ALTOS

Workstation
User Guide

Altos Workstation
User Guide

Model Number : _____

Serial Number: _____

Purchase Date: _____

Place of Purchase: _____

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1 System setup

System notes

Thank you for purchasing your Altos workstation. This user guide is intended as a reference for experienced workstation technicians and helps detail many of the features available in Altos workstations. For more detailed information about any particular component or software solution, you may consult the technical specifications or the user manuel for that application.

> **Note**: Before opening or removing any components please contact your local certified Altos service representative.

> **Warning: Any parts or components damaged during replacement by a non-certified technician are not covered by the warranty. For details, please consult the warranty guide from your system.**

System controls and indicators

Front panel controls

Icon	Component	Description
⏻	Power button	Press to turn the workstation on/off, or to put it in standby mode
⏻	Power indicator	Indicates the system power status.
🖴	HDD activity indicator	Indicates the status of a system hard disk drive.
!	System status/fault indicator	Indicates the status of the system operations.
🖧₁	LAN port 1 activity indicator	Indicates the system network 1 connection status.
🖧₂	LAN port 2 activity indicator	Indicates the system network 2 connection status.
ID	System ID switch/ indicator	Indicates if the system ID button is pressed or activated through IPMI.
⛢	USB 2.0 ports	Connect to USB devices.
USB 3.0	USB 3.0 ports	Connect to USB devices.

Front panel LED indicator status

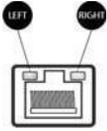| LED indicator	LED color	LED state	Status
Power state indicator	Green	On	S0: Power On
	Green	Blink (1 Hz with at 50% duty cycle)	S1: Sleep
	N/A	Off	S4
	N/A	Off	S5
HDD activity indicator	Green/ Amber	Blink	HDD access
	N/A	Off	No access and No HDD fault
System status[1]	Red	On	CPU overheat
	Red	Fast blink (once per second)	Fan failure
	Red	Slow blink (once every 4 seconds)	Power failure
	N/A	Off	Normal
System status[2]	Green	On	System ready/No alarm
	Green	Blink	System ready but some CPU functions and DIMM may be degraded or damaged
	Red	On	Critical alarm
	Red	Blink	Non-critical alarm
	N/A	Off	System not ready (POST error/NMI event/CPU or terminator missing, … etc.)
LAN activity indicators LAN1 LAN2	Green	On	LAN link/No access
	Green	Blink	LAN access
	N/A	Off	Disconnect/Idle
System ID indicator *ID*	N/A	Off	Normal
	Blue	On	System ID button pressed.[3]
	Blue	Blinking/On	IPMI-activated system ID

1 For single color system.
2 For dual colors system.
3 For 310/320 F2, the system ID indicator stays lighted while BMC is initializing.

Rear panel controls

Icon	Component	Description
M	Management port (10/100)	Reserved for remote management.
	PS/2 mouse port	Connects to a PS/2 mouse.
	PS/2 keyboard port	Connects to a PS/2 keyboard.
	USB 2.0 ports	Connect to USB devices.
USB 3.0	USB 3.0 ports	Connect to USB devices.
	Video port	Connects to monitors.
1 2	Gigabit LAN port	Connects to an internet or intranet network.
IOIOI	Serial port	Connects to serial devices.

 LAN port LED indicator status

LED indicator	LED color	LED state	Status
RJ45 LED (left)	N/A	Off	No connection or 10 Mbps
	Green	On	100 Mbps
	Amber	On	1000 Mbps
RJ45 LED (right)	Amber/ Green	On	Active connection
	Amber/ Green	Blinking	Transmit/Receive activity

Setting up the system

Pre-installation requirements

Selecting a site

Before unpacking and installing the system, select a suitable site for the system for maximum efficiency. Consider the following factors when choosing a site for the system:

- Near a grounded power outlet.
- Clean and dust-free.
- Stable surface free from vibration.
- Well-ventilated and away from sources of heat.
- Secluded from electromagnetic fields produced by electrical devices such as air conditioners, radio and TV transmitters, etc.

Checking the package contents

Check the following items from the package:

- System unit
- Accessory box

If any of the above items is damaged or missing, contact your dealer immediately.

Save the boxes and packing materials for future use.

Turning on the system

After making sure that you have properly set up the system, applied
power and connected all the necessary peripherals, you can now power
on the system. Follow the procedure below.

