Sun™ SNMP Management Agent Addendum for the Netra™ 440 Server

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Sun SNMP Management Agent Addendum for the Netra 440 Server

This document describes how the Netra™ 440 server fans, power supplies, and LED indicators are represented in the Sun™ Simple Network Management Protocol (SNMP) Agent for Sun Fire™ and Netra Systems. This document contains the following sections:

- "Sun SNMP Management Agent" on page 2
- "Netra 440 Server SNMP Containment Model" on page 2
- "Component and Indicator Identification" on page 10
- "Fans and Fan Trays" on page 14
- "Power Supplies" on page 17
- "Dry Contact Alarm Relays and LED Indicators" on page 21

Note – For instructions on installing and using the Sun SNMP Management Agent, refer to the *Sun SNMP Management Agent for Sun Fire and Netra Systems* (817-2559-xx) manual. See "Sun SNMP Management Agent" on page 2 for more information.

Sun SNMP Management Agent

The Sun SNMP Management Agent for Sun Fire and Netra Systems provides the management of supported systems using the Simple Network Management Protocol (SNMP). Using the Sun SNMP Management Agent, you can monitor inventory, configuration, and service indicators, as well as environmental and fault reports.

You can download the Sun SNMP Management Agent for Sun Fire and Netra Systems software and documentation at the following web site:

http://www.sun.com/servers/entry/sun_management.html

For instructions on installing and configuring the software, refer to the *Sun SNMP Management Agent for Sun Fire and Netra Systems* (817-2559-xx). The SNMP management agent manual contains a detailed overview of the agent software, including an introduction to the SNMP environment and a description of how the agent models hardware platforms using the Sun Platform SNMP model (SunPSM). The manual also describes how the SNMP interface presents managed objects and their relationships using the ENTITY-MIB and SUN-PLATFORM-MIB management information bases (MIB).

This document supplements the *Sun SNMP Management Agent for Sun Fire and Netra Systems* manual by documenting how the agent represents the Netra 440 server fans, power supplies, and certain LED indicators. This document provides Netra 440 server-specific information only. For complete descriptions of the SNMP agent terminology, management models, and trap properties, refer to the *Sun SNMP Management Agent for Sun Fire and Netra Systems* manual.

For additional information about the Netra 440 server, refer to the server's documentation at the following web site:

http://www.sun.com/products-n-solutions/hardware/docs/Servers/Netra_Servers/Netra_440/

Netra 440 Server SNMP Containment Model

TABLE 1 presents an example of how the Sun SNMP agent models the Netra 440 server component hierarchy. Because this component hierarchy may vary depending on your server and the SNMP agent software version, query the SNMP agent to identify your server's hierarchy. To locate these server components, see the figures in "Component and Indicator Identification" on page 10.

TABLE 1 Netra 440 Server Containment Model (Hierarchy)

Model Description	For Location, See:
Netra 440 Chassis	
➥ Alarm Board	
Critical Alarm Relay	
Major Alarm Relay	
Minor Alarm Relay	
User Alarm Relay	
➥ System Board	
OpenBoot PROM	
➥ Battery	
Battery Voltage Monitor	
➥ CPU/Memory Slot 0 (far left - viewed from front)	FIGURE 4 – item 2
➥ CPU/Memory Module 0	FIGURE 4 – item 2
➥ Processor 0 Memory Bank 0	FIGURE 4 – item 2 FIGURE 5 – item 5
➥ Processor 0 Memory Bank 0 DIMM 0	FIGURE 4 – item 2 FIGURE 5 – item 1
➥ Processor 0 Memory Bank 0 DIMM 1	FIGURE 4 – item 2 FIGURE 5 – item 2
➥ Processor 0 Memory Bank 1	FIGURE 4 – item 2 FIGURE 5 – item 6
➥ Processor 0 Memory Bank 1 DIMM 0	FIGURE 4 – item 2 FIGURE 5 – item 3
➥ Processor 0 Memory Bank 1 DIMM 1	FIGURE 4 – item 2 FIGURE 5 – item 4
➥ CPU 0 (far left - viewed from front)	FIGURE 4 – item 2
CPU 0 Core Temperature Monitor	
CPU 0 Power OK Fault Sensor	
CPU 0 Ambient Temperature Sensor	
➥ CPU/Memory Slot 1 (2nd from left - viewed from front)	FIGURE 4 – item 3
➥ CPU/Memory Module 1	FIGURE 4 – item 3

TABLE 1 Netra 440 Server Containment Model (Hierarchy) *(Continued)*

Model Description	For Location, See:
➥ Processor 1 Memory Bank 0	FIGURE 4 – item 3 FIGURE 5 – item 5
➥ Processor 1 Memory Bank 0 DIMM 0	FIGURE 4 – item 3 FIGURE 5 – item 1
➥ Processor 1 Memory Bank 0 DIMM 1	FIGURE 4 – item 3 FIGURE 5 – item 2
➥ Processor 1 Memory Bank 1	FIGURE 4 – item 3 FIGURE 5 – item 6
➥ Processor 1 Memory Bank 1 DIMM 0	FIGURE 4 – item 3 FIGURE 5 – item 3
➥ Processor 1 Memory Bank 1 DIMM 1	FIGURE 4 – item 3 FIGURE 5 – item 4
➥ CPU 1 (2nd from left - viewed from front)	FIGURE 4 – item 3
CPU 1 Core Temperature Monitor	
CPU 1 Power OK Fault Sensor	
CPU 1 Ambient Temperature Sensor	
➥ CPU/Memory Slot 2 (2nd from right - viewed from front)	FIGURE 4 – item 4
➥ CPU/Memory Module 2	FIGURE 4 – item 4
➥ Processor 2 Memory Bank 0	FIGURE 4 – item 4 FIGURE 5 – item 5
➥ Processor 2 Memory Bank 0 DIMM 0	FIGURE 4 – item 4 FIGURE 5 – item 1
➥ Processor 2 Memory Bank 0 DIMM 1	FIGURE 4 – item 4 FIGURE 5 – item 2
➥ Processor 2 Memory Bank 1	FIGURE 4 – item 4 FIGURE 5 – item 6
➥ Processor 2 Memory Bank 1 DIMM 0	FIGURE 4 – item 4 FIGURE 5 – item 3
➥ Processor 2 Memory Bank 1 DIMM 1	FIGURE 4 – item 4 FIGURE 5 – item 4
➥ CPU 2 (2nd from right - viewed from front)	FIGURE 4 – item 4
CPU 2 Core Temperature Monitor	
CPU 2 Power OK Fault Sensor	

