Supplement to the
RS/6000 Enterprise Servers S70 and S7A:

User's Guide and Installation and Service Guide

User's Guide (SA38-0549-01), and Installation and Service Guide (SA38-0548-01)

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Note

Before using this information and the product it supports, be sure to read the general information under "Product Warranties and Notices" included with your system unit.

First Edition (June 1999)

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About This Book

This supplement provides updates to:

- *RS/6000 Enterprise Servers S70 and S7A User's Guide*, SA38-0549
- *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

Where possible, the updated information from the original book is duplicated in this supplement and where changes have been made, a vertical bar (|) appears in the left margin. New information in this supplement is also marked with a vertical bar in the left margin.

Related Publications

This supplement provides updates to two books:

- *RS/6000 Enterprise Servers S70 and S7A User's Guide*, SA38-0549-01
- *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548-01.

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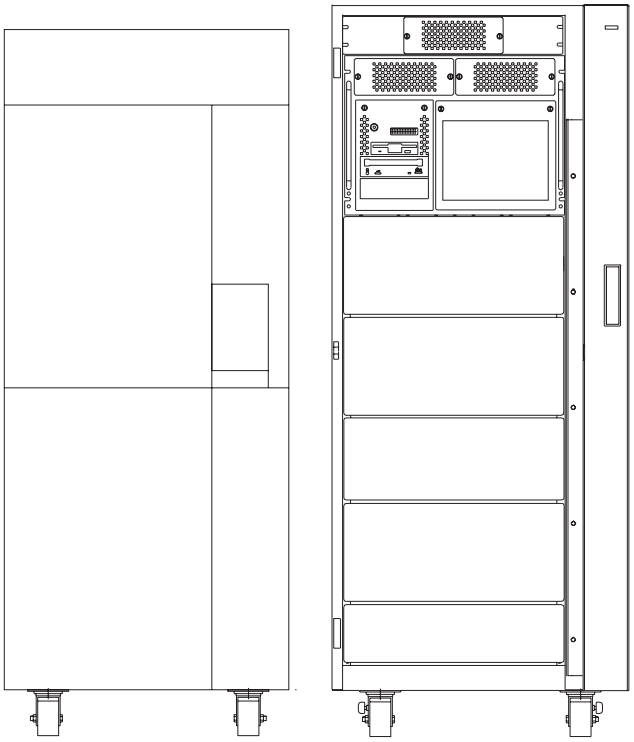
Update 1

This section contains updates made to the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 “Chapter 1. Reference Information.”

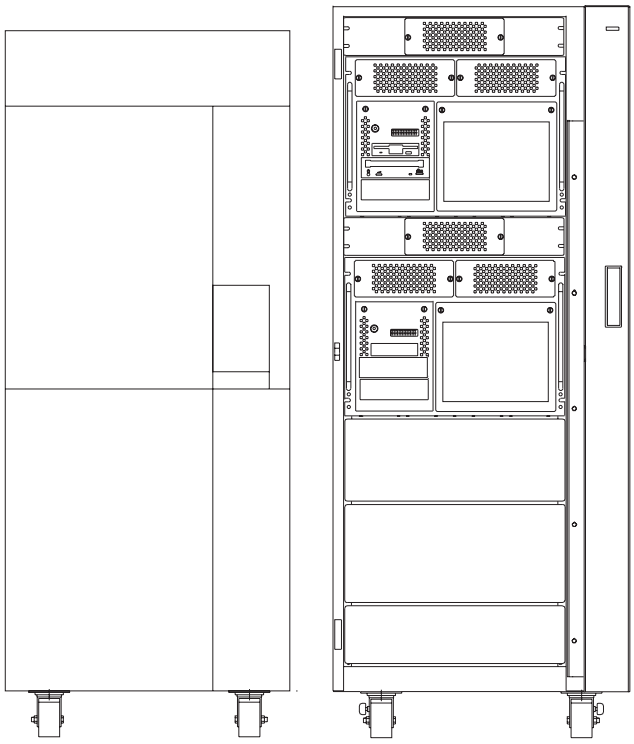
System and I/O Rack Configurations

S70 and S7A systems can be set up in various configurations with respect to the placement of the primary I/O drawer. Typically, the primary I/O drawer is installed in an I/O rack with other drawers attached to the same System Rack. If two systems are installed side-by-side, then the two systems can share one I/O rack by installing both primary I/O drawers in the same rack. This can be done to save space and also if the systems are used for high availability (HA) applications. The following figures show some basic configurations.

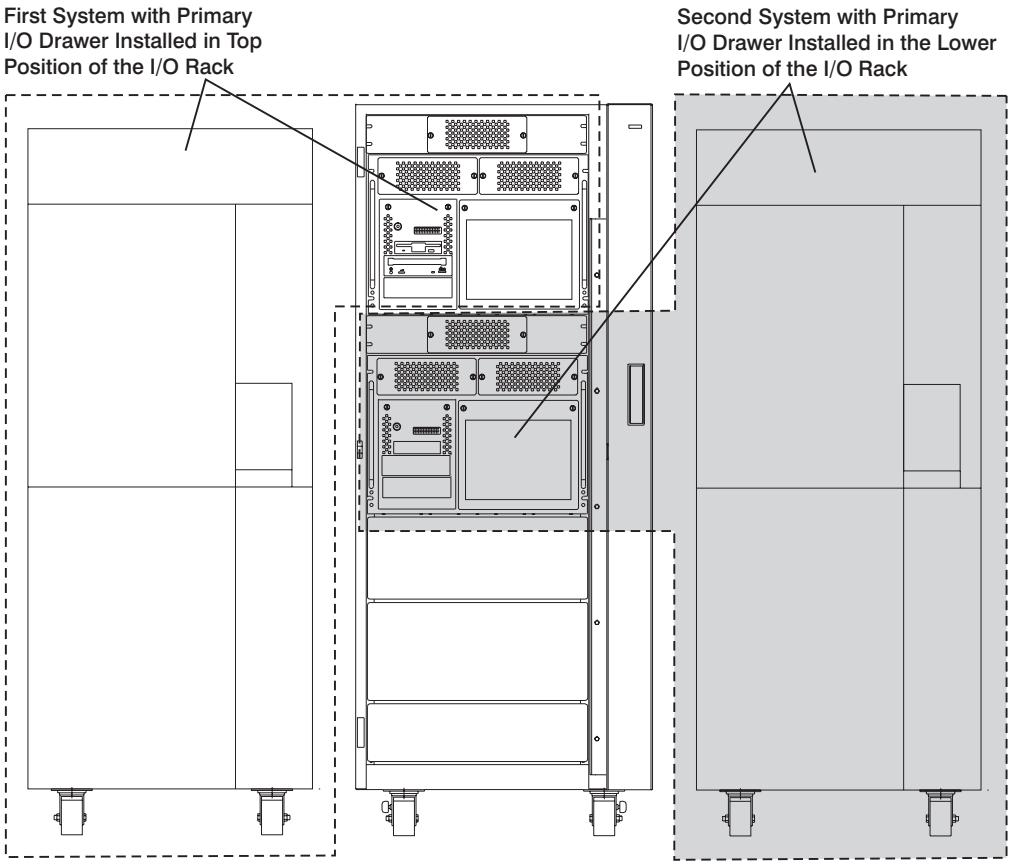
Basic Configuration



| Basic Configuration, Two I/O Drawers



Two Systems Sharing One I/O Rack

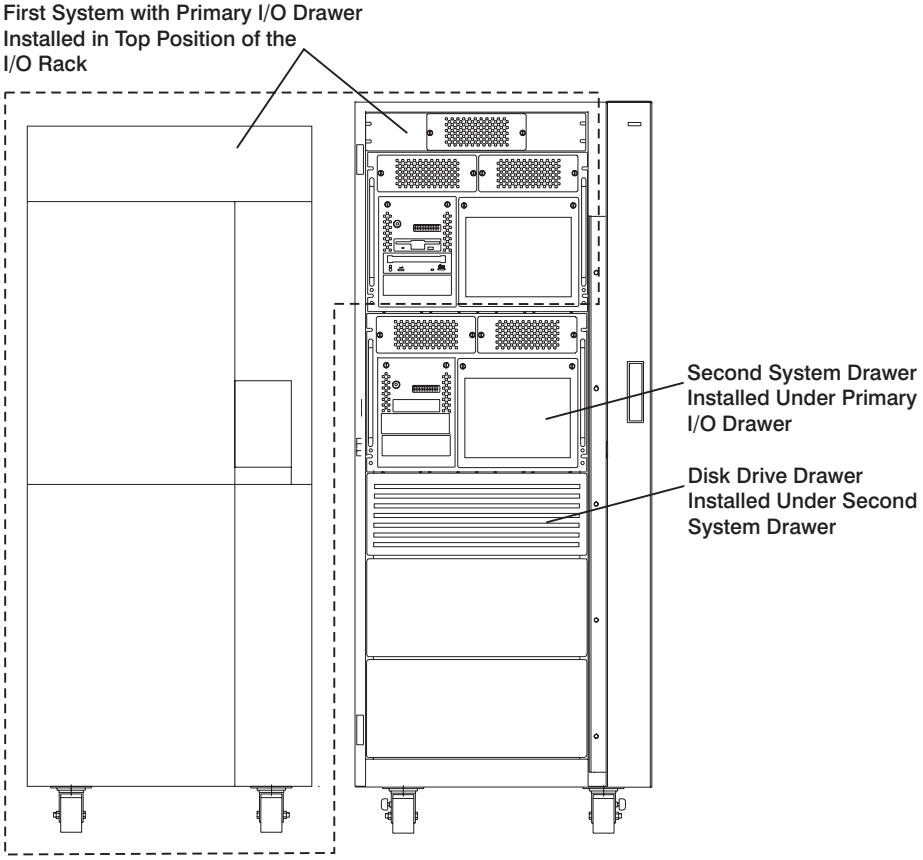


Attention: If power is to be removed from one I/O drawer of a system that shares an I/O rack with another system, use care to ensure that the power is removed from the correct drawer. Check the cabling before removing the power to make sure that you do not disrupt the operation of the second system.

Basic Configuration With H50 or H70 Sharing the I/O Rack

The I/O rack may also have other system drawers installed. The following figures show configurations that allow systems drawers to be installed in the I/O rack along with primary and secondary I/O drawers.

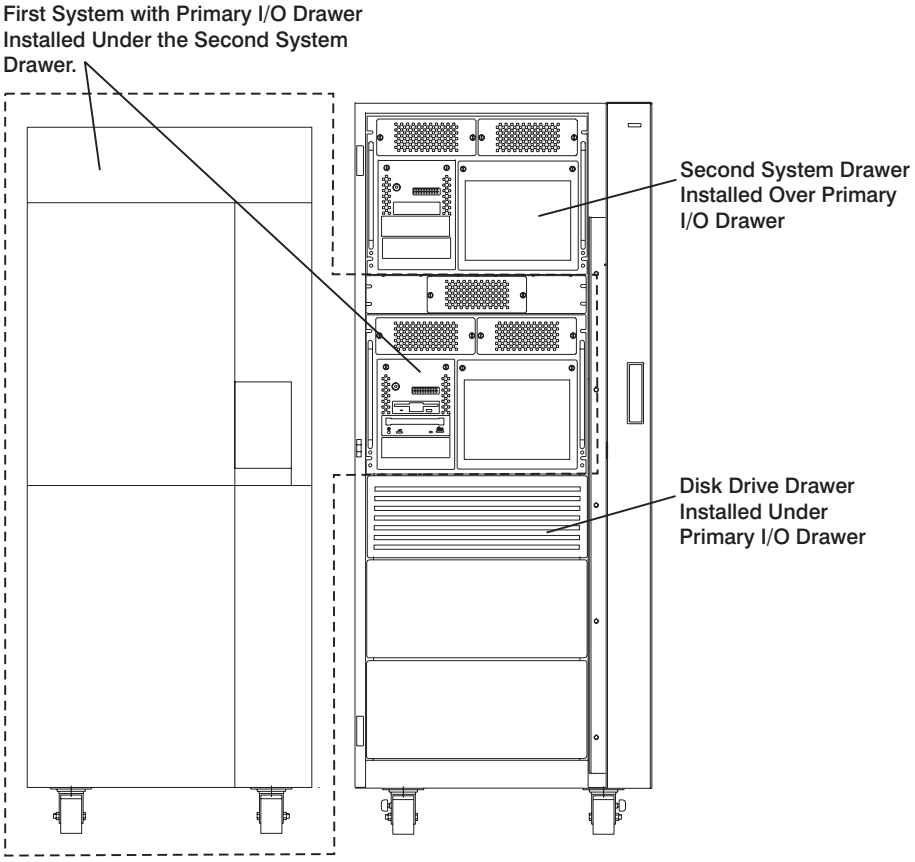
Primary I/O Drawer in Top Position



Note: Ensure that the cables from the S70 or S7A I/O Drawer are tied to the sides of the rack to enable servicing of of the system installed under the I/O Drawers.

Follow the installation instructions for each system when the Input/Output Rack is shared between two system types.

| **Primary I/O Drawer in Lower Position**



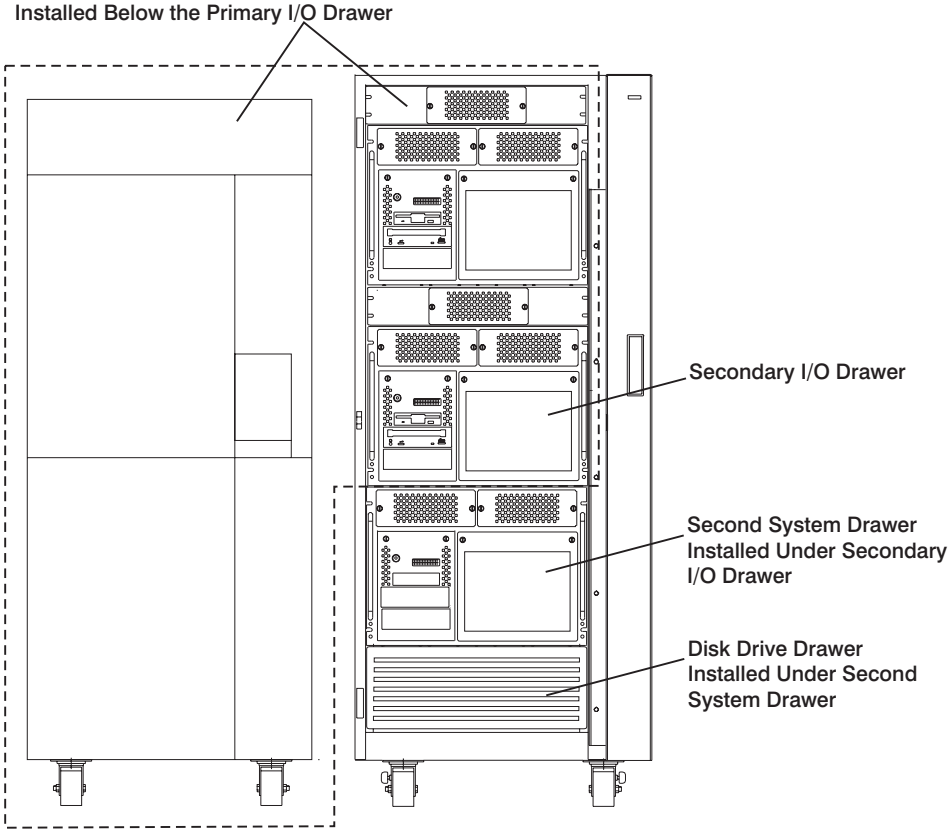
| **Note:** Ensure that the cables from the upper drawers are tied to the sides of the
| rack to enable servicing of of the lower drawers.

| Follow the installation instructions for each system when the Input/Output Rack is
| shared between two system types.

System With Two I/O Drawers and H50 or H70 Sharing the I/O Rack

Primary I/O Drawer in Top Position

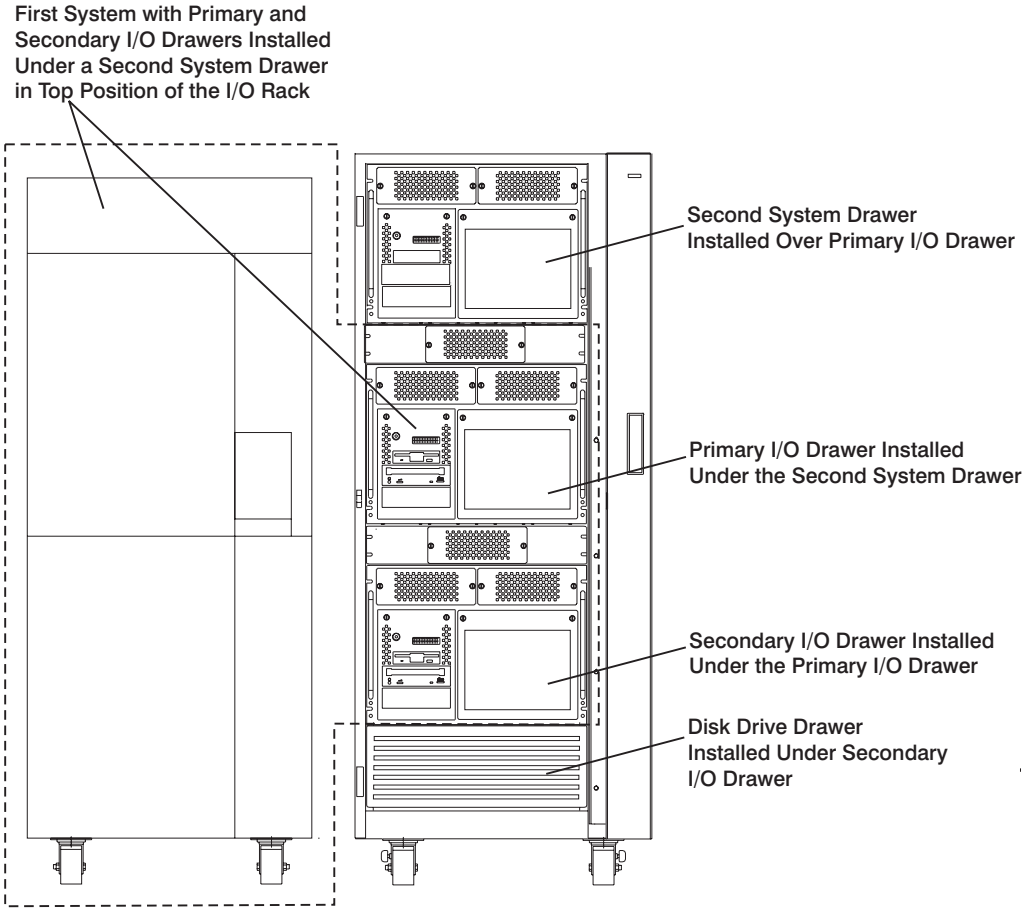
First System with Primary I/O Drawer
Installed in Top Position of the
I/O Rack and a Secondary I/O Drawer
Installed Below the Primary I/O Drawer



Note: Ensure that the cables from the S70 or S7A I/O Drawers are tied to the sides of the rack to enable servicing of of the system installed under the secondary I/O Drawers.

Follow the installation instructions for each system when the Input/Output Rack is shared between two system types.