1   Press the power button ⏻ .

The system starts up and displays a welcome message on the monitor.
After that, a series of power-on self-test (POST) messages appears. The
POST messages indicate if the system is running well or not.

Note: If the system does not turn on or boot after pressing the
power button, go to the next section for the possible causes of the
boot failure.

Aside from the POST messages, you can determine if the system is
in good condition by checking if the following occurred.

•   The power status indicator on the front panel lights up blue.

•   The Num Lock, Caps Lock and Scroll Lock indicators on the
     keyboard light up.

Power-on problems

If the system fails to boot after you have applied power, check the
following factors that might have caused the boot failure.

•   The external power cord may be loosely connected.

Check the power cord connection from the power outlet to the power
cord socket on the rear panel. Make sure that the cord is properly
connected to the power outlet and to the power cord socket.

•   No power comes from the grounded power outlet.

Have an electrician check your power outlet.

•   Loose or improperly connected internal power cables.

Check the internal cable connections. If you are not confident
to perform this step, ask a qualified technician to assist you.

**Warning! Make sure all power cords are disconnected from
the electrical outlet before performing this task.**

Turning off the system

There are two ways to turn off the workstation—via software or via hardware. The software procedure below applies to a system running on a Windows OS. For other shutdown procedures, refer to the related user documentation.

To turn off the system via software:

1   Press <**Ctrl**> + <**Alt**> + <**Delete**> on the attached keyboard or click **Start** on the Windows taskbar.

2   Select **Shut Down**.

3   Select **Shut Down** from the drop-down menu, then click **OK**.

To turn off the system via hardware:

If you cannot shut down the workstation via software, press the power button for at least four seconds. Quickly pressing the button may put the workstation in a Suspend mode only.

Configuring the hard disk drive

By default, the system is shipped with only one hard disk drive bay. To install additional hard disk drives in the second hard disk drive bay, you need to purchase the optional bay.

Note: Maximum HDD support is SKU-dependent.

Replacing components

The following sections show you how to replace certain components in your workstation.

Note: The drawings of the components are for reference only. The actual components may vary slightly.

Replacing the heatsink fan assembly

Notes:

- Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor in the CPU socket before you install the CPU heatsink fan assembly.

- If you buy a processor separately, make sure that you use an Altos-certified multidirectional heatsink fan assembly only.

- Make sure to install the mainboard in the workstation before you install the CPU heatsink fan assembly.

- When receiving a mainboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins is bent; otherwise, contact your retailer immediately.

Removing the heatsink

⚠ --
Warning! We do not recommend that the processor or the heatsink assembly be removed. However, if you do need to uninstall the heatsink fan assembly, please follow the instructions below to prevent damage to the processor or the CPU socket.
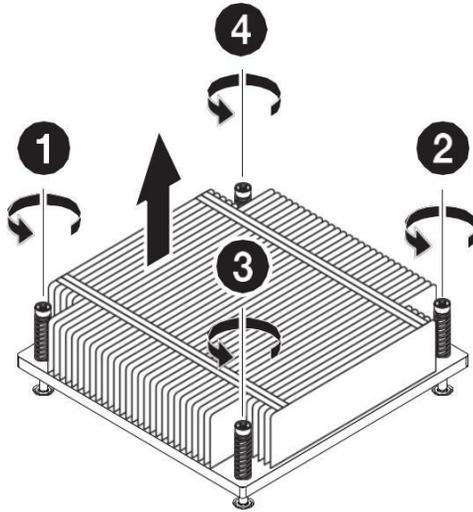
1   Open the workstation and locate the heatsink.
2   If your heatsink has a fan assembly, remove the fan cable from its mainboard connector.
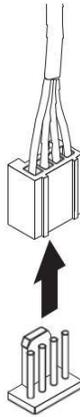
📝 --
Note: Some workstation models use a passive heatsink design which does not include a fan assembly.

3   Using a screwdriver, loosen the heatsink screws from the
     mainboard and detach the heatsink.

(1) Lay down the heatsink in an upright position — with the thermal
     patch facing upward. Do not let the thermal patch touch the
   work surface.

Installing the heatsink

Caution! The heatsink has a thermal interface material (TIM) on the
underside. Use caution so that you do not damage the TIM. If a
protective film is installed on the TIM, remove it.

