

Intel® Server System SR9000MK4U Operating System Installation Guide

Version 1.1

Intel Order Number D75226-003

Revision History

Date	Revision Number	Modifications
10/1/06	1.0	Initial guide
11/21/2006	1.1	Updated Windows installation procedure and added fix for stability issue.

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1. Introduction

This document helps you install specific operating systems on one hard drive that is attached to the embedded SAS controller of your Intel® Server System SR9000MK4U.

This document is for these operating systems:

- Microsoft Windows 2003* Enterprise Server SP1 (Intel® Itanium® 2 processor family edition)
- Red Hat* Enterprise Linux 4 Update 4 (RHEL4u4)
- SUSE Linux Enterprise Server 10 (SLES 10)

This document is not your primary source of information about the server system hardware or software. New and open issues will be published in the *Intel® Server System SR9000MK4U Specification Update*, available at <http://support.intel.com/support/motherboards/server/sr9000mk4u>.

Read this document and the specification update, and be familiar with the product guide before configuring or operating the server.

2. Preconfiguration

Make sure your server system has these firmware revisions or later installed:

- System BIOS / firmware: 03-12
- BMC firmware: 03-14

Make sure that each memory box in your Intel® Server System SR9000MK4U is populated. Any memory box that does not contain at least four DIMMs must be removed from the server system for the system to boot properly.

Make sure your Intel® Server System SR9000MK4U boots to an EFI shell prompt.

Optional: Perform a low-level format of the hard drive. To do so:

1. Insert the SAS hard drive into the left drive bay.
2. Power on the server.
3. In the EFI Boot Manager select “EFI Shell [Built in]”.

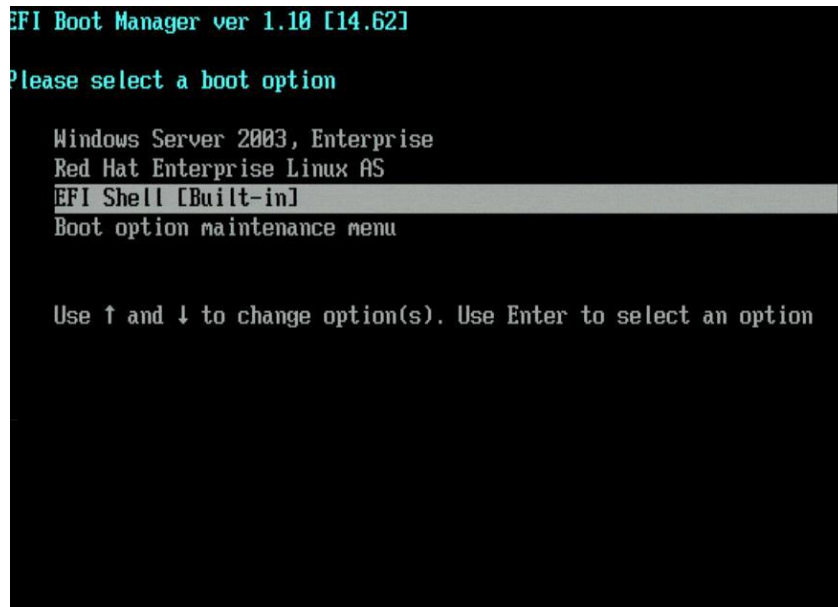


Figure 1. Select EFI Shell

4. Use the map command to verify that the hard drive is listed as a Block Device (blk).
5. Type `drvcfg -s`.
6. Select SAS1068.
7. Select SAS Topology.
8. Select the drive to format and press <D> for Device Properties.