Primary I/O Drawer in Lower Position

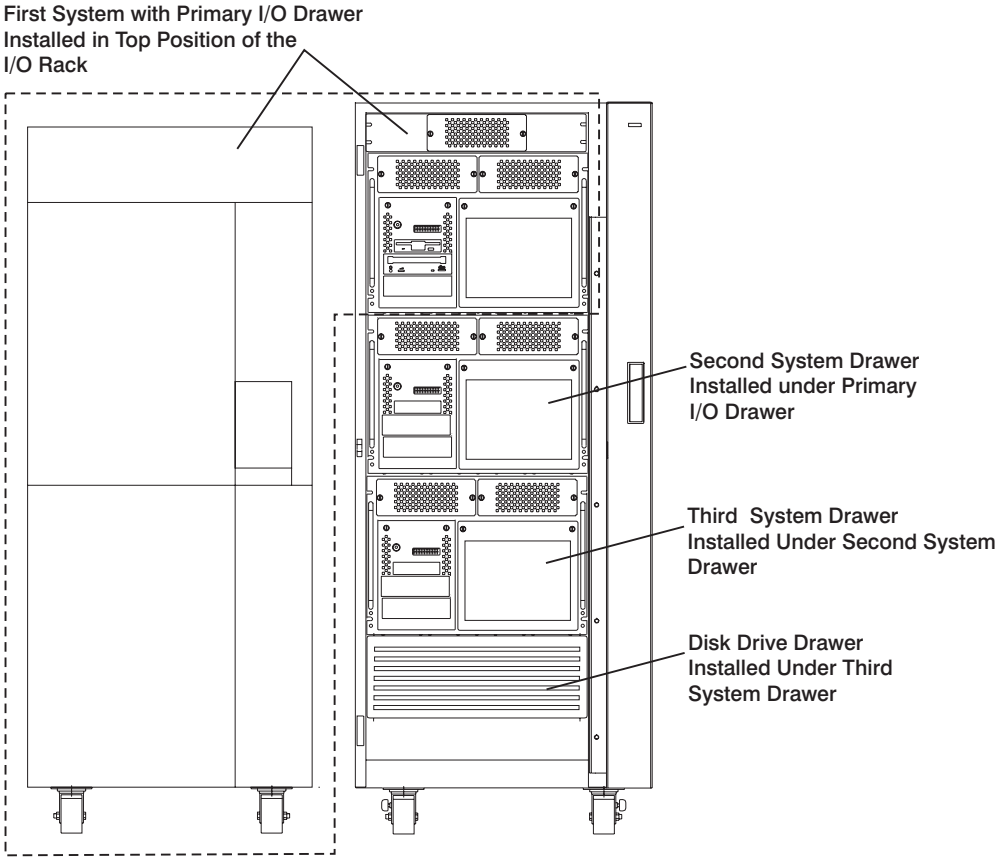


Note: Ensure that the cables from the upper drawers are tied to the sides of the rack to enable servicing of of the lower drawers.

Follow the installation instructions for each system when the Input/Output Rack is shared between two system types.

System With One I/O Drawer, and two H50s or H70s Sharing the I/O Rack

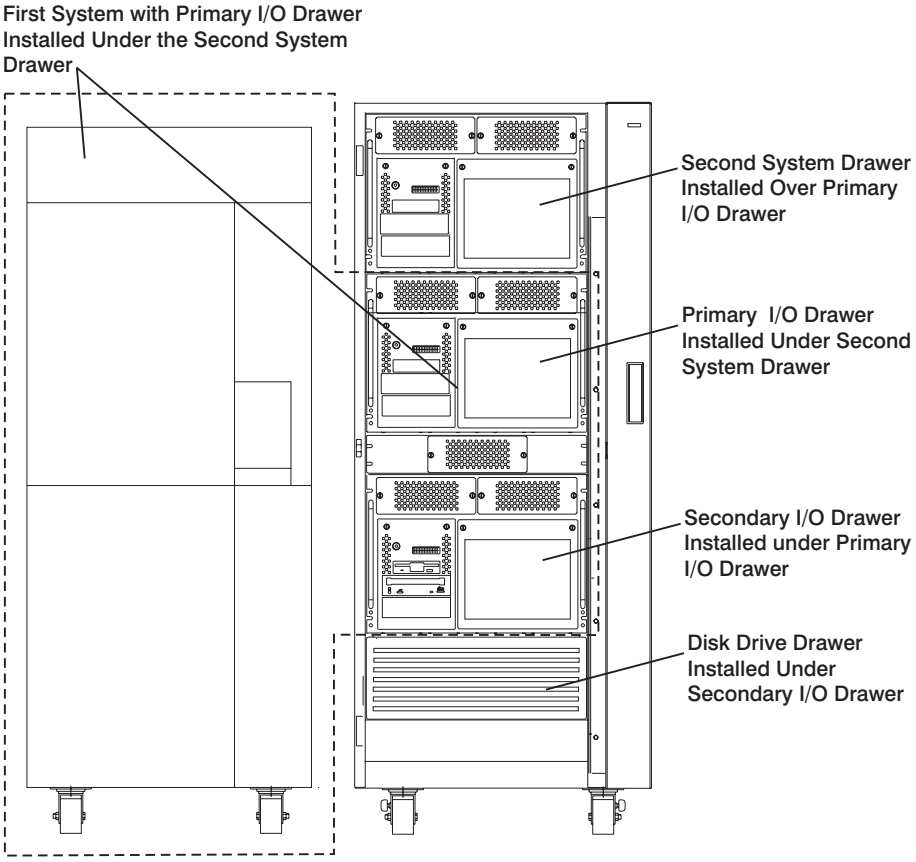
Primary I/O Drawer in Top Position



Note: Ensure that the cables from the S70 or S7A I/O Drawer are tied to the sides of the rack to enable servicing of of the system installed under the I/O Drawers.

Follow the installation instructions for each system when the Input/Output Rack is shared between two system types.

| **Primary I/O Drawer in Lower Position**



| **Note:** Ensure that the cables from the upper drawers are tied to the sides of the
| rack to enable servicing of of the lower drawers.

| Follow the installation instructions for each system when the Input/Output Rack is
| shared between two system types.

S70 and S7A Power Overview

The S70 and S7A power is provided to each rack type by independent power supplies and distribution cabling. Both the system racks require 200 to 240 V ac power connections (model S70 and S7A can have -48 V dc power connections). The System Rack and the Input/Output Rack have independent power distribution systems.

System Rack Power

The System Rack power distribution network is shown in the figure found under "System Rack Power Cabling" on page 1-48 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

The power enters the processor system rack as 200-240 V ac. The line cord enters the AC box which contains 2 components: one is the AC filter and distribution assembly and the other supplies standby power to some system components. Stand-by power is supplied to the system operator panel interface and the System Power Control Network (SPCN).

The filtered 200-240 V ac is then sent to the six system bulk power supplies. The six supplies are coupled together and provide an N+1 level of redundancy for protection. N+1 refers to the fact that since the supplies are coupled to a common distribution bus, if one of the six supplies fails, the system will not fail. The bulk supplies provide a positive 29 volt output which is fed to the system regulator located above the bulk supplies and to the system blowers.

| The system blowers are able to maintain the system temperature within the strict
| guidelines required in an N+1 arrangement. The blowers only require +29 V dc.

The system regulators provide 2.5 V dc and 3.3 V dc to the system. The power distribution domains from these regulators is illustrated in the figure under "System Rack Power Cabling" on page 1-48 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

System Rack DC Power (-48 V dc, S70 Only)

If the S70 receives power from a -48 V dc source, the AC box and AC bulk power supplies are replaced by the respective DC box and DC bulk power supplies. Also, circuit breaker panels are required, and certain cables and harnesses are substituted.

Update 2

This section contains updates made to the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548, “Chapter 4, Maintenance Analysis Procedures.”

MAP 1540: Minimum Configuration

This MAP is used to locate defective FRUs not found by normal diagnostics. For this procedure, diagnostics are run on a minimally-configured system. If a failure is detected on the minimally-configured system, the remaining FRUs are exchanged one at a time until the failing FRU is identified. If a failure is not detected, FRUs are added back until the failure occurs. The failure is then isolated to the failing FRU.

When minimum configuration is complete, all cables and cards exhibiting a failure will have been replaced or reseated.

Notes:

1. Be sure to unplug the power cable from the System Rack and Input/Output Rack before removing or installing service processor, processor cards, memory cards, or I/O planar to avoid damage.

   Note: To remove the DC power cables and DC power from the -48 V dc system, first set all circuit breakers on both the System Rack and Input/Output Rack to the Off position. Then, remove the top and bottom input cables to the DC box (shown on page 1-49 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548).

   Remove all DC supply cables from the circuit breakers to the configured drawers in the rack.

2. This MAP assumes that a CD-ROM drive is installed and connected to a SCSI adapter in the primary I/O drawer, and a Diagnostics CD-ROM is available.
3. If a general access password or privileged–access password is installed, you are prompted to enter the password before the diagnostic CD-ROM can load.
4. The term "POST indicators" refer to the icons (graphic display) or device mnemonics (ASCII terminal) that appear during the power-on self-test (POST).
5. The Service Processor may have recorded one or more symptoms in its error log. It is a good idea to examine that error log before proceeding (see Service Processor System Information Menu).

6. The Service Processor may have been set by the user to monitor server operations and to attempt recoveries. You may wish to disable these actions while you diagnose and service the system. If you disable them, you should make notes of their current settings for restoration before you leave. Following are the settings of your interest.

Surveillance	From the Service Processor Setup Menu, go to the Surveillance Setup Menu and disable surveillance.
Unattended Start	From the Service Processor System Power Control Menu disable unattended start mode.
Reboot Policy	From the System Power Control Menu go to the Reboot/Restart Policy Setup Menu and set: 1. Number of reboot attempts to **0** (zero) 2. Use OS-Defined restart policy to **No** 3. Enable supplemental restart policy to **No**.
Call Out	From the Call-In/Call-Out Setup Menu, go to the Serial Port Selection Menu and disable call-out on both serial ports.

Step 1540-1

1. Ensure that the diagnostics and the operating system are shut down.
2. Insert the diagnostic CD-ROM into the CD-ROM drive.
3. Turn the power off.
4. Turn the power on.
5. When the keyboard indicator is displayed (the word **keyboard** on an ASCII terminal or the keyboard icon on a graphical display), press the F5 key on the directly-attached keyboard or the number 5 key on an ASCII terminal.
6. Enter the appropriate password when prompted to do so.

Is the "Please Define the System Console" screen displayed?

NO Go to "Step 1540-2" on page 16.
YES Go to "Step 1540-8" on page 19.

Step 1540-2

The system is unable to boot standalone diagnostics.

The boot attempts that follow attempt to get the “Please define system console” prompt on the system console. Ignore any codes that may appear on the operator panel unless stated otherwise.

Go to “Step 1540-3.”

Step 1540-3

1. Turn the power off.
2. Disconnect the AC power cable from the rear of the System Rack.
3. At the rear of the System Rack, disconnect the following cards:

   Attention: To prevent overheating problems, do not remove any electronic card completely from the card enclosure unless you install an airflow card in its place.

   Disconnect the cards by pulling them out of the card enclosure about one inch.

   a. Processor card at M20, if present.
   b. Memory quad D at M16, M17, M23, and M24, if present.
   c. Memory quad E at M18, M19, M21, and M22, if present.
4. At the front of the System Rack, remove the following:

   a. Processor card at M09, if present.
   b. Memory quad C at M05, M06, M10, and M11, if present.
   c. Memory quad B at M03, M04, M12, and M13, if present.
5. With the System Rack now configured with only memory Quad A and a single processor card at M08, connect the AC power cable to the System Rack and turn the power on.
6. When the keyboard indicator is displayed (the word **Keyboard** on an ASCII terminal or the keyboard icon on a graphical display), press the F5 key on the directly attached keyboard or the number 5 key on an ASCII terminal.
7. Enter the appropriate password when prompted to do so.

Is the "Please Define the System Console" screen displayed?

NO Go to "Step 1540-6" on page 18.
YES Go to "Step 1540-4."

Step 1540-4

1. Turn the power off.
2. Disconnect the AC power cable from the System Rack.
3. Reconnect the cards in the following list one at a time. After each card is reconnected, continue in this step. Continue to reconnect the cards in the list until you have reconnected all the cards in the list.
   a. Memory quad B at M03, M04, M12, and M13, if previously present.
   b. Memory quad C at M05, M06, M10, and M11, if previously present.
   c. Memory quad D at M16, M17, M23, and M24, if previously present.
   d. Memory quad E at M18, M19, M21, and M22, if previously present.
   e. Processor card at M09, if previously present.
   f. Processor card at M20, if previously present.
4. Reconnect the AC power cable to the System Rack.
5. Turn the power on.
6. When the keyboard indicator is displayed (the word **Keyboard** on an ASCII terminal or the keyboard icon on a graphical display), press the F5 key on the directly attached keyboard or the number 5 key on an ASCII terminal.
7. Enter the appropriate password when prompted to do so.

   Is the "Please Define the System Console" screen displayed?

NO The card you just reconnected is defective, replace with new card(s). To verify any cards that remain disconnected, go to "Step 1540-5" on page 18 and continue.
YES Go to "Step 1540-5" on page 18.

Step 1540-5

Have all cards in the list in step "Step 1540-4" on page 17 been replaced with new or original cards?

NO Go to "Step 1540-4" on page 17.
YES Go to "Step 1540-8" on page 19 to verify the I/O portion of the system.

Step 1540-6

1. Turn the power off.
2. Disconnect the AC power cable from the System Rack.
3. Replace the processor card at M08 with a processor card previously removed from M20, if any, or replace M08 with a new processor card.
4. Connect the AC power cord to the System Rack and turn the power on.

Is the "Please Define the System Console" screen displayed?

NO Go to "Step 1540-7."
YES The processor card that you replaced is failing, replace the processor card. Go to "Step 1540-5."

Step 1540-7

1. Turn the power off.
2. Disconnect the AC power cable from the System Rack.
3. Replace memory cards in quad A at M01, M02, M14, and M15 with memory cards previously removed, if any, or replace with new memory cards.
4. Connect the AC power cable to the System Rack and turn the power on.

Is the "Please Define the System Console" screen displayed?

NO Go to "Step 1540-9" on page 20.
YES The memory cards you just replaced are failing, replace the memory cards. Go to "Step 1540-5."

Step 1540-8

The system stopped with the “Please Define System Console” prompt appearing on the system console.

Standalone diagnostics can be booted.

1. Follow the instructions on the screen to select the system console.
2. When the DIAGNOSTIC OPERATING INSTRUCTIONS screen is displayed, press Enter.
3. If the terminal type has not been defined, you must use the Initial Terminal option of the FUNCTION SELECTION menu to initialize the AIX operating system environment before you can continue with the diagnostics. This is a separate and different operation than selecting the console display.
4. Select Advanced Diagnostic Routines.
5. When the DIAGNOSTIC MODE SELECTION menu displays, select System Verification.
6. Record any devices missing from the list of all adapters and devices. Continue with this MAP. When you have fixed the problem, use this record to verify that all devices appear when you run System Verification.

Are there any devices missing from the list of all adapters and devices?

NO Reinstall all remaining adapters, if any, and reconnect all devices. Return the system to its original configuration. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

YES The boot attempts that follow will attempt to isolate any remaining I/O Drawer problems with missing devices. Ignore any codes that may appear on the operator panel unless stated otherwise. A successful Boot is one where the system displays “Please Define the System Console” prompt and displays all configured and connected devices in the System Verification Menu.

Go to “Step 1540-9” on page 20.

Step 1540-9

Look at the rear of the System Rack and locate the JTAG cable in the top left corner.

Follow the other end of the JTAG cable back to the Service Processor card located in the primary I/O Drawer in the primary I/O rack.

Are there any secondary I/O Drawers attached to the System Rack?

NO Go to “Step 1540-40” on page 38.
YES Go to “Step 1540-10” on page 21.

Step 1540-10

There is a least one secondary I/O Drawer attached to the System Rack. Isolate the primary I/O drawer by performing the following steps:

Note: Before continuing, check the cabling from the System Rack to I/O Drawer(s) to ensure that the system is cabled correctly. Refer to "Cabling the system Rack and the Input/Output Rack" on page 1-35 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for valid configurations. Record the current cabling configuration and then continue below.

1. Turn the system power off.
2. Verify that primary I/O drawer RIO port 0 is connected to system rack RIO port 0.
3. Connect primary I/O drawer RIO port 1 to system rack RIO port 1.
4. Verify that the primary I/O drawer SPCN port 1 is connected to system rack SPCN port 0.
5. Connect primary I/O drawer SPCN port 2 to system rack SPCN port 1.

   Note: The primary I/O Drawer should be cabled as shown in "Cabling the System Rack and Input/Output Rack" on page 1-35 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for "System Rack Attached to one I/O Drawer." Be sure to look at both RIO cables and SPCN cables.

6. Disconnect AC (or DC, if -48 V dc system) power cables from remaining I/O Drawer(s).

   Attention: The I/O rack you are working on may have I/O drawers which are connected to other system racks or other third party drawers attached to the power distribution bus. To avoid removing power from drawers which are used by other systems, when you are instructed to unplug power from an I/O drawer, remove only the PDU side of the "Y" or single AC cables connected to the I/O drawer in question.

7. All I/O drawers except the primary I/O Drawer should now be physically disconnected from the System Rack.

Go to "Step 1540-11" on page 22.

Step 1540-11

The primary I/O Drawer is the only remaining I/O Drawer connected to the System Rack.

Turn the power on.

If the boot is not successful, the problem is in primary I/O drawer.

Was the boot successful?

NO Go to “Step 1540-12.”
YES Go to “Step 1540-24” on page 30.

Step 1540-12

Perform the following to deconfigure the primary I/O drawer:

1. Turn off the power.
2. If you have not already done so, reset the Service Processor settings with the instructions in 6 on page 15, then return here and continue.
3. Exit the Service Processor menus and remove the AC (or DC, if -48 V dc system) power cables from the System Rack and the Input/Output drawer.

   Attention: The I/O rack you are working on may have I/O drawers which are connected to other system racks or other third party drawers attached to the power distribution bus. To avoid removing power from drawers which are used by other systems, when you are instructed to unplug power from an I/O drawer, remove only the PDU side of the “Y” or single AC cables connected to the I/O drawer in question.

   Note: To remove the DC power cables and DC power from the -48 V dc system, first set all circuit breakers on both the System Rack and Input/Output Rack to the Off position. Then, remove the top and bottom input cables to the DC box (shown on page 1-49 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548).

   Remove all dc supply cables from the circuit breakers to the configured drawers in the rack.

4. If a display adapter with keyboard and mouse connected to the primary I/O drawer is being used as the console, locate a standalone serial terminal (possibly a 3151) and connect to the S1 serial port.
5. Remove the keyboard and mouse, if attached to the primary I/O drawer.
6. Leave the remaining external cables (RIO-port0, RIO-port1, SPCN-port0, SPCN-port1, JTAG-SP, and OPPanel) connected.
7. Disconnect the diskette drive cable from the diskette drive connector on the Service Processor card.
8. Plug in the AC power cables for the System Rack and the Input/Output drawer. (If -48 V dc system, plug in all disconnected cables from step 3 on page 22, set the circuit breakers to On.) The operator panel should now display a blank yellow backlighted LED panel.

Are there any adapters in slots 1, 2, 3, or 4?

NO Go to "Step 1540-13."
YES Go to "Step 1540-16" on page 24.

Step 1540-13

Are there any adapters in slots 5, 6, or 7?