1   Open the workstation and locate the heatsink connector.

2   Do not apply any thermal grease to the heatsink or the processor
     die; the required amount has already been applied.

3   Align then insert the heatsink on top of the retention plate.

4   Use a long-nosed screwdriver to tighten the heatsink screws to
     secure it to the mainboard.
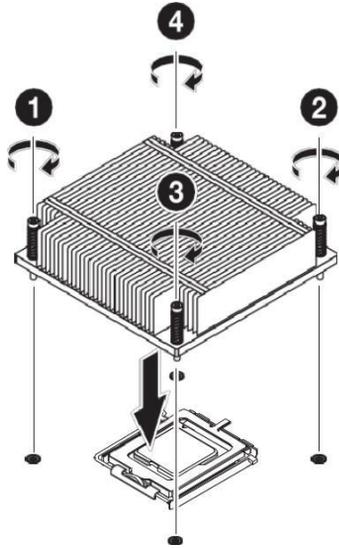
5   If your heatsink has a fan assembly, connect the fan cable to
   its mainboard connector.
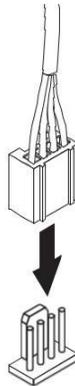
Replacing the processor

⚡ ....
Warning! The processor becomes very hot when the system is on. Allow it to cool off first before handling.

Before you replace the processor, kindly check if you have a type 1 or 2 processor and follow the instructions accordingly.

For type 1 processor

1   Remove the heatsink fan assembly (see **"Removing the heatsink" on page 12**)**.**

2   Remove the default processor.

   (1)   Press down on the load lever then release out of the retention tab.

   (2)   Rotate the load lever to the fully open position until the retention plate is completed lifted.

   (3)   Grasp the processor by its edges and lift it out of its socket.
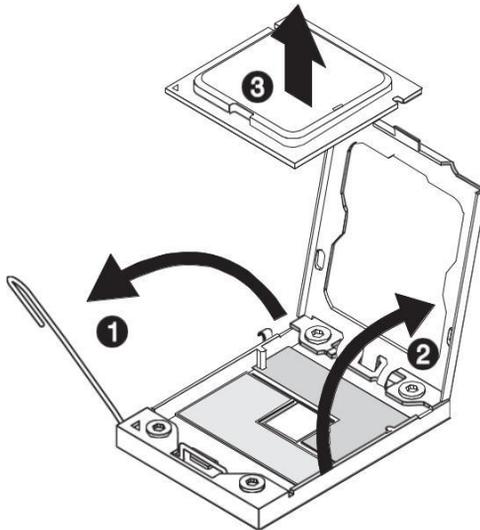
   (4)   Store the old processor inside an anti-static bag.

3   Remove the new processor from its protective packaging.

4   Install the new processor.

(1)   Hold the processor by its edges then insert it in the socket.
      Make sure that the alignment tabs on the socket fit the two
      notches located on the edges of the processor. The pins are
      keyed in such a way that you cannot install the processor in the
   wrong orientation without bending the pins.
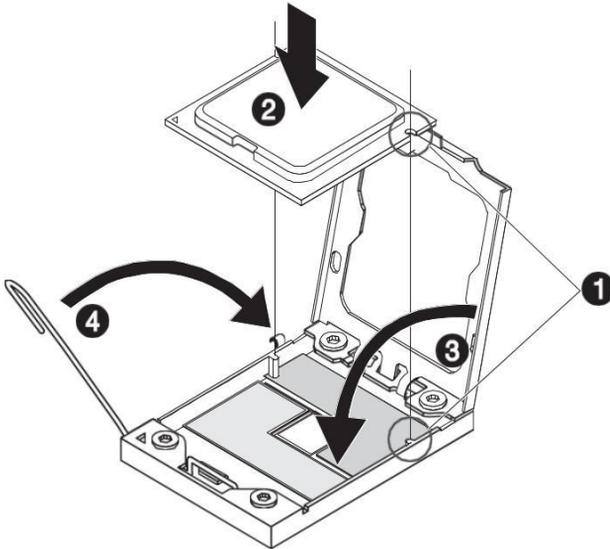
(2)   Close the retention plate.

(3)   Slide the retention plate tab under the retention knob.

