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Server Troubleshooting

Troubleshooting Principles

- Record all configuration information and have readily available.
- Perform one troubleshooting action at a time.
- Record all troubleshooting actions taken.
- Turn off server, wait until all hard disk drives completely spin down, and then turn back on.
- Record all error messages.
- Make sure all cables and connections are secure.
- Make sure all necessary video, printer, and application device drivers are properly installed.
- Troubleshoot one problem at a time.
- Try to duplicate the problem.
- Run the SCU.
- Run the diagnostic software.

Tools and Utilities

The following tools and utilities are available for troubleshooting:

- OCP
- POST
- AMI Diagnostics
- SCU
- ServerWORKS Manager

Troubleshooting Resources

The following areas can provide more or current troubleshooting information:

- BBS
(508) 496-8800
- Web page:
External - <http://www.pc.digital.com>
Internal - <http://www.pc.dec.com>
- CSC Technical Support



NOTE: The Readme.txt file might change from version to version. Check the Quick Launch CD-ROM for the most current platform Readme.txt file.

Memory Fault Isolation

Verify that the memory configuration is valid. Refer to the Memory Configuration Guidelines located in Chapter 6 of the *Prioris ZX 6000MP Series User's Guide*.

Isolating memory faults to two SIMMs is accomplished using the procedure provided in the *Prioris ZX 6000MP Series User's guide*. Occasional soft, single-bit ECC errors can be expected in a large, normally-operating memory system. Hard ECC errors (those that are repeatable across a server reset or power cycle) should be isolated and the failing component should be replaced.

The Prioris ZX 6000MP Series servers report memory ECC errors during the POST with a message similar to the following:

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Correctable Error : Main Logic Board J17/J18
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If such a message displays, POST should be re-run to validate whether the error is consistent. If the same message displays twice, the fault should be considered to be hard and should be isolated.

Since the Prioris ZX 6000MP Series servers only isolate memory errors to one of the two SIMMs, hard errors should be isolated by swapping one of the indicated SIMMs to a location not reported as an error possibility.

- If the same errors occurs, the un-swapped SIMM might be the offending module. This should be validated by swapping in a known-good SIMM to that location.
 - If the known-good SIMM fails in that position, the main logic board or memory module is probably at fault.
 - If the known-good SIMM does not fail, the SIMM replaced by the known-good SIMM is probably at fault.
- If the error moves to the location where the SIMM was swapped, the swapped SIMM, from the location indicated by the error message, is probably at fault.
- If no error is shown, swap the SIMMs to the original positions and repeat the entire procedure.
 - If repeating the procedure fails to produce an error, a SIMM was probable not seated correctly in its socket, or the SIMM/socket might have been dirty.

Chronic soft errors might indicate an imminent hard failure. ServerWORKS. Manager can be helpful in logging such errors so a trend can be identified by the system manager and the suspect component can be replaced before it exhibits hard errors. Only replace the main logic board as a last resort.

Processor Fault Isolation

When diagnosing failures with the OCP, refer to the following table to correlate CPU, fan, and VRM numbers with their locations:

Refer to the Prioris ZX 6000MP Series User's guide: Chapter 4, "Server Management/POST OCP messages," for help in isolating POST failures.

Refer to the Prioris ZX 6000MP Series User's guide: Chapter 4, "Server Management/OCP messages," for help in isolating CPU and environmental failures.

Problem	Location
Fan 1	Logic side of chassis, large fan nearest the front bezel
Fan 2	Logic side of chassis, large fan nearest the card guide
Fan 3	Logic side of chassis, small fan nearest the bottom of the chassis
Fan 4	Logic side of chassis, small fan second from the bottom of the chassis
CPU 1	Logic side of chassis, CPU module 1 (upper slot), socket nearest from main logic board
CPU 2	Logic side of chassis, CPU module 1 (upper slot), socket furthest to main logic board
CPU 3	Logic side of chassis, CPU module 2 (lower slot), socket nearest from main logic board
CPU 4	Logic side of chassis, CPU module 2 (lower slot), socket furthest to main logic board
VRM 1	Logic side of chassis, CPU module 1 (upper slot), socket nearest from main logic board
VRM 2	Logic side of chassis, CPU module 1 (upper slot), socket furthest to main logic board
VRM 3	Logic side of chassis, CPU module 2 (lower slot), socket nearest from main logic board
VRM 4	Logic side of chassis, CPU module 2 (lower slot), socket furthest to main logic board