NO Go to "Step 1540-14" on page 24.
YES Go to "Step 1540-17" on page 25.

Step 1540-14

Are there any adapters in slots 9 or 10?

NO Go to “Step 1540-15.”
YES Go to “Step 1540-18” on page 25.

Step 1540-15

Are there any adapters in slots 11, 12, 13, or 14?

NO Go to “Step 1540-22” on page 28.
YES Go to “Step 1540-19” on page 26.

Step 1540-16

1. If not already off, turn power off.
2. Remove all adapters from slots 1, 2, 3, and 4 that are not attached to the boot device.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn power on.
6. When the TTY screen displays `Enter 0 to select this console`, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

NO Go to “Step 1540-13” on page 23.
YES Go to “Step 1540-20” on page 27.

Step 1540-17

1. If not already off, turn power off.
2. Remove all adapters from slots 5, 6, and 7 that are not attached to the boot device.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn power on.
6. When the TTY screen displays `Enter 0 to select this console`, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

NO Go to “Step 1540-14” on page 24.
YES Go to “Step 1540-20” on page 27.

Step 1540-18

1. If not already off, turn power off.
2. Remove all adapters from slots 9 and 10 that are not attached to the boot device.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn power on.
6. When the TTY screen displays `Enter 0 to select this console`, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

NO Go to “Step 1540-15” on page 24.
YES Go to “Step 1540-20” on page 27.

Step 1540-19

1. If not already off, turn power off.
2. Remove all adapters from slots 11, 12, 13, and 14 that are not attached to the boot device.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn power on.
6. When the TTY screen displays `Enter 0 to select this console`, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

NO Go to “Step 1540-22” on page 28.
YES Go to “Step 1540-20” on page 27.

Step 1540-20

If the boot was successful, the problem is with one of the adapter cards or devices that was removed or disconnected from the primary I/O Drawer.

1. Turn the power off.
2. Reinstall one adapter or device that was removed. Use the original adapter cards in their original slots when reinstalling adapters.
3. Turn the power on.

Was the boot successful?

NO Go to “Step 1540-21.”
YES Reinstall the next adapter or device and return to the beginning of this step. Continue repeating this process until an adapter or device causes the boot to be unsuccessful.

Step 1540-21

The adapter or device you just installed is causing the boot to be unsuccessful. Replace the adapter or device that is causing the boot to be unsuccessful with a new adapter.

Reinstall all remaining adapters and reconnect all devices. Return the system to its original configuration. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Step 1540-22

If boot is unsuccessful, turn off the power, disconnect the I/O drawer AC power cable (or DC power cables, if -48 V dc system), and replace the remaining parts listed in the table below one at a time. Reconnect the I/O drawer AC power cable (or DC power cables, if -48 V dc system and set the circuit breakers to the On position) turn power on, and check for a successful boot.

Note: To remove the DC power cables and DC power from the -48 V dc system, first set all circuit breakers on both the System Rack and Input/Output Rack to the Off position. Then, remove the top and bottom input cables to the DC box (shown on page 1-49 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548).

Remove all dc supply cables from the circuit breakers to the configured drawers in the rack.

	7 EIA-Unit I/O Drawer	**10 EIA-Unit I/O Drawer**
You have been directed to MAP 1540 by the SRC tables and the SRC is B4xx4470 or B4xx6470.	1. JTAG cable 3M 2. RIO cable 3. Service processor card 4. Boot device SCSI card 5. I/O planar 6. Return to SRC B4xx4470 or B4xx6470 and perform the last 2 steps.	1. JTAG cable 3M 2. RIO cable 3. Service processor card 4. Boot device SCSI card 5. I/O planar 6. Return to SRC B4xx4470 or B4xx6470 and perform the last 2 steps.
You have been directed to MAP 1540 by the SRC tables and the SRC is **NOT** B4xx4470 or B4xx6470.	1. Boot device SCSI card 2. Boot device SCSI cable 3. Service processor card 4. I/O planar 5. 3/4 power supply 6. 1/4 power supply 7. Indicator card 8. Three fan assembly.	1. Boot device SCSI card 2. Boot device SCSI cable 3. Service processor card 4. I/O planar 5. Drawer indicator panel 6. Fan monitoring card 7. Both power supplies 8. Power distribution board.

Was the boot successful?

NO Reinstall the next part in the list and return to the beginning of this step. Continue repeating this process until a part causes the boot to be successful.

If you have replaced all the items listed above and the boot is not successful, check any external devices and cabling. If you do not find a problem, contact your next level of support for assistance.

YES Go to “Step 1540-23” on page 30.

Step 1540-23

If the boot is successful:

1. Turn the power off.
2. The item just replaced fixed the problem.
3. If a display adapter with keyboard and mouse were used reinstall the display adapter card, keyboard and mouse.
4. Reconnect the diskette drive cable to the service processor card.
5. Plug in all adapters that were previously removed but not reinstalled.
6. Reconnect the I/O drawer AC (or DC, if -48 V dc system) power cables that were previously disconnected.

   Note: Ensure the Input/Output Rack circuit breakers are set to the On position.

Reconfigure the system to its original condition. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Step 1540-24

If boot is successful, the problem is with a remaining secondary I/O drawer.

Is the primary I/O Drawer the only drawer connected at this time?

NO Go to "Step 1540-25" on page 31.

YES Reconnect the second I/O Drawer in the configuration that you recorded earlier in this MAP.

Note: The I/O Drawers should be cabled as shown in "Cabling the System Rack and Input/Output Rack" on page 1-35 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 under "System Rack Attached to two I/O Drawers." Be sure to look at both RIO cables and SPCN cables.

1. Connect AC (or DC, if -48 V dc system) power to this secondary drawer.
2. All I/O drawers except the primary I/O drawer and one secondary I/O drawer should now be physically disconnected from the system rack.

Go to "Step 1540-26" on page 31.

Step 1540-25

The last I/O Drawer reconnected was a secondary I/O Drawer. Reconnect the next I/O Drawer in the configuration you recorded earlier in this MAP.

Note: The I/O Drawers should be cabled as shown in "Cabling the System Rack and Input/Output Rack" on page 1-35 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Be sure to look at both RIO cables and SPCN cables.

Go to "Step 1540-26."

Step 1540-26

Turn on the power.

Is the boot successful?

NO Go to "Step 1540-27" on page 32.
YES **Is there another I/O Drawer to connect?**

NO The problem has changed, call your next level of support.

YES Go to "Step 1540-25."

Step 1540-27

The boot is not successful, the problem is in last secondary I/O Drawer that was connected. Do the following steps to deconfigure this secondary I/O Drawer.

1. Turn off the power.
2. Unplug the AC (or DC, if -48 V dc system) power cables for the System Rack and the I/O drawer.

   Note: To remove DC power in the System Rack set all circuit breakers to the Off position. Then, remove the DC input cables to the DC Box, both the top and bottom connectors. To remove DC power in the Input/Output Rack, set all circuit breakers to the Off position and disconnect the DC input cables from the 3/4 and 1/4 power supplies.
3. Leave the external cables (RIO-port0, RIO-port1, SPCN-port0, SPCN-port1) connected.
4. Plug in the AC (or DC, if -48 V dc system) power cables for the System Rack and the I/O drawer.

   Note: If -48 V dc system, reconnect the cables that were disconnected in step 2 and set the circuit breakers to the On position.

   The operator panel should now display a blank yellow backlighted LED panel.
5. Go to “Step 1540-28” on page 33.

Step 1540-28

Are there any adapters in slots 1, 2, 3, or 4?

NO Go to “Step 1540-29.”
YES Go to “Step 1540-32” on page 34.

Step 1540-29

Are there any adapters in slots 5, 6, 7, or 8?

NO Go to “Step 1540-30.”
YES Go to “Step 1540-33” on page 34.

Step 1540-30

Are there any adapters in slots 9 or 10?

NO Go to “Step 1540-31.”
YES Go to “Step 1540-34” on page 35.

Step 1540-31

Are there any adapters in slots 11, 12, 13, or 14?

NO Go to “Step 1540-38” on page 37.
YES Go to “Step 1540-35” on page 35.

Step 1540-32

1. If not already off, turn power off.
2. Remove all adapters from slots 1, 2, 3, and 4 that are not attached to the boot device.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn power on.
6. When the TTY screen displays `Enter 0 to select this console`, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

NO Go to “Step 1540-29” on page 33.
YES Go to “Step 1540-36” on page 36.

Step 1540-33

1. If not already off, turn power off.
2. Remove all adapters from slots 5, 6, 7, and 8 that are not attached to the boot device.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn power on.
6. When the TTY screen displays `Enter 0 to select this console`, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

NO Go to “Step 1540-30” on page 33.
YES Go to “Step 1540-36” on page 36.

Step 1540-34

1. If not already off, turn power off.
2. Remove all adapters from slots 9 and 10 that are not attached to the boot device.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn power on.
6. When the TTY screen displays `Enter 0 to select this console`, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

NO Go to “Step 1540-31” on page 33.
YES Go to “Step 1540-36” on page 36.

Step 1540-35

1. If not already off, turn power off.
2. Remove all adapters from slots 11, 12, 13, and 14 that are not attached to the boot device.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn power on.
6. When the TTY screen displays `Enter 0 to select this console`, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

NO Go to “Step 1540-38” on page 37.
YES Go to “Step 1540-36” on page 36.

Step 1540-36

If the boot was successful, the problem is with one of the adapter cards or devices that was removed or disconnected from the I/O Drawer.

1. Turn the power off.
2. Replace one adapter or device that was removed. Use the original adapter cards in their original slots when reinstalling adapters.
3. Turn the power on.

Was the boot successful?

NO Go to “Step 1540-37.”
YES Reinstall the next adapter or device and return to number 1 in this step. Continue repeating this process until an adapter or device causes the boot to be unsuccessful.

Step 1540-37

Replace the adapter or device that is causing the boot to be unsuccessful with a new adapter.

Reinstall all remaining adapters and reconnect all devices. Return the system to its original configuration. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Step 1540-38

If boot is unsuccessful, turn off the power and replace the remaining parts (listed below) in this drawer, one at a time. Turn power on and check for a successful boot.

	7 EIA-Unit I/O Drawer	10 EIA-Unit I/O Drawer
You have been directed to MAP 1540 by the SRC tables and the SRC is B4xx4470 or B4xx6470.	1. I/O planar	1. I/O planar
You have been directed to MAP 1540 by the SRC tables and the SRC is **NOT** B4xx4470 or B4xx6470.	1. I/O planar 2. 3/4 power supply 3. 1/4 power supply 4. Indicator card 5. Three fan assembly.	1. I/O planar 2. Drawer indicator panel 3. Fan monitoring card 4. Both power supplies 5. Power distribution board.

Was the boot successful?

NO Reinstall the next part in the list and return to the beginning of this step. Continue repeating this process until a part causes the boot to be successful.

If you have replaced all the items listed above and the boot is not successful, check any external devices and cabling. If you do not find a problem, contact your next level of support for assistance.

YES Go to “Step 1540-39” on page 38.

Step 1540-39

If the boot is successful:

1. Turn the power off.
2. The item just replaced fixed the problem.
3. Plug in all adapters that were previously removed but not reinstalled.
4. Reconnect the I/O drawer AC (or AC, if -48 V dc system) cables that were previously disconnected. Ensure the circuit breakers are set to the On position.

Reconfigure the system to its original condition. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Step 1540-40

The primary I/O Drawer is the only I/O Drawer that was connected to the system rack.

Go to “Step 1540-12” on page 22.

Update 3

This section contains updates made to the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548, “Chapter 6, Error Code to FRU Index.” Updates include:

- Update to firmware error code 28A00355
- Updated (B4XX) System Processor Reference Codes.

Table 1. Firmware Error Codes.

Error Code	Description	Action/ Possible Failing FRU
28A00355	PS2 I2C bus Hang. Firmware cannot read the status of the second power supply.	1. Replace power supply 2. 2. Replace the power distribution board. 3. Replace I/O drawer planar. To identify failing I/O Drawer location, see note 5 on page 6-1 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

(B4xx) System Processor Reference Codes

1. Look at the 4 rightmost characters of the SRC (Data display for function 11-3). These 4 characters are the unit reference code.

   Note: Function 11 provides the primary SRC. Function 12 is an informational status message only and not used. Functions 14 and 15 provide secondary reference codes in addition to the primary SRC. Function 19 provides CCIN information for FRU replacement. Function 13 provides status information for service support use.

   Press Enter to view the SRC. If no SRC is present, press Enter to continue to the next function.

   SRC information should be recorded for error reporting. For example, the system processor detected a failure.

   a. Look at the four rightmost characters of the operator panel display for function 11. These four characters are the unit reference code.

   b. Look at functions 14 and 15 for more reference codes. Each is four characters in length. There may be from zero to four unit reference codes contained in these words. For example:

      ```
      Word 11 - B455 rrrr
      Word 14 - rrrr rrrr
      Word 15 - rrrr 0000
      Word 19 - CCIN CCIN
      ```

      This example shows a total of four reference codes for this failure. The `rrrr` signifies the reference codes. Each reference code has only one FRU associated with it. The CCIN is used to determine a failing FRU in some cases.

   c. Record Word 19. Word 19 can contain a CCIN code that helps differentiate between some failing FRUs, such as memory cards or processor cards.

2. Find the unit reference code in the following table.

B4xx

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4400	System processor card failure A processor card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Processor card 0, M08 Location Code: U1.1-P1-C1 AIX location: 00-00 00-01 00-02 00-03
4401	System processor card failure A processor card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Processor card 1, M09 Location Code: U1.1-P1-C2 AIX Location: 00-04 00-05 00-06 00-07
4402	System processor card failure A processor card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Processor card 2, M20 Location Code: U1.1-P1-C3 AIX Location: 00-08 00-09 00-10 00-11

B4xx

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4403	System processor card failure A processor card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Processor card 0 Processor card 1 Processor card 2 Cannot isolate to 1 FRU, see “Logical and Physical Locations” on page 1-57 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for processor card locations.
4410	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M01 Location Code: U1.1-P1-M1 AIX Location: 00-00
4411	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M02 Location Code: U1.1-P1-M2 AIX Location: 00-00

B4xx

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4412	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M03 Location Code: U1.1-P1-M3 AIX Location: 00-00
4413	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M04 Location Code: U1.1-P1-M4 AIX Location: 00-00
4414	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M05 Location Code: U1.1-P1-M5 AIX Location: 00-00

B4xx

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4415	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M06 Location Code: U1.1-P1-M6 AIX Location: 00-00
4416	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M10 Location Code: U1.1-P1-M7 AIX Location: 00-00
4417	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M11 Location Code: U1.1-P1-M8 AIX Location: 00-00

B4xx

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4418	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M12 Location Code: U1.1-P1-M9 AIX Location: 00-00
4419	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M13 Location Code: U1.1-P1-M10 AIX Location: 00-00
441A	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M14 Location Code: U1.1-P1-M11 AIX Location: 00-00

B4xx

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
441B	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M15 Location Code: U1.1-P1-M12 AIX Location: 00-00
441C	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M16 Location Code: U1.1-P1-M13 AIX Location: 00-00
441D	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M17 Location Code: U1.1-P1-M14 AIX Location: 00-00

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
441E	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M18 Location Code: U1.1-P1-M15 AIX Location: 00-00
441F	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M19 Location Code: U1.1-P1-M16 AIX Location: 00-00
4420	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M21 Location Code: U1.1-P1-M17 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4421	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M22 Location Code: U1.1-P1-M18 AIX Location: 00-00
4422	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M23 Location Code: U1.1-P1-M19 AIX Location: 00-00
4423	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M24 Location Code: U1.1-P1-M20 AIX Location: 00-00
4430	Greater than 32GB of memory detected. Reduce the memory to less than 32GB.	N/A

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4435	Main storage failure A memory card at the specified location is faulty. Probability is high. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card Cannot isolate to 1 FRU, see "Logical and Physical Locations" on page 1-57 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for memory card locations.
4440	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4441	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4442	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code		Description/Action Perform all actions before exchanging Failing Items	Failing Item
4 4 4 3	Processor CCIN (word 19) is equal to 5312 or 5313	Word 13 does not equal 700xBB1B or 700x2342 (where x=0 to B). I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
		Word 13 equals 700xBB1B or 700x2342 (where x=0 to B): 1. Try to reboot. 2. If reboot is successful, contact your second level support. 3. If reboot is not successful, a new SRC should appear to isolate the problem.	Perform indicated action(s).
	Processor CCIN (word 19) is not equal to 5312 or 5313.	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4444		I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4445	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4446	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4450	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4451	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4452	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4453	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4454	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4455	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4456	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4457	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4458	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4459	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
445A	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
445B	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4460	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4461	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4462	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4463	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4464	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4465	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4466	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4467	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4468	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4469	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
446A	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
446B	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4470	Problem could be propagated from the attached Input/Output devices. Go to "MAP 1540: Minimum Configuration" on page 14 and attempt to isolate the problem. If MAP 1540 fails to isolate the problem, return here and continue below.	Go to "MAP 1540: Minimum Configuration" on page 14.
	After returning from "MAP 1540: Minimum Configuration" on page 14, the problem could be the JTAG cable or the system backplane assembly. Before replacing and parts, test for the existence of the proper number and position of memory cards and processor cards. This condition may result in invalid configurations during VPD reading. **Note:** Record function 13 codes. Contact your second level of support before replacing the system backplane assembly.	1. JTAG Cable (internal) 2. System Backplane Assembly Location Code: U1.1-P1 AIX Location: 00-00
4480	Clock Card Failure	Clock Card, M07 Location Code: U1.1-P1-X1 AIX Location: 00-00
4490	Firmware error	Service Processor Firmware Location Code: U0.1-P1-X1

