

Troubleshooting Procedures

This chapter describes how to troubleshoot SPARCstation 5 system problems. Each problem is described, and a set of procedures is provided as a solution to the problem.

<i>No Video Output on the System Monitor</i>	<i>page 4-3</i>
<i>Power-On Does Not Succeed</i>	<i>page 4-3</i>
<i>Disk Drive Errors</i>	<i>page 4-6</i>
<i>Determining Faulty DSIMM Locations</i>	<i>page 4-8</i>

Table 4-1 describes commonly encountered problems, and tips for solving them.

Table 4-1 Troubleshooting Tips

Problem	Action
LED on front of system is not lit.	Verify that the power switch is turned on and that the power cord is connected. If both the power switch and the power cord are connected, shut down the system and verify that the LED cable is connected. If the LED cable is connected, the power supply may be defective. Replace the power supply. See Chapter 8, "Major Subassemblies."
Disk drive fails to boot or does not respond.	Shut down the system. The SCSI controller may be defective. See Section 4.3.1, "Verifying the Built-In SCSI Controller." Verify that each SCSI device is assigned a unique SCSI target address. See Appendix C, "SCSI Targeting," for important additional information.
Operating system does not recognize disk drive at boot up.	Shut down the system. Verify that each SCSI device is assigned a unique SCSI target address. See Appendix C, "SCSI Targeting," for important additional information.
No video output on monitor.	Verify that the power cord is connected. Use a volt-ohmmeter (VOM) to check voltages. See Section 4.1, "No Video Output on the System Monitor."
Slow disk drive response.	If many SCSI devices are connected to the same SCSI bus and if some of these devices are "fast SCSI" devices, you can install an FSBE/S SBus card to the "fast SCSI" devices to speed up performance.
Read, write, or parity error reported by the operating system or applications.	Replace the disk drive indicated by the failure message. Solaris 1.x operating systems identify the disk drive installed in the lower bay (SCSI target ID 3) as <code>sd0</code> and the disk drive installed in the upper bay (SCSI target ID 1) as <code>sd1</code> . With Solaris 2.x operating systems, the two drives are identified as <code>c0t3d0</code> and <code>c0t1d0</code> , respectively.
Power on does not succeed. LEDs on keyboard do not light and there is no tone from the keyboard when you turn on the system power.	The power supply may be defective. See Section 4.2.1, "Power Supply Test."
Power on does not succeed. The system fails to initialize but the LEDs on the keyboard light and there is a tone from the keyboard.	The system board may be defective. See Section 4.2.2, "System Board Test."

4.1 *No Video Output on the System Monitor*

1. **Check that the power cord is connected to the monitor and to the wall outlet.**
2. **Verify that the wall outlet is supplying AC power to the monitor.**
Use a volt-ohmmeter (VOM).
3. **Verify that the video cable connection is secure between the monitor and the system video output port.**
Use a VOM to perform the continuity test on the video cable.

If the power cord and video cable connection are good and there is still no video output, reseal the video card for the monitor.

4. **If the monitor power supply is internally fused, check the fuse.**
The fuse could be blown.

4.2 *Power-On Does Not Succeed*

1. **Turn off the system power switch.**
2. **Check that the system power cord is properly connected to the system rear panel power receptacle and to the wall outlet.**
3. **Verify with a VOM that the wall outlet is supplying AC power to the system.**
4. **Turn the rear panel system power switch on and observe the keyboard.**
The LEDs on the keyboard should briefly light. You should hear a tone from the keyboard. If you have a Sun Type-5 keyboard, there is a Standby power key which you may also press to see if the system can be powered on or not. Only try the Standby power key if the rear switch fails to turn on the system.

If you hear no tone or see no lights on the keyboard, the system's power supply may be defective. See Section 4.2.1, "Power Supply Test."

If you hear a tone and see lights on the keyboard, but the system still fails to initialize, see Section 4.2.2, "System Board Test."

4.2.1 Power Supply Test

1. Use a VOM (volt-ohmmeter) to check the power supply output voltages. Place the VOM negative probe on one of the logic ground pins in the connector, and test the +12V, -12V, and +5V power pins individually with the positive probe (pins 1 through 8). See Figure 4-1 and Table 4-2.

Note - The power supply must remain connected to the system board during this test. This allows the power supply to regulate the voltages.

