046, 1 x 01K8004[2, 4]	7 x 28L4732, 1 x 01K8004[5]
5120MB	3 x 01K8044, 4 x 01K8046, 1 x 01K8004[5, 6]	-
6148MB	4 x 01K8045, 4 x 01K8046, 1 x 01K8004[5, 6]	-
8GB (max)	8 x 01K8046, 1 x 01K8004[5, 6]	-

This table does not represent all possible memory configurations.

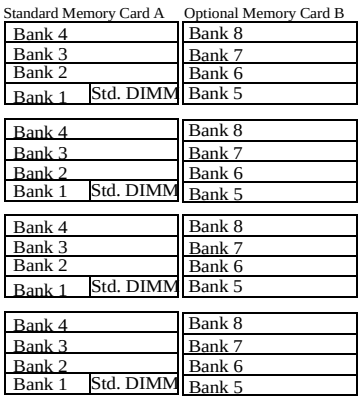
NOTE: 8-way interleaving can be obtained by installing identical memory in two or more of the following adjacent banks: 1/2, 3/4, 5/6, 7/8 or by installing memory in both the standard and optional (P/N 01K8004) memory cards, both being identically configured. Greater than 8-way interleaving can be obtained by combining both 8-way interleaving methods (adjacent banks and identical memory cards).
Netfinity 7000 M10 will recognize optimized configurations at boot-up and enable appropriate interleaving.
For more information see Appendix E: Memory Interleaving Considerations.

1. Network Operating Systems may limit the maximum amount of addressable memory. See operating system specifications for further information.
2. Can be configured for 8-way interleaving.
3. Can be configured for 8-way interleaving or greater than 8-way with Netfinity 7000 M10 Memory Expansion Card (P/N 01K8004).
4. Assumes removal of standard memory DIMMs.
5. Can be configured for greater than 8-way interleaving.
6. Requires removal of standard memory DIMMs.

DIMM Description[1]	Part Number
Netfinity 7000 M10 256MB Memory Expansion Kit - 4 x 64[2]	01K8044
Netfinity 7000 M10 512MB Memory Expansion Kit - 4 x 128[2]	01K8045
Netfinity 7000 M10 512MB Advanced Memory Expansion Kit - 4 x 128[2,3]	28L4732
Netfinity 7000 M10 1GB Memory Expansion Kit - 4 x 256[2]	01K8046
Netfinity 7000 M10 Memory Expansion Card[4]	01K8004

Note: For memory interleaving information see Appendix E: Memory Interleaving Considerations.

1. Memory is four-way interleaved 50 ns, EDO, ECC, 168-pin DIMMs. Properly configured memory options allow eight-way or greater interleaving.
2. DIMM size must be consistent within a Bank. DIMM sizes may vary from Bank to Bank.
3. Advanced ECC DIMMs not only detect and correct single 4-bit memory errors, but detect and correct two 4-bit errors as well. These advanced memory DIMMs significantly improve reliability up to 100 times over current ECC technology. In order to provide this increased reliability for all installed memory, co-existience with other Netfinity 7000 M10 memory is not recommended.
4. Required for installation of DIMMs in Banks 5...8.



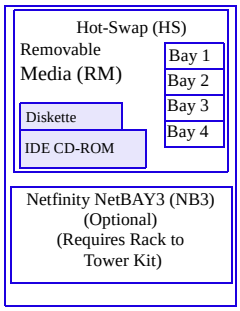
Netfinity 7000 M10 Internal Hard Disk Drive Configurator

Total Internal Storage[1]	7200 RPM Hard Disk Drives (HDDs)			10,000 RPM HDDs		
	9.1 GB	18.2 GB	36.4 GB	9.1 GB	18.2 GB	36.4 GB
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1 x 01K8053	-		1 x 36L9806	-	-
18.2 GB	2 x 01K8053 or	1 x 02K0440		2 x 36L9806 or	1 x 36L9807	
27.2 GB	3 x 01K8053	-		3 x 36L9806	-	-
36.4 GB	4 x 01K8053 or	2 x 02K0440 or	1 x 02K0441	4 x 36L9806 or	2 x 36L9807 or	1 x 36L9808
54.6 GB	-	3 x 02K0440	-	-	3 x 36L9807	-
72.8 GB (max)	-	4 x 02K0440 or	2 x 02K0441	-	4 x 36L9807 or	2 x 36L9808

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.

Bay	Form Factor	Height	Front Access	Usage
-	3.5”	SL	Yes	Diskette
-	5.25”	HH	Yes	IDE CD-ROM
1...4	HS	SL[1]	Yes	Open
NB3[2]	19” Rack	3U	Yes	Open

1. Two slim-line (SL) bays can be combined to support a single half-high device.
2. A total of three optional 3U NetBAY3s can be stacked beneath a Netfinity 7000 M10 which has Netfinity 7000 M10 Rack-to-Tower Conversion Kit installed. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices



Part Number	Description	RPM	Height	Bays Supported	Max Qty.
	Internal Hard Disk Drives (HDD)				
01K8053	Netfinity 9.1GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	1...4	4
02K0440	Netfinity 18.2 GB Wide Ultra SCSI Hot-Swap SL HDD	7200	SL	1...4	4
02K0441	Netfinity 36.4 GB Wide Ultra SCSI Hot-Swap HDD	7200	HH[1]	1/2, 3/4	2
36L9806	Netfinity 9.1 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...4	4
36L9807	Netfinity 18.2 GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	10,000	SL	1...4	4
36L9808	Netfinity 36.4 GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10,000	HH[1]	1/2, 3/4	2

	External Storage Expansion Units[2]	Form Factor
00N6xxx[7]	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	Tower
37L0xxx[8]	Netfinity EXP200 350 W Redundant Power Supply	-
19K11xx[9]	Netfinity EXP300 Storage Expansion Unit[4, 6]	Rack (3U)
00N71xx[10]	Netfinity FAStT EXP500 Storage Expansion Unit[5]	Rack (3U)

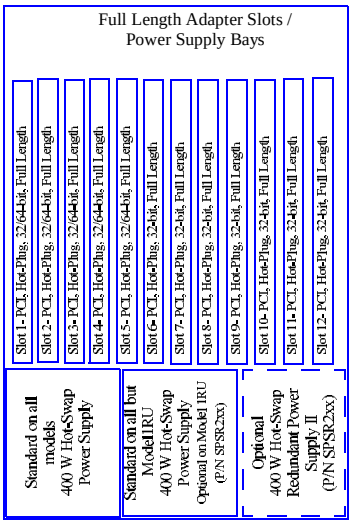
1. Two slim-line (SL) bays can be combined to support a single half-high (HH) device.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0xxx) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
4. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
5. Netfinity FAStT EXP500 Storage Expansion Unit includes dual hot-swap 350 W power supplies, each with its own power cord.
6. Planned availability of June 30, 2000.
7. Where ‘xxx’ represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
8. Where ‘xxx’ represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
9.Where ‘xx’ represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.
10. Where ‘xx’ represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/ English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/Language Line Cords/Publications are included as indicated.

Internal SCSI Cabling

Netfinity 7000 M10 systems contain a backplane supporting four Hot-Swap drive bays. The backplane is connected to one of the two onboard Ultra SCSI controllers through a 16-bit SCSI cable. If a RAID adapter or other supported SCSI adapter is installed for attachment to the internal hard disk drives, the 16-bit SCSI backplane cable is moved from the standard Ultra SCSI controller to the desired controller. The onboard external SCSI port contains a 0.8mm Very High Density Connection Interface (VHDCI) connector and can be used to attach up to 15 SCSI devices with the appropriate SCSI cable.

Netfinity 7000 M10 I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]
	Storage Controllers[3]				
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[4]	Full	32-bit	1...12[5]	X
37L6086	Netfinity ServeRAID 3-HB Ultra2 SCSI Adapter[6]	Full	32/64-bit	1...12[5]	X
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[7, 19]	Full	32/64-bit	1...12	X
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[8]	Full	32/64-bit	1...12	X
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...12	-
09L2123	Advanced SerialRAID/X Adapter[9]	Full	32-bit	1...12[9]	-
	Fibre Storage Controllers and Options[10]				
01K7297	Netfinity Fibre Channel PCI Adapter[8]	Half	32/64-bit	1...12	-
SFCU1xx[20]	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...12	X
00N69xx[21]	Netfinity FAStT500 RAID Controller	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-
	Networking[11]				
	Ethernet				
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...12	X
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...12	X
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1...12	X
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...12	X
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...12	-
34L0601	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...12	X
	Communications				
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[12]	Half	32-bit	1...12[12]	-
	Systems Management[13]				
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[14]	-	-	-	-
36L9654	Netfinity Advanced System Management Token-Ring Connection[15]	-	-	-	-
02K65xx[22]	UltraSlim 56W AC Adapter[16]				
	Host Attach				
10L7368	Netfinity ESCON Adapter[17, 18]	Full	32-bit	1...12[18]	-



1. PCI Slots 1...5 support 64-bit or 32-bit operations. PCI Slots 6...12 support 32-bit operations.
2. All 12 PCI Slots are Hot Plug capable using IBM's Active PCI Technology. For Network Operating System support access URL www.ibm.com/pc/us/compat.
3. Netfinity 7000 M10 includes two onboard Wide Ultra SCSI controllers, one internal connector and one external port with a 0.8 mm Very High Density Connection Interface (VHDCI), which can be used to attach up to 15 SCSI devices with the appropriate SCSI cable.
4. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or one external (0.8 mmVHDCI) LVDS SCSI channel.
5. A total quantity of eight, in any combination of P/Ns 01K7364 and 37L6086 is supported.
6. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and two external (0.8 mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8 mm VHDCI) providing a total of three external LVDS SCSI channels. Includes 32MB of mirrored battery-backup cache, which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
7. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
8. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
9. A maximum quantity of four is supported.
10. See Netfinity Fibre Channel Solutions section for additional configuration information.
11. Netfinity 7000 M10 does not include an onboard network controller.
12. See Appendix F for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.
13. Netfinity 7000 M10 ships standard with a Netfinity Advanced System Management PCI Adapter. Unlike optional Netfinity Advanced System Management PCI Adapter (P/N 36L96xx), a 56-watt AC adapter and interconnect cable are NOT included and must be ordered separately if desired.
14. Required for all Netfinity Servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 1xU...4xU are not supported). Up to 12 service processors may be interconnected (including standard and optional processors), with an aggregate connection length of no more than 300 feet (91.4 meters). A customer supplied Ethernet cable is required for each interconnection.
15. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together. The firmware level of the integrated Netfinity Advanced System Management PCI Adapter must be at level 32A or later. To download the latest firmware, access URL www.ibm.com/pc/us/netfinity. Select "Server Support", "Family", "Model", "Downloadable Files" and finally "Advanced Sytem Management"
16. Although the 7000 M10 integrated Netfinity Advanced System Management PCI Adapter is powered continuously through the redundant power supply subsystem, an even higher level of availability is offered with the addition of UltraSlim 56W AC Adapter by allowing an independent power source or connection to a separate optional UPS.

17. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
18. A maximum of two 10L7368 adapters (installed in non-adjacent slots) are supported in a single Netfinity server
19. Planned availability of August 2000.
20. Where 'xx' = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/English, EU=countries not covered previously.
21. Where 'xx' represents a country specific code as follows:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/ English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated.
22. Where 'xx' represents a country specific code: 84=Denmark, 89=Israel, 88=Italy, 85=South Africa/India, 87=Switzerland, 86=UK, 83=EU1. Country-specific line cords are included as appropriate.

Netfinity 7000 M10 Power, Monitor, Accessories

Part Number	Description
	Power[1]
SPSR2xx[10]	Netfinity 400 W Hot-Swap Redundant Power Supply II[2]
SDCU1xx[10]	Netfinity 7000 M10 Dual Cord Power Unit[3]
	Uninterruptible Power Supply (UPS)[4]
14RIxxx	APC Smart-UPS 1400RMiB[5]
30RIxxx	APC Smart-UPS 3000RMiB[5]
37L6862	APC Smart-UPS 5000RMiB[6]
	Monitors
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black[7]
4841Nxx	G76 Color Monitor 17" (15.9" Viewable Image Size), stealth black[7]
494ANxx	G96 Color Monitor 19" (17.9" Viewable Image Size), stealth black[8]
13AG1xx	T55A Flat Panel Color Monitor (15.0" Viewable Image Size), stealth black[9]

1. Netfinity 7000 M10 systems containing a single power supply (Model 1RX) do not provide power supply redundancy and require optional power supply P/N SPSR2xx when configurations contain one or more of the following:
- Netfinity 7000 M10 Memory Expansion Card (P/N 01K8004)
- Three processors
- Six PCI adapters

Netfinity 7000 M10 systems containing two power supplies (standard on all models except 1RX) provide power supply redundancy and only require optional power supply SPSR2xx when redundancy is required for configurations containing one or more of the following:
- Netfinity 7000 M10 Memory Expansion Card (P/N 01K8004)
- Three processors
- Six PCI adapters

2. Includes a power cord which is not used. No additional power source is required.
3. Provides power cord redundancy for the Netfinity 7000 M10. A second power source is required. Even though a second UPS may provide a redundant power source, systems management software does not currently take advantage of its power outage alerts.
4. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
5. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
6. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
7. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
8. Not supported for installation in a 19" rack.
9. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.
10. Where 'xx' = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/ English, EU=countries not covered previously.

Part Number	Description
	Conversion Kits
01K8005	Netfinity 7000M10 Rack-to-Tower Kit[1]
	Rack and NetBAY[2]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack
9306200	Netfinity NetBAY22
10L6912	Netfinity NetBAY3[3]
	Keyboard and Mouse[4]
28L36xx[8]	Space Saver Keyboard[5, 7]
28L36xx[9]	Preferred Keyboard (stealth black)[6]
28L3675	Sleek 2-Button Stealth Black Mouse

1. Includes casters, which can also be used with NetBAY3.
2. Netfinity 7000 Mxx rack models are housed in a 19" rack mountable drawer and require one of the racks listed here. See "IBM Netfinity Rack Cabinet and Options" section for IBM rack supported devices.
3. A maximum of three NetBAY3 enclosures may be stacked beneath a supported Netfinity tower server (conversion kit 01K8005 required). See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
4.Netfinity 700 M10 ships without a keyboard or mouse.
5. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
6. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
7. Advanced TrackPoint IV features are not available on IBM Netfinity sy.stems
8. Where 'xx' represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
9. Where 'xx' represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch.

Netfinity 7000 M10 Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50- pin Converter Incl.	Ext. Tape Encl.[1]
01K1282	12/24 GB DDS/3 4-mm Internal Tape Drive	N/A[2]	8	3.5" HH or 5.25" HH	Y[12]	Y	10L7440
01K1319	10/20 GB NS Internal SCSI Tape Drive	N/A[2]	8	3.5" SL or 5.25" HH	Y[12]	Y	10L7440, 03K8756
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	N/A[2]	16	5.25"HH	N	N	10L7440[3], 03K8756
01K1320	20/40 GB DLT Internal SCSI Tape Drive	N/A[2]	8	5.25" FH	Y[11]	Y	03K8705, 03K8756
00N7990	40/80 GB DLT Internal SCSI Tape Drive	N/A[2]	16 Ultra2 LVD	5.25" FH	N	N	03K8705[3], 03K8756
Associated Options							
32G3918	SCSI-2 16-bit Active Terminator		16	External	Y	N	10L7440, 03K8705
External Tape Enclosures							
10L7440	External Half High SCSI Storage Enclosure[4]		8/16	Desktop	N	N	-
03K8756	NetMEDIA Storage Expansion Unit EL[5]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[6]	-	16	-	N	N	03K8756
03K8705	DLT External SCSI Enclosure[7]	-	16	Desktop	N	N	-
External Tape Libraries[8]							
00N79xx[9]	DLT Tape Autoloader	-	LVD	Desktop	Y	-	-
00N79xx[10]	DLT Tape Library	-	LVD	Desktop or Rack	y	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure and then refer to Appendix D: Cables - Storage Units - Controllers.
2. Netfinity 7000 M10 supports tape drives installed in external enclosures only. See External Tape Enclosure column.
3. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
4. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Provides a black 3U LVDS, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8 mm VHDCI. Includes two power supplies and two power cords.
6. Installs in a 03K8756. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 03K8756 is powered off.
7. Provides a black desktop DLT tape enclosure. External connector is 68-pin high density. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
8. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.
9. Where 'xx' represents a country specific power cord code: 70=UK, 71=Swiss, 72=Italy, 73=Israel, 33L4981=EU1, 33L4982=Denmark, 33L4983=South Africa/India.
10. Where 'xx' represents a country specific power cord code: *Tower versions* - 74=EU1, 75=Denmark, 76=India/South Africa, 77=UK, 78=Swiss, 79=Italy, 80=Israel: *Rack versions* - 81=EU1, 82=Denmark, 83=India/South Africa, 84=UK, 85=Swiss, 86=Italy, 87=Israel.
11. A 16-bit terminator is included for attachment to an internal cable.
12. Tape Drive is capable of self termination.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Netfinity 7000 M10 Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability-Rack

Part Number	Description	Quantity	Usage
87RYNxx	IBM Netfinity 7000 M10 (PIII Xeon 500-1MB/256MB/Rack)	1	Power Redundancy standard
28L4734	Netfinity 7000 M10 500MHz/ 1MB Upgrade with Pentium III Xeon Processor	1	Total SMP processors: Two
28L4732	Netfinity 7000 M10 512MB Memory Expansion Kit	1	Total: 512 MB[1]
01K8053	IBM Netfinity 9.1GB Wide Ultra SCSI SCA-2 SL HDD	4	
34L1501	IBM 10/100 Ethernet PCI Adapter 2	1	
37L6086	IBM Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID Controller
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black	1	
28L36xx[2]	Space Saver Keyboard	1	Includes TrackPoint
30RIxxx	APC Smart-UPS 3000 RMB	1	
External Storage			
03K8756	IBM NetMEDIA Storage Expansion Unit EL	1	External Tape Drive Enclosure
00N7990	IBM 40/80GB DLT SCSI Tape Drive	2	Installs in 03K8756
SE2RXxx	IBM Netfinity EXP15	1	Provides additional 10 bays
03K9310	Netfinity 2M Ultra2 SCSI Cable	2	EXP15 to ServeRAID-3HB, Tape to Onboard
36L9809	IBM Netfinity EXP 9.1GB 10K-3 Wide Ultra SCSI SL Hot-Swap HDD	6	RAID 5 with Hot-Spare in EXP15
Rack Options			
9306200	IBM Netfinity NetBAY22	1	Monitor and Keyboard mount on top
94G6670	Blank Filler Panel Kit	1	

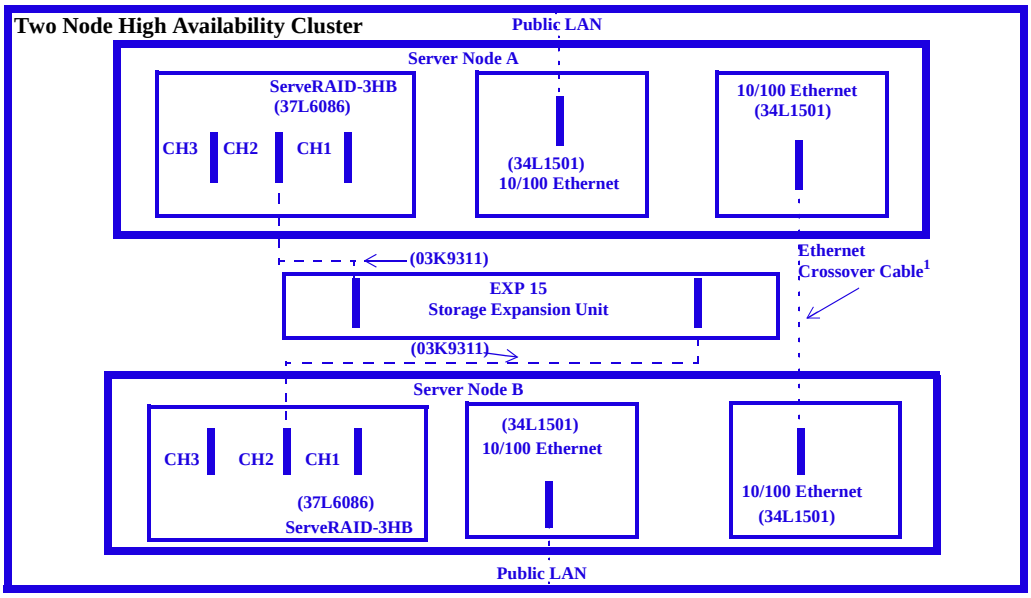
1. Advanced ECC DIMM's not only detect and correct single memory errors but detect and correct two 4-bit errors as well. These advanced memory DIMM's significantly improve reliability up to 100 times over current ECC technonogy. In order to provide this increased reliabilty for all installed memory, co-existance with other Netfinity 7000 M10 memory is not recommended and has therefore been removed in this sample configuration.
2. Where 'xx' represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.

This high availability server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. The configuration includes enough disk drives to mirror the operating system and provide a RAID 5 data environment, power supply redundancy by the server and EXP15, a UPS for power even during a blackout and dual ethernet and RAID adapters which can be configured for failover support. A rack mounted tape drive is included to back-up that all important asset...data. This server represents the leading edge in high availabilty.

Notes/Exchange-Stack

Part Number	Description	Quantity	Usage
82SYNxx	IBM Netfinity 7000 M10 (PIII Xeon 550-1MB/256MB/Rack)	1	
33L5108	Netfinity 7000 M10 550MHz/ 1MB Upgrade with Pentium Xeon Processor	3	Total SMP processors: Four
01K8045	Netfinity 7000 M10 512MB Memory Expansion Kit 4x128	2	Total: 3GB[1], 8-way interleave capable
01K8046	Netfinity 7000 M10 1GB Memory Expansion Kit 4x256	2	Total: 3GB[1], 8-way interleave capable
01K8004	Netfinity 7000 M10 Memory Expansion Card	1	Enables 8-way interleaving configuration
36L9806	IBM Netfinity 9.1GB 10K-3 Wide Ultra SCSI Hot-Swap SL HDD	2	NOS Mirroring
34L1501	IBM 10/100 Ethernet PCI Adapter 2	2	
37L6086	IBM Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID Controller
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black	1	
28L36xx[2]	Space Saver Keyboard	1	Includes TrackPoint
SPSR2xx	IBM Netfinity 400W Hot-Swap Redundant Power Supply II	1	Required to preserve power redundancy
30RIxxx	APC Smart-UPS 3000 RMB	1	
External Storage			
03K8756	IBM NetMEDIA Storage Expansion Unit EL	1	External Tape Drive Enclosure
00N7990	IBM 40/80GB DLT SCSI Tape Drive	2	Installs in 03K8756
SE2RXxx	IBM Netfinity EXP15	1	Provides additional 10 bays
03K9310	Netfinity 2M Ultra2 SCSI Cable	2	EXP15 to ServeRAID-3HB, Tape to System
36L9810	IBM Netfinity EXP 18.2GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10	RAID 5 with Hot-Spare in EXP15
Stack Options			
01K8005	Netfinity 7000 M10 Rack-to-Tower Conversion Kit	1	Monitor and Keyboard mount on top
10L6912	IBM Netfinity NetBAY3	3	Provides space for EXP15, UPS and Tape

1. Configuration for 8-way interleaving with Netfinity 7000 M10 Memory Expansion Card (P/N 01K8004) requires removal of standard memory.
2. Where 'xx' represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK..



