

Solaris 2.1 Driver Update 5 Late Breaking News *for x86*

2550 Garcia Avenue
Mountain View, CA 94043
U.S.A.

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2550 Garcia Avenue, Mountain View, California 94043-1100 U.S.A.

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Solaris 2.1 Driver Update 5 Late Breaking News for x86



This document provides instructions and information about new hardware devices that are now supported on Solaris[®] 2.1 for x86. Typically, new drivers will be bundled with releases on separate Driver Update diskettes as they become available. You may install a new system for the first time, or you may update your installed Solaris system with new drivers.

Note – Information regarding the availability of new drivers can be obtained by calling SunSoft's Automated Support System at (310) 348-6070 or sending electronic mail to support@cypress.West.Sun.COM.

What's New?

There are three new drivers in Driver Update 5 that were not included in previous Driver Update releases:

SCSI HBA Drivers

`blogic` BusLogic SCSI HBA (BT-542B, BT-545S[®], BT-742A[®],
BT-747S[®], BT-646S[®], BT-445S)

`trantor` Trantor T348 Mini-SCSI-Plus Parallel HBA

Network Drivers

`ieef` Intel[®] EtherExpress[™] Flash32



Updated versions of the following three drivers are also included in this distribution to correct some known problems:

SCSI HBA Drivers

esa Adaptec® AIC-7770 driver that supports the AHA-2740, AHA-2742, and motherboards that integrate the 7770 chip, such as the Intel Xpress

Network Drivers

e1x 3Com® EtherLink® III Ethernet driver (3C509, 3C529, 3C579)

smc Updated SMC® driver to include support for the SMC Elite16 Ultra

For a complete list of the known problems that were fixed in these drivers, see the README.101366-05 file that gets installed in the directory /var/sadm/patch/101366-05.

This month's Driver Update includes the publication of a new patch with additional video support in the form of Protected Mode Interface (PMI) files. These files are contained in a separate patch that is distributed electronically and available on diskette. This patch is called *Solaris 2.1 for x86 PMI-06* and includes the Solaris patch ID number 101295-06. This patch is posted on the Internet at server ftp.uu.net in the /vendor/sun/sun-doc directory. It is also posted as a separate dd format diskette image archive on CompuServe in the SunSoft Forum.

New video support added in this patch is:

Cirrus Logic GD5426/5428

Dell® ME/XE (S3 86C805)

Diamond SpeedStar Pro

See the "Contents of Solaris 2.1 for x86 PMI Patch" on page 5 for a list of all the display adapter cards supported by the *Solaris 2.1 for x86 PMI-06* patch. See the next section, "Driver Update 5 Contents," for a list of all the drivers included in Driver Update 5.



A brief description of the contents of the Driver Update diskettes is followed by installation instructions for the new drivers, detailed configuration instructions for the hardware devices that are supported by the new drivers, and known problems.

Note – Even though the instructions for installing the new drivers are presented first, read and follow the appropriate hardware configuration instructions in the “New Device Configuration Information (SCSI Host Bus Adapters)” or “New Device Configuration Information (Network Adapters)” sections before installing the new drivers. Proper hardware configuration is necessary for Solaris to run.

Driver Update 5 Contents

Solaris 2.1 for x86 Driver Update 5 contains one diskette labeled *Solaris 2.1 for x86 Driver Update 5 Boot* and one or more diskettes labeled *Solaris 2.1 for x86 Driver Update 5 Distribution*. The new Boot and Driver Distribution diskettes are intended to be used with a Solaris 2.1 for x86 FCS CD or network boot server; however, they are currently not compatible with the Solaris 2.1 for x86 MP Platform Support Release.

Note – To use the *Solaris 2.1 for x86 Driver Update Boot* diskette to update a client of a Solaris boot server, you must first install a new version of `inetboot` on the server. The procedure for doing this differs on a SPARC® boot server and an x86 boot server. See “Installing the Driver Update on a Network Boot Server,” on page 6.

New Boot Diskette

Solaris 2.1 for x86 can be installed with a new boot diskette labeled *Solaris 2.1 for x86 Driver Update 5 Boot*. This Multiple Device Boot (MDB) diskette contains scripts and configuration files that allow you to boot and install your system using one of the newly supported devices. During installation of Solaris, one or more diskettes labeled *Solaris 2.1 for x86 Driver Update 5 Distribution* will be read.



