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

THE NETWORK IS THE COMPUTER™

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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*.

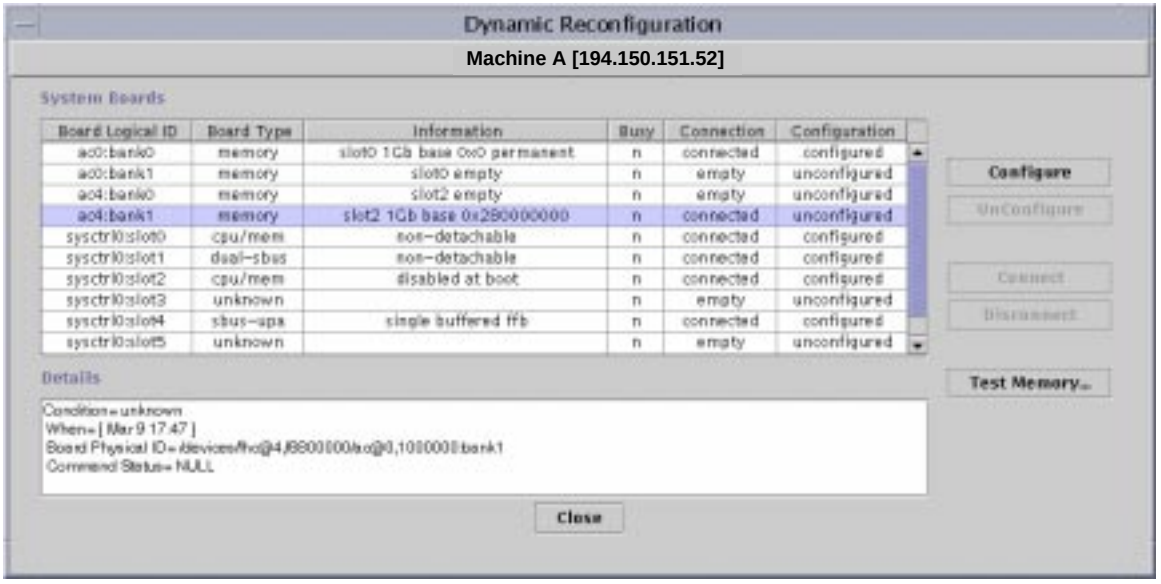

FIGURE 1 Dynamic Reconfiguration Window with Memory Board Selected

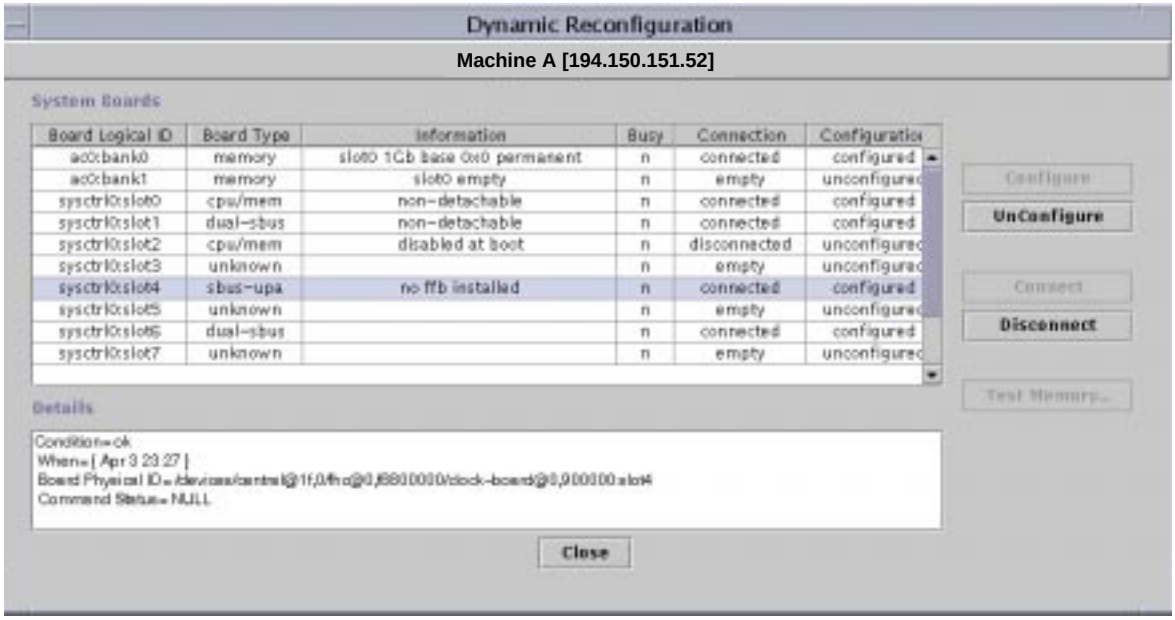