1. Customer supplied Ethernet Crossover Cable may vary in length up to a maximum of 25 feet (7.6m)

Two Node High Availability Cluster

Part Number	Description	Qty.	Usage
	Server Nodes A & B		
83SYNxx	IBM Netfinity 7000 M10 (PIII Xeon 550-2MB Cache/256MB/Rack) (11U)	2	-
33L5109	Netfinity 7000 M10 550MHz/ 2MB Upgrade with Pentium III Xeon Processor	6	Total SMP processors: 4 each
01K8044	Netfinity 7000 M10 256MB Memory Expansion Kit	2	-
01K8046	Netfinity 7000 M10 512MB Memory Expansion Kit	4	Total: 1.5 GB, 8-way interleave capable
01K8004	Netfinity 7000 M10 Memory Expansion Card	2	Optimizes 8-way interleaving
01K7364	IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter	2	1 per node for NOS HDD's
01K8053	IBM Netfinity 9.1GB Wide Ultra SCSI SCA-2 HDD	4	NOS on Mirrored HDD's
34L1501	IBM 10/100 Ethernet PCI Adapter 2[1]	4	1 Private Interconnect, 1 public
37L6086	IBM Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[2]	2	Three Channels for EXP15's
SPSR2xx	IBM Netfinity 400W Hot-Swap Redundant Power Supply II	2	Required to preserve power redundancy
30RIxxx	APC Smart-UPS 3000 RMB (3U)	2	Provides redundant power sources
	External Storage		
03K8756	IBM NetMEDIA Storage Expansion Unit EL (3U)	1	External Tape Drive Enclosure
03K9310	Netfinity 2M Ultra2 SCSI Cable[3]	1	Attaches 03K8756 to onboard SCSI
00N7990	IBM 40/80GB DLT SCSI Tape Drive	2	Installs in 03K8756
SE2RXxx	IBM Netfinity EXP15 (3U)[2]	1	-
36L9810	IBM Netfinity EXP 18.2GB 10K-3 Wide Ultra SCSI Hot-Swap HDD	10	RAID 5 Shared Storage
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable[2, 3]	2	Attach EXP15 to ServeRAID-3HB's
	Shared (or single occurrence) Resources		
13AG1xx	T55A Flat Screen Colour Monitor (15.0" Viewable Image Size), stealth black	1	Mounts in Keyboard Tray
28L36xx[4]	Space Saver Keyboard	1	Includes TrackPoint
	Industry Standard 19" Rack, EIA-310D, Min. depth of 29.23"		
9306900	IBM 9306-900 Netfinity Rack	1	
37L6857	Netfinity Flat Panel Monitor Rack-Mount Kit (3U)	1	Mounts in keyboard tray
28L4707	Netfinity Rack Keyboard Tray (1U)	1	-
28L0542	4-port Console Server Selector Switch	1	-
94G7448	Power Cable-Type C12	8	-
94G7447	12 ft Console Cable Set	2	-
94G6669	Side Panel Kit	1	-
94G6670	Blank Filler Panel Kit	1	-

1. Requires customer supplied Ethernet Crossover Cable which may vary in length up to a maximum of 25 feet (7.6 m).
2. By replicating these items, up to a total quantity of four ServeRAID-3HB Adapters (plus options) and eleven EXP15s can provide over 2 Terabytes of storage. Additional power and rack space will be required.
3. Cable length requirements are dependent on component placement within the rack or rack suite. To determine specific configuration requirements use the Netfinity Rack and/or Spreadsheet Configurators which can be downloaded from Web site www.pc.ibm.com/europe/configurators
4. Where 'xx' represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.

Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 7000 M10, provides a high availability solution to keep you in touch with the key applications you need to run your business. High availability solutions are available from IBM to support NT, OS/2, and NetWare operating environments. By using the IBM Netfinity Rack, a high availability cluster with scalable storage expansion can be installed in less floor space.

This sample configuration consists of paired IBM Netfinity 7000 M10 cluster nodes equipped with 4-way SMP capability and redundant power supplies. Microsoft Cluster Server (MSCS) has been validated on IBM Netfinity 7000 M10 servers, using the Netfinity ServeRAID-3HB with the EXP15 Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, an Netfinity EXP15 was selected and the Netfinity ServeRAID-3HB Ultra2 SCSI Adapters provided the I/O control. MSCS requires a dedicated SCSI channel to act as a “SCSI heartbeat” connection. This connection, between the third channel of the ServeRAID-3HB Adapter in each node, logically attaches the quorum disk which allows arbitration when a failure occurs.

Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL http://www.pc.ibm.com/us/netfinity/clustering.html.

IBM Netfinity 8500R Configurator

Part Number	Withdrawal Date: ddmmyy	Processor Speed (MHz)[2]	Number of Proc.(Std./Max)	L2 ECC Cache (KB)	Memory (Std/Max)R=RDIMM	Form Factor	Power Supply Quantity (Std./Max)	Hot-Swap(Power, Slots, HDD, Fans)	Redundancy (Optional, Standard)	Adv. System Management Processor[3]	Onboard Ethernet	SCSI Controller(Dual, Ultra2, RAID)	Removable Media Bays (Total/Avail)	Internal Hard Disk (Std./Max)	CD-ROM (IDE)	Bays (Total/Avail)	Slots (T/A)
14RYNxx[1]	-	550	1/8	512	256 MB^{R}/32GB	Rack (8U)	3/3	P, S, H, F	S-Fans, S-Power	Y	-	D, U2	2/0	0/72.8 GB	40X-17X[4]	4/2	12/12
15RYNxx[1]	-	550	1/8	1024	512 MB^{R}/32 GB	Rack (8U)	3/3	P, S, H, F	S-Fans, S-Power	Y	-	D, U2	2/0	0/72.8 GB	40X-17X[4]	4/2	12/12
16RYNxx[1]	-	550	1/8	2048	512 MB^{R}/32 GB	Rack (8U)	3/3	P, S, H, F	S-Fans, S-Power	Y	-	D, U2	2/0	0/72.8 GB	40X-17X[4]	4/2	12/12
17RYNxx[1]	-	700	1/8	1024	512 MB^{R}/32 GB	Rack (8U)	3/3	P, S, H, F	S-Fans, S-Power	Y	-	D, U2	2/0	0/72.8 GB	40X-17X[4]	4/2	12/12
18RYNxx[1]	-	700	1/8	2048	512 MB^{R}/32 GB	Rack (8U)	3/3	P, S, H, F	S-Fans, S-Power	Y	-	D, U2	2/0	0/72.8 GB	40X-17X[4]	4/2	12/12

1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. See "Rack and NetBAY" under "Netfinity 8500R Power, Monitor & Accessories" for supported IBM racks.
2. Intel Pentium III Xeon processor.
3. Netfinity 8500R includes a systems management adapter equivalent to the one shipped with Netfinity Advanced System Management PCI Adapter P/N 36L96xx (where 'xx' represents a country specific code).
4. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

Netfinity 8500R Processor Upgrades

Part Number	Processor Upgrades with 512 KB, 1 MB or 2 MB Cache[1]	SMP Support	Processor Speed/Cache Upgrade[4]
33L5103	Netfinity 8500R 550 MHz/512 KB Upgrade with Pentium III Xeon Processor[3]	4RY[2, 3]	-
33L5104	Netfinity 8500R 550 MHz/1 MB Upgrade with Pentium III Xeon Processor[3]	5RY[2, 3]	4RY
33L5105	Netfinity 8500R 550 MHz, 2 MB Upgrade with Pentium III Xeon Processor[3]	6RY[2, 3]	4...5RY
28L4730	Netfinity 8500R>4-Way Enablement Kit (1X SRAM)[5]	4...6RY	4...6RY
28L4727	Netfinity 8500R>4-Way Enablement Kit (4X SRAM)[5]	4...6RY	4...6RY
10K2330	Netfinity 8500R 700 MHz/1 MB Upgrade with Pentium III Xeon Processor[3]	7RY	4...6RY[5]
10K2166	Netfinity 8500R 700 MHz, 2 MB Upgrade with Pentium III Xeon Processor[3]	8RY	4...7RY[5]
10K2335	Netfinity 4X Accelerator Filter	7...8RY[4]	4...7RY
10K2337	Netfinity Mezzanine Expansion Kit	7...8RY[4]	4...7RY

1. Netfinity 8500R architecture optimizes memory and bus performance using a 100 MHz, five-port crossbar core chipset. Up to eight Pentium III Xeon processors are supported on two 100 MHz P-6 CPU buses. The recommended order of processor installation is: Sockets A1, A3, A2, A4, B1, B3, B2, B4.
2. Up to seven additional processors may be installed, providing a maximum of eight. All processors must be identical in type, speed, and cache size.
3. Requires removal of the standard processor(s). A maximum of eight processors may be installed. Installation of greater than four processors requires the addition of a mezzanine board and two cache coherency filters. Required options which provide the board and filters vary by model. For more information refer to "Processor Upgrade Requirements". All processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" and then "BIOS".
4. See "Processor Upgrade Requirements" to determine when this option is required.
5. Replacement of the standard processor mezzanine board and the mezzanine board from any installed enablement kit of 550 MHz models is required. See "Processor Upgrade Requirements" to determine specific model upgrade requirements.

Processor Upgrade Requirements[1, 2]

Upgrade From	Upgrade To: ≤ 4 x 550 MHz processors	Upgrade To: > 4 x 550 MHz processors	Upgrade To: ≤ 4 x 700 MHz processors	Upgrade To: > 4 x 700 MHz processors
≤ 4 x 550 MHz processors	-	1 x 28L4730 or 1 x 28L4727	1 x 10K2337[3]	1 x 10K2335, 2 x 10K2337[3]
> 4 x 550 MHz processors	n/a	-	1 x 10K2337[3, 4]	2 x 10K2337[3, 5]
≤ 4 x 700 MHz processors	n/a	n/a	-	1 x 10K2335, 1 x 10K2337

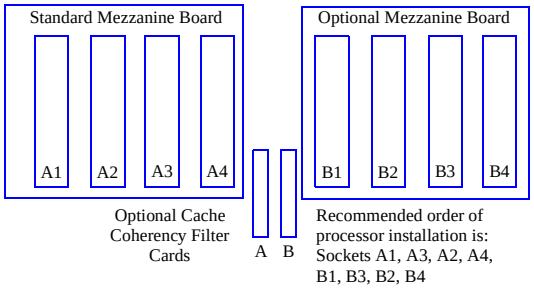
1. This table does not address the processor part numbers required. It does address the optional Enablement Kit, Filters, and Mezzanine Board part numbers required.
2. All processors must be identical in type, speed, and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" then "BIOS".
3. Remove the standard processor mezzanine board.
4. Remove all optional Enablement Kit components.
5. Remove Enablement Kit mezzanine board. The Enablement Kit 4X cache coherency filters are supported for use with Netfinity Mezzanine Expansion Kit P/N 10K2337.

Netfinity 8500R ships with a single mezzanine board containing four Pentium III Xeon processor sockets with terminators in the unoccupied sockets. An additional mezzanine board may be added, expanding the number of processor sockets to eight. The two mezzanine boards are then linked through two cache coherency filter cards, one for each mezzanine board.

Option Content

Netfinity 8500R > 4-Way Enablement Kits (P/N 28L4730 and P/N 28L4727)

- Support for 550 MHz models only
- Required for installation of processors 5...8.
- One Processor Mezzanine Board
- Two cache coherency filter modules
  - 28L4730 economical 1X (256 K entries)
  - 28L4727 high performance 4X (1 M entries)
  - Filters may be used with Mezzanine Expansion Kit (P/N 10K2337)



Netfinity 4X Accelerator Filter (P/N 10K2335)

- Two cache coherency filter modules
- Requires Mezzanine Kit 10K2337

Netfinity Mezzanine Expansion Kit (P/N 10K2337)

- One Processor Mezzanine Board
- Supports cache coherency filters from the following options:
  - P/N 10K2335
  - P/N 28L4730
  - P/N 28L4727
- Supports 700 MHz and above processors only
- Required when upgrading models 8681-4RY...6RY to 700 MHz or above

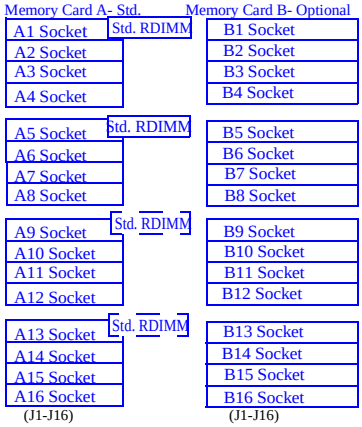
All installed processors must be identical in type, speed and cache size. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access www.ibm.com/pc/support and enter machine "Type-Model" in Quick Path. Select "Downloadable files" then "BIOS".

Netfinity 8500R Memory Configurator

Total System Memory[1]		Quantity of RDIMMs Added			
Standard Models					
256 MB (2 x 128)	512 MB (4 x 128)	128 MB (P/N 20L0245)	256 MB (P/N 20L0247)	512 MB (P/N 20L0249)	1 GB (P/N 33L3056)
384	640	1	-	-	-
512	768	2 or	1	-	-
768	1024	4 or	2 or	1	-
1024	1280	6 or	3	-	-
1280	1536	8 or	4 or	2 or	1
1536	1792	10 or	5	-	-
1792	2048	12 or	6 or	3	-
2304	2560	16[2] or	8 or	4 or	2
2560	2816	18[2] or	9	-	-
2816	3072	20[2] or	10 or	5	-
3072	3328	22[2] or	11	-	-
3328	3584	24[2] or	12 or	6 or	3
3840	4096	28[2] or	14[4] or	7	-
4096	-	30[2] or	16[3]	-	-
4352	4608	-	16[2] or	8 or	4
4864	5120	-	18[2] or	9	-
5376	5632	-	20[2] or	10 or	5
5888	6144	-	22[2] or	11	-
6400	6656	-	24[2] or	12 or	6
7424	7680	-	28[2] or	14[4] or	7
8192	8192	-	32[2, 3] or	16[3] or	8[3]
8448	8704	-	-	16[2] or	8
9472	9728	-	-	18[2] or	9
10496	10752	-	-	20[2] or	10
11520	11776	-	-	22[2] or	11
12544	12800	-	-	24[2] or	12
13568	13824	-	-	26[2] or	13
14592	14848	-	-	28[2] or	14[4]
15488	15488	-	-	-	15[6]
16384	16384	-	-	32[2, 3]	16[3]
16640	16896	-	-	-	16[2]
18688	18944	-	-	-	18[2]
20736	20992	-	-	-	20[2]
22784	23040	-	-	-	22[2]
24832	25088	-	-	-	24[2]
26880	27136	-	-	-	26[2]
28928	29184	-	-	-	28[2]
30720	30720	-	-	-	30[5]
32768	32768	-	-	-	32[3]

This table does not represent all possible memory configurations. Memory modules may vary in price per MB. Selection of smaller RDIMMs may provide a more cost-effective alternative to using larger RDIMMs.

NOTE: Cache line interleaving may be enabled by installing Netfinity 8500R Memory Expansion Card (P/N 28L4454) with as few as two RDIMMs. Matched pairs must be installed if the memory expansion card is present.
1. Network Operating Systems may limit the maximum amount of addressable memory. See the operating system specifications for further information.
2. Netfinity 8500R Memory Expansion Card (P/N 28L4454) is required for installation of greater than 16 RDIMMs.
3. Requires removal of standard memory.
4. Models with 4 x 128 RDIMMs standard require Netfinity 8500R Memory Expansion Card (P/N 28L4454) for installation of greater than 16 RDIMMs.
5. Requires removal of all but two of the standard RDIMMs.
6. Requires removal of all but one of the standard RDIMMs.



Recommended order of RDIMM population for optimum cooling: 1, 5, 9, 13, 3, 7, 11, 15, 2, 6, 10, 14, 4, 8, 12, 16.

Part Number	Memory Description[1]
20L0245	Netfinity 128 MB SDRAM ECC RDIMM II
20L0247	Netfinity 256 MB SDRAM ECC RDIMM II
20L0249	Netfinity 512 MB SDRAM ECC RDIMM II
28L4454	Netfinity 8500R Memory Expansion Card[2]
33L3056	Netfinity 1 GB SDRAM ECC RDIMM II

1. Netfinity 8500R includes a single memory card with the ability to support up to 16 GB of memory. Model 14RYNxx contains two RDIMMs standard, other models contain four. For memory installation of greater than 16 GB, Netfinity 8500R Memory Expansion Card (P/N 28L4454) is required. Installation of memory on systems containing a single memory card (standard on all models) has no restrictions on size or placement. When Netfinity 8500R Memory Expansion Card (P/N 28L4454) is installed, the memory RDIMM in each socket of Card A must match the RDIMM in the same socket on Card B. To enable cache line interleaving, both memory cards must be installed and configured identically.
2. Required for enablement of cache line interleaving or installation of greater than 16 RDIMMs. Configuration of the standard memory card (Card A) and optional 28L4454 (Card B) must be identical.

Netfinity 8500R Internal Hard Disk Drive Configurator

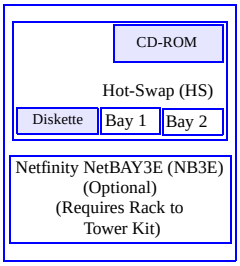
Total Internal Storage[1]	7200 RPM Hard Disk Drives (HDDs)			10,000 RPM HDDs		
	9.1 GB (P/N 36L9744 or P/N 37L7201)[2]	18.2 GB (P/N 36L9745 or P/N 37L7202)[2]	36.4 GB (P/N 36L9746 or P/N 37L7203)[2]	9.1 GB (P/N 36L9748 or P/N 37L7204)[2]	18.2 GB (P/N 36L9749 or P/N 37L7205)[2]	36.4 GB (P/N 36L9750 or P/N 37L7206)[2]
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
36.4 GB	-	2	1	-	2	1
72.8 GB (max)	-	-	2	-	-	2

This table does not represent all possible hard drive configurations.
1. Select a total storage row and then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.
2. Netfinity 8500R contains an Ultra2 hot-swap backplane which limits Ultra160 HDDs to Ultra2 bus speeds.

Bay	Form Factor	Height	Front Access	Usage
-	133 mm (5.25”)	HH	Yes	IDE CD-ROM
-	89 mm (3.5”)	SL	Yes	Diskette
1...2	HS	HH	Yes	Open
NB3E[1]	19” Rack	3U	Yes	Open

Part Number	Description	RPM	Height	Bays Supported	Max Qty.
Ultra2 Hard Disk Drives (HDD)					
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1, 2	2
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1, 2	2
36L9746	Netfinity 36.4 GB Wide Ultra2 SCSI Hot-Swap HDD	7200	HH	1, 2	2

1. A total of three optional 3U NetBAY3Es can be stacked beneath a Netfinity 8500R which has Netfinity 8Ux28D Rack-to-Tower Kit (P/N 28L4705) installed. See IBM Netfinity NetBAY3x Stackable Enclosure section for supported devices.



36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10000	SL	1, 2	2
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10000	SL	1, 2	2
36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10000	HH	1, 2	2
	Ultra160 Hard Disk Drives (HDD)[1]				
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1, 2	2
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1, 2	2
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[7]	7200	SL	1, 2	2
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1, 2	2
37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1, 2	2
37L7206	Netfinity 36.4 GB 10-K Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1, 2	2

	External Storage Expansion Units[2]	**Form Factor**
00N6xxx[8]	Netfinity EXP200 Storage Expansion Unit[3]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	Tower
37L0xxx[9]	Netfinity EXP200 350 W Redundant Power Supply	-
19K11xx[10]	Netfinity EXP300 Storage Expansion Unit[4, 6]	Rack (3U)
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit[6]	-
00N71xx[11]	Netfinity FAStT EXP500 Storage Expansion Unit[5]	Rack (3U)

1. Netfinity 8500R contains an Ultra2 hot-swap backplane which limits Ultra160 HDDs to Ultra2 bus speeds.
2. Not supported by the onboard external SCSI port. Select an optional SCSI controller then refer to Appendix D: Cables-Storage Units-Controllers to confirm the controller supports the desired External Storage Expansion Unit and to select a supported cable. For HDD or other expansion unit options, see the specific expansion unit section.
3. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350W power supply and power cord. Optional hot-swap Netfinity EXP 350 W Redundant Power Supply (P/N 37L0xxx) includes an additional power cord. To convert and EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
4. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500 W redundant power supplies, each with its own power cord. To convert an EXP300 to a tower form factor, Netfinity EXP300 Rack-to-Tower Conversion Kit (P/N 09N7296) is required.
5. Netfinity FAStT EXP500 Storage Expansion Unit includes dual hot-swap 350 W power supplies, each with its own power cord.
6. Planned availability of June 30, 2000.
7. Planned availability of August 2000.
8. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
9. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.
10.Where 'xx' represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.
11. Where 'xx' represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/ Language Line Cords/Publications are included as indicated.

Internal SCSI Cabling

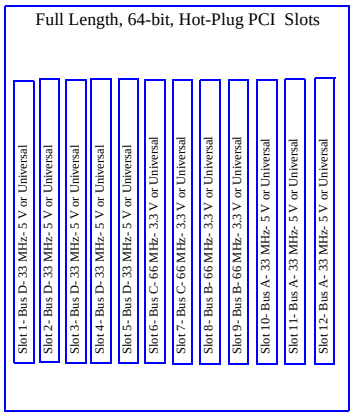
Netfinity 8500R systems contains an LVDS backplane supporting two hot-swap drive bays that support installation of up to two 3.5-inch, slim-high or half-high HDDs. The backplane is connected to the internal Wide Ultra2 SCSI controller through a 16-bit LVD SCSI cable. RAID support for the internal hot-swap drive bays is provided by adding a supported RAID adapter and moving the standard SCSI cable from the onboard controller to the optional RAID controller. The standard external Wide Ultra2 SCSI port uses a 0.8-mm Very High Density Connector Interface (VHDCI).

Netfinity 8500R I/O Options

Part Number	Description	Adapter Length	PCI Support	Slots Supported[1]	Hot-Plug[2]	PCI Voltage Key	MHz
	Storage Controllers[3]						
01K7364	Netfinity ServeRAID-3L Ultra2 SCSI Adapter[4]	Full	32-bit	(1...5, 10...12)[8]	X	5	33
19K0564	Netfinity ServeRAID-3L Ultra2 SCSI Adapter II[4]	Full	32-bit	(1...5, 10...12)[8]	X	5	33
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[5]	Full	32/64-bit	(1...5, 10...12)[8]	X	5	33
37L6080	Netfinity ServeRAID-4M Ultra160 SCSI Controller[6, 22]	Full	32/64-bit	1...12	X	Universal	33
37L6889	Netfinity ServeRAID-4H Ultra160 SCSI Controller[7]	Full	32/64-bit	1...12	X	Universal	33
02K3454	PCI Fast/Wide Ultra SCSI Adapter	Half	32-bit	1...5, 10...12	-	5	33
09L2123	Advanced SerialRAID/X Adapter[10]	Full	32-bit	1...12[10]	-	Universal	33
	Fibre Storage Controllers and Options[9]						
01K7297	Netfinity Fibre Channel PCI Adapter	Half	32/64-bit	1...12	-	Universal	33
SFCU1xx[23]	Netfinity Fibre Channel RAID Controller Unit	-	-	-	-	-	-
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	-	-	-	-	-	-
00N6881	Netfinity FAStT Host Adapter	Half	32/64-bit	1...12	X	Universal	66
00N69xx[24]	Netfinity FAStT500 RAID Controller	-	-	-	-	-	-
2109S08	SAN Fibre Channel Switch, 8-Port	-	-	-	-	-	-
2109S16	SAN Fibre Channel Switch, 16-Port	-	-	-	-	-	-
	Networking[11]						
	Ethernet						
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	Half	32-bit	1...12	X	Universal	33
08L3341	Netfinity 10/100 Fault Tolerant Adapter	Half	32-bit	1...5, 10...12	X	5	33
09N9901	10/100 EtherLink Server Adapter by 3Com	Half	32-bit	1...12	X	Universal	33
34L0301	Netfinity Gigabit Ethernet SX Adapter	Half	32/64-bit	1...12	X	Universal	33
	Token Ring						
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	Half	32-bit	1...12	-	Universal	33
34L0601[12]	Token-Ring 16/4 PCI Adapter 2	Half	32-bit	1...5, 10...12	X	5[12]	33
34L0701	Token-Ring 16/4 PCI Adapter 2 with Wake on LAN[13]	Half	32-bit	1...12	X	Universal	33
	Communications[14]						
37L14xx	Serial I/O SST 8, 16 and 128 Port Adapters[15]	Half	32-bit	(1...5, 10...12)[15]	-	5	33
	Systems Management[16]						
03K9309	Netfinity Advanced System Management Interconnect Cable Kit[17]	-	-	-	-	-	-
36L9654	Netfinity Advanced System Management Token-Ring Connection[18]	-	-	-	-	-	-
02K65xx[25]	UltraSlim 56W AC Adapter[19]	-	-	-	-	-	-
	Host Attach						
10L7368	Netfinity ESCON Adapter[20, 21]	Full	32-bit	(1...5, 10...12)[21]	-	5	33

1. The P-6 I/O bus supports four independent 64-bit PCI buses, two of which drive eight 33 MHz, 5.0 V slots (1-5, 10-12), while the other two buses drive four 66 MHz, 3.3 V slots (6-9). The 5 V slots support Universal or 5 V adapters. A 66 MHz adapter plugged into these slots will operate at 33 MHz. The 3.3 V slots support Universal or 3.3 V adapters. A 33 MHz adapter plugged into these slots limits a 66 MHz PCI adapter installed on the same bus to 33 MHz.
2. All 12 Slots are hot-plug capable using IBM's Active PCI technology. For Network Operating System support access URL www.ibm.com/pc/us/compat.
3. Netfinity 8500R includes a dual-port, dual-channel, 64-bit Wide Ultra2 SCSI controller which supports either Single Ended (SE) or Low Voltage Differential SCSI (LVDS) modes. One internal connector and one external port with a 0.8-mm Very High Density Connection Interface (VHDCI) are standard. The internal LVD SCSI cable has sufficient length to attach to an adapter located in slots 10...12. If a boot device (internal or external) is to be attached to an adapter, the adapter must reside in slots 10...12 due to BIOS scanning sequences.
4. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) and "...Adapter II" (P/N 19K0564) provide either one internal or one external (0.8-mm VHDCI) LVDS SCSI channel. Netfinity ServeRAID-3L Ultra2 SCSI Adapter II (P/N 19K0564) is a planned replacement for P/N 01K7364.
5. Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086) provides one internal and two external (0.8 mm VHDCI) LVDS SCSI channels. The internal channel can be configured for external usage (0.8 mm VHDCI) providing a total of three external LVDS SCSI channels. Includes 32 MB of mirrored battery-backup cache, which helps protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
6. Netfinity ServeRAID-4M Ultra160 SCSI Controller is powered by a 100 MHz Intel i960 processor and provides two channels, 64 MB of battery-backed ECC cache and two internal and two external Ultra160 connectors (only two connectors may be utilized). External connectors are 0.8-mm VHDCI.
7. Netfinity ServeRAID-4H Ultra160 SCSI Controller is powered by a 266 MHz PowerPC 750 processor and provides 128 MB of battery-backed ECC cache with two internal and up to four external Ultra160 connectors (only four connectors may be utilized). External connectors are 0.8-mm VHDCI.
8. A total quantity of eight, in any combination of 01K7364, 19K0564 and 37L6086 is supported.
9. See Netfinity Fibre Channel Solutions section for additional configuration information.
10. A maximum quantity of four is supported.
11. Netfinity 8500R does not include an onboard network controller.
12. Early versions of Token Ring 16/4 PCI Adaptor 2 (P/N 34L0601) were keyed as Universal; current versions are keyed for 5v. All versions are supported in 5v PCI slots only.
13. The Wake on LAN function of this option is not supported by Netfinity servers.
14. Netfinity 8500R includes two USB ports, two high-speed serial/asynchronous ports, (NS 16550A compatible), and one high-speed (up to 2 MBps data transfer speed) bi-directional parallel port supporting devices using ECP/EPP/SSP protocols adhering to the IEEE 1284 standard.
15. See Appendix F for details on Serial I/O options and configuration limitations. A maximum of four Serial I/O adapters (any combination of P/N 37L1414, 37L1415, 37L1416, 37L1423) may be installed.
16. Netfinity 8500R ships standard with a Netfinity Advanced System Management PCI Adapter.
17. Required for all Netfinity Servers containing a standard Advanced System Management Processor that are to be interconnected for system management support through a LAN or modem connection (Netfinity 5500 models 1xU...4xU are not supported). Up to 12 service processors may be interconnected (including standard and optional processors) with an aggregate connection length of no more than 91.4 meters (300 ft). A customer-supplied Ethernet cable is required for each interconnection.