New Driver Update Distribution Diskettes

The *Solaris 2.1 for x86 Driver Update 5 Distribution* diskettes contain the following new and updated device drivers:

SCSI HBA Drivers

aha	Updated Adaptec 154x driver that supports the 154xCF (fast SCSI)
blogic	BusLogic SCSI HBA (BT-542B, BT-545S, BT-742A, BT-747S, BT-646S, BT-445S)
dadk	Updated Direct Access Disk module (required for dsa driver)
dsa	Dell SCSI Array
esa	Adaptec AIC-7770 driver that supports the AHA-2740, AHA-2742, and motherboards that integrate the 7770 chip, such as the Intel Xpress
trantor	Trantor T348 Mini-SCSI-Plus Parallel HBA

Network Drivers

elink	3Com EtherLink 16 (3C507)
gld	Updated Generic LAN Driver module (required for elink, iee, pe, and smce)
iee	Intel EtherExpress 16, EtherExpress FlashC
ieef	Intel EtherExpress Flash32
lp	Updated lp driver (required for pe)
mtok	Madge™ Token Ring (Smart 16/4 Ringnode™)
pe	Xircom® Pocket Ethernet Adapter™ II, III (parallel port)
smc	Updated SMC® driver to include support for the SMC Elite16 Ultra
smce	SMC Elite32 Ethernet (8022)

Note – The DPT 2022 (EISA) and the 2021 (ISA) host bus adapters are also supported by the Solaris 2.1 dpt driver. This driver did not require any modifications to support these new boards, but the hardware configuration



information is supplied in this document. See “Configuring DPT 2022 EISA Host Bus Adapters (dpt)” on page 20 and “Configuring DPT 2021 ISA Host Bus Adapters (dpt)” on page 22.

The *Solaris 2.1 for x86 Driver Update Distribution* diskettes are read when the *Solaris 2.1 for x86 Driver Update Boot* diskette is used to install Solaris for x86. The Distribution diskettes can also be used without the boot diskette, however, to add new drivers to an existing Solaris for x86 system.

Contents of Solaris 2.1 for x86 PMI Patch

Support for new video display adapters is no longer included in Driver Updates, but is available on CompuServe and the Internet at server `ftp.uu.net` as a patch in directory `/vendor/sun/sun-doc`. Support for new video display adapters includes new PMI files. PMI files allow the OpenWindows™ server to interface properly with display cards. Patch number 101295-06 includes support for the following display adapters:

ATI® Mach32 (Ultra Pro) (1280x1024, 256 colors)
Cirrus Logic GD5426/5428
Compaq® LTE (640x480, 256 colors)
Dell L Series/OptiPlex (ET4000/W32, /W32i)
Dell ME/XE (S3 86C805)
Diamond SpeedStar Pro
IBM® XGA-2
NEC® Ultralite Versa (640x480, 256 colors)
SPEA V7-Mercury
TI TravelMate 4000E TFT (640x480, 256 colors)
Trident 8900C

See the `README.101295-06` file that gets installed in directory `/var/sadm/patch/101295-06` for a list of other programs that are included in this patch to support the new PMI files.



▼ Installing the Solaris 2.1 for x86 PMI Patch

Note – Solaris 2.1 for x86 must be installed on your system before you can install the PMI patch.

1. **Insert the first *Solaris 2.1 for x86 PMI* diskette into drive 0.**
2. **Become superuser.**
3. **Use `cpio` to copy the install script off the diskette and run it.**

```
# mkdir /tmp/video
# cd /tmp/video
# cpio -icduBI /dev/rfd0c
#                                     <----- (change diskettes as needed)
# ./inst_patch.sh
```

4. **Remove the last diskette from drive 0.**
5. **Run `devconfig` and select the appropriate video display adapter.**

Installing the Driver Update on a Network Boot Server

To use the *Solaris 2.1 for x86 Driver Update Boot* diskette to update a client of a boot server, you must first install a new version of `inetboot` on the boot server. The procedure for doing this differs on a SPARC boot server and an x86 boot server.

Updating an x86 Boot Server

A new version of `inetboot` is provided on the *Solaris 2.1 for x86 Driver Update Distribution* diskettes and is automatically installed on the server when you follow the instructions under “Adding New Drivers After Solaris Is Installed” on page 9. This will install both the new drivers and the modified `inetboot` so that boot clients can use the Driver Update boot procedure as described under “Installing Solaris Using the Driver Update Diskettes.”



Updating a SPARC Boot Server

A new version of `inetboot` must be manually installed on a SPARC server. Before this can be done, however, the following two conditions must be met:

1. **Solaris 2.2 SPARC servers must have patch number 101085-01 installed, and Solaris 2.3 SPARC servers must have patch number 101350-01 installed.**

These patches are needed to make SPARC boot servers service x86 clients.

2. **At least one boot client must be set up.**

The `/rplboot` directory will not exist until a boot client is set up.

▼ Updating `inetboot` on a SPARC server

1. **Become superuser.**

2. **Insert the first *Solaris 2.1 Driver Update Distribution* diskette into the diskette drive.**

3. **Determine the name of your diskette drive.**

This varies depending on whether you have enabled Volume Management on your diskette drive. In this example, `diskette_drive_name` will be used.

4. **Enter the following commands at the Bourne or Korn shell prompt:**

```
# mkdir /tmp/Drivers
# cd /tmp/Drivers
# cpio -icduBI diskette_drive_name
#                                     <----- (change diskettes as needed)
# unpack cpioimage
# cpio -icudB < cpioimage
# cp 101365-01/SUNWcsu/reloc/usr/lib/fs/nfs/inetboot.i86pc
/rplboot/inetboot.i86pc.Solaris_2.1
# cd /tmp
# rm -rf Drivers
```

You can now use the Driver Update to add drivers to old or new x86 clients of the SPARC boot server as described in the next section.