Server Troubleshooting

Problem	Possible Cause	Action
No response when the server is turned on.	Server is not plugged in.	Turn off the server, plug it in, and then turn it back on again.
	No power at the wall outlet.	Use another wall outlet.
	Side panels removed.	Install side panels.
	Terminator card not installed.	Install terminator card.
	Terminator card not seated properly (1P and 2P configurations only).	Reseat terminator card. Note: Terminator cards have dual rows of fingers. A properly inserted terminator card must engage both rows of fingers.
	CPU module 1 or 2 not seated properly.	Reseat CPU module 1 or 2. Note: CPU modules have dual rows of fingers. A properly inserted CPU module must engage both rows of fingers.
	CPU module switches incorrectly set.	Make sure all switches are correctly set.
	CPU module has failed.	Replace the CPU module.
	Main logic board switches incorrectly set.	Set all appropriate switches.
	Main logic board failed.	Replace main logic board.
Power supply failed.	Replace power supply.	

continued

Server Troubleshooting

Problem	Possible Cause	Action
Power is on, but there is no screen display.	Brightness and contrast controls are not correctly set.	Adjust the brightness and contrast controls.
	Monitor is off.	Turn on the monitor.
	Monitor cable is incorrectly installed.	Check all monitor connections.
	Incorrect video drivers installed.	Install the correct video drivers.
	Onboard video controller has failed.	Replace main logic board.
Power is on but no OCP display.	Monitor has failed.	Replace monitor.
	OCP button not turned on or OCP backlight is disabled in SCU.	Press any keyboard key or OCP button at the front of the server. Make sure OCP backlight is set to ON in the SCU.

continued

Server Troubleshooting

Problem	Possible Cause	Action
Server does not boot from CD-ROM drive.	CD-ROM drive is not connected to the Adaptec controller.	Connect the CD-ROM to the Adaptec controller.
	CD-ROM drive not configured as a bootable device.	Change the CD-ROM setting to "bootable" using <i>SCSISelect</i> .
	CD-ROM disk is not bootable.	Make sure latest BIOS is installed on server.
	CD-ROM drive is not bootable.	Make sure that the Adaptec 3940W V1.24S1 controller has the required firmware.
Server operates incorrectly after installing a CPU module.	CPU module installed incorrectly.	Reinstall CPU module.
	Core bus ratio switches incorrectly set.	Check the core bus ratio switches. Refer to the Prioris ZX 6000MP Series User's Guide. The core bus is 66 MHz.
	SCU indicates an error after installing a CPU module.	Remove CPU module and reboot. If server boots without errors, replace CPU module.

continued

Server Troubleshooting

Problem	Possible Cause	Action
Server operates incorrectly after installing optional expansion board.	Expansion board installed incorrectly.	Remove expansion board and reinstall.
	Did not run SCU to configure expansion board after installation.	Run the SCU to properly configure expansion board.
	Did not install CFG file for expansion board.	Run SCU and add CFG file (if necessary).
	Expansion board has failed.	Remove expansion board and reboot. If server boots without errors, replace expansion board.
Server operates incorrectly after installing optional memory (SIMMs).	Memory configured incorrectly.	Check that the memory configuration is according to the memory guidelines explained in the User's Guide.
	SIMMs installed incorrectly.	Remove SIMMs and reinstall.
	SIMMs have failed.	Replace SIMMs.
	Memory module installed incorrectly.	Reinstall memory module.
	Memory module failed.	Replace memory module.

continued

Server Troubleshooting

Problem	Possible Cause	Action
No response to keyboard commands.	Keyboard might be password protected by a local or remote control program.	Enter the keyboard password.
	Keyboard is not connected.	Power down the server and connect the keyboard.
	Keyboard is connected to the mouse port.	Power down the server and connect the keyboard to the keyboard port.
	Keyboard failed.	Replace keyboard.
No response to mouse commands.	Mouse might be password protected by a local or remote control program.	Enter the keyboard and mouse password.
	Mouse is not connected.	Power down the server and connect the mouse.
	Mouse is connected to the keyboard port.	Power down the server and connect the mouse to the mouse port.
	Mouse driver not installed.	Install the appropriate mouse driver.
	Mouse trackball dirty.	Clean trackball.
	Mouse failed.	Replace mouse.
Server operates correctly but application software does not.	Application software installed incorrectly.	Refer to your application software documentation.

