Altos 600 Series

User’s Guide

Document History

EDITION	PART NUMBER	DATE
First Edition	49.AD255.001	September 2000

Copyright Notice

Trademarks

Acer and the Acer logo are registered trademarks of Acer Incorporated.

Adaptec is a registered trademark of Adaptec, Inc.

Windows and Windows NT are registered trademarks of Microsoft Corporation.

Intel, Pentium, and LANDesk are registered trademarks of Intel Corporation.

Novell and NetWare are registered trademarks of Novell, Inc.

Other brand and product names are trademarks or registered trademarks of their respective holders.

Disclaimer

Acer and its suppliers make no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaim any warranties of merchantability or fitness for a particular purpose. Further, Acer reserves the right to revise this publication and to make changes from time to time in the contents hereof without obligation to notify any person of such revisions or changes. Acer reserves the right to make changes to the products described in this manual at any time and without notice.

Warranty / Limitation of Liability

Any software described in this manual is licensed "as is" and Acer and its suppliers disclaim any and all warranties, express or implied, including but not limited to any warranty of non-infringement of third party rights, merchantability or fitness for a particular purpose. Acer does not warrant that the operation of the software will be uninterrupted or error free. Should the programs prove defective, the buyer (and not Acer, its distributor, or its dealer) assumes the entire cost of all necessary service, repair, and any incidental or consequential damages resulting from any defect in the software. Please see the Acer Limited Product Warranty for details of Acer's limited warranty on hardware products. IN NO EVENT SHALL ACER BE LIABLE FOR ANY INDIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING LOSS OF PROFITS OR DATA, EVEN IF ACER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Software License

Acer grants you a personal, non-transferable, non-exclusive license to use the software that accompanies your computer system only on a single computer. You may not (a) make copies of the software except for making one (1) backup copy of the software which will also be subject to this license, (b) reverse engineer, decompile, disassemble, translate or create derivative works based upon the software, (c) export or re-export the software to any person or destination which is not authorized to receive them under the export control laws and regulations of the United States, (d) remove or alter in any way the copyright notices, or other proprietary legends that were on the software as delivered to you or (e) sublicense or otherwise make the software available to third parties. The software is the property of Acer or Acer's supplier and you do not have and shall not gain any proprietary interest in the software (including any modifications or copies made by or for you) or any related intellectual property rights. Additional restrictions may apply to certain software titles. Please refer to any software licenses that accompany such software for details.

Join Us to Fight Against Piracy

The Acer Group has been implementing a policy to respect and protect legitimate intellectual property rights. Acer firmly believes that only when each and every one of us abides by such policy, can this industry provide quality service to the general public.

Acer has become a member of the Technology Committee of the Pacific Basin Economic Council which is encouraging the protection and enforcement of legitimate intellectual property rights worldwide. Moreover, in order to ensure quality service to all of our customers, Acer includes an operating system in Acer computer systems which is duly licensed by the legitimate proprietors and produced with quality.

Acer commits itself and urges all of its customers to join the fight against intellectual property piracy wherever it may occur. Acer will pursue the enforcement of intellectual property rights and will strive to fight against piracy.

Notices

FCC notice

This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the device and receiver
- Connect the device into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for help

Notice: Shielded cables

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

Notice: Peripheral devices

Only peripherals (input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this equipment. Operation with noncertified peripherals is likely to result in interference to radio and TV reception.

Caution! Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this computer.

Use conditions

This part complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice: Canadian users

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Remarque à l'intention des utilisateurs canadiens

Cet appareil numérique de la classe B respected toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Important safety instructions

Read these instructions carefully. Save these instructions for future reference.

1. Follow all warnings and instructions marked on the product.
2. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
3. Do not use this product near water.
4. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
5. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
6. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
7. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
8. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.

9. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
10. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
11. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    a. When the power cord or plug is damaged or frayed
    b. If liquid has been spilled into the product
    c. If the product has been exposed to rain or water
    d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.
    e. If the product has been dropped or the cabinet has been damaged
    f. If the product exhibits a distinct change in performance, indicating a need for service.
12. Replace the battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified serviceman.
13. Warning! Batteries may explode if not handled properly. Do not disassemble or dispose of them in fire. Keep them away from children and dispose of used batteries promptly.
14. Use only the proper type of power supply cord set (provided in your accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SPT-2, rated 7A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

Laser compliance statement

The CD-ROM drive in this computer is a laser product. The CD-ROM drive' classification label (shown below) is located on the drive.

CLASS 1 LASER PRODUCT
CAUTION: INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

APPAREIL A LASER DE CLASSE 1 PRODUIT
LASERATTENTION: RADIATION DU FAISCEAU LASER INVISIBLE EN CAS D'OUVERTURE. EVITTER TOUTE EXPOSITION AUX RAYONS.

LASER KLASSE 1
VORSICHT: UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHLL AUSSETZEN

PRODUCTO LÁSER DE LA CLASE I
ADVERTENCIA: RADIACIÓN LÁSER INVISIBLE AL SER ABIERTO. EVITE EXPONERSE A LOS RAYOS.

ADVARSEL: LASERSTRÅLING VEDÅBNING SE IKKE IND I STRÅLEN

VARO! LAVATTAESSA OLETALTTINA LASERSÅTEILYLLE.
VARNING: LASERSTRÅLNING NÅR DENNA DEL ÅR ÖPPNAD ÅLÅ TUIJOTA SÅTEESEENSTIRRA EJ IN I STRÅLEN

VARNING: LASERSTRÅLNING NAR DENNA DEL ÅR ÖPPNADSTIRRA EJ IN I STRÅLEN

ADVARSEL: LASERSTRÅLING NAR DEKSEL ÅPNESSTIRR IKKE INN I STRÅLEN

Lithium battery statement

CAUTION
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

ADVARSEL!
Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Léver det brugte batteri tilbage til leverandøren.

ADVARSEL
Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

VARNING
Explosionsfara vid felaktigt batteribyte. Anvãnd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera anvãnt batteri enligt fabrikantens instruktion.

VAROITUS
Päristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

VORSICHT!
Explosionsgefahr bei unsachgemäßen Austausch der Batterie Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

Contents

Chapter 1

Getting Started

The Altos 600 is a powerful dual-processor system loaded with a host of new and innovative features. The system offers a new standard for flexible productivity ideal for local or wide area networks and multiuser server environments.

Overview

The Altos 600 is a PCI bus based dual-processor system board built on an extended ATX baseboard. It comes with a dual FC-PGA (Flip-Chip Pin-Grip Array) processor socket utilizing an Intel® Pentium® III processor integrated with the Apollo Pro 133A chipset. The system board also integrates the Intel® 82559 10/100 Mbps PCI Ethernet chipset that supports WOL (Wake on LAN) for better remote site management.

For expandability, the system board includes one AGP (Accelerated Graphics Port) bus, five PCI bus slots and three DIMM sockets that allow memory installation to a maximum of 1.5 GB using three 512-MB SDRAM (synchronous DRAM) DIMMs.

