

Netra™ ft 1800 Software and Firmware Installation for Pre-Update 01 Systems



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Part No. 806-4415-10
February 2000, Revision A

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Preface

Due to the differences in CPUset and Motherboard firmware levels, it has been necessary to revise the installation and hot swap procedures to take into account hardware delivered at later firmware levels.

This manual provides modified software installation and hot swap procedures for Netra ft 1800 systems running software releases prior to Update01 (January 2000). These procedures only apply to Netra ft 1800 systems installed at Patch 107369-17 level (May 1999) and Patch 108145-10 level (October 1999).

This document supersedes the following:

- *Netra ft 1800 Software Release Notes* (part no. 805-4527-13) pages 5 through 24.
- *Netra ft 1800 User's Guide* (part no. 805-4529-10), pages 12-3 through 12-6 (in respect of CPUsets) and 12-18 through 12-28.

How This Book Is Organized

Chapter 1 “Software (May 1999) Installation” describes how to install the software up to the supported level at FCS. It replaces pages 5 through 24 of *Netra ft 1800 Software Release Notes* (part no. 805-4527-13).

Chapter 2 “CPUset Replacement in Patch 108145-10 Systems” explains how to replace a CPUset and ensure the firmware revision level is correct. It replaces pages 12-3 through 12-6 (in respect of CPUsets only) of *Netra ft 1800 User's Guide* (part no. 805-4529-10).

Chapter 3 “Motherboard Replacement in Patch 107369-17 or 108145-10 Systems” contains the procedure for replacing a faulty motherboard and ensuring that the firmware is at the correct revision level. It replaces pages 12-18 through 12-28 of *Netra ft 1800 User's Guide* (part no. 805-4529-10).

Typographic Conventions

TABLE P-1 Typographic Conventions

Typeface	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
AaBbCc123	What you type, when contrasted with on-screen computer output	% su Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type <code>rm filename</code> .

Shell Prompts

TABLE P-2 Shell Prompts

Shell	Prompt
C shell	<i>machine_name%</i>
C shell superuser	<i>machine_name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#
OpenBoot PROM	ok

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Software (May 1999) Installation

Due to the differences in CPUset firmware levels, it has been necessary to revise the installation procedure in order to successfully install the software on hardware that may be delivered at a later firmware level.

This chapter describes the procedure for installing patch 107369-17 on to a newly manufactured machine irrespective of the firmware level to which the machine has been built. The procedure also applies to systems that have previously been installed with the Netra ft 1800 Update01 software release January 2000 and that are being re-installed to an earlier release of the Netra ft 1800 software..

Since installing patch 107369-17 is a prerequisite to installing patch 108145-10, the patch 108145-10 installation instructions remain unchanged.

Installation Media

The Netra ft 1800 software is supplied on two or more CD-ROMs:

- Netra ft 1800 Installation CD (Sun Part no. 704-6491-11), containing Solaris and the Netra ft 1800-specific software (refer to “To Install Patch 107369-17 (May 1999)” on page 6)
- Netra ft 1800 Supplement CD (Sun Part no. 704-6573-11), containing SunVTS, SunSAI/P and SunHSI/P
- Sun StorEdge Volume Manager (SEVM) 2.5 (Sun Part no. 704-5967-10)
- SunATM/P Installation CD (Sun Part no. 704-6442-10), containing the SunATM/P software
- Optionally, a Patch CD (Sun Part no. 704-6823-12), containing:
 - 107369-17 (Netra ft 1800 software patch)
 - 108065-03 (Netra ft 1800 Bridge patch)
 - 106955-01 (Sun SAI/P PCI patch)
 - 106922-04 (Sun HSI/P PCI patch)
 - 107845-02 (Sun ATM/P PCI patch)
 - 106929-01 (SunOS 5.6 /usr/sbin/uadmin patch)
 - 105463-07 (Sun Enterprise Network Array SUNWvxvm patch)

If this CD is not present it will be necessary to download the patches from the SunSolve web site at <http://sunsolve.sun.com>.

There are two other patches which can be downloaded from the SunSolve website:

- 107778-04 (Sun Quad FastEthernet patch)
- 107926-04 (Netra ft 1800 OSdog patch)



Caution – You must follow the installation instructions in this document. The installation procedure for the patches involves special instructions. Installing the patches incorrectly can leave your system in an unusable state.

Software Installation



Caution – Read all the instructions *before* attempting the installation procedure to ensure that you understand them and have everything required to hand.

All operations must be performed at the OBP `ok` prompt or as `root`.

Netra ft 1800 release software occupies approximately 540 Mbytes of disk space.

Installation Summary

Installation of the Netra ft 1800 software consists of the following steps:

1. Operating environment installation:
 - Solaris 2.6 Netra ft 1800 Operating Environment
 - Mandatory Netra ft 1800 patches:
 - 107369-17 (Netra ft 1800 software patch)
 - 108065-03 (Netra ft 1800 Bridge patch)
 - 106929-01 (SunOS 5.6 /usr/sbin/uadmin patch)
 - 107926-04 (Netra ft 1800 OSdog patch)
2. Hardware upgrade:
 - CPUset PROMs
 - Motherboard FPGAs
3. Sun StorEdge Volume Manager (SEVM) and patch.
 - 105463-07 (Sun Enterprise Network Array SUNWvxvm patch)

A check box is provided with each individual step so you can ensure that all the required steps have been completed successfully.

For the following steps, refer to *Netra ft 1800 Software Release Notes* (part no. 805-4527-13).

1. SunVTS installation.
2. PCI card software and patches.
 - 106955-01 (Sun SAI/P PCI patch)
 - 106922-04 (Sun HSI/P PCI patch)
 - 107845-02 (Sun ATM/P PCI patch)
 - 107778-04 (Sun Quad FastEthernet patch)

Before You Start

Required Information

You will need to establish the following information before you attempt to install the software. Space is provided below for you to record these details.

- The system's IP address (see your system administrator)

- A Volume Manager License Key (obtainable using the License Key Request Card, Sun part no. 806-0926-11, which you can find in the System box)

- The terminal type you will be using for the installation

- The required subnet mask for your site

- The name service (for example, NIS or NIS+; see your system administrator)

- The partition layout you require (refer to FIGURE 1-1 on page 9).

Slice	Size (Kbytes)
/	
swap	
overlap	
/opt	
/var	

You must ensure that the initial layout that you specify while you install the operating environment meets the following requirements:

- There must be only one swap partition, with a minimum size of 512 Mbytes and a maximum size of 1.99 Gbytes.
- There must be two unused partitions for use by Volume Manager. The disk layout screen should not show any space allocated to these partitions.
- There must be 1 Mbyte that is not assigned to any partition. That is, the disk layout screen must show 1 Mbyte of free space.
- There must be a `/var` partition with a minimum size of 500 Mbytes.
- The boot disk cannot extend beyond one physical disk. That is, the file systems required for boot must all be contained in one disk.

▼ To Install Patch 107369-17 (May 1999)

Note – It is recommended that you install Solaris on one hard disk only in order to optimize the performance of the Volume Manager.

Shut down and
power off

1. Shut down the system by typing:

```
# init 5
```

Power off the system using the Standby buttons on each CAF module.

HDDs
disengaged

2. Disengage all the hard disk drive modules except the one in the location on which you wish to install the operating environment.

Refer to the *Netra ft 1800 Hardware Installation Manual*. You do not need to remove the modules from their slots completely. This is the only way to ensure that the operating system is installed entirely on one known disk; this is a requirement for Sun StorEdge Volume Manager to function in a predictable manner.

A-CPU
disengaged

3. Disengage the A CPUset (A-CPU, the right-hand CPUset).

There is no need to remove the CPUset: it is sufficient to move the top injector switch down to the disengaged position. Leave the CPUset disengaged until you are instructed to inject it again.

System powered
on and OBP
prompt displayed

4. If the system is powered down, power on the system and wait for the OBP `ok` prompt to be displayed.

Refer to the *Netra ft 1800 Hardware Installation Manual*.

If the system boots into an existing version of the software, type:

```
# init 0
```

to go to the OBP prompt.

Prevent auto-boot
on reset

5. Type:

```
ok setenv auto-boot? false
```

to prevent the system auto-booting when a reset is issued.