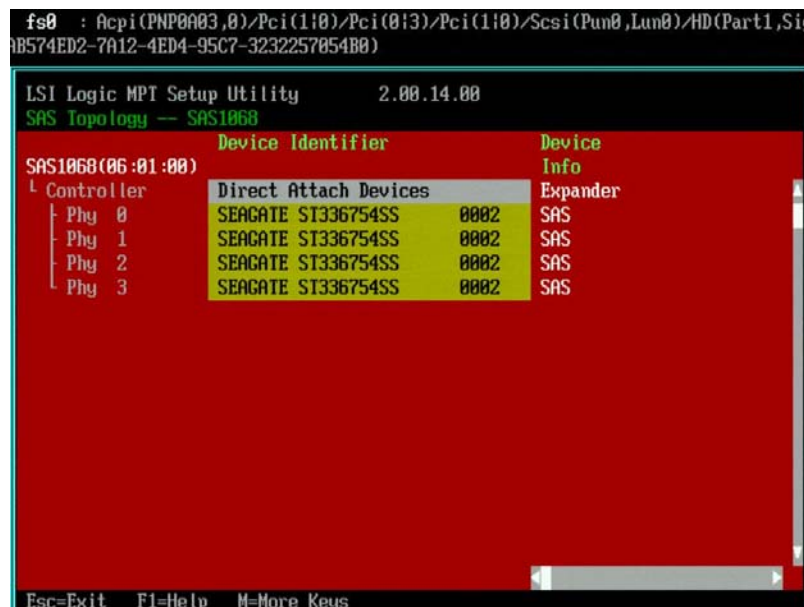


Figure 2. Select the Drive to Format

Note: The time to complete the format varies by drive size and the format process cannot be stopped once started.

9. Select Format.

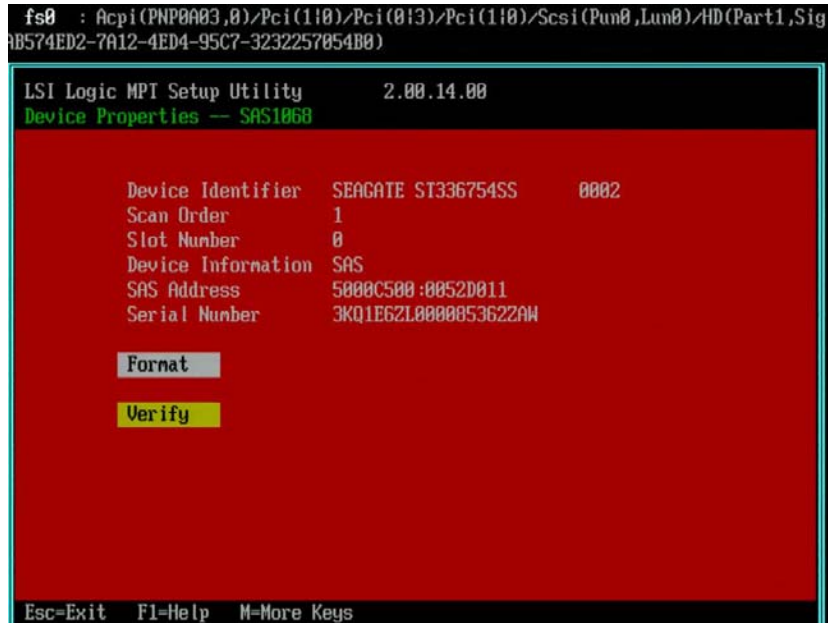


Figure 3. Select Format

10. After the format has completed, press <ESC> to exit the utility and restart the SAS controller.

3. Installing Windows 2003* SP1 IA64 Server

CAUTION: *This process formats the media and deletes all content from the SAS drive.*

Gather these items:

- A supported USB floppy disk drive. See <http://support.microsoft.com/?kbid=916196>.
- A DOS-formatted diskette containing the LSI* SAS Windows 2003 IA64 drivers. You can download the drivers from <http://support.intel.com/support/motherboards/server/sr9000mk4u>. Extract the files to the floppy disk, maintaining the file structure.
- The Windows 2003 Server SP1 IA64 installation CD-ROM.