Installing Solaris Using the Driver Update Diskettes

To install Solaris for x86 on a new system, follow the instructions described in the *Solaris 2.1 System Configuration and Installation Guide for x86*, except use the diskette labeled *Solaris 2.1 for x86 Driver Update 5 Boot* instead of the *Solaris 2.1 for x86 Boot* diskette.

Installing using the *Driver Update Boot* diskette is much like installing with the *Solaris 2.1 for x86 Boot* diskette. There will be many times during the early booting process when the system will read data from the diskette but the sequence of interaction with the user remains the same. Early in the boot process there will also be warning messages for each new driver whose device is not on the system being installed. The warning messages will look like the following:

```
Warning: forceload of drv/xxx failed.
```

Such warning messages are expected and can be ignored.

Late in the install process, after all the standard packages have been installed, new driver packages will be installed from the *Driver Update Distribution* diskettes. At the start of that phase of the installation, one of the install scripts will ask you to insert the first *Driver Update Distribution* diskette into the drive. After reading the contents of each Distribution diskette, the script will ask you to insert the next one. When the new driver packages have all been added, the script will ask you to remove the last diskette from the drive. In each case, it will wait for you to perform the requested action and then to press Enter.

After this is accomplished, the system will reboot as usual. When it comes up, the new device drivers should be completely installed and functional.

Known Problems

Driver Update cannot be used on systems with IBM Token Ring 1153133

If you try to install onto a system with an IBM[®] or compatible Token Ring card using the *Driver Update* diskettes, your system will hang. Contact Customer Support at (310) 348-6070 for information on how this configuration can be supported.



`/var` **must not be on separate file system**

1149157

If you try to install onto a system using the *Driver Update Boot* diskette, and you specify a separate `/var` file system, the `installpatch` script will fail when it attempts to ascertain whether there is enough disk space.

Workaround: Don't use a separate `/var` file system.

Installing New Drivers After Solaris Is Installed

If you already have the Solaris software installed, the simplest way to add one of the new drivers to your system is to obtain the *Solaris 2.1 for x86 Driver Update Distribution* diskettes and install them as a patch on your Solaris for x86 system.

Note – Before adding new drivers, the newly supported hardware devices should be installed and configured according to the instructions under “New Device Configuration Information (SCSI Host Bus Adapters),” which starts on page 11, or “New Device Configuration Information (Network Adapters),” which starts on page 25.

▼ Adding New Drivers After Solaris Is Installed

Follow these procedures to install the new and updated drivers:

- 1. Insert the first *Driver Update Distribution* diskette into drive 0.**
- 2. Become superuser.**
- 3. Use `cpio` to copy the install script off the diskette and run it.**

```
# mkdir /tmp/Drivers
# cd /tmp/Drivers
# cpio -icduBI /dev/rfd0c
#                               <----- (change diskettes as needed)
# ./installdu.sh
```



4. **Remove the last diskette from drive 0, and follow the instructions on the screen to shut down the system.**
The instructions include how to restart the system.
5. **A second `reboot` may be required if you have installed new hardware that uses a new network driver.**

When the system comes up, the new device drivers should be completely installed and functional. However, if you are replacing a network card with a newly supported network card, there are additional steps you must take.

Replacing a Network Card

If you have replaced your network card with one that uses a new network driver (for example, `smce`, `elink`, `mtok`), you will need to rename the `/etc/hostname.olddriver0` file to `/etc/hostname.newdriver0` before rebooting the second time. For example, if you have replaced an SMC Elite16 with a 3Com EtherLink 16, you would need to run the following command:

```
mv /etc/hostname.smc0 /etc/hostname.elink0
```

Note – If you are installing a network card for the first time, there are additional files that need to be updated manually. The instructions for adding a network card after Solaris is installed can be obtained by calling Customer Support at (310) 348-607 or sending e-mail to `support@cypress.West.Sun.COM`.

Known Problems

Driver Update cannot be used on systems with IBM Token Ring 1153133

If you try to install the Driver Update onto a system with an IBM-compatible Token Ring card, your system will hang. The Driver Update is currently not supported on systems with IBM-compatible Token Ring cards installed. If your system is configured this way and you want to install the Driver Update, contact Customer Support at (310) 348-6070 for information on how this configuration can be supported.



New Device Configuration Information (SCSI Host Bus Adapters)

The following sections describe configuration information for newly supported devices. The information in this section supplements the information in the “Pre-Installation Notes” chapter of the *Solaris 2.1 Release Notes for x86* and the “Configuring Hardware Prior to Installation” section in *Solaris 2.1 Late Breaking News for x86*.

For each newly supported device, a summary of the known problems follows the configuration information. The known problems are identified by problem ID number and include a synopsis and a workaround, if available.

Configuring Adaptec AHA-1540CF and AHA-1542CF ISA Host Bus Adapters (aha)

The aha driver, which supports the Adaptec AHA-1540 and AHA-1542 ISA host bus adapters, has been enhanced to support the 1540CF and 1542CF controllers to operate in FAST SCSI-2 mode. This allows them to be used with fast SCSI drives such as the Seagate ST 11200N.