OSdog disabled

6. Disable OSdog.

OSdog is not supported in the unpatched base release of the Netra ft 1800 software. The patch to support OSdog is installed later in Step 20 on page 11. You *must* disable it before you install the Netra ft 1800 software (704-6491-11).

a. Check the PROM version installed on the system by typing:

```
ok .version
```

b. If the PROM version is 21 or earlier, at the `ok` prompt type:

```
ok reset-all
ok 0 set-conf-osdog-a
ok 0 set-conf-osdog-b
ok reset-all
```

If the PROM version is 22 or later, type:

```
ok reset-all
ok 0 set-conf-osdog
ok reset-all
```



Caution – The `reset-all` commands are required to prevent unpredictable behavior during boot-up.

There will be a pause of a few seconds before the system responds after each of these commands.

c. Type:

```
ok setenv auto-boot? true
```

to re-enable auto-boot on reset.

Re-enable
auto-boot on
reset

Power on the
CD-ROM drive

7. Power on the CD-ROM drive:

If you are using the CD-ROM drive in A-RMM (at the top of the machine), type:

```
ok rmm-aa
ok power-on-module
```

If you are using the CD-ROM drive in B-RMM (at the bottom of the machine), type:

```
ok rmm-bb
ok power-on-module
```

Booted from
CD-ROM

8. Place the Netra ft 1800 Installation CD-ROM (part no. 704-6491-11) in the CD-ROM drive.

Boot from `a-cdrom` if the CD-ROM is in A-RMM (at the top of the system) or `b-cdrom` if the CD-ROM is in B-RMM (at the bottom of the system). Type:

```
ok boot a-cdrom0
```

if you inserted the CD in the CD-ROM drive on side A, or

```
ok boot b-cdrom0
```

if you inserted the CD in the CD-ROM drive on side B.

Wait for booting to complete. The Netra ft 1800 software installation program will then start.

Solaris
installation
started

9. Follow the instructions on the screen to install the Solaris operating environment (referring to the Solaris installation documentation accompanying the installation CD), but note the following:

- Refer throughout to your preparation notes in “Required Information” on page 4.
- It is recommended that you select ‘Entire Distribution + OEM Support’ when prompted for Installation Options.
- When prompted for root disk layout options, follow the instructions in Step 10 on page 9 and Step 11 on page 10.

Manual disk layout completed



10. Select Manual Layout when prompted for root disk layout options and refer to your preparation notes on page 5.

Caution – To have space to save any system dumps that may subsequently occur, select a separate `/var` partition and make sure it is several hundred megabytes in size.

- Customize Disk: c2t0d0 -

Entry:		Recommended:	MB	Minimum:	MB
Slice	Mount Point	Size (MB)			
0	/	3000			
1	swap	513			
2	overlap	8633			
3		0			
4		0			
5	/opt	2000			
6	/var	2000			
7		0			
		Capacity:	8633 MB		
		Allocated:	7513 MB		
		Rounding Error:	2 MB		
		Free:	1118 MB		

F2_OK F4_Options F5_Cancel F6_Help

FIGURE 1-1 Example Disk Layout

- The sizes given here are a suggested minimum.
- The size of the overlap partition will vary slightly, depending on the manufacturer of the disk. This value should not be altered.
- You must leave at least two free slices for Sun StorEdge Volume Manager: that is, the screen should show zero disk space allocated to these slices.
- It is recommended that the free slices are slices 3 and 4, as the Volume Manager uses these to record encapsulation information.
- Ensure that there is a minimum of 1 Mbyte of unallocated disk space: that is, the screen should show at least 1 Mbyte unused disk space.
- Ignore rounding errors and warnings concerning unused disk space.

Manual reboot selected

Boot device set

HDDs reengaged

System rebooted

Root password entered (twice)

Energy saving

11. Choose to manually reboot the system after installation is complete.

12. When installation has completed, set the default boot device.

If you have installed the operating software on A-DSK0, type:

```
# eeprom boot-device=a-dsk0 diag-device=a-dsk0
```

If you have installed the operating software on B-DSK0, type:

```
# eeprom boot-device=b-dsk0 diag-device=b-dsk0
```

13. Re-engage the HDD modules which you disengaged at the start of the installation procedure.

14. Reboot the system by typing:

```
# reboot
```

15. When requested, enter a root password.

16. At the energy-saving prompt:

System identification is completed.

```
*****
```

```
This system is configured to conserve energy.  
After 30 minutes without activity, the system state will be  
saved to disk and the system will be powered off automatically.
```

```
A system that has been suspended in this way can be restored  
back to exactly where it was by pressing the power key.  
The definition of inactivity and the timeout are user  
configurable. The dtpower(1M) man page has more information.  
*****
```

```
Do you wish to accept this default configuration, allowing  
your system to save its state then power off automatically  
when it has been idle for 30 minutes? (If this system is used  
as a server, answer n. By default autoshutdown is  
enabled.) [y,n,?] 
```

type **n** to prevent the system shutting down, then type **y** to confirm that the answer should be remembered.

Log on

- 17. Wait for the system to boot up and display the login prompt.**
When requested, log on as `root`.

Installation CD ejected

- 18. Eject the installation CD by typing:**

```
# cd /  
# eject
```

Patch CD inserted

- 19. Insert the Netra ft 1800 Patch CD (Sun Part no. 704-6823-12).**

Install the Netra ft 1800 software patch by typing:

```
# cd /cdrom/cd_patch_netra_ft1800/Patches/107369-17  
# ./installpatch .
```

Install OSdog patch

- 20. Install the Netra ft 1800 OSdog patch number 107926-04 (or the latest version, downloaded from SunSolve). This is a mandatory patch.**

Copy the patch to `/var/tmp`, then type:

```
# cd /var/tmp  
# zcat 107926-04.tar.Z | tar -xvf -  
# cd 107926-04  
# ./installpatch .
```

Spurious faults cleared

- 21. If you are reinstalling and need to clear reported faults on spurious-faulty modules, run `cmsrepairfru` on each module marked as faulty (refer to Step 17 on page 11).**

For example:

```
# ./cmsrepairfru A-PCI3  
# ./cmsrepairfru A-MBD
```

System rebooted

- 22. Reboot the machine:**

```
# reboot
```

Programmable Hardware Upgrade

Patch CD still in drive

23. Ensure the Netra ft 1800 Patch CD is still in the CD-ROM drive.

▼ To Upgrade the FPGAs

FPGA upgrade utility installed

24. Type:

```
# cd /cdrom/cd_patch_netra_ft1800/Patches/108065-03
# ./installpatch .
```

The FPGA upgrade utility will be delivered to the directory
/usr/platform/SUNW,Ultra-4FT/lib.

FPGAs upgraded for motherboard A

25. Type:

```
# cd /usr/platform/SUNW,Ultra-4FT/lib
# ./fwupdate.fpga.258-7134-08
```

You will be prompted:

```
WARNING: This firmware update can only be performed on:
```

- 1) The side which is executing this update utility.
- 2) The other side if its cpuset is powered off.
- 3) Either side if running in-sync.

```
Please enter the side of the system that you want to update A or B?
```

Type **A** to upgrade motherboard A, then type **yes** to confirm.

Keep system up

26. When asked if you want to halt the system, answer no.

FPGAs upgraded for motherboard B

27. Repeat Step 25 and Step 26 for motherboard B.

▼ To Upgrade the PROMs

To Upgrade CPUset B

Start update
program

28. Start the update program:

```
# cd /usr/platform/SUNW,Ultra-4FT/lib
# ./netra_ft_1800.flash.update-09
```

NVRAM variables
noted

29. You will be asked if you wish to continue.

Answer **yes** to continue.

30. A list of NVRAM variables will be displayed for you to note, and reset later if different from the default values.

Note these for safety, although it should not be necessary to use them.

31. You will be asked if you wish to continue.

Answer **yes** to continue.

B-CPU upgrade
completed

32. The upgrade will proceed, and the success or failure of the upgrade will be reported.

If the update fails, note any error messages and contact your Sun Microsystems representative.

Shut system
down

33. You will be asked Do you wish to halt the system now.

Answer **yes**. The system will shut down to the **ok** prompt.

Power off the
system

34. Power off the system.

Press the black Standby button on each CAF and wait for ten seconds.

A-CPU engaged
B-CPU
disengaged

35. Re-engage A-CPU, then disengage B-CPU.

Power on the
system

36. Power on the machine by pressing the green On button on each CAF, and allow the system to reboot.

When the system has rebooted, log in as root. Make a visual check that A-CPU is in use and B-CPU is powered off.

To Upgrade CPUset A

Start update program

37. Start the update program:

```
# cd /usr/platform/SUNW,Ultra-4FT/lib
# ./netra_ft_1800.flash.update-09
```

38. You will be asked if you wish to continue.

Answer **yes** to continue.