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4491	Address out of range error. Possible causes could be hardware, operating system, or application programs. With the assistance of your second level of support, check the value of function code 13. If function code 13 does not show that the problem was caused by hardware, check with AIX support for pertinent AIX program temporary fixes (PTFs).	Possible CPU Pipeline error (Software PTF to fix) Service Processor Firmware Location Code: U0.1-P1-X1
4492	Firmware error	Service Processor Firmware Location Code: U0.1-P1-X1
4500	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J1L Location Code: U1.1-P1-M18.1 AIX Location: 00-00
4501	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J1R Location Code: U1.1-P1-M18.2 AIX Location: 00-00
4502	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J3L Location Code: U1.1-P1-M18.3 AIX Location: 00-00
4503	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J3R Location Code: U1.1-P1-M18.4 AIX Location: 00-00
4504	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J5L Location Code: U1.1-P1-M18.5 AIX Location: 00-00
4505	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J5R Location Code: U1.1-P1-M18.6 AIX Location: 00-00
4506	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J7L Location Code: U1.1-P1-M18.7 AIX Location: 00-00
4507	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J7R Location Code: U1.1-P1-M18.8 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4508	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J2L Location Code: U1.1-P1-M18.9 AIX Location: 00-00
4509	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J2R Location Code: U1.1-P1-M18.10 AIX Location: 00-00
450A	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J4L Location Code: U1.1-P1-M18.11 AIX Location: 00-00
450B	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J4R Location Code: U1.1-P1-M18.12 AIX Location: 00-00
450C	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J6L Location Code: U1.1-P1-M18.13 AIX Location: 00-00
450D	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J6R Location Code: U1.1-P1-M18.14 AIX Location: 00-00
450E	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J8L Location Code: U1.1-P1-M18.15 AIX Location: 00-00
450F	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-J8R Location Code: U1.1-P1-M18.16 AIX Location: 00-00
4510	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M22-JX Location Code: U1.1-P1-M18 AIX Location: 00-00
4511	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J1L Location Code: U1.1-P1-M17.1 AIX Location: 00-00
4512	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J1R Location Code: U1.1-P1-M17.2 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4513	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J3L Location Code: U1.1-P1-M17.3 AIX Location: 00-00
4514	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J3R Location Code: U1.1-P1-M17.4 AIX Location: 00-00
4515	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J5L Location Code: U1.1-P1-M17.5 AIX Location: 00-00
4516	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J5R Location Code: U1.1-P1-M17.6 AIX Location: 00-00
4517	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J7L Location Code: U1.1-P1-M17.7 AIX Location: 00-00
4518	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J7R Location Code: U1.1-P1-M17.8 AIX Location: 00-00
4519	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J2L Location Code: U1.1-P1-M17.9 AIX Location: 00-00
451A	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J2R Location Code: U1.1-P1-M17.10 AIX Location: 00-00
451B	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J4L Location Code: U1.1-P1-M17.11 AIX Location: 00-00
451C	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J4R Location Code: U1.1-P1-M17.12 AIX Location: 00-00
451D	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J6L Location Code: U1.1-P1-M17.13 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
451E	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J6R Location Code: U1.1-P1-M17.14 AIX Location: 00-00
451F	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J8L Location Code: U1.1-P1-M17.15 AIX Location: 00-00
4520	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-J8R Location Code: U1.1-P1-M17.16 AIX Location: 00-00
4521	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M21-JX Location Code: U1.1-P1-M17 AIX Location: 00-00
4522	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J1L Location Code: U1.1-P1-M15.1 AIX Location: 00-00
4523	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J1R Location Code: U1.1-P1-M15.2 AIX Location: 00-00
4524	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J3L Location Code: U1.1-P1-M15.3 AIX Location: 00-00
4525	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J3R Location Code: U1.1-P1-M15.4 AIX Location: 00-00
4526	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J5L Location Code: U1.1-P1-M15.5 AIX Location: 00-00
4527	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J5R Location Code: U1.1-P1-M15.6 AIX Location: 00-00
4528	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J7L Location Code: U1.1-P1-M15.7 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4529	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J7R Location Code: U1.1-P1-M15.8 AIX Location: 00-00
452A	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J2L Location Code: U1.1-P1-M15.9 AIX Location: 00-00
452B	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J2R Location Code: U1.1-P1-M15.10 AIX Location: 00-00
452C	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J4L Location Code: U1.1-P1-M15.11 AIX Location: 00-00
452D	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J4R Location Code: U1.1-P1-M15.12 AIX Location: 00-00
452E	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J6L Location Code: U1.1-P1-M15.13 AIX Location: 00-00
452F	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J6R Location Code: U1.1-P1-M15.14 AIX Location: 00-00
4530	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J8L Location Code: U1.1-P1-M15.15 AIX Location: 00-00
4531	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-J8R Location Code: U1.1-P1-M15.16 AIX Location: 00-00
4532	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M18-JX Location Code: U1.1-P1-M15 AIX Location: 00-00
4533	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J1L Location Code: U1.1-P1-M16.1 AIX Location: 00-00

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4534	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J1R Location Code: U1.1-P1-M16.2 AIX Location: 00-00
4535	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J3L Location Code: U1.1-P1-M16.3 AIX Location: 00-00
4536	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J3R Location Code: U1.1-P1-M16.4 AIX Location: 00-00
4537	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J5L Location Code: U1.1-P1-M16.5 AIX Location: 00-00
4538	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J5R Location Code: U1.1-P1-M16.6 AIX Location: 00-00
4539	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J7L Location Code: U1.1-P1-M16.7 AIX Location: 00-00
453A	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J7R Location Code: U1.1-P1-M16.8 AIX Location: 00-00
453B	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J2L Location Code: U1.1-P1-M16.9 AIX Location: 00-00
453C	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J2R Location Code: U1.1-P1-M16.10 AIX Location: 00-00
453D	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J4L Location Code: U1.1-P1-M16.11 AIX Location: 00-00
453E	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J4R Location Code: U1.1-P1-M16.12 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
453F	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J6L Location Code: U1.1-P1-M16.13 AIX Location: 00-00
4540	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J6R Location Code: U1.1-P1-M16.14 AIX Location: 00-00
4541	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J8L Location Code: U1.1-P1-M16.15 AIX Location: 00-00
4542	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-J8R Location Code: U1.1-P1-M16.16 AIX Location: 00-00
4543	Main storage failure A memory card at the specified location is faulty. Probability is high.	MEMORY, M19-JX Location Code: U1.1-P1-M16 AIX Location: 00-00
4544	Main storage failure A memory card at the specified location is faulty. Probability is high. The B0 in the location code is calling out J1L, J1R, J5L, and J5R.	MEMORY, M22B0 M21B0 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 1,2,5, and 6 AIX Location: 00-00
4545	Main storage failure A memory card at the specified location is faulty. Probability is high. The B1 in the location column is calling out J3L, J3R, J7L, and J7R.	MEMORY, M22B1 M21B1 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 3,4,7, and 8 AIX Location: 00-00
4546	Main storage failure A memory card at the specified location is faulty. Probability is high. The B0 in the location column is calling out J1L, J1R, J5L, and J5R.	MEMORY, M22B0 M21B0 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 1,2,5, and 6 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4547	Main storage failure A memory card at the specified location is faulty. Probability is high. The B1 in the location column is calling out J3L, J3R, J7L, and J7R.	MEMORY, M22B1 M21B1 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 3,4,7, and 8 AIX Location: 00-00
4550	Main storage failure A memory card at the specified location is faulty. Probability is high. The B2 in the location column is calling out J2L, J2R, J6L, and J6R.	MEMORY, M22B2 M21B2 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 9,10,13, and 14 AIX Location: 00-00
4551	Main storage failure A memory card at the specified location is faulty. Probability is high. The B3 in the location column is calling out J4L, J4R, J8L, and J8R.	MEMORY, M22B3 M21B3 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 11,12,15, and 16 AIX Location: 00-00
4552	Main storage failure A memory card at the specified location is faulty. Probability is high. The B2 in the location column is calling out J2L, J2R, J6L, and J6R.	MEMORY, M22B2 M21B2 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 9,10,13, and 14 AIX Location: 00-00
4553	Main storage failure A memory card at the specified location is faulty. Probability is high. The B3 in the location column is calling out J4L, J4R, J8L, and J8R.	MEMORY, M22B3 M21B3 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 11,12,15, and 16 AIX Location: 00-00
4554	Main storage failure A memory card at the specified location is faulty. Probability is high. The B4 in the location column is calling out J1L, J1R, J5L, and J5R.	MEMORY, M18B4 M19B4 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 1,2,5, and 6 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4555	Main storage failure A memory card at the specified location is faulty. Probability is high. The B5 in the location column is calling out J3L, J3R, J7L, and J7R.	MEMORY, M18B5 M19B5 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 3,4,7, and 8 AIX Location: 00-00
4556	Main storage failure A memory card at the specified location is faulty. Probability is high. The B4 in the location column is calling out J1L, J1R, J5L, and J5R.	MEMORY, M18B4 M19B4 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 1,2,5, and 6 AIX Location: 00-00
4557	Main storage failure A memory card at the specified location is faulty. Probability is high. The B5 in the location column is calling out J3L, J3R, J7L, and J7R.	MEMORY, M18B5 M19B5 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 3,4,7, and 8 AIX Location: 00-00
4558	Main storage failure A memory card at the specified location is faulty. Probability is high. The B6 in the location column is calling out J2L, J2R, J6L, and J6R.	MEMORY, M18B6 M19B6 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 9,10,13, and 14 AIX Location: 00-00
4559	Main storage failure A memory card at the specified location is faulty. Probability is high. The B7 in the location column is calling out J4L, J4R, J8L, and J8R.	MEMORY, M18B7 M19B7 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 11,12,15, and 16 AIX Location: 00-00
455A	Main storage failure A memory card at the specified location is faulty. Probability is high. The B6 in the location column is calling out J2L, J2R, J6L, and J6R.	MEMORY, M18B6 M19B6 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 9,10,13, and 14 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
455B	Main storage failure A memory card at the specified location is faulty. Probability is high. The B7 in the location column is calling out J4L, J4R, J8L, and J8R.	MEMORY, M18B7 M19B7 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 11,12,15, and 16 AIX Location: 00-00
4570	I/O adapter hardware error detected. Use the Service Processor Menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the I/O Drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4571	I/O adapter hardware error detected. Use the Service Processor Menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the I/O Drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
4572	I/O adapter hardware error detected. Use the Service Processor Menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the I/O Drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4573	I/O adapter hardware error detected. Use the Service Processor Menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the I/O Drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14
4580	I/O Planar 0 detected, probability is high.	Go to "MAP 1540: Minimum Configuration" on page 14.
4581	PCI error detected, probability is high.	Drawer 0, Slot 1 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
4582	PCI error detected, probability is high.	Drawer 0, Slot 2 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4583	PCI error detected, probability is high.	Drawer 0, Slot 3 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
4584	PCI error detected, probability is high.	Drawer 0, Slot 4 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
4585	PCI error detected, probability is high.	Drawer 0, Slot 5 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4586	PCI error detected, probability is high.	Drawer 0, Slot 6 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
4587	PCI error detected, probability is high.	Drawer 0, Slot 7 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
4588	PCI error detected, probability is high.	Drawer 0, Slot 8 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4589	PCI error detected, probability is high.	Drawer 0, Slot 9 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
458A	PCI error detected, probability is high.	Drawer 0, Slot 10 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
458B	PCI error detected, probability is high.	Drawer 0, Slot 11 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
458C	PCI error detected, probability is high.	Drawer 0, Slot 12 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
458D	PCI error detected, probability is high.	Drawer 0, Slot 13 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
458E	PCI error detected, probability is high.	Drawer 0, Slot 14 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
4590	I/O Planar 1 detected, probability is high.	Go to "MAP 1540: Minimum Configuration" on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4591	PCI error detected, probability is high.	Drawer 1, Slot 1 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
4592	PCI error detected, probability is high.	Drawer 1, Slot 2 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
4593	PCI error detected, probability is high.	Drawer 1, Slot 3 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4594	PCI error detected, probability is high.	Drawer 1, Slot 4 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
4595	PCI error detected, probability is high.	Drawer 1, Slot 5 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
4596	PCI error detected, probability is high.	Drawer 1, Slot 6 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4597	PCI error detected, probability is high.	Drawer 1, Slot 7 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
4598	PCI error detected, probability is high.	Drawer 1, Slot 8 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
4599	PCI error detected, probability is high.	Drawer 1, Slot 9 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
459A	PCI error detected, probability is high.	Drawer 1, Slot 10 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
459B	PCI error detected, probability is high.	Drawer 1, Slot 11 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
459C	PCI error detected, probability is high.	Drawer 1, Slot 12 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
459D	PCI error detected, probability is high.	Drawer 1, Slot 13 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
459E	PCI error detected, probability is high.	Drawer 1, Slot 14 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
45A0	I/O Planar 2 detected, probability is high.	Go to "MAP 1540: Minimum Configuration" on page 14.
45A1	PCI error detected, probability is high.	Drawer 2, Slot 1 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A2	PCI error detected, probability is high.	Drawer 2, Slot 2 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45A3	PCI error detected, probability is high.	Drawer 2, Slot 3 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45A4	PCI error detected, probability is high.	Drawer 2, Slot 4 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A5	PCI error detected, probability is high.	Drawer 2, Slot 5 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45A6	PCI error detected, probability is high.	Drawer 2, Slot 6 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45A7	PCI error detected, probability is high.	Drawer 2, Slot 7 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A8	PCI error detected, probability is high.	Drawer 2, Slot 8 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45A9	PCI error detected, probability is high.	Drawer 2, Slot 9 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45AA	PCI error detected, probability is high.	Drawer 2, Slot 10 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45AB	PCI error detected, probability is high.	Drawer 2, Slot 11 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45AC	PCI error detected, probability is high.	Drawer 2, Slot 12 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45AD	PCI error detected, probability is high.	Drawer 2, Slot 13 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45AE	PCI error detected, probability is high.	Drawer 2, Slot 14 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
45B0	I/O Planar 3 detected, probability is high.	Go to "MAP 1540: Minimum Configuration" on page 14.
45B1	PCI error detected, probability is high.	Drawer 3, Slot 1 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
45B2	PCI error detected, probability is high.	Drawer 3, Slot 2 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B3	PCI error detected, probability is high.	Drawer 3, Slot 3 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
45B4	PCI error detected, probability is high.	Drawer 3, Slot 4 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
45B5	PCI error detected, probability is high.	Drawer 3, Slot 5 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B6	PCI error detected, probability is high.	Drawer 3, Slot 6 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45B7	PCI error detected, probability is high.	Drawer 3, Slot 7 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45B8	PCI error detected, probability is high.	Drawer 3, Slot 8 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B9	PCI error detected, probability is high.	Drawer 3, Slot 9 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45BA	PCI error detected, probability is high.	Drawer 3, Slot 10 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
45BB	PCI error detected, probability is high.	Drawer 3, Slot 11 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45BC	PCI error detected, probability is high.	Drawer 3, Slot 12 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
45BD	PCI error detected, probability is high.	Drawer 3, Slot 13 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
45BE	PCI error detected, probability is high.	Drawer 3, Slot 14 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
4A00	Illegal condition detected.	Contact your next level of support. Do not replace any FRUs in an attempt to fix this problem.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4A0C	Invalid configuration.	All processor cards, M08, M09, M20 Check processor card configurations. Contact your next level of support. Do not replace any FRUs in an attempt to fix this problem. **Attention:** If you have just completed an upgrade to 262 MHz processor cards, check the newly installed cards and verify that the VPD modules are installed on the correct processor cards. 262 MHz processor cards with CCIN number 241A should have a VPD module with a CCIN number of 5312. 262 MHz processor cards with CCIN number 241B should have a VPD module with a CCIN number of 5313.
6400	System processor card failure A processor card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Processor card 0, M08 Location Code: U1.1-P1-C1 AIX Location: 00-00 00-01 00-02 00-03
6401	System processor card failure A processor card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Processor card 1, M09 Location Code: U1.1-P1-C2 AIX Location: 00-04 00-05 00-06 00-07

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6402	System processor card failure A processor card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Processor card 2, M20 Location Code: U1.1-P1-C3 AIX Location: 00-08 00-09 00-10 00-11
6403	System processor card failure A processor card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Processor card 0 Processor card 1 Processor card 2 Cannot isolate to 1 FRU, see “Logical and Physical Locations” on page 1-57 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for processor card locations.
6410	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M01 Location Code: U1.1-P1-M1 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6411	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M02 Location Code: U1.1-P1-M2 AIX Location: 00-00
6412	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M03 Location Code: U1.1-P1-M3 AIX Location: 00-00
6413	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M04 Location Code: U1.1-P1-M4 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6414	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M05 Location Code: U1.1-P1-M5 AIX Location: 00-00
6415	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M06 Location Code: U1.1-P1-M6 AIX Location: 00-00
6416	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M10 Location Code: U1.1-P1-M7 AIX Location: 00-00

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6417	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M11 Location Code: U1.1-P1-M8 AIX Location: 00-00
6418	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M12 Location Code: U1.1-P1-M9 AIX Location: 00-00
6419	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M13 Location Code: U1.1-P1-M10 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
641A	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M14 Location Code: U1.1-P1-M11 AIX Location: 00-00
641B	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M15 Location Code: U1.1-P1-M12 AIX Location: 00-00
641C	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M16 Location Code: U1.1-P1-M13 AIX Location: 00-00

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
641D	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M17 Location Code: U1.1-P1-M14 AIX Location: 00-00
641E	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M18 Location Code: U1.1-P1-M15 AIX Location: 00-00
641F	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M19 Location Code: U1.1-P1-M16 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6420	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M21 Location Code: U1.1-P1-M17 AIX Location: 00-00
6421	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M22 Location Code: U1.1-P1-M18 AIX Location: 00-00
6422	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M23 Location Code: U1.1-P1-M19 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6423	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card, M24 Location Code: U1.1-P1-M20 AIX Location: 00-00
6430	Greater than 32GB of memory detected. Reduce the memory to less than 32GB.	N/A
6435	Main storage failure A memory card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 10-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.	Memory Card Cannot isolate to 1 FRU, see “Logical and Physical Locations” on page 1-57 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for memory card locations.
6440	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 14.	Go to “MAP 1540: Minimum Configuration” on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6441	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6442	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

Reference Code		Description/Action Perform all actions before exchanging Failing Items	Failing Item
6443	Processor CCIN (word 19) is equal to 5312 or 5313	Word 13 does not equal 700xBB1B or 700x2342 (where x=0 to B). I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
		Word 13 equals 700xBB1B or 700x2342 (where x=0 to B): 1. Try to reboot. 2. If reboot is successful, contact your second level support. 3. If reboot is not successful, a new SRC should appear to isolate the problem.	Perform indicated action(s).
	Processor CCIN (word 19) is not equal to 5312 or 5313.	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	
6444		I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6445	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6446	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6450	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6451	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6452	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6453	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6454	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6455	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6456	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6457	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6458	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6459	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
645A	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
645B	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6460	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6461	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6462	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6463	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6464	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6465	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6466	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6467	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6468	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6469	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
646A	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
646B	I/O adapter failed. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6470	Problem could be propagated from the attached Input/Output devices. Go to "MAP 1540: Minimum Configuration" on page 14 and attempt to isolate the problem. If MAP 1540 fails to isolate the problem, return here and continue below.	Go to "MAP 1540: Minimum Configuration" on page 14.
	After returning from "MAP 1540: Minimum Configuration" on page 14, the problem could be the JTAG cable or the system backplane assembly. Before replacing and parts, test for the existence of the proper number and position of memory cards and processor cards. This condition may result in invalid configurations during VPD reading. **Note:** Record function 13 codes. Contact your second level of support before replacing the system backplane assembly.	1. JTAG Cable (internal) 2. System Backplane Assembly Location Code: U1.1-P1 AIX Location: 00-00
6480	Clock Card Failure	Clock Card, M07 Location Code: U1.1-P1-X1 AIX Location: 00-00
6490	Firmware error	Service Processor Firmware Location Code: U0.1-P1-X1