3.1 Installation with USB floppy drive

1. Attach the USB floppy drive to a front USB port.
2. Insert the floppy diskette that contains the LSI* SAS drivers.
3. Attach the SAS hard drive to the left drive bay.
4. Insert the Windows operating system CD.
5. Power on the server.
6. In the EFI Boot Manager select EFI Shell [Built in] and press <Enter>.
7. Use the map command to make sure the hard drive, USB floppy drive, and CD-ROM drive are detected. If any of these is missing from the Device Mapping table check the physical connections to the system and do this in the EFI Shell:
 - Type: `reconnect -r`
 - Type: `map -r`


```

EFI Boot Manager ver 1.10 [14.62]

Please select a boot option

  Windows Server 2003, Enterprise
  EFI Shell [Built-in]
  Boot option maintenance menu

Use ↑ and ↓ to change option(s). Use Enter to select an option
Loading.: EFI Shell [Built-in]
EFI Shell version 1.10 [14.62]
Device mapping table
  fs0  : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun1,Lun0)/HD(Part1,Sig
E6B2C8C0-01EA-01C7-507B-9E5F8078F531)
  blk0 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun1,Lun0)
  blk1 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun1,Lun0)/HD(Part1,Sig
E6B2C8C0-01EA-01C7-507B-9E5F8078F531)
  blk2 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun1,Lun0)/HD(Part2,Sig
E6BA69E0-01EA-01C7-F1B3-12714F758821)
  blk3 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun1,Lun0)/HD(Part3,Sig
CB6E6320-01EB-01C7-D931-F8428177D974)
  blk4 : Acpi(PNP0A03,0)/Pci(1F:1)/Ata(Primary,Master)
Shell> _

```

Figure 4. Device Mapping Table

8. Change to the Windows 2003 Server SP1 IA64 installation CD file system.
9. Type `ls` to view the contents.
10. Type `setupldr` to run the installation program.
11. When prompted to load additional drivers press `<F6>`.
12. Type `s` to Specify Additional Device.

Note: The display may be slow because of console redirection to the serial port.

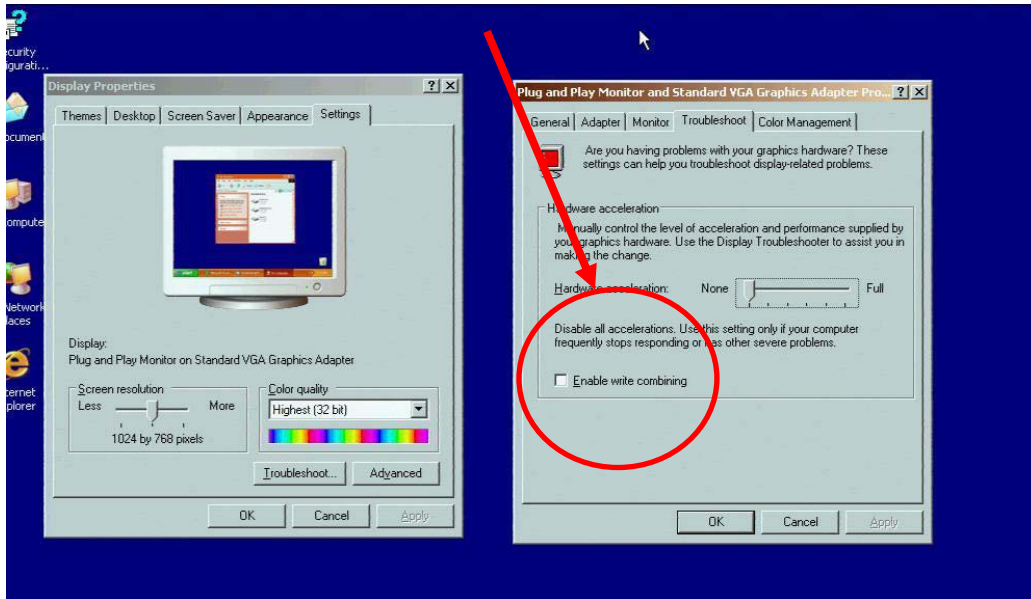
When prompted for the driver you should see

```
LSI Logic Fusion-MPT SAS Driver (Server 2003 IA64)
```