NVRAM variables noted

39. A list of NVRAM variables will be displayed for you to note, and reset later if different from the default values.

Note these for safety, although it should not be necessary to use them.

40. You will be asked if you wish to continue.

Answer **yes** to continue.

A-CPU upgrade completed

41. The upgrade will proceed, and the success or failure of the upgrade will be reported.

If the update fails, note any error messages and contact your Sun Microsystems representative.

Shut system down

42. You will be asked Do you wish to halt the system now.

Answer **yes**. The system will shut down to the ok prompt.

Enable OSdog

43. Enable the OSdog.

```
ok setenv auto-boot? false
ok reset-all
ok h# 4f set-conf-osdog
ok setenv auto-boot? true
```

The CPUset will reset and the system will return to the ok prompt.

Reboot the system

44. Type:

```
ok reset-all
```

The system will boot automatically.

Log on as root

45. Allow the system to reboot, then log in as root.

Re-engage
B-CPU

cmsconfig
started

A-CPU included

A-CPU located

A-CPU enabled

B-CPU selected

B-CPU
re-enabled

Patch CD ejected

46. Re-engage CPUset B.

47. Start cmsconfig:

```
# cd /usr/platform/SUNW,Ultra-4FT/SUNWcms/sbin  
# ./cmsconfig
```

48. Type `i` CPU to include CPUset A in the module list.

49. Enter the item number for A-CPU, then select option 2 (the Location item).

Enter the location of CPUset A as A-CPU.

50. Select the Action item, then select Enable.

Press `q` to return to the main menu.

51. Enter the item number for B-CPU, then select the Action item.

52. Select the Action item to enable B-CPU.

Wait for a few seconds, then press Return to redisplay the menu.

Repeat until the display shows that B-CPU is enabled, then press `q` twice to return to the prompt.

53. Type:

```
# cd /  
# eject
```

to eject the Netra ft 1800 Patch CD.

Volume Manager Installation

▼ To Install the Sun StorEdge Volume Manager Software and Patches

54. Start `cmsconfig`:

```
# cd /usr/platform/SUNW,Ultra-4FT/SUNWcms/sbin
# ./cmsconfig
```

HDDs
located

55. Locate the HDD modules in the list.

You can press `p` to page down to see second and subsequent pages, and `pp` to page up.

HDDs
noted

56. For each HDD module in the list:

a. Enter the number next to the module.

The attributes of the module are displayed.

b. Note the `Disk` attribute of the module.

This is a normal Solaris device name, which you can note below.

Side A	Side B
HDD0 / A-DSK0	HDD6 / B-DSK0
HDD1 / A-DSK1	HDD7 / B-DSK1
HDD2 / A-DSK2	HDD8 / B-DSK2
HDD3 / A-DSK3	HDD9 / B-DSK3
HDD4 / A-DSK4	HDD10 / B-DSK4
HDD5 / A-DSK5	HDD11 / B-DSK5

RMMs
noted

c. Press `q` to return to the list of modules.

57. For each RMM module in the list:

a. Enter the number next to the module.

The attributes of the module are displayed.

b. Note the `Funct_0` attribute of the module.

This is the device name of the CD-ROM drive. It is a normal Solaris device name.

If there is a second CD-ROM drive in the module, note the `Funct_1` attribute. This is the device name of the second CD-ROM drive. It is a normal Solaris device name.

Side	RMM
------	-----

A

B

c. Press `q` twice to exit `cmsconfig`.

You will need this information when you initialize the Volume Manager. It can be useful for other purposes, so you may wish to keep it.

Volume Manager
installed

58. Insert the SEVM 2.5 CD into the drive and type:

```
# cd /cdrom/sun_sevm_2_5_sparc/Product
# pkgadd -d .
```

When prompted, select All, answer `y` to all subsequent questions, select Heavy Install, and `/opt` for the AnswerBook home directory.

Volume Manager
CD ejected

59. Type:

```
# cd /
# eject
```

to eject the SEVM 2.5 CD.

Volume Manager patches installed

60. Insert the Netra ft 1800 Patch CD and type:

```
# cd /cdrom/cd_patch_netra_ft1800/Patches/105463-07
# ./installpatch .
# cd /cdrom/cd_patch_netra_ft1800/Patches/106929-01
# ./installpatch .
# cd /
# eject
```

Recovery process completed

61. Sun support engineers can recover a system in the very rare event of serious system failure if you create a backup copy of vfstab and instruct the system in how to deal with stale boot plexes.

Type:

```
# cp -p /etc/vfstab /etc/vfstab.prevm
# echo "mirror=yes" > /etc/default/vxassist
# mkdir -p /etc/vx/sbin
# echo '/sbin/uadmin 2 1 "stale"' > /etc/vx/sbin/vxaltstale
# chmod +x /etc/vx/sbin/vxaltstale
```

Recovery file modified

62. Now edit the /etc/rc2.d/S95vxvm-recover file and make the following changes:

a. Comment out the line

```
vxrelocd root &
```

to enable the correct recovery behavior.

b. Add a line

```
/usr/platform/SUNW,Ultra-4FT/SUNWcms/lib/vxbootcheck &
```

to start the boot disk utility and enable boot disk detection.

Note – You must repeat these modifications after system upgrades.

System rebooted

63. Reboot the system:

```
# init 6
```

Root disk
mirrored



64. Mirror the root disk as described in *Netra ft 1800 Software Release Notes* (part no. 805-4527-13) pages 25 through 35.

CPUset Replacement in Patch 108145-10 Systems

Module Injector/Ejector Mechanisms

CPUset modules have two injector/ejector levers. The mainfeature is a slide which engages and disengages the CPUset's electrical connection to the motherboard, and a lever which physically engages and disengages the CPUset. When the latch is disengaged, a red dot is exposed. This facilitates the identification of unlatched injectors.

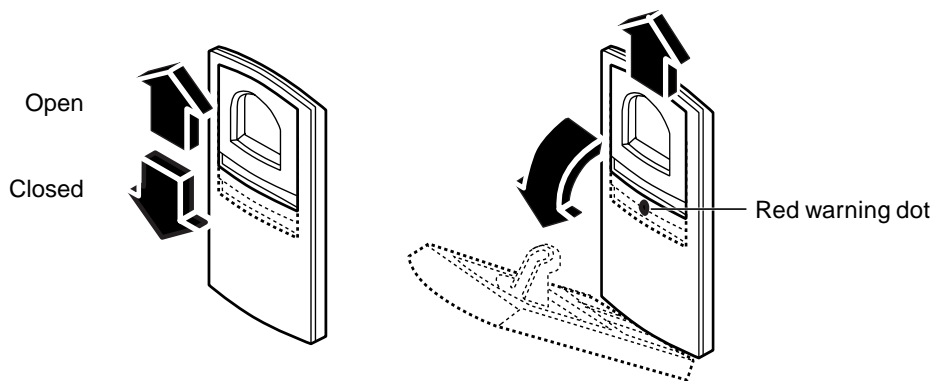


FIGURE 2-1 Module Injector/ejector Lever

The CPUset is disengaged from its electrical connection when the slide is moved towards the rounded end of the lever, exposing the red warning dot.

▼ To Remove a CPUset

Disable CPUset

1. Disable the CPUset:

a. Start `cmsfix`.

```
# cmsfix
```

The faulty CPUset appears in the list.

b. Disable the CPUset.

Use the arrow keys to select the CPUset in the list, then type `D`. When the state of the CPUset changes to `disabled`, it can be removed. If the CPUset is not disabled successfully, identify the cause (for example, an application service that is still using the it), resolve the problem, and repeat the disable command.

Disengage the injector levers

2. Move the slides in the levers on the CPUset to the disengaged position.

This will expose the red warning dots.

Raise/lower the injector levers

3. Lower the bottom lever and raise the top lever simultaneously.

The CPUset will slide out a small amount when the levers are fully raised/lowered.

Remove the CPUset

4. Slide the CPUset out of its slot, using the handle.

As you pull out the CPUset module, the handle in the top panel pops up and must be depressed again manually in order to withdraw the module fully from the chassis (see FIGURE 2-2). Once the handle is clear of the crossbar and has popped up again, it can be used to take the weight of the module.



Caution – CPUset modules are very heavy. The weight warning label on the CPUset is for guidance only. The actual weight of a CPUset depends on its configuration. Both the front and top handles must be used simultaneously once the module has been withdrawn as illustrated in FIGURE 2-2.

