General Rules for System Configuration E

This appendix lists recommended priorities and locations for:

- System boards
- SuperSPARC modules
- SBus modules
- SIMMs
- Drive IDs
- SCSI cables
- Ethernet cables
- Video cables*

E.1 Selecting Installation Locations

Each component described in this appendix has a specific recommended location. The following sections describe the location for each component.

E.2 System Master Board

The system board slot numbers are marked on the card cage. Install system boards from the lowest card cage slot number (0) to the highest (9). Install filler panels in all empty slots.

The system board must be installed in card cage slot 0. If the system has an TTY console, connect it to port A of the system master. A TTY console is not normally required if the system is in auto-boot mode (see the OpenBoot Command Reference for instructions on enabling and disabling auto-boot).

E.2.1 Identifying the System Master

To determine which board is the system master, observe the LEDs on the system board rear panels during boot.

- On the system master the lower eight LEDs (yellow) cycle on and off in a repeated pattern.
- On other system boards the lower eight LEDs are lit in a solid pattern until boot completes.
- After boot ends, all LEDs (on boards with SuperSPARC® modules) will cycle.

The system master in slot 0 must meet a set of minimum hardware requirements, as described next.

E.2.2 Minimum Requirements for the System Master

The system master must have

- one or two SuperSPARC modules

  Two green LEDs, marked PA and PB, denote the presence of functional SuperSPARC modules in slots A and B when lit.

- DSBE/S or DWIS/S interface card in SBus slot 0

  The DSBE/S or DWIS/S card connects to the main network and to the root disk drive.

- FSBE/S interface card in SBus slot 3.

  The FSBE/S card connects to the SCSI tray in the top of the cabinet.

E.2.3 Selecting the System Master Board

Note – The system master board must have the highest-revision Open Boot PROM (OBP). Also, if your system has OBP patches stored in NVRAM, these must be erased before assigning a board having different revision OPB as system master. This is required because OBP patches are PROM-version specific. Use the `set-default nvramrc` command at the OPB `ok` prompt to erase patches **before** powering down the system for board reassignment.

Determine which board is the candidate to become the system master. Before installing a given board:

1. **Determine the dash-revision level of Boot PROMs installed on the board. The level is expressed by the last two digits in the part number, as in: 525-xxxx-yy where "yy" conveys the dash-revision level.**
2. **Likewise, examine other system boards installed (or to be installed) in the card cage to determine the dash-revision level of PROMs on these boards.**
3. **Identify the board to be system master:**
   If a board has a higher dash-revision level Boot PROM than the others, it must be the system master.
   If two or three have higher levels, than one from that pool of boards must be the system master.
4. **Install the candidate-board into slot 0 as system master.**

The Open Boot PROM resides below an SBus card location as shown in Figure E-1. Remove the SBus card as required to expose the OBP for examination to determine the OBP revision level.

Part Number	U Position
525-1325-xx	U1000
525-1326-xx	U1001
525-1327-xx	U1003
525-1328-xx	U1004

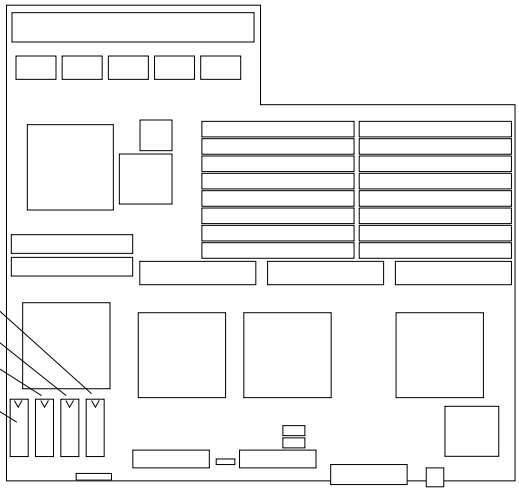


Figure E-1 System Board Open Boot PROM Location

The OpenBoot PROM on the system master is usually the OBP master. This PROM controls the boot process. If the system master is replaced at the customer site by a new system board, the OpenBoot PROM on the replacement board will lack the specific system information required for the OBP master. In a single board system, OBP will program the PROM on the board by default. However, in a multiple-board configuration, OBP will prompt you to select a system board to be programmed as the OBP master.

E.2.3.1 Additional System Master Details

If a serial-interface TTY console is used, it must be connect to serial port A on the system master.