2. Replace the power supply assembly if any of the voltages are not present. See Section 8.1, "Power Supply."

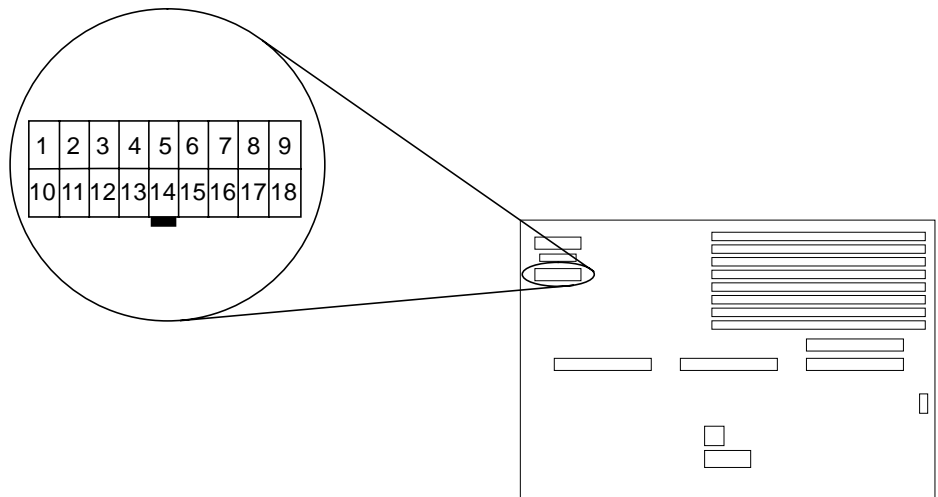


Figure 4-1 Power Supply Connector

Table 4-2 shows the pin assignments on the power supply connector.

Table 4-2 Power Supply Connector Pin Assignments

Pin	Color	Description ¹	Pin	Color	Description
1	Blue	+12V	10	Black	Ground
2	Brown	-12V	11	Black	Ground
3	Red	+5V	12	Black	Ground
4	Red	+5V	13	Black	Ground
5	Red	+5V	14	Black	Ground
6	Red	+5V	15	Black	Ground
7	Red	+5V	16	Green	AC Outlet
8	Red	+5V	17	Purple	Fan
9	Grey	Power off	18	Yellow	Power on

1. All volts are direct current.

4.2.2 System Board Test

1. **Connect a terminal to serial port A or use a tip connection to another workstation to receive additional POST failure information.**
To set up a tip connection to another workstation, see Section 3.4.1, “Setting Up a tip Connection to Another System.”
2. **Press and hold the Stop-d keys. While holding the keys down, turn the system power switch on. Watch the keyboard LEDs.**
 - a. **The Caps Lock key on the keyboard should flash on and off, indicating that the system is running the Power-On Self-Test (POST).**
If the Caps Lock key fails to flash on and off after you have pressed and held the Stop-d keys, POST failed.
 - b. **To further troubleshoot the system board, see Section 4.2.2.1, “Caps Lock Key Fails to Flash On and Off During POST.”**
3. **Observe the keyboard LEDs.**
If a failure occurs during POST, an LED may light up. See Table 3-1 on page 3-4 to interpret the keyboard diagnostic LEDs.
4. **Replace the defective part indicated.**

4.2.2.1 Caps Lock Key Fails to Flash On and Off During POST

1. **Remove optional SBus cards and DSIMMs.**
Leave one DSIMM in Slot 0 (J0300).
2. **Run POST again before replacing the system board.**
Remove all other parts to eliminate the possibility that those parts could be causing the POST failure.

4.3 Disk Drive Errors

Table 4-3 presents disk drive error conditions and corrective actions.

Table 4-3 Troubleshooting Disk Drive Errors

Symptom	Corrective Action
Read, write, or parity error reported by the operating system or applications.	Replace the disk drive indicated by the failure message. Solaris 1.x operating systems identify the disk drive installed in the lower bay (SCSI target ID 3) as <code>sd0</code> and the disk drive installed in the upper bay (SCSI target ID 1) as <code>sd1</code> . With Solaris 2.x operating systems, the two drives are identified as <code>c0t3d0</code> and <code>c0t1d0</code> , respectively.
Drive fails to boot or does not respond to commands.	SCSI controller may be defective. See Section 4.3.1, "Verifying the Built-In SCSI Controller." Verify that each SCSI device is assigned a unique SCSI target address. See Appendix C, "SCSI Targeting," for important additional information.
Slow disk drive response.	If many SCSI devices are connected to the same SCSI bus and if some of these devices, such as the 1.05-Gbyte disk drive, are "fast SCSI" devices, you may want to install an FSBE/S SCSI host adapter card to the "fast SCSI" devices and put these "fast SCSI" devices on a separate SCSI bus to speed up disk drive response.

