

Sun Enterprise SyMON™ 2.0.1 Supplement for Sun Enterprise™ Midrange Servers



THE NETWORK IS THE COMPUTER™

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Part No. 806-0649-10
May 1999, Revision A

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Sun Enterprise SyMON 2.0.1 Supplement for Sun Enterprise Midrange Servers

Sun Enterprise SyMON™ software supports multiple hardware platforms. The *Sun Enterprise SyMON 2.0.1 Software User's Guide* describes the software functionality that is common to all the supported hardware platforms while platform-specific information is included in the supplements.

Note – This supplement discusses Sun Enterprise SyMON information specific to the SPARCserver™ 1000 and 1000E, the SPARCcenter™ 2000 and 2000E, and the Sun Enterprise™ 6x00/5x00/4x00/3x00 systems.

For complete information on how you can use the Sun Enterprise SyMON software to manage and monitor your machines, read *both* this supplement *and* the *Sun Enterprise SyMON 2.0.1 Software User's Guide*.

This supplement covers the following topics:

- Dynamic Reconfiguration
- To Connect a Board
- To Disconnect a Board
- To Configure a Board
- To Unconfigure a Board
- To Test Memory
- Config-Reader Module
- Config-Reader Rules

Dynamic Reconfiguration

Note – In this supplement, the dynamic reconfiguration features that are described are applicable only to the Sun Enterprise 6500, 6000, 5500, 5000, 4500, 4000, 3500, and 3000 systems using the 5/99 release of the Solaris™ 7 operating environment.

Dynamic reconfiguration enables you to add, remove, or replace hardware units such as system, CPU/memory, and I/O boards while the system is powered-up and running. Dynamic reconfiguration also enables boards to be reserved in a powered-up and inactive state for immediate use as spare units. This feature is only available on systems that have boards and slots designed for hot-plugging.

Note – The Dynamic Reconfiguration module must be loaded to use the Dynamic Reconfiguration feature of the Sun Enterprise SyMON software. For more information on loading modules, refer to the “Managing Modules” chapter in the *Sun Enterprise SyMON 2.0.1 Software User’s Guide*.

The Dynamic Reconfiguration button is displayed in the physical and logical views of the Configuration tab of the Details window. Click the Dynamic Reconfiguration button to display the Dynamic Reconfiguration window (FIGURE 1 and FIGURE 2).

Note – For more information on the Configuration tab of the Details window, refer to the “Details” chapter in the *Sun Enterprise SyMON 2.0.1 Software User’s Guide*.