(4)   Engage the load lever back in place and secure the load
      lever under the load lever retention tab.

5   Apply the thermal interface material.

(1)   Use an alcohol pad to wipe off the old thermal grease from both
      the HSF assembly and the processor socket retention plate.

(2)   Apply a thin layer of thermal interface material before installing
      the HSF.

      Make sure that only a very thin layer is applied so that
      both contact surfaces are still visible.

6   Install the heatsink fan assembly (see **"Installing the heatsink"
   on page 13**)**.**

For type 2 processor

1   Remove the heatsink fan assembly (see **"Removing the heatsink" on page 12**)**.**

2   Remove the default processor.

   (1)   Open the socket lever (beside the Open icon) by pushing the lever down and away from the socket. Do not force the lever up to the fully open position.

   (2)   Open the socket lever (beside the Close icon) by pushing the lever down and away from the socket. Rotate the socket lever to its fully open position as shown.
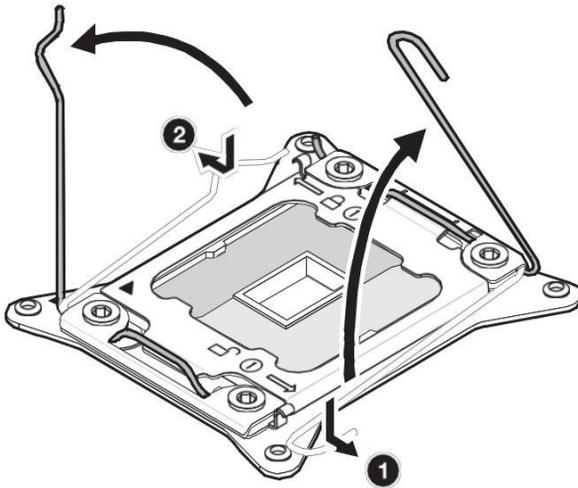
(3) Grasp the load plate and lift up to open it fully. Do not touch
   the socket contacts.
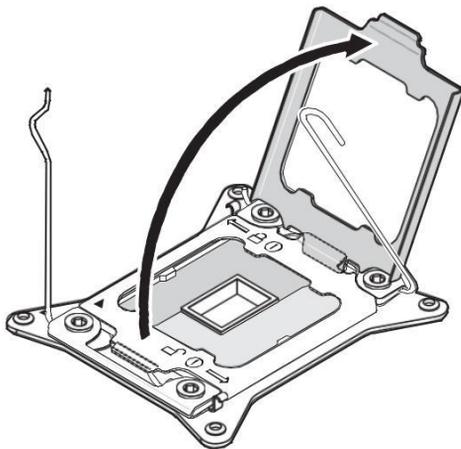
(4) Grasp the processor by its edges and lift it out of its socket.
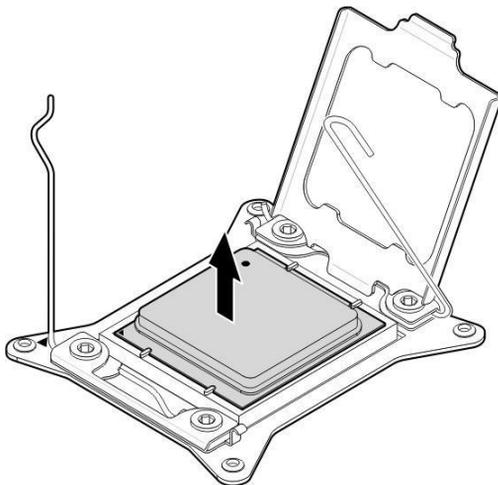

(5) Store the old processor inside an anti-static bag.