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6491	Address out of range error. Possible causes could be hardware, operating system, or application programs. With the assistance of your second level of support, check the value of function code 13. If function code 13 does not show that the problem was caused by hardware, check with AIX support for pertinent AIX program temporary fixes (PTFs).	Possible CPU Pipeline error (Software PTF to fix) Service Processor Firmware Location Code: U0.1-P1-X1
6492	Firmware error	Service Processor Firmware Location Code: U0.1-P1-X1
6500	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J1L Location Code: U1.1-P1-M18.1 AIX Location: 00-00
6501	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J1R Location Code: U1.1-P1-M18.2 AIX Location: 00-00
6502	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J3L Location Code: U1.1-P1-M18.3 AIX Location: 00-00
6503	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J3R Location Code: U1.1-P1-M18.4 AIX Location: 00-00
6504	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J5L Location Code: U1.1-P1-M18.5 AIX Location: 00-00
6505	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J5R Location Code: U1.1-P1-M18.6 AIX Location: 00-00
6506	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J7L Location Code: U1.1-P1-M18.7 AIX Location: 00-00
6507	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J7R Location Code: U1.1-P1-M18.8 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6508	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J2L Location Code: U1.1-P1-M18.9 AIX Location: 00-00
6509	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J2R Location Code: U1.1-P1-M18.10 AIX Location: 00-00
650A	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J4L Location Code: U1.1-P1-M18.11 AIX Location: 00-00
650B	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J4R Location Code: U1.1-P1-M18.12 AIX Location: 00-00
650C	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J6L Location Code: U1.1-P1-M18.13 AIX Location: 00-00
650D	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J6R Location Code: U1.1-P1-M18.14 AIX Location: 00-00
650E	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J8L Location Code: U1.1-P1-M18.15 AIX Location: 00-00
650F	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-J8R Location Code: U1.1-P1-M18.16 AIX Location: 00-00
6510	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M22-JX Location Code: U1.1-P1-M18 AIX Location: 00-00
6511	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J1L Location Code: U1.1-P1-M17.1 AIX Location: 00-00
6512	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J1R Location Code: U1.1-P1-M17.2 AIX Location: 00-00

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6513	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J3L Location Code: U1.1-P1-M17.3 AIX Location: 00-00
6514	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J3R Location Code: U1.1-P1-M17.4 AIX Location: 00-00
6515	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J5L Location Code: U1.1-P1-M17.5 AIX Location: 00-00
6516	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J5R Location Code: U1.1-P1-M17.6 AIX Location: 00-00
6517	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J7L Location Code: U1.1-P1-M17.7 AIX Location: 00-00
6518	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J7R Location Code: U1.1-P1-M17.8 AIX Location: 00-00
6519	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J2L Location Code: U1.1-P1-M17.9 AIX Location: 00-00
651A	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J2R Location Code: U1.1-P1-M17.10 AIX Location: 00-00
651B	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J4L Location Code: U1.1-P1-M17.11 AIX Location: 00-00
651C	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J4R Location Code: U1.1-P1-M17.12 AIX Location: 00-00
651D	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J6L Location Code: U1.1-P1-M17.13 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
651E	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J6R Location Code: U1.1-P1-M17.14 AIX Location: 00-00
651F	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-J8L Location Code: U1.1-P1-M17.15 AIX Location: 00-00
6520	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY M21-J8R Location Code: U1.1-P1-M17.16 AIX Location: 00-00
6521	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M21-JX Location Code: U1.1-P1-M17 AIX Location: 00-00
6522	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J1L Location Code: U1.1-P1-M15.1 AIX Location: 00-00
6523	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J1R Location Code: U1.1-P1-M15.2 AIX Location: 00-00
6524	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J3L Location Code: U1.1-P1-M15.3 AIX Location: 00-00
6525	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J3R Location Code: U1.1-P1-M15.4 AIX Location: 00-00
6526	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J5L Location Code: U1.1-P1-M15.5 AIX Location: 00-00
6527	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J5R Location Code: U1.1-P1-M15.6 AIX Location: 00-00
6528	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J7L Location Code: U1.1-P1-M15.7 AIX Location: 00-00

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6529	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J7R Location Code: U1.1-P1-M15.8 AIX Location: 00-00
652A	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J2L Location Code: U1.1-P1-M15.9 AIX Location: 00-00
652B	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J2R Location Code: U1.1-P1-M15.10 AIX Location: 00-00
652C	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J4L Location Code: U1.1-P1-M15.11 AIX Location: 00-00
652D	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J4R Location Code: U1.1-P1-M15.12 AIX Location: 00-00
652E	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J6L Location Code: U1.1-P1-M15.13 AIX Location: 00-00
652F	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J6R Location Code: U1.1-P1-M15.14 AIX Location: 00-00
6530	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J8L Location Code: U1.1-P1-M15.15 AIX Location: 00-00
6531	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-J8R Location Code: U1.1-P1-M15.16 AIX Location: 00-00
6532	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M18-JX Location Code: U1.1-P1-M15 AIX Location: 00-00
6533	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J1L Location Code: U1.1-P1-M16.1 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6534	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J1R Location Code: U1.1-P1-M16.2 AIX Location: 00-00
6535	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J3L Location Code: U1.1-P1-M16.3 AIX Location: 00-00
6536	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J3R Location Code: U1.1-P1-M16.4 AIX Location: 00-00
6537	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J5L Location Code: U1.1-P1-M16.5 AIX Location: 00-00
6538	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J5R Location Code: U1.1-P1-M16.6 AIX Location: 00-00
6539	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J7L Location Code: U1.1-P1-M16.7 AIX Location: 00-00
653A	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J7R Location Code: U1.1-P1-M16.8 AIX Location: 00-00
653B	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J2L Location Code: U1.1-P1-M16.9 AIX Location: 00-00
653C	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J2R Location Code: U1.1-P1-M16.10 AIX Location: 00-00
653D	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J4L Location Code: U1.1-P1-M16.11 AIX Location: 00-00
653E	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J4R Location Code: U1.1-P1-M16.12 AIX Location: 00-00

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
653F	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J6L Location Code: U1.1-P1-M16.13 AIX Location: 00-00
6540	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J6R Location Code: U1.1-P1-M16.14 AIX Location: 00-00
6541	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J8L Location Code: U1.1-P1-M16.15 AIX Location: 00-00
6542	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-J8R Location Code: U1.1-P1-M16.16 AIX Location: 00-00
6543	Main storage failure A memory card at the specified location is faulty. Probability is low.	MEMORY, M19-JX Location Code: U1.1-P1-M16 AIX Location: 00-00
6544	Main storage failure A memory card at the specified location is faulty. Probability is low. The B0 in the location column is calling out J1L, J1R, J5L, and J5R.	MEMORY, M22B0 M21B0 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 1,2,5, and 6 AIX Location: 00-00
6545	Main storage failure A memory card at the specified location is faulty. Probability is low. The B1 in the location column is calling out J3L, J3R, J7L, and J7R.	MEMORY, M22B1 M21B1 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 3,4,7, and 8 AIX Location: 00-00
6546	Main storage failure A memory card at the specified location is faulty. Probability is low. The B0 in the location column is calling out J1L, J1R, J5L, and J5R.	MEMORY, M22B0 M21B0 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 1,2,5, and 6 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6547	Main storage failure A memory card at the specified location is faulty. Probability is low. The B1 in the location column is calling out J3L, J3R, J7L, and J7R.	MEMORY, M22B1 M21B1 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 3,4,7, and 8 AIX Location: 00-00
6550	Main storage failure A memory card at the specified location is faulty. Probability is low. The B2 in the location column is calling out J2L, J2R, J6L, and J6R.	MEMORY, M22B2 M21B2 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 9,10,13, and 14 AIX Location: 00-00
6551	Main storage failure A memory card at the specified location is faulty. Probability is low. The B3 in the location column is calling out J4L, J4R, J8L, and J8R.	MEMORY, M22B3 M21B3 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 11,12,15, and 16 AIX Location: 00-00
6552	Main storage failure A memory card at the specified location is faulty. Probability is low. The B2 in the location column is calling out J2L, J2R, J6L, and J6R.	MEMORY, M22B2 M21B2 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 9,10,13, and 14 AIX Location: 00-00
6553	Main storage failure A memory card at the specified location is faulty. Probability is low. The B3 in the location column is calling out J4L, J4R, J8L, and J8R.	MEMORY, M22B3 M21B3 Location Code: U1.1-P1-M18.**x** U1.1-P1-M17.**x** where **x** is 11,12,15, and 16 AIX Location: 00-00
6554	Main storage failure A memory card at the specified location is faulty. Probability is low. The B4 in the location column is calling out J1L, J1R, J5L, and J5R.	MEMORY, M18B4 M19B4 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 1,2,5, and 6 AIX Location: 00-00
6555	Main storage failure A memory card at the specified location is faulty. Probability is low. The B5 in the location column is calling out J3L, J3R, J7L, and J7R.	MEMORY, M18B5 M19B5 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 3,4,7, and 8 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6556	Main storage failure A memory card at the specified location is faulty. Probability is low. The B4 in the location column is calling out J1L, J1R, J5L, and J5R.	MEMORY, M18B4 M19B4 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 1,2,5, and 6 AIX Location: 00-00
6557	Main storage failure A memory card at the specified location is faulty. Probability is low. The B5 in the location column is calling out J3L, J3R, J7L, and J7R.	MEMORY, M18B5 M19B5 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 3,4,7, and 8 AIX Location: 00-00
6558	Main storage failure A memory card at the specified location is faulty. Probability is low. The B6 in the location column is calling out J2L, J2R, J6L, and J6R.	MEMORY, M18B6 M19B6 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 9,10,13, and 14 AIX Location: 00-00
6559	Main storage failure A memory card at the specified location is faulty. Probability is low. The B7 in the location column is calling out J4L, J4R, J8L, and J8R.	MEMORY, M18B7 M19B7 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 11,12,15, and 16 AIX Location: 00-00
655A	Main storage failure A memory card at the specified location is faulty. Probability is low. The B6 in the location column is calling out J2L, J2R, J6L, and J6R.	MEMORY, M18B6 M19B6 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 9,10,13, and 14 AIX Location: 00-00
655B	Main storage failure A memory card at the specified location is faulty. Probability is low. The B7 in the location column is calling out J4L, J4R, J8L, and J8R.	MEMORY, M18B7 M19B7 Location Code: U1.1-P1-M15.**x** U1.1-P1-M16.**x** where **x** is 11,12,15, and 16 AIX Location: 00-00

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6570	I/O adapter hardware error detected. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6571	I/O adapter hardware error detected. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6572	I/O adapter hardware error detected. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.
6573	I/O adapter hardware error detected. Use the Service Processor menus described in 2 on page 153 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy Checkpoint information found on page 5-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 14.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6580	I/O Planar 0 detected, probability is low.	Go to "MAP 1540: Minimum Configuration" on page 14.
6581	PCI error detected, probability is low.	Drawer 0, Slot 1 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6582	PCI error detected, probability is low.	Drawer 0, Slot 2 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6583	PCI error detected, probability is low.	Drawer 0, Slot 3 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6584	PCI error detected, probability is low.	Drawer 0, Slot 4 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
6585	PCI error detected, probability is low.	Drawer 0, Slot 5 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
6586	PCI error detected, probability is low.	Drawer 0, Slot 6 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6587	PCI error detected, probability is low.	Drawer 0, Slot 7 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6588	PCI error detected, probability is low.	Drawer 0, Slot 8 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6589	PCI error detected, probability is low.	Drawer 0, Slot 9 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
658A	PCI error detected, probability is low.	Drawer 0, Slot 10 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
658B	PCI error detected, probability is low.	Drawer 0, Slot 11 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
658C	PCI error detected, probability is low.	Drawer 0, Slot 12 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
658D	PCI error detected, probability is low.	Drawer 0, Slot 13 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
658E	PCI error detected, probability is low.	Drawer 0, Slot 14 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6590	I/O Planar 1 detected, probability is low.	Go to "MAP 1540: Minimum Configuration" on page 14.
6591	PCI error detected, probability is low.	Drawer 1, Slot 1 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6592	PCI error detected, probability is low.	Drawer 1, Slot 2 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6593	PCI error detected, probability is low.	Drawer 1, Slot 3 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6594	PCI error detected, probability is low.	Drawer 1, Slot 4 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6595	PCI error detected, probability is low.	Drawer 1, Slot 5 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6596	PCI error detected, probability is low.	Drawer 1, Slot 6 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6597	PCI error detected, probability is low.	Drawer 1, Slot 7 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6598	PCI error detected, probability is low.	Drawer 1, Slot 8 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6599	PCI error detected, probability is low.	Drawer 1, Slot 9 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
659A	PCI error detected, probability is low.	Drawer 1, Slot 10 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
659B	PCI error detected, probability is low.	Drawer 1, Slot 11 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
659C	PCI error detected, probability is low.	Drawer 1, Slot 12 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
659D	PCI error detected, probability is low.	Drawer 1, Slot 13 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
659E	PCI error detected, probability is low.	Drawer 1, Slot 14 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
65A0	I/O Planar 2 detected, probability is low.	Go to “MAP 1540: Minimum Configuration” on page 14.
65A1	PCI error detected, probability is low.	Drawer 2, Slot 1 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
65A2	PCI error detected, probability is low.	Drawer 2, Slot 2 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A3	PCI error detected, probability is low.	Drawer 2, Slot 3 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65A4	PCI error detected, probability is low.	Drawer 2, Slot 4 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65A5	PCI error detected, probability is low.	Drawer 2, Slot 5 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A6	PCI error detected, probability is low.	Drawer 2, Slot 6 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
65A7	PCI error detected, probability is low.	Drawer 2, Slot 7 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
65A8	PCI error detected, probability is low.	Drawer 2, Slot 8 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A9	PCI error detected, probability is low.	Drawer 2, Slot 9 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65AA	PCI error detected, probability is low.	Drawer 2, Slot 10 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65AB	PCI error detected, probability is low.	Drawer 2, Slot 11 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65AC	PCI error detected, probability is low.	Drawer 2, Slot 12 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65AD	PCI error detected, probability is low.	Drawer 2, Slot 13 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65AE	PCI error detected, probability is low.	Drawer 2, Slot 14 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65B0	I/O Planar 3 detected, probability is low.	Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B1	PCI error detected, probability is low.	Drawer 3, Slot 1 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65B2	PCI error detected, probability is low.	Drawer 3, Slot 2 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65B3	PCI error detected, probability is low.	Drawer 3, Slot 3 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B4	PCI error detected, probability is low.	Drawer 3, Slot 4 1. Replace the adapter in this slot. 2. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
65B5	PCI error detected, probability is low.	Drawer 3, Slot 5 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
65B6	PCI error detected, probability is low.	Drawer 3, Slot 6 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B7	PCI error detected, probability is low.	Drawer 3, Slot 7 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65B8	PCI error detected, probability is low.	Drawer 3, Slot 8 1. Replace the adapter in this slot. 2. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65B9	PCI error detected, probability is low.	Drawer 3, Slot 9 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65BA	PCI error detected, probability is low.	Drawer 3, Slot 10 1. Replace the adapter in this slot. 2. Remove any adapters from slots 9 and 10 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
65BB	PCI error detected, probability is low.	Drawer 3, Slot 11 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.
65BC	PCI error detected, probability is low.	Drawer 3, Slot 12 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to “MAP 1540: Minimum Configuration” on page 14.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65BD	PCI error detected, probability is low.	Drawer 3, Slot 13 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
65BE	PCI error detected, probability is low.	Drawer 3, Slot 14 1. Replace the adapter in this slot. 2. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs, reinstall adapters until failing adapter is identified, replace the failing adapter. 3. Go to "MAP 1540: Minimum Configuration" on page 14.
6A00	Illegal condition detected. Probability is low.	Contact your next level of support. Do not replace any FRUs in an attempt to fix this problem.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6A0C	Invalid configuration.	All processor cards, M08, M09, M20 Check processor card configurations. Contact your next level of support. Do not replace any FRUs in an attempt to fix this problem. **Attention:** If you have just completed an upgrade to 262 MHz processor cards, check the newly installed cards and verify that the VPD modules are installed on the correct processor cards. 262 MHz processor cards with CCIN number 241A should have a VPD module with a CCIN number of 5312. 262 MHz processor cards with CCIN number 241B should have a VPD module with a CCIN number of 5313.

Bus SRN to FRU Reference Table

The following table is used to locate defective FRUs within an I/O planar PCI bus. If the system you are diagnosing produces a Service Request Number (SRN) which is contained in the table below, the bus and PCI slots for that bus are identified. Using the diagnostic test that produced the SRN, use the following procedure to identify the failing FRU.

1. Remove power from the system.
2. Based on the SRN you received, remove the adapters from the PCI bus slots identified in the table below.
3. Restore power to the system.
4. Rerun the test that produced the original SRN.
5. If a failure is detected on the I/O drawer with the adapters removed from the failing I/O bus, the I/O drawer planar is the isolated FRU, replace the I/O planar.

   If a failure is not detected, reinstall the adapters one at a time, into their original slot location. Retest the configuration until a failure is detected. The last adapter install is the failing adapter, replace the adapter.

If a failure is not detected, and all the FRUs have been tested, call your next level of support for assistance.

SRN	Bus Identification	Possible Failing Device and AIX Location Code	Associated FRU
I/O Drawer 0 of 3 (Primary)			
9CC-100	PCI Bus 00	Device installed in I/O slot 5 (10-58 to 10-5F or 1B-XX)	I/O Planar or Adapter
		Device installed in I/O slot 6 (10-60 to 10-67 or 1C-XX)	I/O Planar or Adapter
		Device installed in I/O slot 7 (10-68 to 10-6F or 1D-XX)	I/O Planar or Adapter
		Device installed in I/O slot 8 (10-70 to 10-77 or 1E-XX not used by AIX) PCI Slot 8 Service Processor ISA Bridge (10-78 to 10-7F or 1F-XX not used by AIX)	I/O Planar or Adapter I/O Planar or Service Processor
9CC-101	PCI Bus 01	Device installed in I/O slot 1 (20-58 to 20-5F or 2B-XX)	I/O Planar or Adapter

SRN	Bus Identification	Possible Failing Device and AIX Location Code	Associated FRU
		Device installed in I/O slot 2 (20-60 to 20-67 or 2C-XX)	I/O Planar or Adapter
		Device installed in I/O slot 3 (20-68 to 20-6F or 2D-XX)	I/O Planar or Adapter
		Device installed in I/O slot 4 (20-70 to 20-77 or 2E-XX)	I/O Planar or Adapter
9CC-102	PCI Bus 02	Device installed in I/O slot 11 (30-58 to 30-5F or 3B-XX)	I/O Planar or Adapter
		Device installed in I/O slot 12 (30-60 to 30-67 or 3C-XX)	I/O Planar or Adapter
		Device installed in I/O slot 13 (30-68 to 30-6F or 3D-XX)	I/O Planar or Adapter
		Device installed in I/O slot 14 (30-70 to 30-77 or 3E-XX)	I/O Planar or Adapter
9CC-103	PCI Bus 03	Device installed in I/O slot 9 (40-58 to 40-5F or 4B-XX)	I/O Planar or Adapter
		Device installed in I/O slot 10 (40-60 to 40-67 or 4C-XX)	I/O Planar or Adapter
I/O Drawer 1 of 3 (Secondary)			
9CC-104	PCI Bus 04	Device installed in I/O slot 5 (50-58 to 50-5F or 5B-XX)	I/O Planar or Adapter
		Device installed in I/O slot 6 (50-60 to 50-67 or 5C-XX)	I/O Planar or Adapter
		Device installed in I/O slot 7 (50-68 to 50-6F or 5D-XX)	I/O Planar or Adapter
		Device installed in I/O slot 8 (50-70 to 50-77 or 5E-XX)	I/O Planar or Adapter
9CC-105	PCI Bus 05	Device installed in I/O slot 1 (60-58 to 60-5F or 6B-XX)	I/O Planar or Adapter
		Device installed in I/O slot 2 (60-60 to 60-67 or 6C-XX)	I/O Planar or Adapter
		Device installed in I/O slot 3 (60-68 to 60-6F or 6D-XX)	I/O Planar or Adapter
		Device installed in I/O slot 4 (60-70 to 60-77 or 6E-XX)	I/O Planar or Adapter
9CC-106	PCI Bus 06	Device installed in I/O slot 11 (70-58 to 70-5F or 7B-XX)	I/O Planar or Adapter
		Device installed in I/O slot 12 (70-60 to 70-67 or 7C-XX)	I/O Planar or Adapter
		Device installed in I/O slot 13 (70-68 to 70-6F or 7D-XX)	I/O Planar or Adapter