4.3.1 Verifying the Built-In SCSI Controller

To check whether the built-in SCSI controller is defective, test the drive response to the `probe-scsi` command. To test additional SCSI host adapters added to the system, use the `probe-scsi-all` command. Refer to Section D.1.6, “module-info.”

1. At the `ok` prompt, type `probe-scsi`
See the following example.

```
ok probe-scsi
Target 1
  Unit 0  Disk CONNER CP30548  SUN0535AEBX93081QTT
Target 3
  Unit 0  Disk SEAGATE ST3610N  SUN0535881200054301
```

- a. If the disk drive responds and a message is displayed, the system SCSI controller has successfully probed the devices.

This indicates that the system board is working correctly.

- b. If a disk doesn't respond:

- i. Make sure that every SCSI disk and other SCSI device on the SCSI bus has a different SCSI target ID (see Appendix C, “SCSI Targeting”).

Note – Internal SCSI hard drives are automatically assigned target 3 (lower bay) and target 1 (upper bay).

- ii. Verify that all SCSI cables and the SCSI terminator are connected securely.
- iii. Check the SCSI cables to make sure there are no bent pins.
- iv. If you still have not found the problem, replace the unresponsive drive.
- v. If the problem still occurs after replacing the drive, replace the system board.
- vi. If the problem persists, replace the internal disk drive cable assembly.

4.4 Determining Faulty DSIMM Locations

The SunDiag System Exerciser, SunDiagnostic Executive, and POST diagnostics can report memory errors encountered during program execution. For general information about diagnostics, see Chapter 2, “Troubleshooting Overview.” Memory error messages on the video monitor usually indicate a physical memory address where the error was detected.

Depending on the diagnostic program you are running, a DSIMM location number (“J” number) or a memory address may be displayed.

If the error message displays the location number, see Figure 4-2 for DSIMM location numbers. If the error message displays a physical memory address, consult Table 4-4 to see which memory slot contains the physical address.

For example, if an error is detected at physical memory address 12fe958, examining Table 4-4 shows that the error occurred in the DSIMM in slot 0.

After you have identified the defective DSIMM, follow the instructions in Section 11.3.1, “Removing a DSIMM,” for removing the defective DSIMM. To replace the DSIMM, follow the directions in Section 11.3.2, “Replacing a DSIMM.”

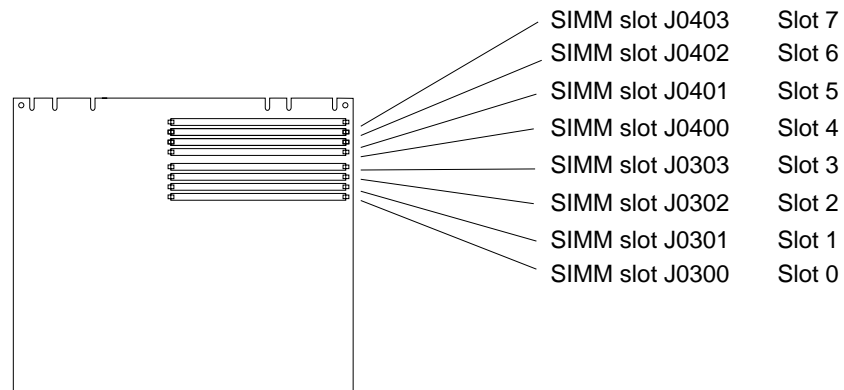


Figure 4-2 DSIMM Slot Locations

Table 4-4 Physical Memory Address Ranges for Slots¹ 0 Through 7

Slot	SIMM #	Physical Memory Address Ranges
0	J0300	0000 0000 through 01FF FFFF
1	J0301	0200 0000 through 03FF FFFF
2	J0302	0400 0000 through 05FF FFFF
3	J0303	0600 0000 through 07FF FFFF
4	J0400	0800 0000 through 09FF FFFF
5	J0401	0A00 0000 through 0BFF FFFF
6	J0402	0C00 0000 through 0DFF FFFF
7	J0403	0E00 0000 through 0FFF FFFF

1. Each memory slot can contain one DSIMM up to 32 megabytes in size. Slot 0 must have a DSIMM present.