18. Contains an IBM Turbo 16/4 Token-Ring PCI Card, which installs in the PCMCIA card slot of Netfinity Advanced System Management PCI Adapter and a PC Card to 9-pin D-Shell cable which is routed to a rear chassis cut-out. The Netfinity Advanced System Management PCI Adapter's integrated Ethernet port and Netfinity Advanced System Management Token-Ring Connection cannot be connected or used together. To download the latest firmware, access URL www.ibm.com/pc/us/netfinity. Select "Server Support", "Family", "Model", "Downloadable Files" and finally "Advanced System Management".
19. Although the 8500R integrated Netfinity Advanced System Management PCI Adapter is powered continuously through the redundant power supply subsystem, an even higher level of availability is offered with the addition of UltraSlim 56W AC Adapter by allowing an independent power source or connection to a separate optional UPS.
20. Provides an ESCON MIC and DB9 Serial Port. Cables are not included but are available through S/390 channels. Contact your IBM representative for additional information.
21. A maximum of two 10L7368 adapters (installed in non-adjacent slots) are supported in a single Netfinity server. Where possible, install in a minimally loaded bus.
22. Planned availability of August 2000.
23. Where 'xx' = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/English, EU=countries not covered previously.
24. Where 'xx' represents a country specific code as follows:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/ English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated
25. Where 'xx' represents a country specific code: 84=Denmark, 89=Israel, 88=Italy, 85=South Africa/India, 87=Switzerland, 86=UK, 83=EU1.



Netfinity 8500R Power, Monitors, Accessories

Part Number	Description
	Power[1]
	Uninterruptible Power Supply (UPS)[2]
30RIxxx	APC Smart-UPS 3000RMB[3]
37L6862	APC Smart-UPS 5000RMB[4]
	Monitors[5]
31H2Nxx	E54 Color Monitor 15" (13.8" Viewable Image Size), stealth black[6]
4841Nxx	G76 Color Monitor 17" (15.9 Viewable Image Size), stealth black[6]
494ANxx	G96 Color Monitor 19" (17.9" Viewable Image Size), stealth black[7]
13AG1xx	T55A Flat Panel Color Monitor (15.0" Viewable Image Size), stealth black[8]

1.Netfinity 8500R systems contain three 750 W (at 220 V), hot-swap power supplies which handle robust configurations while providing full redundancy. When operating at 110 V, redundancy is limited to configurations not exceeding six processors, 24 memory RDIMMs, or eight PCI adapters. Each system ships with 9 power cords: 3 x 220 V, 3 x 110 V, 3 x intra-rack 220 V. Even though multiple UPSs may provide redundant power sources, systems management software does not currently take advantage of its power outage alerts.
2. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimates.
3. Height is 3U. See "Rack and NetBAY" for supported IBM racks.
4. Height is 5U. See "Rack and NetBAY" for supported IBM racks.
5. Netfinity 8500R uses an SVGA controller (S3 Trio 3D chipset) with 4 MB of video memory.
6. Installation within a rack requires optional Monitor Compartment (P/N 94G7444).
7. Not supported for installation in a 19" rack
8. Installation within a rack requires optional Netfinity Flat Panel Monitor Rack Mount Kit (P/N 37L6857) and Netfinity Rack Keyboard Tray (P/N 28L4707). A space saver keyboard may coexist within the same 28L4707 keyboard tray.

Part Number	Description
	Conversion Kits
28L4705	Netfinity 8Ux28D Rack-to-Tower Kit[1]
	Rack and NetBAY[2]
930842P	Netfinity Enterprise Rack
930842X	Netfinity Enterprise Expansion Cabinet
9306900	Netfinity Rack[3]
36L9703	Netfinity Rack Extension Kit
9306200	Netfinity NetBAY22[4]
36L9702	NetBAY22 Rack Extension Kit
36L9701	Netfinity NetBAY3E[5]
	Keyboard and Mouse[6]
28L36xx[10]	Space Saver Keyboard[7, 8]
28L36xx[11]	Preferred Keyboard (stealth black)[9]
28L3675	Sleek 2-Button Stealth Black Mouse

1. Includes one Netfinity NetBAY3E with casters.
2. Netfinity 8500R is housed in a 19" rack mountable drawer and requires one of the racks listed here. See "IBM Netfinity Rack Cabinet and Options" section for IBM rack supported devices.
3. Netfinity Rack Extension Kit (P/N 36L9702) is required for proper rear door closure clearance.
4. NetBAY22 Rack Extension Kit (P/N 36L9703) is required for proper rear door closure clearance.
5. A maximum of three NetBAY3E enclosures may be stacked beneath a supported Netfinity tower server (conversion kit 28L4705 required). See IBM Netfinity NetBAY3X Stackable Enclosure section for supported devices.
6.Netfinity 8500R ships without a keyboard or mouse.
7. Installation within a rack requires optional keyboard tray P/N 28L4707 (stows in "ready-to-use" position).
8. Advanced TrackPoint IV features are not available on IBM Netfinity sy.stems.
9. Installation within a rack requires optional keyboard tray P/N 28L4707. This keyboard cannot share a keyboard tray with a flat panel display.
10. Where 'xx' represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
11. Where 'xx' represents a country specific code: 25=French, 26=German, 27=Italian, 29=English, 31=Danish, 33=Norwegian, 34=Swedish/Finnish, 35=Swiss, 36=Dutch.

Netfinity 8500R Tape Options

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Encl.[1]
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	N/A[2]	16 Ultra2 LVD	89 mm (3.5") HH or 133 mm (5.25") HH	Y[3]	N	10L7440 03K8756
01K1325	20/40 GB 8-mm Internal SCSI Tape Drive	N/A[2]	16	133 mm (5.25") HH	N	N	10L7440[4] 03K8756
01K1320	20/40 GB DLT Internal SCSI Tape Drive	N/A[2]	8	133 mm (5.25") FH	Y[3]	Y	03K8705, 03K8756
00N7990	40/80 GB DLT Internal SCSI Tape Drive	N/A[2]	16 Ultra2 LVD	133 mm (5.25") FH'	N	N	03K8705[4], 03K8756
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	Y	N	10L7440, 03K8705
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[5]	-	8/16	Desktop	N	N	-
03K8756	NetMEDIA Storage Expansion Unit EL[6]	-	16	Rack	Y	N	-
10L7113	NetMEDIA Systems Management Adapter[7]	-	16 LVD	-	N	N	03K8756
03K8705	DLT External SCSI Enclosure[8]	-	16	Desktop	N	N	-
	External Tape Libraries[9]						
00N79xx[10]	DLT Tape Autoloader	-	16	Desktop	Y	-	-
00N79xx[11]	DLT Tape Library	-	16	Desktop or Rack	Y	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section and the desired enclosure, then refer to Appendix D: Cables - Storage Units - Controllers.
2. Netfinity 8500R supports tape drives installed in external enclosures only. See External Tape Enclosure column.
3. Tape Drive is capable of self termination.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
6. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8mm VHDCI. Includes two power supplies and two power cords.
7. Installs in 03K8756. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when the 03K8756 is powered off.
8. Provides a black desktop DLT tape enclosure with a 68-pin high density external connector. Requires termination by the tape drive or by installation of a SCSI-2 16-bit Active Terminator (P/N 32G3918).
9. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes.
10. Where 'xx' represents a country specific power cord code: 70=UK, 71=Swiss, 72=Italy, 73=Israel, 33L4981=EU1, 33L4982=Denmark, 33L4983=South Africa/India.
11. Where 'xx' represents a country specific power cord code: *Tower versions* - 74=EU1, 75=Denmark, 76=India/South Africa, 77=UK, 78=Swiss, 79=Italy, 80=Israel: *Rack versions* - 81=EU1, 82=Denmark, 83=India/South Africa, 84=UK, 85=Swiss, 86=Italy, 87=Israel.

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Netfinity 8500R Sample Configurations

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability-Rack

Part Number	Description	Quantity	Usage
16RYNxx	Netfinity 8500R (PIII Xeon 550/2MB 512 MB/Rack) (8U)	1	Power Redundancy standard
33L5105	Netfinity 8500R 550 MHz/512 KB Upgrade with Pentium III Xeon Processor	5	Total of 6 SMP processors
28L4727	Netfinity 8500R>4-Way Enablement Kit (4X SRAM)	1	Required for greater than 4 processors
20L0247	Netfinity 256 MB SDRAM ECC RDIMM II	8	Total of over 2 GB of memory
28L4454	Netfinity 8500R Memory Expansion Card	1	Enables cache line interleaving
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	2	NOS mirroring
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	RAID Controller - NOS plus EXP200
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	1	-
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1	-
28L36xx[1]	Space Saver Keyboard	1	-
30RIxxx	APC Smart-UPS 3000RMB	1	-
External Storage			
03K8756	NetMEDIA Storage Expansion Unit EL	1	External Tape Drive Enclosure
00N7990	40/80 GB DLT Internal SCSI Tape Drive	2	Installs in 03K8756
00N6xxx[2]	Netfinity EXP200 Storage Expansion Unit	1	Provides additional 10 bays
37L0xxx[3]	Netfinity EXP200 350 W Redundant Power Supply	1	-
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable	2	Tape to Onboard SCSI, 3-HB to EXP200
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	6	RAID 5 with Hot-Spare in EXP200
Rack Options			
9306200	Netfinity NetBAY22	1	Monitor and keyboard mount on top
36L9702	NetBAY22 Rack Extension Kit	1	Required for rear door closure
94G7448	Power Cable - Type C12	5	-
94G6670	Blank Filler Panel Kit	1	-

1. Where ‘xx’ represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
2. Where ‘xxx’ represents a country specific code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
3. Where ‘xxx’ represents a country specific code: 076=Euro/English, 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.

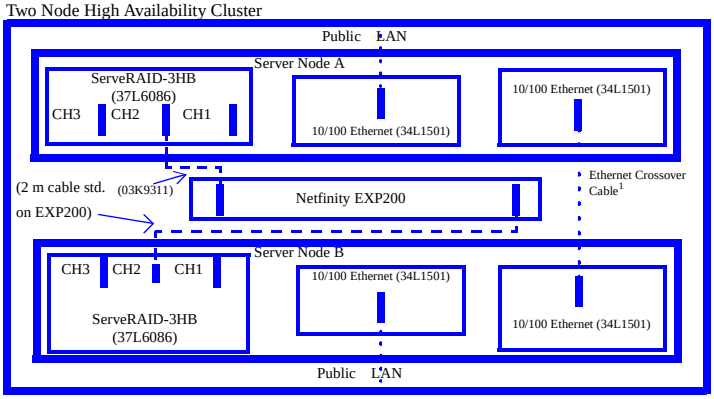
This high availability server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. The configuration includes enough disk drives to mirror the operating system and provide a RAID 5 data environment, power supply redundancy by the server and EXP200 and a UPS for power even during a blackout. A rack mounted tape drive is included to back up that all important asset...data. This server represents the leading edge in high availability.

Notes/Exchange-Stack

Part Number	Description	Quantity	Usage
17RYNxx	Netfinity 8500R (PIII Xeon 700/1 MB 512 MB/Rack) (8U)	1	Power redundancy standard
10K2330	Netfinity 8500R 700 MHz/1 MB Upgrade with Pentium III Xeon Processor	5	Total of 6 SMP processors
10K2335	Netfinity 4x Accelerator Filter	1	Required for greater than 4 processors
10K2337	Netfinity Mezzanine Expansion Kit	1	Required for greater than 4 processors
20L0249	Netfinity 512 MB SDRAM ECC RDIMM II	3	Total of 2 GB of memory
28L4454	Netfinity 8500R Memory Expansion Card	1	Enables cache line interleaving
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	2	NOS Mirroring
34L1501	Netfinity 10/100 Ethernet PCI Adapter 2	1	-
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	1	NOS plus EXP200
31H2Nxx	E54 Color Monitor 15” (13.8” Viewable Image Size), stealth black	1	-
28L36xx[1]	Space Saver Keyboard	1	-
30RIxxx	APC Smart-UPS 3000RMB	1	-
External Storage			
03K8756	NetMEDIA Storage Expansion Unit EL	1	External Tape Enclosure - Install in NetBAY3E
00N7990	40/80 GB DLT Internal SCSI Tape Drive	2	Installs in 03K8756
03K9310	Netfinity 2M Ultra2 SCSI Cable	1	Tape to Onboard SCSI
00N6xxx[2]	Netfinity EXP200 Storage Expansion Unit	1	Provides additional 10 Bays, 1 x 2M cable
37L0xxx[3]	Netfinity EXP200 350 W Redundant Power Supply	1	-
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10	RAID 5 with Hot-Spare in EXP200
Stack Options			
28L4705	Netfinity 8Ux28D Rack-to-Tower Kit	1	-
36L9701	Netfinity NetBAY3E	3	3 x 3U enclosure for UPS, EXP200, Tape

1. Where ‘xx’ represents country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
2. Where ‘xxx’ represents a country specific code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
3. Where ‘xxx’ represents a country specific code: 076=Euro/English, 077=Danish/English, 078=Israel/English, 079=ItalyEnglish, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.

Two Node High Availability Cluster



1.Customer supplied Ethernet Crossover Cable may vary in length up to a maximum of 25 feet (7.6 m).

Two Node High Availability Cluster

Part Number	Description	Quantity	Usage
	Server Nodes A & B		
18RYNxx	Netfinity 8500R (PIII Xeon 700/2 MB 512 MB/Rack) (8U)	2	Power redundancy standard
10K2166	Netfinity 8500R 700 MHz/2 MB Upgrade with Pentium III Xeon Processor	10	Total of 6 SMP processors per node
10K2335	Netfinity 4X Accelerator Filter	2	Required for greater than 4 processors
10K2337	Netfinity Mezzanine Expansion Kit	2	Required for greater than 4 processors
20L0247	Netfinity 256 MB SDRAM ECC RDIMM II	16	Total of over 2 GB of memory per node
28L4454	Netfinity 8500R Memory Expansion Card	2	Enables cache line interleaving
34L1501	Netfinity 10/100 Ethernet Adapter 2[1]	4	1 for crossover, 1 for public LAN/node
37L6086	Netfinity ServeRAID-3HB Ultra2 SCSI Adapter[2]	2	RAID controller - NOS plus EXP200
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	4	NOS mirroring
30RIxxx	APC Smart-UPS 3000RMB (3U)	2	-
	External Storage		
03K8756	NetMEDIA Storage Expansion Unit EL (3U)	1	External Tape Drive Enclosure
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable[3]	1	03K8756 to onboard SCSI
00N7990	40/80 GB DLT Internal SCSI Tape Drive	1	Installs in 03K8756
00N6xxx[5]	Netfinity EXP200 Storage Expansion Unit (3U)[2]	1	Provides additional 10 bays
37L0xxx[6]	Netfinity EXP200 350 W Redundant Power Supply[2]	1	-
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable[2, 3]	2	3-HB to EXP200
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10	RAID 5 shared storage in EXP200
	Shared (or single occurrence) Resources		
13AG1xx	T55A Flat Panel Color Monitor (15.0” Viewable Image Size), stealth black	1	Mounts in keyboard tray
28L36xx[4]	Space Saver Keyboard	1	-
	Rack Options		
930842P	Netfinity Enterprise Rack	1	-
37L6857	Netfinity Flat Panel Monitor Rack-Mount Kit (3U)	1	Mounts in keyboard tray
28L4707	Netfinity Rack Keyboard Tray	1	-
28L0542	Netfinity Console Server Selector Switch (4-port)	1	-
94G7448	Power Cable-Type C12	4	-
94G7447	12 ft. Console Cable Set	2	-
94G6670	Blank Filler Panel Kit	1	-

1. Requires customer supplied Ethernet Crossover Cable which may vary in length up to a maximum of 25 feet (7.6 m).
2. By replicating this item, up to a total quantity of four ServeRAID-3HB Adapters (plus options) and eleven EXP200s can provide over 2 Terabytes of storage. Additional power and rack space will be required.
3. Cable length requirements are dependent on component placement within the rack or rack suite. To determine specific configuration requirements use the Netfinity Rack and/or Spreadsheet Configurators which can be downloaded from Web site www.pc.ibm.com/europe/configurators
4. Where ‘xx’ represents a country specific code: 46=Danish , 47=France, 48=Germany, 49=Italian, 50=Spanish, 51=UK.
5. Where ‘xxx’ represents a country specific code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/Enlish, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
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Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 8500R, provides a high availability solution to keep you in touch with the key applications you need to run your business.

This sample configuration consists of paired IBM Netfinity 8500R cluster nodes equipped with eight-way SMP capability and redundant power supplies. Microsoft Cluster Service (MSCS) has been validated on IBM Netfinity 8500R servers, using the Netfinity ServeRAID-3HB with the EXP200 Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing for software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, a Netfinity EXP200 was selected and the Netfinity ServeRAID-3HB Ultra2 SCSI Adapters provide the I/O control. Netfinity ServeRAID-3HB handles the “SCSI heartbeat” connection without the need for a dedicated SCSI connection and logically attaches the quorum disk, which allows arbitration when a failure occurs. Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL www.ibm.com/pc/us/netfinity/clustering.html.

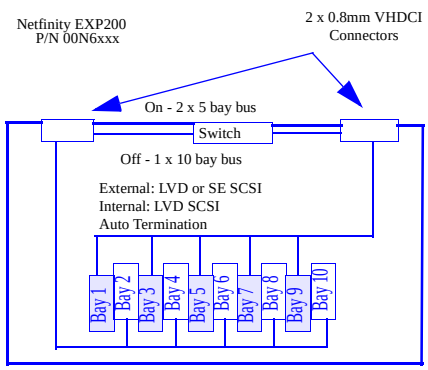
IBM Netfinity EXP200 Configurator

Netfinity EXP200 Hard Disk Drive Configurator

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)[2]	18.2 GB (P/N 36L9745 or P/N 37L7202)[2]	36.4 GB (P/N 36L9746 or P/N 37L7203)[2]	9.1 GB (P/N 36L9748 or P/N 37L7204)[2]	18.2 GB (P/N 36L9749 or P/N 37L7205)[2]	36.4 GB (P/N 36L9750 or P/N 37L7206)[2]
0 GB	Standard on Base Models			Standard on Base Models		
9.1 GB	1	-	-	1	-	-
18.2 GB	2	1	-	2	1	-
27.3 GB	3	-	-	3	-	-
36.4 GB	4	2	1	4	2	1
45.5 GB	5	-	-	5	-	-
54.6 GB	6	3	-	6	3	-
63.7GB	7	-	-	7	-	-
72.8 GB	8	4	2	8	4	2
81.9GB	9	-	-	9	-	-
91 GB	10	5	-	10	5	-
109.2 GB	-	6	3	-	6	3
127.4GB	-	7	-	-	7	-
145.6GB	-	8	4	-	8	4
163.8GB	-	9	-	-	9	-
182GB	-	10	5	-	10	5
218.4GB	-	-	6	-	-	6
254.8GB	-	-	7	-	-	7
291.2 GB	-	-	8	-	-	8
327.6 GB	-	-	9	-	-	9
364 GB (max)	-	-	10	-	-	10

This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within ± 0.2 GB unless otherwise noted.
2. Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.

Bay	Form Factor	Height	Front Access	Usage	Bus
Odd #s	HS	HH	yes	open	1
Even #s	HS	HH	yes	open	2



1. Housed in a 19" rack-mountable drawer and ships standard with a single power supply, power cord and 2 meter Ultra2 SCSI cable.
Requires IBM Netfinity Enterprise Rack (P/N 930842P) or Expansion Cabinet (P/N 9308842X), Rack (P/N 9306900), NetBAY22 (P/N 9306200), NetBAY3 (P/N 10L6912) or NetBAY3E (P/N 36L9701).
External Storage Expansion Unit requires storage controllers and external cables. Select a supported controller from the system configurator and cables from Appendix D: Cables-Storage Units-Controllers.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty.
Ultra2 Hard Disk Drives (HDD)					
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...10	10
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...10	10
36L9746	Netfinity 36.4 GB Wide Ultra2 SCSI Hot-Swap HDD	7200	HH	1...10	10
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...10	10
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...10	10
36L9750	Netfinity 36.4 GB 10K-3 Wide Ultra2 SCSI Hot-Swap HDD	10,000	HH	1...10	10
Ultra160 Hard Disk Drives (HDD)[1]					
37L7201	Netfinity 9.1 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1...10	10
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1...10	10
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[3]	7200	SL	1...10	10
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1...10	10
37L7205	Netfinity 18.2 GB 10K-4 Ultra160	10,000	SL	1...10	10
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1...10	10

	External Storage Expansion Units	Form Factor
00N6xxx[4]	Netfinity EXP200 Storage Expansion Unit[2]	Rack (3U)
37L5857	Netfinity EXP200 Rack-to-Tower Conversion Kit	-
37L0xxx[5]	Netfinity EXP200 350 W Redundant Power Supply	-

1. Ultra160 HDDs are limited to a maximum of Ultra2 bus speeds.
2. Netfinity EXP200 Storage Expansion Unit ships with 10 half-high hot-swap bays which can be configured as a single bus, two independent buses or twintailed single bus. Netfinity EXP200 includes a single 2 M Ultra2 SCSI cable and a single hot-swap 350 W power supply and power cord. Optional hot-swap Netfinity EXP200 350 W Redundant Power Supply (P/N 37L0xxx) includes an additional power cord. To convert an EXP200 to a tower form factor, Netfinity EXP200 Rack-to-Tower Conversion Kit (P/N 37L5857) is required.
3. Planned availability of August 2000.
4. Where 'xxx' represents a specific country code: 899=US/French, 900=European/English, 901=European/Spanish, 902=European/French, 903=European/German, 904=Danish/English, 905=Israel/English, 906=Italian/Italian, 907=South Africa/English, 908=Swiss/English, 909=Swiss/French, 910=Swiss/German, 912=UK/English:- Line Cords/ Publication Country Kits are included throughout.
5. Where 'xxx' represents a country specific code:076=Euro/English , 077=Danish/English, 078=Israel/English, 079=Italy/English, 080=South Africa/English, 081=Swiss/English, 082=UK/English. Line Cords/Publication Kits are included throughout.

Limitations

Netfinity EXP200 hot-swapping of HDDs is restricted to a HDD that is inactive or where a lighted fault LED is indicated. The EXP200 is not supported when the SCSI channel of the SCSI adapter to which it is attached is split between internal devices and external devices. Each EXP200 must be attached to a dedicated SCSI channel of a supported SCSI adapter. The standard EXP200 configuration is supported as a rack drawer and is not currently supported for stacking directly on one another. It can be installed in a Netfinity NetBAY3 or NetBAY3E storage unit and stacked up to three units high, with a supported server on top. In addition, it can be converted to a tower with the addition of a Netfinity EXP200 Rack-to-Tower Conversion Kit (37L5857). See Appendix D: Cables- Storage Units- Controllers for supported controllers and cables. A single two meter cable is included with the EXP200.