Note – The system master board must connect to a terminal, or you will not see the OBP message. If the terminal is connected to the *wrong* board, the message will not appear. At this point the system may seem to be locked up, but OBP is only pausing, waiting for you to respond.

If a color monitor is used, a color-graphics interface card must be installed in SBus slot 1. Only one color-graphics interface is allowed in the system.

E.3 System Slave Boards

The remaining system boards are “slave boards,” because the master board exercises control during portions of boot and other system operations.

For uniformity of configuration and ease of service, install and equip slave system boards according to the guidelines below. (These guidelines are not required by system architecture, but are strongly recommended, to maintain consistency between systems and to simplify service procedures.)

1. Install slave boards in the lowest card cage slot numbers, following the system master.
2. Installing SuperSPARC modules strictly according to the guidelines presented in Section E.3.1.
3. Install SIMM devices strictly according to the guidelines presented in Section E.3.3.

E.3.1 SuperSPARC Modules

When installing or replacing a SuperSPARC module, use the following guidelines to verify that you have selected a valid location.

Warning – The heatsinks on the SuperSPARC module may be hot. Use caution when removing or installing SuperSPARC modules and avoid contact with the heatsinks. Hold SuperSPARC modules only by the edges.

Each system board has two SuperSPARC module connectors, designated A and B (location A is closest to the backplane connector). See Figure E-2. Modules mount above the system board on standoffs. Modules should first be installed

in the A connectors on consecutive system boards starting with the system board in slot 0. After all of the A connectors are filled, begin filling the B connectors, starting with the system board in slot 0 and working down.

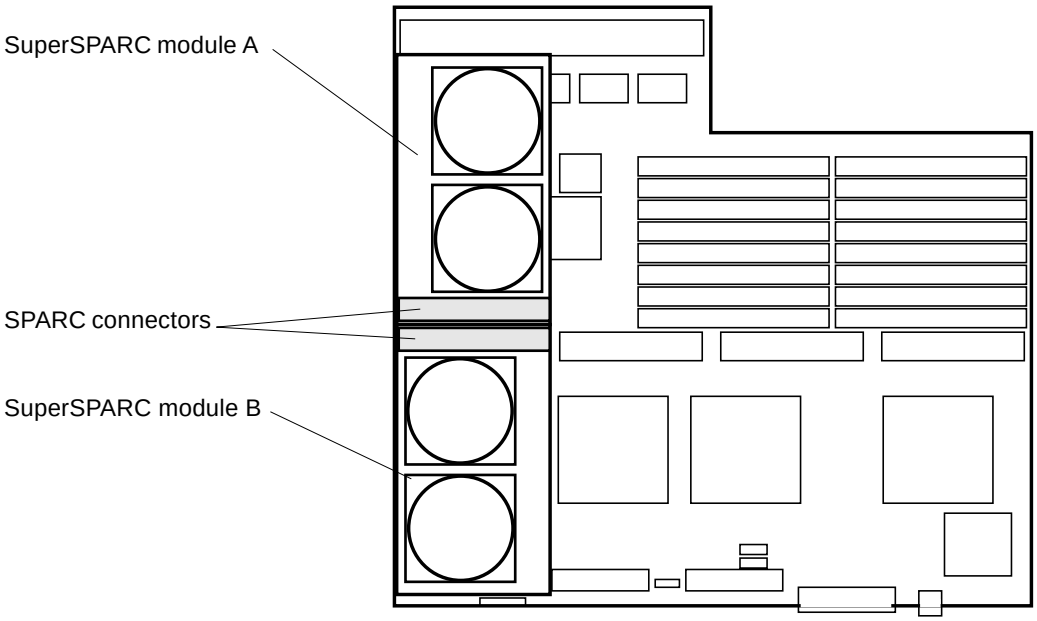


Figure E-2 SuperSPARC module Locations

The example in Table E-1 shows how to distribute four SuperSPARC modules on three system boards.

Table E-1 Example of Connector and Slot Priorities

	System Board Slot 0	System Board Slot 1	System Board lot 2
Connector A	Full	Full	Full
Connector B	Full	–	–

E.3.2 SBus Cards

Each system board has three SBus slots. Each SBus card mounts on standoffs above the system board. See Figure E-3.