Note – This driver fixes problem ID number 1149147 that produced the error message: `panic: aha_docmd: adapter won't go IDLE` when fast SCSI drives like the Seagate 11200N and ST3550 were used.

The same configuration information supplied for the 1540 and 1542 adapters in the *Solaris 2.1 Release Notes for x86* apply to the 1540CF and 1542CF with one addition. The 1540C, 1542C, 1540CF, and 1542CF have an option that should be disabled using the manufacturer-supplied setup utility. The option to support greater than 1 Gbyte (1024 cylinders) on the disk (Extended BIOS Translation for DOS Drives > 1 GByte) should be disabled. The rest of the configuration parameters are repeated here for convenience.

Verify that your Adaptec 1540CF or 1542CF is set to these parameters using the built-in, menu-driven program for configuring HBA options:

- IRQ Any legal value between 9-15
- DMA Channel 6
- I/O Address 0x330



Note – The DMA transfer rate for the 1540CF should be left at the default unless your motherboard supports higher rates.

Use of the built-in configuration program and DIP switch assignments are documented in the installation guide that comes with the Adaptec 154xC board.

Note – Be sure to use *all* default configuration parameters in both basic and advanced modes for the 1540C and 1542C; the only exception is to disable Synchronous Negotiation for CD-ROM drives. For the 1540C, 1542C, 1540CF, and 1542CF, support for more than 1 Gbyte (1024 cylinders) on the disk should be disabled.

Configuring Adaptec AIC-7770/AHA-274x EISA Host Bus Adapters (esa)

The `esa` driver supports the Adaptec AHA-2740 and AHA-2742 host bus adapters, and motherboards that integrate the Adaptec AIC-7770 chip such as the Intel Express.

▼ Installing the Controller Board

- 1. Ensure that the SCSI bus is properly terminated.**
- 2. For systems with two channels, whether on the motherboard or on the EISA 274x controller, make sure the boot device is on the first channel (A), and is target 0.**
The hard disk drive that will be used to boot Solaris should be connected to channel A.

▼ EISA Configuration

- 1. Run the EISA configuration utility supplied by the vendor, and load the configuration file for the Adaptec controller.**
- 2. Choose any valid IRQ that does not conflict with other devices in the system.**
- 3. Select channel A as the primary drive.**



Known Problems

Using an IRQ of 14 or 15 causes errors

1160261

When a BusLogic HBA is configured to IRQ 14 or 15, the following error messages are displayed:

```
WARNING: /mc/blogic@334,0/cmdk@0,0 (Disk0)
         transport completed with timeout
WARNING: /mc/blogic@334,0/cmdk@0,0 (Disk0)
         SCSI transport failed: reason 'timeout': retrying command
```

These messages are repeated. Unless the system is reset, a system panic occurs.

Workaround: Do not use IRQ 14 or 15 for the BusLogic HBA.

▼ Changing Drivers for the BusLogic SCSI HBA

Follow these instructions if you have a BusLogic SCSI HBA installed on a Solaris system and now want to use the native mode `blogic` driver instead of the Adaptec (`aha`) driver.

1. Follow the instructions for adding the new drivers from the Driver Update Distribution diskette(s).

Do not reboot.

2. Edit the `/etc/bootrc` file.

Change the line that begins `'setprop boot-path'` so that the string `aha@330,0` is changed to `blogic@334,0`. For example, if you have an EISA system, change the line:

```
setprop boot-path /eisa/aha@330,0/cmdk@0,0:a
to:
```

```
setprop boot-path /eisa/blogic@334,0/cmdk@0,0:a
```

3. Edit `/etc/path_to_inst`

Remove all entries with `aha@330`.

4. Run: Touch `/reconfigure`

This probably isn't required if procedures were followed correctly; this would have been done automatically when the new drivers were added, but it's repeated here for insurance.



5. **Shut down the system and turn off the power.**
6. **Change the I/O Address on the BusLogic board from 330 to 334.**
The board will automatically use the `aha` driver if the address is 330 and the `blogic` driver if the address is 334. No other I/O Addresses are valid.
7. **Reboot the system.**
8. **Remove the directories `/dev/rdisk` and `/dev/dsk`.**
9. **Recreate the directories by typing: `disks`**
Verify that the `/dev/rdisk` and `/dev/dsk` directories exist again.

Note – If the system does not fully reboot in step 7, and you get a `#` prompt instead of a `login` prompt, continue with steps 8 and 9 before completing whatever actions the system has requested. For example, if the system requests that you run the `fsck` program on some file systems and then press `Ctrl-D` to continue system startup, do so only after steps 8 and 9 are completed.

Configuring the Dell SCSI Array Controller to Install Solaris (dsa)

These instructions assume you have a Dell SCSI Array controller that will be used during the installation of Solaris as the primary controller. If you already have Solaris installed and the Dell SCSI Array controller is being added as a secondary controller, follow the instructions under “Configuring the Dell SCSI Array Controller as a Secondary Controller (dsa)” on page 18.