Cable Length (Meters)[1]	Maximum MB/s	
	Ultra2 Controller	Ultra Controller
1 and 2	80	40
3	80	20
4.3	80	20
12 and 20	80	N/A

1. The EXP200 ships with a single Ultra2 SCSI cable similar to Netfinity 2 M Ultra2 SCSI Cable (P/N 03K9310).

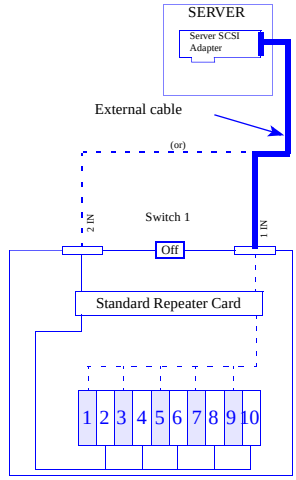
Cables and Controllers:
See Appendix D: Cables - Storage Units - Controllers

Sample Configurations

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Netfinity EXP200 One Independent SCSI Bus

To configure as a single 10 drive SCSI channel, attach one external cable from the SCSI adapter to either the 1 IN or 2 IN connectors in the EXP200. Set switch 1 to "Off" position.

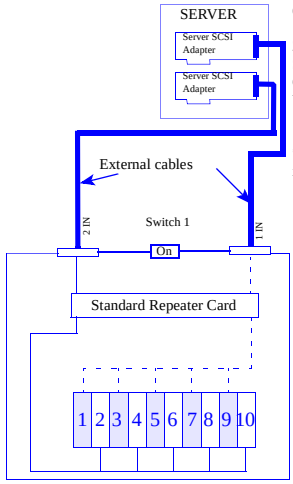


Order:
1 x 00N6xxx
1 x External Cable*
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19" Rack Space
* One 2M Ultra2 cable is included with each EXP200.

Operational mode (SCSI F/W, Ultra SCSI, Ultra2 SCSI) may be limited by controller, cable or cable length. See Appendix D for additional information.

Netfinity EXP200 Two Independent SCSI Buses

To configure as two independent 5 drive SCSI channels, attach one external cable from the SCSI adapter to the SCSI bus 1 IN connector in the EXP200. Attach a second External SCSI cable from another SCSI adapter, in the same or separate server, to the 2 IN connector in the unit. Set switch 1 to "On" position.



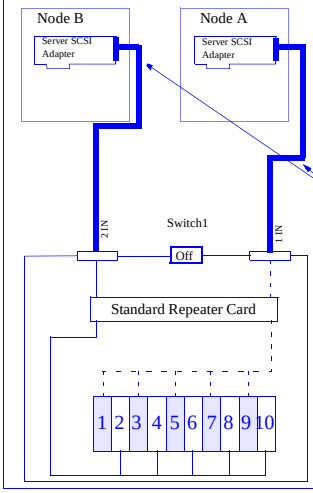
Order:
1 x 00N6xxx
2 x External Cables*
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19" Rack Space

* One 2M Ultra2 cable is included with each EXP200.

Operational mode (SCSI F/W, Ultra SCSI, Ultra-2 SCSI) may be limited by controller, cable or cable length, or hard disk drive type. See Appendix D for additional information.

Netfinity EXP200 One Independent SCSI Bus
High Availability Configuration

To configure a single 10 drive SCSI channel for clustering, attach one external cable from the SCSI adapter in Node A to the 1 IN connector in the EXP200. Connect a second external cable to a SCSI adapter in Node B and to the 2 IN connector in the EXP200.



Order:
1 x 00N6xxx
2 x External Cables*
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19" Rack Space
* One 2M Ultra2 cable is included with each EXP200.

Operational mode (SCSI F/W, Ultra SCSI, Ultra-2 SCSI) may be limited by controller, cable, or cable length. See Appendix D for additional information.

IBM Netfinity EXP300 Configurator

Netfinity EXP300 Hard Disk Drive Configurator

Total Int. Storage[1]	7200RPM Hard Disk Drives (HDDs)			10,000RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 36L9744 or P/N 37L7201)[2]	18.2 GB (P/N 36L9745 or P/N 37L7202)[2]	36.4 GB (P/N 37L7203)	9.1 GB (P/N 36L9748 or P/N 37L7204)[2]	18.2 GB (P/N 36L9749 or P/N 37L7205)[2]	36.4 GB (P/N 37L7206)
0 GB	Standard on Base Models			Standard on Base Models		
18.2 GB	2	1	-	2	1	-
36.4 GB	4	2	1	4	2	1
54.6 GB	6	3	-	6	3	-
72.8 GB	8	4	2	8	4	2
91 GB	10	5	-	10	5	-
109.2 GB	12	6	3	12	6	3
127.4 GB	14	7	-	14	7	-
145.6GB	-	8	4	-	8	4
182 GB	-	10	5	-	10	5
218.4 GB	-	12	6	-	12	6
254.8 GB	-	14	7	-	14	7
291.2 GB	-	-	8	-	-	8
364.0 GB	-	-	10	-	-	10
436.8 GB	-	-	12	-	-	12
509.6 GB (max.)	-	-	14	-	-	14

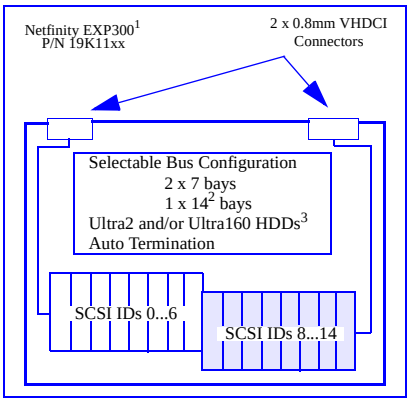
This table does not represent all possible hard drive configurations.
1. Select a total storage row then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +/- 0.2 GB unless otherwise noted.
2. When combined with a ServeRAID-4x controller, Ultra2 and Ultra160 HDD's may be mixed on the same bus and operate up to their maximum respective speeds.

SCSI ID	Form Factor	Height	Front Access	Usage
0...6	HS	SL	Yes	open
8...14	HS	SL	Yes	open

	Maximum MB/s	
Cable Length (Meters	Ultra2 Controller	Ultra160 Controller
2	80	160
4.2	80	160
20	80	160

Part Number	Description	RPM	Height	Bays Supported[1]	Max. Qty.
	Ultra2 Hard Disk Drives (HDD)[2]				
36L9744	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...14	14[3]
36L9745	Netfinity 18.2 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...14	14[3]
36L9748	Netfinity 9.1 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...14	14[3]
36L9749	Netfinity 18.2 GB 10K-3 Wide Ultra2 SCSI Hot-Swap SL HDD	10,000	SL	1...14	14[3]
	Ultra 160 Hard Disk Drives (HDD)[2]	**RPM**	**Height**	**Bays Supported**	
37L7201	Netfinity 9.1 GB Wide Ultra2 SCSI Hot-Swap SL HDD	7200	SL	1...14	14[3]
37L7202	Netfinity 18.2 GB Ultra160 SCSI Hot-Swap SL HDD	7200	SL	1...14	14[3]
37L7203	Netfinity 36.4 GB Ultra160 SCSI Hot-Swap SL HDD[6]	7200	SL	1...14	14[3]
37L7204	Netfinity 9.1 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1...14	14[3]

1. The EXP300 ships with a single Ultra2 SCSI cable similar to Netfinity 2M Ultra2 SCSI Cable (P/N 03K9310).



1. Housed in a 19” rack mountable drawer and ships standard with redundant 500 W hot-swap power supplies, two power cords and a single 2M Ultra2 SCSI cable capable of supporting Ultra160 speeds.
2. Twintailing reduces the maximum number of HDDs on a single bus to 13.
3. When combined with a ServeRAID-4x controller, Ultra2 and Ultra160 HDDs may be mixed on the same bus and operate at up to their maximum respective speeds.

Requires IBM Netfinity Enterprise Rack (930842P) or Expansion Cabinet (930842X), Rack (9306900), NetBAY22 (9306200), NetBAY3 (10L6912), NetBAY3E (36L9701) or Rack-to-Tower Conversion Kit (09N7296).

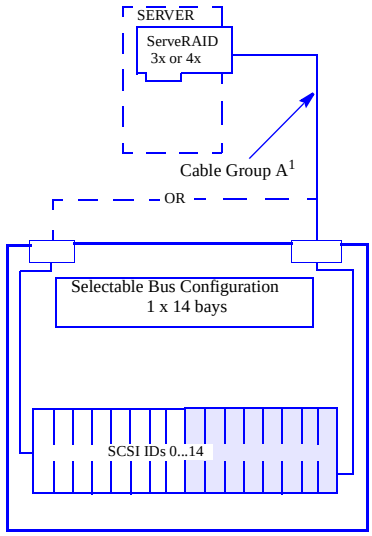
External Storage Expansion Units require storage controllers and external cables. Select a supported controller from the system configurator and cables from Appendix D: Cables-Storage Units-Controllers.

37L7205	Netfinity 18.2 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1...14	14[3]
37L7206	Netfinity 36.4 GB 10K-4 Ultra160 SCSI Hot-Swap SL HDD	10,000	SL	1...14	14[3]
External Storage Expansion Units		**Form Factor**			
19K11xx[7]	Netfinity EXP300 Storage Expansion Unit[4, 5]	Rack (3U)			
09N7296	Netfinity EXP300 Rack-to-Tower Conversion Kit	-			

1. Netfinity EXP300 Storage Expansion Unit ships with 14 slim-line hot-swap bays which can be configured as a single bus, two independent buses or a twintailed single bus.
2. When combined with a ServeRAID-4x controller, Ultra2 and Ultra160 HDDs may be mixed on the same bus and operate at up to their maximum respective speeds.
3.Twintailing reduces the maximum number of HDDs on a single bus to 13.
4. Netfinity EXP300 includes a single 2 M Ultra2 SCSI cable and dual hot-swap 500W redundant power supplies, each with its own power cord.
5. Planned availability of June 30, 2000.
6. Planned availability of August 2000.
7. Where ‘xx’ represents a specific country code: 51=US/English, 52=European/English, 56=Danish/English, 57=Israel/English, 58=Italian/English, 59=South Africa/English, 60=Swiss/English, 63=UK/English:- Line Cords/ Publication Country Kits are included throughout.

Cables and Controllers:
See Appendix D: Cables - Storage Units - Controllers

Netfinity EXP300 One Independent SCSI Bus

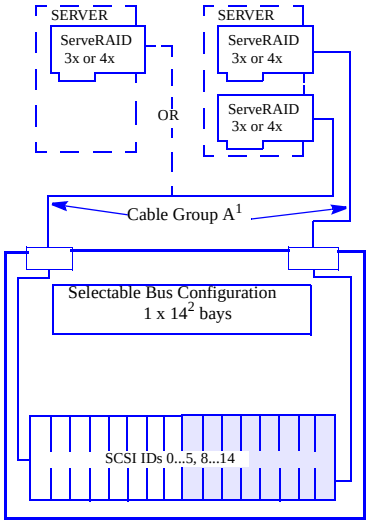


Order:
- 1 x P/N 19K11xx
- 1 x External Cable from Group A[1]
- Up to 14 Ultra2 and/or Ultra160 HDDs

1. One 2 M Ultra2 cable is included with each EXP300. If a longer cable is desired, select one from cable group A.

Netfinity EXP300 One Independent Twintail SCSI Bus High Availability Configuration

To configure as one independent twintailed 13 bay SCSI bus, attach two external cables from two ServeRAID adapters, in the same or separate servers, to the two external ports of the EXP300. The EXP300 must be set for 1 x 14[2] bays.

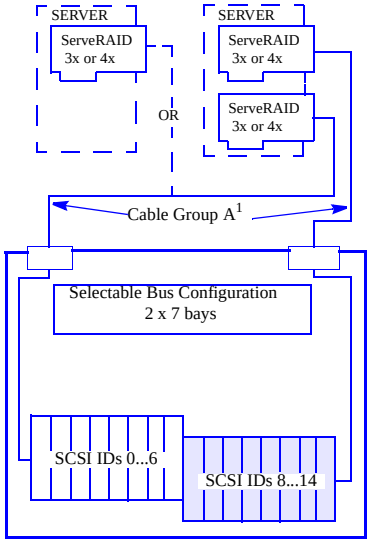


Order:
- 1 x P/N 19K11xx
- 2 x External Cables from Group A[1]
- Up to 13 Ultra2 and/or Ultra160 HDDs

1. One 2 M Ultra2 cable is included with each EXP300. If a longer cable is desired, select one from cable droup A.
2. Twintailing reduces the maximum number of HDDs on a single bus to 13.

Netfinity EXP300 Two Independent SCSI Buses

To configure as two independent 7 bay SCSI buses, attach two external cables from two ServeRAID adapters, in the same or separate servers, to the two external ports of the EXP300. The EXP300 must be set for 2 x 7 bays.



Order:
- 1 x P/N 19K11xx
- 2 x External Cables from Group A[1]
- Up to 14 Ultra2 and/or Ultra160 HDDs

1. One 2 M Ultra2 cable is included with each EXP300. If a longer cable is desired, select one from cable droup A.

IBM Netfinity FAStT EXP500 Configurator

Netfinity FAStT EXP500 Hard disk Drive Configurator

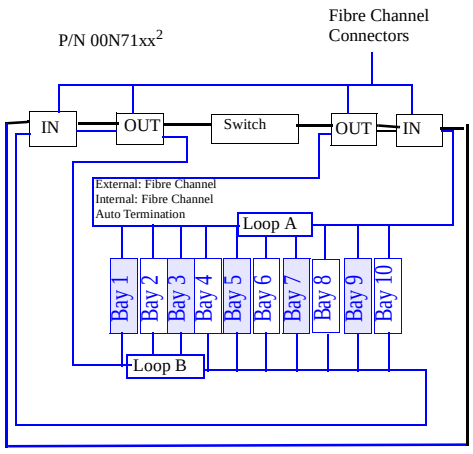
Total Internal Storage[1]	10,000 RPM Hard Disk Drives (HDDs)		
	9.1 GB (P/N 37L6209)	18.2 GB (P/N 37L6210)	36.4 GB (P/N 37L6211)
0 GB	Standard on all Base Models		
18.2 GB	2	1	-
36.2 GB	4	2	1
54.6 GB	6	3	-
72.8 GB	8	4	2
91.0 GB	10	5	-
109.2 GB	-	6	3
145.6 GB	-	8	4
182.0 GB	-	10	5
218.4 GB	-	-	6
254.8 GB	-	-	7
291.2 GB	-	-	8
327.6 GB	-	-	9
364 (max)	-	-	10

This table does not represent all valid hard drive configurations.
1. Select a total storage row and then select the quantity of HDDs from a column corresponding to the hard disk drive of choice. Total Internal Storage listed is within +- 0.2 GB unless otherwise noted.

Part Number	Description	RPM	Height	Bays Supported	Max. Qty Supported
37L6209	Netfinity 9.1 GB 10K-3 FC Hot-Swap HDD	10,000	SL	1...10	10
37L6210	Netfinity 18.2 GB 10K-3 FC Hot-Swap HDD	10,000	SL	1...10	10
37L6211	Netfinity 36.4 GB 10K-3 FC Hot-Swap HDD	10,000	HH	1...10	10
External Storage Expansion Unit		**Form Factor**			
00N71xx[2]	Netfinity FAStT EXP500 Storage Expansion Unit[1]	Rack (3U)			

1. The EXP500 FC includes two hot-swap, 350 W auto-ranging redundant power supplies, each with its own power cord.
2. Where 'xx' represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/Language Line Cords/Publications are included as indicated.

Netfinity FAStT EXP500 Storage Expansion Unit[1]



1. Housed in a 19" Rack mountable drawer and ships standard with redundant power supplies and two power cables requiring separate power sources. Requires IBM Netfinity Rack (9306900), Netfinity NetBAY22 (9306200), NetBAY3 (10L6912) or industry standard 19" rack, EIA-310D, with a minimum depth of 24" (711.2 mm).
2. Where 'xx' represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/Language Line Cords/Publications are included as indicated.

IBM Netfinity Fibre Array Solutions

Connection Cross Reference Chart

Part Number	Description	Note	Ports[1, 2]	00N6881[3]	01K7297[3]	01K7296[3]	00N6882	00N69xx[12]	SFCU1xx[3, 13]	00N71xx[14]	2109S08	2109S16	SFCH1xx[13]	35L1647
00N6881	Netfinity FAStT Host Adapter	3	1/0/0	-	-	A	B	B[4]	A	-	C	C	C	D
01K7297	Netfinity Fibre Channel PCI Adapter	3	1/0/0	-	-	A	B	B[4]	A	-	C	C	C	D
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	2	1/0/0	A	A	-	-	-	E	-	C	C	C[10]	D
00N6882	Netfinity FAStT500 Mini Hub		0/0/2	B	B	-	F[5]	E[4]	-	F[6]	F[5]	F[5]	-	G[5]
00N69xx[12]	Netfinity FAStT500 RAID Controller		0/0/16	B[4]	B[4]	-[4]	E[4]	-	-	H[43]	F[4]	F[4]	-	F[4]
SFCU1xx[13]	Netfinity Fibre Channel RAID Controller Unit	3	1/0/0	A	A	E	-	-	-	-	B	B	C[10]	B
00N71xx[14]	Netfinity FAStT EXP500 Storage Expansion Unit		0/0/4	-	-	-	F[6]	H[4]	-	F	-	-	-	-
2109S08	IBM SAN Fibre Channel Switch, 8-Port		0/4/4	C	C	C	F[5]	F[4]	B	-	I	I	I[8]	F
2109S16	IBM SAN Fibre Channel Switch, 16-Port		0/4/12	C	C	C	F[5]	F[4]	B	-	I	I	I[8]	F
35L1647	IBM SAN Fibre Channel Managed Hub	7, 10	7/0/1	D	D	D	G[5]	F[4]	B	-	F[8]	F[8]	F	F
03K9307	Netfinity Fibre Channel Long-Wave GBIC		-	-	-	-	E	-	-	E	E	E	E	E
03K9308	Netfinity Fibre Channel Short-Wave GBIC		-	-	-	-	E	-	-	E	E	E	E	E

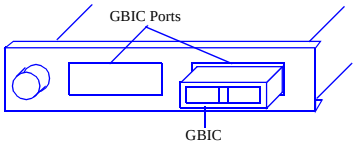
A: A short-wave cable is required for this connection. A cable from Cable Group D is required.
B: One of these devices has an integrated optical port but the other requires an optional Short-Wave GBIC (P/N 03K9308) to complete the connection. A cable form Cable Group D is required.
C: One of these devices has an integrated optical port but the other requires an optional or available Short-Wave GBIC (P/N 03K9308) to complete the connection. A cable from Cable Group D is required.
D: Both devices have integrated short-wave optical ports. The IBM SAN Managed Hub (P/N 35341RU) has a single GBIC port that could be configured for short-wave functionality with an optional short-wave GBIC (P/N 03K9308).
E: This is a hardware connection.
F: This device supports the use of Short-Wave (P/N 03K9308) and Long-Wave (P/N 03K9307) GBICs. Both devices must have the same type of GBIC installed for a valid connection. A cable from Cable Group D or customer-supplied long-wave cable is required.
G: The Netfinity FAStT500 Mini Hub (P/N 00N6882) can connect to the IBM SAN Fibre Channel Managed Hub (P/N 35L1647) via optional short-wave or long-wave GBICs. Short-wave connections from the Mini Hub may connect to either an integrated short-wave optical port or an optional short-wave GBIC (P/N 03K9308) on the IBM SAN Fibre Channel Managed Hub. Long-wave connections from the Mini Hub may connect to an optional Long-Wave GBIC (P/N 03K9307) installed in the IBM SAN Fibre Channel Managed Hub.
H: Connections to the Netfinity FAStT500 RAID Controller are made through optional Short-Wave (P/N 03K9308) or Long-Wave (P/N 03K9307) GBICs installed in an available or optional Netfinity FAStT500 Mini Hub (P/N 00N6882).
I: This device supports the use of available (4 included) or optional Short-Wave (P/N 03K9308) and optional Long-Wave (03K9307) GBICs. Both devices must have the same type of GBIC installed for a valid connection. A cable from Cable Group D or customer-supplied long-wave cable is required.

1. The number of optical ports on a device displayed as: Integrated Ports/GBIC Ports with installed short-wave GBICs/Available GBIC Ports. Standard GBICs and optical ports are always short-wave; i.e., the 2109S16 is displayed as 0/4/12. This would mean that the device has 0 integrated optical ports, 4 installed short-wave GBICs and 12 available or open GBIC ports that can be configured as either short-wave (P/N 03K9307) or long-wave (P/N 03K9308) with optical GBICs.
2. Standard GBICs and integrated optical ports are always short-wave.
3. Device has an integrated short-wave optical port. Does not require an optional GBIC.
4. Connection requires an optional GBIC installed in an available or optional Netfinity FAStT500 Mini Hub (P/N 00N6882). Netfinity FAStT500 RAID Controller (P/N 00N69xx[12]) uses up to 4 Mini Hubs (2 standard) with GBICs to provide up to 8 connections for host devices and up to 4 Mini Hubs (2 standard) with GBICs to provide up to 8 connections for storage devices.
5. This device and the Netfinity FAStT500 Mini Hub (P/N 00N6882) can not be connected when the Mini Hub is installed in the Storage side of the Netfinity FAStT500 RAID Controller (P/N 00N69xx[12]).
6. This device and the Netfinity FAStT500 Mini Hub (P/N 00N6882) can not be connected when the Mini Hub is installed in the Host side of the Netfinity FAStT500 RAID Controller (P/N 00N69xx[12]).
7. The IBM SAN Fibre Channel Managed Hub has 7 integrated, short-wave optical ports. The eighth port is a GBIC slot that can be configured either as short-wave or long-wave.
8. In configurations with the IBM Fibre Channel Switch (P/N 2109S08/S16), all host systems must be attached to the FC Switch. Only storage systems can be attached to the SAN Fibre Channel Managed Hub.
9. No more than two Netfinity Fibre Channel Hubs (P/N SFCH1xx[13]) should be connected together.
10. For optimum performance, no more than two RAID Controller Units (P/N SFCU1xx[13]) should be attached to a single hub.
11. Not supported with the Netfinity FAStT500 RAID Controller (P/N 00N69xx[12]).
12. Where ‘xx’ represents a country specific code as follows:- 13=US/English, 14=Euro/English, 18=Denmark/English, 19=Israel/English, 20=Italy/English, 21=South Africa/English, 22=Switzerland/English, 26=UK/English. Country/Language - Line Cords/Publications are included as indicated
13. Where ’xx’ = country publication and power cord codes as follows:- UK=United Kingdom and Arabia, DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland/English, EU=countries not covered previously.
14. Where ‘xx’ represents a country specific code as follows:- 36=US/English, 37=Euro/English, 41=Denmark/English, 42=Israel/English, 43=Italy/English, 44=South Africa/English, 45=Switzerland/English, 49=UK/English. Country/Language - Line Cords/Publications are included as indicated

Netfinity FAStT Host Adapter
P/N 00N6881

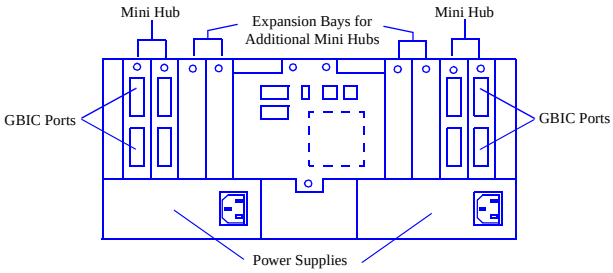
- PCI to FCAL 66 MHz 64-bit with 32-bit slot compatibility
- Supports FC to SCSI and IP Protocols
- Supports FC to arbitrated loop public loop profile

Netfinity FAStT500 Mini Hub
P/N 00N6882



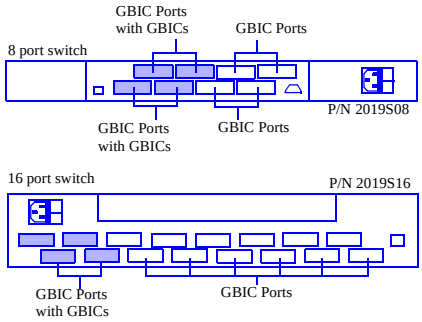
- Provides additional connections to the Netfinity FAStT500 RAID Controller - supports complex clustering or advanced storage applications.