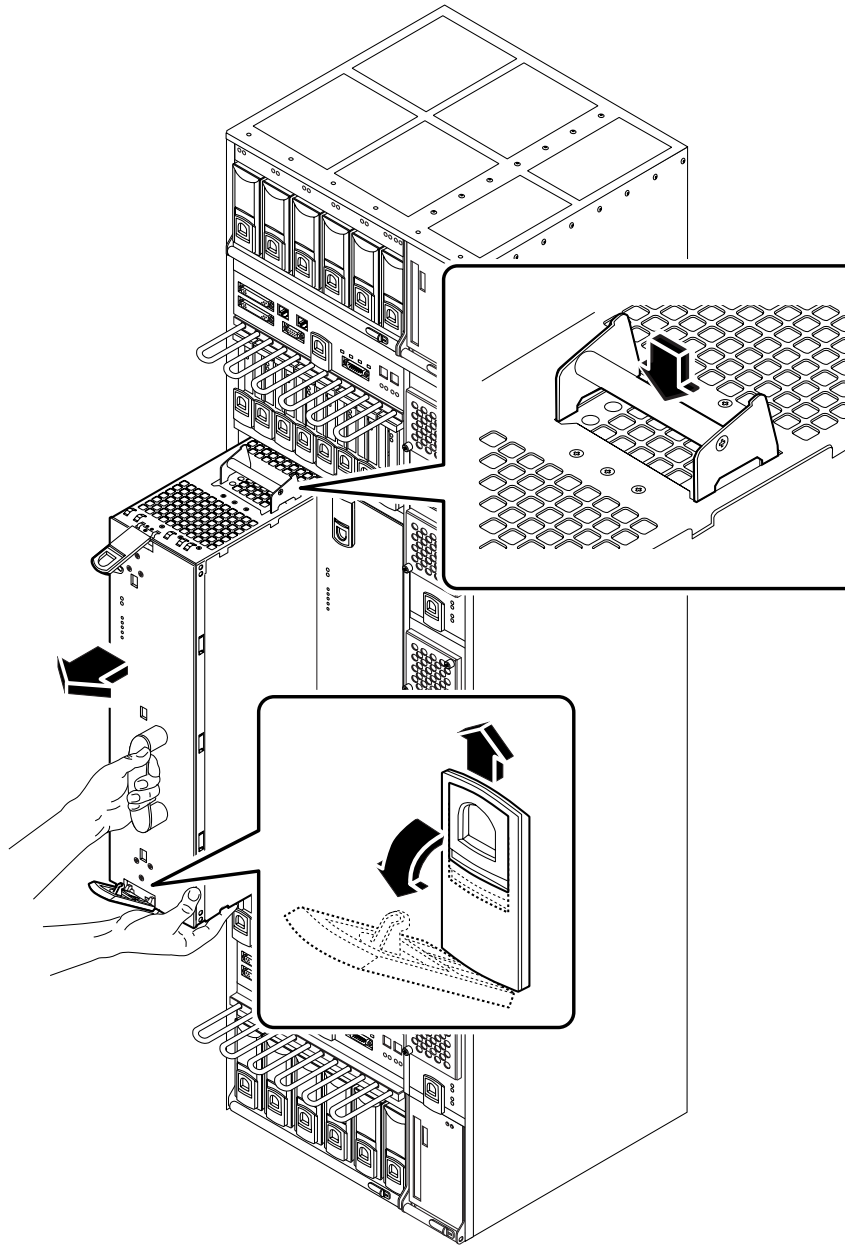


FIGURE 2-2 Removing a CPUset Module

▼ To Insert a CPUset

Insert the CPUset

Push the CPUset fully home

Engage the slides

Configure the CPUset

1. Slide the CPUset into its slot but not fully home.

On inserting the CPUset module the top handle must be depressed in order to push the module fully into the chassis.

2. When the ejector levers engage with the chassis, raise the bottom one and lower the top one simultaneously to push the CPUset fully home.

3. Move the slides in the levers into the engaged position.

4. Configure the CPUset into the system.

a. Start `cmsfix`.

```
# cmsfix
```

A list of modules is displayed, including the new CPUset.

b. Enable the CPUset.

Use the arrow keys to select the CPUset in the list and type `E`.

The state of the CPUset changes to `enabled`.

c. Wait for the CPUsets to come into sync.

▼ To Upgrade the CPUset

Disable the non-replacement CPUset

1. Use `cmsconfig` to disable the CPUset that is not the replacement CPUset.

That is, if you replaced A-CPU, disable B-CPU. If you replaced B-CPU, disable A-CPU.

```
# cmsconfig
```

a. Enter the item number for the CPUset to disable, then select the `Action` item.

b. Press `0` to disable the CPUset.

c. **Wait for a few seconds, then press Return to redisplay the menu.**

Repeat until the display shows that the CPUset is disabled, then press **q** twice to return to the prompt.

You are now running from the replacement CPUset alone.

Start the upgrade program

2. Start the upgrade program.

You should be running patch 108145-10 (FCS CD 704-6491-11 + patches 107369-17 + 108065-03 + 108181-01 + 105181-14 + 108145-10), so type:

```
# cd /usr/platform/SUNW,Ultra-4FT/lib
# ./netra_ft_1800.flash.update-10
```

Continue the upgrade program

3. You will be asked if you wish to continue.

Answer **y** to continue.

Note the NVRAM variables

4. A list of NVRAM variables will be displayed for you to note, and reset later if different from the default values.

Note these for safety, although it should not be necessary to use them.

Continue the upgrade program

5. You will be asked if you wish to continue.

Answer **yes** to continue.

Upgrade complete

6. The upgrade will proceed, and the success or failure of the upgrade will be reported.

If the update fails, note any error messages and contact your Sun Microsystems representative.

Do not halt the system

7. You will be asked Do you wish to halt the system now.

Answer **no**.

Enable the disabled CPUset

8. Enable the CPUset that was disabled in Step 1.

Wait for the CPUsets to come into sync.

Motherboard Replacement in Patch 107369-17 or 108145-10 Systems

This chapter describes the procedure for hot swapping the Netra ft 1800 motherboards. You may also wish to refer to the *Netra ft 1800 User's Guide*. The main sections of the chapter are:

- “To Remove an Existing Motherboard” on page 28
- “To Install a New Motherboard” on page 40

The upper motherboard (A-MBD) and the lower motherboard (B-MBD) are removed and replaced in almost exactly the same way.



Caution – Motherboard replacement must be carried out as a hot swap to ensure that all system identity (base Ethernet address and host id) is copied to the new motherboard module's EEPROM. Failure to do this will result in a system motherboard without a unique host id and a base Ethernet address of zero.



Caution – Only one motherboard should be replaced at a time. If it is necessary to replace both motherboards, complete the full replacement procedure for one motherboard and ensure the system is running correctly before attempting to replace the second motherboard.



Caution – The wrist strap provided must be used when replacing modules, or making cable connections to the rear of the system. The wrist strap connection point on the Netra ft 1800 system is located on the panel at the bottom rear of the chassis (see FIGURE 3-1).

Note – The securing screws for motherboard A are black. The securing screws for motherboard B are silver.

Note – All the securing screws are captive and spring-loaded, and require a No. 2 Phillips screwdriver.

Note – The special tools required (CPUset module locking and motherboard ejection tools) are housed in the clips on the outside of the mid cover.

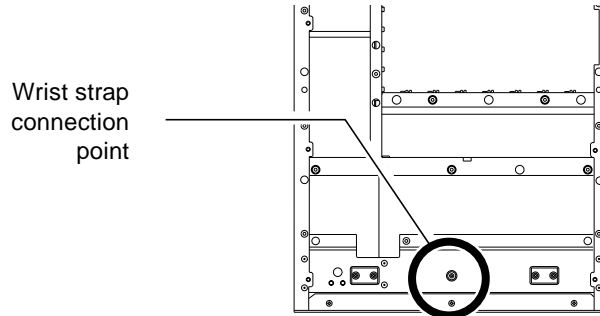


FIGURE 3-1 Wrist Strap Connection Point

▼ To Remove an Existing Motherboard

Refer to this section for details of how to disable modules connected to the motherboard due for replacement, and how to remove the motherboard from the chassis.

▼ To Disable Connected Modules

Log on as root



1. **Log on as root using the console on the side of the system that is to remain running.**

You can also `rlogin` as root, assuming the `CONSOLE` line in `/etc/default/login` is commented out.