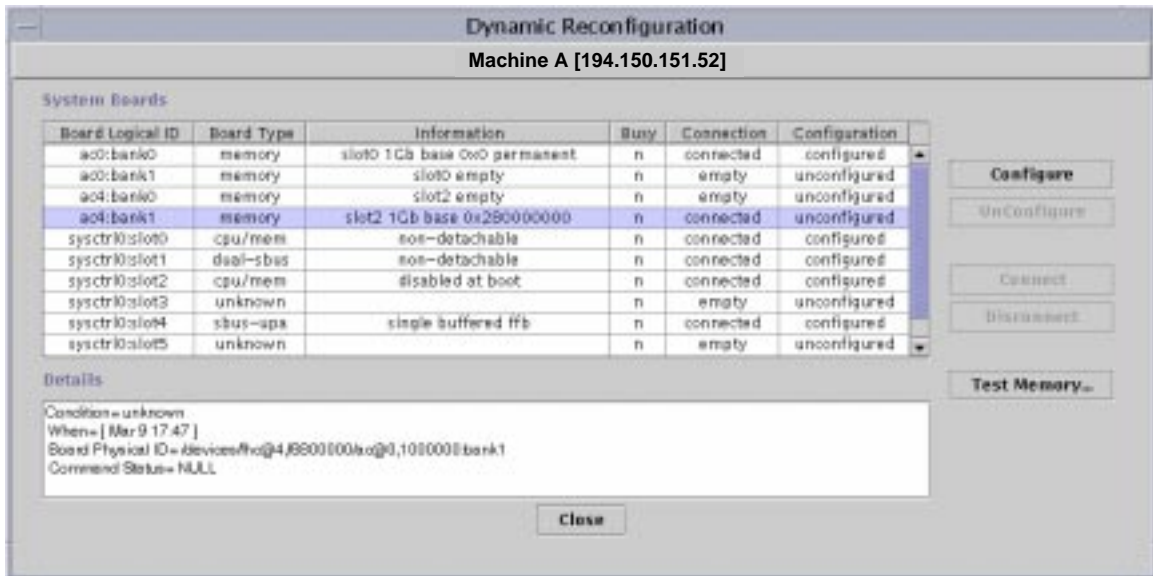


FIGURE 1 Dynamic Reconfiguration Window with Memory Board Selected

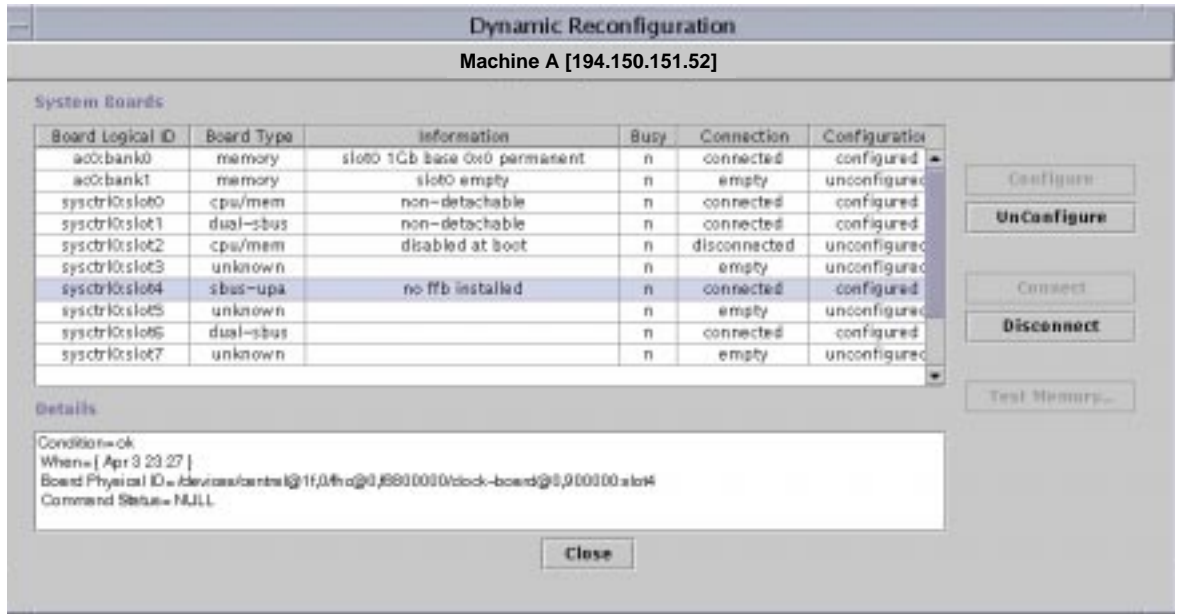


FIGURE 2 Dynamic Reconfiguration Window with I/O Board Selected

System Boards Summary Table

Where applicable, the System Boards summary table lists all slots in the card cage and shows the status of all slots and their occupants (TABLE 1).

TABLE 1 Columns in the System Boards Summary Table

| Column | Description |
|------------------|--|
| Board Logical ID | Board ID as reflected by the <code>cfgadm</code> command |
| Board Type | Type of board (I/O, CPU/memory, or unknown) |
| Information | When the board was installed in the slot and additional information about the board, including whether or not it is detachable |
| Busy | Whether the board is currently in use (yes or no) |
| Connection | Whether the board is connected, disconnected, or the board slot is empty |
| Configuration | Whether the board is configured or unconfigured |

Details Panel

Below the System Boards summary table, the Details panel shows information about the state of a selected slot and its occupant board (TABLE 2).

TABLE 2 Details Panel in the Dynamic Reconfiguration Window

| Field | Description |
|-------------------|---|
| Condition | Status of the board occupying that slot |
| When | Date and time of the last requested action. When you select a new action, the values change to the current date and time. |
| Board Physical ID | System designation for the board |
| Command Status | Reports dynamic reconfiguration operations and error conditions |

Note – The Configure, Unconfigure, Connect, Disconnect, and Test Memory buttons are grayed out as required by the condition of the board and slot. You cannot perform any dynamic reconfiguration when the slot is empty.