For connectivity, the system board supports two USB (Universal Serial Bus) connectors and other standard features such as two UART NS16C550 serial ports, one enhanced parallel port with Enhanced Parallel Port (EPP)/Extended Capabilities Port (ECP) support, a diskette drive interface, and two embedded hard disk interfaces.

The system is compatible with current IBM PC-DOS, Novell NetWare 5.1, SCO OpenServer 5.0.6, SCO UnixWare 7.1.1, Red Hat Linux 6.2, Caldera OpenLinux eServer 2.3,Windows NT 4.0, and Windows 2000 Server.

Processors

The Pentium III processor implements Dynamic Execution performance, a multi-transaction system bus, and Intel MMX media enhancement technology. Also, it offers Streaming SIMD (Single Instruction Multiple Data) Extensions - 70 ne instructions enabling advanced imaging, 3D, streaming audio and video, and speech recognition applications. The Pentium III processor delivers higher performance than the previous Pentium processor while maintaining binary compatibility with all previous Intel Architecture processors.

This system board currently supports 100 or 133 MHz GTL+ host bus frequencies for one Pentium III processor running at 667 MHz, 733 MHz, 800 MHz, or 866 MHz.

Memory

The three DIMM sockets on board allow memory upgrade to a maximum of 1.5 GB using three 512-MB SDRAM (synchronous DRAM) DIMMs. For data integrity, the default setting of the ECC (error-correcting code) function of the memory system in BIOS is enabled. See “Memory/Cache options” on page 83 for more on this BIOS setting.

Note: The SDRAM should work under 3.3 volts only; 5-volt memory devices are not supported.

The system board supports both 100 and 133 MHz SDRAMs; 66 MHz SDRAMs are not supported.

System chipsets

Apollo Pro 133A chipset

The Apollo Pro 133A chipset was specifically designed to meet the needs of high performance systems. It consists of two components: VT82C694X (north bridge) and VT82C686A (south bridge).

- VT82C694X (north bridge) provides the host interface, memory system control interface, PCI interface, and AGP interface to boost graphics performance.

- VT82C686A (south bridge) integrates super I/O functions like keyboard and mouse interface, floppy disk controller, advanced digital data separator, two compatible serial ports (UARTs), one parallel port, on-chip 12 mA AT bus drivers, one floppy direct drive support, and Intelligent Power Management support.

SCSI subsystem

The dual-channel AIC-7899 single-chip host adapter delivers Ultra160/m SCSI data transfer rates which double the Ultra-2 SCSI data transfer bandwidth of up to 160 MByte/sec. It supports up to 15 devices on a 12-meter cable (or 25 meters in a point-to-point configuration), making it ideal for both clustering and RAID configurations.

LAN subsystem

Another cost-effective feature for network solutions is the integration of Intel's 82559 10/100 Mbps Fast Ethernet controller which supports:

- Advanced Configuration and Power Interface (ACPI) based power management capability
- wake on Magic Packet
- wake on interesting packet
- advanced System Management Bus (SMBUS) based manageability
- Wired for Management (WfM) 2.0 compliance
- IP checksum assist
- PCI 2.2 compliance
- PC 98 and PC 99 compliance

Expansion slots

AGP bus

AGP is solely developed for the purpose of supporting 3D graphic applications. It has a 32-bit wide channel that runs at 66 MHz, which translates into a total bandwidth of 266 MBps. This is twice the bandwidth of PCI buses (133 MBps).

AGP also accesses the main memory directly allowing 3D textures to be stored in main memory rather than video memory.

PCI bus

The system board has five PCI slots that support 32-bit/33 MHz PCI devices. The PCI bus is the key interface that communicates between the north and the south bridge.

Hardware management support

The system board supports a power-management function that conforms to the power-saving standards of the U.S. Environmental Protection Agency (EPA) Energy Star program. It also offers Plug-and-Play which helps save users from configuration problems, thus making the system more user-friendly.

Additional features include hardware support for ASM (Advanced System Manager) and RDM (Remote Diagnostic Manager). ASM detects problems in the CPU thermal condition, CPU working voltage detection (±12V/±5V/3.3V/1.5V), and PCI bus utilization calculation. It also detects if the CPU fan or the chassis fan malfunctions. Meanwhile, RDM allows execution of the RDM diagnostic program from a remote RDM station to fix detected problems or to reboot the system.

Features summary

The main board has the following major components:

- Utilizes a FC-PGA (Flip-Chip Pin-Grip Array) dual socket that supports a Pentium III processor running at 667, 733, 800, or 866 MHz
- Apollo Pro 133A chipset which consists of two components: VT82C694X (north bridge) and VT82C686A (south bridge)
- Onboard 10/100 Mb/s Intel 82559 LAN chip that supports WOL
- Adaptec® AIC-7899 Dual Channel SCSI controller chipset supports:
  - Channel A - one 68-pin ULTRA160/m SCSI connector
  - Channel B - one 68-pin ULTRA160/m SCSI connector
- Three DIMM sockets that accept 64-, 128-, 256-, and 512-MB SDRAMs with a maximum memory upgrade of 1.5 GB
- One AGP bus and five PCI bus slots
- System clock/calendar with battery backup
- IDE disk drive interfaces
- Super I/O chipset
- Auxiliary power connector for 280-watts SPS and 337W (1+1) Redundant SPS
- Advanced System Manager (ASM)
- External ports:
  - USB connectors
  - PS/2-compatible keyboard port
  - PS/2-compatible mouse port
  - RJ-45 jack
  - Parallel port
  - Serial ports 1 and 2

Preinstallation requirements

Selecting a site

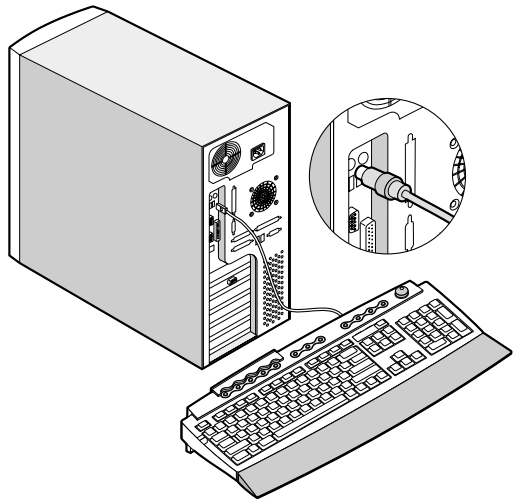
Before unpacking and installing the system, select a suitable site for the system for maximum efficiency. Consider the following factors when choosing a site for the system:

- Near a grounded power outlet
- Clean and dust-free
- Sturdy 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.

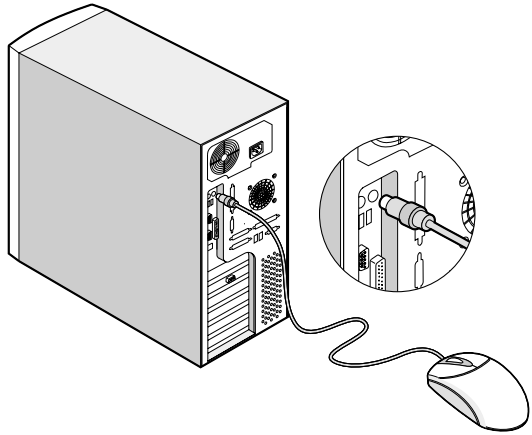
Basic connections

The system unit, keyboard, mouse, and monitor constitute the basic system. Before connecting any other peripherals, connect these peripherals first to test if the system is running properly.