Disk Drive Troubleshooting

Problem	Possible Cause	Action
Server does not recognize an internal SCSI device.	SCSI device jumpers incorrectly set.	Refer to the supplied kit installation instructions.
	SCSI ID conflicts.	Refer to the supplied kit installation instructions and to the storage backplane jumper configuration on the side panel label.
	Terminating resistors not removed from the SCSI device.	Remove terminating resistors. Refer to the supplied kit installation instructions.
	SCSI terminator not in the last connector, or the bus cable is not present.	Insert the SCSI terminator or bus cable. Replace SCSI host adapter.
	SCSI host adapter has failed.	
	Loose SCSI cable.	Secure all cable connections.
	SCSI cable incorrectly installed between SCSI host adapter, SCSI device or backplane.	Refer to side panel label.
	SCSI device has failed.	Replace SCSI device.

continued

Server Troubleshooting

Problem	Possible Cause	Action
Server does not recognize an external SCSI device.	SCSI device jumpers incorrectly set.	Refer to the supplied kit installation instructions.
	SCSI ID conflicts.	Refer to the supplied kit installation instructions and to the storage backplane jumper configuration on the side panel label.
	Terminating resistors not removed from the SCSI device.	Remove terminating resistors. Refer to the supplied kit installation instructions.
	Storage backplane incorrectly terminated.	Properly terminate the storage backplane.
	SCSI host adapter has failed.	Replace SCSI host adapter.
	Loose SCSI cable.	Secure all cable connections.
	SCSI cable incorrectly installed between SCSI host adapter and rear panel connector or external SCSI device and rear panel connector.	Refer to side panel label.
	SCSI device has failed.	Replace SCSI device.

continued

Server Troubleshooting

Problem	Possible Cause	Action
Server does not boot from an internal SCSI hard disk drive.	SCSI boot hard disk drive not formatted.	Format the SCSI hard disk drive. CAUTION: Formatting the SCSI hard disk drive will destroy all the data on the drive.
	SCSI device drivers not installed or incorrectly installed on SCSI boot hard disk drive.	Properly install all required SCSI device drivers.
	Operating system software is not installed on the SCSI boot hard disk drive.	Install the appropriate operating system.
	Requested partition does not exist.	Partition the SCSI hard disk drive and then reload the operating software.
	SCSI boot hard disk drive at wrong SCSI address.	Set SCSI boot hard disk drive to lowest "primary" SCSI address.
	SCSI device has failed.	Replace SCSI device.
SCSI hard disk drive cannot read or write information.	Improper setup in the PCI bus and arbitration scheme.	Set the SCSI controller to C8000 in the SCU.
	Incorrect disk drive jumper settings.	Refer to the supplied kit installation instructions.
	Loose or incorrectly installed cables.	Make sure all cables are correctly installed.
SBB failure.	SCSI hard disk drive is not correctly formatted or partitioned.	Format and partition as required using the supplied operating system.
	Check SBB status LEDs for a drive failure indication.	Refer to the User's Guide for additional information.

SBB Troubleshooting

Problem	Possible Cause	Action
SBB fault LED lit (amber).	Disk drive failed.	Replace disk drive.
SBB activity and fault LEDs lit (green).	Disk drive hung or has failed.	Replace disk drive.
SBB fault LED flashing (amber).	Disk drive failed and is spinning down.	Replace disk drive.
SBB fault status LED is either on or off; fault status LED flashing (amber).	Disk drive is active and spinning down due to a fault.	Correct the fault or replace the disk drive.

Tape Drive Troubleshooting

Problem	Possible Cause	Action
Tape will not load.	Tape inserted incorrectly.	Insert the tape with the arrow on the cassette pointing towards the drive.
Cannot write data to a tape.	Tape write-protected.	Slide the write-protect tab on the cassette to the closed position.
Tape will not eject.	Tape jammed in drive.	<p>Using a small screwdriver, rotate the motor shaft clockwise to bring threading mechanism to the initial loading position.</p> <p>If necessary, press the ratchet mechanism to tighten the tape before ejecting.</p> <p>Continue to turn the motor shaft clockwise until the tape can be lifted out of the drive mechanism and ejected from the drive.</p>