Performing Dynamic Reconfiguration Operations

You can perform three types of operations in the Dynamic Reconfiguration window:

- Connecting or disconnecting a board
- Configuring or unconfiguring a board or memory bank
- Testing memory

Note – For information on the proper use of these functions, refer to the *Sun Enterprise 6x00, 5x00, 4x00, and 3x00 Systems Dynamic Reconfiguration User's Guide*, part number 806-0280.

Note – If after performing a dynamic reconfiguration operation, you see the error messages `Error opening logical view` or `Error opening physical view`, then close and reopen the Details window for the host.

▼ To Connect a Board

Note – Refer to the “Procedures” chapter in the *Sun Enterprise 6x00, 5x00, 4x00, and 3x00 Systems Dynamic Reconfiguration User’s Guide*, part number 806-0280, for the step-by-step instructions for this procedure.

- Select the board row in the System Boards summary table and click the **Connect** button (FIGURE 3).

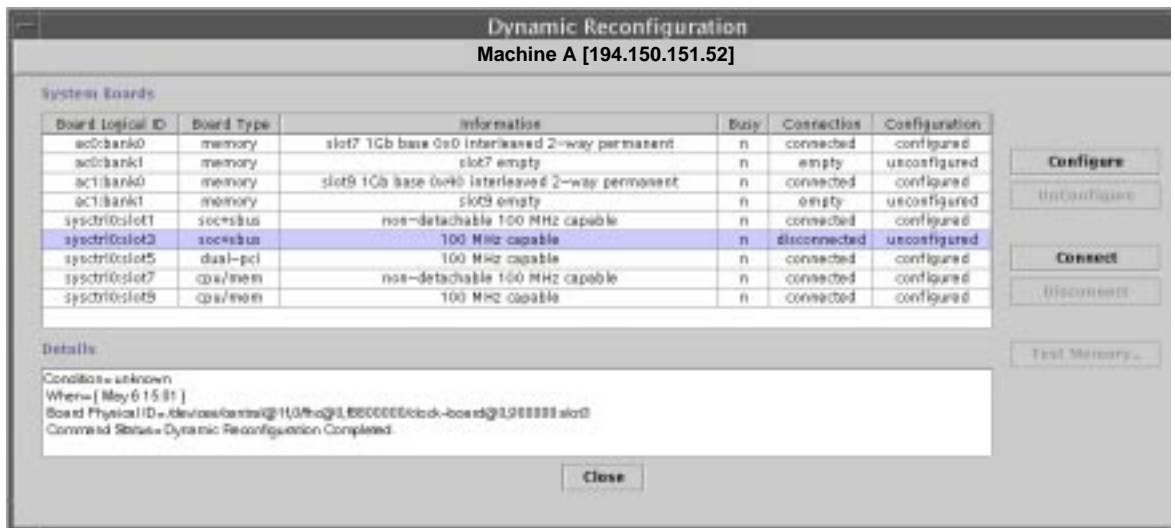


FIGURE 3 Dynamic Reconfiguration Window with Disconnected Board Selected

▼ To Disconnect a Board

Note – Refer to the “Procedures” chapter in the *Sun Enterprise 6x00, 5x00, 4x00, and 3x00 Systems Dynamic Reconfiguration User’s Guide*, part number 806-0280, for the step-by-step instructions for this procedure.

- Select the board row in the System Boards summary table and click the **Disconnect** button.

The disconnected board displays a yellow LED (FIGURE 4).

Note – If you disconnect a connected and configured board, the board is disconnected and also automatically unconfigured, thus performing two operations at once.