▼ Installing the Controller Board

1. **Ensure that the controller is properly installed in any slot between 1 and 8.**
2. **Do not use targets 0 or 7 for any SCSI device.**
3. **Install your CD-ROM as target 6 on channel 0 of the DSA controller.**
Additionally, if you have two DSA controllers, the CD-ROM must be attached to the one in the lower numbered EISA slot.



- 4. The disk drive(s) which will make up your bootable composite drive must be on channel 0 of the DSA controller.**
Additionally, if you have two DSA controllers, the boot disk(s) must be attached to the one in the lower numbered EISA slot.
- 5. Ensure that each SCSI bus is terminated at the physical ends of the bus.**

▼ EISA Configuration

- 1. Run your computer's EISA configuration utility so that the system will recognize the Dell controller(s).**
- 2. Enable the Dell DSA 16-bit ROM BIOS.**
On some systems this may be called the Option ROM Address. If you have two DSA controllers, make sure this is enabled on both.
- 3. Make sure that the Enhanced Mode Address is 16-bit enabled.**
If you have two DSA controllers, make sure this is enabled on both.
- 4. Enable Adaptec 1540 emulation on the DSA controller in the lowered numbered EISA slot only, the one with the CD-ROM attached.**

Note – During the EISA Configuration, if you need to manually edit the BIOS Base Address and you have two DSA controllers, make sure the controller in the lower numbered EISA slot has an address that is lower than the second one. This forces the BIOS to spin up the disks on the secondary controller so that they are accessible after a cold boot.

▼ Dell Disk Manager Setup

Note – If your disk did not come from Dell, you must use the Dell Disk Manager Setup to low-level format the hard disk. This should be done prior to step 1 below.

- 1. Set up one or more composite drives with the Dell DOS software array manager program.**
- 2. Make one composite drive on controller 1 “Drive 0 - Composite Drive A.”**
This will be the drive containing the bootable Solaris partition.



3. You can select any raid level supported by the controller.

Note – All disks accessible by Solaris for x86 (except the CD used during the initial installation) must be composite drives, composed of one or more physical drives.

4. Enable Adaptec 1540 emulation on the CD drive.

- a. Set targets 0-5 to OFF.
- b. Set target 6 to emulate the CD drive, SCSI ID 6.
- c. Set target 7 to emulate the controller ID.

5. Save your configuration changes.



Configuring the Dell SCSI Array Controller as a Secondary Controller (dsa)

Note – These instructions assume you already have another controller configured to be the primary (boot) controller for Solaris and you are now adding a Dell SCSI Array controller as a secondary controller. If you need to install Solaris using the Dell SCSI Array controller as the primary boot controller, follow the instructions under “Configuring the Dell SCSI Array Controller to Install Solaris (dsa)” on page 15.

▼ Installing the Controller Board

1. **Ensure that the controller is properly installed in any slot between 1 and 8.**
2. **Do not use targets 0 or 7 for any SCSI device.**
3. **Ensure that each SCSI bus is terminated at the physical ends of the bus.**

▼ EISA Configuration

1. **Run your computer’s EISA configuration utility so that the system will recognize the Dell controller.**
2. **Enable the Dell DSA 16-bit ROM BIOS.**
On some systems, this may be called the Option ROM Address.

▼ Dell Disk Manager Setup

Note – If your disk did not come from Dell, you must use the Dell Disk Manager Setup to low-level format the hard disk. This should be done prior to step 1 below.

1. **Set up one or more composite drives with the Dell DOS software array manager program.**
2. **You can select any raid level supported by the controller.**



Note – All drives accessible by Solaris for x86 must be composite drives, composed of one or more physical drives.

3. Save your configuration changes.

Known Problems

The `dsa` driver causes panic

1146857

Under some configurations, after several hours of a heavy stress test, the system may panic with the following error message:

```
panic: i86mmu_free: didn't free pptbl!
```

Install patch number 101552-01 to correct this problem. This patch is available through Customer Support by calling (310) 348-6070.

diskprep fails to configure more than six composite drives

1148908

A *composite drive* is a Dell SCSI Array term which refers to a logical disk that the controller has constructed out of one or more physical disks. With the Dell SCSI Array, you cannot create more than six composite drives or the installation program will dump core. Also, with six composite drives, the Disk Prep window will overlap other items on the screen, such as the “Continue Installation” selection.

Workaround: Do not use more than six composite disks on one controller during installation. You may add more after Solaris is installed, however.



Configuring DPT 2022 EISA Host Bus Adapters (dpt)

The Solaris 2.1 for x86 dpt driver, which supports the DPT 2012 EISA host bus adapter, also supports the DPT 2022. You must run the DPT SCSI Storage Manager Utility, DPTMGR, under MS-DOS® (DOS) and select Solaris as the operating system. This must be done prior to installing Solaris.

Note – The PROM revisions on the board should be the latest. The BIOS Prom must be at revision level 5C and the SmartROM Prom must be at revision level 2C. Earlier revisions (A or B Proms) will cause problems with Solaris. The Storage Manager Program revision should be rev 1C.

If your board has an earlier release of firmware, contact your DPT representative for a BIOS/SmartROM upgrade.