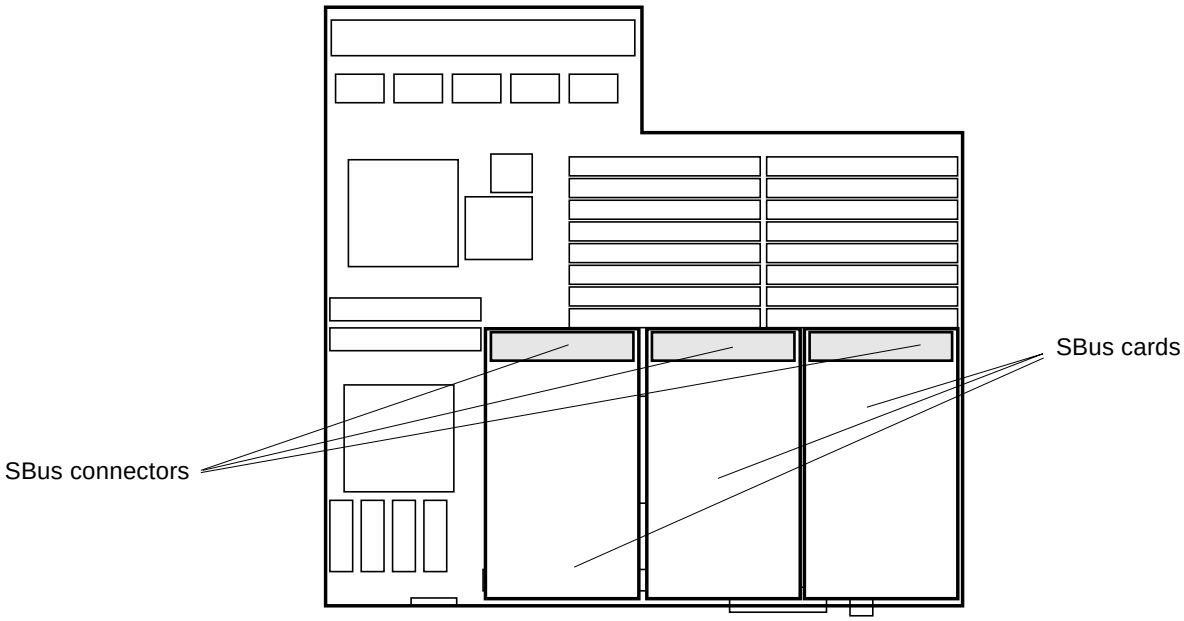


Figure E-3 SBus Card Locations

The system board in slot 0 must have the minimum required configuration. The on-board SCSI port on the system board in slot 0 must be terminated. All SBus slots are available. Each type of SBus card should be distributed evenly among available system boards.

If video is required, install the CGSIX SBus card in slot 1 (first available) on the system board installed in slot 0.

The example in Table E-2 shows how to distribute five FSBE/S cards and two SPIFFs on three system boards.

Table E-2 Example of SBus Card Distribution

System Board Location	SBus Cards Installed
Slot 0	2 FSBE/S and 1 SPIFF
Slot 1	2 FSBE/S and 1 SPIFF
Slot 2	1 FSBE/S

E.3.3 SIMMs

The SPARCserver 1000 system has three SIMM options. Two types of DRAM, high-density and low-density, are available as well as nonvolatile NVSIMM.

The 8 Mbyte (low-density) SIMMs use 1Mbit by 4bit DRAMs. Two vendors are used, so a slight variation exists in physical appearance between the two products. See Figure E-4.

The 32 Mbyte (high-density) SIMMs use 4 Mbit by 4 bit DRAMs. Each vendor uses the same printed circuit card for both the 8- and 32 Mbyte SIMMs, so no major difference in appearance exist between a given vendor's high- and low-density SIMMs.

The 1 Mbyte NVSIMM uses 128 Kbit by 8 bit SRAM. See Figure E-4.