TABLE 1 Netra 440 Server Containment Model (Hierarchy) *(Continued)*

Model Description	For Location, See:
CPU 2 Ambient Temperature Sensor	
➥ CPU/Memory Slot 3 (far right - viewed from front)	FIGURE 4 – item 5
➥ CPU/Memory Module 3	FIGURE 4 – item 5
➥ Processor 3 Memory Bank 0	FIGURE 4 – item 5 FIGURE 5 – item 5
➥ Processor 3 Memory Bank 0 DIMM 0	FIGURE 4 – item 5 FIGURE 5 – item 1
➥ Processor 3 Memory Bank 0 DIMM 1	FIGURE 4 – item 5 FIGURE 5 – item 2
➥ Processor 3 Memory Bank 1	FIGURE 4 – item 5 FIGURE 5 – item 6
➥ Processor 3 Memory Bank 1 DIMM 0	FIGURE 4 – item 5 FIGURE 5 – item 3
➥ Processor 3 Memory Bank 1 DIMM 1	FIGURE 4 – item 5 FIGURE 5 – item 4
➥ CPU 3 (far right - viewed from front)	FIGURE 4 – item 5
CPU 3 Core Temperature Monitor	
CPU 3 Power OK Fault Sensor	
CPU 3 Ambient Temperature Sensor	
PCI Slot 0 (33Mhz 5V) (far left - viewed from front)	FIGURE 3 – item 11
PCI Slot 1 (33Mhz 5V) (2nd from left - viewed from front)*	FIGURE 3 – item 10
PCI Slot 2 (33/66Mhz 3.3V) (3rd from left - viewed from front)*	FIGURE 3 – item 9
PCI Slot 3 (33Mhz 5V) (3rd from right - viewed from front)*	FIGURE 3 – item 8
PCI Slot 4 (33/66Mhz 3.3V) (2nd from right - viewed from front)*	FIGURE 3 – item 7
PCI Slot 5 (33/66Mhz 3.3V) (far right - viewed from front)	FIGURE 3 – item 6
➥ System Controller Slot	
➥ System Controller	
Motherboard Ambient Temperature Sensor	
+1.5V Rail Monitor	
+3.3V Rail Monitor	
Standby Monitor	
+5V Rail Monitor	

TABLE 1 Netra 440 Server Containment Model (Hierarchy) *(Continued)*

Model Description	For Location, See:
+12V Rail Monitor	
-12V Rail Monitor	
Ethernet 0 1.2V Analog Rail Monitor	
Ethernet 0 1.2V Digital Rail Monitor	
Ethernet 1 1.2V Analog Rail Monitor	
Ethernet 1 1.2V Digital Rail Monitor	
SCSI Controller 1.8V Rail Monitor	
Tomatillo/Cassini 2.5V Rail Monitor	
Motherboard Power OK Fault Sensor	
Internal SCSI Termination Power Rail Fault Sensor	
External SCSI Termination Power Rail Fault Sensor	
SCSI Disk Backplane	FIGURE 4 – item 6
➥ Chassis Indicator Panel	
➥ System Active Indicator (front)	FIGURE 1 – item 3
System Locator (front)	FIGURE 1 – item 1
System Service-Required Indicator (front)	FIGURE 1 – item 2
Asynchronous Serial Port	FIGURE 3 – item 24
SCSI Port	FIGURE 3 – item 17
Alarm Port	FIGURE 3 – item 25
USB 0 Port (top left - viewed from rear)	FIGURE 3 – item 22
USB 1 Port (bottom left - viewed from rear)	FIGURE 3 – item 22
USB 2 Port (top right - viewed from rear)	FIGURE 3 – item 21
USB 3 Port (bottom right - viewed from rear)	FIGURE 3 – item 21
Management Network Port	FIGURE 3 – item 4
Management Serial Port	FIGURE 3 – item 5
➥ Fan Tray 0	FIGURE 2 – item 2
➥ Fan 0	FIGURE 2 – item 2
➥ Fan 0 Active Indicator	FIGURE 2 – item 6
Fan 0 Service-Required Indicator	FIGURE 2 – item 5
Fan 0 Tachometer	