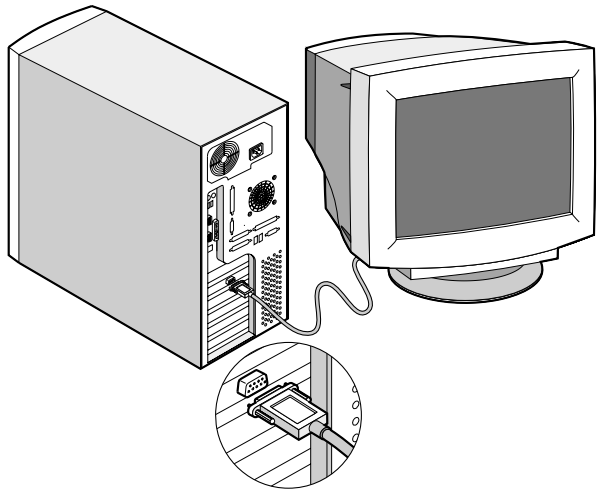
Connecting the keyboard



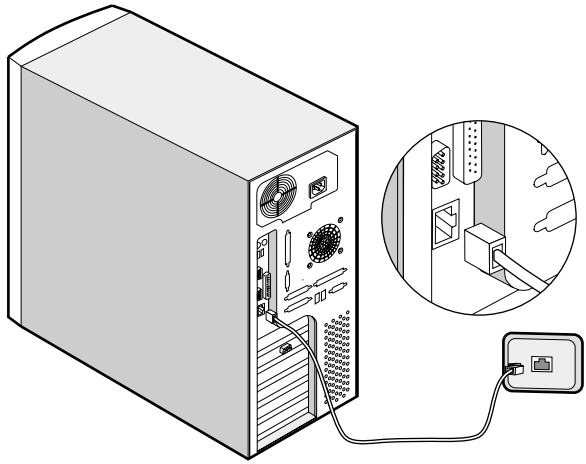
Connecting the mouse



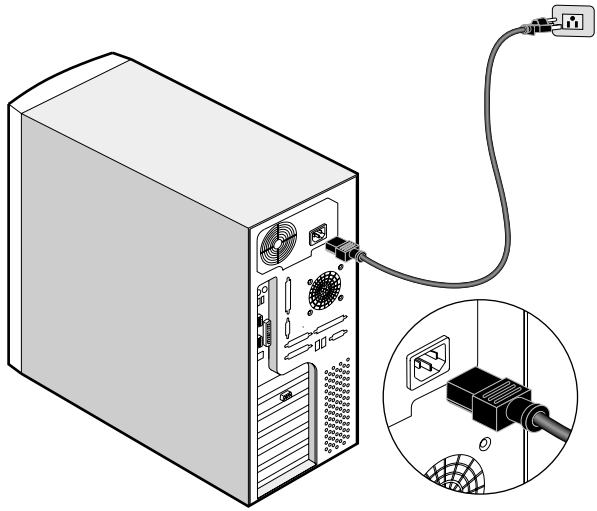
Connecting the VGA monitor



Connecting to the network



Connecting the power cable



System startup

After making sure that you have set up the system properly and connected all the required cables, you may now apply power to the system.

To power on the system:

1. Turn on the power switch to activate the power supply
2. Open the front panel door and press the On/Off button. The system starts up and displays a welcome message. 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 On/Off button, go to the next section for the possible causes of the boot failure.

Aside from the self-test messages, you can determine if the system is in good condition by checking if the following occurred:

- Power indicator LED on the front bezel lights up (green)
- Power, Num Lock, and Caps Lock LED indicators on the keyboard light up
- Power supply power LED located at the back of the system lights up (green)

Power-on problems

If the system does not boot after you have applied power, check the following factors that might have caused the boot failure.

- The external power cable may be loosely connected.

  Check the power cable connection from the power source to the power socket on the rear panel. Make sure that each cable is properly connected to each power supply.

- 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 that you can perform this step, ask a qualified technician to help you.

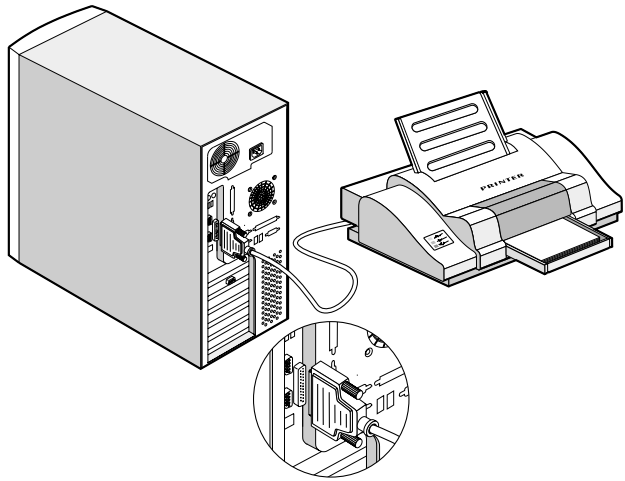
Warning! Make sure all power cords are disconnected from the electrical outlet before performing this task.

Note: If you have gone through the preceding actions and the system still fails to boot, ask your dealer or a qualified technician for assistance.

Connecting options

Printer

To connect a printer, plug the printer cable into the parallel port located on the rear panel of your system.

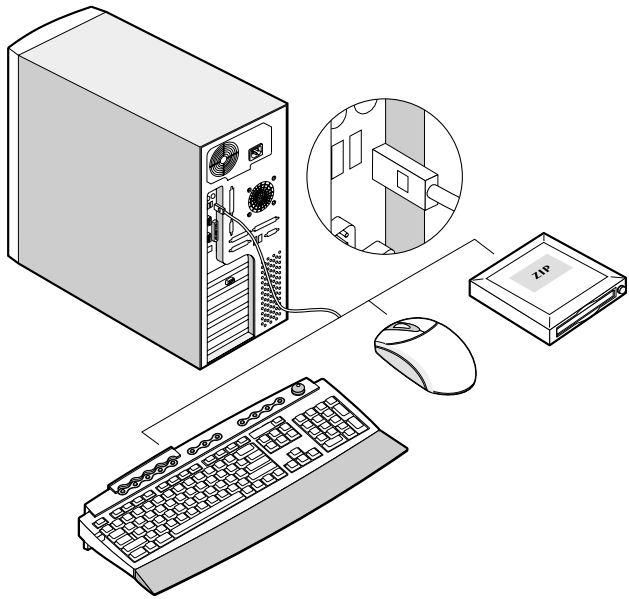


USB devices

Universal Serial Bus (USB) is a serial bus design that is capable of cascading low-/medium-speed peripherals (less than 12 Mbps) such as a keyboard, mouse, joystick, scanner, printer and modem. With USB, complex cable connections can be eliminated.

Your system comes with two USB ports. These ports allow you to connect additional serial devices to your system without using up its system resources.