FIGURE 2 Dynamic Reconfiguration Window with I/O Board Selected

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 `cfgadm` 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**).**

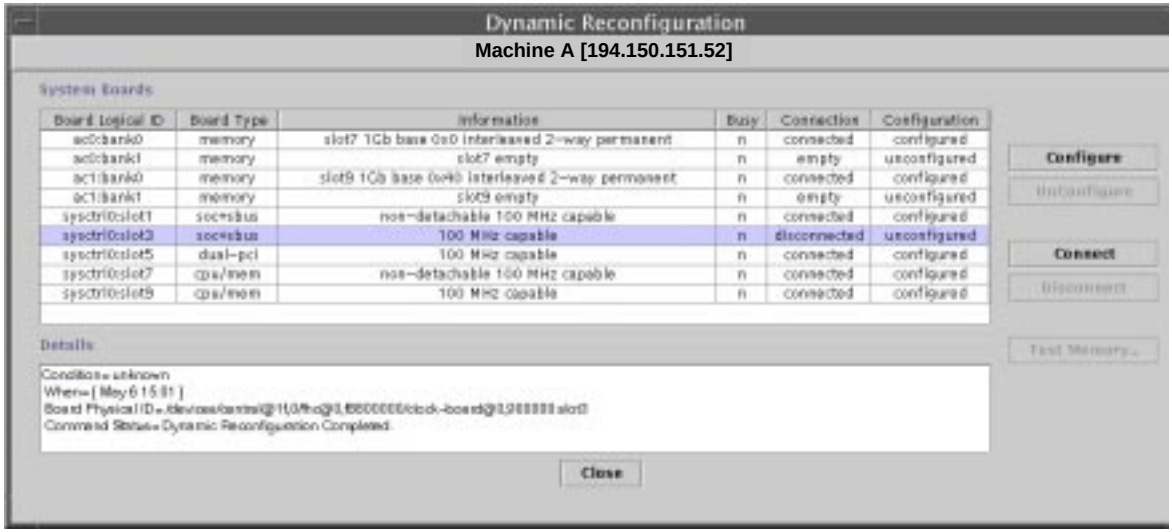

FIGURE 3 Dynamic Reconfiguration Window with Disconnected Board Selected

▼ 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.