SIMM — Vendor 1

Capacity	Type	P/N
8 Mbyte	DRAM	501-1817
32 Mbyte	DRAM	501-2196

SIMM — Vendor 2

Capacity	Type	P/N
8 Mbyte	DRAM	501-1817
32 Mbyte	DRAM	501-2196

NVSIMM

Capacity	Type	P/N
1Mbyte	NVSIMM	501-2197

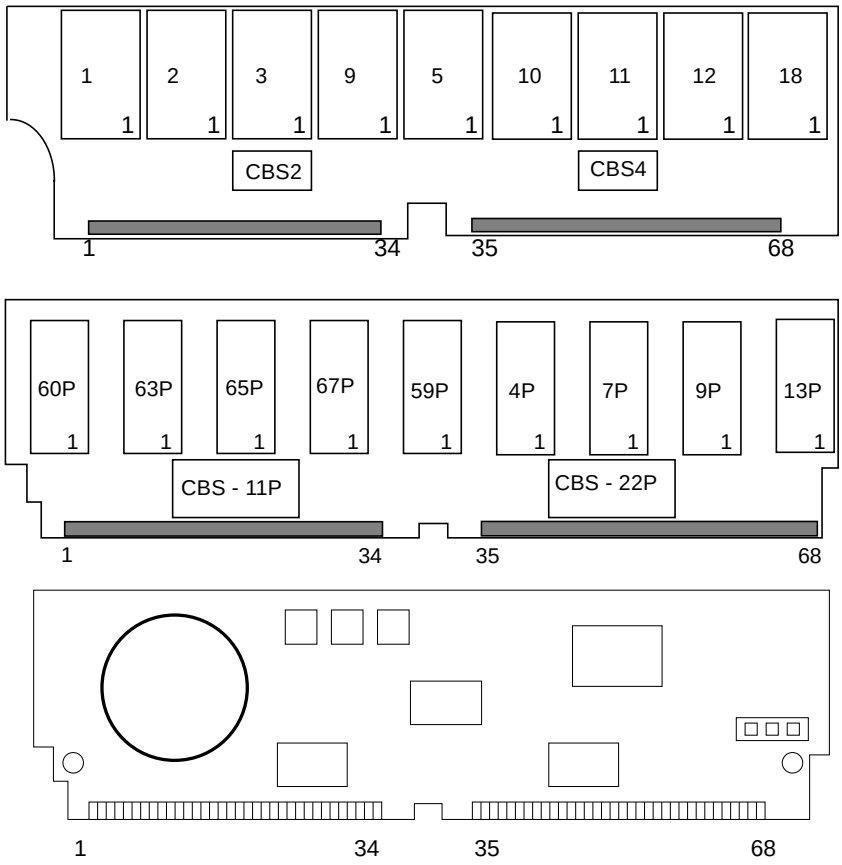


Figure E-4 SIMMs and NVSIMM

The system board has 16 SIMM sockets physically divided into two rows of eight. The SIMMs are also logically divided into four groups of four, known as group 0, 1, 2, and 3. Figure E-5 shows SIMM locations and identifies groups.

A system board can be installed with zero memory or from one to four groups filled. For example, 0 SIMMs, 4 SIMMs, 8 SIMMs, 12 SIMMs or 16 SIMMs.

When installing memory, first install all group 0 SIMMs on all system boards, from the lowest board slot number to the highest. Then, install group 1 SIMMs in the same order, followed by groups 2 and 3 for the remaining SIMMs.

The 8 Mbyte SIMMs of either vendor can be mixed in a group. Similarly, both vendor's 32 Mbyte SIMMs can be mixed in a group. However, a SIMM group can contain only one type of SIMM (all 8 Mbyte; all 32 Mbyte; or all NVSIMM). Additionally, 8- and 32 Mbyte SIMMs can be used on the same board, provided they do not reside within the same group.