To connect a USB device, simply plug the device cable into one of the USB ports located at the rear panel of your system.



Note: Most USB devices have a built-in USB port which allows you to daisy-chain other devices.

Chapter 2

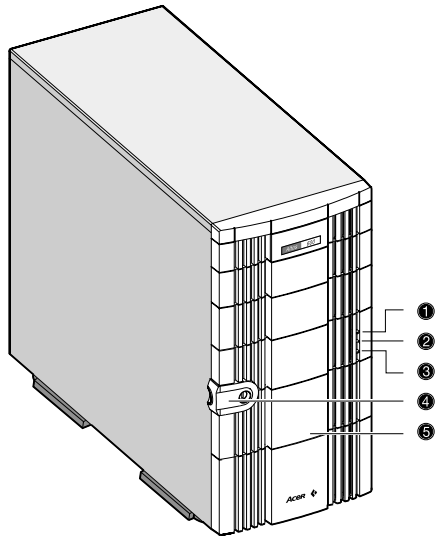
System Tour

This chapter discusses the features and components of your computer.

External and internal structure

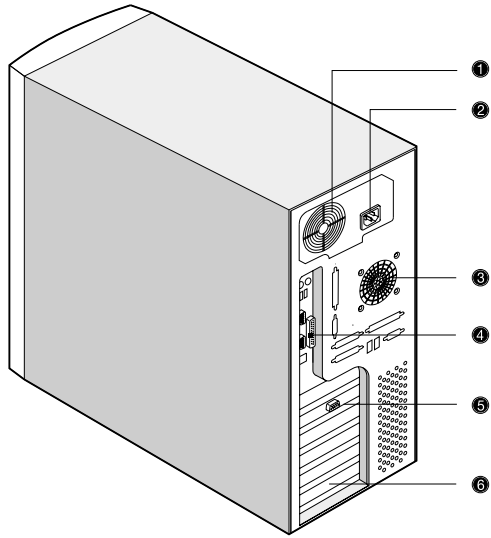
Front panel

Note: One pair of system keys are hung inside the front panel door. Additional duplicate keys can be found at the back of the system.



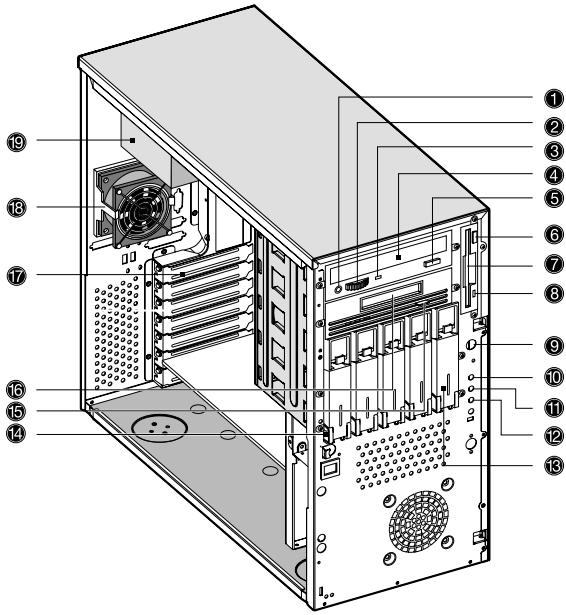
No.	Item
1	Power LED
2	Hard disk LED
3	System status LED
4	Keylock
5	Front panel

Rear panel



No.	Item
1	Power supply
2	Power cord connector
3	Housing fan
4	System board connectors (see page 20)
5	Video port
6	Expansion slots

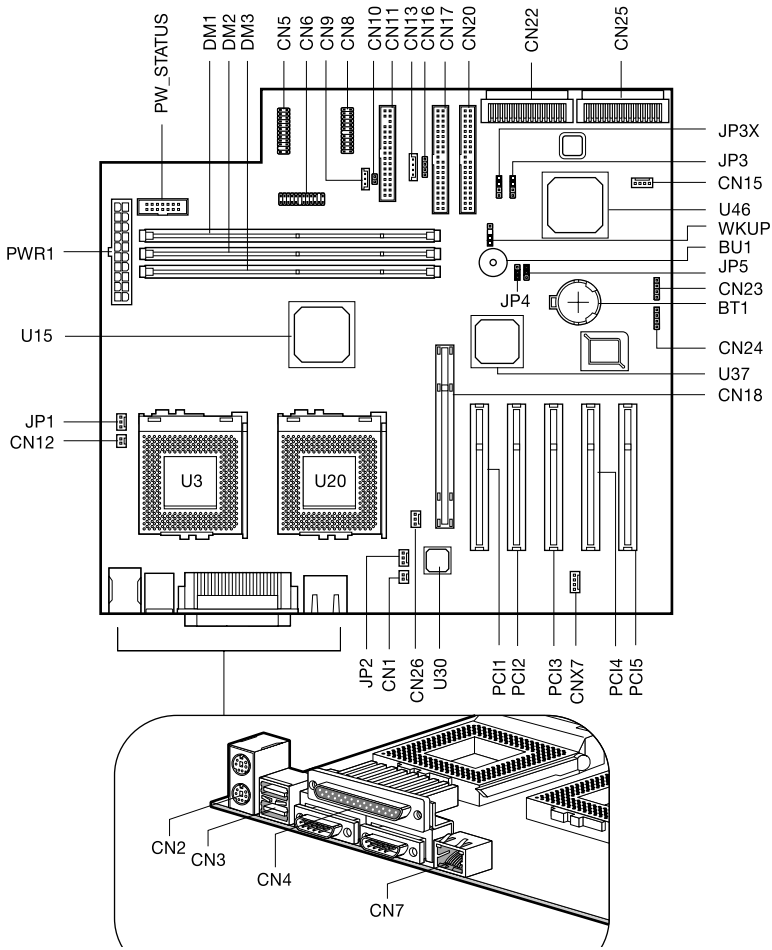
Internal components



No.	Item
1	CD-ROM Headphone/Earphone port
2	Volume tuner
3	CD-ROM LED
4	CD-ROM tray
5	Stop/Eject button
6	Floppy disk drive eject button
7	Floppy disk drive tray
8	Floppy disk drive LED
9	Power button
10	Power LED
11	Hard disk LED
12	System status LED
13	Removable hard disk drive trays
14	Keylock
15	Tape drive eject button
16	Tape drive tray