TABLE 1 Netra 440 Server Containment Model (Hierarchy) *(Continued)*

Model Description	For Location, See:
➥ Fan Tray 1	FIGURE 2 – item 14
➥ Fan 1	FIGURE 2 – item 14
➥ Fan 1 Active Indicator	FIGURE 2 – item 9
Fan 1 Service-Required Indicator	FIGURE 2 – item 8
Fan 1 Tachometer	
➥ Fan Tray 2	FIGURE 2 – item 16
➥ Fan 2	FIGURE 2 – item 16
➥ Fan 2 Active Indicator	FIGURE 2 – item 12
Fan 2 Service-Required Indicator	FIGURE 2 – item 11
Fan 2 Tachometer	
➥ Fan Tray 3	FIGURE 4 – item 1
Fan 3	FIGURE 4 – item 1
System Control Keyswitch	FIGURE 1 – item 5
System Active Indicator (rear)	FIGURE 3 – item 3
System Locator (rear)	FIGURE 3 – item 1
System Service-Required Indicator (rear)	FIGURE 3 – item 2
Critical Alarm Indicator (front)	FIGURE 1 – item 8
Major Alarm Indicator (front)	FIGURE 1 – item 9
Minor Alarm Indicator (front)	FIGURE 1 – item 10
User Alarm Indicator (front)	FIGURE 1 – item 11
➥ Hard Disk Drive 0 Bay (left - viewed from front)	FIGURE 2 – item 1
➥ HDD0 Okay To Remove Indicator	FIGURE 2 – item 4
HDD0 Service Required Indicator†	
Hard Disk Drive 0 (left - viewed from front)	FIGURE 2 – item 1
➥ Hard Disk Drive 1 Bay (2nd from left - viewed from front)	FIGURE 2 – item 3
➥ HDD1 Okay To Remove Indicator	FIGURE 2 – item 7
HDD1 Service Required Indicator†	
Hard Disk Drive 1 (2nd from left - viewed from front)	FIGURE 2 – item 3
➥ Hard Disk Drive 2 Bay (2nd from right - viewed from front)	FIGURE 2 – item 15
➥ HDD2 Okay To Remove Indicator	FIGURE 2 – item 10

TABLE 1 Netra 440 Server Containment Model (Hierarchy) *(Continued)*

Model Description	For Location, See:
HDD2 Service Required Indicator†	
Hard Disk Drive 2 (2nd from right - viewed from front)	FIGURE 2 – item 15
➥ Hard Disk Drive 3 Bay (right - viewed from front)	FIGURE 2 – item 17
➥ HDD3 Okay To Remove Indicator	FIGURE 2 – item 13
HDD3 Service Required Indicator†	
Hard Disk Drive 3 (right1 - viewed from front)	FIGURE 2 – item 17
➥ Power Supply 0 Bay (right - viewed from rear)	FIGURE 3 – item 15
➥ Power Supply 0	FIGURE 3 – item 15
➥ PS 0 Okay-To-Remove Indicator	FIGURE 3 – item 15 and item 14
PS 0 Active Indicator	FIGURE 3 – item 15 and item 12
PS 0 Service-Required Indicator	FIGURE 3 – item 15 and item 13
PS 0 Over-Current Fault Monitor	
PS 0 Fan Under-Speed Fault Monitor	
PS 0 Over-Voltage Fault Monitor	
PS 0 Under-Voltage Fault Monitor	
PS 0 Power Inlet Presence Monitor	
PS 0 Over-Temperature Fault Monitor	
➥ Power Supply 1 Bay (2nd from right - viewed from rear)	FIGURE 3 – item 16
➥ Power Supply 1	FIGURE 3 – item 16
➥ PS 1 Okay-To-Remove Indicator	FIGURE 3 – item 16 and item 14
PS 1 Active Indicator	FIGURE 3 – item 16 and item 12
PS 1 Service-Required Indicator	FIGURE 3 – item 16 and item 13
PS 1 Over-Current Fault Monitor	
PS 1 Fan Under-Speed Fault Monitor	
PS 1 Over-Voltage Fault Monitor	
PS 1 Under-Voltage Fault Monitor	
PS 1 Power Inlet Presence Monitor	
PS 1 Over-Temperature Fault Monitor	
➥ Power Supply 2 Bay (2nd from left - viewed from rear)	FIGURE 3 – item 20
➥ Power Supply 2	FIGURE 3 – item 20

