



Wide Area Network Solutions

OVERVIEW

WAN ADAPTERS offer connection support for:

- Dedicated lines
- Dialup
- Packet networks
- Gateway applications

The products provide the latest in network connection and protocol support to meet standard WAN requirements.

WAN applications that require leased line connections (56k, 1.5M bps, 2.048 Mbps) or packet network connections (frame relay, X.25) can be implemented using the PCI WAN adapters and standard Microsoft communications products.

The server to be of any use to any one must be connected to the outside world. Access and bandwidth are getting to be critical items to web performance. NET applications such as Voice over IP, Video Conferencing, E-Commerce will only put more demands on wide area bandwidth. The need to have WAN connection options will be critical to provide adequate bandwidth. We think of web servers as hosting web pages, firewall, or database servers. This roll is quickly expanding as VPNs (Virtual Private Networks) become more mature. VPN support is essential in the network world and will allow Netfinity servers via NT 5.0 to expand its roll in this area. The web server now can become your remote access server, E-Commerce, or business server. This would allow customers to consolidate telephone services which provides monthly costs savings and dedicated network equipment.

POSITIONING: The card is designed for wide area interfaces connections using off the shelf software communications programs from Microsoft and IBM. The versatility of the two port card allows the card to be used in a variety of wide area network applications and the ability for the customer to increase WAN bandwidth as needed. The applications for gateways and web servers are ideal for branch office and remote host access over X.25 or Frame Relay networks while still providing classic SNA connections for IBM customer base.





IBM MULTIPORT T1/E1 S94/P92 Adapters

Product Overview

The **IBM MULTIPORT T1/E1 P92/S94 Adapter** are multiport adapters with connection capability for increased bandwidth up to T1 and E1 speeds of 1.544 Mbps and 2.048 Mbps. The T1 type of connection is the largest deployed data and voice type circuit from Telco's. These adapters are an intelligent wide area network interface cards for PCI based workstations and Netfinity Servers. The multiport T1/E1 cards offers multiple T1/E1 ports for expandable bandwidth capability for backbone network gateways and Netfinity web connected servers. The multiple T1/E1 approach will be the basis service platform for implementing many of the emerging network applications as Virtual Private networks, video over IP, and E-Commerce.

Hardware Features - S94

- PCI compatible
- Motorola 68360 @ 33 MHz
- RAM: 2 MB
- Flash memory: 1 MB
- Automatic configuration of Interrupt level and I/O address
- Two serial Very High Speed Interface (VHSI) ports

Serial Ports

- Auto-detection of interface types:
 - V.24 (EIA RS-232-C)
 - V.35
 - X.21 with V.11 (X.27) signaling
 - V.36/RS-449
 - EIA-530
- 36-pin high-density D-type connectors, supporting all interfaces with appropriate cable
- Line speed up to 2Mbps per port
- Internal or external clocking (DTE or DCE) or split (transmit internal, receive external)
- Protocol support: X.25, Frame Relay, PPP, SDLC, HDLC

S94 Highlights:

- High performance card for minimal CPU utilization
- Expandable and scaleable to wide area network bandwidth requirements

Hardware Features - P92

- PCI compatible
- Hitachi HD64570 @ 10 MHz
- RAM: 512 KB
- Automatic configuration of Interrupt level and I/O address
- Two Very High Speed Interface (VHSI) serial ports

Serial Ports

- Auto-detection of interface types:
 - V.24 (EIA RS-232-C)
 - V.35
 - X.21 with V.11 (X.27) signaling
 - V.36/RS-449
 - EIA-530
- 36-pin high-density D-type connectors, supporting all interfaces with appropriate cable
- Line speeds up to 5Mbps
- Internal or external clocking (DTE or DCE) or split (transmit internal, receive external)
- WAN protocol support: software dependent

P92 Highlights:

- Lower price entry for business installed T1/E1 service

All Adapters Benefits and Solutions:

- Implementing Remote Access servers using non proprietary hardware and software
- Provide broad range of connection options for extending customers LAN networks to the remote access location
- Single supplier for platform and network interface attachment.
- Increases eNetwork functionality



IBM PCI WAN 2-Port S91 Adapter

Product Overview

The IBM PCI WAN 2 PORT S91 Adapter is a two port adapter with connection capability for the majority of existing Telco wide area network services. The adapter is an intelligent wide area network interface card for PCI based workstations and Netfinity Servers. The two port cards offer one serial port for serial communications links from 56Kbps to 2Mbps, and the second port is an ISDN BRI port supporting up to 128Kbps.