3   Install the new processor.

(1) Remove the processor from its packaging and insert in the socket as shown. Make sure the gold-colored triangle indicating pin 1 on the processor aligns with the triangle on the socket before you lower processor straight down without tilting or sliding it in the socket.
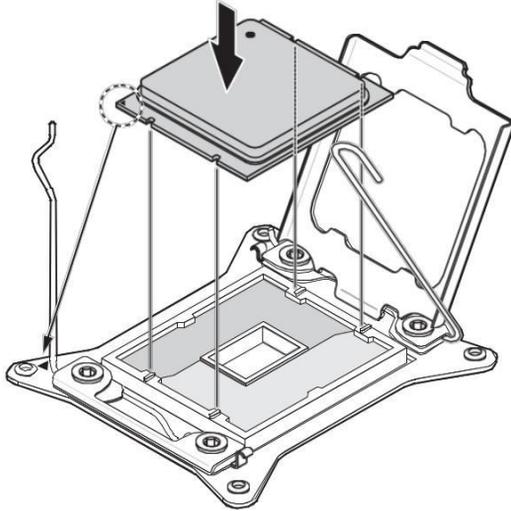
(2) Close the load plate.
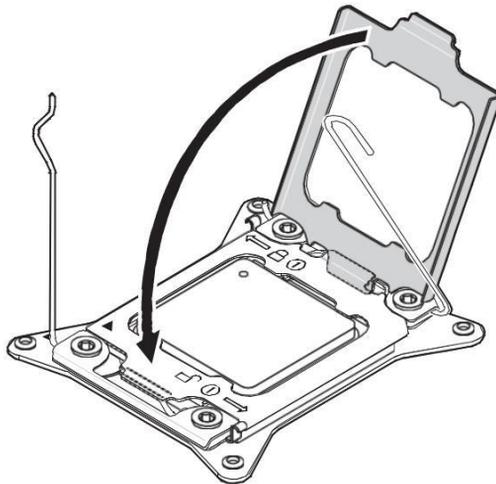
(3) Engage the socket lever (near the Close icon) under the latch. Engage the other socket lever (near the Open icon) under the latch.
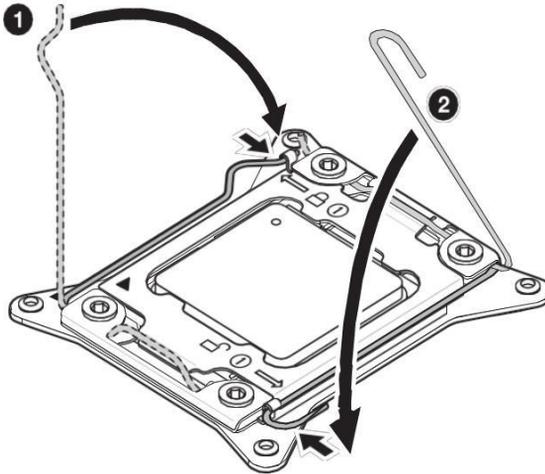
4   Install the heatsink fan assembly (see **"Installing the heatsink" on page 13**)**.**

Replacing the hard disk

Follow these steps to replace your workstation's hard disk:

1   Remove the workstation cover.

2   Detach all cables connected to the hard disk and pull the hard disk out.

3   Remove the drive rails that hold the hard disk to the drive frame and detach the hard disk. Set the drive rails aside.

4   Insert the new hard disk into the frame and secure it with the drive rails.

5   Reattach all cables to the new hard disk.

> **Note**: Make sure that the other ends of the disk cables are securely connected to their corresponding connectors on the mainboard.

6   Reinstall the disk frame to the housing.

7   Replace the workstation cover.

Upgrading the system memory

Installing a memory module

⚡ **Warning! Memory of the identical size, speed, and organization must be installed in the same colored DIMM slots.**

1   Open the workstation and locate any free DIMM slot on the mainboard.

2   Install the memory module.

(1)   Align then insert the DIMM into the socket (**1**).

(2)   Push the DIMM to the socket until the retaining clips snap inward (**2**).
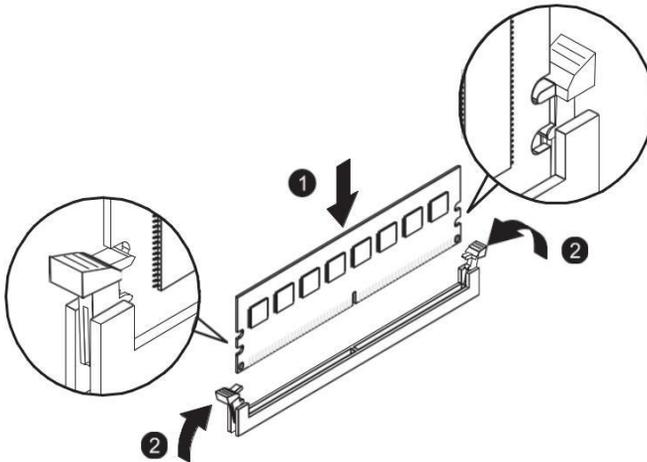
Note: The DIMM slot is slotted to ensure proper installation. If you insert a DIMM but it does not fit easily into the socket, you may have inserted it incorrectly. Reverse the orientation of the DIMM and insert it again.