TABLE 1 Netra 440 Server Containment Model (Hierarchy) *(Continued)*

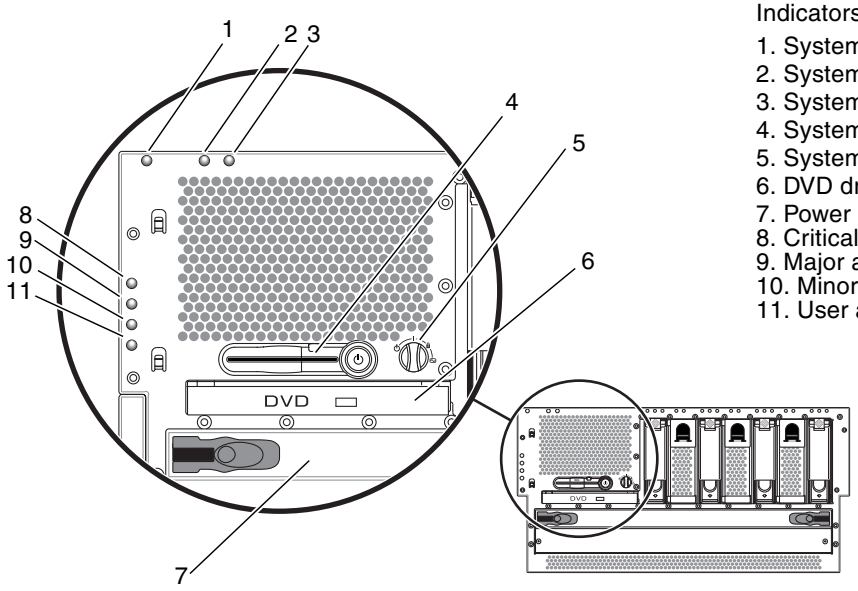
Model Description	For Location, See:
➥ PS 2 Okay-To-Remove Indicator	FIGURE 3 – item 20 and item 14
PS 2 Active Indicator	FIGURE 3 – item 20 and item 12
PS 2 Service-Required Indicator	FIGURE 3 – item 20 and item 13
PS 2 Over-Current Fault Monitor	
PS 2 Fan Under-Speed Fault Monitor	
PS 2 Over-Voltage Fault Monitor	
PS 2 Under-Voltage Fault Monitor	
PS 2 Power Inlet Presence Monitor	
PS 2 Over-Temperature Fault Monitor	
➥ Power Supply 3 Bay (left - viewed from rear)	FIGURE 3 – item 23
➥ Power Supply 3	FIGURE 3 – item 23
➥ PS 3 Okay-To-Remove Indicator	FIGURE 3 – item 23 and item 14
PS 3 Active Indicator	FIGURE 3 – item 23 and item 12
PS 3 Service-Required Indicator	FIGURE 3 – item 23 and item 13
PS 3 Over-Current Fault Monitor	
PS 3 Fan Under-Speed Fault Monitor	
PS 3 Over-Voltage Fault Monitor	
PS 3 Under-Voltage Fault Monitor	
PS 3 Power Inlet Presence Monitor	
PS 3 Over-Temperature Fault Monitor	
➥ System Configuration Card Reader	FIGURE 1 – item 4
➥ System Configuration Card	FIGURE 1 – item 4
➥ DVD Drive Bay	FIGURE 1 – item 6
➥ DVD Drive	FIGURE 1 – item 6
➥ Power Distribution Module Bay	FIGURE 1 – item 7
➥ Power Distribution Module	FIGURE 1 – item 7
Ethernet Port 0 (left - viewed from rear)	FIGURE 3 – item 19
Ethernet Port 1 (right - viewed from rear)	FIGURE 3 – item 18

* The SNMP model may show frequency values for slots 1 - 4 that are different from those shown in this table; if that is the case, ignore the frequency values shown in the SNMP model, and use the frequency values shown in this table and the regular Netra 440 server labels and documents instead. Refer to the *Netra 440 Server Release Notes* for more information.

† While the service-required indicator is represented in the containment model, it is not supported.

Component and Indicator Identification

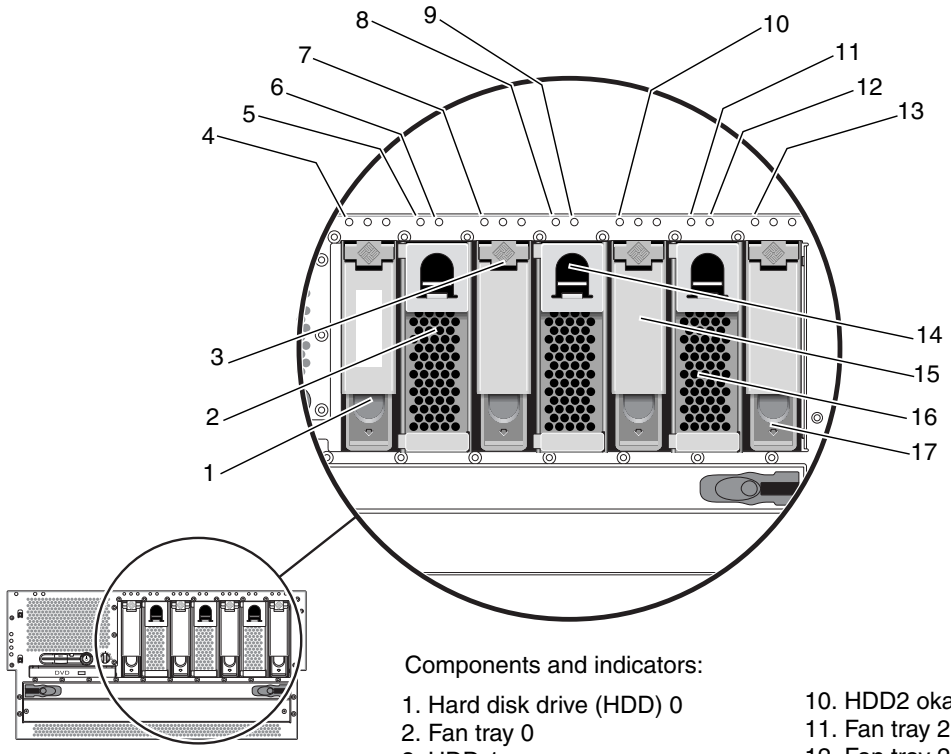
The following figures show the location of the Netra 440 server components. TABLE 1 lists of how the agent models these components in an SNMP hierarchy.