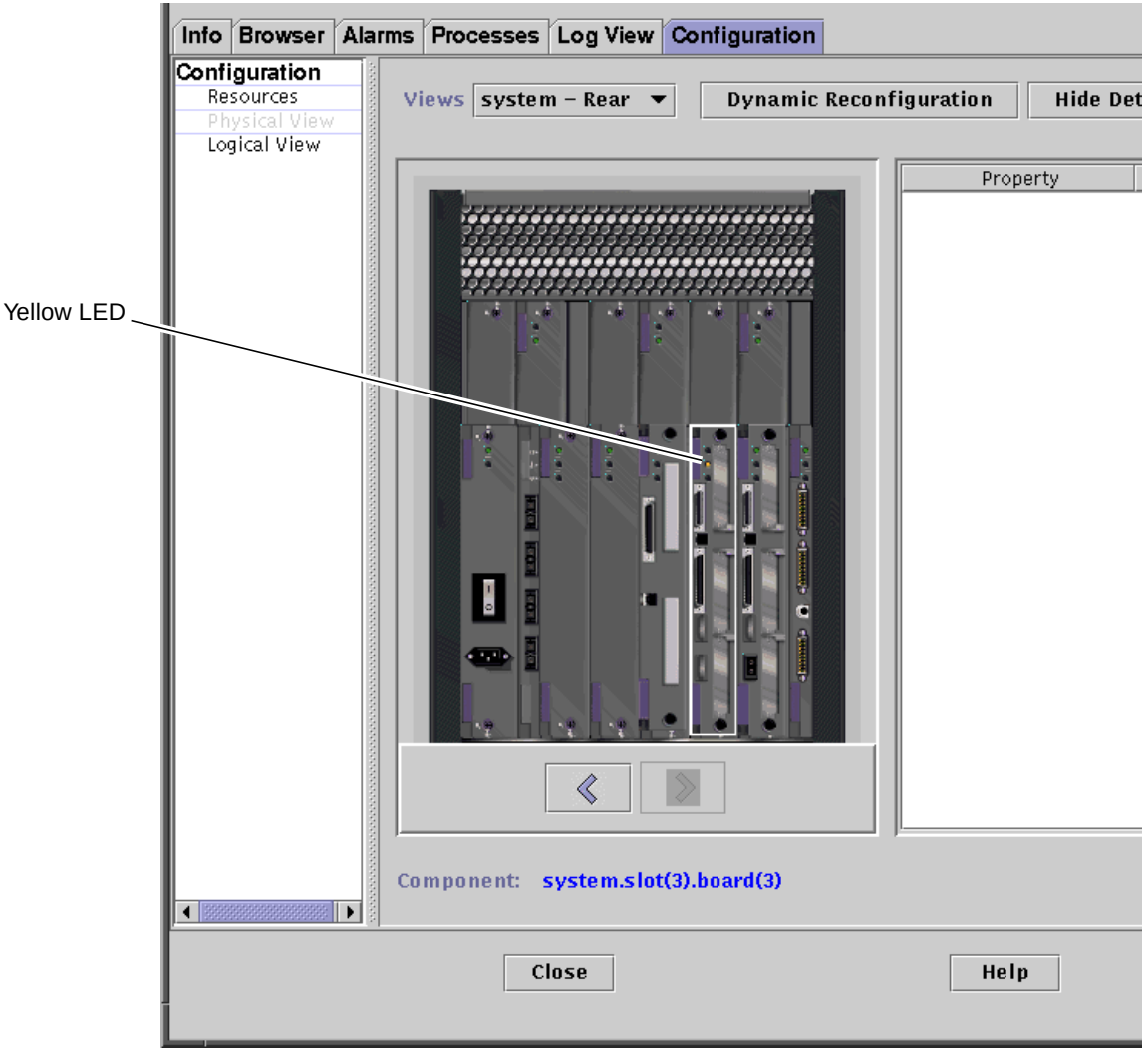

FIGURE 4 Physical View of a Disconnected Board with Yellow LED

▼ 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.

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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.

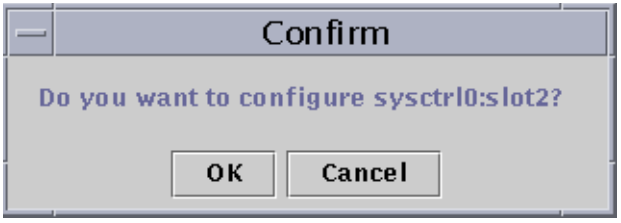

FIGURE 5 Confirm Dialog Box

▼ 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).

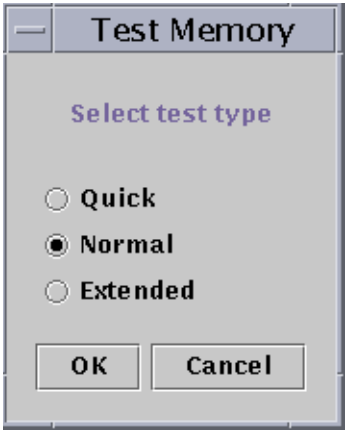

FIGURE 6 Test Memory Dialog Box

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
- Keyswitch 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, `rack_fan`
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, `remote_console`
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 `syslog` and makes a predictive failure alarm entry for each error.	Critical
rpfa301	Complex rule looks for disk soft errors in `syslog` and makes a predictive failure alarm entry for each error.	Critical
rpfa302	Complex rule looks for disk soft errors in `syslog` that are spilled out by a SMART drive.	Critical