13. Press `<Enter>` to select the driver.
14. Press `<Enter>` to continue.
15. Continue with the Windows installation.

After completing the Windows Server 2003 installation, disable Write Combining to improve system stability:

1. Select Start > Settings > Control Panel > Display.
2. Select the Settings tab, Advanced button.
3. Select the Troubleshoot tab and uncheck Enable write combining.
4. Restart the system.



3.2 Installation with USB key

1. Attach the USB key that contains the LSI* SAS drivers to a front USB port.
2. Attach the SAS hard drive to the left drive bay.
3. Insert the Intel® Server System SR9000MK4U Resource CD.
4. Power on the server.
5. In the EFI Boot Manager select EFI Shell [Built in] and press <Enter>.
6. Use the map command to make sure the hard drive, USB key, and CD-ROM drive are visible. If any of these devices is missing from the Device Mapping table check the physical connections and do this in the EFI Shell:
 - Type: reconnect -r
 - Type: map -r
7. In the Resource CD go to \Utilities\ramdrive\
8. Type load ramdrive.efi
9. Type map -r
10. The ramdrive should be visible on the Device Mapping table. The ramdrive name begins with "VenMsg".

```

fs0 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun0,Lun0)/HD(Part1,Sig
AB574ED2-7A12-4ED4-95C7-3232257054B0)
Device mapping table
fs0 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun0,Lun0)/HD(Part1,Sig
AB574ED2-7A12-4ED4-95C7-3232257054B0)
fs1 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun1,Lun0)/HD(Part1,Sig
BC376900-FDDA-01C6-507B-9E5F8078F531)
fs2 : Acpi(PNP0A03,0)/Pci(1F:1)/Ata(Primary,Master)/CDROM(Entry0)/HD(Part1,Si
00000000)
blk0 : VenMsg(06E14DD0-FF78-11D3-BDC4-00A0C94053D1)
blk1 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun0,Lun0)
blk2 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun0,Lun0)/HD(Part1,Sig
AB574ED2-7A12-4ED4-95C7-3232257054B0)
blk3 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun0,Lun0)/HD(Part2,Sig
2D574909-6A94-4D4F-AFBB-9169933FAFF1)
blk4 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun1,Lun0)
blk5 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun1,Lun0)/HD(Part1,Sig
BC376900-FDDA-01C6-507B-9E5F8078F531)
blk6 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun1,Lun0)/HD(Part2,Sig
BC3D8380-FDDA-01C6-F1B3-12714F758821)
blk7 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun1,Lun0)/HD(Part3,Sig
42029080-FDDA-01C6-D931-F8428177D974)
blk8 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun2,Lun0)
blk9 : Acpi(PNP0A03,0)/Pci(1:0)/Pci(0:3)/Pci(1:0)/Scsi(Pun2,Lun0)/HD(Part1,Sig
7989B740-FA1A-01C6-92E0-3C772E43AC40)

```

Figure 5. System Block for ramdrive.efi

Note: If the block device is present but there is no corresponding file system, type: `mount blk#` where `blk#` is the ramdrive block device (`blk0` in the screen sample). Type `map -r` to regenerate the mapping table.

11. Copy the SAS drivers from the USB key to the ramdrive. Type:

```
cp -r fs#:\[Folder Containing Driver]\ fs#:\  
where # is the USB key and the ramdrive.
```

12. Remove the Resource CD and insert the Windows 2003 SP1 IA64 installation CD.

13. Type: `map -r`.

14. Change to the Windows 2003 Server SP1 IA64 installation CD file system.

15. Type `ls` to view the contents.

16. Type `setupldr` to run the installation program.

Note: There may be an error while loading the `lsi_sas.sys` drivers. This does not affect the installation. Press `<Enter>` to continue.