Indicators:

1. System locator
2. System service-required
3. System active
4. System configuration card reader
5. System control keyswitch
6. DVD drive bay/DVD drive
7. Power distribution module bay
8. Critical alarm
9. Major alarm
10. Minor alarm
11. User alarm

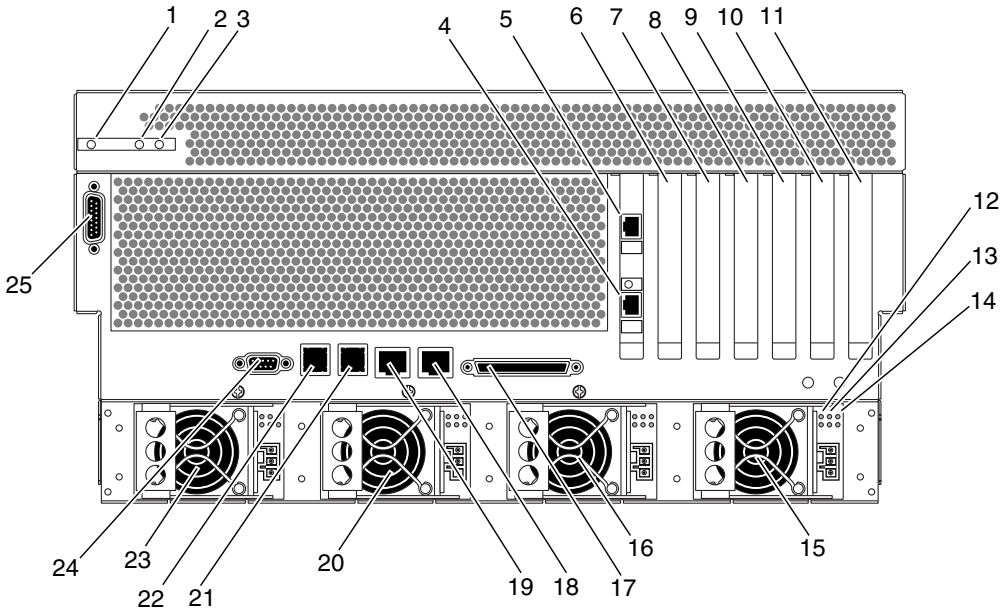
FIGURE 1 Front Panel Indicators and Components



Components and indicators:

1. Hard disk drive (HDD) 0
2. Fan tray 0
3. HDD 1
4. HDD0 okay to remove
5. Fan tray 0 service required
6. Fan tray 0 active
7. HDD1 okay to remove
8. Fan tray 1 service required
9. Fan tray 1 active
10. HDD2 okay to remove
11. Fan tray 2 service required
12. Fan tray 2 active
13. HDD3 okay to remove
14. Fan tray 1
15. HDD 2
16. Fan tray 2
17. HDD 3

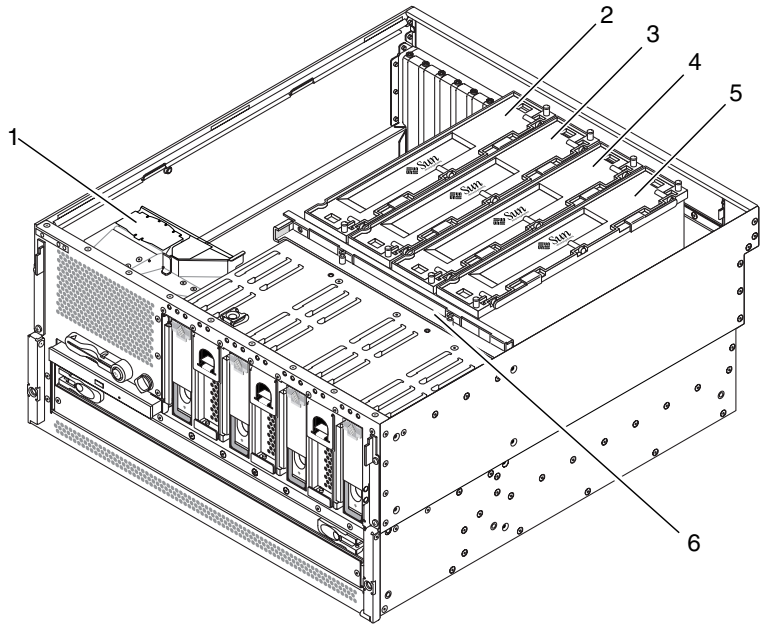
FIGURE 2 Hard Disk Drive and Fan Tray Components and Indicators



Components and indicators:

1. System locator
2. System service-required
3. System active
4. Network management port
5. Serial management port
6. PCI card slot 5
7. PCI card slot 4
8. PCI card slot 3
9. PCI card slot 2
10. PCI card slot 1
11. PCI card slot 0
12. Power supply (PS) active
13. PS service-required
14. PS okay-to-remove
15. PS 0
16. PS 1
17. SCSI port
18. NET 1 ethernet port
19. NET 0 ethernet port
20. PS 2
21. USB 2 and 3 ports
22. USB 0 and 1 ports
23. PS 3
24. Serial port
25. Alarm port

FIGURE 3 Rear Panel Components and Indicators



Internal components:

1. Fan Tray 3/Fan 3
2. CPU/memory module 0
3. CPU/memory module 1
4. CPU/memory module 2
5. CPU/memory module 3
6. SCSI disk backplane

FIGURE 4 Internal Components

Memory banks and DIMMs

1. Memory bank 0 DIMM 0
2. Memory bank 0 DIMM 1
3. Memory bank 1 DIMM 0
4. Memory bank 1 DIMM 1
5. Memory bank 0
6. Memory bank 1