Monitor Troubleshooting

Problem	Possible Cause	Action
Monitor power indicator is not on.	Monitor is turned off.	Turn on the monitor.
	Power cord is not connected.	Connect the power cord to the server.
	No power at wall outlet.	Use another outlet.
	Power indicator is defective.	Replace monitor.
No screen display.	Configuration error.	Run the SCU to configure the server for video operation.
	Monitor brightness and contrast controls are incorrectly set.	Adjust the monitor brightness and contrast controls.
	Monitor cable not properly connected to the video port.	Make sure the monitor cable is properly connected to the video port.
	Monitor has failed.	Replace monitor.
Distorted, rolling, or flickering screen display, or wrong/uneven color.	Monitor incorrectly adjusted.	Adjust accordingly.
	Monitor signal cable incorrectly installed.	Straighten any bent connector pins and then reconnect.

continued

Problem	Possible Cause	Action
Color monitor displaying monochrome.	Server was turned on before the monitor was turned on.	Turn off the server, turn on the monitor, then turn the server back on.
Monitor fails to switch to high-resolution mode.	Appropriate high-resolution video drivers are not installed or incorrectly installed.	Correctly install all appropriate high-resolution video drivers. Refer to the documentation supplied with your monitor.

CD-ROM Troubleshooting

Problem	Possible Cause	Action
Cannot access the CD-ROM drive. Error message reading drive x.	Device drivers not installed.	Install correct device drivers.
	No disk in the CD-ROM drive.	Insert a disk.
	Incorrect SCSI ID assigned.	Make sure correct SCSI ID is assigned.
	Tray open.	Close the tray.
Power is on but indicator shows no activity.	No disc or tray is open.	Insert a disk and close the tray.
	Check cable connections.	Make sure cables are correctly connected.
Disk is spinning but drive is idle.	Application software not running.	Run application software.

Diskette Drive Troubleshooting

Problem	Possible Cause	Action
Target diskette drive cannot read or write information.	Diskette is not formatted.	Format the diskette.
	Diskette is worn or damaged.	Try another diskette.
	Diskette is write-protected.	Slide the write-protect switch so the hole is not visible.
	Diskette drive is empty.	Insert a diskette.
	Diskette write protection enabled.	Run the SCU and set the Diskette Write Protection option to "Disabled."
	Disabled in SCU.	Run the SCU and enable the diskette drive.
	Network server option is enabled in the SCU.	Run the SCU from the hard disk drive to disable the network server option.

continued

Server Troubleshooting

Problem	Possible Cause	Action
Server does not boot from a target diskette drive.	Drive ID incorrectly set.	Make sure the drive ID is correctly set. Refer to the documentation that came with the diskette drive.
	Diskette drive not enabled.	Run the SCU and enable the diskette drive.
	Diskette boot option disabled.	Run the SCU and set boot option A then C.
	Diskette does not contain start-up files.	Insert a diskette with the correct start-up files.
	Diskette drive is empty.	Insert a diskette that contains an operating system.
	Diskette is worn or damaged.	Try another diskette.
	Loose cables.	Secure all cable connections.
Cannot write to target diskette drive.	Diskette drive write protected.	Run the SCU and disable the diskette write protection option.

RAID Troubleshooting

Problem	Possible Cause	Action
SBB fault LED lit.	Disk drive failed.	Replace disk drive.
SBB activity and fault LEDs lit.	Disk drive hung or has failed.	Replace disk drive.
SBB fault LED flashing.	Disk drive failed and is spinning down.	Replace disk drive.
SBB fault status is either on or off; fault status LED flashing.	Disk drive is active and spinning down due to a fault.	Correct the fault or replace the disk drive.
Replaced SBB drive does not spin up to speed.	SBB drive not seen by RAID controller.	Manually rebuild the SBB drive. Remove the SBB drive, wait 20 seconds, reinsert SBB drive. Wait one minute and then rebuild the SBB drive.
Multiple SBB drives have failed.	No power available.	Restore power, run the RAID configuration utility and change the state of any failed (FLD) SBB drive to optimal (OPT). Run the RAID configuration utility and check for bad blocks on the SBB drives. Repair any bad blocks.
SBB drive not seen by RAID host adapter.	SCSI cable not connected.	Check all SCSI connections.
	Incorrect SCSI termination.	Properly terminate the SCSI bus.
	Duplicate SCSI IDs on the bus.	Check SBB drive SCSI ID settings.
	Defective SBB drive.	Replace SBB drive.
	SBB drive improperly inserted.	Reinsert SBB drive.
	Defective RAID host adapter SCSI channels.	Replace the RAID host adapter.

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