Netfinity FAStT500 RAID Controller Unit
P/N 00N69xx



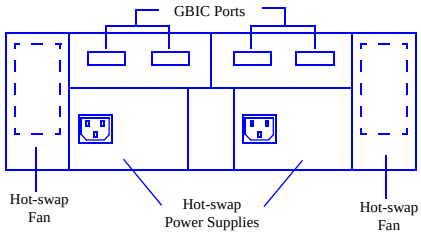
- Dual high-performance, RAID controller cards-supports up to 100 MB/sec data transfer rate per controller.
- Two 175 W auto-ranging, hot-swap, redundant power supplies.
- Attach directly to Netfinity Fibre Channel PCI Adapter(s) (P/N 01K7297) or indirectly through SAN Fibre Channel Managed Hub (P/N 35L1647) using cables from cable group D.
- Height is 4U (1 U = 1,75 in. or 44.45 mm)
- Requires Netfinity Enterprise Rack or Expansion Cabinet, Netfinity Rack, Netfinity NetBAY22 or 19-inch EIA-D Industry-Standard Rack. Mounting rails are included with the controller.

IBM SAN Fibre Channel Switch, 8 and 16 Ports
P/N 2109S08/S16



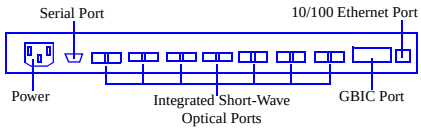
- Each port delivers up to 100 MB/sec, full-duplex data transfer.
- Comes with 4 Short-Wave GBICs installed.
- Embedded Web browser configuration, management and service.
- Support for Public Fibre Channel Arbitrated Loops.
- Optional power supply (P/N 09L5403) available.

Netfinity FAStT EXP500 Storage Expansion Unit
P/N 00N71xx



- Two hot-swap, 350 W auto-ranging, redundant power supplies.
- Redundant fans - two hot-swap, dual-fan units.
- LED indicators on all critical components warn of faults, over temperature, and other abnormalities.
- Ten drive bays - supports slim-high or half-high Fibre Channel hot-swap hard disk drives.
- Height is 3U (1 U = 1,75 in. or 44.45 mm)
- Requires Netfinity Enterprise Rack or Expansion Cabinet, Netfinity Rack, Netfinity NetBAY22 or 19-inch EIA-D Industry-Standard Rack. Mounting rails are included.

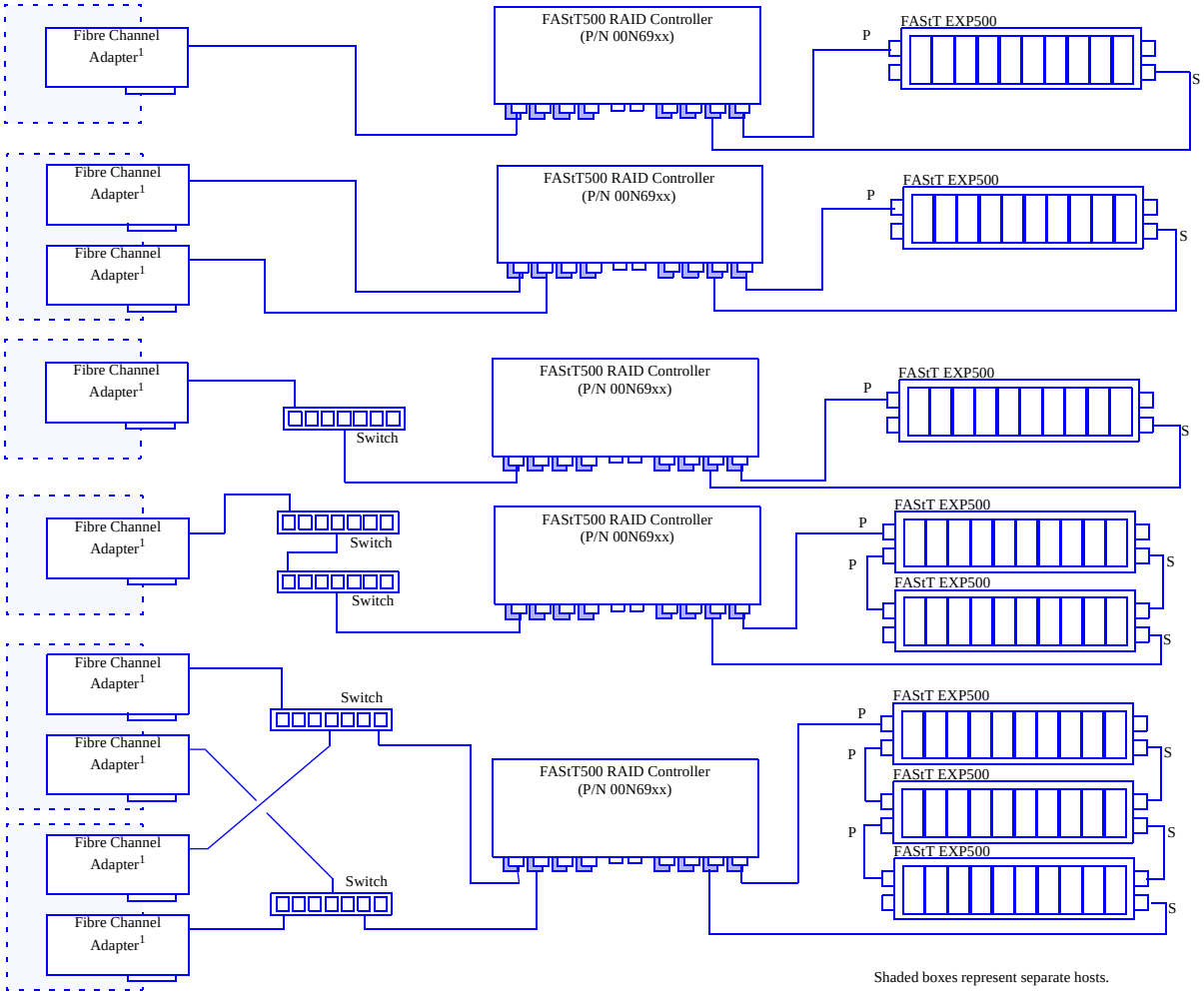
IBM SAN Fibre Channel Managed Hub
P/N 35L1647



- High-speed performance utilizing nonblocking switch-based technology.
- Simultaneous 100 MB/sec full duplex data transfers across all ports.
- Eight ports, one that is configurable with either a short-wave or long-wave optical GBIC.
- Support for industry standard MIBs enabling standard SNMP management.

Fibre / Fibre Configuration Examples - Cable Group ()

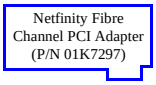
Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.



1. FAStT Host Adapter (P/N 00N6881) supports shortwave connections only.

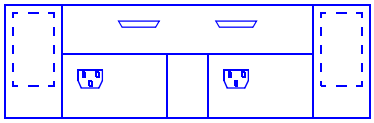
P = Primary path, S = Secondary/Redundant path
All storage connections require a secondary/redundant pathway in order to function properly.

Netfinity Fibre Channel PCI Adapter (P/N 01K7297)



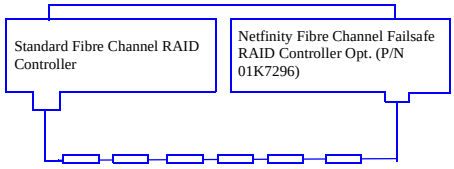
- PCI to FCAL 64/32-bit host adapter
- Supported Attachments (use cable group D):
  - Netfinity Fibre Channel Hub (P/N SFCH1xx), requires available short-wave GBIC in hub
  - Netfinity Fibre Channel RAID Controller Unit P/N SFCU1xx
  - Netfinity Fibre Channel Failsafe RAID Controller (P/N 01K7296)

Netfinity EXP200 Storage Expansion Unit (P/N 00N6xxx)



- Ten half-high, or slim-line, hot-swap HDD bays
- Hot-swap 350 W power supply and fans
- Optional hot-plug Netfinity EXP200 350 W Redundant Power Supply

Netfinity Fibre Channel RAID Controller Unit (P/N SFCU1xx)



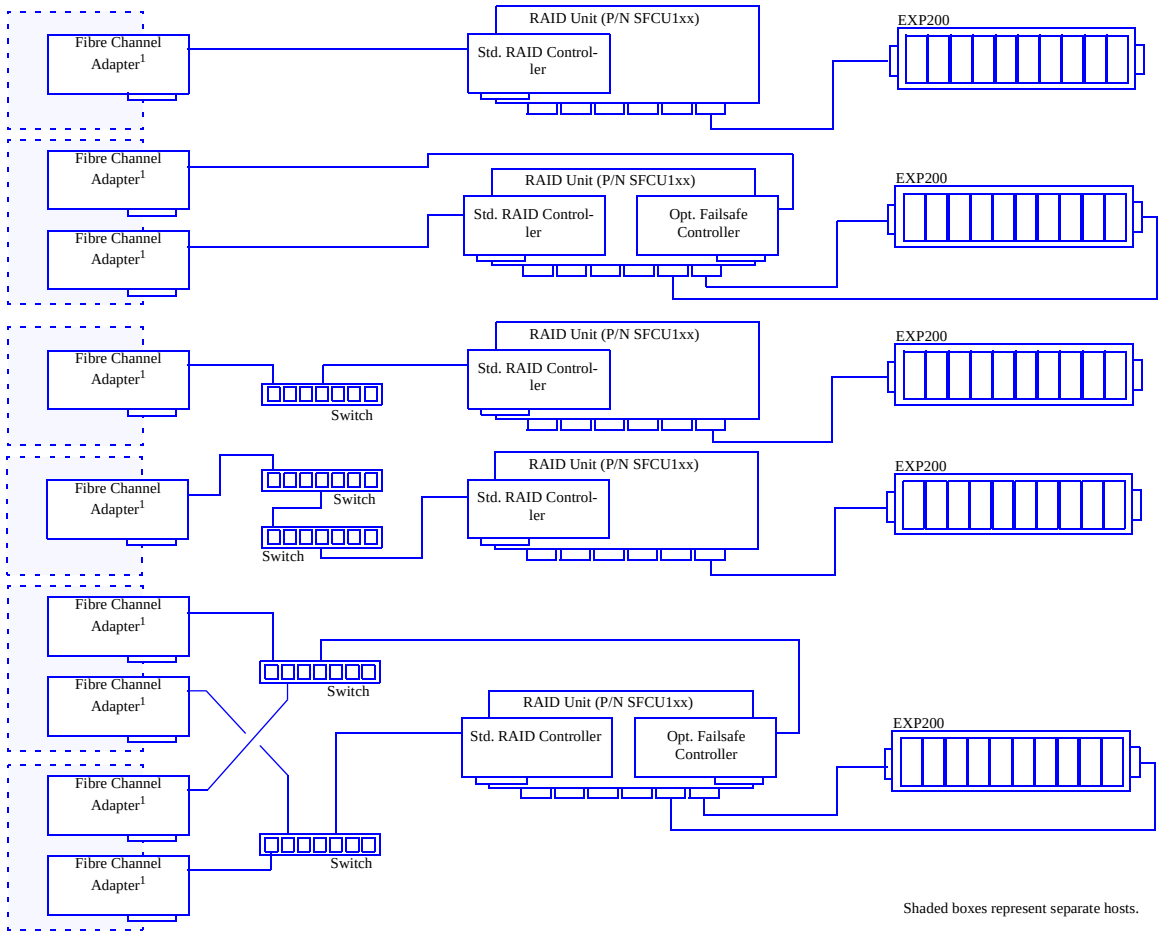
- Contains a single Short-Wave Fibre Connection (use cable group D) and six female 0.8 mm Very High Density Connection Interface (VHDCI) SCSI connectors (EXP15 - use cable group A)
- Hot-Swap Redundant Fans and Power Supplies
- Optional Netfinity Fibre Channel Failsafe RAID Controller (P/N 01K7296) provides a redundant RAID controller and second Short-Wave Fibre Connection (use cable group D)
- Attach directly to Netfinity Fibre Channel PCI Adapter(s) (P/N 01K7297) or indirectly through Netfinity Fibre Channel Hub (P/N SFCH1xx) using cables from cable group D
- Height is 4 U (1 U=1.75 in. or 44.45 mm)
- Requires Netfinity Enterprise Rack or Expansion Cabinet, Netfinity Rack, Netfinity NetBAY22 or 19-inch EIA-D Industry-Standard Rack. Mounting rails are included with the controller.
- For optimum performance no more than two RAID controller units (P/N SFCU1xx) should be attached to a single hub

Supported Cable Groups	
Cable Group A (0.8 mm to 0.8 mm)	
03K9310	Netfinity 2 M Ultra2 SCSI Cable
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable
37L7101	Netfinity 20 M Ultra2 SCSI Cable
Cable Group D (Short-Wave Fibre)	
36L9973	Netfinity Fibre Channel 1 M Cable
03K9306	Netfinity Fibre Channel 5 M Cable
03K9305	Netfinity Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)	
Cable Group E (Long-Wave Fibre)	
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)	
GBIC	
03K9308	Netfinity Fibre Channel Short-Wave GBIC[1]
03K9307	Netfinity Fibre Channel Long-Wave GBIC

1. Four Netfinity Fibre Channel Short-Wave GBIC's (P/N 03K9308) are included with SAN Fibre Channel Switches (P/Ns 2109508 and 2109516).

Fibre / SCSI Configuration Examples- Cable Group ()

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

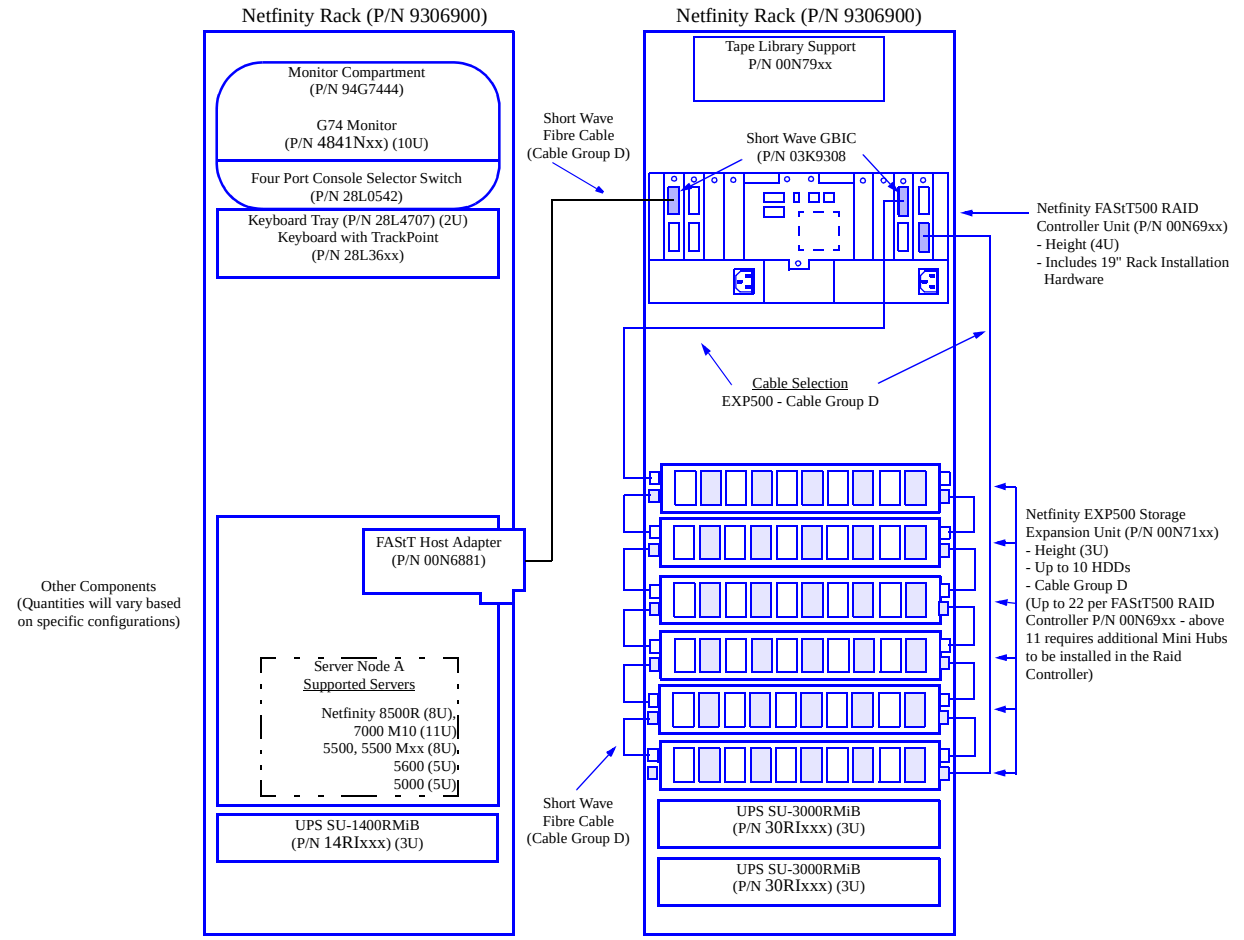


1. Configured as two independent 5 HDD buses.

IBM Netfinity Fibre Array Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

High-speed single-node Netfinity Fibre Channel Storage configuration offering performance, bandwidth & capacity



Connector Types
68-pin - High Density Connector
0.8 mm - Very High Density Connection Interface VHDCI

Cable Group A (0.8 mm to 0.8 mm)
03K9310 - Netfinity 2 M Ultra2 SCSI Cable
03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable
37L7101- Netfinity 20 M Ultra2 SCSI Cable

Cable Group D (Short-Wave Fibre)
36L9973 - Netfinity Fibre Channel 1 M Cable
03K9306 - Netfinity Fibre Channel 5 M Cable
03K9305 - Netfinity Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)

Cable Group E (Long-Wave Fibre)
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)

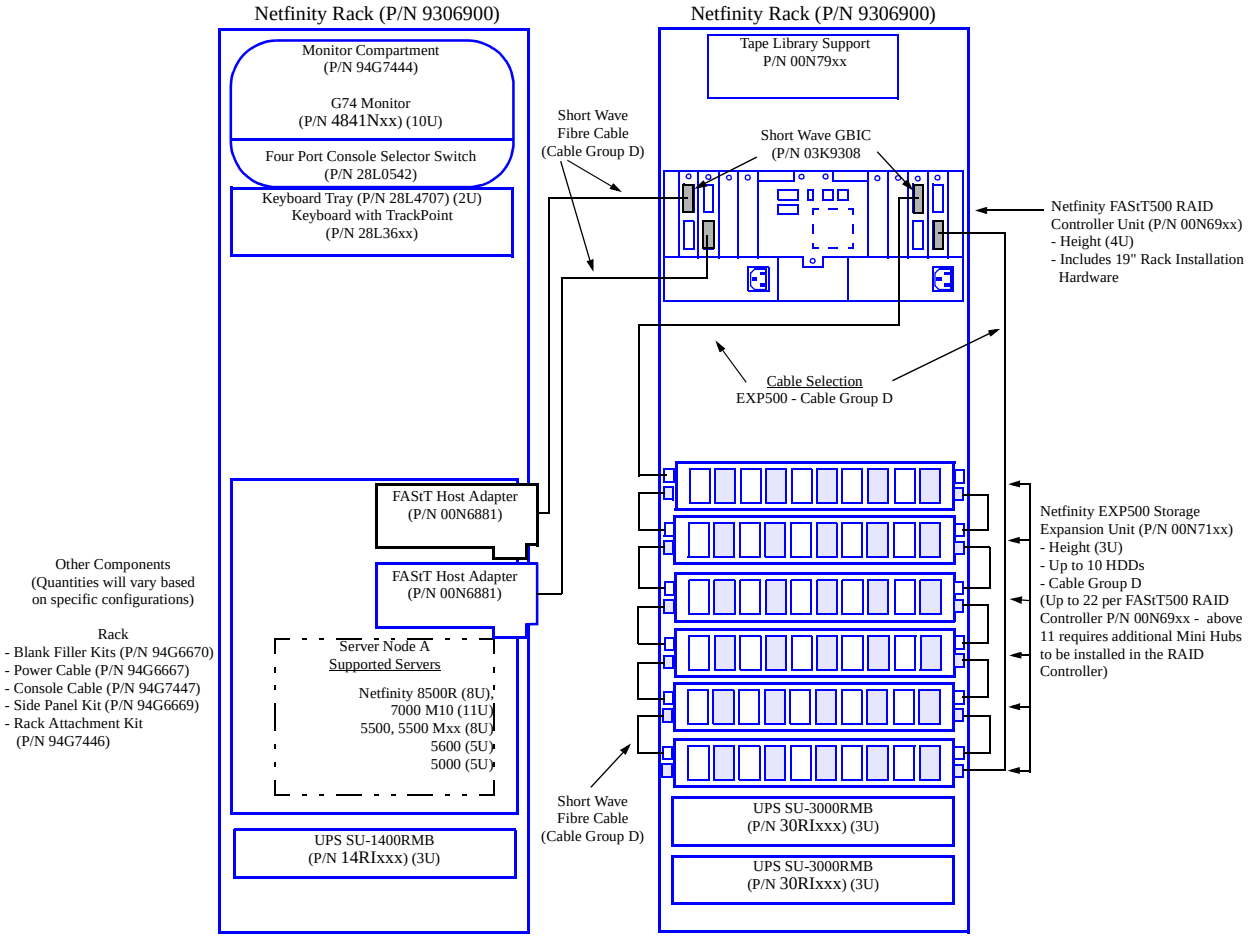
GBIC
03K9308 - Netfinity Fibre Channel Short-Wave GBIC[1]
03K9307 - Netfinity Fibre Channel Long-Wave GBIC

1. Four Netfinity Fibre channel Short-Wave GBIC's (P/N 03K9308) are included with SAN Fibre Channel Managed Hub (P/N 35341RU)

IBM Netfinity Fibre Array Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

High-speed single-node Netfinity Fibre Channel Storage configuration with Microsoft NT failover support and RAID redundancy for availability, performance, capacity



Connector Types
68-pin - High Density Connector
0.8 mm - Very High Density Connection Interface VHDCI

Cable Group A (0.8 mm to 0.8 mm)
03K9310 - Netfinity 2 M Ultra2 SCSI Cable
03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable
37L7101 - Netfinity 20 M Ultra2 SCSI Cable

Cable Group D (Short-Wave Fibre)
36L9973 - Netfinity Fibre Channel 1 M Cable
03K9306 - Netfinity Fibre Channel 5 M Cable
03K9305 - Netfinity Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)

Cable Group E (Long-Wave Fibre)
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)

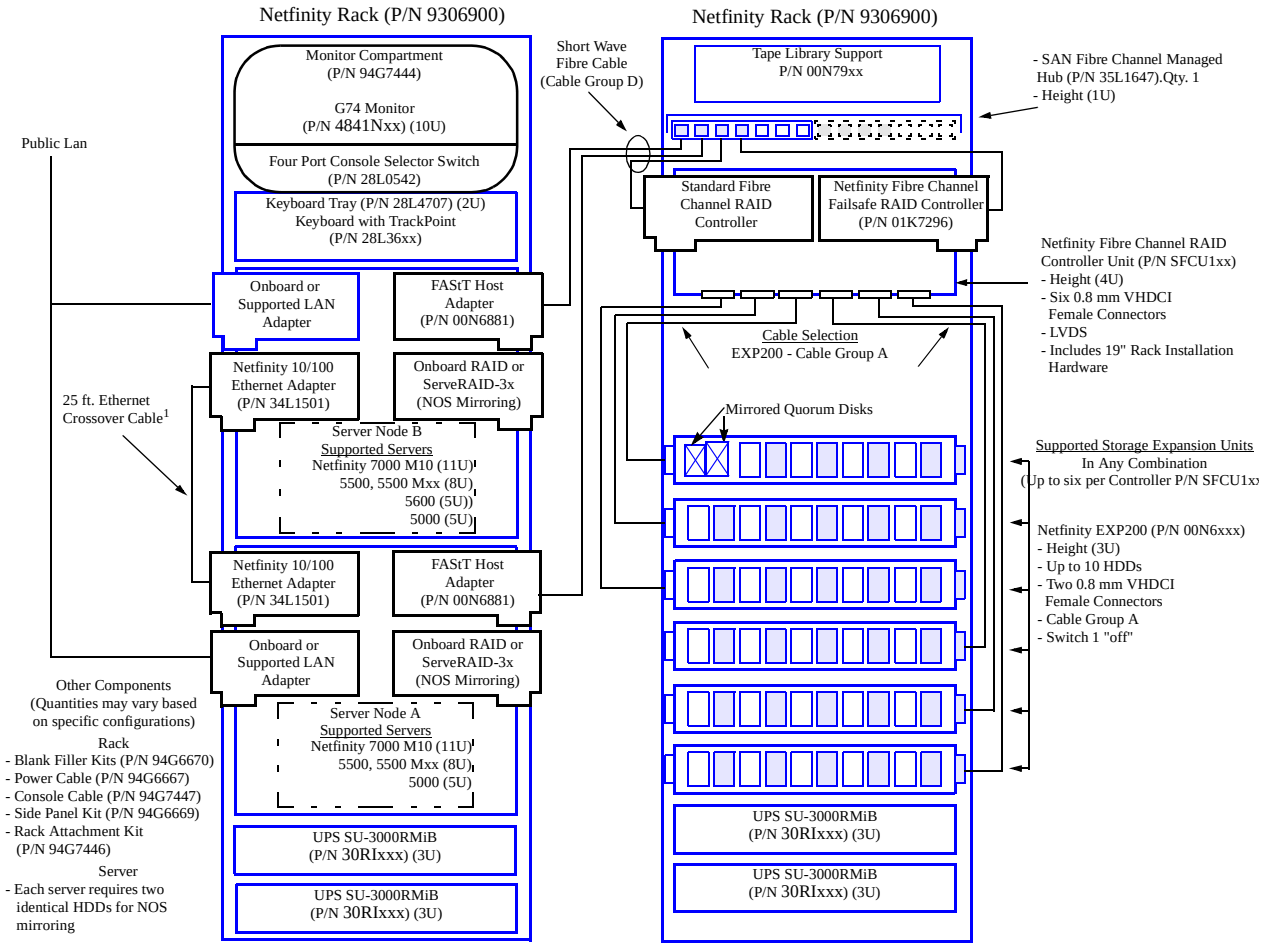
GBIC
03K9308 - Netfinity Fibre Channel Short-Wave GBIC
03K9307 - Netfinity Fibre Channel Long-Wave GBIC

1. Four Netfinity Fibre channel Short-Wave GBIC's (P/N 03K9308) are included with SAN Fibre Channel Managed Hub (P/N 35L1647).