The system automatically detects the amount of memory installed. Run the BIOS setup to view the new value for total system memory and make a note of it.

Removing a memory module

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Important: Before removing any DIMM from the mainboard, make sure to create a backup file of all important data.

1   Perform steps 1 and 2 of the previous section.
2   Remove the memory module.

   (1) Press the holding clips on both sides of the slot outward to release the DIMM (**1**).

   (2) Gently pull the DIMM upward to remove it from the slot (**2**).
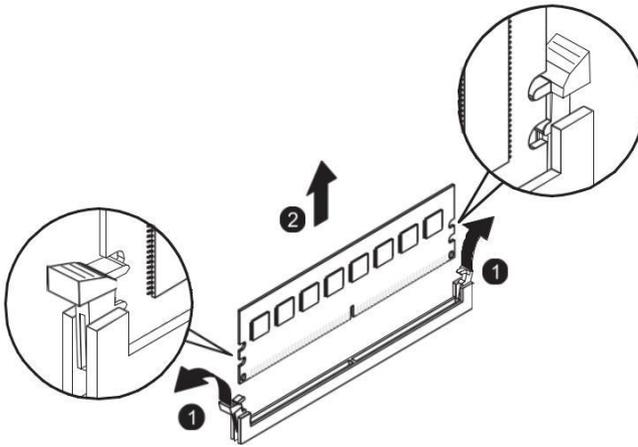
3   If you intend to install a new DIMM, refer to the previous section.

Installing an expansion card

I/O interface
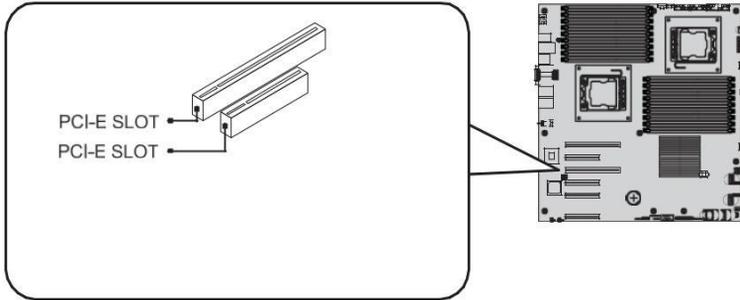
Installing a SAS card

1   If necessary, remove any cables that prevent access to the PCI slot.

2   Open the workstation and locate an empty expansion slot that is compatible with the specification of the card you intend to install.

3   Remove the slot shield.

Remove the screw and slide out the slot shield.

If there is a restraining latch, unclip it, remove the screw and slide
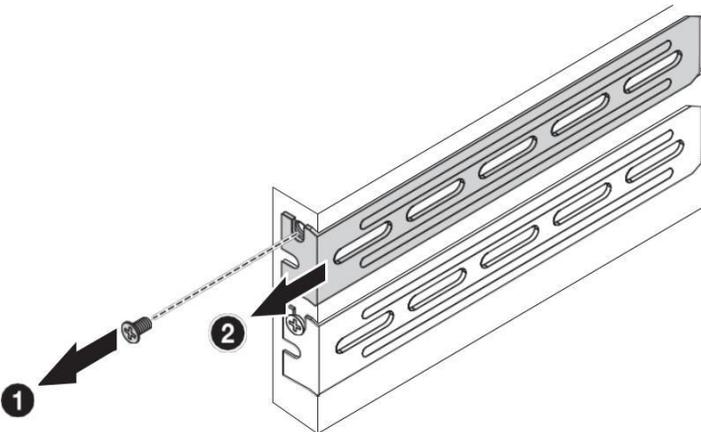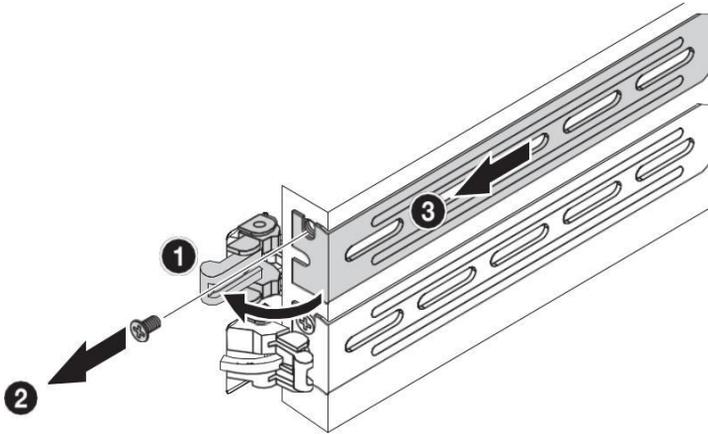out the slot shield.