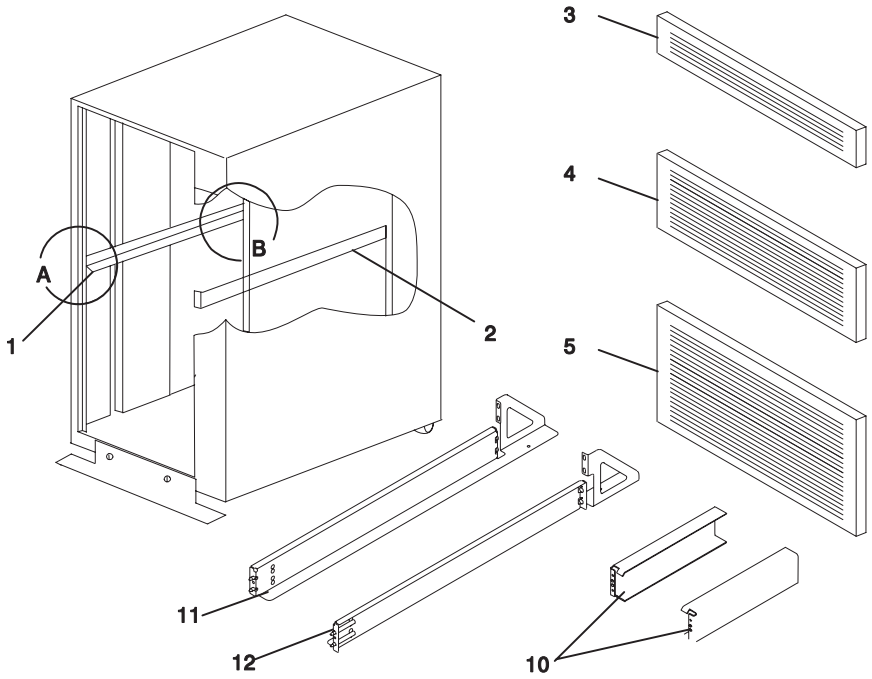
SRN	Bus Identification	Possible Failing Device and AIX Location Code	Associated FRU
		Device installed in I/O slot 14 (70-70 to 70-77 or 7E-XX)	I/O Planar or Adapter
9CC-107	PCI Bus 07	Device installed in I/O slot 9 (80-58 to 80-5F or 8B-XX)	I/O Planar or Adapter
		Device installed in I/O slot 10 (80-60 to 80-67 or 8C-XX)	I/O Planar or Adapter
I/O Drawer 2 of 3 (Secondary)			
9CC-108	PCI Bus 08	Device installed in I/O slot 5 (90-58 to 90-5F or 9B-XX)	I/O Planar or Adapter
		Device installed in I/O slot 6 (90-60 to 90-67 or 9C-XX)	I/O Planar or Adapter
		Device installed in I/O slot 7 (90-68 to 90-6F or 9D-XX)	I/O Planar or Adapter
		Device installed in I/O slot 8 (90-70 to 90-77 or 9E-XX)	I/O Planar or Adapter
9CC-109	PCI Bus 09	Device installed in I/O slot 1 (A0-58 to A0-5F or AB-XX)	I/O Planar or Adapter
		Device installed in I/O slot 2 (A0-60 to A0-67 or AC-XX)	I/O Planar or Adapter
		Device installed in I/O slot 3 (A0-68 to A0-6F or AD-XX)	I/O Planar or Adapter
		Device installed in I/O slot 4 (A0-70 to A0-77 or AE-XX)	I/O Planar or Adapter
9CC-110	PCI Bus 10	Device installed in I/O slot 11 (B0-58 to B0-5F or BB-XX)	I/O Planar or Adapter
		Device installed in I/O slot 12 (B0-60 to B0-67 or BC-XX)	I/O Planar or Adapter
		Device installed in I/O slot 13 (B0-68 to B0-6F or BD-XX)	I/O Planar or Adapter
		Device installed in I/O slot 14 (B0-70 to B0-77 or BE-XX)	I/O Planar or Adapter
9CC-111	PCI Bus 11	Device installed in I/O slot 9 (C0-58 to C0-5F or CB-XX)	I/O Planar or Adapter
		Device installed in I/O slot 10 (C0-60 to C0-67 or CC-XX)	I/O Planar or Adapter
I/O Drawer 3 of 3 (Secondary)			
9CC-112	PCI Bus 12	Device installed in I/O slot 5 (D0-58 to D0-5F or DB-XX)	I/O Planar or Adapter
		Device installed in I/O slot 6 (D0-60 to D0-67 or DC-XX)	I/O Planar or Adapter

SRN	Bus Identification	Possible Failing Device and AIX Location Code	Associated FRU
		Device installed in I/O slot 7 (D0-68 to D0-6F or DD-XX)	I/O Planar or Adapter
		Device installed in I/O slot 8 (D0-70 to D0-77 or DE-XX)	I/O Planar or Adapter
9CC-113	PCI Bus 13	Device installed in I/O slot 1 (E0-58 to E0-5F or EB-XX)	I/O Planar or Adapter
		Device installed in I/O slot 2 (E0-60 to E0-67 or EC-XX)	I/O Planar or Adapter
		Device installed in I/O slot 3 (E0-68 to E0-6F or ED-XX)	I/O Planar or Adapter
		Device installed in I/O slot 4 (E0-70 to E0-77 or EE-XX)	I/O Planar or Adapter
9CC-114	PCI Bus 14	Device installed in I/O slot 11 (F0-58 to F0-5F or FB-XX)	I/O Planar or Adapter
		Device installed in I/O slot 12 (F0-60 to F0-67 or FC-XX)	I/O Planar or Adapter
		Device installed in I/O slot 13 (F0-68 to F0-6F or FD-XX)	I/O Planar or Adapter
		Device installed in I/O slot 14 (F0-70 to F0-77 or FE-XX)	I/O Planar or Adapter
9CC-115	PCI Bus 15	Device installed in I/O slot 9 (G0-58 to G0-5F or GB-XX)	I/O Planar or Adapter
		Device installed in I/O slot 10 (G0-60 to G0-67 or GC-XX)	I/O Planar or Adapter

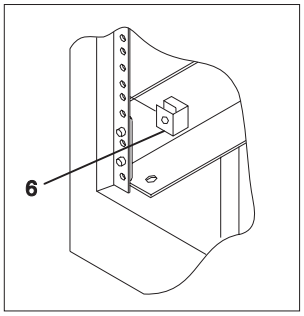
Update 4

This section contains updates made to the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548, “Chapter 10. Parts.”

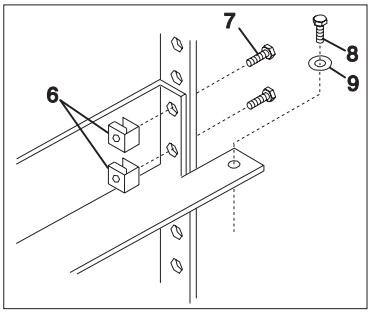
Rails and Front Bezels



Detail A - Front of Rail



Detail B - Rear of Rail



Index Number	FRU Part Number	Units Per Assy	Description
1	40H4915	1	Rail, left
2	40H4916	1	Rail, right
3	94H9754	1	Front bezel (for empty drawer position), 1 EIA unit
4	94H9755	1	Front bezel (for empty drawer position), 3 EIA units
5	94H9756	1	Front bezel (for empty drawer position), 5 EIA units
6	0375867	6	Nut clip
7	73H2932	6	Screw, rail mounting
8	00G1268	2	Screw, M4
9	1622290	2	Washer
10	08L1132	2	Anti-tilt brackets (left and right)
11	93H9156	1	Rail, left
12	93H9159	1	Rail, right

Update 5

This section contains updates made to the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 “Appendix B. Service Processor Setup and Test.” The same updates also apply to the *RS/6000 Enterprise Servers S70 and S7A User's Guide*, SA38-0549 “Appendix E. Service Processor Setup and Test”

1. Service Processor Setup and Test

For your convenience, a sample Service Processor setup procedure is provided below. Your setup may include more or less of the available features, so you may wish to adjust this checklist for your own application.

Service Processor Setup Checklist

1. Ensure the server is powered off.
2. Attach a local ASCII terminal for this setup procedure.
3. Attach a modem (if needed), see “How to access Service Processor Menus Locally” on page C-3 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548, and see “Modem Configuration Menu” on page C-18 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for the menus needed to configure your modem.
4. Power on the server, the local terminal, and the modem.
5. Bring up the Service Processor Menus, see Appendix C on page C-1 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

   ATTENTION: To bring up the Service Processor Menus while the server is booting up, watch the operator panel display for checkpoint E04F. At this checkpoint, a ten second window of time begins with three beeps. Checkpoint E07A is displayed and is visible during the ten second window. During this window, strike any key on the local terminal and the Service Processor menus appear on the local terminal.
6. Set the System Name, see “Privileged User Menus” on page C-7 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.
7. Configure Call-In/Call-Out, see “Call-In/Call-Out Setup Menu” on page C-17 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.
8. Exit the Service Processor menus
9. Wait until the system offers a logon prompt. Log on and perform an orderly system shutdown using the AIX `shutdown -F` command.
10. Power off the server.
11. Test Call-In, page 147.
12. Test Call-Out, page 148.

13. Use the “Save or Restore Hardware Management Policies,” in the “Introduction to Tasks and Service Aids” section of the *Diagnostic Information for Multiple Bus Systems* to backup the service processor settings.

    Note: This is strongly recommended to protect the usefulness of the service processor and the availability of the server.

Your Service Processor is ready to go to work.

Testing the Service Processor Setup

These tests include communicating with the server's operating system. Be sure the necessary serial port(s) is configured. If you need assistance, refer to “Serial Port Configuration” on page 148.

Use following procedure to verify your Service Processor setup is working.

The server should still be powered off as a result of the setup checklist steps on page 145.

Call-In

1. From any telephone, call the server's telephone number. After you hear three rings, hang up. The server powers on.

   Note: Although the server powers on during the three rings, you do not receive an indication over the telephone that the server is powering on.

2. Give the server five minutes to boot up and prepare to receive another call.
3. From an ASCII terminal or terminal emulator, call the server again. The server answers and presents the Service Processor Menus on your terminal.
4. If required, enter your privileged access password. If no password is required, the Main Menu displays.
5. From the Main Menu, select `Continue System Boot` to view the IPL progress messages. Depending on your server's configuration, the boot up sequence may take several minutes. Once the boot up completes, the logon prompt displays. You have successfully called into the Service Processor and brought up the server.
6. Log in and then log out to disconnect from the operating system.
7. Call your server again. The operating system answers and offers the login prompt.

   If these tests are successful, call-in is working correctly. You must now shut down and power off the server. To do this, perform the following steps:

8. Login in and command your server to shutdown and power off. In AIX, use the `shutdown -F` command.

Call-Out

During the Service Processor setup, you entered **your** phone number for the Pager (on page C-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548) and Customer Voice (on page C-22 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548) phone numbers. These entries are used for this test.

1. Power on the server.
2. Bring up the Service Processor Menus, see “Appendix C” page C-1 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

   ATTENTION: To bring up the Service Processor Menus while the server is booting up, watch the operator panel display for checkpoint E04F. At this checkpoint, a ten second window of time begins with three beeps. Checkpoint E07A is displayed and is visible during the ten second window. During this window, strike any key on the local terminal and the Service Processor menus appear on the local terminal.
3. At the **Service Processor Main Menu**, select Call-In/Call-Out Setup menu, then select Call-Out test. This causes a simulated error condition for the purposes of this test.
4. When your telephone rings, answer the call. You should hear the sound of a telephone being dialed. This is your system unit trying to page you.

If this test is successful, call-out is working.

You should now select “Telephone Number Setup Menu” on page C-21 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548. to enter the **actual** telephone numbers your server uses to report problems.

Serial Port Configuration

To configure the serial port on an AIX system, enter the following commands from an AIX console:

1. Log in as `root`.
2. To find if you have any serial ports already configured, enter:

   ```
   lsdev -Cc tty
   ```

   If no serial ports are configured, none are listed. If you wish to configure serial ports that are not listed, continue with the remaining steps.

3. Identify the serial port(s) with the modem(s).
4. Enter

   `smit tty`
5. Select `add tty`
6. Select `RS232`
7. Select `Baud rate 9600` or higher.
8. Select `login enable` and set the flow control to RTS.
9. Commit the selections and set up any other needed serial ports.
10. Exit SMIT.

Programming System Vital Product Data

Some software uses the System Vital Product Data (VPD) when operating to identify the type and model of system it is operating on. This procedure provides a method of programming the VPD on the S7X.

Attention: The Service Processor (SP) allows programming of the System VPD only once. Take care to enter the fields correctly. The following procedure takes you through the steps of programming the system VPD.

1. To access the SP, connect a local ASCII terminal to either serial port 1 or serial port 2 of the host server.
2. Power-On the system. When the operator panel "beeps" and displays `E07A`, strike the Enter key on the local terminal.
3. Type `37222` to access the hidden menu function for programming System VPD. If VPD is already programmed, SP will print “illegal value entered” on the terminal.
4. Type “A,” SP will prompt you to enter 7 ASCII characters for the VPD Serial Number [SE]. Enter the system serial number (example: `0YE6129`).
   SP will confirm that the serial number has been successfully programmed.
5. SP will prompt you to enter 8 ASCII characters for the Type and Model [TM] data field (example: `7017-S70`).
6. SP will confirm that the TM field has been successfully programmed.
7. SP will prompt you to press Return (Enter) to continue, which brings you back to the SP Main Menu.
8. Select `System Power Control Menu`.
9. Select `Power-Off System`.

10. When the system has been off for about one minute, power the system on by pressing the white button on the operator panel.

Update 6

This section contains updates made to the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 “Appendix C. Service Processor Menus.” These updates also apply to the *RS/6000 Enterprise Servers S70 and S7A User's Guide*, SA38-0549 “Appendix E. Service Processor Menus.”

2. Service Processor Menus

The Service Processor menus make it possible for you to configure Service Processor options, as well as enable and disable functions.

Service Processor menus are available using an ASCII terminal while the system is powering on or when the Service Processor has detected a server problem (such as a surveillance failure).

For a summary of the Service Processor functions and the methods used to invoke them, see Table 2 on page 154.

Table 2. Service Processor Functions

Service Processor Functions	**Service Processor Menus (ASCII terminals)**	**Service Processor Service Aids (ASCII or graphics terminals)**	**SMS (ASCII or graphics terminals)**
Read VPD image from last system boot	Y[3]		
Read System POST Errors	Y[3]		
Read Service Processor Error Logs	Y[3]		
View Progress Indicators from last Boot	Y[3]		
Power-off System	Y[2]		
Read NVRAM	Y[2]		
Start Talk Mode	Y[2]		
Enable/Disable Console Mirroring	Y[2]		
Setup Reboot/Restart Policy	Y[2]	Y[1]	
Enable/Disable Modem	Y[2]	Y[1]	
Setup Modem Configuration	Y[2]	Y[1]	
Setup Dial-out Phone Numbers	Y[2]	Y[1]	
Setup Surveillance	Y[2]	Y[1]	
Select Modem Line Speed	Y[2]	Y[1]	
Update Service Processor Flash EPROM		Y[1]	
Save/Restore Hardware Maintenance Policies		Y[1]	
Change General Access Password	Y[2]		
Change Privileged Access Password	Y[2]		Y[2]
Select Language	Y[2]		Y[2]
Enable/Disable Unattended Start Mode	Y[2]	Y[1]	Y[2]

Passwords required (if set):

[1] Operating system root password
[2] Privileged access password
[3] General access (power-on) password

Service Processor Menus

The Service Processor (Service Processor) menus are divided into two groups:

- General user menus - the user must know the general access password.
- Privileged user menus - the user must know the privileged access password.

The following section describes these two groups of menus, how to access them, and the functions associated with each option.

If the server is powered on, the Service Processor menus may be accessed locally or remotely as described below.

How to access Service Processor menus locally

Service Processor menus may be accessed locally by connecting an ASCII terminal to either serial port 1 or 2. Because the presence of the ASCII terminal cannot be confirmed by the Service Processor, you must press a key (any key) on the ASCII terminal to confirm its presence. The key on the ASCII terminal must be pressed during the time when the operator panel display shows the code E07A.

You can recognize when the Service Processor menu access time begins in the following ways:

- The checkpoint prior to the access checkpoint is E043.
- The system beeps three times as it enters checkpoint E07A.

When you gain access, the Service Processor prompts you for a password (if set), and when verified, displays the Service Processor menus.

The Service Processor menu prompt, represented by 1> or 2> indicates the serial port to which the terminal is connected. A 1> indicates serial port 1, and 2> indicates serial port 2.

How to access Service Processor menus remotely

If your system has a modem connected and configured for call-in (see “Modem Configuration Menu” on page 171), Service Processor menus can be accessed remotely as follows:

1. With the system powered off, call in from a remote terminal. Wait for at least two rings and hang up. The system powers on upon detecting ring-indicate, and pauses for a return call if call-in is enabled.

2. Wait five minutes and call-in again. The Service Processor prompts you for a password (if set). When verified, the Service Processor menus display remotely.

Saving and Restoring Service Processor Settings

All the settings you make (except language) from the service processor menus can be backed up either for recovering from a fault that may corrupt these settings, or for replicating these settings to other servers that include a service processor.

The service aid, Save or Restore Hardware Management Policies, can be used to save your settings after initial setup or whenever the settings must be changed for system operation purposes.

It is strongly recommended that this service aid is used for backing up service processor settings to protect the usefulness of the service processor, and the availability of the server. Refer to “Save or Restore Hardware Management Policies,” in the “Introduction to Tasks and Service Aids” section of the *Diagnostic Information for Multiple Bus Systems*.

How to return to Service Processor menus

When exiting Service Processor menus using option "99", there is a 10 second delay before the system continues its boot procedure. During that 10 seconds, you may strike a key on the ASCII terminal to return to the menus and select other options.

During the 10 second delay, an information message appears on the display. After the 10 second delay, Service Processor menus are no longer available until either the next system boot or the Service Processor regains control due to a system failure.

Menu Inactivity

To prevent loss of control due to power loss or power surges, Service Processor attempts to leave menu mode after 10 minutes of inactivity by simulating the option 99 selection. This attempt is successful on menus containing the "99" option. On the other menus, the attempt is unsuccessful and the following message displays with each attempt:

```
Illegal value entered
Press Return to continue
```

If for some reason you want to hold the server in menu mode, select one of the menus that do not have the "99" option. Boot activity cannot continue if Service Processor is in menu mode, and power losses or surges could result in unpredictable server responses.

General User Menus

The menu options presented to the General user are a subset of the options available to the Privileged user. The user must know the General Access Password, if set, in order to access these menus.

```
      GENERAL USER MENU

 1. Continue System Boot

 2. Read VPD Image from Last System Boot

 3. Read Progress Indicators from Last System Boot

 4. Read Service Processor Error Logs

 5. Read System POST Errors

99. Exit from Menus

1>
```

- **Continue System Boot**

  Allows the user to continue with and monitor the system boot already in progress using the current ASCII terminal as the active console.