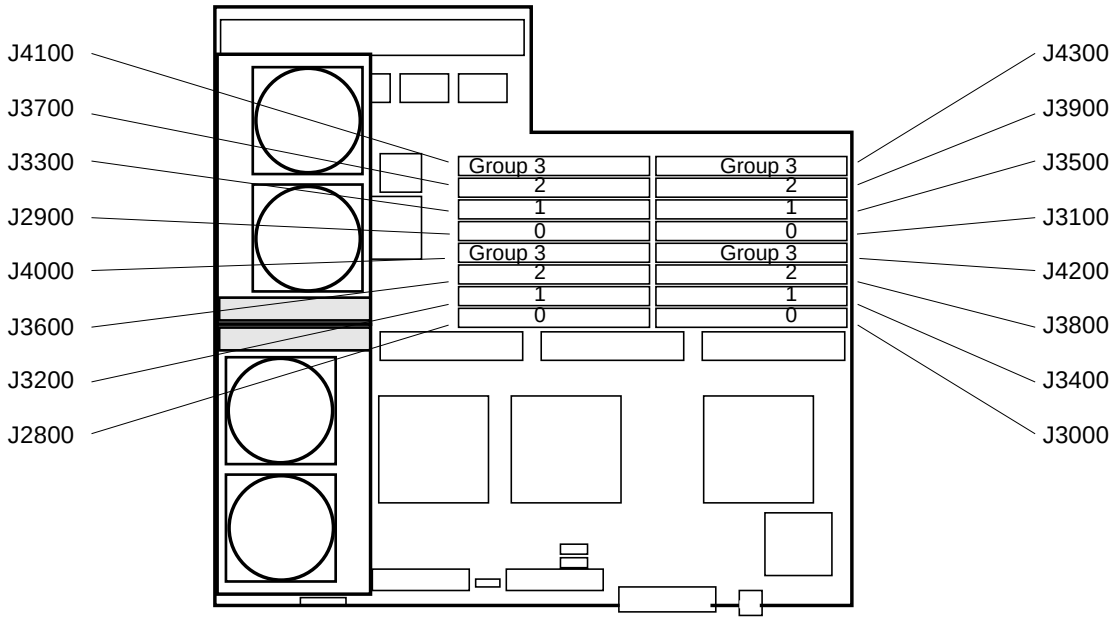


Figure E-5 System Board SIMM Locations

E.3.3.1 NVSIMMs

Before installing NVSIMMs, first activate the battery to insure data retention.

To activate the battery:

1. **Locate the jumper on the right side of the NVSIMM.**
   See Figure E-6.
2. **Move the jumper to the battery on position.**

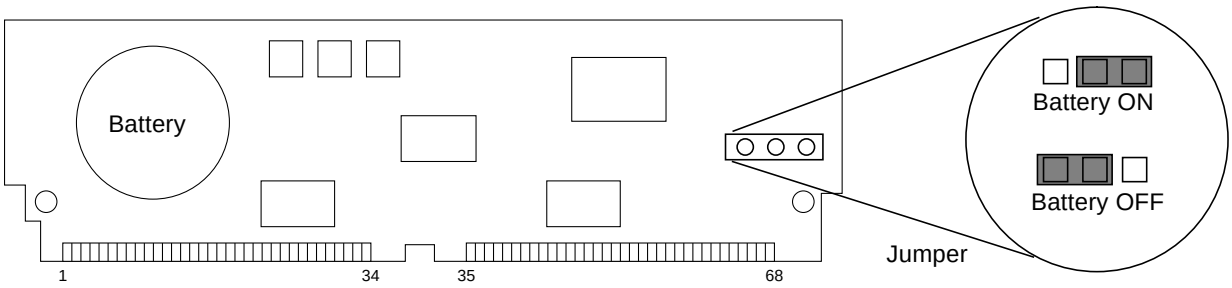


Figure E-6 NVSIMM Jumper Locations

Caution – Once you turn the battery on do not remove or reposition the jumper. To do so will cause data stored in the NVSIMM memory to be lost.

E.4 Selecting Drive ID Numbers in the SCSI Tray

The SCSI tray is mounted in the front of the server and accommodates six devices and the device controller. The controller connects to the system board via the backplane. The CD-ROM drive device, mounted in the lower left location in the SCSI tray, has device ID 6. The tape drive, if installed, mounts just above the CD-ROM drive and has device ID 5. Your system can have two or four disk drives mounted on the SCSI tray right side, behind a metal faceplate. Device IDs for these devices are 0, 1, 2, and 3. See Figure E-7. The example found in the table in Figure E-7 shows how to address six drives in the SCSI tray.

Before installing a new storage device, set the device address to agree with the addresses shown in Figure E-7. On most devices, the address is set using switches on the device rear. Figure E-7 through Figure E-12 show switch settings for all devices that can be installed in the SCSI tray.

Example of ID Numbering in the SCSI Tray

Device	ID
SunCD	6
tape drive	5
Disk drive	0
Disk drive	1
Disk drive	2
Disk drive	3