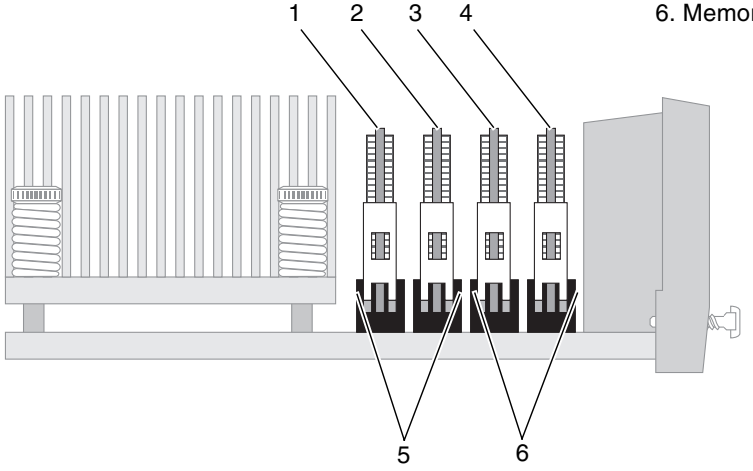


FIGURE 5 Memory Banks and DIMMs

Fans and Fan Trays

The Netra 440 server fans in the fan trays are identified in the ENTITY-MIB::entPhysicalTable by the entPhysicalDescr of `Fan` *number*, where *number* is a number in the range from 0 to 3. The fans are represented in the following tables that extend the entPhysicalTable:

- SUN-PLATFORM-MIB::sunPlatEquipmentTable
- SUN-PLATFORM-MIB::sunPlatFanTable

Note – The fans in fan trays 0-2 have certain sensors that give status and failure information, whereas the fan in fan tray 3 does not; therefore, the information in the remainder of this section will apply only to the fans in fan trays 0-2, not the fan in fan tray 3. Also, if the fan in fan tray 3 fails, the Netra 440 server automatically shuts down and no SNMP traps are generated.

The fans in fan trays 0-2 contain a tachometer used to indicate the current speed of the fan expressed in revolutions per minute (RPM). The tachometers are identified by their entPhysicalDescr of `Fan` *number* `Tachometer`, where *number* is a number in the range from 0 to 2 corresponding to the fan tray being monitored. The fan tachometers are represented in the following tables that extend the entPhysicalTable:

- SUN-PLATFORM-MIB::sunPlatEquipmentTable
- SUN-PLATFORM-MIB::sunPlatSensorTable
- SUN-PLATFORM-MIB::sunPlatNumericSensorTable

Fan Failures

If the speed of a fan falls below the threshold indicated by its tachometer's sunPlatNumericSensorLowerThresholdNonCritical value, the fan is considered to have failed and the following will occur:

- The sunPlatEquipmentOperationalState value for the fan will change from `enabled(2)` to `disabled(1)` and a sunPlatStateChange trap will be generated with the form shown in TABLE 2.
- A sunPlatEnvironmentalAlarm trap with a sunPlatNotificationPerceivedSeverity value of `warning(5)` will be generated for the fan with the form shown in TABLE 3.
- The sunPlatEquipmentAlarmStatus value for the fan will change from `cleared(7)` to `warning(5)` and a sunPlatAttributeChangeInteger trap will be generated with the form shown in TABLE 4.

- The sunPlatAlarmState values for the status LEDs will change and sunPlatAttributeChangeInteger traps will be generated with the form shown in TABLE 5.

If the fan recovers from the failure, the following changes will occur:

- The sunPlatEquipmentOperationalState value for the fan will change from `disabled(1)` to `enabled(2)` and a sunPlatStateChange trap will be generated with the form shown in TABLE 2.
- A sunPlatEnvironmentalAlarm trap with a sunPlatNotificationPerceivedSeverity value of `cleared(6)` will be generated for the fan with the form shown in TABLE 3.
- The sunPlatEquipmentAlarmStatus value for the fan will change from `warning(5)` to `cleared(7)` and a sunPlatAttributeChangeInteger trap will be generated with the form shown in TABLE 4.
- The sunPlatAlarmState values for the status LEDs will change and sunPlatAttributeChangeInteger traps will be generated with the form shown in TABLE 5.

TABLE 2 sunPlatStateChange Trap for a Fan Failure or Recovery

Variable	Value
sunPlatNotificationEventId	*unique numeric identifier*
sunPlatNotificationTime	*date time*
sunPlatNotificationObject	entPhysicalDescr.*fan instance**
sunPlatNotificationCorrelatedNotifications	
sunPlatNotificationChangedOID	sunPlatEquipmentOperationalState.*fan instance**
sunPlatNotificationOldInteger	`disabled(1)` or `enabled(2)`
sunPlatNotificationNewInteger	`disabled(1)` or `enabled(2)`

* *fan instance* indicates the row in the entPhysicalTable associated with the fan.

TABLE 3 sunPlatEnvironmentalAlarm Trap for a Fan Failure or Recovery

Variable	Value
sunPlatNotificationEventId	*unique numeric identifier*
sunPlatNotificationTime	*date time*
sunPlatNotificationObject	entPhysicalDescr.*fan instance**
sunPlatNotificationCorrelatedNotifications	
sunPlatNotificationAdditionalInfo	`0.0` (null)

TABLE 3 sunPlatEnvironmentalAlarm Trap for a Fan Failure or Recovery *(Continued)*

Variable	Value
sunPlatNotificationAdditionalText	*entPhysicalName of the fan tachometer*: `Tachometer threshold crossed`
sunPlatNotificationPerceivedSeverity	`warning(5)` or `cleared(6)`
sunPlatNotificationProbableCause	`coolingFanFailure(107)`
sunPlatNotificationSpecificProblem	`coolingFanFailure`
sunPlatNotificationRepairAction	

* *fan instance* indicates the row in the entPhysicalTable associated with the fan.