▼ Installing the Controller Board

Ensure that the controller board is properly installed in any slot between 1 and 7. Slots 8 and above are not supported in this release.

▼ EISA Configuration

See the *DPT SmartCache III User's Manual* for a description of its EISA configuration program and perform the following steps:

1. **Boot DOS from the diskette drive.**
2. **Insert the user copy diskette of the EISA configuration utility (CF.EXE) containing the !DPTxxxCFG files.**
3. **Make sure the following parameters are set as follows:**

WD1003 Boot Address	Enabled at Primary
IRQ	Any legal entry between 11-15, except 14 (the first controller should be at IRQ 15)

Note – Make sure you use Edge-triggered interrupts.



SCSI BIOS ROM Address Default

HBA SCSI ID Default 7

▼ **DPT SCSI Storage Manager Utility**

Run the DPT SCSI Storage Manager Utility, DPTMGR, under DOS and select Solaris as the operating system. See Chapter 4 of the *DPT SmartCache III User's Manual* for instructions.

Note – An error message similar to the following will be displayed while DPTMGR is running:

```
Unable to find any drivers in the DRIVERS Directory.....
```

This message can be ignored. The driver will be installed when the Solaris 2.1 Driver Update software is installed.

Known Problems

The system may hang when rebooting **1152948**

A system with a DPT 2021 or 2022 HBA installed may hang when the command "uadmin 2 x" is run. uadmin is called by both the `reboot` and `halt` commands.

Workaround: If your system hangs, press RESET to reboot the system.

Driver reports presence of DPT 2012 controller when 2022 installed

During installation, the real-mode boot code reports the presence of a DPT 2012 controller even when a 2022 is installed.



Configuring DPT 2021 ISA Host Bus Adapters (dpt)

The Solaris 2.1 for x86 dpt driver which supports the DPT 2011 ISA host bus adapter, also supports the DPT 2021. You must run the DPT SCSI Storage Manager Utility, DPTMGR, under DOS and select Solaris as the operating system. This must be done prior to installing Solaris.

The following DPT 2021 ISA jumper settings should be set as follows:

IRQ	Any legal entry between 12-15, except 14 (the first controller should be at IRQ 15)
I/O Address	0x1F0 or 0x170

All other jumpers should be set to their defaults as described in Appendix D of the *DPT SmartCache III User's Manual*.

▼ Installing the Controller Board

Ensure that the controller board is properly installed in any slot between 1 and 7. Slots 8 and above are not supported in this release.

▼ DPT SCSI Storage Manager Utility

Run the DPT SCSI Storage Manager Utility, DPTMGR, under DOS and select Solaris as the Operating System. See Chapter 4 of the *DPT SmartCache III User's Manual* for instructions.

Note – An error message similar to the following will be displayed while DPTMGR is running:

```
Unable to find any drivers in the DRIVERS Directory.....
```

This message can be ignored. The driver will be installed when the Solaris 2.1 Driver Update software is installed.



Known Problems

The system may hang when rebooting

1152948

A system with a DPT 2021 or 2022 HBA installed may hang when the command “`uadmin 2 x`” is run. `uadmin` is called by both the `reboot` and `halt` commands.

Workaround: If your system hangs, press RESET to reboot the system.

Driver reports presence of DPT 2011 controller when 2021 installed

During installation, the real-mode boot code reports the presence of a DPT 2011 controller even when a 2021 is installed.

Configuring the Trantor T348 Mini-SCSI-Plus Parallel HBA (trantor)

The Trantor T348 Parallel SCSI HBA is easy to install—it has no switches, no software-settable options, and does not require any manual configuration. However, the MiniSCSI Plus adapter may require special cabling to obtain electrical power and to connect to certain devices.

Note – The Trantor MiniSCSI Plus host adapter obtains its electrical power from the TERMPWR signal on the SCSI cable. The adapter will not receive power and will not work unless the first (or only) device connected to it supplies TERMPWR. If you have difficulty using the adapter with Solaris, see the “Troubleshooting Notes” section of the *MiniSCSI Plus User Guide* or consult your Trantor dealer.

The Trantor MiniSCSI Plus HBA ends in a male SCSI-1 connector, suitable for plugging into a SCSI-1 device. If you want to connect it to a SCSI-2 device, you will need a SCSI-1 to SCSI-2 cable (which has a male SCSI-1 connector on one end and a male SCSI-2 connector on the other end) and a SCSI-1 female-to-female adapter (to connect the male end of the T348 to the male end of the SCSI-1 to SCSI-2 cable).

▼ **Installing the Trantor T348 Adapter**

- 1. Shut down Solaris (if it is already installed) and power down the computer.**



- 2. Plug the T348 adapter into the selected (or only) parallel port.**
- 3. Attach all required SCSI devices to the T348.**
- 4. Turn on the power to all the SCSI devices.**
- 5. Turn on the power to the computer.**

Before the T348 can be used by Solaris, the T348 Solaris driver must be configured into the system. If Solaris has not yet been installed, follow the instructions under “Installing Solaris Using the Driver Update Diskettes” on page 8. If Solaris is already installed, follow the instructions under “Installing New Drivers After Solaris Is Installed” on page 9.