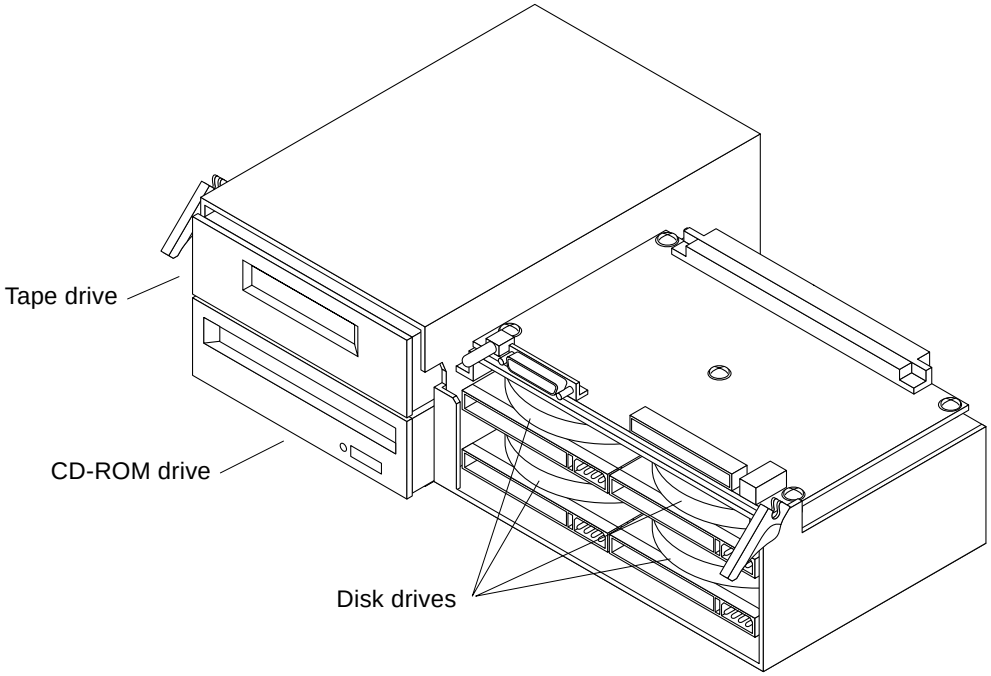


Figure E-7 SCSI Tray Assembly

Note – The CD-ROM drive is factory configured to ID 6 - the correct address. Do not change this address as no other address is allowed. See Figure E-7.

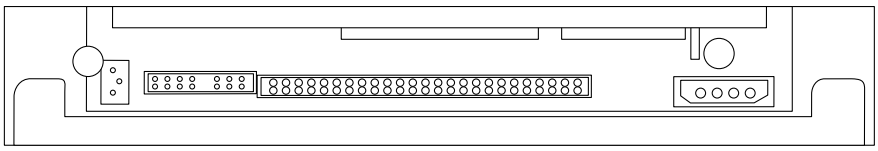
Note – Besides the address jumpers, ensure the other jumpers are correct. Follow steps 1 and 2 below.

1. **On the drive rear panel, locate the** PARITY **and** ID SELECT **and/or** TERM POWER **pins. See Figure E-7.**

2. **Verify the jumpers are correct for SunCD Plus or SunCD 2Plus as appropriate:**

   a. **SunCD Plus:**
   Jumpers must be installed on the PARITY and PREVENT/ALLOW pins. Refer to Figure E-7. Ensure jumpers are installed on pins 2 and 1 to select address 6.

   b. **SunCD 2Plus and SunCD Plus4:**
   Ensure jumpers are installed on pins 2 and 1 to select address 6, and on TERM POWER. No other jumpers may be installed. Refer to Figure E-7.