  Make this selection if you wish to monitor the IPL progress messages on your terminal. If you do not wish to monitor the IPL progress messages, select option **99. Exit from Menus**.

- **Read VPD Image from Last System Boot**

  Displays manufacturer vital product data, such as serial numbers, part numbers, etc., that were stored from the system boot prior to the one in progress now.

- **Read Progress Indicators from Last System Boot**

  Displays the boot progress indicators (check points), up to a maximum of 100, from the system boot prior to the one in progress now. This historical information may be useful to help diagnose system faults.

  The progress indicators are displayed in two sections. Above the dashed line are the progress indicators (latest) from the boot that produced the current sessions. Below the dashed line are progress indicators (oldest) from the boot preceding the one that produced the current sessions.

The progress indication codes are listed top (latest) to bottom (oldest). The dashed line merely represents the point where the latest boot started. For an example, refer to “LCD Progress Indicator Log,” on page C-39 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

- **Read Service Processor Error Logs**

  Displays the Service Processor error logs. For an example, refer to “Service Processor Error Logs,” on page C-38 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

- **Read System POST Errors**

  Displays the results of the System Firmware POST (Power-On Self Test). Your server may be able to start in the presence of POST errors if there is sufficient working system resources. If POST errors occur during start-up, this error log when used with the diagnostics helps to isolate faults. For an example, refer to “Service Processor Error Logs,” on page C-38 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548

- **Exit from Menus**

  Allows the user to continue with the system boot already in progress using the current ASCII terminal as the active console. Make this selection if you **do not** wish to monitor the IPL progress messages on your terminal. Exiting from the menus causes the modems to disconnect, but the boot process continues.

Privileged User Menus

The following menus are available to privileged users only. The user must know the Privileged Access Password, if set, to access these menus.

Main Menu

At the top of the MAIN Menu is a listing containing:

- Your Service Processor's current firmware version
- The firmware copyright notice
- The System Name given to your server during setup

You need the firmware version for reference when you either update or repair the functions of your service processor.

The System Name, an optional field, is the name your server reports in problem messages. This name helps your support team, (for example, your system administrator, network administrator, or service representative) to more quickly identify the location, configuration, and history of your server. The System Name is set from the Main Menu using option 6.

Note: The information under the Service Processor Firmware heading in the Main Menu illustration that follows is example information only.

```
            Service Processor Firmware
            VERSION:  19970814
            Copyright 1997, IBM Corporation
                 SYSTEM NAME


       MAIN MENU

 1. Service Processor Setup Menu

 2. System Power Control Menu

 3. System Information Menu

 4. Language Selection Menu

 5. Call-In/Call-Out Setup Menu

 6. Set System Name

99. Exit from Menus

1>
```

Service Processor Setup Menu

```
        SERVICE PROCESSOR SETUP MENU

  1. Change Privileged Access Password

  2. Change General Access Password

  3. Enable/Disable Console Mirroring:
           Currently Enabled

  4. Start Talk Mode

  5. OS Surveillance Setup Menu

 98. Return to Previous Menu

 99. Exit from Menus

 1>
```

Note: Unless otherwise stated in menu responses, settings become effective when a menu is exited using option 98 or 99.

Passwords

Passwords can be any combination of up to 8 alphanumeric characters. You can enter longer passwords, but the entries are truncated to include only the first 8 characters. Privileged Access Password can be set from Service Processor menus or from System Management Services (SMS) utilities (see Chapter 8 on page 8-1 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548). General Access Password can be set only from Service Processor menus.

For security purposes, Service Processor counts the number of attempts to enter correct passwords. The results of not recognizing a correct password within this error threshold are different, depending on whether the attempts are being made locally (at the server) or remotely (via a modem). The error threshold is 3.

If the error threshold is reached by someone entering passwords at the server, Service Processor commands IPL to resume. This action is taken based on the assumption that the server is in an adequately secure location with only authorized users having access. Such users must still successfully enter a login password to access AIX.

If the error threshold is reached by someone entering passwords remotely, Service Processor commands the server to power down to prevent potential security attacks on the server by unauthorized remote users. The following illustrates what you can access with the Privileged Access Password and the General Access Password.

Privileged Access Password	General Access Password	Resulting Menu
None	None	Service Processor MAIN MENU displayed
None	Set	Users with the password see the GENERAL USER MENU. Users without the password see Service Processor MAIN MENU.
Set	None	Users with the password see the Service Processor MAIN MENU. Users without password see the GENERAL USER MENU.
Set	Set	Users see menus associated with the entered password

Note: If you *forget* the password, you must remove the battery for at least 30 seconds to disable the password. See “Operator Panel Battery” on page 9-17 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for details.

- **Change Privileged Access Password**

  Set or change the Privileged Access Password. It provides the user with the capability to access all Service Processor functions. This password is usually used by the system administrator or **root** user.

- **Change General Access Password**

  Set or change the General Access Password. It provides limited access to Service Processor menus, and is usually available to all users who are allowed to power-on the server, especially remotely.

  Note: The General Access Password can only be set or changed while the Privileged Access Password is set.

- **Enable/Disable Console Mirroring**

  When Console Mirroring is enabled, the Service Processor sends information to both serial ports. This capability may be enabled by local or remote users. This provides local users the capability to monitor remote sessions. Console mirroring may be enabled for the current session only. For more information, see “Console Mirroring” on page C-37 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

- **Start Talk Mode**

  In a console mirroring session, it is useful for those that are monitoring the session to be able to communicate with each other. Selecting this menu item activates the keyboards and displays for such communications while console mirroring is established. This is a full duplex link, so message interference is possible. Alternating messages between users works best.

- **OS Surveillance Setup Menu**

  This option may be used to setup operating system (OS) surveillance.

```
       OS Surveillance Setup Menu

 1. Surveillance:
      Currently Enabled

 2. Surveillance Time Interval:
      2 minutes

 3. Surveillance Delay:
      2 minutes


98. Return to Previous Menu

1>
```

  – **Surveillance**

    May be set to Enabled or Disabled.

  – **Surveillance Time Interval:**

    May be set to any number from 2 through 255.

  – **Surveillance Delay:**

    May be set to any number from 0 through 255.

  Refer to “Service Processor System Monitoring - Surveillance” on page C-34 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for more information about surveillance.

System Power Control Menu

```
        SYSTEM POWER CONTROL MENU

 1. Enable/Disable Unattended Start Mode:
       Currently Enabled

 2. Reboot/Restart Policy Setup Menu

 3. Continue System Boot

 4. Power-Off System

 5. Boot Mode Menu

98. Return to Previous Menu

99. Exit from Menus

1>
```

- **Enable/Disable Unattended Start Mode**

  This option may be used to instruct Service Processor to restore the power-state of the server after a temporary power failure. Unattended Start Mode can also be set via SMS Menus. It is intended to be used on servers that require automatic power-on after a power failure. For more information, see "System Power-On Methods" on page 183.

- **Reboot/Restart Policy Setup Menu**

  See "Reboot/Restart Policy Setup Menu" on page 178.

- **Continue System Boot**

  Allows the user to continue with and monitor the system boot already in progress using the current ASCII terminal as the active console.

  Make this selection if you wish to monitor the IPL progress messages on your terminal. If you do not wish to monitor the IPL progress messages, select option **99. Exit from Menus**.

- **Power-off System**

  Allows the user to power-off the server.

- **Boot Mode Menu**

  See "Boot Mode Menu" on page 179.

System Information Menu

```
       SYSTEM INFORMATION MENU

 1. Read VPD Image from Last System Boot

 2. Read Progress Indicators from Last System Boot

 3. Read Service Processor Error Logs

 4. Read System POST Errors

 5. Read NVRAM

 6. Read Service Processor Configuration

 7. Processor Configuration/Deconfiguration Menu

98. Return to Previous Menu

99. Exit from Menus

1>
```

- **Read VPD Image from Last System Boot**

  Displays manufacturer's vital product data (VPD), such as serial numbers, part numbers, etc., that was stored from the system boot prior to the one in progress now.

- **Read Progress Indicators from Last System Boot**

  Displays the boot progress indicators (check points), up to a maximum of 100, from the system boot prior to the one in progress now. This historical information may be useful to help diagnose system faults.

  The progress indicators are displayed in two sections. Above the dashed line are the progress indicators (latest) from the boot that produced the current sessions. Below the dashed line are progress indicators (oldest) from the boot preceding the one that produced the current sessions.

  The progress indication codes are listed top (latest) to bottom (oldest). The dashed line merely represents the point where the latest boot started. For an example, refer to “LCD Progress Indicator Log” on page C-39 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

- **Read Service Processor Error Logs**

  Displays error conditions detected by the Service Processor. Refer to “Service Processor Error Logs” on page C-38 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for an example of this error log.

- **Read System POST Errors**

  Selecting this item lets you review the results of the POST (Power-On Self Test). Your server may be able to start in the presence of POST errors if there are sufficient working system resources. If POST errors occur during start-up, this error log when used with the diagnostics helps to isolate faults. Refer to “system POST Errors” on page 3-38 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for an example of this error log.

- **Read NVRAM**

  Displays Non-Volatile Random Access Memory (NVRAM) content.

- **Read Service Processor Configuration**

  Displays current service processor configuration.

- **Processor Configuration/Deconfiguration Menu**

  This menu allows the user to change the system processor configuration. If it is necessary to take one of the processors offline, this menu allows you to deconfigure a processor, and then reconfigure the processor at a later time. An example of this menu is shown below:

```
        PROCESSOR CONFIGURATION/DECONFIGURATION MENU

  To change the configuration, select the processor number:

  0. Configured   (0x00) 1. Configured   (0xFF) 2.Deconfigured (0x81)
  3. Deconfigured (0x21) 4. Deconfigured (0x41) 5.Configured   (0x00)
  6. Configured   (0x00) 7. Configured   (0xFF)

 80. Commit the configuration changes
 98. Return to Previous Menu

  1>
```

  To change the processor configuration, select the processor number first. It will change the processor state from `Configured` to `Deconfigured` or from `Deconfigured` to `Configured`.

  Once the configuration has been changed, commit the configuration changes by selecting option 80. The system will reboot after option 80 has been selected.

  In the above screen, the four character codes shown are defined as:

  0x00 Processor configured by system
  0xFF Processor configured by system
  0x81 Processor has been deconfigured manually
  0x41 Processor has been deconfigured by system because value of recoverable runtime errors was exceeded.
  0x21 Processor has been deconfigured due to repeated fatal internal errors.

  Processor Card Swapping

  When there is a system failure due to a processor error, the system maintenance procedures direct the replacement of processor cards according to system diagnostic procedures. Do not replace any processor card on a system unless directed to by the system diagnostic procedures. Never swap processor cards from one system to another in an attempt to isolate a failing card.

Language Selection Menu

```
       LANGUAGE SELECTION MENU

 1. English

 2. Francais

 3. Deutsch

 4. Italiano

 5. Espanol

 6. Svenska

98. Return to Previous Menu

99. Exit from Menus

1>
```

Note: Your ASCII terminal must support the ISO-8859 character set in order to properly display languages other than English.

This menu allows selecting languages in which Service Processor and system firmware menus and messages are displayed.

Call-In/Call-Out Setup Menu

```
        CALL-IN/CALL-OUT SETUP MENU

  1. Modem Configuration Menu

  2. Serial Port Selection Menu

  3. Serial Port Speed Setup Menu

  4. Telephone Number Setup Menu

  5. Call-Out Policy Setup Menu

  6. Customer Account Setup Menu

  7. Call-Out Test

 98. Return to Previous Menu

 99. Exit from Menus

 1>
```

- **Modem Configuration Menu**, see “Modem Configuration Menu” on page 171.
- **Serial Port Selection Menu**, see “Serial Port Selection Menu” on page 172.
- **Serial Port Speed Setup Menu**, see “Serial Port Speed Setup Menu” on page 173.
- **Telephone Number Setup Menu**, see “Telephone Number Setup Menu” on page 174.
- **Call-Out Policy Setup Menu**, see “Call-Out Policy Setup Menu” on page 176.
- **Customer Account Setup Menu**, see “Customer Account Setup Menu” on page 177.

Modem Configuration Menu

The first two lines of the Modem Configuration Menu are status lines showing the current selections. Selections are made in the two sections labeled Modem Ports and Modem Configuration File Name. Select the serial port that you want to activate and then select the modem configuration file for the modem on the port. If you want to set up both serial ports with modems, make your selections one port at a time.

```
          Modem Configuration Menu

    Port 1 Modem Configuration File Name:
    Port 2 Modem Configuration File Name:  modem_m0_sp

 To make changes, First select the port and then the configuration file name

 Modem Ports:
    1. Serial port 1
    2. Serial port 2

 Modem Configuration File Name:
    3. none
    4. modem_f_sp            9. modem_m0_sp
    5. modem_f0_sp          10. modem_m1_sp
    6. modem_f1_sp
    7. modem_z_sp
    8. modem_z0_sp

   30. Save configuration to NVRAM and Configure modem
   98. Return to Previous Menu

   1>
```

For information on choosing a modem configuration file, see “Sample Modem Configuration Files” on page E-1 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548, and “Seemless Transfer of a Modem Session” on page E-7 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

Serial Port Selection Menu

```
       Serial Port Selection Menu

 1. Serial Port 1 Call-Out:
     Currently Disabled

 2. Serial Port 2 Call-Out:
     Currently Disabled

 3. Serial Port 1 Call-In:
     Currently Disabled

 4. Serial Port 2 Call-In:
     Currently Disabled

98. Return to Previous Menu

1>
```

You may enable and/or disable the call-in and call-out functions of each serial port in any combination.

Note: For security, if the service processor detects an operator panel battery failure, the Serial Port Dial-In capability becomes disabled. See “Service Processor Call-In Security” on page C-30 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548 for more information.

Serial Port Speed Setup Menu

```
        Serial Port Speed Setup Menu

 1. Serial Port 1 Speed:
       Currently 9600

 2. Serial Port 2 Speed:
       Currently 9600

98. Return to Previous Menu

1>
```

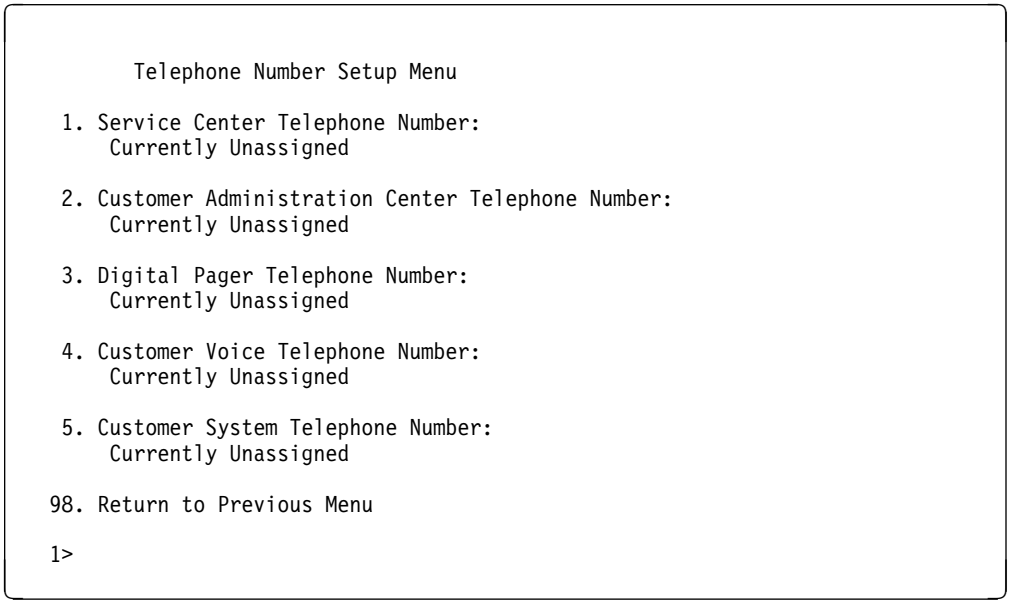
Serial port speed can be set for terminal performance or to accommodate modem capabilities. A speed of 9600 baud or higher is recommended. Valid serial port speeds are shown below:

50	600	4800
75	1200	7200
110	1800	9600
134	2000	19200
150	2400	38000
300	3600	57600
		115200

Telephone Number Setup Menu

This menu may be used to set or change the telephone numbers for reporting a system failure. Service Processor allows setting or changing telephone numbers for:

- **Service Center Telephone Number** - The telephone number of the maintenance provider's computer.
- **Customer Administration Center Telephone Number** - The telephone number of the local system support provider's computer.
- **Digital Pager Telephone Number** - The telephone number of the digital pager used by the person responsible for problem calls.
- **Customer Voice Telephone Number** - The telephone number service personnel use to reach the system user.
- **Customer System Telephone Number** - The telephone number to which the server's modem is connected.



- **Service Center Telephone Number** is the number of the service center computer. The service center usually includes a computer that takes calls from servers with call-out capability. This computer is referred to as "the catcher." The catcher expects messages in a specific format to which Service Processor conforms. For more information about the format and catcher computers, refer to the README file in the AIX `/usr/samples/syscatch` directory. Contact your service provider for the correct telephone number to enter here. Until you have that number, leave this field unassigned.
- **Customer Administration Center Telephone Number** is the number of the System Administration Center computer (catcher) that receives problem calls from servers. Contact your system administrator for the correct telephone number to enter here. Until you have that number, leave this field unassigned.
- **Digital Pager Telephone Number** is the number for a numeric pager carried by someone who responds to problem calls from your server. Contact your administration center representative for the correct telephone number to enter here. For test purposes, enter your telephone number here. You can change it later when testing is complete. See note on page 191.
- **Customer Voice Telephone Number** is the telephone number of a phone near the server or answered by someone responsible for the server. This is the telephone number left on the pager for callback. For test purposes, enter your telephone number here. You can change it after testing is completed.
- **Customer System Telephone Number** is the telephone number to which your server's modem is connected. The service or administration center representatives need this number to make direct contact with your server for problem investigation. This is also referred to as the **call-in** phone number.

Call-Out Policy Setup Menu

```
       CALL-OUT POLICY SETUP MENU

 1. Call-Out policy (First/All):
     Currently First

 2. Remote timeout, (in seconds):
     Currently 120

 3. Remote latency, (in seconds):
     Currently 2

 4. Number of retries:
     Currently 2

98. Return to Previous Menu

1>
```

- **Call-Out policy** may be set to 'first' or 'all'. If call-out policy is set to 'first', the Service Processor stops at the **first successful** call-out to one of the following numbers in the order listed:

  1. Service Center
  2. Customer Admin Center
  3. Pager

  If call-out policy is set to 'all', the Service Processor attempts a call-out to **all** the following numbers in the order listed:

  1. Service Center
  2. Customer Admin Center
  3. Pager

  Remote timeout and **Remote latency** are functions of your service provider's catcher computer. You should take the defaults or contact your service provider for recommended settings.

| **Number of retries** is the number of times you want the server to retry calls that
| failed to complete.