IBM Netfinity Fibre Array Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

Cluster Solution - High speed multiple node Microsoft Cluster Service (MSCS) and Netfinity Fibre Channel Storage configuration offering data protection and RAID redundancy.

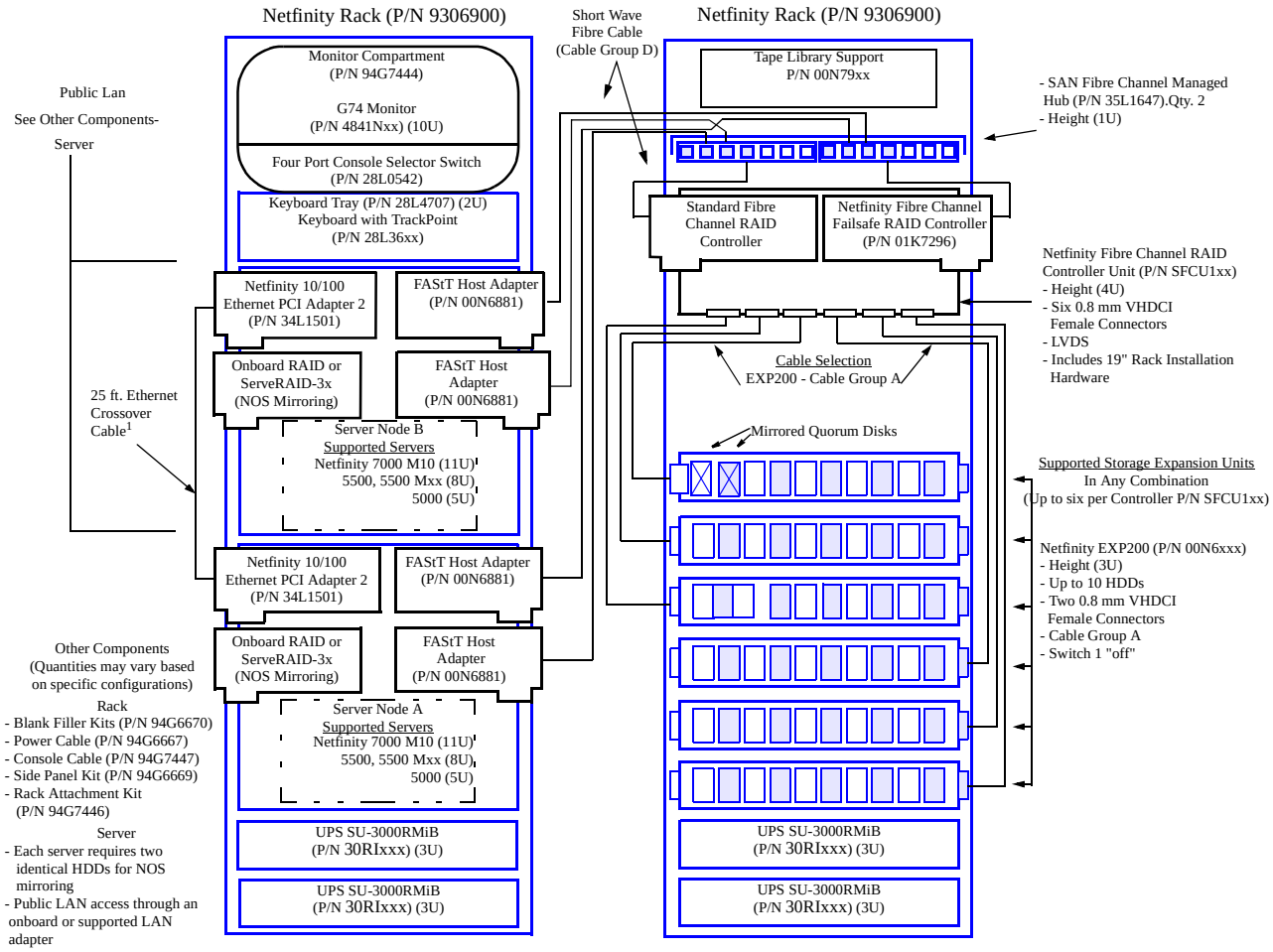


Connector Types 68-pin - High Density Connector 0.8 mm - Very High Density Connection Interface VHDCI	Cable Group D (Short-Wave Fibre) 36L9973 - Netfinity Fibre Channel 1 M Cable 03K9306 - Netfinity Fibre Channel 5 M Cable 03K9305 - Netfinity Fibre Channel 25 M Cable Customer supplied short-wave cable of up to 500 meters (0.31 miles) Cable Group E (Long-Wave Fibre) Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)
Cable Group A (0.8 mm to 0.8 mm) 03K9310 - Netfinity 2 M Ultra2 SCSI Cable 03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable 37L7101 - Netfinity 20 M Ultra2 SCSI Cable	GBIC 03K9308 - Netfinity Fibre Channel Short-Wave GBIC[1] 03K9307 - Netfinity Fibre Channel Long-Wave GBIC 1. Microsoft Cluster Server (MSCS) requires a private interconnect between clustered nodes. A 25 ft. Ethernet crossover cable is shown but not available from IBM as a separate option. Contact your IBM Business Partner for assistance.

IBM Netfinity Fibre Array Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

Advanced high-speed high-availability multiple node Microsoft Cluster Service (MSCS) and fully redundant Netfinity Fibre Channel Storage configuration offering the highest levels of data protection and availability and access to data



Connector Types 68-pin - High Density Connector 0.8 mm - Very High Density Connection Interface VHDCI	Cable Group D (Short-Wave Fibre) 36L9973 - Netfinity Fibre Channel 1 M Cable 03K9306 - Netfinity Fibre Channel 5 M Cable 03K9305 - Netfinity Fibre Channel 25 M Cable Customer supplied short-wave cable of up to 500 meters (0.31 miles) Cable Group E (Long-Wave Fibre) Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)
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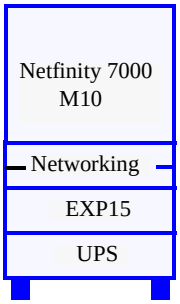
1. Microsoft Cluster Server (MSCS) requires a private interconnect between clustered nodes. A 25 ft. Ethernet crossover cable is shown but not available from IBM as a separate option. Contact your IBM Business Partner for assistance.

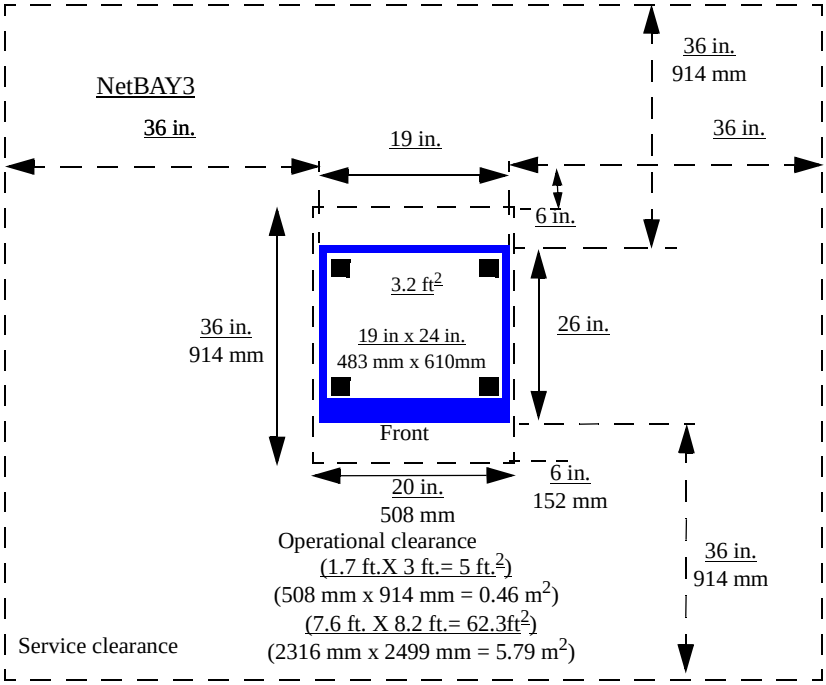
IBM Netfinity NetBAY3/NetBAY3E Stackable Enclosure

Sample Configuration



Installation Guidelines:

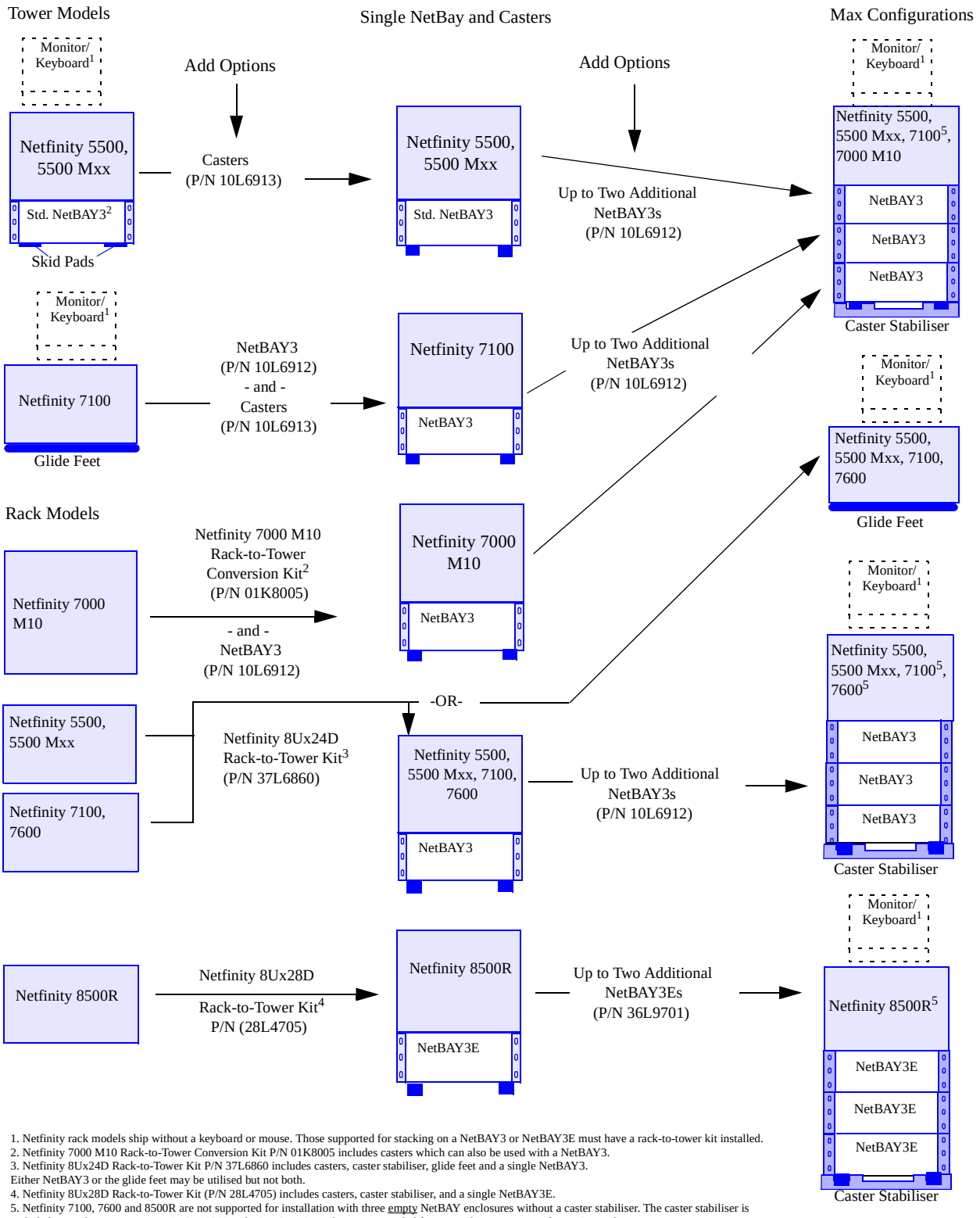
1) Locate power units with line cords in the bottom enclosure.
2) Install components starting from the bottom; start with the heaviest device.
3) If nothing is installed in the enclosure, attach the rear blank panel for stability.



Supported Devices	NetBAY3	NetBAY3E	Size (U)	Weight(lb/kg)	Max/Enclosure	Max/Stack
Servers						
Netfinity 7600[1]	X	-	-	120/54.4	n/a	1
Netfinity 7100	X	-	-	120/54.4	n/a	1
Netfinity 7000-M10[1]	X	-	-	160/72.6	n/a	1
Netfinity 5500	X	-	-	120/54.4	n/a	1
Netfinity 5500-Mxx	X	-	-	123.4/56.0	n/a	1
Netfinity 8500R[3]	-	X		170/77.1	n/a	1
Expansion[4]						
Netfinity EXP15	X	X	3	107/48.5	1	3
Tape Units[4]						
NetMEDIA	X	X	3	37/17	1	3
Power[4]						
APC Smart-UPS 1400RMiB	X	X	3	55/24.9	1	1
APC Smart-UPS 3000RMiB	X	X	3	112/50.8	1	1
100-120V PDU	X	X	1	5/2.3	1	1
200-240V PDU	X	X	1	8/3.6	1	1
Networking[4]						
2210 Multiprotocol Router	X	X	1, 2	7/3.2, 20/9.1	3, 1	9, 3
8230 T-R Controlled Access Unit	X	X	2	15/6.8	1	3
8235 Dial-in Access to LANs	X	X	1	8/3.6	3	9
8237 Ethernet Hub	X	X	2	10/4.5	1	3
8238 Nways T-R Hub	X	X	2	11/5.0	1	3
8271 Ethernet Switch	X	X	2	16/7.3	1	3
8272 T-R Switch	X	X	2	16/7.3	1	3
8285 ATM Switch	X	X	3	70/31.8	1	3

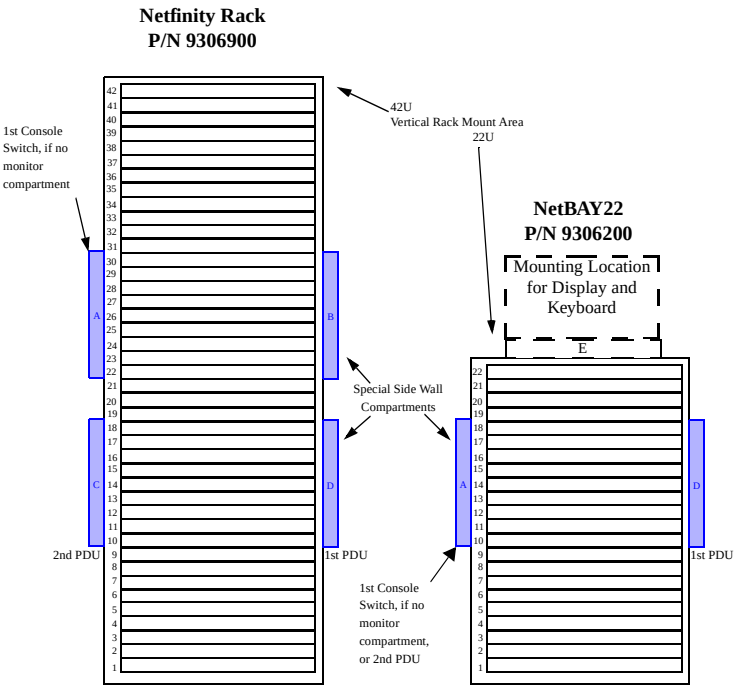
1. Netfinity 7600 systems are rack mountable and ship without a keyboard or mouse. In order to be utilised with a NetBAY3 or in a tower configuration, optional 8Ux28D Rack-to-Tower Kit (P/N 28L4705) must be installed.
2. Netfinity 7000-M10 systems are rack mountable and ship without a keyboard. In order to be utilized with a NetBAY3 or in a tower configuration, optional Rack-to-Tower Conversion Kit (P/N 01K8005) must be installed.
3. Netfinity 8500R systems are rack mountable and ship without a keyboard. In order to be utilized with a NetBAY3E or in a tower configuration, optional Rack-to-Tower Kit (P/N 28L4705) must be installed.
4. NetBAY3 and NetBAY3E do not contain a top cover and therefore require a supported server as the top component in a stack

IBM Netfinity NetBAY3/3E Stackable Enclosure



1. Netfinity rack models ship without a keyboard or mouse. Those supported for stacking on a NetBAY3 or NetBAY3E must have a rack-to-tower kit installed.
2. Netfinity 7000 M10 Rack-to-Tower Conversion Kit P/N 01K8005 includes casters which can also be used with a NetBAY3.
3. Netfinity 8Ux24D Rack-to-Tower Kit P/N 37L6860 includes casters, caster stabiliser, glide feet and a single NetBAY3.
Either NetBAY3 or the glide feet may be utilised but not both.
4. Netfinity 8Ux28D Rack-to-Tower Kit (P/N 28L4705) includes casters, caster stabiliser, and a single NetBAY3E.
5. Netfinity 7100, 7600 and 8500R are not supported for installation with three empty NetBAY enclosures without a caster stabiliser. The caster stabiliser is included in Rack-to-Tower Kits P/N 37L6860 and P/N 28L4705 and is recommended for use with any quantity of NetBAY enclosures.

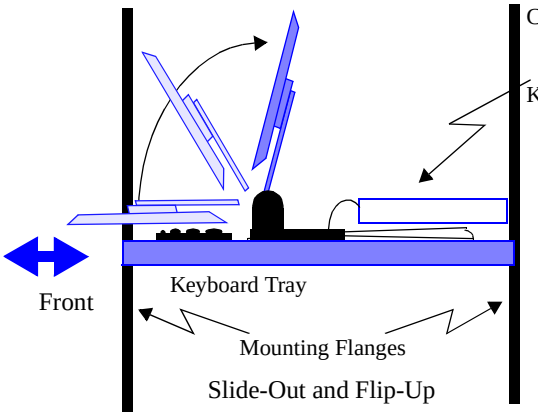
IBM Netfinity Rack Cabinet and Options



Direct Rack Mount Units Supported Examples[1]		
IBM Servers		
Netfinity 4000R	All Models	1U[5]
Netfinity 4500R	All Models	3U
Netfinity 5000	Rack Models	5U
Netfinity 5100	Rack Models	5U
Netfinity 5500, 5500 Mxx	Rack Models	8U
Netfinity 5600	Rack Models	5U
Netfinity 7000 M10	All Models	11U
Netfinity 7100	Rack Models	8U
Netfinity 7600	All Models	8U
Netfinity 8500R[4]	All Models	8U
IBM Storage Expansion Units		
Netfinity EXP15	P/N SE2RXxx	3U
Netfinity EXP200	P/N 00N6xxx	3U
Netfinity EXP300	P/N 19K11xx	3U
Netfinity EXP500	P/N 00N71xx	3U
7133 Serial Disk System[2, 3]	7133-020	4U
IBM Fibre Solutions		
RAID Controller Unit	P/N SFCU1xx	4U
Fibre Channel Hub	P/N SFCH1xx	1U
IBM Tape Units		
NetMEDIA Enclosure	P/N 03K8756	3U
Magstar MP 3570 (B21/B22)	P/N 08L6535/ P/N 08L6538	6U
Magstar MP 3570 C21/C22)	P/N 08L6479/ P/N 08L6482	6U
IBM Networking Products		
Dial-in Access to LANS	8235-03x	1U

1. Mounting hardware provided with product
2. Requires Rail Kit (FC 3093). 208V Power cord included, optional 110V power cord (FC 9886/1.8M or FC 9800/2.8M) can be ordered. If the Black Cover Kit (FC 3020) is ordered, no white cover is shipped with system. Other specify codes may be required.
3. The 7133 Serial Disk System is not a IBM Personal Systems Group product. For additional configuration support, product information and ordering of these IBM Storage offerings, visit the IBM storage Website http://www.ibm.com/storage or contact your IBM representative.
4. Netfinity 8500R requires installation of extension kit 36L9703 or 36L9702 when installed in a 9306-900 or 9306-200 respectively for proper rear door closure clearance.
5. To provide adequate cooling, rack front door must be removed.

Keyboard/Pointer/Monitor & Switch ... all in 3U



Console Switch
- Mounts to rear flanges
- Shares 3U space with display, keyboard and tray

Keyboard Tray Components
- P/N 28L4707 Netfinity Rack Keyboard Tray
- P/N 37L6857 Netfinity Flat Panel Monitor Rack Mount Kit
- P/N 28L36xx[1] Space Saver Keyboard
- P/N 13AG1xx T55A Flat Panel Color Monitor

1. Where 'xx' represents a country specific code for the 88 key Space Saver Keyboard: 44=US English, 46=Danish, 47=French, 48=German, 49=Italy, 50=Spain, 51=UK English,

Optional Accessories

Part Number	Mounting Support	Rack Space	Units Supported
94G7442	Fixed Shelf: width x depth= (439 mm x 663mm) 17.3 in. x 26.1 in max. weight= (45 kg)100lbs.	2 to xx U	IBM Networking Products 8222-008, 016 Nways Enet Wkgp Hub 2U 8225-003 Ethernet Hub 2U
85H6735	Network Products Mounting Kit	1 to 5 U	IBM Networking Products Ethernet Switch 8271-108, 216 2U Ethernet Hub 8237-00x 2U Token-Ring Switch 8272-108 2U Token-Ring Controlled Access Unit 8230-04A, 04P 2U Nways LAN Switch 8270-800 5U Nways Token-Ring Hub 8238-xx1 2U ATM Switch 8285-00B, 00E 3U Multi-Protocol Router 2210-12x 1U Multi-Protocol Router 2210-x4x 2U
36L9702	Netfinity NetBAY22 Rack Extension Kit installs on the rear of a 9306200[1].	-	Netfinity NetBAY22 9306200
36L9703	Netfinity Rack Extension Kit installs on the rear of a 9306900[1].	-	Netfinity Rack 9306900