2. Perform the following actions prior to disabling the modules:

All devices
relinquished

CD-ROMs
ejected

FPGA settings
noted

- a. Ensure that all devices on all modules connected to the faulty motherboard are relinquished by applications and comms stacks that are using them directly.
- b. Eject any CD-ROM from the RMM module using the `eject` command.
- c. Make a note of the FPGA settings for the faulty motherboard (see note below).

Use the following command to record the FPGA setting for the motherboard you are going to replace; for instance, for motherboard A:

```
# cmsfruinfo -l A-MBD -i -s EE_MBD_BRIDGE_FWARE_PARTNO EE_MBD_BRIDGE_FWARE_DASH
2587134
08
```

For motherboard B, replace A-MBD with B-MBD.

Note that `-l` after the `cmsfruinfo` command is 'minus ell', not 'minus one'.

Take all disks
offline

- d. If the system is mirrored, use SEVM to ensure that all disks associated with the faulty motherboard are taken offline. Use the following commands:

```
# vxdisk list
# vxdg -g diskgroupname -k rmdisk diskname
# vxdisk offline cCtTds2
```

An example is given in Step i through Step iv.

i. Run `cmsconfig`. At the prompt, type `v Disk` and note the disk device names associated with the motherboard you are replacing:

Item	Name	Fault Loc	State	
0	A-MBD	0	A-MBD	enabled
1	B-MBD	0	B-MBD	enabled
2	CAF	0	A-CAF	enabled
3	CAF	1	B-CAF	enabled
4	CPU	0	A-CPU	enabled
5	CPU	1	B-CPU	enabled
6	DSK	0	A-DSK	enabled
7	DSK	1	B-DSK	enabled
8	HDD	0	A-DSK0	enabled /dev/rdisk/clt0d0 (online)
9	HDD	1	A-DSK1	enabled /dev/rdisk/clt1d0 (online)
10	HDD	2	A-DSK2	enabled /dev/rdisk/clt2d0 (online)
11	HDD	6	B-DSK0	enabled /dev/rdisk/c2t0d0 (online)
12	HDD	7	B-DSK1	enabled /dev/rdisk/c2t1d0 (online)
13	HDD	8	B-DSK2	enabled /dev/rdisk/c2t2d0 (online)
14	PCI	1	A-PCI1	enabled
15	PCI	2	A-PCI2	enabled
16	PCI	3	A-PCI3	enabled
17	PCI	4	A-PCI4	enabled
18	PCI	5	A-PCI5	enabled
19	PCI	9	B-PCI1	enabled

(H)elp, (I)nclude, (E)xclude, (S)elect, (P)age, (V)iew, (Q)uit or <Number> ?

In this example, disks `clt0d0`, `clt1d0` and `clt2d0` are connected to A-MBD, and disks `c2t0d0`, `c2t1d0` and `c2t2d0` are connected to B-MBD.

To replace the side B motherboard (for example), you must first use SEVM to take offline all the disks connected to B-MBD; that is, `c2t0d0`, `c2d1t0` and `c2t2d0`.

ii. Type `vxdisk list` to list the associations between the SEVM disk group, disk names and disk device name:

```
# vxdisk list
DEVICE      TYPE      DISK      GROUP      STATUS
c1t0d0s2    sliced   roota     rootdg     online
c1t1d0s2    sliced   dataxa    datax      online
c1t2d0s2    sliced   dataya    datay      online
c2t0d0s2    sliced   rootb     rootdg     online
c2t0d0s2    sliced   dataxb    datax      online
c2t0d0s2    sliced   datayb    datay      online
```

iii. Remove the disks from the disk group using `vxchg -g`:

```
# vxchg -g rootdg -k rmdisk rootb
# vxchg -g dataxa -k rmdisk dataxb
# vxchg -g dataya -k rmdisk datayb
```

iv. Take the disks offline using `vxdisk offline`:

```
# vxdisk offline c2t0d0s2
# vxdisk offline c2t1d0s2
# vxdisk offline c2t2d0s2
```

Disable all disks

Check for faulty modules

e. Use `cmsconfig` to disable each disk that is associated with the motherboard to be replaced.

3. Check for faulty modules, then use `cmsfix` (if a faulty motherboard) or `cmsconfig` (if a motherboard check/upgrade) to check all the modules connected to the motherboard you are replacing.

Also confirm that the remaining motherboard and required connected modules are all enabled. Rectify any faults prior to continuing with motherboard replacement.

Refer to section 4.2, The `cmsconfig` Utility, of the *Netra ft 1800 User's Guide*.



Caution – The remaining motherboard contains configuration-specific settings within its EEPROM. These settings are written across to the new motherboard once installation is complete. The remaining motherboard must be enabled and fault-free to ensure a successful replacement of the other motherboard.

Disable modules

4. Disable the modules connected to the motherboard you are replacing. Ensure that they are disabled in the following order:

- a. PCI cards**
- b. HDD modules**
- c. DSK module**
- d. RMM module**
- e. CPUset module**
- f. CAF module**

Disable motherboard

5. Disable the motherboard using `cmsfix`.

```
# cmsfix
```

The faulty motherboard appears in the list.

a. Use the arrow keys to select the faulty motherboard and acknowledge the fault by typing A.

b. Disable the motherboard by typing D.

When the state of the motherboard changes to disabled, you can continue the procedure. Disabling the motherboard automatically disables the associated PSUs.

▼ To Remove a Motherboard from the Chassis

Unlock ejectors on disabled modules

1. Unlock the ejector slides on all disabled modules.

The red warning dots will show.

Open power breakers

2. Open the external power breakers associated with the PSUs on the motherboard to be replaced.

Unplug all disabled modules

3. Unplug all the modules that are now disabled.



Caution – You must remove completely all the HDD modules before unplugging the disk chassis. Make a note of the location of each HDD module as they must be re-inserted in the same locations.

Note – When removing modules on side A, unplug the CPUset *before* unplugging the PCI modules.

There is no need to remove the modules (apart from the HDDs) completely from their slot, or to remove blanking panels from unused slots.

The *Diag* LED on the remaining CPUset will flash slowly during this procedure.

Loosen mid cover
screws



4. Loosen the four screws that secure the mid cover.

Refer to FIGURE 3-2. Lift off the cover and place it out of the way of the work area.

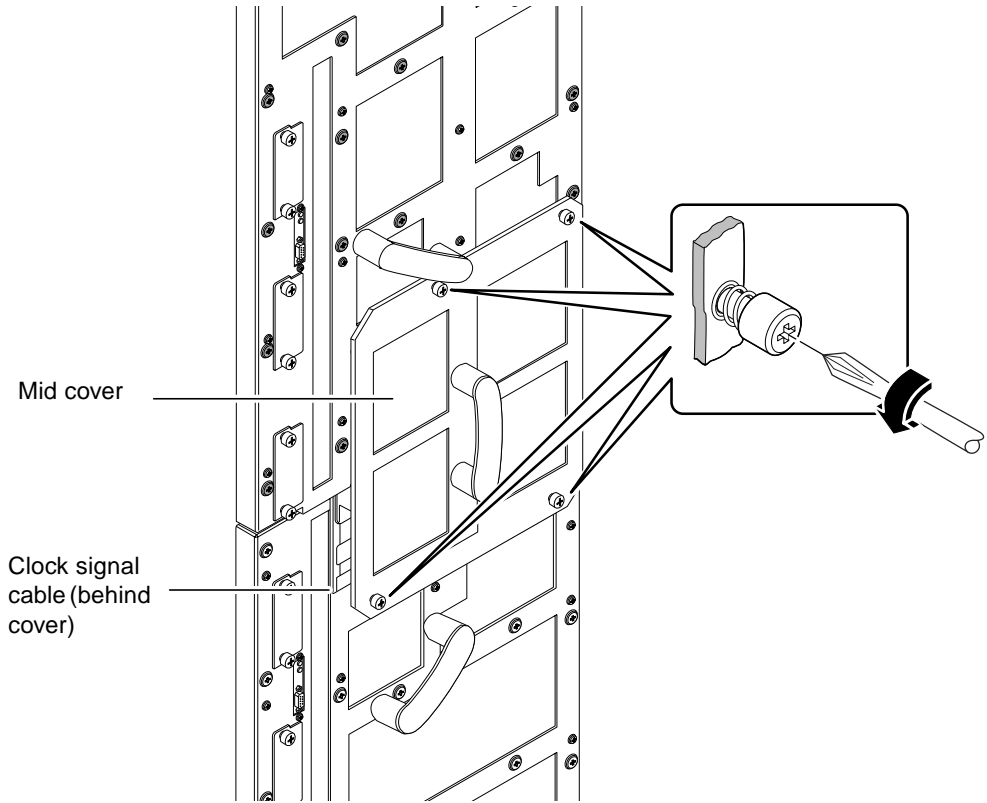



FIGURE 3-2 Location of Mid Cover Securing Screws and Clock Signal Cable (Rear of Chassis)

Disconnect clock
signal cable 

5. Gently unscrew the brass connector that secures the clock signal coaxial cable.

Refer to FIGURE 3-3.