Warnings

- If you need to reconfigure the system later to add other devices, make sure the T348 and all its devices are plugged in and powered up; otherwise they will be removed from the configuration. If you accidentally reconfigure without the T348 plugged in, plug the T348 in and repeat the reconfiguration process.
- The T348 and attached devices must also be plugged in and powered on at boot time in order to be available during that session.
- Solaris does not support concurrent use of other parallel devices on the same port as the Trantor T348 or on the T348 pass-through port. If you want to switch between the T348 and some other parallel port device, such as a printer or Ethernet adapter, shut down Solaris and power off the computer and any SCSI devices attached to the T348. With the power turned off, disconnect the old device and connect the new one. If switching to the T348, power up any SCSI devices you intend to use. Turn on the power to the computer and do a reconfigure reboot.
- If the SCSI devices attached to the T348 fail to respond after a reconfigure reboot, and the parallel port had previously been used for a different device, it might be necessary to do a second reconfigure reboot. This situation occurs when the driver from the previous device interferes with the T348 driver’s attempt to detect the presence of the T348 device.
- The Solaris T348 driver does not support the Trantor T338 or T358.



New Device Configuration Information (Network Adapters)

Configuring 3Com EtherLink 16 (3C507) Adapters (elink)

The manual for the 3Com EtherLink 16 and 16TP card specifies that the base address of the card's shared RAM can be configured to several different addresses. Solaris does not support the configuration of the card at the following addresses listed in the EtherLink 16 manual: F0000, F4000, F8000, FC000.

The 3Com EtherLink 16 Ethernet adapter has an on-board buffer of 64K. Using the configuration utility supplied by 3Com, you can configure it to use the full 64K or a smaller amount.

Note - The adapter itself may fail if it is configured for less than 64K of memory. This failure will be noticed as soon as Solaris attempts to access the network. When this happens, use the configuration utility to configure the adapter to use the full 64K of memory (even though your system may not have a valid 64K memory range available), then configure it back to the desired memory size. This workaround usually solves the problem.

Configuring the Intel EtherExpress 16 Adapter (iee)

When using any version of the EtherExpress 16 adapter, you must use the SOFTSET configuration utility to manually configure which connector to use. This DOS program is supplied by the network card manufacturer and is contained on a diskette that comes with the board.

Note - Auto-detect is currently not supported.

Known Problems

When you use the boot floppy to select booting from the Intel EtherExpress 16 Ethernet Adapter, on rare occasions you will see the error message:

```
AdapterISR(): wait scb failed.
```

The next reboot usually recovers from this problem.



Configuring the Intel EtherExpress Flash32 (`ieef`)

Be sure to disable Flash Memory using the EISA configuration utility that comes with your Intel EtherExpress Flash32 adapter.

Known Problems

Driver does not support IRQ 3 or 5 1163340

The `ieef` driver does not support using either IRQ 3 or 5 on the Intel EtherExpress Flash32 ethernet cards.

Workaround: Do not configure the card using IRQ 3 or 5.

Network won't come up if booted without cable 1160936

If a system with an Intel EtherExpress Flash32 network card is booted without the network cable plugged in, the network will not come up, even if the cable is plugged in later.

Workaround: Make sure the cable connecting the Intel EtherExpress Flash32 to the system is connected before booting the system.

Data corruption and system hangs during stress tests 1157217

Running `snoop` on some systems using the `ieef` driver where the system includes the OPTI chip set can cause system hangs and data corruption. `snoop` induces very heavy loads on the network interface.

Workaround: If you see these symptoms, don't run `snoop`.

One Intel EtherExpress Flash32 card supported per system 1161120

A system with two Intel EtherExpress Flash32 cards will not operate reliably as a gateway. The primary network interface will fail after some period of activity.

Workaround: This release supports only one Intel EtherExpress Flash32 card per system.



Configuring the Madge Token Ring Adapter (mtok)

The Madge SMART 16/4 AT[®] Ringnode token ring adapter (ISA) has an on-board jumper for enabling or disabling the use of DMA and selecting DMA channels. DMA must be ENABLED under Solaris for proper operation.

The driver may produce error messages during booting and configuration. In those cases where error messages are expected, they will be preceded by the following message (the io location in the message will vary):

```
You may see some WARNING messages from the system. Please
ignore these as the driver is trying to find the interrupt
number of the Madge ISA card at io location Oxa20.
```

Note – To use a Madge token ring adapter as a network installation server, patch number 101079-01 must be installed on the server. This patch is available through Customer Support by calling (310) 348-6070.

Note – Network booting (that is, `netinstall` or diskless client) using the Madge token ring adapter is currently not supported. However, a system with a Madge card can be CD-installed and will come up on the net automatically on reboot following installation.

Known Problems

No realmode driver for the Madge token ring card

1144115

Solaris supports the use of the Madge token ring for normal network operations. However, at this time it may not be used by a client machine to install Solaris from a network boot/install server. Once Solaris has been installed from another network adapter or from a CD-ROM, the Madge token ring network adapter can be used.