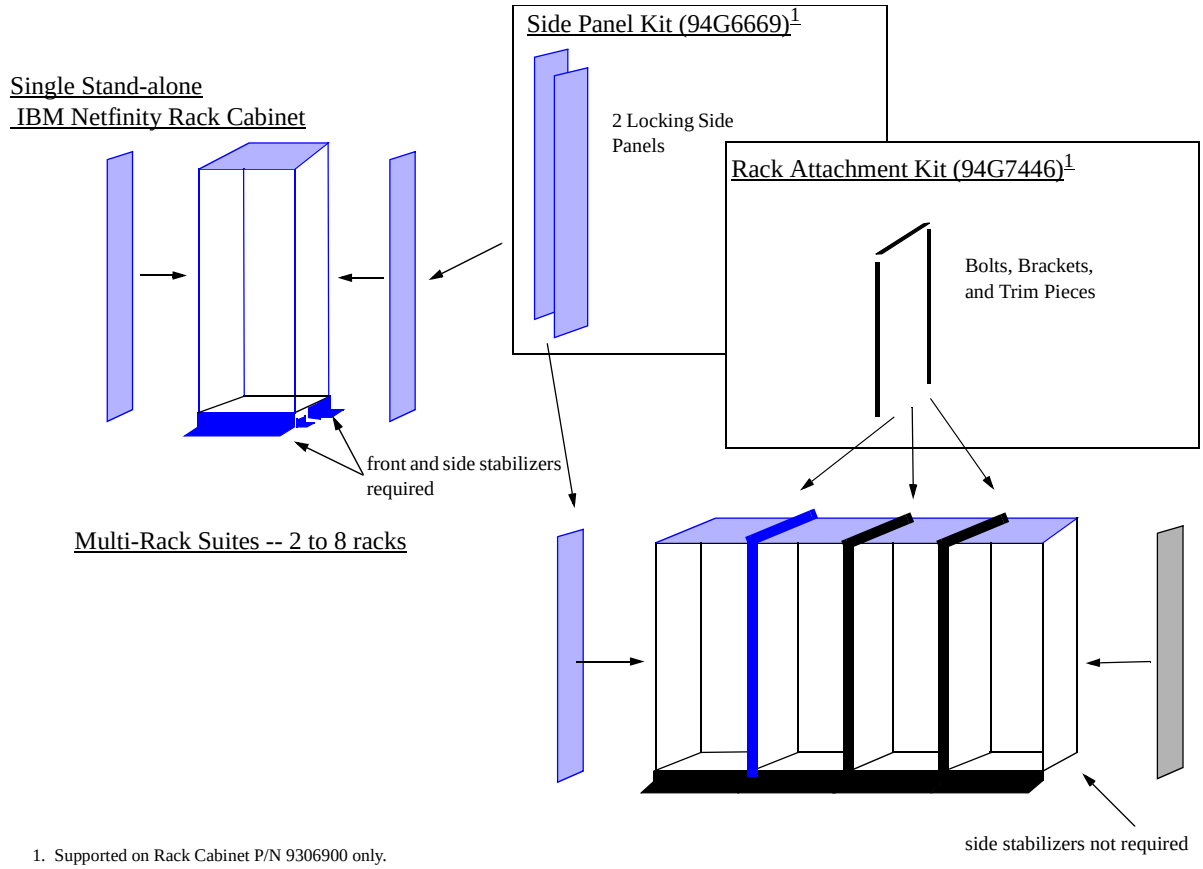
Part Number	Description	Console Support	Devices Supported		
			Devices	Height	Part Number
94G7444	Monitor compartment	One monitor and one console	**Monitors**		
			E54	9U	31H2Nxx
			G76	10U	4841Nxx
28L4707	Netfinity Rack Keyboard Tray	One flat panel display and one space saver keyboard, and one keyboard mouse	**Keyboards/Mouses[2]**		
			Space Saver Keyboard[3, 4]	1U	28L36xx[8]
			TrackPoint IV 104-Key[3]	1U	01K1260
			Tower Model Keyboards[5]	1 to 2U	-
			Monitors		
			T55A flat panel monitor[6]	-	13AG1xx
			Flat Panel Monitor Mount Kit[7]	3U	37L6857
37L6857	Flat Panel Monitor Rack Mount Kit	Supports installation of a flat panel monitor into tray 28L4707	**Monitors**		
			T55A Flat Panel Monitor[6]	-	13AG1xx
94G7445	Console Server Selector Switch (8-port, Tier up to 64)	Mounts behind monitor compartment or in rack side When used with keyboard tray 28L4707 and flat panel kit 37L6857 it can also be installed behind the keyboard tray.	Console Cable Set - 12ft. (366 m)	-	94G7447
28L0542	Netfinity Console Server Selector Switch (4-port)				
94G7447	Console Cable Set- (3.66 m) 12 ft.	Attaches server to console switch	Console Server Selector Switch (8-port)	-	94G7445
			Netfinity Console Server Selector Switch (4-port)	-	28L0542

1.Expands current racks for better cable management or to accomodate systems requiring greater installation depth.
2. Check system sections for support of desired keyboards, mouse and monitors.
3. Advanced TrackPoint IV features are not supported by Netfinity servers or rack console switches.
4. Space saver keyboards may be stowed in a ready-to-use position within tray 28L4707.
5. Tower models of Netfinity servers includes keyboards, which are supported by both keyboard trays and console switches. These are not space saver keyboards.
6. Installation in a Netfinity Rack Keyboard Tray P/N 28L4707 requires Netfinity Flat Panel Monitor Rack Mount Kit P/N 37L6857. A space saver keyboard may coexist within keyboard tray P/N 28L4707.
7. When installed in Netfinity Rack Keyboard Tray P/N 28L4707 a flat panel monitor and space saver keyboard may coexist in the tray. Hardware is included for mounting a console selector switch to the rack directly to the rear of the tray thus sharing the same 3U space. See the Keyboard/Pointer/Monitor & Switch diagram above.
8. Where 'xx' represents a country specific code for the 88 key Space Saver Keyboard: 46=Danish, 47=French, 48=German, 49=Italy, 50=Spain, 51=UK English,

Part Number	Power Support	Rack Space	Comments
2PDUxxx	200-240V 16a Power Distribution Unit	--	10 IEC 320-C13 outlets Mounts in rack side wall D,C
14RIxxx	1400VA UPS 220-240V EMEA/AP	3U	4 IEC 320-C13 outlets
30RIxxx	3000VA UPS 220-240V EMEA/AP	3U	8 IEC 320-C13 and 1 C19
94G7448	Power Cable Type Connectors C12 IEC 320-C13 to IEC 320-C14	-	Length (3.66 m) 12 ft.
Part Number	**Miscellaneous**	**Rack Space**	**Comments**
94G6670	Blank Filler Panel Kit 1U panel (qty. = 2) 3U panel (qty. =1) 5U panel (qty. = 1)	1U + 1U 3U 5U	Use as required to fill empty space in the vertical rack mount area.

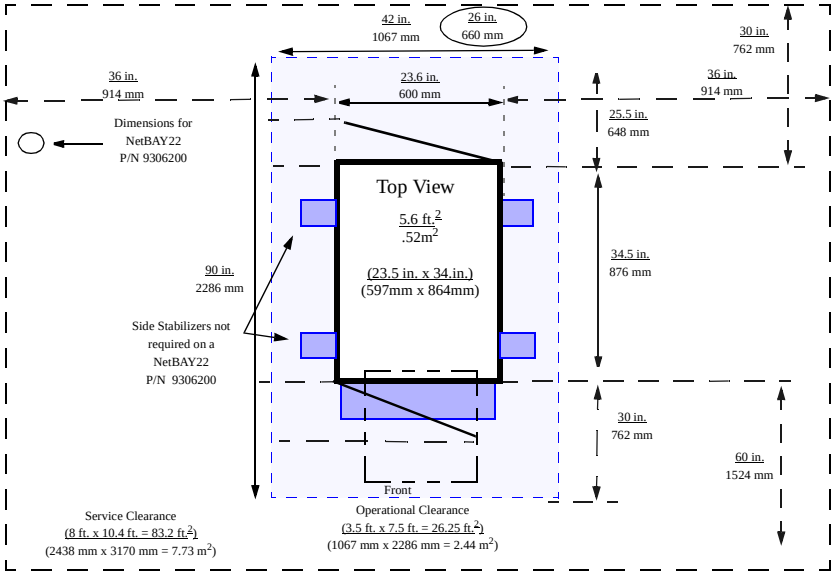
Note: You can select up to two power units per rack. Select the optional Power Cables when the standard cable is not long enough or has incompatible power plug.

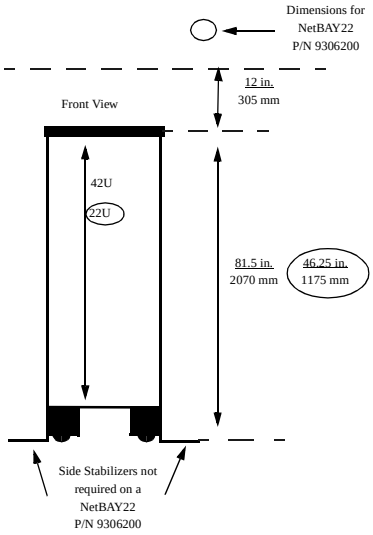
Single Cabinet or Multi-Rack Suite Options using Rack Cabinet P/N 9306900



1. Supported on Rack Cabinet P/N 9306900 only.

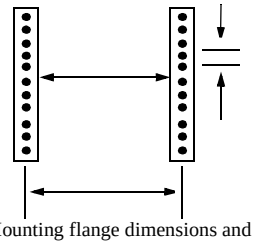
Netfinity Rack Cabinet P/N 9306900 and NetBAY22 P/N 9306200 Dimensions



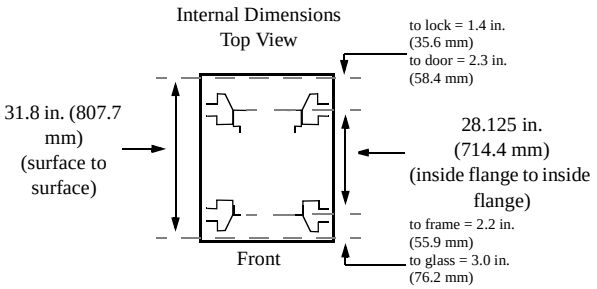


	Rack Cabinet P/N 9306900		NetBAY22 P/N 9306200
Weight (lb/kg)	Moveable	Stationary	Moveable or Stationary
Empty rack	276/125	276/125	182/83
Max load	824/374	1424/646	746/338
Total	1100/499	1700/771	928/421

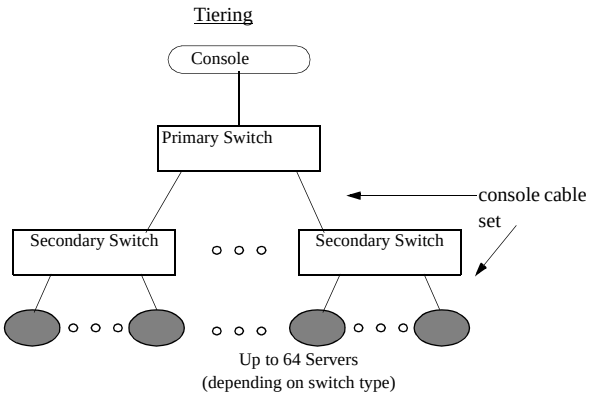
EIA 310-D standard 19-inch, type A cabinet
1U = (44.45 mm)1.75 inches

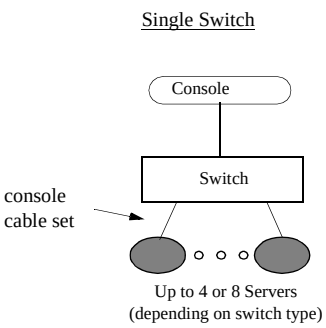


Mounting flange dimensions and universal hole spacing defined by EIA 310 for 19-inch racks



Switch Arrangements





Appendix A: Tape Drive Attributes

Part Number	Description SCSI Interface LEGEND HH: Half High - approx. height of 1.6” SL: Slim Line - approx. height of 1”	SCSI Interface (bit)	Form Factor	Bezel - (B)lack	Max GB-Native/Compr.[2]	MB/sec - Native/compr.[2]	Termination Incl.[3]	68/50-pin Converter Incl.[4]	Internal Cables	Data Cleaning Ctridgs Inc	Ext. Tape Enclosures[1]
01K1282	IBM 12/24GB DDS/3 4mm Internal Tape Drive	8	3.5”HH or 5.25”HH	B/W	12/24	1.1/2.2	Y[3]	Y	-	1/1	10L7440
00N7991	20/40 GB DDS/4 4-mm Internal Tape Drive	16 Ultra-2 LVD	3.5”HH or 5.25”HH	B	20/40	2.75/5.5	Y[3]	-	-	1/1	10L7440, 03K8756
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	8	3.5”SL or 5.25”HH	B/W	10/20	1/2	Y[3]	Y	-	1/0	10L7440, 03K8756
01K1325	IBM 20/40GB 8mm SCSI Tape Drive	16	5.25”HH	B	20/40	3/6	N[4]	-	-	1/1	10L7440[5], 03K8756
01K1320	IBM 20/40GB DLT SCSI Tape Drive	8	5.25”FH	B	20/40	1.5/3	Y[6]	Y	16-bit, 4 drop	1/0	03K8705, 03K8756
04K0149	IBM 35/70GB DLT SCSI Tape Drive	16	5.25”FH	B	35/70	5/10	N[4]	-	16-bit, 4 drop	1/0	03K8705[5], 03K8756
00N7990	40/80 GB DLT Internal SCSI Tape Drive	16 Ultra2 LVD	5.25” FH	B	40/80	6/10	N[4]	-	-	1/0	03K8705[5], 03K8756
	Associated Options										
32G3918	SCSI-2 16-bit Active Terminator	16	Ext.	-	-	-	Y	N	-	-	10L7440, 03K8705
94G7587	PC Server SCSI Terminator Kit	8/16	Int.	-	-	-	Y	N	-	-	-
32G3925	SCSI 68-pin to 50-pin Converter	8/16	Int.	-	-	-	N	Y	-	-	03K8756
36L9636	Netfinity Two-Drop Internal SCSI Cable[7]	16	Int.	-	-	-	Y	N	16-bit, 2 drop	-	-
09N4035[18]	DLT8000 Tape Library Drive Upgrade	-	-	-	-	-	-	-	-	-	09N40xx (Library only)
	Tape Autoloaders										
00N79xx[14]	DLT Tape Autoloader	16	Desktop	B	280/560	5/10	Y	-	-	1/1	-
00N7992	120/240 GB DDS/4 Tape Autoloader	16 Ultra2 LVD	5.25” FH	B	120/240	3/6	N	N	-	5/1	03K8705, 03K8756
	External Tape Enclosures										
10L7440	External Half High SCSI Storage Enclosure[8]	8/16	Desktop	B	-	-	N	N	8-bit or 16-bit	-	-
03K8756	IBM NetMEDIA Storage Expansion Unit EL[9]	16	Rack	B	-	-	Y	N	16-bit, 4 drop	-	-
10L7113	NetMEDIA Systems Management Adapter[10]	16	-	-	-	-	N	N	N	-	03K8756
03K8705	IBM DLT External SCSI Enclosure[11]	16	Desktop	B	-	-	N	N	16-bit	-	-
	External Tape Libraries[12]										
3447xxx	3447 Digital Tape Library (desktop-105, rack-106)	16	Desktop or Rack	B	525/1050	5/10	Y	-	-	1/0	-
3449xxx	3449 8mm Tape Library (desktop-355, rack-356)	Diff.	Deskside or Rack	B	440/880	3/6	Y	-	-	1/0	-
00N79xx[13]	DLT Tape Library	LVD	Desktop or Rack	B	440/880	5/10	Y	-	-	1/0	-

1. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section and the desired enclosure then refer to Appendix D: Cables-Storage Units-Controllers.
2. Data compression typically provides a 2X improvenent in capacity and transfer rate, bur since data compression is affected by many factors, actual improvements may be more or less than 2X.
3. Tape Drive is capable of self termination.
4. If installed as the last or only device on a SCSI cable, termination is required. Check system unit SCSI cabling to assure termination is included. Where internal termination is not included, PC Server SCSI Terminator Kit (P/N 94G7587) should be used.
5. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
6. A 16-bit terminator is included for attachment to an internal cable.
7. Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636) is a wide two-drop terminated cable and is required for attachment of internal tape drives to the onboard SCSI controller of a Netfinity 5000 when the hot-swap backplane is attached to a RAID Controller.
8. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Termination (P/N 32G3918).
9. Provides a black 3U, 19” rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half-high (HH) extended length 5.25” bays. External connector is 0.8mm VHDCI.
10. Installs in a 03K8756. Provides repeater function and LVDS interface allowing loger cable lengths and auto-termination when the 03K8756 is powered off.
11. Provides a black desktop DLT tape enclosure. External connector is 68-pin high density. Requires SCSI-2 16-bit Active Termination (P/N 32G3918).
12. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes
13. Where ‘xx’ represents a country specific power cord code: *Tower versions* - 74=EU1, 75=Denmark, 76=India/South Africa, 77=UK, 78=Swiss, 79=Italy, 80=Israel: *Rack versions* - 81=EU1, 82=Denmark, 83=India/South Africa, 84=UK, 85=Swiss, 86=Italy, 87=Israel.
14. Where ‘xx’ represents a country specific power cord code: 70=UK, 71=Swiss, 72=Italy, 73=Israel, 33L4981=EU1, 33L4982=Denmark, 33L4983=South Africa/India.

Note: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

Appendix B: Tape Library Table

SCSI INTERFACE LEGEND
F: Female - External
M: Male - External
68: 16-bit, 68-pin High Density connector
0.8: 16-bit, 68-pin Very High Density Connection Interface (VHDCI) 0.8 mm connector
Diff: Differential SCSI

Part Number	Description	SCSI Interface	Form Factor	Bezel - (B)lack	Terminator Included	External Cables Incl (M)	SCSI Controllers Incl	Data Cartridges std/max	Cleaning Cartridges std.	Cartridge Mags std./ Qty. of drives - std./	Max GB-Native/Comp-	MB/sec[1] - Native/compr.
34475xx	3447 Digital Linear Library Desktop[2]	F68	Desktop	B	Y	M68-M68, 4.5 m	N[3]	1/15	1	1	1/2	525/1050	5/10
34476xx	3447 Digital Linear Library Rack Mountable[2]	F68	5U Rack	B	Y	M68-M68, 4.5 m	N[3]	1/15	1	1	1/2	525/1050	5/10
59H3913	3447 Second Digital Linear Tape Drive Kit[4]	F68	-	-	N[2]	Jumper[2,4]	N[2]	-	-	-	-	-	5/10
59H3908	3447 10-Cartridge Media Magazine	-	-	-	-	-	-	-	-	-	-	-	-
34495xx	3449 8mm Tape Library Deskside[5]	Diff	deskside	B	Y	4.5 m	Y	1/20	1	2	1/2	440/880	3/6
34496xx	3449 8mm Tape Library Rack Mountable[5]	Diff	15U Rack	B	Y	4.5 m	Y	1/20	1	2	1/2	440/880	3/6
59H3391	3449 Second 20 GB Drive[6]	Diff	-	-	-	-	N	-	-	-	-	-	3/6
59H3900	3449 Adapter Card[5]	Diff	-	-	Y	4.5 m	Y	-	-	-	-	-	-
87G1728	3449 10-Cartridge Media Magazine	-	-	-	-	-	-	-	-	-	-	-	-
00N79xx[8]	DLT Tape Autoloader	M68	Desktop	B	Y	M0.8mm - F68 Converter	Y	1/7	1	1/1	1/1	280/560	5/10
00N79xx[9]	DLT Tape Library - Tower	M68	Desktop	B	Y	3	Y	1/14	1	2/2	1/3	490/980	5/10
00N79xx[9]	DLT Tape Library - Rack	M68	4U	B	Y	3	Y	1/14	1	2/2	1/3	490/980	5/10
33L4979	DLT Library Drive Upgrade[7]	M68	-	-	N	Jumper[4]	N	-	-	-	-	-	5/10
94G7442	Fixed Shelf	-	-	-	-	-	-	-	-	-	-	-	-

1. Transfer rates are for single SCSI Channel configurations. Tape Libraries utilizing split library or dual host configurations may obtain higher rates. Data compression typically provides a 2X improvement in capacity and transfer rate, bur since data compression is affected by many factors , actual improvements may be more or less than 2X.
2. Split Mode operation requires 3447 Second Digital Linear Tape Drive Kit (P/N 59H3569), SCSI-2 16-bit Active Terminator (P/N 32G3918), PC Server 3.0M SCSI-2 F/W Cable (P/N 94G5567), or PC Server 4.3M SCSI-2 F/W Rack Cable (P/N 94G5566), and a second Ultra SCSI adapter (P/N 02K3454). Split mode operation is limited to AUTOLOADER MODE ONLY which processes the cartridges sequentially.
3. Requires Ultra SCSI adapter P/N 02K3454
4. Includes a jumper cable for daisy-chaining to initial drive.
5. Dual Host or Split Library operation requires 3449 Second 20GB Drive (P/N 59H3391) and 3449 Adapter Card (P/N 59H3900) which includes appropriate adapters, cables and terminators.
6. No additional cables are required if daisy-chaining to the initial drive
7. Upgrade 33L4979 is an additional drive for DLT Tape Libraries. Up to two tape drives may be installed for a maximum of three drives per DLT Tape Library
8. Where 'xx' represents a country specific power cord code: 70=UK, 71=Swiss, 72=Italy, 73=Israel, 33L4981=EU1, 33L4982=Denmark, 33L4983=South Africa/India.
9. Where 'xx' represents a country specific power cord code: *Tower versions* - 74=EU1, 75=Denmark, 76=India/South Africa, 77=UK, 78=Swiss, 79=Italy, 80=Israel: *Rack versions* - 81=EU1, 82=Denmark, 83=India/South Africa, 84=UK, 85=Swiss, 86=Italy, 87=Israel.

Appendix C: UPS Runtime Estimate (minutes)

Servers	# Pwr. Cords Std/Max	Watts Load Max./Typ.[1]
Netfinity 1000[2]	1/1	225/160
Netfinity 3000[2]	1/1	225/160
Netfinity 3500 M10[2]	1/1	300/210
Netfinity 4000R	1/1	150/105
Netfinity 5000[2]	1/2	475/330
Netfinity 5500[2]	1/2	540/375
Netfinity 5500 M10[2]	1/2	540/375
Netfinity 5500 M20[2]	1/2	640/450
Netfinity 5600[2]	2/3	450/315
Netfinity 7000 M10[2]	1/2	745/525
Netfinity 7100[2]	2/4	475/330
Netfinity 7600[2]	3/4	475/330
Netfinity 8500R[2]	3/3	1450/1015
Other Devices		
Netfinity EXP15[2]	2/2	400/280
Netfinity EXP200 Storage Expansion Unit[2]	1/2	350/245
Netfinity FAStT EXP500 Storage Expansion Unit[2]	2/2	350/245
Netfinity Fibre Channel RAID Controller Unit[2]	2/2	160/105
Netfinity FAStT500 RAID Controller[2]	2/2	
DLT Tape Autoloader and Library	1/1	135/100
NetMEDIA Storage Expansion Unit EL	2/2	185/130
Netfinity SP Switch	2/2	115/80

1. This table represents general guidelines for selecting the appropriate UPS based on minimum and typical runtime estimates. A 'maximum configuration' load will result in 'minimum' UPS runntime. 'Typical' loads are based on a production system running at approximately 70% of maximum capacity. The 'typical' loads represent a more likely configuration and, therefore, a more likely estimate of runtime. Customer environments are unique and are unlikely to be precisely represented by any of the specific entries in the table.
2. Power-Factor Corrected (PFC) power supply.

		Tower				Rack Mounted		
	EMEA P/N	SU-700iNET P/N SUP072Y	SU-1000iNET P/N SUP102Y	SU-1400iNET P/N SUP142Y	SU-2200iNET P/N SUP222Y	SU-1400RMiB P/N 14RIxxx[6]	SU-3000RMiB P/N 30RIxxx[6]	SU-5000RMiB P/N 37L6862
	US P/N	SU-700NET 94G3134	SU-1000NET 94G3135	SU-1400NET 94G3136	Not Available	SU-1400RMB 94G6674	SU-3000RMB 94G6676	SU-5000RMB 37L6861
UPS Attributes								
Communications Links to Servers		1	1	1	1	1	3	3
Color		black	black	black	white	black	black	black
EIA Height		-	-	-	-	3U	3U	5U
EMEA Models								
50 or 60 Hz, single phase, VAC:		220-240 (208)[2]	220-240 (208)[2]	220-240 (208)[2]	220-240 (208)[2]	220-240 (208)[2]	220-240 (208)[2]	220-240 (xxx)[2,3]
10 Amp, IEC 320-C13 (Device) receptacles		4	4	4	8	4	8	8
16 Amp, IEC 320-C19 (PDU 94G7450) receptacles		-	-	-	1	-	1	2
Line Cord Receptacle (IEC 320-)		C14	C14	C20	C20	C14	C20	TB[5]
US Models								
50 or 60 Hz, single phase, VAC:		120 (120)[2]	120 (120)[2]	120 (120)[2]	-	120 (120)[2]	120 (120)[2]	200-220 (208)[2]
Receptacles (NEMA 5-15R)		4	6	6	-	6	8	-
10 Amp, IEC 320-C13 (Device) receptacles		-	-	-	-	-	-	8
16 Amp, IEC 320-C19 (PDU 94G7450) receptacles		-	-	-	-	-	-	2[4]
Line Cord Length, NEMA Plug		6 ft., 5-15P	6 ft., 5-15P	6 ft., 5-15P	-	6 ft., L5-15P	6 ft., L5-30P	8 ft., L5-30P

1. Data provided by APC.
2. How-to-Read example for 220-240(208): Input VAC is 220- 240 as is the UPS output when electric service is active. When electriic service is interupted and the UPS is on battery the UPS output is 208 VAC.
3. Battery output may be set to 220, 225, 230, or 240 VAC.
4. Two PDU jumper cables ship with the UPS for attachment from the IEC 320-C19 receptacles to Power Distribution Units (PDU) (P/N 94G7450).
5. SU-5000RMiB (P/N 37L6862) contains a Terminal Block (TB) for direct attachment to an electrical source by qualified personnel.
6. Where 'xxx' represents the appropriate country code as follows:- DEN=Denmark, ISR=Israel, ITA=Italy, SDI=Saudi Arabia, SAF=South Africa, SWS=Switzerland, UKM=United Kingdom, EUR=Europe.