17. Type `s` to Specify Additional Device.

When prompted for the driver you should see the following:

```
LSI Logic Fusion-MPT SAS Driver (Server 2003 IA64).
```

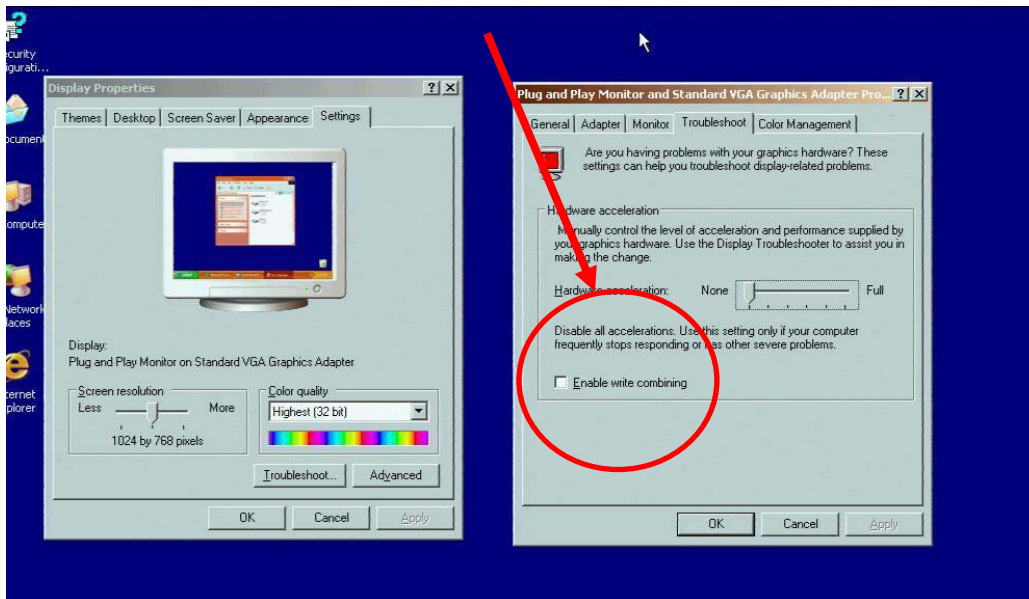
18. Press `<Enter>` to select the driver.

19. Press `<Enter>` to continue. Setup load various drivers.

20. Continue with the Windows installation.

After completing the Windows Server 2003 installation, disable Write Combining to improve system stability:

5. Select Start > Settings > Control Panel > Display.
6. Select the Settings tab, Advanced button.
7. Select the Troubleshoot tab and uncheck Enable write combining.
8. Restart the system.



4. Installing Red Hat* Linux 4, Update 4

CAUTION: *This process formats the media and deletes all content from the attached SAS drive.*

1. Attach the SAS hard disk drive to the left drive bay.
2. Insert the Red Hat* Linux operating system CD.
3. Power on the server.
4. Boot to the EFI Shell [Built in].
5. Use the map command to identify the CD-ROM file system.
6. Change the directory to the CD-ROM file system
7. Type `bootia64.efi` to run the Setup file.
8. Follow the prompts to completion.

5. SUSE Linux Enterprise Server 10

The graphical user interface (GUI) for SUSE Linux Enterprise Server 10 is not supported on the Intel Server System SR9000MK4U. These instructions install the operating system using the text user Interface (TUI). The GUI will be supported in a future release of SUSE.