Hardware Features - S91

- PCI compatible
- Motorola 68302 @ 25 MHz
- RAM: 1 MB
- Flash memory: 1 MB
- Automatic configuration of Interrupt level and I/O address
 - One serial Very High Speed Interface (VHSI) port
 - ISDN Basic Rate Interface port
- LED indicators

Serial Port:

- Auto-detection of interface types:
 - V.24 (EIA RS-232-C)
 - V.35
 - X.21 with V.11 (X.27) signaling
 - V.36/RS-449
 - EIA-530
- 36-pin high-density D-type connectors, supporting all interfaces with appropriate cable
 - Line speed up to 2Mbps
- Internal or external clocking (DTE or DCE) or split (transmit internal, receive external)
- Protocol support: X.25, Frame Relay, PPP, SDLC, HDLC

ISDN Port:

- S/T interface or U interface (RJ45)
- Line speed up to 128 Kbps
- Channel support:
 - B-channel circuit switched
 - B-channel packet switched (X.31 case A, B)
 - D-channel circuit switched (X.31 case B)
- B-channel WAN protocol support: X.25, Frame Relay, PPP, Multilink PPP, SDLC, HDLC
- D-channel WAN protocol support: X.25

D-channel protocols:

- NI-1 (North America)
- AT&T 5ESS (North America)
- Euro-ISDN (Europe, Australia OnRamp)
- INS-Net 64 (Japan)
- TPH 1962 (Australia Microlink)

Benefits and Solutions:

- Key network backbone and gateway functions can be implemented on Netfinity servers using standard operating systems and communications packages such as Microsoft BackOffice or IBM Communications Server.
- Provide broad range of connection options for extending customers LAN networks on to the wide area network.
- Serial Line backup capability over dialup ISDN line for mission critical network connections.
- Single supplier for platform and network interface attachment.
- ISDN Port includes NT1 for North America market



Software Highlights

Software highlights

- Support for IP/IPX on multiple WAN protocols with Routing and remote access servers
 - X.25 for remote access support
 - I2O Ready
 - HDLC, SDLC, PPP
 - SNA Support
 - SNA over Frame Relay, SDLC and X.25/QLLC with SNA server
 - 802.2 LLC type 2 (LLC2) emulation over Frame Relay
 - High speed Internet/Intranet Access connectivity
 - Automatic Hardware detection
 - Operating system support for Windows NT, Novell, and Unixware 7.0.
 - Software downloadable features
 - Software downloadable firmware
 - Diagnostic software with protocol analyzer
 - Driver Support
 - Microsoft Windows NT 4.0
 - NDIS Driver for T1/E1
 - NDIS4 driver for NT4.0
 - IP/IPX over PPP (on-board PPP)
 - IP/IPX over X.25
 - IP/IPX over Frame Relay
 - NDISWAN Miniport Driver for Windows NT RAS and RRAS
 - SCO Version 5.05
 - UnixWare V 7.0
 - Novell
- PPP
- Point-to-Point (RFC1618, RFC1661, RFC1662, RFC1663, RFC1570, RFC1333)
 - PAP, CHAP authentication (RFC1334)
 - Multi-Link Protocol (RFC1717)
 - IP and IPX (RFC1332, RFC1552)
- X.25
- ISO8208, ISO7776, ITU-T X.25
 - Frame size to 2048 bytes
 - Up to 256 VCs
 - IP and IPX over X.25 (RFC1356)
- Frame Relay
 - Link Management Interface UNI: UI ANSI T1.617 Annex D, UI IUT-T Q.933 Annex A or I
 - Data link Layer IUT-T Q.922/ANSI T1 618
 - User side of the User to Network Interface
 - PVC support (up to 976 user's DLCIs)
 - DLCI management (user defined and automatic)
 - Unicast
 - Frame size to 4096 bytes
 - Quality of Service management (CIR, Bc, Be, T)
 - Congestion Management (BECN, FECN, DE)
 - IP and IPX over Frame Relay (RFC1490)

Standards Compliance

- UL1950, CSA-C22.2 950 safety
- FCC Class A, Part 15
- IC CS-03
- Microsoft certification: hardware compatibility as a card/device (vs. system)

Operating Environment

- Temperature 0 to 55°C
- Relative Humidity 5% to 95% non-condensing
- Altitude 0-12,000 ft
- Power Consumption 1.5A @ 5V DC

Physical Specifications (more to come)

- Half size PCI 2.1
- Length 174.63 mm
- Width 106.68 mm
- Weight 175 grams
- Indicators Line Activity

Warranty

- Warranty Period: 3 year

Need more information?