Ensure the brass connector does not come into contact with the motherboard.

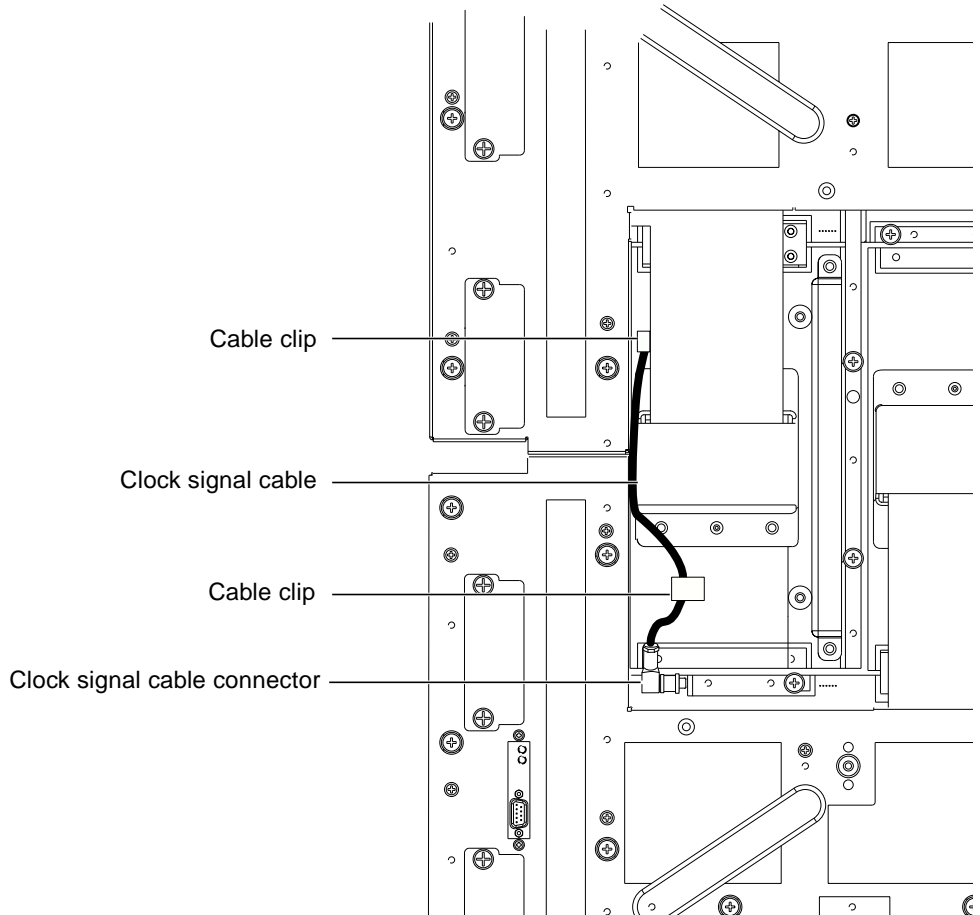



FIGURE 3-3 Clock Signal Cable Connector Location

Secure clock signal cable 

6. Secure the cable using the cable clip provided, as shown in FIGURE 3-4.

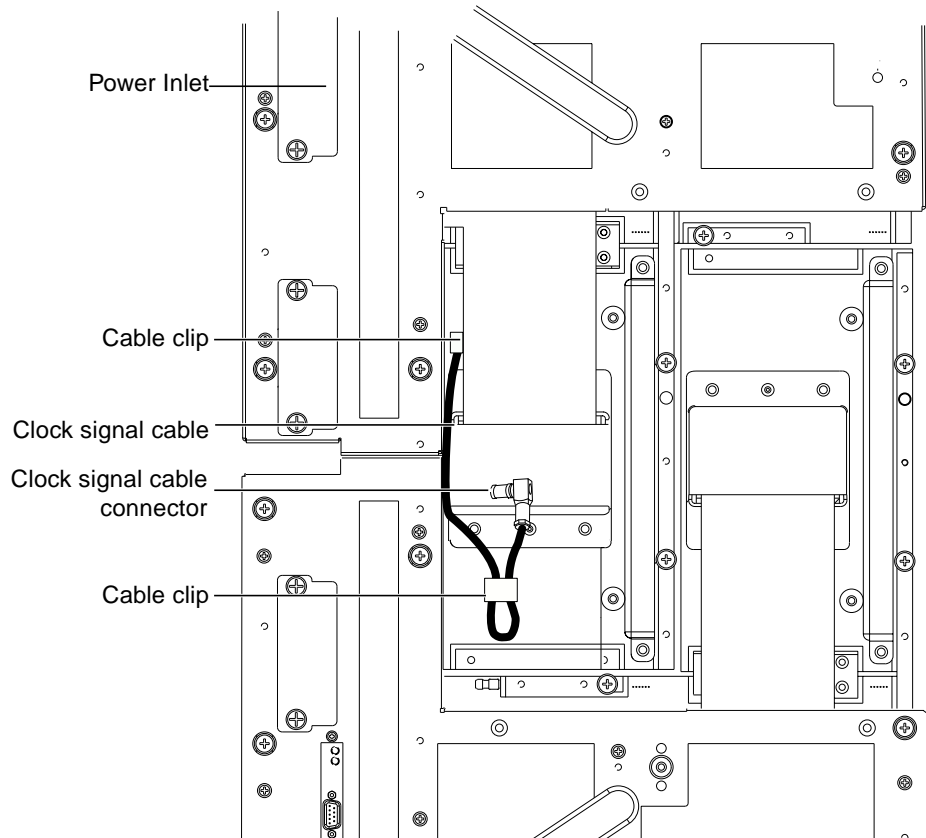



FIGURE 3-4 Securing the Clock Signal Cable



Remove power inlet connectors 

Caution – Take care to secure the connector well away from the motherboard.

7. Remove the power inlet connectors from the motherboard to be replaced.

Unscrew the two securing screws on each inlet connector, then secure the connectors and cables clear of the rear of the system.

Insert CPUset
locking tools



8. Insert two of the CPUset module locking tools into the holes provided.

Refer to FIGURE 3-6. Hand-tighten the tools to secure the remaining CPUset module to the motherboard that is to remain in the chassis.

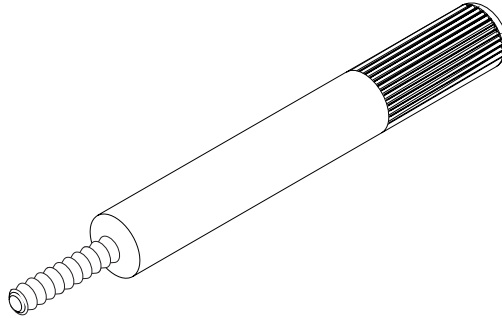


FIGURE 3-5 CPUset Module Locking and Motherboard Ejection Tool

Note – The tools have knurled handles to prevent them being overtightened.