Caution: Do not discard the slot cover. If the expansion card is
removed in the future, the slot cover must be reinstalled to
maintain proper system cooling.

4   Remove the expansion card from its protective packaging, handling
    it by the edges.

5   Insert the card in the selected slot making sure that the card is
    properly seated.

6   Tighthen the screw or close the restraining latch holding the card
    in place.

7   Connect the appropriate cables to the card.

    When you turn on the system, the BIOS setup automatically detects
    and assigns resources to the new device (applicable only to Plug-
    and-Play expansion cards).

System troubleshooting

Resetting the system

Before going through in-depth troubleshooting, attempt first to reset the system using one of the methods below.

Perform	Purpose	To do this
Soft boot reset	To clear the system memory and reload the operating system.	Press <**Ctrl**> + <**Alt**> + <**Del**>
Cold boot reset	To clear the system memory, restart POST, and reload the operating system. This will halt power to all peripherals.	Turn the system off and then on again.

Initial system startup problems

Problems that occur at initial system startup are usually caused by an incorrect installation or configuration. Hardware failure is a less possible cause. If the problem you are experiencing is with a specific application, see the **"There is problem with the software program" section on page 29**.

Initial troubleshooting checklist

Use the checklist below to eliminate possible causes for the problem you are encountering.

- AC power is available at the wall outlet?
- Is the power supply module properly installed?
- Is the system power cord properly plugged into the power supply module socket? and connected to a NEMA 5-15R outlet for 100-120 V or a NEMA 6-15R outlet for 200-240 V?
- Are all peripheral cables correctly connected and secured?
- Did you press the system power button to turn the workstation on (power on indicator should be lit green)?
- Are all device drivers properly installed?
- Are hard disk drive(s) properly formatted and configured?

- Are the BIOS configuration settings in the BIOS Setup Utility correct?

- Is the operating system properly loaded? Refer

  to the operating system documentation.

- Are all hardware components compliant with the tested components lists?

- Are all internal cables correctly connected and secured?

- Is the processor properly seated in its mainboard socket?

- Are all standoffs in the proper location and not touching any components, causing a potential short?

- Are all add-in expansion cards fully seated in their mainboard slots?

- Are all system jumpers correctly set?

- Are all switch settings on add-in boards and peripheral devices correct?

  To check these settings, refer to the manufacturer's documentation that comes with them. If applicable, ensure that there are no conflicts (e.g., two add-in boards sharing the same interrupt).

Hardware diagnostic testing

This section provides a detailed approach to identifying a hardware problem and its cause.

Checking the boot-up status

Caution: Before disconnecting any peripheral cables from the workstation, turn off the system and any peripheral devices. Failure to do so can cause permanent damage to the system and/or the peripheral device.

1 Turn off the system and all external peripheral devices.

2 Disconnect all peripheral devices from the system, except for the keyboard and the display monitor.

3 Make sure the system power cord is plugged into a properly grounded AC outlet and in the power supply module cord socket.

4 Make sure the display monitor and keyboard are correctly connected to the system.

5   Turn on the display monitor.

6   Set the display brightness and contrast controls to at least two thirds of their maximum range.

Refer the documentation that came with your display monitor.

7   If the operating system normally loads from the hard drive, make sure there is no diskette in floppy drive and no disc in the optical drive.

8   If the power indicator is lit, attempt to boot from a disc.

9   Turn on the system.

If the power indicator did not light up, see **"Power indicator does not light" on page 27**.