IBM Reseller and General Information
United States (800) 426-9735 ext. 4752
Canada (800) 465-7999

IBM Fax Information Service
United States (800) IBM-3395
Canada (800) IBM-3395

World Wide Web
[www.ibm.com/pc/is/Business Intelligence](http://www.ibm.com/pc/is/Business%20Intelligence)
www.software.ibm.com/data/busn-intel

Technical Support
United States (800) 426-7378
Canada (800) 426-7378

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Options P/N's	Product Set Name	Set includes	Fru P/N's
	WAN 2 Port SYNC and ISDN BRI		
33L4624	PCI WAN 2-PORT S91/V.24/U Card	PCI WAN 2-Port U-Card	33L4664
		Serial Interface cable V.24	33L4668
33L4625	PCI WAN 2-PORT S91/V.35/U Card	PCI WAN 2-Port U-Card	33L4664
		Serial Interface cable V.35	33L4669
33L4626	PCI WAN 2-PORT S91/V.36/U Card	PCI WAN 2-Port U-Card	33L4664
		Serial Interface cable V.36	33L4670
33L4627	PCI WAN 2-PORT S91/EIA 530/U Card	PCI WAN 2-Port U-Card	33L4664
		Serial Interface cable EIA 530	33L4672
33L4628	PCI WAN 2-PORT S91/V.24/ST Card	PCI WAN 2-Port ST-Card	33L4665
		Serial Interface cable V.24	33L4668
33L4629	PCI WAN 2-PORT S91/V.35/ST Card	PCI WAN 2-Port ST-Card	33L4665
		Serial Interface cable V.35	33L4669
33L4630	PCI WAN 2-PORT S91/V.36/ST Card	PCI WAN 2-Port ST-Card	33L4665
		Serial Interface cable V.36	33L4670
33L4631	PCI WAN 2-PORT S91/V.21/ST Card	PCI WAN 2-Port ST-Card	33L4665
		Serial Interface cable V.21	33L4671
33L4632	PCI WAN 2-PORT S91/EIA 530/ST Card	PCI WAN 2-Port ST-Card	33L4665
		Serial Interface cable EIA 530	33L4672
	WAN Multiport T1/E1/S94		
33L4633	PCI WAN Multiport T1/E1/S94 V.24 Card	PCI WAN T1/E1 S94 V.24	33L4666
		Serial Interface cable V.24	33L4668
33L4634	PCI WAN Multiport T1/E1/S94 V.35 Card	PCI WAN T1/E1 S94 V.35	33L4666
		Serial Interface cable V.35	33L4669
33L4635	PCI WAN Multiport T1/E1/S94 V.36 Card	PCI WAN T1/E1 S94 V.36	33L4666
		Serial Interface cable V.36	33L4670
33L4636	PCI WAN Multiport T1/E1/S94 V.21 Card	PCI WAN T1/E1 S94 V.21	33L4666
		Serial Interface cable V.21	33L4671
33L4637	PCI WAN Multiport T1/E1/S94 EIA 530 Card	PCI WAN T1/E1 S94 EIA 530	33L4666
		Serial Interface cable EIA 530	33L4672
	WAN Multiport T1/E1/P92 PASSIVE		
33L4638	PCI WAN Multiport T1/E1/P92 V.24 Card	PCI WAN T1/E1 P92 V.24	33L4667
		Serial Interface cable V.24	33L4668
33L4639	PCI WAN Multiport T1/E1/P92 V.35 Card	PCI WAN T1/E1 P92 V.35	33L4667
		Serial Interface cable V.35	33L4669
33L4640	PCI WAN Multiport T1/E1/P92 V.36 Card	PCI WAN T1/E1 P92 V.36	33L4667
		Serial Interface cable V.36	33L4670
33L4641	PCI WAN Multiport T1/E1/P92 V.21 Card	PCI WAN T1/E1 P92 V.21	33L4667
		Serial Interface cable V.21	33L4671
33L4642	PCI WAN Multiport T1/E1/P92 EIA 530 Card	PCI WAN T1/E1 P92 EIA 530	33L4667
		Serial Interface cable EIA 530	33L4672