TABLE 4 sunPlatAttributeChangeInteger Trap for a Change in the sunPlatEquipmentAlarmStatus of a Fan

Variable	Value
sunPlatNotificationEventId	*unique numeric identifier*
sunPlatNotificationTime	*date time*
sunPlatNotificationObject	entPhysicalDescr.*fan instance**
sunPlatNotificationCorrelatedNotifications	
sunPlatNotificationChangedOID	sunPlatEquipmentAlarmStatus.*fan instance**
sunPlatNotificationOldInteger	`warning(5)` or `cleared(7)`
sunPlatNotificationNewInteger	`warning(5)` or `cleared(7)`

* *fan instance* indicates the row in the entPhysicalTable associated with the fan.

TABLE 5 sunPlatAttributeChangeInteger Trap for a Change in the sunPlatAlarmState of an LED

Variable	Value
sunPlatNotificationEventId	*unique numeric identifier*
sunPlatNotificationTime	*date time*
sunPlatNotificationObject	entPhysicalDescr.*LED instance**
sunPlatNotificationCorrelatedNotifications	
sunPlatNotificationChangedOID	sunPlatAlarmState.*LED instance**
sunPlatNotificationOldInteger	`off(2)` or `steady(3)`
sunPlatNotificationNewInteger	`off(2)` or `steady(3)`

* *LED instance* indicates the row in the entPhysicalTable associated with the LED.

Detecting Fan Status

You can detect fan status using the following mechanisms:

- Polling sunPlatNumericSensorCurrent and sunPlatNumericSensorLowerThresholdNonCritical for the fan's tachometer and comparing their values.
- Polling the sunPlatEquipmentOperationalState of the fan.
- Receiving a sunPlatStateChange trap corresponding to the change of the sunPlatEquipmentOperationalState of the fan.
- Receiving a sunPlatEnvironmentalAlarm trap with a sunPlatNotificationProbableCause of `coolingFanFailure(107)`.

Power Supplies

The power supplies are identified in the ENTITY-MIB::entPhysicalTable by the entPhysicalDescr of `Power Supply` *number* where *number* is 0, 1 2 or 3. The power supplies are represented in the SUN-PLATFORM-MIB::sunPlatEquipmentTable.

Each power supply contains the following sensors:

- Power Inlet Presence Monitor
- Fan Under-Speed Fault Monitor
- Over-Voltage Fault Monitor
- Under-Voltage Fault Monitor
- Over-Temperature Fault Monitor
- Over-Current Fault Monitor

These sensors are represented in the following tables:

- SUN-PLATFORM-MIB::sunPlatEquipmentTable
- SUN-PLATFORM-MIB::sunPlatSensorTable
- SUN-PLATFORM-MIB::sunPlatBinarySensorTable

Power Supply Failures

If any of the power supply sensors detect a fault the following changes will occur:

- The sunPlatBinarySensorCurrent value for the sensor that detected the fault will change from `true(1)` to `false(2)` and a sunPlatAttributeChangeInteger trap will be generated with the form shown in TABLE 6.
- The sunPlatEquipmentOperationalState for the power supply will change from `enabled(2)` to `disabled(1)` and a sunPlatStateChange trap will be generated with the form shown in TABLE 7.
- A sunPlatEquipmentAlarm trap for the power supply will be generated with the form shown in TABLE 8.
- The sunPlatEquipmentAlarmStatus value for the power supply will change from `cleared(7)` to `major(2)` and a sunPlatAttributeChangeInteger trap will be generated with the form shown in TABLE 9.
- The sunPlatAlarmState values for the status LEDs will change and sunPlatAttributeChangeInteger traps will be generated with the form shown in TABLE 10.

Recovery from the power supply fault will result in the following changes:

- The sunPlatBinarySensorCurrent value for the sensor that detected the fault will change from `false(2)` to `true(1)` and a sunPlatAttributeChangeInteger trap will be generated with the form shown in TABLE 6.
- The sunPlatEquipmentOperationalState for the power supply will change from `disabled(1)` to `enabled(2)` and a sunPlatStateChange trap will be generated with the form shown in TABLE 7.
- A sunPlatEquipmentAlarm trap with a sunPlatNotificationPerceivedSeverity value of `cleared(6)` will be generated for the power supply with the form shown in TABLE 8.
- The sunPlatEquipmentAlarmStatus value for the power supply will change from `major(2)` to `cleared(7)` and a sunPlatAttributeChangeInteger trap will be generated with the form shown in TABLE 9.
- The sunPlatAlarmState values for the status LEDs will change and sunPlatAttributeChangeInteger traps will be generated with the form shown in TABLE 10.

TABLE 6 sunPlatAttributeChangeInteger Trap for a Power Supply Sensor

Variable	Value
sunPlatNotificationEventId	*unique numeric identifier*
sunPlatNotificationTime	*date time*
sunPlatNotificationObject	entPhysicalDescr.*ps sensor instance*[*]
sunPlatNotificationCorrelatedNotifications	
sunPlatNotificationChangedOID	sunPlatBinarySensorCurrent.*ps sensor instance*[*]
sunPlatNotificationOldInteger	`true(1)` or `false(2)`
sunPlatNotificationNewInteger	`true(1)` or `false(2)`

* *ps sensor instance* indicates the row in the entPhysicalTable associated with the power supply sensor.

TABLE 7 sunPlatStateChange Trap for a Power Supply Fault or Recovery

Variable	Value
sunPlatNotificationEventId	*unique numeric identifier*
sunPlatNotificationTime	*date time*
sunPlatNotificationObject	entPhysicalDescr.*ps instance*[*]
sunPlatNotificationCorrelatedNotifications	
sunPlatNotificationChangedOID	sunPlatEquipmentOperationalState.*ps instance*[*]
sunPlatNotificationOldInteger	`disabled(1)` or `enabled(2)`
sunPlatNotificationNewInteger	`disabled(1)` or `enabled(2)`

* *ps instance* indicates the row in the entPhysicalTable associated with the power supply.