SunCD Plus

SunCD Plus4

Figure E-8 CD-ROM Drive Device Addressing

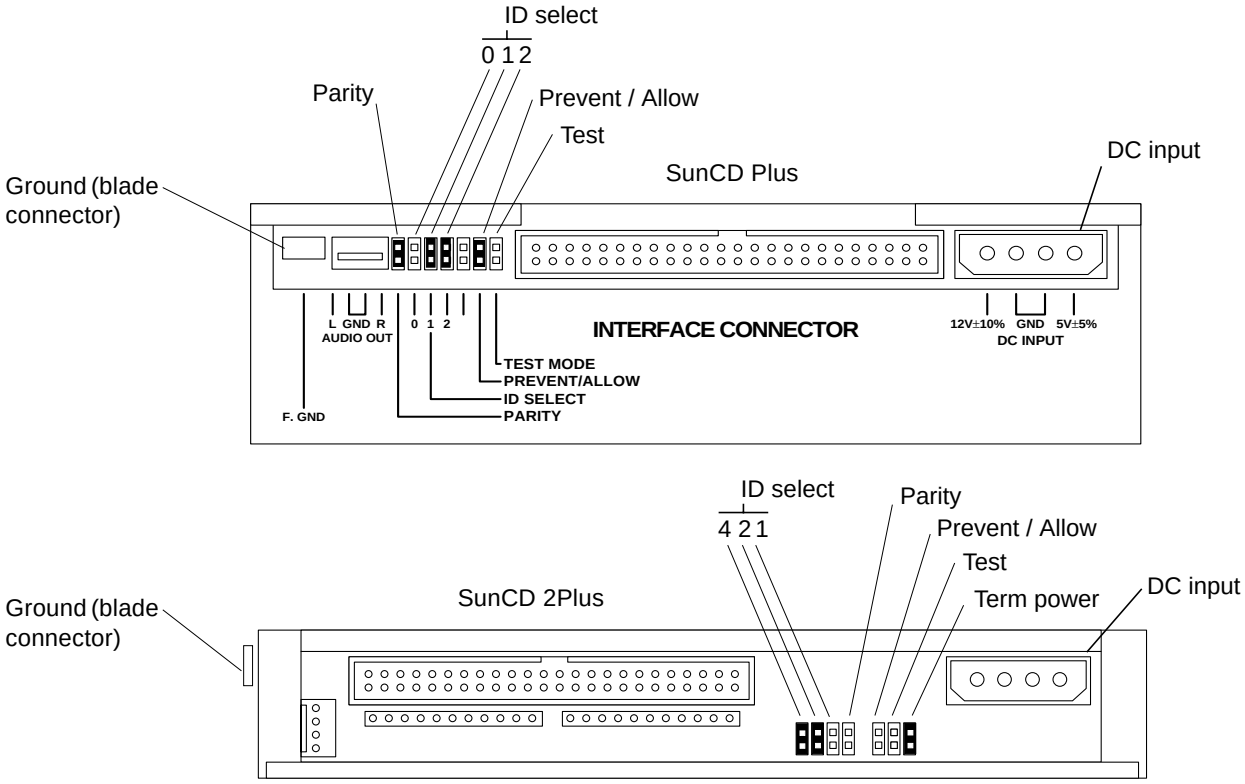


Figure E-9 CD-ROM Drive Device Addressing

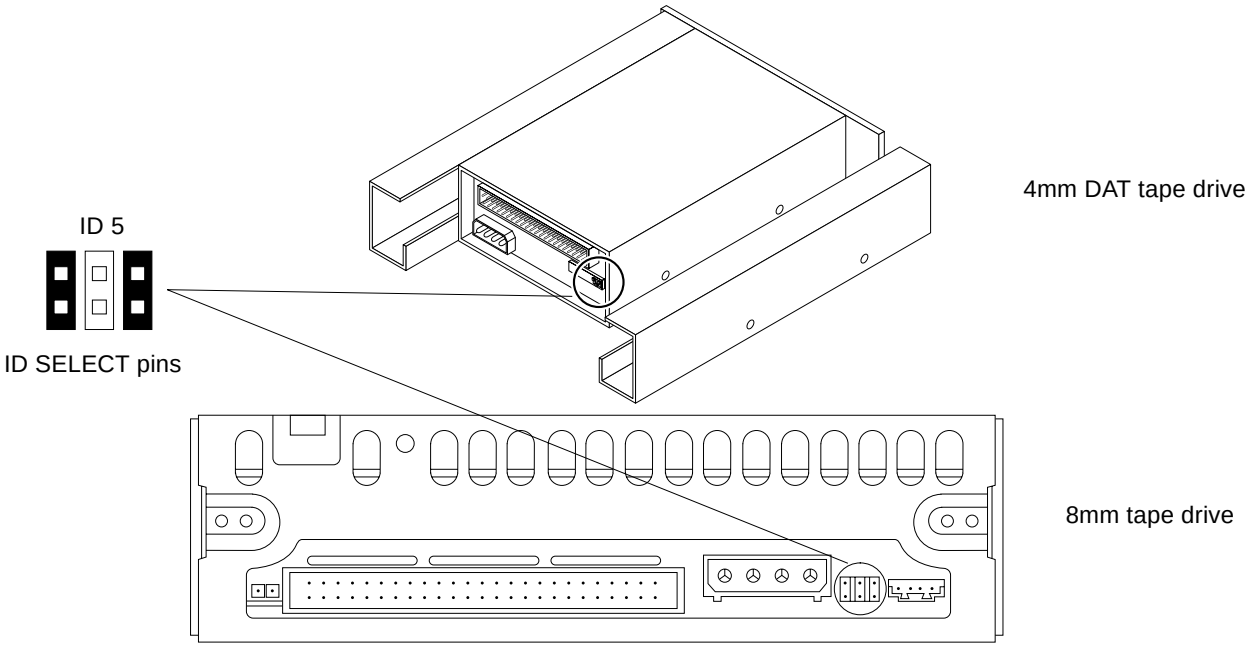


Figure E-10 8 mm and 4 mm Tape Drive Device Addressing

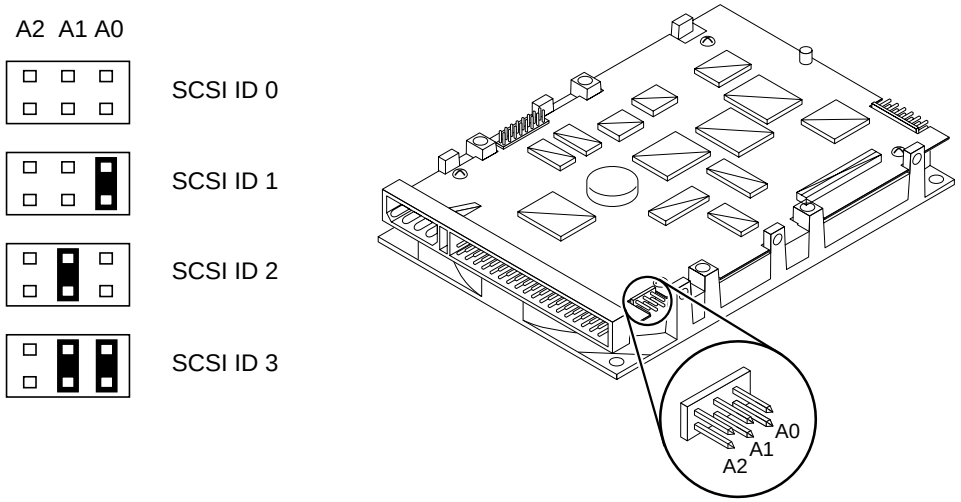


Figure E-11 Seagate Disk Drive Device Addressing

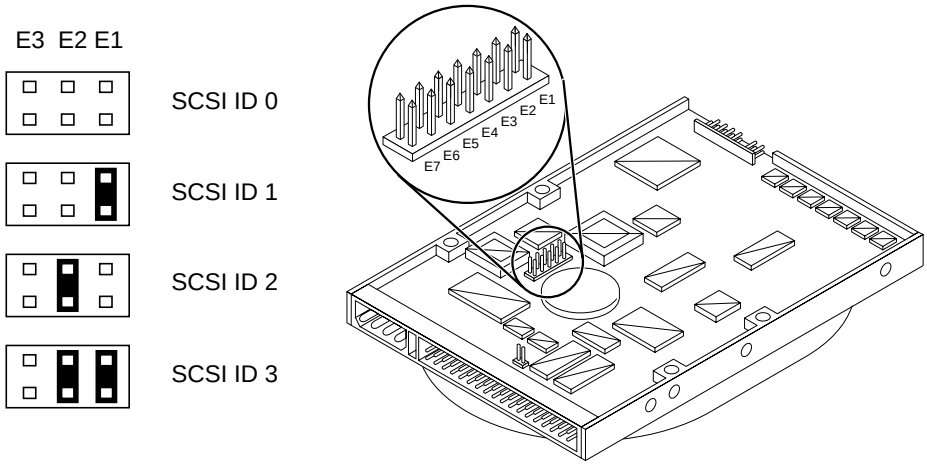


Figure E-12 Conner Disk Drive Device Addressing

E.5 Connecting Cables

E.5.1 SCSI Cables

SCSI cables for internal devices are factory connected. If installing additional devices, refer to the installation instructions provided with the storage device.

E.5.2 Ethernet Cables

The main network cable must be connected to the on-board Ethernet connector on system board 0. Refer to instructions provided with your Ethernet transceivers for additional connection information. The SPARCserver 1000 system supports twisted-pair Ethernet installations.

E.5.3 Video Cables

Only one CGSIX interface is allowed per system. It must be installed in SBus slot 1 of system board 0. The keyboard must be plugged into the keyboard connector of system board 0 and the video cable into the GCSIX card. The diagnostic program requires a monitor or terminal. If the system lacks a monitor, plug an RS232 TTY terminal into port A of the system board in slot 0.