No.	Item
17	Expansion slots
18	Housing fan
19	Power supply

System board layout



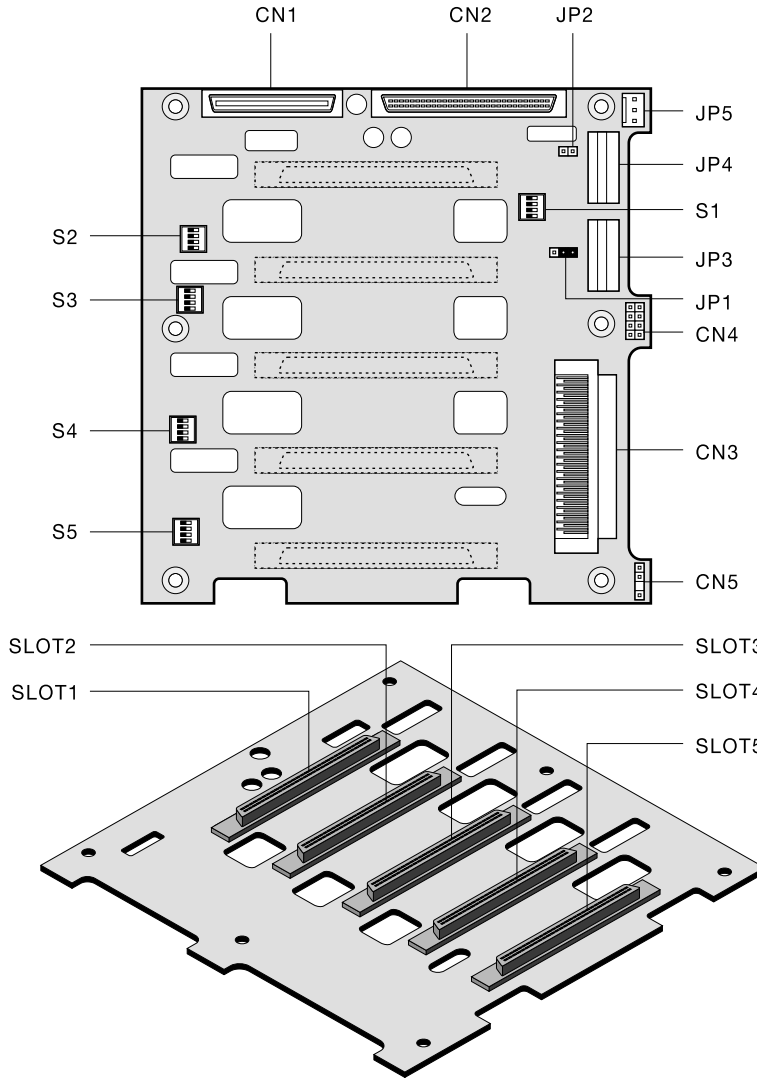
Item	Description
BU1	Internal Buzzer
BT1	Battery
CN1	CPU socket 1 thermal sensor connector

Item	Description
CN2	Above: PS/2 mouse port Below: PS/2 keyboard port
CN3	USB ports
CN4	Above: Parallel port Left: Serial port 1 Right: Serial port 2
CN5	BMC connector
CN6	Multi connector: (1,2) Power Switch (3,4,5,6) RDM LED (7,9,11) Power LED (8,10,12,14) HDD LED (17,18) Reset LED (19,20) Chassis Switch (21,22) NMI Connection
CN7	LAN jack (RJ-45)
CN8	BMC connector
CN9	Wake on LAN connector
CN10	Event LED connector
CN11	FDD connector
CN12	CPU socket 2 thermal sensor connector
CN13	I^2C connector
CN14	System fan connector
CN16	HDD backplane I^2C connector
CN17	Primary IDE connector
CN18	AGP slot
CN20	Secondary IDE connector
CN22	SCSI channel B connector (68-pin (Ultra 160/m)
CN23	SCSI LED connector
CN24	SCSI LED connector
CN25	SCSI channel A connector (68-pin) (Ultra 160/m)
CN27	System fan connector
CNX7	System fan connector
DM1-3	DIMM slots
JP1	CPU socket 2 fan connector
JP2	CPU socket 1 fan connector

Item	Description
JP3	SCSI channel A terminator
	1-2 On
	2-3 Off*
JP3X	SCSI channel B terminator
	1-2 On*
	2-3 Off
JP4	Onboard buzzer external speaker
	1-2* Onboard buzzer
	2-3 External speaker
JP5	BIOS selection
	1-2 Reserved
	2-3 Acer* (Default Setting)
PCI 1-5	PCI slots
PWR_Status	Power status connector
PWR1	ATX power supply connector
U3	CPU socket 2
U15	Apollo Pro 133A chipset (north bridge)
U20	CPU socket 1
U30	Intel 82559 LAN chipset
U37	Apollo Pro 133A chipset (south bridge)
U46	Adaptec AIC-7899 chipset
WKUP1	Wake on Ring connector

BPL5-M backplane board (BPL5-M) (optional)

Jumpers and connectors



Jumper	Setting	Function
JP2	Short	Terminator Power Source from both backplane and host
	Open	Only from Host

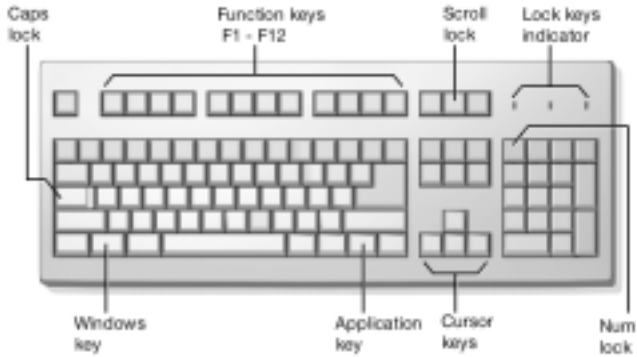
Connector	Description
CN1	For SAF-TE card use
CN2	SCSI 68-pin P connector - Out
CN3	SCSI 68-pin P connector - In
CN4	Front power LED connector
CN5	I2C Buffer connector
JP1	I2C buffer ID setting
JP3	Power connector[1]
JP4	Power connector
JP5	3-pin FAN connector
S1	Slot 1 ID switch[2]
S2	Slot 2 ID switch
S3	Slot 3 ID switch
S4	Slot 4 ID switch
S5	Slot 5 ID switch
Slot1	SCSI slot 1 connector
Slot2	SCSI slot 2connector
Slot3	SCSI slot 3 connector
Slot4	SCSI slot 4 connector
Slot5	SCSI slot 5 connector

1 For the SCSI Backplane board's loading requirement, please insert an independent Power cable that doesn't connect to any other device into each power connector on the Backplane board.

2 When you use the LVD SCSI hot-swap cage to arrange your system hard drives, please remove all the jumpers on each SCSI hard drive and use the switches on the backplane board (S1~S5) to set the hard drive's ID.

Keyboard

The keyboard that came with your system has full-sized keys that include separate cursor keys, two Windows keys, and twelve function keys.



Cursor keys

The cursor keys, also called the arrow keys, let you move the cursor around the screen. They serve the same function as the arrow keys on the numeric keypad when the Num Lock is toggled off.

Lock keys

The keyboard has three lock keys which you can toggle on and off to switch between two functions.

Lock Key	Description
Caps Lock	When activated, all alphabetic characters typed appear in uppercase (same function as pressing **Shift** + <letter>).
Num Lock	When activated, the keypad is set to numeric mode; i.e., the keys function as a calculator (complete with arithmetic operators such as +, -, ∗, and /).

Lock Key	Description
Scroll Lock	When activated, the screen moves one line up or down when you press the up arrow or down arrow respectively. Take note that Scroll Lock may not work with some applications.

