

# Netra AX1105S-500 Read Me First

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This *Read Me First* document is written for the users of the Netra™ AX1105S-500 board assembly. The Netra AX1105S-500 is one of the members of the ATX form factor, PCI-based platform family at Sun Microsystems.

Powered by the 500MHz UltraSPARC IIe processor, the Netra AX1105S-500 platform delivers high performance and superior connectivity in a low cost, full functionality motherboard. The AX1105S-500 board is an ideal platform for building server appliances, configured servers and traditional embedded systems applications. This motherboard includes dual Ethernet connections to provide reliable redundant network connections, three industry standard PCI expansion slots for additional expandability, and a full complement of peripheral and device interfaces such as USB, serial, and parallel ports. The industry standard ATX form factor enables greater compute densities in thin servers, while simplifying integration and reducing costs. An optional Audio/Video Module is available with 8MB of video RAM that supports 24-bit color graphics and CD-quality 16-bit audio.

With support for the latest Solaris™ 8 Operating Environment, the Netra AX1105S-500 platform delivers the reliability, performance, functionality, and flexibility required for today's cost-sensitive server appliance and embedded market.

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## Product Highlights

The product highlights are as follows:

- 500MHz UltraSPARC IIe processor with internal 256KB four-way set associative integrated L2 cache
- Four standard 168-pin SDRAM DIMMs sockets - supports up to two gigabytes of SDRAM memory
- Two 10/100Base-T Ethernet interfaces allowing fast network connections

- Two serial ports and two independent USB ports support a wide range of peripheral devices
- ATA66 EIDE controller supports up to 4 EIDE devices
- Three 33MHz 32-bit PCI slots
- Personality Module expansion allowing a fourth PCI slot for custom designed boards

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## Check the Contents of Your Netra AX1105S-500 Shipment

Be sure to check the contents of your package against TABLE 1 provided below (Also see FIGURE 1 for an illustration of the contents of the shipment).

*Please keep the Sun™ packaging as this will be required for the return of any failed units for repair. If any of the items in your shipment are missing or damaged, contact your authorized Sun representative indicated in the section “Technical Support” on page 12.*

**TABLE 1** Netra AX1105S-500 Ship Kit Contents

| Item Number | Description  | Part #      | Quantity |
|-------------|--|-------------|----------|
| 1           | Netra AX1105S-500 Read Me First  | 806-7668-xx | 1        |
| 2           | ASSY, M/B, Netra AX1105-500, UltraSPARC IIe, 500MHz  | 375-0128-xx | 1        |
| 3           | AX1105 ATX rear I/O panel with cover plate   | 340-6905-xx | 1        |
| 4           | AX1105 riser card, 1U  | 370-4377-xx | 1        |
| 5           | AX1105 riser card support bracket with push pins   | 330-3222-xx | 1        |
| 6           | CD0 package which contains the following: <ul style="list-style-type: none"> <li>• CD0 for Solaris 8, Update 3, P/N 704-7617-xx</li> <li>• CD0 for Solaris 8 Update 2, P/N 704-7610-xx</li> <li>• <i>Installing Solaris 8 10/00 or Solaris 8 1/01 Software</i>, P/N 806-7793-xx</li> </ul> | 798-3653-xx | 1        |
| 7           | Certificate of Paid Royalty  | 816-2663-xx | 1        |

A/V module (optional) —————  
(not included)

Riser card



————— Riser card  
support bracket

————— Standoff  
(shipped with  
A/V module)

Metal cover plate



—————  
Rear I/O panel

**FIGURE 1** Netra AX1105S-500 Board Package with Optional Audio/Video Module

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## Safety Considerations

Follow these guidelines to avoid injury to yourself or damage to the equipment:

- The board installation procedure should be performed only by qualified technicians.
- Turn off the main AC power switch and disconnect the system power cord from the AC source before installing or removing the Netra AX1105S-500 motherboard from the chassis or enclosure.