Customer Account Setup Menu

```
       Customer Account Setup Menu

 1. Customer Account Number:
     Currently Unassigned

 2. Customer RETAIN Login userid:
     Currently Unassigned

 3. Customer RETAIN login password:
     Currently Unassigned

98. Return to Previous Menu

1>
```

- **Customer Account Number** is assigned by your service provider for record keeping and billing. If you have an account number, enter it here. Otherwise, leave this field unassigned.
- **Customer RETAIN Login UserID** and **Customer RETAIN Login Password** apply to a service function to which your service provider may or may not have access. Leave these fields unassigned if your service provider does not use RETAIN.

Reboot/Restart Policy Setup Menu

```
       Reboot/Restart Policy Setup Menu

 1. Number of reboot attempts:
      Currently 1

 2. Use OS-Defined restart policy?
      Currently Yes

 3. Enable supplemental restart policy?
      Currently No

 4. Call-Out before restart:
      Currently Disabled

98. Return to Previous Menu

1>
```

Reboot is the process of bringing up the system hardware. For example, from a system reset or power on. **Restart** is activating the operating system after the system hardware is re-initialized. Restart must follow a successful reboot.

- **Number of reboot attempts** - If the server fails to successfully complete the boot process, it attempts to reboot the number of times specified. Entry values equal to or greater than 0 are valid. Only successive failed reboot/restart attempts count.
- **Use OS-Defined restart policy** - Allows the Service Processor react or not react the same way as the operating system to major system faults by reading the setting of the operating system parameter **Automatically Restart/Reboot After a System Crash**. This parameter may or may not be defined depending on the operating system or its version/level. If the operating system automatic restart setting is defined, then it may be set to respond to a major fault by restarting or by not restarting. See your operating system documentation for details on setting up operating systems automatic restarts. The default value is YES.

- **Enable supplemental restart policy** - The default setting is NO. If set to YES, the Service Processor restarts the system when the system loses control as detected by Service Processor surveillance, and either:
  1. The **Use OS-Defined restart policy** is set to NO

     OR

  2. The **Use OS-Defined restart policy** is set to YES and the operating system has NO automatic restart policy.

     Refer to “Service Processor Reboot/Restart Recovery” on page C-31 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.
- **Call-Out before restart (Enabled/Disabled)** If a restart is necessary due to a system fault, you can enable the Service Processor to call out and report the event. This item is valuable if the number of these events becomes excessive, signalling a bigger problem.

Boot Mode Menu

```
        Boot Mode Menu

 1. Boot to SMS Menu:
      Currently Disabled

 2. Service Mode Boot from Saved List:
      Currently Disabled

 3. Service Mode Boot from Default List:
      Currently Disabled

 4. Boot to Open Firmware Prompt:
      Currently Disabled

98. Return to Previous Menu

1>
```

To select boot mode, select a number and press enter. The item corresponding to the selected number toggles from Disabled to Enabled. If the same number is selected again, the item toggles from Enabled to Disabled. If a boot mode is Enabled, the Boot mode selected is performed and the Disabled/Enabled selection is reset to Disabled. Following is a description for each boot mode selection:

- **Boot to SMS Menu**

  When enabled, the system boots to the System Management Services (SMS) Menu.

- **Service Mode Boot from Saved List**

  This selection causes the system to boot from the saved service mode boot list (saved in NVRAM). This is normally used to try to boot Customer Diagnostics from the CDROM drive. If the system boots AIX from the disk drive and AIX diagnostics are loaded on the disk drive, AIX boots to the diagnostics menu.

- **Service Mode Boot from Default List**

  This selection is just like selection 2, “Service Mode Boot from Saved List” above except the system boots from the default boot list that is stored in the system firmware.

- **Boot to Open Firmware**

  When this selection is enabled, the system boots to the Open Firmware prompt.

Service Processor Procedures in Service Mode

When the system is in service mode, the following service processor parameters are suspended.

- Unattended Start Mode
- Reboot/Restart Policy
- Call-Out
- Surveillance

When service mode is exited, the service processor parameters revert back to the customer settings.

Service Processor Functions

The following section discusses some of the Service Processor features in greater detail.

The S70 and S7A Service Processor supports the following functions:

Built-in Functions	Initialization and Test	Service Processor Basic Instructions Test (BIST)
		System Chip Initialization
	Error Data Collection	BIST/POST errors and status
		Isolation to Field Replaceable Unit (FRU) on fail.
	Configuration	CPU Complex validation
		VPD Collection
	System Management	Reset and Reboot on System Firmware fails
		Reboot on system failure
Local User Function	User Interface	Local async console
		Text based menus with NLS
		Operator Panel messages
	Power and Miscellaneous	Power On/Off
		Configurable Reboot Policy
	Status and Data Access	VPD
		Error data (SP)
		Error data (system)
	Service Processor Setup Utilities	Passwords
		Phone numbers
		Language (NLS) selection
		Call-In/Call-Out enable/disable
		System Name
		Modem Configuration

Remote User Functions	Call-Out (Call Home) Reporting	OS termination
		Boot failure
		Surveillance failure
		Checkstop
		Machine check
		Identify system by name
	Call-In	Power-on via ring-indicate
		Password/security check
		Console mirroring

System Power-On Methods

- Power-on Switch - see “Powering On the System” on page 9-6 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.
- Remote Power-on via Ring-Indicate Signal

  The server automatically powers on when it detects a "ring indicate" signal from a modem attached to one of the integrated serial ports.

  A remote user can call the server to activate ring detection by the modem. Listen for a few more rings than the threshold number for starting the system and then hang up. The default threshold is one ring.

  Wait 5 minutes for the server to initialize and then call again using an ASCII terminal. The server responds by requesting a password, if set, or presenting the Service Processor menus. The remote user now has control of the server.

  Note: For security, if the system is powered on by the remote power-on via ring indicate signal and the service processor detects an operator panel battery failure, the service processor causes the system to power off. See “Service Processor Call-In Security” on page 184 for more information.
- Unattended start mode - refer to **Enable/Disable Unattended Start Mode** on page 165.

  The Service Processor can be enabled to recover from the loss of AC power (see Enable/Disable Unattended Power-On Mode in the SYSTEM POWER CONTROL MENU). When AC power is restored, the system returns to the then current power state at the time AC loss occurred. For example, if the system was powered-on when AC loss occurred, it reboots/restarts when power is restored. If the system was powered-off when AC loss occurred, it remains off when power is restored.

  It is recommended that the system rack and I/O rack both receive their AC power from the same building circuit on the same circuit breaker, if not the same electrical outlet box, in such a way that primary power cannot be lost to one rack separately from the other. If such a condition occurs, Unattended Start Mode may not be able to restart system operation when a primary power interruption is restored.

- Timed power-on - refer to the `shutdown -t` command on servers using AIX.

  Working in conjunction with AIX, the Service Processor in your server can operate a timer, much like the wake-up timer on your clock radio. You can set the timer so that your server powers on at a certain time after shutting down. The timer is battery operated, so power interruptions occurring while the server is off do not affect its accuracy. Refer to the `shutdown -t` command of AIX for details on setting the timer.

  Note: If an AC power loss is in progress when the Timed Power-On attempt occurs, the server is not be able to power on when AC power is restored.

- Follow-up to a Failed Boot Attempt

  The Service Processor initiates a power-on sequence upon detection of a failed boot attempt (due to a hardware or software failure).

- Fast/Slow Boot (IPL) Capabilities

  Using the operator panel functions, you can select the IPL type, mode and speed of your boot capabilities. For more information, refer to operator panel functions 01 and 02 in “Operator Panel Function Descriptions” on page A-4 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

  ATTENTION: Selecting fast IPL results in several diagnostic tests being skipped.

Service Processor Call-In Security

If the service processor detects bad battery-powered storage (indicating that the battery in the Operator Panel has failed or is disconnected), it maintains server security by disabling the call-in capability to both serial ports.

When call-in is disabled, the system can still be powered on by using the ring-indicator signal, but the service processor then causes the system to power down, preventing access to any system facilities or AIX.

Once battery power is restored, the password(s) must be reset and the call-in function(s) enabled. Both of these operations can be performed from Service Processor menus. See “Service Processor Setup Menu” on page 161 and “Serial Port Selection Menu” on page 172.

Service Processor Reboot/Restart Recovery

Reboot describes bringing the system hardware back up. For example, from a system reset or power on. The boot process ends when control passes to the operating system process.

Restart describes activating the operating system after the system hardware is reinitialized. Restart must follow a successful reboot.

Boot (IPL) Speed

When the server enters reboot recovery, slow IPL is automatically invoked. This is to give the POST an opportunity to locate and report any problems that may otherwise be untested. For more information on IPL speed, refer to “Values for IPL Types and Speeds” on page A-4 of the *RS/6000 Enterprise Servers S70 and S7A Installation and Service Guide*, SA38-0548.

Failure During Boot Process

During the boot process, either initially after system power-on or upon reboot after a system failure, the Service Processor monitors the boot progress. If progress stops, the Service Processor can reinitiate the boot process (reboot) if enabled to do so. Service Processor can re-attempt this process according to the number of retries selected in the Reboot/Restart Policy Setup Menu.

Failure During Normal System Operation

When the boot process completes and control transfers to the operating system (OS), the Service Processor can monitor operating system activity (see the SERVICE PROCESSOR SETUP MENU item Set Surveillance Parameters). If OS activity stops due to a hardware or software induced failure, the Service Processor can initiate a reboot/restart process based on the settings in the Service Processor Reboot/Restart Policy Setup Menu and the OS automatic restart settings (see OS documentation).

If the operating system is AIX, the menu item under SMIT for setting the restart policy is Automatically Reboot After Crash (True/False), and the default is False. When the setting is True, and if the Service Processor parameter "Use OS-Defined Restart Policy" is Yes (the default), SP takes over for AIX to reboot/restart after a hardware or Surveillance failure.

Service Processor Reboot/Restart Policy Controls

The operating system's automatic restart policy (see operating system documentation) indicates the OS response to a system crash. The Service Processor can be instructed to refer to that policy, or not, by the Use OS-Defined Restart Policy menu item.

If the operating system has no automatic restart policy, or if it is disabled, then the Service Processor restart policy can be controlled from the Service Processor Menus by using the Enable Supplemental Restart Policy selection.

Use OS-Defined restart policy - The default setting is YES. This causes the Service Processor to refer to the OS Automatic Restart Policy setting and take action; the same action the OS would take if it could have responded to the problem causing the restart.

When this setting is NO, or if the OS did not set a policy, the SP refers to Enable supplemental restart policy for its action.

Enable supplemental restart policy - The default setting is NO. If set to YES, the Service Processor restarts the server when the OS loses control and either:

1. The **Use OS-Defined restart policy** is set to NO

   OR

2. The **Use OS-Defined restart policy** is set to YES and the operating system has NO automatic restart policy.

Refer to “Service Processor Reboot/Restart Recovery” on page 185.

The following provides a more thorough understanding of the relations among the OS and Service Processor restart controls:

OS Automatic reboot/restart after crash setting	Service Processor to use OS-Defined restart policy?	Service Processor Enable supple-mental restart policy?	System response
None	No	No[1]	
None	No	Yes	Restarts
None	Yes[1]	No[1]	
None	Yes[1]	Yes	Restarts
False[2]	No	No[1]	
False[2]	No	Yes	Restarts
False[2]	Yes[1]	No[1]	
False[2]	Yes[1]	Yes	
True	No	No[1]	
True	No	Yes	Restarts
True	Yes[1]	No[1]	Restarts
True	Yes[1]	Yes	Restarts

[1] Service Processor default
[2] AIX default

Configure/Deconfigure Processors

The S70 and S7A systems which have 262 Mhz processor cards feature an enhanced error detection and prevention function called Repeat-Gard. This function allows the system to deconfigure processors from the system configuration if a processor has an unrecoverable error, or repeating recoverable errors. This prevents the system from using a defective processor.

If a processor is deconfigured, it remains off-line for subsequent reboots until the faulty processor hardware is replaced. The Repeat-Gard function also provides the option for users to manually deconfigure a processor, or re-enable a previously deconfigured processor. See page 168 for a description of the service processor menus used to configure or deconfigure a processor.

Processor deconfiguration during system boot is a function controlled by the system firmware which enables removal of processors from the system configuration. If a processor has a failure which occurs during tests that are performed during the system boot, or if the processor has had prior unrecoverable or recoverable errors, it will be removed from the system configuration. The system utilizes hardware Built-in Self-Tests (BIST) and/or the firmware Power-On Self Test (POST) to discover and isolate processor hardware failures during the system boot. The system utilizes the hardware error detection logic in the processor to capture recoverable and unrecoverable error indications that occurred during prior system operations.

Processor Deconfiguration During Boot

Repeat-Gard utilizes the error detection and isolation capabilities of the processor card along with the error recording facilities of the Service Processor to provide a method to record key fault information. This information is recorded when a processor has reached a threshold of recoverable errors. It also records information if a critical processor failure ever occurs which allows the affected processor to be identified and removed during the next boot. This function is provided in addition to the services to notify customer support and service support if desired. The service processor is utilized to report critical failures when AIX can not be rebooted.

The Repeat-Gard function provides the capability to remember a specific processor that was experiencing problems during normal operation and automatically deconfigure it during the next boot. This removes the dependency on the system to rely on the processor to fail BIST (Built In Self Test) during the Boot process in order to be removed from the configuration. Processor failures may be intermittent in nature or not repeatable during system boot with BIST, but may fail again during normal operation causing systems to experience a series of system failures and reboots until faulty component processor is replaced.

| The customer is given the option to override the default deconfiguration of the
| processor if so desired during the system boot. In addition, the menu driven inter-
| face allows them to selectively deconfigure or configure additional processors which
| are installed. This provides customers with control over the number of processors
| which will be made available to the operating system. This is particularly useful for
| customers performing bench marking runs for their applications on various configura-
| tions

Service Processor System Monitoring - Surveillance

Surveillance is a function in which the Service Processor (Service Processor) monitors the system, and the system monitors the Service Processor. This monitoring is accomplished by periodic samplings called heartbeats.

Surveillance is available during two phases:

1. System firmware bringup (automatic) and
2. Operating system runtime (optional).

System Firmware Surveillance

Provides the Service Processor with a means to detect boot failures while the system firmware is running.

System firmware surveillance is automatically enabled during system power-on. It cannot be disabled via a user selectable option.

If the Service Processor detects no heartbeats during system IPL (for 7 minutes), it cycles the system power to attempt a reboot. The maximum number of retries is set from the Service Processor menus. If the fail condition persists, the Service Processor leaves the machine powered on, logs an error and offers menus to the user. If Call-out is enabled, the Service Processor calls to report the failure and displays the operating system surveillance failure code on the operator panel.

Operating System Surveillance

Provides the Service Processor with a means to detect hang conditions, hardware or software failures while the operating system is running. It also provides the operating system with a means to detect Service Processor failure by the lack of a return heartbeat.

Operating system surveillance is not enabled by default. This is to allow the user to run operating systems that do not support this Service Processor option.

Operating system surveillance can be enabled and disabled via:

- Service Processor Menus
- Service Processor Service Aids

Three parameters must be set for operating system surveillance:

1. Surveillance enable/disable
2. Surveillance interval

   This is the maximum time Service Processor should wait for a heartbeat from the operating system before timeout.
3. Surveillance delay

   This is the length of time to wait from when the operating system is started to when the first heartbeat is expected.

Surveillance does not take effect until the next time the operating system is started after setting the parameters.

If operating system surveillance is enabled (and system firmware has passed control to the operating system), and Service Processor does not detect any heartbeats from the operating system, the Service Processor assumes the system is hung and takes action according to the reboot/restart policy settings. See “Service Processor Reboot/Restart Recovery” on page 185.

Call-Out (Call-Home)

The Service Processor can call-out (Call-Home) when it detects one of the following conditions:

- System firmware surveillance failure
- Operating system surveillance failure (if supported by Operating System)
- Restarts
- Critical hardware failure
- Abnormal OS termination

To enable the call-out feature, you need to do the following:

- Have a modem connected to serial port 1 or 2.
- Set up the following using the Service Processor Menus or Diagnostic Service Aids:
  - Enable call-out for the serial port where the modem is connected.
  - Enter the modem configuration filename.
  - Set up site specific parameters (i.e. phone numbers for call-out, call-out policy, number of call-out retries, etc.).
- To Call-Out before restart, set **"call-out before restart"** to ENABLED from the Reboot/Restart Policy Setup menu.

Note: Some modems, such as IBM 7857-017, are not designed for the paging function. Although they can be used for paging, they will return an error message when they do not get the expected response from another modem. Therefore, even though the paging was successful, the error message will cause the Service Processor to retry, continuing to place pager calls for the number of retries specified in the Call-Out Policy Setup Menu. These retries result in redundant pages.

Console Mirroring

Console mirroring allows a person on a local ASCII terminal to monitor the Service Processor activities of a remote user. Console mirroring ends when Service Processor releases control of the serial ports to the system firmware.

System Configuration:

- Service Processor
- Modem connected to one serial port and enabled for incoming calls
- Local ASCII terminal connected to the other serial port. This local terminal may be connected directly to your server or connected through another modem.

There are two scenarios in which console mirroring can be invoked:

1. Remote session first, then local session added:
   a. Remote session already in progress.
   b. Remote user uses Service Processor menus to enable console mirroring, allowing both consoles to be active.
2. Local session first, then remote session added:
   a. Local session is already in progress.
   b. The Service Processor receives a call from the remote user.
   c. The local user selects the option to enable console mirroring. Service Processor immediately begins mirroring Service Processor menus.

Service Processor Error Logs

The Service Processor error logs contain error conditions detected by the Service Processor.

```
                          Error Log

19970626223337  0. Error detected..
                     4B00F010
                     B455440004B00710700001370000000000000000007420A400010000000
0000000000000

   Press "C" to clear error log, any other key to continue.  >
```

Note: The time stamp in this error log is Coordinated Universal Time (CUT) which is also referred to as Greenwich Mean Time (GMT). AIX error logs have more information available and can time stamp with local time.

System POST Errors

If POST (Power-On Self Test) errors occur during start-up, this error log helps isolate faults when used with the diagnostics.

```
                          Read System POST Errors


Version : 1
Severity : 2
Disposition : 0
Initiator : 0
Event being reported : 0
Extended Error Log Data:
c2 00 84 09 20 09 06 00
19 97 09 03 00 00 49 42
4d 2c 73 70 00 00 00 00
00 00 2b a0 00 13 00 01
00 00 00 00 00 00 00 00
49 42 4d 00 55 30 2e 31
2d 50 31 2d 58 31 00

                    (Press Return to Continue)
```

LCD Progress Indicator Log

The following is an example of the LCD progress indicator log.

The progress indicators (check points) are displayed in two sections. Above the dashed line are the progress indicators from the boot that produced the current sessions. Below the dashed line are progress indicators from the boot preceding the one that produced the current sessions.

The progress indication codes are chronological from bottom to top. The dashed line merely represents the point where the latest boot started.

```
                      LCD Progress Indicator Log
          C33744FE
          C33644FE
          C33544FE
          C33444FE
          C33344FE
          C33244FE
          C33144FE
          C33044FE
          C1022001
          C13F2090
          C13F2060
          C13F2050
          C1012001
          C1002001
          C100D500
          C100806E
          --------
          E075
          E07A
          E075

Press Return to continue, or 'x' to return to menu.  >
```

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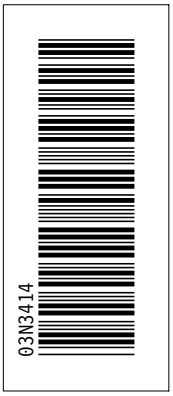
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