Verifying the condition of the storage devices

As POST determines the system configuration, it tests for the presence of each mass storage device installed in the system. As each device is checked, its activity indicator should turn blue briefly. Check the activity indicators for the hard drive(s), DVD-ROM drive, and any other 5.25" device you may have installed.

If any of these indicators fail to light up, refer to related problems listed in the Specific problems and corrective actions section.

Confirming loading of the operating system

Once the system boots up, the operating system prompt appears on the screen. The prompt varies according to the operating system. If the operating system prompt does not appear, see **"No characters appear the display monitor" on page 30**.

Specific problems and corrective actions

Listed below are specific problems that may arise during the use of your workstation and their possible solutions.

Power indicator does not light.

Do the following:

•   Make sure the power supply module is properly installed.

•   Make sure the power cord is connected correctly.

•   Make sure that the wall outlet has power. Test it by plugging in another device.

- Make sure the power indicator on the front panel is lit up.
- Remove all add-in cards and see if the system boots.

  If reboot is successful, install the cards back in one at a time with a reboot between each addition to determine if one of them is causing the problem.
- Make sure that you have properly installed system compliant memory modules, and that they are populated according to the system guidelines.
- Make sure that you have installed system compliant processors, and that they are populated according to the system guidelines.

HDD activity indicator does not light.

Do the following:

- Make sure the drive is not disabled in the BIOS Setup Utility.
- Make sure the drive is compatible
- Make sure you have not exceeded the power budget for the workstation.
- Check that relevant switches and jumpers on the hard drive and on the backplane board are set correctly.

Optical drive activity indicator does not light.

Do the following:

- Make sure the SATA and power cables are properly connected.
- Check that relevant switches and jumpers on the drive are set correctly.
- Check that the drive is properly configured.

Optical drive tray cannot be ejected.

Insert the tip of a paperclip into the small hole on the optical drive. Slowly pull the tray out from the drive until the tray is fully extended.

Optical drive cannot read a disc.

Do the following:

- Make sure you are using the correct type of disc.
- Make sure the disc is properly seated in the drive.

- Make sure the disc is unscratched.
- Make sure the drive's cables are properly connected.

Newly installed memory modules are not detected.

Do the following:

- Make sure the memory modules specifications comply with the system requirements.
- Make sure the memory modules have been populated according to the system guidelines.
- Make sure the memory modules are properly installed on their mainboard slots.

Network connection indicators do not light.

Do the following:

- Check the cabling and network equipment to make sure that they are in proper condition.
- Reinstall the network drivers.
- Try another port or hub on the switch.

Network activity indicators do not light.

Do the following:

- Make sure the correct network drivers are loaded on the system.
- Network might be idle.

Peripheral device connected to a USB port does not work.

Do the following:

- Reduce the number of external devices connected to a USB hub.
- Refer to the documentation that came with the device.

There is problem with the software program.

Do the following:

- Verify that the software is properly configured for the system.

  Refer to the software installation and operation documentation for instructions on setting up and using the software.

- Try a different version of the software to see if the problem is with the copy you are using. If the other version runs correctly on the system, contact your vendor about the defective software.

No characters appear on the display monitor.

Check the following:

- Is the keyboard functioning? Test it by turning the Num Lock function on and off to check if the Num Lock indicator lights up.
- Is the display monitor plugged in and turned on? If you are using a switch box, is it switched to the correct system?
- Are the brightness and contrast controls on the video monitor properly adjusted?
- Is the display monitor signal cable properly connected?
- Does this display monitor work correctly if plugged into a different system?
- Remove all add-in cards and see if the system boots.

  If reboot is successful, install the cards back in one at a time with a reboot between each addition to determine if one of them is causing the problem.

- Make sure that you have properly installed system-compliant memory modules, and that they are populated according to the system guidelines.
- Make sure that you have installed system compliant processors, and that they are populated according to the system guidelines.

If you are using an add-in video controller card, do the following:

1 Verify that the display monitor works using the onboard video controller.
2 Verify that the add-in video controller card is fully seated in its slot.
3 Reboot the system for the changes to take effect.
4 If there are still no characters on the screen after you reboot the system, reboot it again.

  Take note of the beep codes emitted during POST. This information may be required if you seek technical assistance.

  If POST does not emit any beep code and characters still do not appear, the display monitor or the video controller may be defective. Contact your local Altos representative or authorized dealer for technical assistance.