Read these safety statements carefully before you install or remove any part of the system.



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**Caution** – Installation of this product requires specific training and technical knowledge. These instructions have been provided for use by qualified personnel. This equipment uses electrical power internally that is hazardous if the equipment is improperly assembled or disassembled. Before you begin to install or remove this board or any other components, make sure the system power is turned off and the system power cord is disconnected from the AC source. Failure to comply may result in damage to the equipment or physical injury.

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Follow these ESD (electrostatic discharge) preventive measures:

- Keep the board in the antistatic bag until it is needed.
- Attach a ground strap to your wrist when connecting or disconnecting boards or peripherals and the other end to the surface that is properly grounded.
- Remove a board from its antistatic bag only when you are properly grounded.

Place the board only on an antistatic mat. Do not place the board on top of an antistatic bag unless the outside of the bag also has an antistatic protection.

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## Software Information

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**Caution** – The generic Solaris 8 01/01 version has a bug that can possibly cause data corruption. CD0 (P/N 704-7617-xx), a special installation CD, is provided that *must* be used along with Solaris 8, Update 3. Do not use CD0 with Solaris 8, Update 2 (P/N 704-7610-xx). Refer to *Installing Solaris 8 10/00 or Solaris 8 1/01 Software* document (P/N 806-7793-xx) included with CD0. This document describes how to install the update from CD0. If you do not have CD0, please contact your Field Application Engineer.

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The Netra AX1105S-500 requires the following software:

- Solaris 8 01/01 package or subsequent compatible version. Refer to the installation instructions provided with the software package.
- The latest OpenBoot™ PROM (OBP) compatible with your Solaris operating environment. The board is shipped with the version of OBP available at the time of manufacture (version 4.0.1). The OBP might be out of date by the time you get this board. Please check the following Sun web site for information on the latest OBP for your operating environment.

<http://www.sun.com/microelectronics/ax1105/details.html>

If you cannot access the Sun web site, contact your Field Application Engineer or your local Sun distributor to obtain the latest OBP.

## Determining OBP Version

### Via OBP

To determine the installed OBP version, enter the following command at the `ok` prompt.

```
.version
```

The system displays something like the following:

```
ok .version

Firmware CORE Release 1.0.1 created 2001/1/23 10:8
Release 4.0 Version 1 created 2001/01/23 10:31 <- OBP version level
cPOST version 1.0.0 created 2001/1/4
CORE 1.0.1 2001/01/23 10:08
```

## Via Solaris Operating Environment

Perform the procedure below at the `shell` prompt:

```
/usr/sbin/prtconf -v
```

The system displays:

```
OBP 4.0.1 2001/1/23 10:31
```

## Checking the Solaris Operating Environment Version

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**Note** – System specific variables are denoted with `xxxx`.

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At the Solaris prompt enter the following command:

```
showrev
```

You will see something similar to this:

```
Hostname: XXXX
Hostid: XXXX
Release: 5.8
Kernel Architecture: sun4u
Application Architecture: sparc
Hardware provider: Sun_Microsystems
Domain:
Kernel version: SunOS 5.8 Generic 108528-5 January 2001
```

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## Hardware Information

Following is some important hardware information about the Netra AX1105S-500 board.

### CPU

The CPU is an integral part of the Netra AX1105S-500. Any attempt to remove the CPU from the board will void the board warranty.

### Memory

The AX1105S-500 supports PC133 registered SDRAM DIMMs.

The AX1105S-500 does not support:

- PC100 type memory
- Unbuffered memory

### Floppy Drive Cable

For the floppy drive, use the straight-through cable.

## Hard Disk Drive/CD-ROM Drives and Cables

Use ATA66 hard drives and up. For hard disks and CD-ROM drives use ATA66 cables. Do not use ATA33 cables.