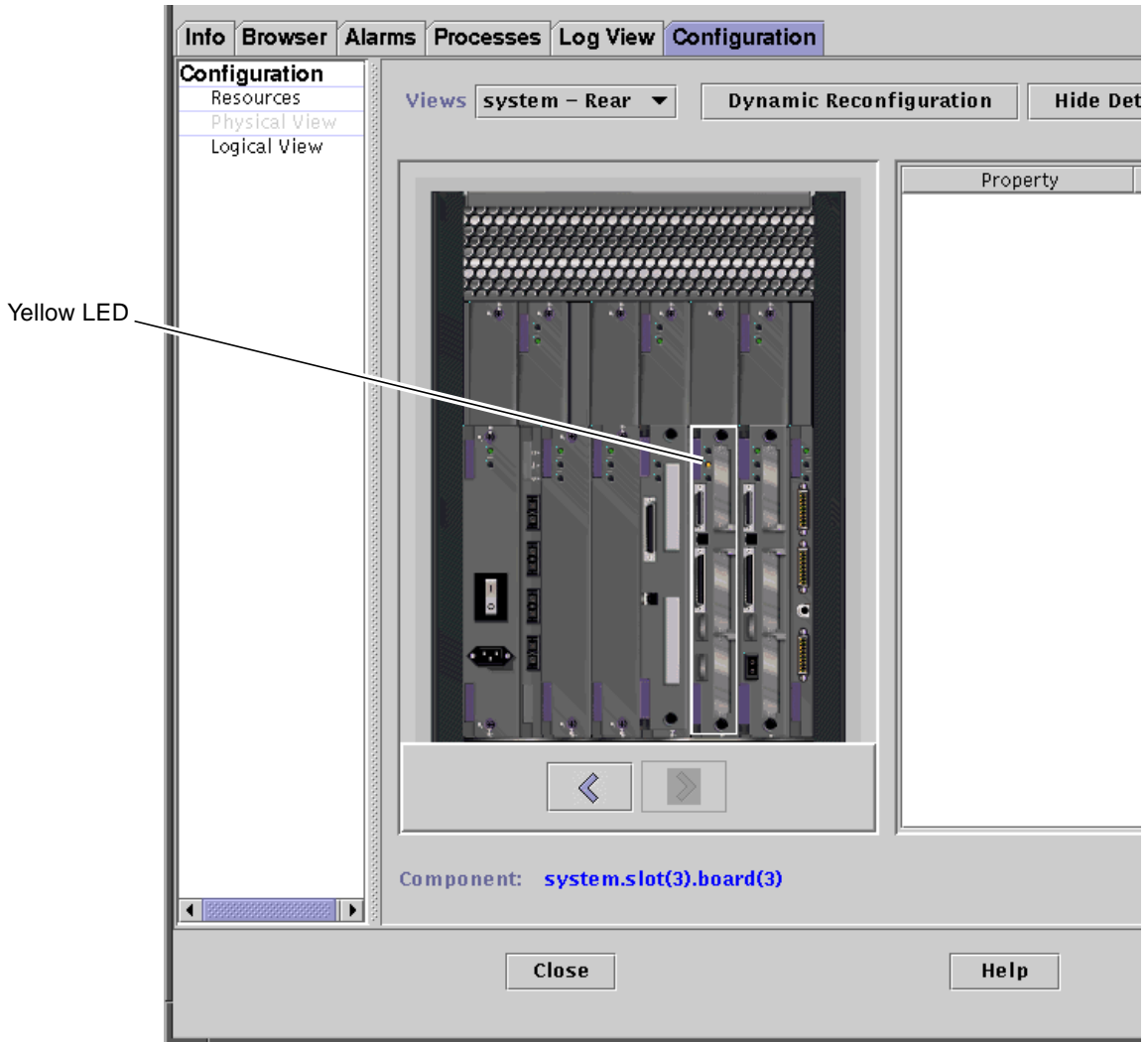


FIGURE 4 Physical View of a Disconnected Board with Yellow LED

▼ To Configure a Board

Note – Refer to the “Procedures” chapter in the *Sun Enterprise 6x00, 5x00, 4x00, and 3x00 Systems Dynamic Reconfiguration User’s Guide*, part number 806-0280, for the step-by-step instructions for this procedure.

1. **Select the board row in the System Boards summary table and click the Configure button.**

The Confirm dialog box is displayed (FIGURE 5).

2. **Select OK or Cancel.**

Note – When you configure a disconnected board, the board is also automatically connected, thus performing two operations at once.