`/dev/mtok` ***not created when two boards in system*** **1149755**

If a system with two Madge token ring cards is installed with the Driver Update, it fails to create `/dev/mtok`.

Workaround: If this occurs, you can create the link manually using the commands:

```
# cd /dev
# ln -s ../devices/pseudo/clone:mtok mtok
```

After rebooting the system, the network should then be available.

`mtok` ***cannot be used on systems with IBM Token Ring cards*** **1153133**

The Madge token ring card and driver (`mtok`) cannot be used on systems with an IBM-compatible Token Ring card installed.

Multicasts addressing not applicable to token ring technology **1144398**

When you boot a machine with a token ring card in it, you get the following message:

```
ip_rput: DL_ERROR_ACK for 29, errno 1, unix 0
ip: joining multicasts failed on mtok1 - will use link layer
broadcasts for multicast
```

This message can be ignored.

Token ring incompatibility with snoop **1146735**

When you try to run `snoop` on a token ring, you get the message:

```
"snoop: Mac type = 2 is not supported"
```

At this time you cannot run `snoop` using a token ring device.



Configuring SMC Elite and SMC Elite Ultra Adapters (smc)

An updated driver is provided to support the latest SMC Elite Ultra family of Ethernet adapters. This driver specifically supports the SMC 8216 family of ISA bus Ethernet adapters. This updated driver supersedes the existing `smc` driver and will continue to support all the previous SMC/WD 80x3 Elite family of ISA and MCA Ethernet adapters.

The same configuration information supplied for the SMC network adapters in the *Solaris 2.1 Release Notes for x86* apply to the SMC Elite and SMC Elite Ultra. They are repeated here for convenience.

Newer SMC network adapters have a jumper labeled “SOFT” and should be configured using the software setup program provided by SMC. The shared memory address must be between 0xC0000 and 0xDE000.

Older SMC boards (without a jumper labeled “SOFT”) are only supported in the following three configurations:

IRQ	I/O Address	Base Memory Address (Board RAM)
3	0x280	0xD0000
5	0x2A0	0xD4000
5	0x300	0xD4000

Refer to the SMC documentation for details on setting the jumpers for one of these configurations.

Note – The 8003 board has a limited amount of on-board memory which causes very poor NFS[®] performance. To avoid this problem, it is recommended that NFS mounts over the 8003 interface use a 4K read/write buffer size. See the `mount_nfs(1M)` manual page for more details on configuring NFS. This problem can also impact installation of Solaris over the network, causing occasional NFS warnings (which can be ignored).



Configuring SMC Elite32 EISA Ethernet Network Adapters (smce)

The SMC Elite32 is a dual channel Ethernet adapter so you get two network interfaces for each board that you install in the system. Thus both `smce0` and `smce1` are available for the first board installed, `smce2` and `smce3` are available for the second board installed, and so forth.

Installing the Adapter Board

SMC Elite32 Ethernet adapters come in two possible network connector configurations. One configuration has both the AUI and the BNC-type connectors, while the other has both the AUI and 10BaseT-type connectors. Both configurations allow channel 0 to have a choice of connectors, but channel 1 is limited to the use of the BNC or 10BaseT-type connector, *not* the AUI connector.

EISA Configuration

1. Specify the network connector for channel 0.

You can use the EISA configuration utility to select which type of connector you've chosen for channel 0.

Note – If you have connected a transceiver to the AUI connector, the board will use the AUI connection regardless of what connector has been selected in the EISA configuration.

2. Set the IRQ level if needed.

In the EISA configuration of the SMC Elite32 Ethernet board, the IRQ value is usually automatically determined by the system. It does this by finding the first available IRQ level that is known to the EISA configuration program. If the system contains ISA adapters whose IRQ settings have not been entered into the EISA configuration utility, however, the chosen IRQ level may conflict with that of an ISA adapter. This will impact system performance or render the network adapter unable to communicate on the network. You can override the automatic assignment of the IRQ level by manually editing the details and selecting an appropriate IRQ level for the Elite32 adapter.



Network Installation

Network installation must be performed through channel 0 of the first adapter. All installation questions regarding network configuration should be answered with respect to the channel 0 connection.

Known Problems

The `smce` driver hangs system when `snoop` is run

1149552

The `smce` driver hangs the system when `snoop` is run.

Workaround: Don't run `snoop` using the `smce` driver.

Configuring Xircom Pocket Ethernet Adapters (pe)

The Xircom Ethernet adapters (models PE3 and PE2) are very easy to install: they have no switches or software-setable options and do not require any manual configuration. Just make sure that the Ethernet adapter is powered up before Solaris tries to bring up its networking services.



Caution – The system should be powered down to attach the adapter, following manufacturer's instructions.

Note – Network booting is supported only for model PE3, not PE2.

The Xircom driver automatically senses whether the parallel port is uni-directional or bi-directional, and takes advantage of the faster operation that is possible with a bi-directional parallel port.

For combo (BNC and 10Base-T) adapters, the adapter will automatically sense which connector has a cable connected, and the driver will automatically be configured for that type of connection.