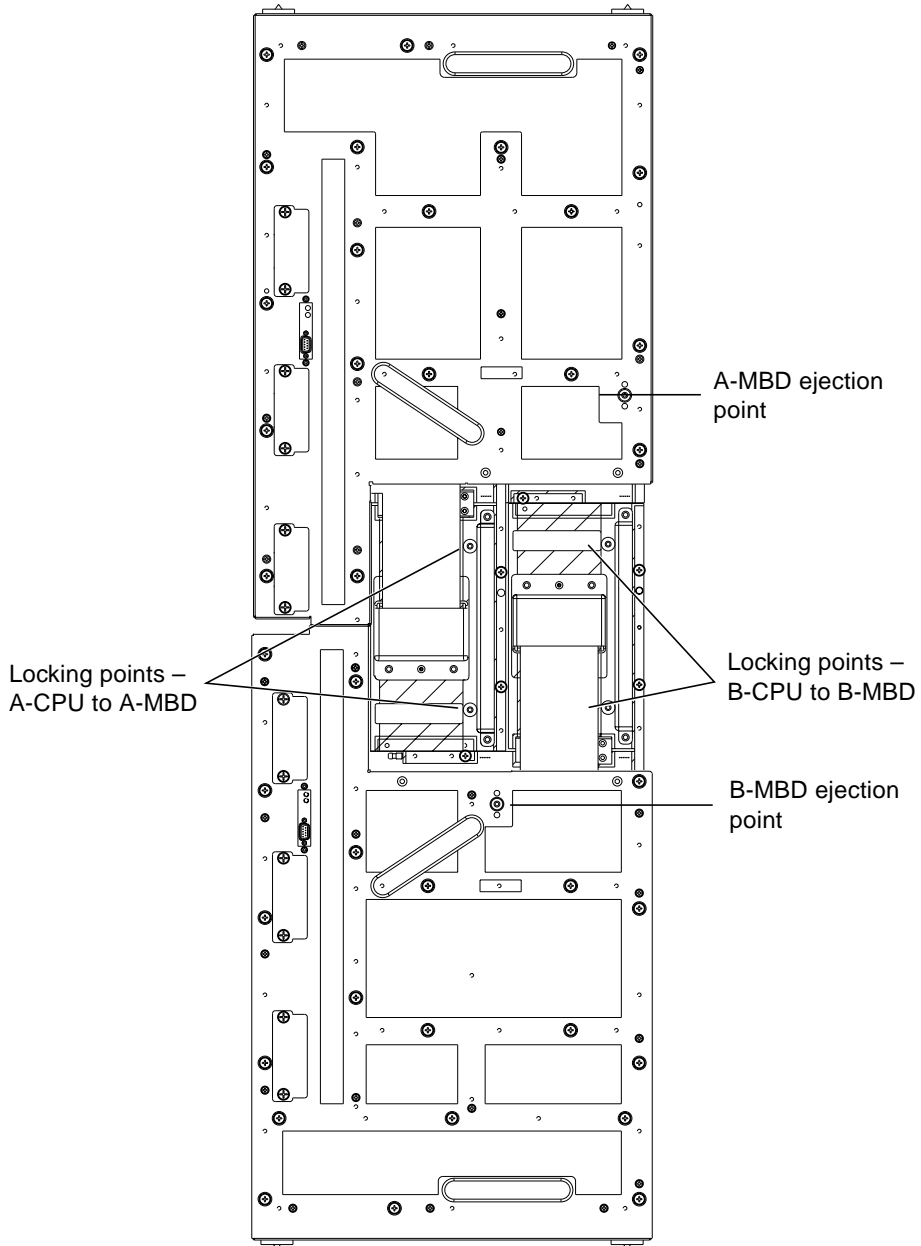


FIGURE 3-6 Location of CPUset Module Locking and Motherboard Ejection Points

Loosen
motherboard
screws

9. Loosen all 22 (A-MBD) or 23 (B-MBD) captive screws securing the motherboard to the chassis (see FIGURE 3-7).

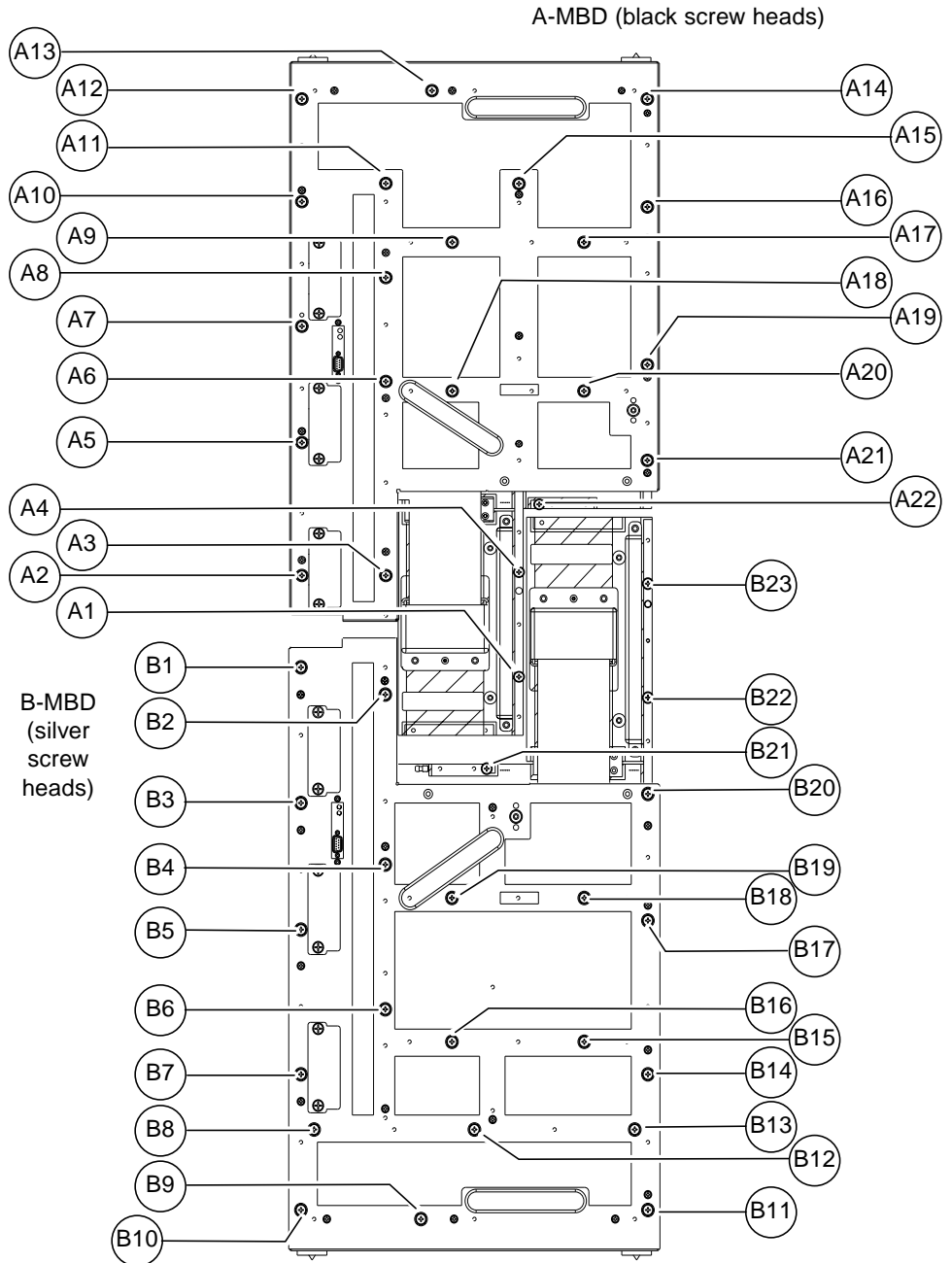



FIGURE 3-7 Motherboard Securing Screws

Note – The securing screws for motherboard A are black. The securing screws for motherboard B are silver.


Ensure all the screws are free of their threads before proceeding.

Insert motherboard ejector tool 

10. Insert the motherboard ejector tool into the appropriate ejection point.

Refer to FIGURE 3-6. Gently tighten the tool to lift the motherboard away from the working CPUset module.

Note – The tool has a knurled handle to prevent it from being overtightened.


Remove motherboard 

11. Using the handles provided, pull the motherboard gently away from the chassis and off the guide pins.

Ensure that all cables are kept clear of the motherboard prior to completing this step.



Caution – The motherboard is heavy. Refer to the weight warning label on the motherboard. Make sure that there is a clear area to which you can transfer the motherboard once it is removed from the chassis.

Remove ejector tool 

12. Remove the ejector tool and replace it in the clip on the mid cover.

▼ To Install a New Motherboard

Refer to this section for details of how to insert a motherboard in the chassis and then enable the associated modules.


▼ To Insert a Motherboard in the Chassis


1. Remove the replacement motherboard from its packaging.

Lay the new motherboard on the black side of its protective antistatic sheet until it is required. You will also need to remove the plastic sleeves from the motherboard securing screws.

2. Locate the three guide pins which position the motherboard.

Refer to FIGURE 3-8.