	Total Configuration Runtime Estimator (Time in minutes)[1]						
	Tower				Rack Mount		
EMEA Part Number	SU-700iNET P/N SUP072Y	SU-1000iNET P/N SUP102Y	SU-1400iNET P/N SUP144Y	SU-2200iNET P/N SUP222Y	SU-1400RMiB P/N 14RIxxx[5]	SU-3000RMiB P/N 30RIxxx[5]	SU-5000RMiB P/N 37L6862
US Part Number	SU-700NET 94G3134	SU-1000NET 94G3135	SU-1400NET 94G3136	Not Available	SU-1400RMB 94G6674	SU-3000RMB 94G6676	SU-5000RMB 37L6861
Total Load (Watts)	Runtime Minutes	Runtime Minutes	Runtime Minutes	Runtime Minutes	Runtime Minutes	Runtime Minutes	Runtime Minutes
200	22	38	62	130	45	104	240
250	17	28	43	104	34	84	200
300	12	22	34	85	25	70	166
350	9	18	29	71	22	58	145
400	7	14	23	65	18	52	125
450	5	12	20	52	15	45	110
500	-	11	18	43	13	38	97
550	-	9	16	38	11	35	87
600	-	8	13	34	10	31	76
650	-	7	12	31	9	29	68
700	-	6	11	28	8	26	63
750	-	-	10	25	8	24	59
800	-	-	9	23	7	22	55
850	-	-	8	21	7	20	51
900	-	-	7	19	6	18	47
950	-	-	6	18	5	17	43
1000	-	-	-	17	-	16	39
1100	-	-	-	15	-	14	34
1200	-	-	-	13	-	12	31
1300	-	-	-	11	-	10	28
1400	-	-	-	9	-	9	25
1500	-	-	-	9	-	8	22
1600	-	-	-	8	-	8	20
1700	-	-	-	-	-	7	18
1800	-	-	-	-	-	-	17
1900	-	-	-	-	-	-	14
2000	-	-	-	-	-	-	12
2100	-	-	-	-	-	-	11
2200	-	-	-	-	-		11
2300	-	-	-	-	-	-	10
2400	-	-	-	-	-		10
2500	-	-	-	-	-	-	9
2600	-	-	-	-	-		9
2700	-	-	-	-	-	-	8
2800	-	-	-	-	-	-	8

1. Data provided by APC.

Steps:
1. Identify the devices contained in the configuration.
2. Sum the load (watts) of all devices in the configuration. Use either Maximum Load for minimum runtime, or Typical Load for typical runtime.
3. Find the Total Configuration Load in the table above.
4. Select the most appropriate UPS model to achieve the desired runtime.
5. Where 'xxx' represents the appropriate country code as follows:- DEN=Denmark, ISR=Israel, ITA=Italy, SDI=Saudi Arabia, SAF=South Africa, SWS=Switzerland, UKM=United Kingdom, EUR=Europe.
NOTE: If the Total Configuration Load is greater than the entries above, split the load across two or more UPS units.

Appendix D: Cables - Storage Units - Controllers

F: Female - External
M: Male - External
I: Internal
68: 16-bit, 68-pin High Density connector
50: 8-bit, 50-pin Centronix Connector
0.8: 16-bit, 68-pin Very HighDensity Connection Interface (VHDCI) 0.8 mm connector
16: 16-bit, 68-pin connector
8: 8-bit, 50-pin connector

Instructions: Identify Desired Controller Row and Storage Unit Column. The intersection of row and column contains the cable group letter which supports the connection. Go to the cable group under the corresponding storage unit for specific support. Read all Notes for row, column, and any cable group footnotes.

	Storage Enclosure Unit	EXP15 SE2RXxx	EXP200 00N6xxx[19]	EXP300 19K11xx	External HH SCSI 10L7440	DLT External SCSI 03K8705	NetMEDIA 03K8756	NetMEDIA Adapter 10L7113
	Max.MB/sec.)[1]	40	80	160	-	-	-	-
	LVDS	X	X	X	-	-	X	-
	Connector Type	F0.8	F0.8	F0.8	F68 or F50	F68	F0.8	F0.8
Description	**Part Number** / **Max./ Channel (MB/sec)[1]** / **LVDS** / **Connector Type/ Max** / **Note #**	2, 3	2, 4	2, 5	6	6, 7	2, 6	2, 6, 8
RAID Storage Controllers								
Netfinity Fibre Channel RAID Controller Unit	SFCU1xx / 80 / X / F0.8/6 / 9	A	A	-	-	-	-	-
Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	37L6086 / 80 / X / F0.8/3 / -	A	A	A	-	-	-	-
Netfinity ServeRAID-3H Ultra2 SCSI Adapter	01K7207 / 80 / X / F0.8/3 / -	A	A	A	-	-	-	-
Netfinity ServeRAID-3L Ultra2 SCSI Adapter	01K7364 / 80 / X / F0.8/1 / -	A	A	A	-	-	-	-
Netfinity ServeRAID-3L Ultra2 SCSI Adapter II	19K0564 / 80 / X / F0.8/1 / -	A	A	A	-	-	-	-
Netfinity 4000R - RAID models - no external support	Adapter / 80 / X / F0.8/1 / -	-	-	-	-	-	-	-
Netfinity 5500, 5500 M10 - ServeRAID II	Onboard / 40 / - / F0.8/1[21] / 2	A[10, 11]	A[10, 11]	-	B, G[12]	B[12]	A[12]	A[12]
Netfinity 5500 M20 - ServeRAID II	Onboard / 40 / - / F 0.8/1 / -	A[10, 11]	A[10, 11]	-	B, G[12]	B[12]	A[12]	A[12]
Ultra160 SCSI Controllers								
Netfinity ServeRAID-4L Ultra160 SCSI Controller	37L6091 / 160 / X / F0.8/1 / 13	A	A	A	-	-	-	-
Netfinity ServeRAID-4M Ultra160 SCSI Controller	37L6080 / 160 / X / F0.8/2 / 13	A	A	A	-	-	-	-
Netfinity ServeRAID-4H Ultra160 SCSI Controller	37L6889 / 160 / X / F0.8/4 / 13	A	A	A	-	-	-	-
Netfinity 3500 M20 - no external port	Onboard / - / - / n/a / -	-	-	-	-	-	-	-
Netfinity 4500R - no external port	Onboard / - / - / n/a / -	-	-	-	-	-	-	-
Netfinity 5100 - no external port	Onboard / - / - / n/a / -	-	-	-	-	-	-	-
Netfinity 6000R - Ultra160 SCSI	Onboard / 160 / X / F0.8/1 / -	-	-	-	-	-	A	A
Ultra2 SCSI Controllers								
PCI Wide Ultra2 SCSI Adapter	33L5000 / 80 / X / F68/1 / -	-	-	-	C	C	-	-
Netfinity 3000 - Models 80U and up	Adapter / 80 / X / F68/1 / -	-	-	-	C	C	-	-
Netfinity 5600	Onboard / 80 / X / F0.8/1 / -	-	-	-	B	B	A	A
Netfinity 7100	Onboard / 80 / X / F0.8/1 / -	-	-	-	B	B	A	A
Netfinity 7600	Onboard / 80 / X / F0.8/1 / 14	-	-	-	B	B	A	A
Netfinity 8500R	Onboard / 80 / X / F0.8/1 / -	-	-	-	B	B	A	A
Ultra SCSI Controllers								
PCI Fast/Wide Ultra SCSI Adapter	02K3454 / 40 / - / F68/1 / -	B[11]	B[11]	-	C, G	C	B	B
Netfinity 1000 Value Model - IDE - no external port	n/a / - / - / n/a / 15	-	-	-	-	-	-	-
Netfinity 1000	Adapter / 40 / - / F68/1 / -	-	-	-	C, G	C	-	-
Netfinity 3000 - Models 71U and before	Adapter / 40 / - / F68/1 / -	-	-	-	C, G	C	-	-
Netfinity 3500 M10	Onboard / 40 / - / F68/1 / -	-	-	-	C, G	C	B	B
Netfinity 4000R - non-RAID models	Adapter / 40 / - / F68/1 / -	-	-	-	-	-	B	-
Netfinity 5000	Onboard / 40 / - / F68/1 / -	-	-	-	C, G	C	B	B
Netfinity 7000 M10	Onboard / 40 / - / F0.8/1 / -	-	-	-	B, G	B	A	A
Related Options								
IBM 0.8mm to 68-pin SCSI Adapter	01K8017 / - / - / M0.8-F68 / 16	-	-	-	G	-	-	-
Cable Group A (M0.8-M0.8)								
Netfinity 2M Ultra2 SCSI Cable	03K9310 / - / X / M0.8-M0.8 / 17	X	X[18]	X[18]	-	-	X	X
Netfinity 4.2M Ultra2 SCSI Cable	03K9311 / - / X / M0.8-M0.8 / 17	X	X	X	-	-	X	X
Netfinity 20 M Ultra2 SCSI Cable	37L7101 / - / X / M0.8-M0.8 / 5	X[10]	X[10]	X	-	-	-	-
Cable Group B (M68-M0.8)								

F: Female - External
M: Male - External
I: Internal
68: 16-bit, 68-pin High Density connector
50: 8-bit, 50-pin Centronix Connector
0.8: 16-bit, 68-pin Very HighDensity Connection Interface (VHDCI) 0.8 mm connector
16: 16-bit, 68-pin connector
8: 8-bit, 50-pin connector

Instructions: Identify Desired Controller Row and Storage Unit Column. The intersection of row and column contains the cable group letter which supports the connection. Go to the cable group under the corresponding storage unit for specific support. Read all Notes for row, column, and any cable group footnotes.

	Storage Enclosure Unit	EXP15 SE2RXxx	EXP200 00N6xxx[19]	EXP300 19K11xx	External HH SCSI 10L7440	DLT External SCSI 03K8705	NetMEDIA 03K8756	NetMEDIA Adapter 10L7113
	Max.MB/sec.)[1]	40	80	160	-	-	-	-
	LVDS	X	X	X	-	-	X	-
	Connector Type	F0.8	F0.8	F0.8	F68 or F50	F68	F0.8	F0.8

Description	Part Number	Max./ Channel (MB/sec)[1]	LVDS	Connector Type/ Max	Note #	2, 3	2, 4	2, 5	6	6, 7	2, 6	2, 6, 8
IBM 1M External .8mm SCSI Cable	76H3589	-	-	M68-M0.8	-	X	X	X	X	X	X	X
IBM 2M External .8mm SCSI Cable	01K8027	-	-	M68-M0.8	-	X	X	X	X	X	X	X
IBM 4.3M External .8mm SCSI Cable	01K8029	-	-	M68-M0.8	11	X	X	X	-	-	X	X
Cable Group C (M68-M68)												
PC Server F/W to F/W External SCSI Cable-1m	SS2C02Y	-	-	M68-M68	-	-	-	X	X	X	-	-
Cable Group D (Short Wave Fibre)[19]												
Netfinity Fibre Channel 1 M Cable	36L9973	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-
Netfinity Fibre Channel 5 M Cable	03K9306	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-
Netfinity Fibre Channel 25 M Cable	03K9305	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-
Customer supplied cables ≤500M (0.31 miles)	**********	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-
Cable Group E (Long Wave Fibre)[19]												
Customer supplied cables ≤ 10 KM (6.2 miles)	**********	-	n/a	L/W Fibre	-	-	-	-	-	-	-	-
Cable Group G (Other)												
SCSI-2 16-bit Active Terminator	32G3918	-	-	M68	-	-	-	-	X	X	-	-
GBIC												
Netfinity Fibre Channel Short-Wave GBIC	03K9308	-	n/a	S/W Fibre	20	-	-	-	-	-	-	-
Netfinity Fibre Channel Long-Wave GBIC	03K9307	-	n/a	L/W Fibre	-	-	-	-	-	-	-	-

1. Maximum supported speeds may be limited by installation of lower speed devices, controllers or cable lengths greater than 2 meters.
2. Rack installation cable management requires devices to have a minimum cable length of 2 meters. Cable length requirements will vary based on placement within a single or multiple rack suite.
3. Attachment to wide ultra SCSI controllers limits operational speeds to Ultra SCSI (40 MB/s) for cables up to 2 meters in length and Fast/Wide SCSI (20 MB/s) for cable lengths between 2 meters and 4.3 meters. Ultra2 SCSI controllers and cables allow cable lengths of up to twenty meters at up to 40 MB/s.
4. Attachment to wide ultra SCSI controllers limits operational speeds to Ultra SCSI (40 MBps) for cables up to two meters in length and Fast Wide (20 MBps) for cable lengths between 2 meters and 4.3 meters. Ultra2 SCSI controllers and cables allow cable lengths up to 20 meters at up to 80 MBps.
5. Maximum speeds may be limited by the installed devices or SCSI controller.
6. Daisy chaining tape enclosures is not supported. Speeds are limited by cable lengths and installed devices.
7. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
8. Installs in Enclosure P/N 03K8756. Provides repeater function and LVDS interface allowing longer cable lengths and auto-termination when P/N 03K8756 is powered off.
9. Connection to either Netfinity Fibre Channel Hub (P/N SFCH1xx) or Netfinity Fibre Channel PCI Adapter (P/N 01K7297) requires short wave fibre cables from Cable Group D.
10. Cable lengths exceeding 4.3 meters are NOT supported for attachment to non-Ultra-2 controllers.
11. Installations with cable lengths greater than 2 meters are limited to SCSI Fast/Wide speeds of 20MB/S .
12. RAID support for tape drives is limited to Non-RAID functions and utilization of a dedicated channel.
13. Maximum speeds may be limited by the enclosure or installed devices.
14. Netfinity 7600 also includes a Netfinity ServeRAID-3HB Ultra2 SCSI Adapter (P/N 37L6086). See ServeRAID-3HB for connectivity requirements.
15. Does not support external attachment of SCSI devices.
16. Converts a F0.8mm into a F68-pin connector for attachment of an external M68 cable .
17. Supports attachment to Ultra-2 or single-ended SCSI controllers with operational speeds of up to Ultra-2. Controller, storage unit, cable length or storage device limitations may apply (see Max. MB/sec row and column above).
18. Netfinity EXP200 (P/N 00N6xxx) and EXP300 (P/N 19K11xx) include a single 2 metre Ultra2 SCSI cable similar to Netfinity 2 M Ultra2 SCSI Cable (P/N 03K9310).
19. See Fibre Array Solutions for device attachment.
20. Four short wave GBICs are included with Netfinity Fibre Channel Hub (P/N SFCH1xx).
21. Netfinity 5500 and 5500 M10 require IBM Netfinity SCSI Controller Cable (P/N 03K9313) to route the internal onboard SCSI RAID connector to an external F0.8 mm connector.

Appendix E: IBM Netfinity 7000 M10 Memory Interleaving Considerations

Netfinity 7000M10 450NX chipset Interleaving Considerations

ABP and C2C are Intel's terms for the options in the 450NX chipset. This chipset supports up to 16 simultaneous memory accesses, 1 active and 1 pending per bank. When accesses go to a different memory page on the same bank, the current page must be closed and precharged for the next page open. This can cause extra delays during memory reads.

Address Bit Permuting(ABP) redistributes memory addresses across the banks, forcing sequential cache line accesses to a new bank, making it less likely the same bank will be hit.

Card-to-Card (C2C) redistributes memory addresses across the 2 cards, forcing sequential cache line accesses to alternate between the 2 cards. C2C interleaving is far more important than ABP. If memory bandwidth is not important to an application, customers do not need to be concerned.

There are six devices that can simultaneously access memory (four CPUs and two PXBs). Interleaving forces each device to balance its access between the populated memory banks, which improves performance. If you think of the 8 memory banks (Card 1 = 1,2,3,4 and Card 2 = 5,6,7,8) as each containing a size, then the formula goes as follows:

Chipset Option	Banks Populated	Interleaving Type
C2C	1=5,2=6,3=7,4=8	8-Way Interleaving
2-Way ABP	1=2, 3=4, 5=6, 7=8	8-Way Interleaving
4-Way ABP	1=2=3=4, 5=6=7=8	16-Way Interleaving
C2C and 2-Way ABP	1=2=5=6, 3=4=7=8	16-Way Interleaving
C2C and 4-Way ABP	1=2=3=4=5=6=7=8	32-Way Interleaving

Non-populated banks have a size of zero.
The system is always at least 4-way interleave because you add 4 DIMMs per option.
On boot, BIOS will detect these conditions, and instruct the 450NX chipset to do the best possible interleave.

Example: 7000 M10 customer needs a total of 2GB of memory, but has only 256M (4 x 64M DIMMs)

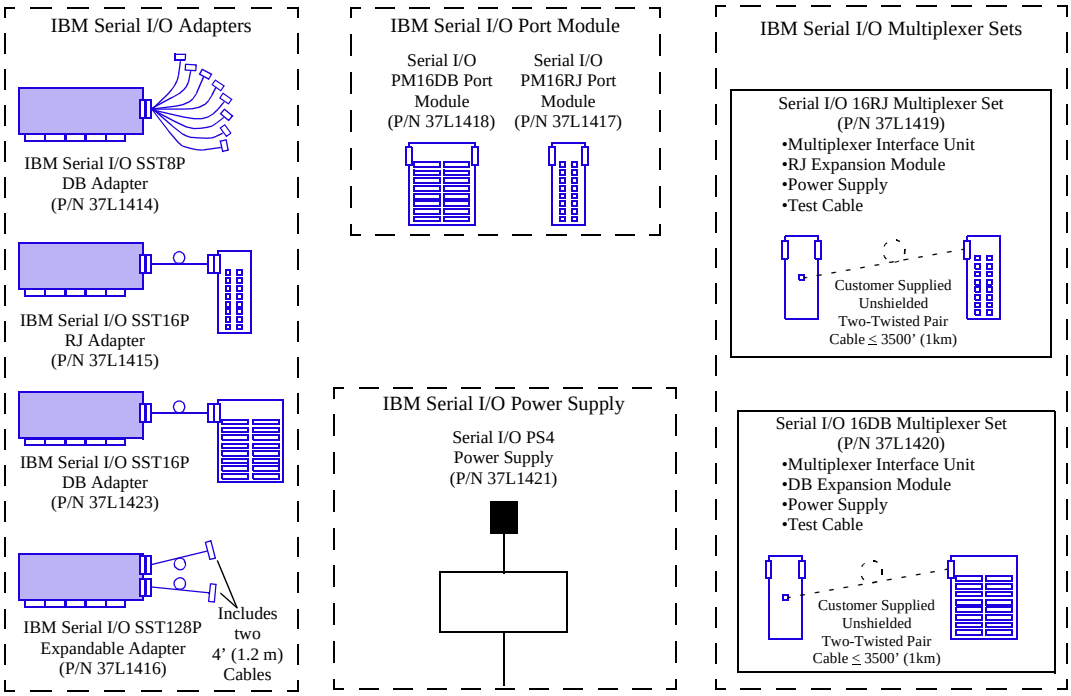
Option 1: Buy four 512M (4 x 128M DIMMs) memory options, install on memory card 1. 1=2=3=4, BIOS enables 4-way ABP. Probably the cheapest solution, but customer has an extra 256M.

Option 2: Buy seven 256M (4 x 64M DIMMs) memory options, and second memory card option. 1=2=3=4=5=6=7=8, BIOS enables both C2C and 4-way ABP. The best performance, but the customer has to buy a second memory card, and to increase memory must replace DIMMs instead of adding them.

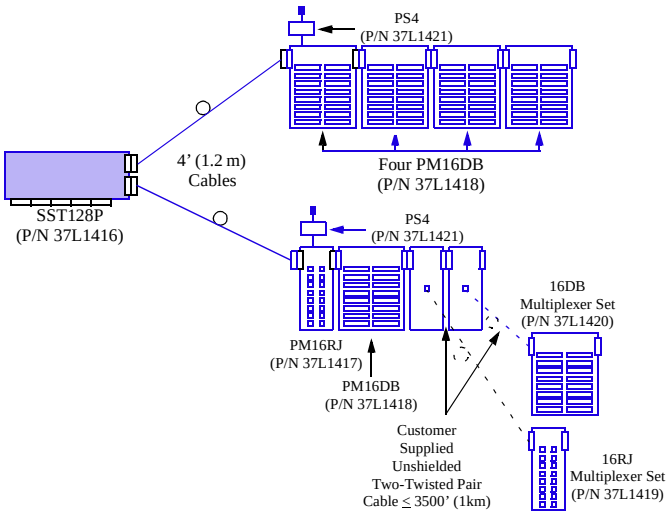
Option 3: Buy two 1G (4 x 256M DIMMs) memory options, install on memory card 1. 1=2, BIOS enables 2-way ABP. Not as cheap as option 1, but saves empty banks for future expansion. If the customer leaves in the original 256M (4 x 64M), it can be used, but 2-way ABP is disabled unless a matching 256M (4 x 64M) option is bought.

Option 4: Buy two 1G (4 x 256M DIMMs) memory options, and a second memory card option. Intstall one option on each. 1=5, BIOS enables C2C. Better performance than option 3, but the customer had to buy a second memory card. There are six empty banks to add memory. If the customer leaves in the original 256M (4 x 64M) it can be used, but C2C is disabled unless a matching 256M (4 x64M) option is bought.

Appendix F: IBM Serial I/O



Sample Configurations



37L1414	Serial I/O SST8P DB Adapter[1, 6]
37L1415	Serial I/O SST16P RJ Adapter[2, 6]
37L1423	Serial I/O SST16P DB Adapter[3, 6]
37L1416	Serial I/O SST128P Expandable Adapter[4, 6]
37L1417	Serial I/O PM16RJ Port Module[5]
37L1418	Serial I/O PM16DB Port Module[5]
37L1419	Serial I/O 16RJ Multiplexer Set[5, 7]
37L1420	Serial I/O 16DB Multiplexer Set[5, 7]
37L1421	Serial I/O PS4 Power Supply[5]

1. Intelligent serial I/O interface card providing eight DB-25 RS232 serial connections using an octopus cable. Support for all ports at 921.6 Kbps simultaneously.
2. Intelligent serial I/O interface card providing sixteen RJ-45 RS232 serial connections in a breakout box. Support for all ports at 115.2 Kbps simultaneously.
3. Intelligent serial I/O interface card providing sixteen DB-25 RS232 serial connections in a breakout box. Support for all ports at 115.2 Kbps simultaneously.
4. Intelligent interface card providing up to 128 RS232 serial connections (DB25 or RJ45) configured in 16 port increments utilizing any combination of Port Modules and Multiplexer Sets. Includes two 4' (1.2 m) bus cables. Each 4' cable supports attachment of 1 to 4 Port Modules and/or Multiplexer Interface Units for a total of 8 per adapter. The first Port Module or Multiplexer Set attached to a cable requires a Serial I/O PS4 Power Supply (P/N 37L1421). Support for all ports at 115.2 Kbps simultaneously.
5. Port Modules and Multiplexer Sets attach directly to one the two standard 4' (1.2m) bus cables of the Serial I/O SST128P Expandable Adapter (P/N 37L1416) or directly to 1 or more Port Modules or Multiplexer Sets already attached to one of the cables. A maximum of 4 Port Modules or Multiplexer Sets may be attached to single cable. The first Port Module or Multiplexer Set attached to a cable requires a Serial I/O PS4 Power Supply (P/N 37L1421).
6. Serial I/O Adapters are 32-bit PCI half length cards. A maximum of four Serial I/O adapters (in any combination) may be installed in a single host system.
7. Requires a customer supplied Unshielded Two-Twisted Pair (Catagory 3 minimum) cable with a maximum length of 3,500 feet (1 Km).

Appendix G: IBM ServicePacs for Hardware Maintenance

IBM Netfinity 24 hour by 7 days cover - 4 hour response target	
Model Type	**Part No**
Netfinity 1000	14J1225
Netfinity 3000	72H9988
Netfinity 3500 M10	72H9988
Netfinity 3500 M20	14J1466
Netfinity 4500R	14J1468
Netfinity 5000	72H9989
Netfinity 5100	14J1470
Netfinity 5500	72H9989
Netfinity 5500 M10	72H9989
Netfinity 5500 M20	72H9989
Netfinity 5600	14J1316
Netfinity 6000R	14J1472
Netfinity 7000 M10	72H9991
Netfinity 7100	14J1330
Netfinity 7600	14J1318
Netfinity 8500R	14J1315

IBM Netfinity 9 hour by 5 days cover - 4 hour response target	
Model Type	**Part No**
Netfinity 1000	14J1224
Netfinity 3000	14J0528
Netfinity 3500 M10	14J0528
Netfinity 3500 M20	14J1465
Netfinity 4500R	14J1467
Netfinity 5000	14J0528
Netfinity 5100	14J1469
Netfinity 5500	14J0528
Netfinity 5500 M10	14J0528
Netfinity 5500 M20	14J0528
Netfinity 5600	14J1317
Netfinity 6000R	14J1471
Netfinity 7000 M10	14J0528
Netfinity 7100	14J1320
Netfinity 7600	14J1319
Netfinity 8500R	14J1329

Important Notes

IBM reserves the right to change product specifications and to discontinue marketing products without notice.
*MHz only measures microprocessor internal clock speed, not application performance. Many factors affect application performance.
**When referring to hard drive capacity, MB stands for million bytes and GB stands for one thousand million bytes.Total user-accessible capacity may vary depending on operating environments.
***Tape Drives which utilise data compression technology have storage capacity that will vary depending upon whether the drive is operating in native mode (without compression) or compressed mode. Actual storage capacity will vary based upon many factors and may be less than the maximum possible.
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