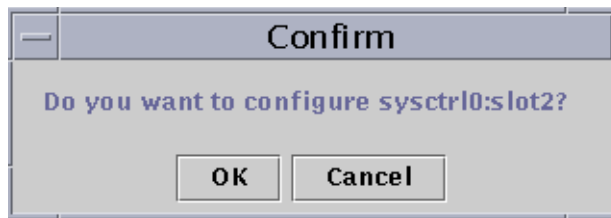


FIGURE 5 Confirm Dialog Box

▼ To Unconfigure a Board

Note – Refer to the “Procedures” chapter in the *Sun Enterprise 6x00, 5x00, 4x00, and 3x00 Systems Dynamic Reconfiguration User’s Guide*, part number 806-0280, for the step-by-step instructions for this procedure.

- **Select the board row in the System Boards summary table and click the Unconfigure button.**

Testing Memory

Sun Enterprise SyMON 2.0.1 software enables you to test the memory of CPU/memory boards in the Dynamic Reconfiguration window.

▼ To Test Memory

Note – Refer to the “Procedures” chapter in the *Sun Enterprise 6x00, 5x00, 4x00, and 3x00 Systems Dynamic Reconfiguration User’s Guide*, part number 806-0280, for the step-by-step instructions for this procedure.

Note – A board *must* be unconfigured before its memory can be tested.

1. **Select the board row in the System Boards summary table and click the Test Memory button.**

The Test Memory dialog box is displayed (FIGURE 6).

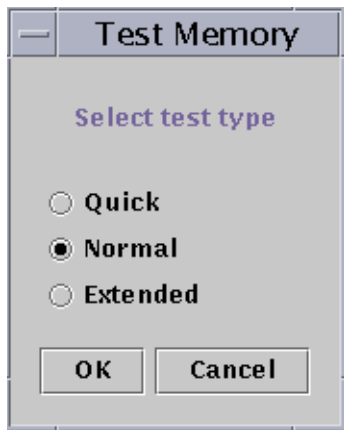


FIGURE 6 Test Memory Dialog Box

2. **Select the type of test: Quick, Normal, or Extended.**

Quick and normal tests take several minutes, while an extended test may take more than an hour. For more information on these tests, refer to the *Sun Enterprise 6x00, 5x00, 4x00, and 3x00 Systems Dynamic Reconfiguration User’s Guide*, part number 806-0280.

3. **Click OK to close this dialog box and test the memory, or click Cancel to cancel your request.**

Dynamic Reconfiguration Data Properties Table

The following table provides a brief description of the data properties for the Dynamic Reconfiguration module. When selected, the Dynamic Reconfiguration data property table is displayed in the Browser tab of the Details window. For more information on viewing data property tables, refer to the “Browser” chapter in the *Sun Enterprise SyMON 2.0.1 Software User’s Guide*.

TABLE 3 Dynamic Reconfiguration Properties

| Property | Description |
|--------------|---|
| Unique Ap_Id | Unique attachment point ID |
| Receptacle | An attachment point defines two unique elements, which are distinct from the hardware resources that exist beyond the attachment point. One of the two elements of an attachment point is a receptacle. Configuration administration supports physical insertion and removal operations as well as other configuration administration functions at an attachment point. |
| Occupant | The other element of the attachment is an occupant physical insertion or removal of hardware resources. This occurs at attachment points and results in a receptacle gaining or losing an occupant. |
| Condition | Condition or status |
| Information | Additional information about the attachment point, including the date of operation |
| When | Date and time of the last requested action |
| Type | Type affected: CPU, disk, memory, or other if known |
| Busy | State: whether busy or not |
| Phys_Id | Directory path or physical address |

Config-Reader Module

The Config-Reader module, when loaded, is displayed under the hardware icon.

The Config-Reader (sun4u/sun4d) module monitors your hardware and alerts you whenever there is a problem. For example, this module checks for single in-line memory module (SIMM) errors, monitors board temperatures and power supply status, and so on.

This module also obtains the physical view and logical view of your host. For more information on the physical and logical views, refer to the *Sun Enterprise SyMON 2.0.1 Software User's Guide*.