Remove motherboard from packaging 

Locate guide pins 

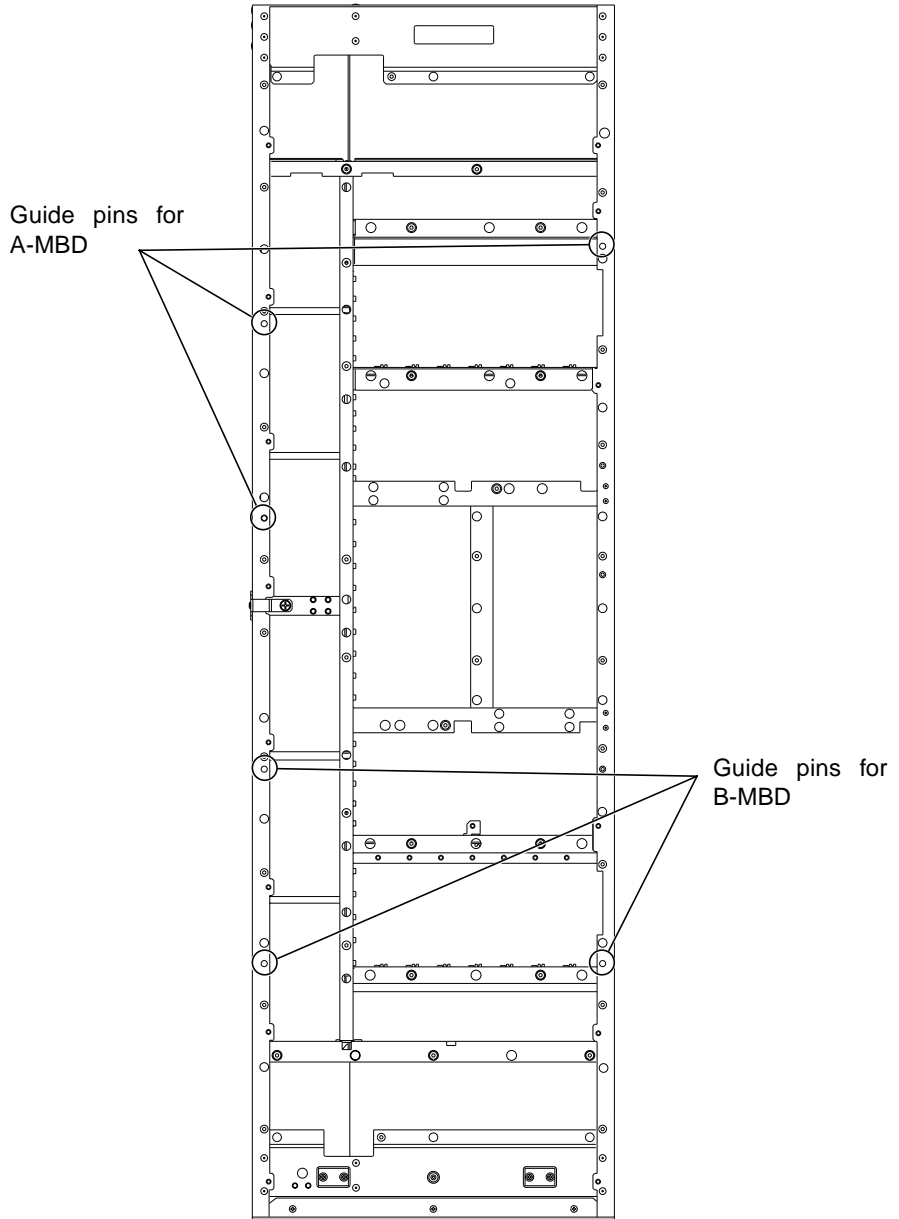


FIGURE 3-8 Location of Motherboard Guide Pins

Lift motherboard
on to guide pins

- 3. Lift the motherboard by its handles and feed it gently on to the guide pins.**

Note – Motherboard B can be supported on the two plastic blocks at the base of the chassis, at which point it is in the correct position vertically.

Ensure that the clock signal cable is not trapped and that the brass connector is secured out of the way.

Push
motherboard
home

- 4. Push the motherboard gently but firmly home.**

Tighten screws

- 5. Tighten the captive securing screws.**

Tighten one of the uppermost screws first so that the motherboard is held in position, then loosen the motherboard ejector tool and tighten the screws around the CPUset module. Do not overtighten the screws: maximum torque permitted is 5.4 Nm (4 lb/ft).

Remove ejector
tool

- 6. Remove the motherboard ejector tool.**

Connect clock
signal cable

- 7. Connect the clock signal cable, screwing the connector home finger-tight only.**

Ensure that the cable itself is routed such that it will not be trapped by the mid cover.

Remove CPUset
locking tools

- 8. Remove the two CPUset module locking tools and replace them in their clips on the mid cover.**

Fit power inlet
connectors

- 9. Insert the power inlet connectors and tighten their securing screws.**

Do not overtighten the screws: maximum torque permitted is 5.4 Nm (4 lb/ft).

Replace mid
cover

- 10. Replace the mid cover, tightening the four captive retaining screws.**

Do not overtighten the screws: maximum torque permitted is 5.4 Nm (4 lb/ft).

Insert modules
and close latches

- 11. Re-insert the modules that were previously withdrawn and close the injector latches.**



Caution – Take great care when re-inserting the CPUset module. Failure to accurately align the module may result in damage to the connection pins on the motherboard.

Close external
power breakers



12. **Close the external circuit breakers associated with the re-inserted PSUs.**

▼ To Enable a Replacement Motherboard

Enabling a replacement motherboard involves the following stages:

1. Updating the replacement motherboard with the system identity
2. Updating the replacement motherboard FPGAs
3. Enabling the connected modules

▼ To Update With the New System Identity

Once the new motherboard has been physically installed, its module EEPROM must be updated with the system identity. Use the `cmsintroduce_mbd` utility to copy the base Ethernet address and the host id to the new motherboard EEPROM. If this step is omitted, the system motherboard will have an Ethernet address of zero.

Update
motherboard
EEPROM



1. **Update the EEPROM on the new motherboard.**

If you have replaced motherboard A, type:

```
# cmsintroduce_mbd A-MBD
```

If you have replaced motherboard B, type:

```
# cmsintroduce_mbd B-MBD
```

▼ To Update the Replacement Motherboard FPGAs

If your system is running the Netra ft 1800 Update 01 software, this procedure is not necessary and you should continue from “To Enable Connected Modules” on page 44.

If your system is running patch 107369-16 (or later) or patch 108145-10 (or later), you must upgrade the motherboard FPGAs manually, as follows:

Display update utilities

1. Type:

```
# cd /usr/platform/SUNW,Ultra-4FT/lib
# ls -l fwupdate*
-rwxr-xr-x 1 root sys 435584 Jun 9 22:16 fwupdate.fpga.258-7134-07
-rwxr-xr-x 1 root sys 435865 Jul 30 16:46 fwupdate.fpga.258-7134-08
```

The system displays the filenames of the motherboard FPGA upgrade utilities, which were installed by the Netra ft 1800 software patches when the system was installed.

Run the update utility

2. Use the utility that matches the part numbers that you noted in Step c on page 29 by typing:

```
# fwupdate.fpga.258-7134-0x
```

- For 2587134-07, use fwupdate.fpga.258-7134-07
- For 2587134-08, use fwupdate.fpga.258-7134-08

Enter motherboard system side

3. The system displays:

```
Please enter the side of the system you want to update A or B?
```

Enter the side of the system that has the new motherboard.

Do not halt system

4. When you are asked if you want to halt the system, respond no.

▼ **To Enable Connected Modules**

Enable new motherboard

1. Use cmsconfig to enable the new motherboard.

Refer to section 4.2, The cmsconfig Utility, of the *Netra ft 1800 User's Guide*.

Enable modules

2. Use cmsconfig to enable the connected modules in the following order:

- a. CAF
- b. CPUset
- c. RMM
- d. DSK
- e. HDD modules
- f. PCI cards

Refer to section 4.2, The `cmsconfig` Utility, of the *Netra ft 1800 User's Guide*.

Enable disks

Bring disks online

3. Use `cmsconfig` to enable each disk that is located on the side of the motherboard that has just been replaced.
4. If the system is mirrored, use SEVM to ensure that all disks associated with the new motherboard are placed online. Use the following commands:

```
# vxdisk online cCtTdDs2
# vxdg -g diskgroupname -k adddisk diskname=cCtTdD
# vxrecover&
```

An example is given in Step a through Step c.

- a. Bring the disks online using `vxdisk online`:

```
# vxdisk online c2t0d0s2
# vxdisk online c2t1d0s2
# vxdisk online c2t2d0s2
```

- b. Add the disks to the diskgroup using `vxdg -g`:

```
# vxdg -g rootdg -k adddisk rootb=c2t0d0
# vxdg -g datax -k adddisk dataxb=c2t1d0
# vxdg -g datay -k adddisk datayb=c2t2d0
```

- c. Type:

```
# vxrecover &
```