Disk drives

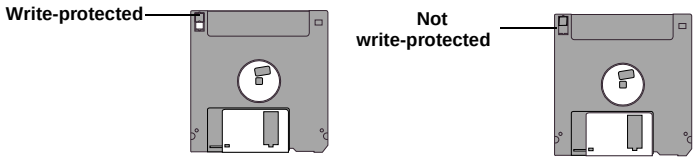
Your system comes with the following disk drives:

3.5-inch floppy disk drive

Your system's 3.5-inch floppy disk drive can handle 720-KB and 1.44-MB capacity diskettes.

The floppy diskettes are compact, lightweight, and easy to carry around. Here are some tips on how to take care of your diskettes:

- Always make backup copies of the diskettes that contain important data or program files.
- Keep diskettes away from magnetic fields and sources of heat.
- Avoid removing a diskette from a drive when the floppy drive activity light is on.
- Write-protect your diskettes to prevent accidental erasure. To do this, slide the write-protect tab to the write-protect position.



- When you put a label on a 3.5-inch diskette, make sure that the label is properly attached (flat on the surface) and within the labeling area (area with a slight surface depression) on the diskette. An improperly attached label may cause a diskette to get stuck in a drive when you are inserting or removing it.

CD-ROM drive

Your system comes with a CD-ROM drive. This drive is located on the front panel of your system. The CD-ROM drive allows you to play different types of compact discs (CDs) and video CDs. CDs, like diskettes, are also compact, lightweight, and easy to carry around. However, they are more delicate than diskettes and must be handled with extra care.

To insert a CD into your system's CD-ROM drive:

1. Gently push the eject button located on the front panel.
2. When the disc tray slides open insert the CD. Make sure that the label or title side of the disc is facing upward.

Caution! Hold the disc by the edges to avoid leaving smudges or fingerprints.

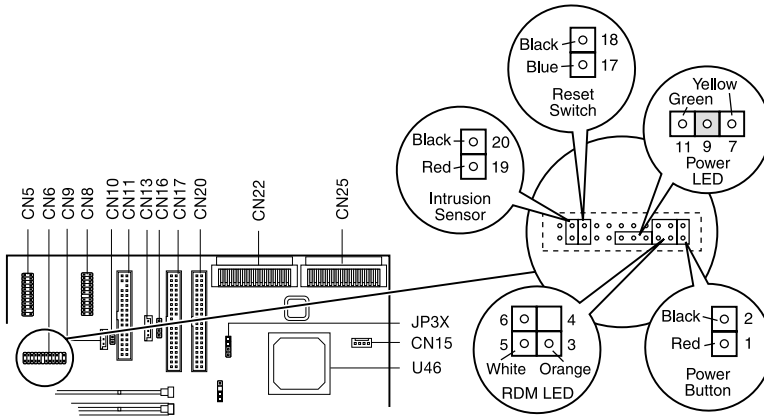
3. Push the eject button again to close the tray.

To take care of your CDs:

- Keep your discs in a disk case when not in use to avoid scratches or other damage. Any kind of dirt or damage can affect the data on the disc, impair the disc lens reader on the CD-ROM drive, or stop the system from successfully reading the disc.
- When handling discs, always hold them by the edges to avoid smudges or fingerprints.
- When cleaning discs, use a clean, dust-free cloth and wipe in a straight line from the center to the edge. Do not wipe in a circular motion.
- Clean your CD-ROM drive periodically. Cleaning Kits can be purchased in any system or electronics shop. You may refer to the Cleaning Kit for instructions.

Front Panel Connectors

The diagram below describes the front panel connectors for the Altos 600 server.



Memory Configurations

The table below describes the memory configurations for the Altos 600 server.

Slot 1	Slot 2	Slot 3	Total Size
64MB			64MB
64MB	64MB		128MB
64MB	64MB	64MB	192MB
128MB			128MB
128MB	128MB		256MB
128MB	128MB	128MB	384MB
256MB			256MB
256MB	256MB		512MB
256MB	256MB	256MB	768MB
512MB			512MB
512MB	512MB		1024MB
512MB	512MB	512MB	1536MB

Chapter 3

Upgrading Your System

This chapter contains instructions on how to upgrade your computer and basic information about your system boards that you will find helpful when performing the upgrade process.

Installation precautions

Before you install any system component, read the following sections. These sections contain important ESD precautions along with preinstallation and post-installation instructions.

ESD precautions

Electrostatic discharge (ESD) can damage your processor, disk drives, expansion boards, and other components. Always observe the following precautions before you install a computer component:

1. Do not remove a component from its protective packaging until you are ready to install it.
2. Wear a wrist grounding strap and attach it to a metal part of the computer before handling components. If a wrist strap is not available, maintain contact with the computer throughout any procedure requiring ESD protection.

Preinstallation instructions

Always observe the following before you install any component:

1. Turn off your system and all the peripherals connected to it before opening it. Then unplug all cables from the power outlets.
2. Open your computer according to the instructions on page 33.
3. Follow the ESD precautions described above before handling a computer component.
4. Remove any expansion boards or peripherals that block access.
5. See the following sections for specific instructions on the component you wish to install.

Warning! Not turning off the computer properly before you start installing the components may cause serious damage.
Do not attempt the procedures described in the following sections unless you are a qualified service technician.

Post-installation instructions

Observe the following after installing a computer component:

1. See to it that the components are installed according to the step-by-step instructions in their respective sections.
2. Replace any expansion boards or peripherals that you removed earlier.
3. Replace the computer cover.
4. Connect the necessary cables and turn on your computer

Opening your system

Caution: Before you proceed, make sure that you have turned off your computer and all peripherals connected to it, then unplug all cables from the power outlets. Read the “Preinstallation instructions” on page 32.

You need to open your computer before you can install additional components. See the following section for instructions.

Opening the front panel door

A security lock secures the front door to protect against unauthorized access.

To open the front door:

1. Insert the key into the lock and turn it clockwise until it points to the unlocked icon.
2. Pull the front door open.

Removing the front panel door

The doors are attached to the main housing by screwless hinges. Follow these steps to remove the door:

1. Unlock the door with the key (when necessary).
2. Open it to more than a 45° angle.
3. Lift it up a little, then move it away from the housing.

Opening the side panel

The system housing has one front door and one removable side panel. Always observe the following ESD (electrostatic discharge) precautions before installing any system component:

1. Do not remove any system component from its packaging unless you are ready to install it.

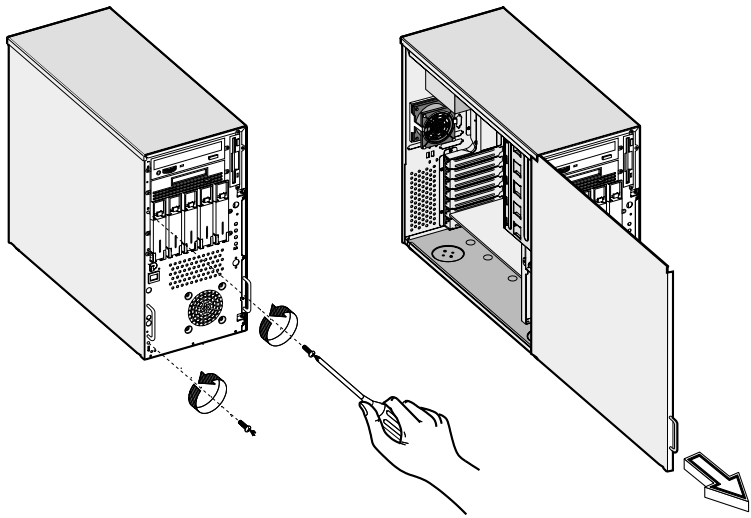
2. Wear a wrist grounding strap before handling electronic components. Wrist grounding straps are available at most electronic component stores.