Config-Reader Module Data Property Tables

This section includes the Config-Reader module data property tables:

- System Table
- Board Table
- CPU Unit Properties Table
- SIMM Properties Table
- AC Power Supply Table
- Hot-Plug Charges Table
- Auxiliary 5V Table
- Peripheral 5V, Peripheral 12V, System 3V, and System 5V Table
- Keypad Table
- Peripheral Power Supply Table
- Power Supply Table
- Rack Fan and Fan Tables
- Remote Console Table
- FHC Table
- AC Table
- PFA Rules Table
- Photon Disks Table
- I/O Controllers Table
- I/O Devices Table
- Disk Devices Table
- Tape Devices Table
- Network Devices Table

The following tables describe the data properties that are contained in each of the Config-Reader data property tables. When selected, the Config-Reader data property tables are displayed in the Browser tab of the Details window. For more information, see the “Browser” chapter in the *Sun Enterprise SyMON 2.0.1 Software User's Guide*.

System Table

The following table provides a brief description of the properties for system:

TABLE 4 System Properties

| Property | Description |
|--------------------------|---|
| Name | Instance name |
| Operating System | Operating system running in the machine |
| Operating System Version | Operating system version |
| System Clock Frequency | Clock frequency |
| Architecture | Architecture of the machine |
| Host name of the System | Host name of the system |
| Machine Name | Machine type |
| Serial Number | Serial number of the machine |
| Timestamp | Time stamp value |
| Raw Timestamp | Raw time stamp value |
| Total Disks | Total number of disks present in the system |
| Total Memory | Total memory present in the system |
| Total Processors | Total processors present in the system |
| Total Tape Devices | Total tape devices present in the system |

Board Table

The following table provides a brief description of the properties for boards:

TABLE 5 Board Properties

| Property | Description |
|-----------------|-----------------------------|
| Name | Instance name |
| Board No. | Number of the board |
| Fru | Field-replaceable unit |
| Hot Plugged | Whether it is hot-plugged |
| Hot Pluggable | Whether it is hot-pluggable |
| Memory size | Size of the memory |

TABLE 5 Board Properties (*Continued*)

| Property | Description |
|-----------------|---|
| State | State |
| Temperature | Temperature of the board |
| Type | Type of board (for example, CPU/memory, SBus, clock, and so on) |

CPU Unit Properties Table

The following table provides a brief description of the properties for CPU unit:

TABLE 6 CPU Unit Properties

| Property | Description |
|-----------------|--|
| Name | Name |
| Board No. | Number of the board |
| Clock Frequency | Frequency of timer |
| Cpu Type | Type of system |
| Dcache Size | Size of Dcache in Kbytes |
| Ecache Size | Size of Ecache in Mbytes |
| Fru | Field-replaceable unit |
| Icache Size | Size of Icache in Kbytes |
| Model | Name of CPU model |
| Processor ID | Identification number of the processor |
| Status | Status of CPU unit |
| Unit | Identification of the unit |

SIMM Properties Table

The following table provides a brief description of the properties for SIMM:

TABLE 7 SIMM Properties

| Property | Description |
|------------------------|----------------------------------|
| Name | Name of the SIMM |
| Board Reference Number | Number that references the board |
| Fru | Field-replaceable unit |
| Size | Size of SIMM in Mbytes |
| Slot | Number of the SIMM |
| Status | Status of the SIMM |

AC Power Supply Table

The following table provides a brief description of the properties for alternating current (AC) power supply (PS):

TABLE 8 AC PS Properties

| Property | Description |
|----------|-------------|
| Name | Name |
| Status | Status |

Hot-Plug Charges Table

The following table provides a brief description of the properties for hot-plug charges (the output of the system power supply that is used for hot-plugging and peripherals):

TABLE 9 Hot-Plug Properties

| Property | Description |
|----------|------------------------|
| Name | Name |
| Fru | Field-replaceable unit |

Auxiliary 5V Table

The following table provides a brief description of the properties for auxiliary 5V output:

TABLE 10 Auxiliary 5V Properties

| Property | Description |
|----------|------------------------|
| Name | Name |
| Fru | Field-replaceable unit |
| Status | Status |

Peripheral 5V, Peripheral 12V, System 3V, and System 5V Table

TABLE 11 presents the properties for the following:

- Peripheral 5V
- Peripheral 5V Precharge
- Peripheral 12V
- Peripheral 12V Precharge
- System 3V
- System 3V Precharge
- System 5V
- System 5V Precharge