CAUTION: *This process formats the media and deletes all content from the attached SAS drive.*

1. Attach the SAS hard disk drive to the left drive bay (SAS(Pun0, Lun0)).
2. Insert the SUSE* Linux operating system CD.
3. Power on the server. It might take up to 20 minutes before the video is initialized.
4. Select the Boot Option Maintenance menu from the EFI Boot Manager.
5. Select the Boot from File.
6. Select the Removable Media Boot option representing the CD-ROM drive.
7. Type `textmode=1` and press <Enter>.
8. Select the appropriate options.
9. After the system restarts, select SUSE Linux Enterprise Server 10 in the EFI Boot Manager Menu to continue the installation.

NOTE: *After the install is complete the system boots into the SUSE GUI causing the screen to go blank.*

10. Reboot into the EFI Shell.
11. Go to `fs#:\efi\SUSE\`, where # is the file system for the drive where SUSE is installed.
12. Type `edit elilo.conf`
13. Change the line from:

```
append = " splash=silent"
```

to

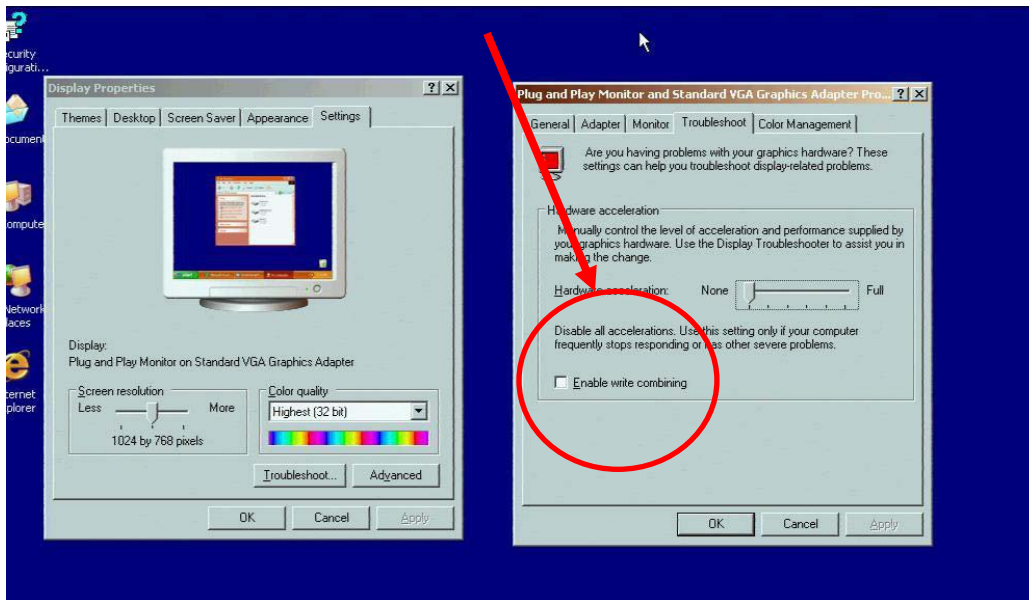
```
append = " splash=silent 3"
```

This forces SUSE to start in text mode.
14. Press <F2> to save, <Enter> to confirm, and <F3> to exit.
15. In EFI Shell type `exit` to return to the EFI Boot Manager menu.
16. Select SUSE Linux Enterprise Server 10 and press <Enter>.
17. The system boots into the Text User Interface (TUI).

Appendix A: Installation and Usage Tips

Following the Windows Server 2003 installation, disable Write Combining to improve system stability:

1. Select Start > Settings > Control Panel > Display.
2. Select the Settings tab, Advanced button.
3. Select the Troubleshoot tab and uncheck Enable write combining.
4. Restart the system.



Install the following Windows hot-fixes to improve system stability

- KB899416 – Not available for download. Contact Microsoft for this hot-fix. <http://support.microsoft.com/kb/899416/>
- KB899755 – Download from <http://support.microsoft.com/kb/899755/>
- KB907646 – Not available for download. Contact Microsoft for this hot-fix. <http://support.microsoft.com/kb/907646/>
- KB919385 – Not available for download. Contact Microsoft for this hot-fix. <http://support.microsoft.com/kb/919385/>