Danger! *DO NOT attempt the procedures in the following sections unless you are confident of your capability to perform them. Otherwise, ask a service technician for assistance.*

A microswitch is located on the side panel. It helps indicate whether the panel is removed or intact. Also, a security lock secures the front panel to protect against unauthorized access.

To remove the side panel:

1. Turn off the power to the system unit and all peripherals and unplug all cables.
2. Place the system unit on a flat, steady surface.
3. Use the key provided with the system to unlock and open the front panel door.
4. Remove the two front screws with a Phillips screwdriver. Keep them in a safe place for later use.



5. Pull the panel handle out.
6. Detach the side panel using the panel handle.

Installing and removing storage devices

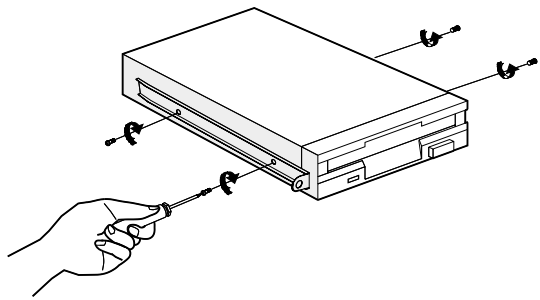
The housing supports one 3.5-inch and five 5.25-inch internal storage devices. The empty drive bays allow you to install additional drives such as a CD-ROM drive, digital audio tape (DAT) drive or another hard disk drive.

Note: Your basic system comes with a CD-ROM drive and a 3.5-inch diskette drive already installed.

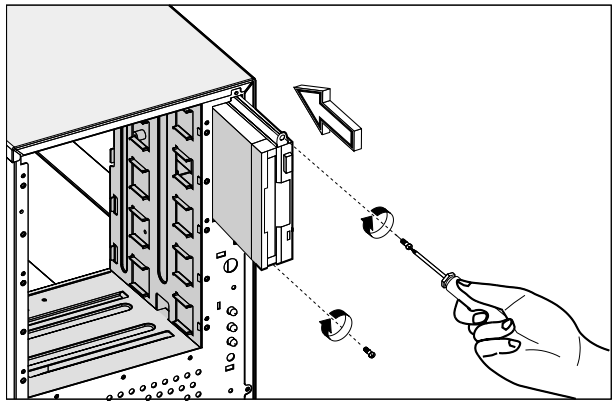
Replacing a 3.5-inch storage device

To replace a 3.5-inch storage device:

1. Open the front panel door and remove the left panel. See page 33 for more information on opening the housing panels.
2. Disconnect the power cable and signal cable from the old drive.
3. Detach the old 3.5-inch drive and rails from the housing by removing two screws. Keep the screws for later use.
4. Remove the rails from the old drive.
5. Attach the rails to the new drive securing them with four screws as shown below.



6. Insert the new drive into the drive bay and secure it with the two screws removed in step 3.



7. Connect the power cable and the signal cable to the drive.
8. Reinstall the side panel.

Installing a BPL5-M hot-swap cage

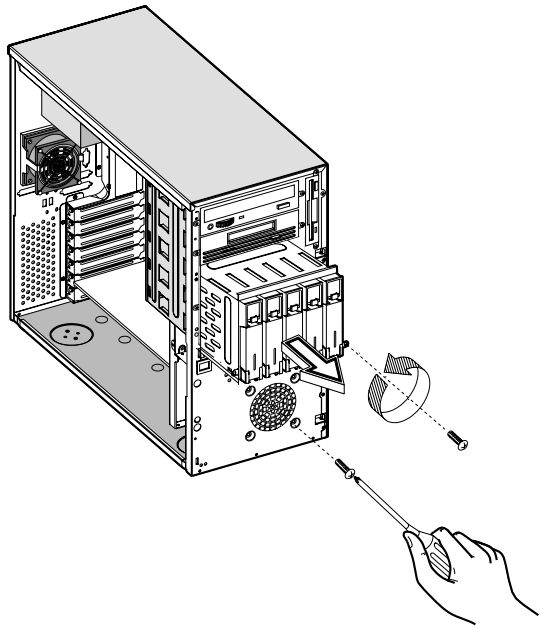
The BPL5-M hot-swap cage box includes the following components:

- One hot-swap cage (with backplane board attached)
- Five hard disk drive trays
- One system board connector cable
- Two hard disk drive fault LED connector cables

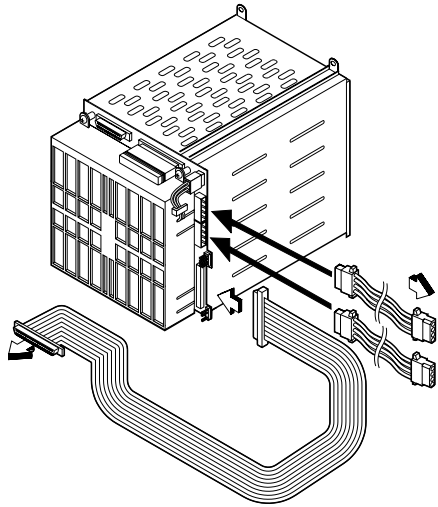
To install the hot-swap cage into the housing:

1. Open the front panel door and remove the side panel. See page 33 for more information.

2. Insert the hot-swap cage into the housing and secure the hot-swap cage with two screws. The BPL5-M hot-swap cage occupies three 5.25-inch drive bays.

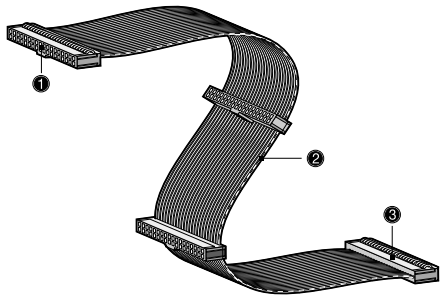


3. Attach the power cable, the SCSI terminator, the HDD fault LED cable, and the system board connector cable to the backplane board and attach the other end of the connector cable to the system board. For the location of the SCSI connectors, please refer to page 20.