Sun has a list of approved vendors and manufacturers for hard disk drives and CD-ROM drives. Please check our web site at:

<http://www.sun.com/microelectronics/ax1105/thirdparty.html>



FIGURE 2 shows the location of the Netra AX1105S-500 board headers and connectors.

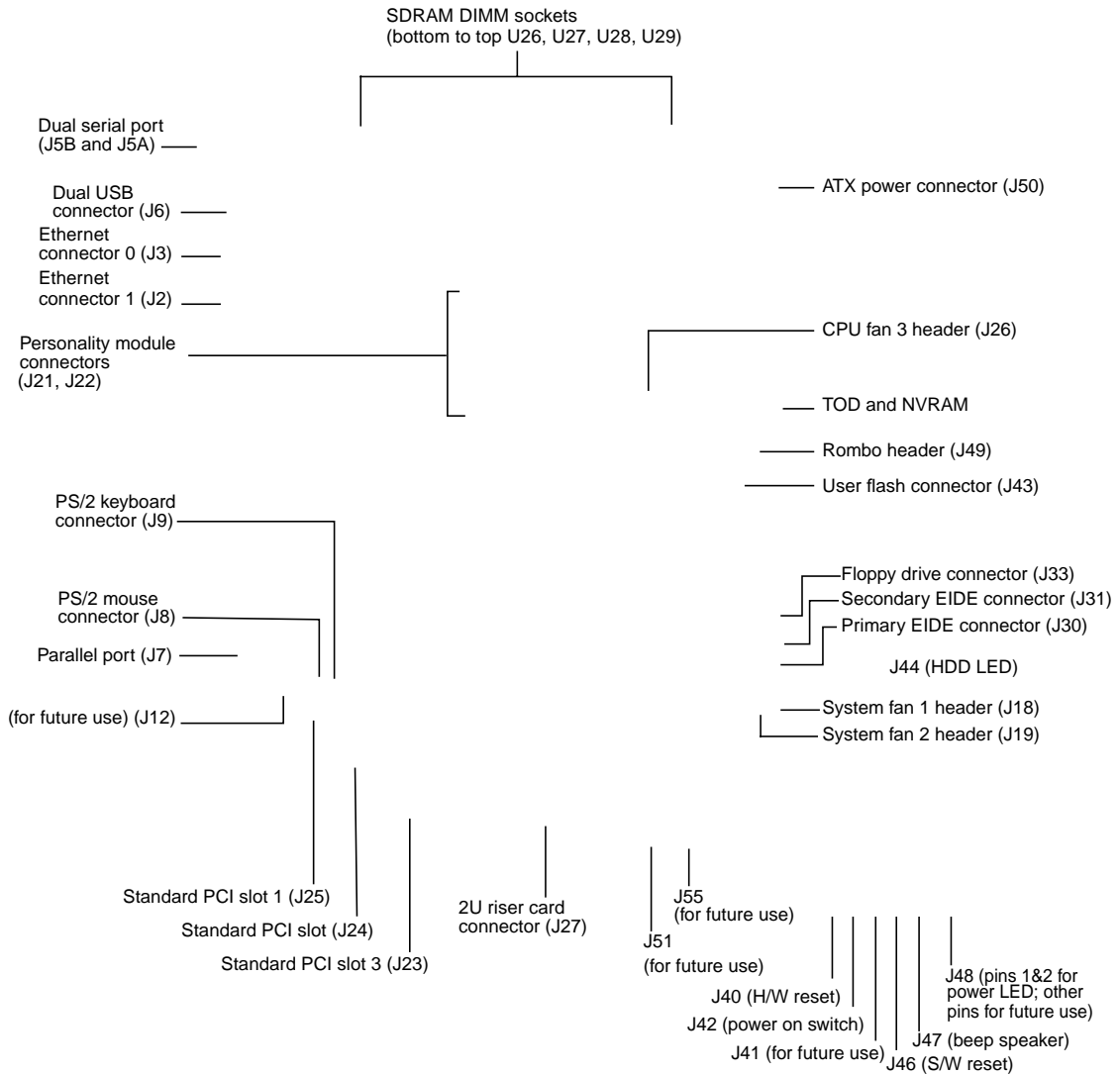


FIGURE 2 Netra AX1105S-500 Board Headers and Connectors

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# Jumper Settings

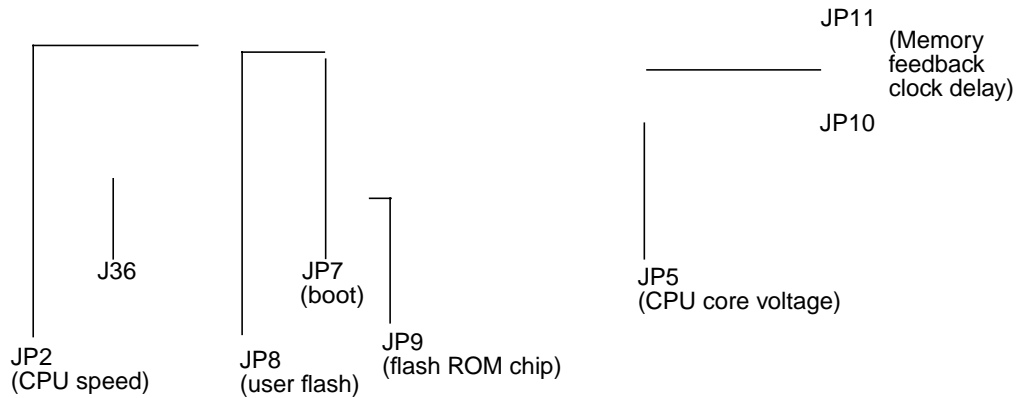
FIGURE 3 shows the jumper settings on the AX1105S-500 board.



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**Caution** – Use all safety and ESD precautions when installing the jumpers and other components on the Netra AX1105S-500 board. Failure to comply may result in physical injury and damage to the equipment.

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**FIGURE 3** Netra AX1105S-500 Default Jumper Setting

TABLE 2 describes the default jumper settings on the Netra AX1105S-500 board.

**TABLE 2** Netra AX1105S-500 Default Jumper Settings

| Jumper No.  | Description                          | Default Setting | Comments   |
|-------------|--------------------------------------|-----------------|--|
| JP2         | CPU speed detect                     |                 | Jumper installed on pins 1 & 2 and 5 & 6 for 500MHz CPU speed. Do not change these jumper settings.  |
| JP5         | CPU core voltage                     |                 | Jumper installed on pins 7 & 8 for the 1.7V CPU Vcore. Do not change these jumper settings.  |
| JP7         | User flash module memory size option |                 | This does not apply unless user flash is installed. Refer to the <i>Netra™ AX1105 Technical Reference and Installation Manual (P/N 806-5997-xx)</i> for details.       |
| JP8         | Flash chip select                    |                 | No jumper installed. Boots from on board flash (OBP). Refer to the <i>Netra AX 1105-500 Technical Reference and Installation Manual (P/N 806-5997-xx)</i> for details. |
| JP9         | External ROM emulator selection      |                 | Jumper installed on pins 1 & 2. Boots from on-board PROM   |
| JP10 & JP11 | Memory feedback clock delay          |                 | This is the manufacturing default setting. Do not change or remove these jumpers.  |
| J36         | I2C bus jumper                       |                 | For future use. Jumper installed on pins 1 & 2 and pins 3 & 4. Do not remove or change these jumpers.  |

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## Related Documentation

The following documents contain important technical information for the Netra AX1105S-500.