TABLE 11 Common Peripheral and System Properties

| Property | Description |
|----------|----------------------------|
| Name | Name |
| Fru | Field-replaceable unit |
| Status | Status of the power supply |

Keyswitch Table

The following table provides a brief description of the properties for Keyswitch:

TABLE 12 Keyswitch Properties

| Property | Description |
|-----------------|---------------------------|
| Name | Name |
| Position | Position of the keyswitch |

Peripheral Power Supply Table

The following table provides a brief description of the properties for peripheral power supply (PS):

TABLE 13 Peripheral Power Supply Properties

| Property | Description |
|-----------------|---------------------------------------|
| Name | Name |
| Fru | Field-replaceable unit |
| Hpu | Hot-pluggable unit |
| Status | Status of the peripheral power supply |
| Unit No. | Unit number |

Power Supply Table

The following table provides a brief description of the properties for power supply:

TABLE 14 Power Supply Properties

| Property | Description |
|-----------------|------------------------|
| Name | Name |
| Fru | Field-replaceable unit |
| Hpu | Hot-pluggable unit |
| Status | Status |
| Unit No. | Unit number |

Rack Fan and Fan Tables

The following table provides a brief description of the properties for rack fan and fan:

TABLE 15 Fan Properties

| Property | Description |
|----------|--|
| Name | Name, for example, <code>rack_fan</code> |
| Status | Status of the fan |

Remote Console Table

The following table provides a brief description of the properties for remote console:

TABLE 16 Remote Console Properties

| Property | Description |
|----------|---|
| Name | Instance name: for example, <code>remote_console</code> |
| Status | Status of the remote console: enabled or disabled |

FHC Table

The following table provides a brief description of the properties for the FHC node, which is a node inside the I/O unit:

TABLE 17 FHC Properties

| Property | Description |
|-------------|--|
| Name | Name |
| Board Num | Board number |
| Model | Name of the FHC model |
| Upa Mid | Number of the ultra port architecture unit |
| Version No. | Version number |

AC Table

The following table provides a brief description of the properties for alternating current (AC):

TABLE 18 AC Properties

| Property | Description |
|-----------------|----------------------|
| Name | Name |
| Bank0 Status | Bank0 status |
| Bank1 Status | Bank1 status |
| Device Type | Device type |
| Model | Name of the AC model |
| Version No. | Version number |

PFA Rules Table

The following table provides a brief description of the properties for predictive failure analysis (PFA) rules:

TABLE 19 PFA Rules Properties

| Property | Description |
|---------------------|---------------------------|
| PFA SIMM Rule | SIMM rule value |
| PFA Disk Rule | Disk rule value |
| Smart/PFA Disk Rule | Smart PFA disk rule value |

Photon Disks Table

The following table provides a brief description of the properties for Sun StorEdge™ A5000, A5100, and A5200 devices:

TABLE 20 Sun StorEdge A5000, A5100, and A5200 Device Properties

| Property | Description |
|---------------------|--|
| Node Name | Name |
| Device Type | Device type |
| Fru | Field-replaceable unit |
| Hard Address | Complete address |
| Instance | Instance name |
| Mounted Partition | Disk partition that has been mounted and is accessible |
| Name | Name target |
| Node WWN | Node worldwide name |
| Port WWN | Port worldwide name |
| Status | Status of the disk |
| Alternate Instances | Alternate instances |
| Alternate Names | Alternate names |
| Alternate Parents | Alternate parents |

I/O Controllers Table

The following table provides a brief description of the properties for I/O controllers:

TABLE 21 I/O Controllers Properties

| Property | Description |
|-----------------|----------------------------------|
| Name | Name |
| Board Number | Board number |
| Clock Frequency | Frequency of timer |
| Device Type | Device type |
| Instance Number | Instance Number |
| Model | Name of the I/O controller model |
| Reg | Reg property |

TABLE 21 I/O Controllers Properties *(Continued)*

| Property | Description |
|-----------------|--------------------|
| UPA Mid | UPA MID |
| UPA Portid | UPA Port ID |
| Version Number | Version number |

I/O Devices Table

The following table provides a brief description of the properties for I/O devices:

TABLE 22 I/O Devices Properties

| Property | Description |
|-----------------|---|
| Name | Name instance |
| Device Type | Device type |
| Disk Count | Number of disks present on this device |
| Instance Number | Instance number |
| Model | Name of the I/O device model |
| Network Count | Number of network interfaces present on this device |
| Reg | Reg property |
| Tape Count | Number of tape devices present on this I/O device |

Disk Devices Table

The following table provides a brief description of the properties for disk devices:

TABLE 23 Disk Devices Properties

| Property | Description |
|-----------------|-----------------------------|
| Name | Name |
| Device Type | Device type |
| Disk Name | Name of the disk |
| Fru | Field-replaceable unit |
| Instance Number | Instance number of the disk |
| Disk Target | Disk target number |

Tape Devices Table

The following table provides a brief description of the properties for tape devices:

TABLE 24 Tape Devices Properties

| Property | Description |
|-----------------|-------------------------------|
| Name | Name |
| Device Type | Device type |
| Fru | Field-replaceable unit |
| Instance Number | Instance number of the tape |
| Model | Name of the tape device model |
| Tape Name | Tape name |
| Status | Status of the tape device |
| Tape Target | Tape target number |

Network Devices Table

The following table provides a brief description of the properties for network devices:

TABLE 25 Network Devices Properties

| Property | Description |
|------------------|-----------------------------------|
| Name | Name |
| Device Type | Device type |
| Ethernet Address | Ethernet address of the interface |
| Internet Address | Internet address of the interface |
| Interface Name | Name of the interface |
| Symbolic Name | Symbolic name of the interface |

Config-Reader Rules

This section includes Config-Reader rules with detailed explanation of those rules that have critical alarms.

TABLE 26 Config-Reader Rules

| Rule ID | Description | Type of Alarm |
|----------|--|--|
| rcr4u201 | Precharge status rule This alarm is generated when the status of the precharge voltages is not "OK." | Critical |
| rcr4u203 | Power supply status rule This alarm is generated when the status of the power supply is not "OK." | Critical |
| rcr4u205 | Temperature rule This rule is triggered when the temperature on the system boards goes beyond a threshold value. Depending on the board temperature, a critical or an alert alarm is generated. | Critical, Alert |
| rcr4u207 | CPU unit status rule When the CPUs are not "online" this rule is generated. | Critical |
| rcr4u209 | SIMM error rule | Alert alarm that is closed immediately |
| rcr4u210 | Hardware error | Alert alarm that is closed immediately |
| rcr4u211 | Fatal error | Alert alarm that is closed immediately |
| rcr4u212 | CPU detects ECC error on SIMM | Alert alarm that is closed immediately |
| rcr4u213 | Hot-plug removed | Alert alarm that is closed immediately |
| rcr4u214 | Power failing | Alert alarm that is closed immediately |
| rcr4u215 | Hot-plugged | Alert alarm that is closed immediately |
| rcr4u216 | CPU panic | Alert alarm that is closed immediately |
| rcr4u217 | SCSI tape error | Alert alarm that is closed immediately |

TABLE 26 Config-Reader Rules (Continued)

| Rule ID | Description | Type of Alarm |
|----------|---|--|
| rcr4u218 | AC status rule This rule is generated when the AC status is not "OK." | Critical |
| rcr4u219 | Disk removed | Alert alarm that is closed immediately |
| rcr4u220 | Disk inserted | Alert alarm that is closed immediately |
| rcr4u221 | Redundant power | Alert alarm that is closed immediately |
| rcr4u222 | Testing SunVTS messages rcr4u222 log | Alert alarm that is closed immediately |
| rcr4u223 | Testing SunVTS messages rcr4u223 log | Alert alarm that is closed immediately |
| rcr4u224 | Hot-plug installed | Alert alarm that is closed immediately |
| rcr4u225 | ST status rule This rule is generated when the status of the tape drive is not "OK." | Critical |
| rpfa300 | Complex rule looks for SIMM memory errors in <code>syslog</code> and makes a predictive failure alarm entry for each error. | Critical |
| rpfa301 | Complex rule looks for disk soft errors in <code>syslog</code> and makes a predictive failure alarm entry for each error. | Critical |
| rpfa302 | Complex rule looks for disk soft errors in <code>syslog</code> that are spilled out by a SMART drive. | Critical |