TABLE 8 sunPlatEquipmentAlarm Trap for a Power Supply Fault or Recovery

Variable	Value
sunPlatNotificationEventId	*unique numeric identifier*
sunPlatNotificationTime	*date time*
sunPlatNotificationObject	entPhysicalDescr.*ps instance*[*]
sunPlatNotificationCorrelatedNotifications	
sunPlatNotificationAdditionalInfo	`0.0` (null)

TABLE 8 sunPlatEquipmentAlarm Trap for a Power Supply Fault or Recovery *(Continued)*

Variable	Value
sunPlatNotificationAdditionalText	*entPhysicalName of the sensor*: `Voltage threshold crossed`
sunPlatNotificationPerceivedSeverity	`major(3)` or `cleared(6)`
sunPlatNotificationProbableCause	`powerProblem(58)`
sunPlatNotificationSpecificProblem	`powerProblem`
sunPlatNotificationRepairAction	

* *ps instance* indicates the row in the entPhysicalTable associated with the power supply.

TABLE 9 *sunPlatAttributeChangeInteger* Trap for a Change in the sunPlatEquipmentAlarmStatus of a Power Supply

Variable	Value
sunPlatNotificationEventId	*unique numeric identifier*
sunPlatNotificationTime	*date time*
sunPlatNotificationObject	entPhysicalDescr.*ps instance**
sunPlatNotificationCorrelatedNotifications	
sunPlatNotificationChangedOID	sunPlatEquipmentAlarmStatus.*ps instance**
sunPlatNotificationOldInteger	`major(2)` or `cleared(7)`
sunPlatNotificationNewInteger	`major(2)` or `cleared(7)`

* *ps instance* indicates the row in the entPhysicalTable associated with the power supply.

TABLE 10 sunPlatAttributeChangeInteger Trap for a Change in the sunPlatAlarmState of an LED

Variable	Value
sunPlatNotificationEventId	*unique numeric identifier*
sunPlatNotificationTime	*date time*
sunPlatNotificationObject	entPhysicalDescr.*LED instance**
sunPlatNotificationCorrelatedNotifications	
sunPlatNotificationChangedOID	sunPlatAlarmState.*LED instance**
sunPlatNotificationOldInteger	`off(2)` or `steady(3)`
sunPlatNotificationNewInteger	`off(2)` or `steady(3)`

* *LED instance* indicates the row in the entPhysicalTable associated with the LED.

Detecting Power Supply Status

You can use the following mechanisms to detect power supply status:

- Poll the value of sunPlatBinarySensorCurrent for each of the power supply sensors.
- Poll the value of sunPlatEquipmentOperationalState for the power supply.
- Receiving a sunPlatAttributeChangeInteger trap corresponding to a change in the sunPlatBinarySensorCurrent value for one of the power supply sensors.
- Receiving a sunPlatStateChange trap corresponding to a change in the sunPlatEquipmentOperationalState for the power supply.
- Receiving a sunPlatEquipmentAlarm trap with a sunPlatNotificationProbableCause value of `powerProblem(58)`.

Dry Contact Alarm Relays and LED Indicators

The Netra 440 server has four dry contact alarm relays and four corresponding LED indicators. The alarm relays are identified in the ENTITY-MIB::entPhysicalTable by the following entPhysicalDescr values:

- `Critical Alarm Relay`
- `Major Alarm Relay`
- `Minor Alarm Relay`
- `User Alarm Relay`

The alarm LED indicators are identified in the ENTITY-MIB::entPhysicalTable by the following entPhysicalDescr values:

- `Critical Alarm Indicator (front)`
- `Major Alarm Indicator (front)`
- `Minor Alarm Indicator (front)`
- `User Alarm Indicator (front)`

The alarm relays and the alarm LED indicators are represented in the SUN-PLATFORM-MIB::sunPlatAlarmTable which extends the ENTITY-MIB::entPhysicalTable.

Alarm State Changes

The alarm relay state cannot be changed using SNMP `set` commands. However, the alarm relay state can be changed using the Sun Advanced Lights Out Manager (ALOM) `setalarm` command. For more information about ALOM commands, refer to the *Sun Advanced Lights Out Manager Software User's Guide for the Netra 440 Server* (817-5481-xx).

The alarm relay states can also be changed using the alarm relay output application programming interface (API). For information about this API, refer to the *Netra 440 Server System Administration Guide* (817-3884-xx).

If one of the alarm relays changes its state, the sunPlatAlarmState values associated with the relay and its corresponding indicator change state, and sunPlatAttributeChangeInteger traps will be generated in the format shown in TABLE 11.

TABLE 11 sunPlatAttributeChangeInteger Trap for a Change in the sunPlatAlarmState of an Alarm Relay or an Alarm Relay Indicator

Variable	Value
sunPlatNotificationEventId	*unique numeric identifier*
sunPlatNotificationTime	*date time*
sunPlatNotificationObject	entPhysicalDescr.*instance**
sunPlatNotificationCorrelatedNotifications	
sunPlatNotificationChangedOID	sunPlatAlarmState.*instance**
sunPlatNotificationOldInteger	`off(2)` or `steady(3)`
sunPlatNotificationNewInteger	`off(2)` or `steady(3)`

* *instance* indicates the row in the entPhysicalTable associated with the alarm relay or the alarm indicator.