- *Netra AX1105-500 Technical Reference and Installation Manual (P/N 806-5997-xx)*
- *Read Me First! Audio/Video Module for the Netra AX1105-500 Motherboard (P/N 806-7669-xx)*

These documents can be viewed at the following web site:

<http://www.sun.com/microelectronics/ax1105/>

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## Technical Support

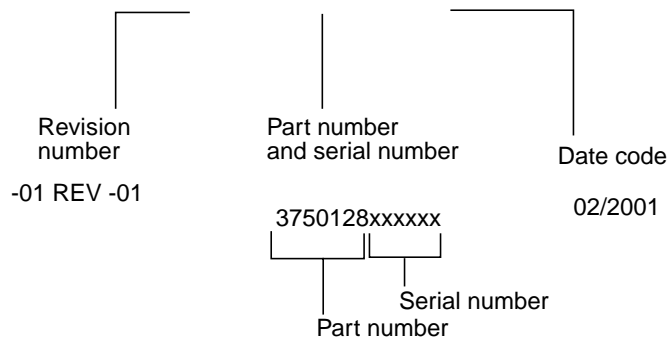
If you have any technical questions or issues that are not addressed in the Netra AX1105S-500 documentation set or on the web site, contact your local Sun Enterprise Services. For customers in the US or Canada, please call 1-800-USA-4SUN (1-800-872-4786). For customers in the rest of the world, find the World Wide Solution Center nearest you by visiting our web site:

<http://www.sun.com/service/contacting/solution.html>

When you call Enterprise Services, be sure to indicate that the Netra AX1105S-500 was purchased separately and is not associated with a system. Please have the board identification information ready (see FIGURE 4).

The Netra AX1105S-500 board revision number, part number, serial number, and date code are identified on three labels. The last six digits of the serial number are unique for each board and are shown as xxxxxx in this document. See FIGURE 4 for the location of identification labels on the Netra AX1105S-500 board. Before you call Technical Support, get the following information from the board:

- Part number
- Serial number
- Revision no.
- Date code (for example, 02/2001 for the second week of 2001)



**FIGURE 4** Netra AX1105S-500 Board Identification Labels

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## Before Returning Your Board to Enterprise Services

You *must* get Return Material Authorization (RMA) numbers from Enterprise Services for each part you intend to return.

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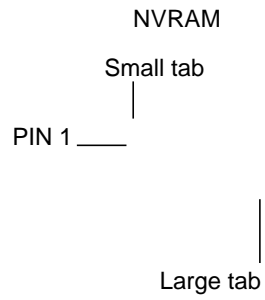
**Note** – If Sun Enterprise Services asks for a system serial number, be sure to indicate that the board was purchased separately and is not associated with a system. Identify the product by its name and part number as indicated in “Technical Support” on page 12.

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Sun Enterprise Services will give you specific details on the return procedure for your geographic area. In addition, follow these guidelines in packaging the hardware and addressing the packaging.

- Take the electrostatic discharge (ESD) precautions while handling the board:
  - Handle the board only by the nonconducting edges.
  - Do not touch the components or any metal parts.
  - Always wear a grounding wrist strap when handling the board and be sure the wrist strap is connected to ground.
- Please use the original or equivalent packaging material to return the failed part.
- Make sure the RMA number is on the box containing that part. The outermost box needs to have the RMA number, the part number of its primary contents, and the following: destination address, source address, and for international shipments, the Sun Enterprise Services shipping number to expedite handling in customs.
- Remove and retain the memory modules (DIMMs).
- Remove and retain A/V module if applicable.
- Remove and retain the TOD/NVRAM chip. The TOD/NVRAM chip holds specific network address data. It may also hold configuration data specific to your installation. Be sure to keep a copy of this information. You *must* remove this module before you return the board to Enterprise Services. The replacement Netra AX1105S-500 will not have a TOD/NVRAM module. You must reinstall your retained module.

FIGURE 5 shows how to remove the NVRAM from the Netra AX1105S-500 NVRAM socket.



**FIGURE 5** Removing the NVRAM from the Netra AX1105S-500 NVRAM Socket