4. Reinstall the side panel.

System board connector cable

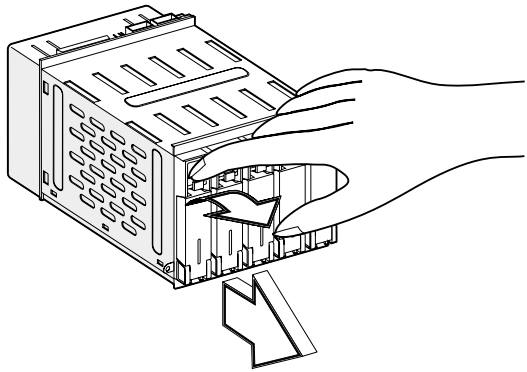


No.	Item
1	Connects to the system board
2	Red strip
3	Connects to the hot-swap cage

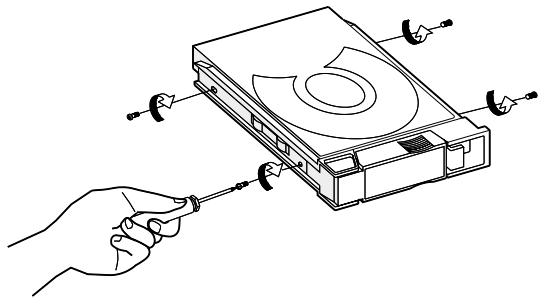
Installing and removing a BPL5-M hard disk drive tray

To remove and install a BPL5-M hard disk drive tray:

1. Use your finger to release the drive tray and then pull it out.



2. Place a hard disk on the tray. Secure it with four screws.



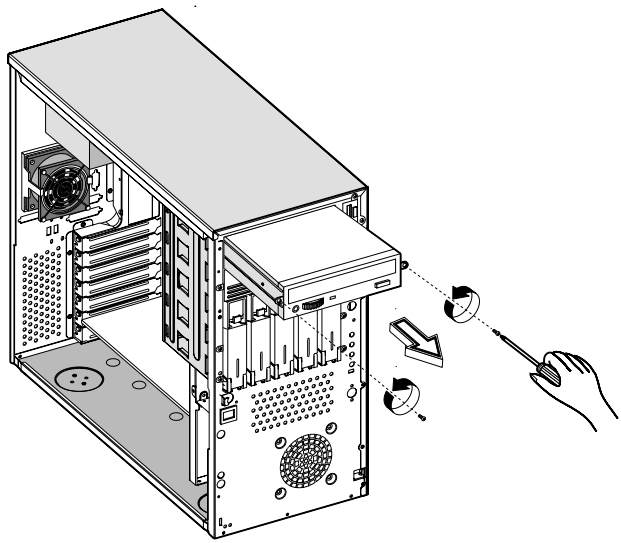
3. Insert the tray into the hot-swap cage with the lever still extended. Make sure that the drive is properly inserted before closing the lever.

Replacing a 5.25-inch storage device (optional)

Note: If you are installing a new drive in an empty drive bay, skip steps 2 to 4.

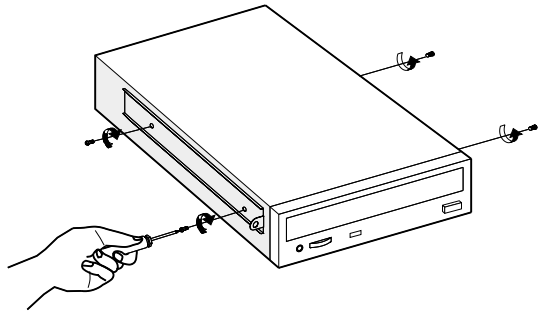
To replace a 5.25-inch storage device:

1. Open the front panel door and remove the left panel. See page 33 for more information on opening the housing panels.
2. Detach the power cable and the signal cable from the drive.
3. Detach the 5.25-inch drive and rails by removing two screws. Keep the screws for later use.

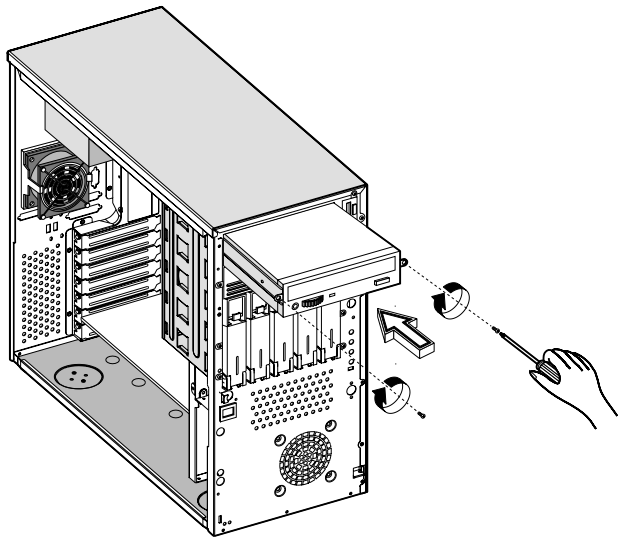


4. Remove the rails from the old drive by removing four screws. Keep the screws for later use.

5. Attach the rails to the new drive, securing it with four screws.



6. Insert the new drive into the drive bay and secure it with two screws.



7. Connect the power cable and the signal cable to the drive.
8. Reinstall the side panel.

Installing and removing the CPU

The Pentium III comes in a FC-PGA (Flip-Chip Pin-Grid Array) 370-pin package. The FC-PGA package is designed for the new breed of sleek, high performance, small form factor PCs.

The system board currently supports a Pentium III processor running at 667, 733, 800, or 866 MHz, on a 133 MHz system BUS.

Caution: Always observe the ESD precautions when installing or removing a system component. Refer to page 31.

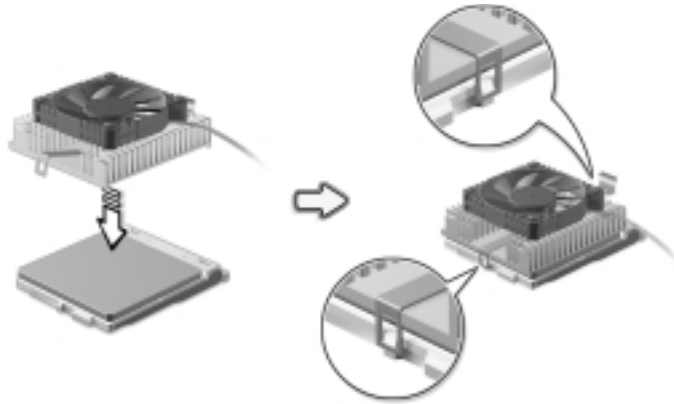
Installing a CPU

Follow these steps to install a CPU:

1. Remove the processor from its protective packaging.
2. Insert the new CPU into the CPU socket. Make sure that pin 1 (indicated by a notched corner) of the CPU connects to hole 1 of the socket.

   Push the socket lever down to lock the new CPU into the socket.

3. Attach one side of the fan/heatsink metal bracket to the CPU socket and then gently push the other side of the metal bracket down until it locks in place.



4. Connect the 3-pin and 2-pin fan/thermal sensor cables to the system board. Refer to section “System board layout” on page 20 for the location of the fan/thermal sensor connectors.

Caution: The heatsink becomes very hot when the system is on. NEVER touch the heatsink with any metal or with your hands.

Removing a CPU

Follow these steps to remove a CPU:

1. Disconnect the 3-pin and 2-pin fan/thermal sensor cables from the system board.
2. Unhook one side of the fan/heatsink metal bracket and gently lift it before removing the other side.
3. Gently push the socket lever down to release the lever and then pull it up.
4. Remove the CPU.

Installing and removing memory modules

The three 168-pin sockets onboard support SDRAM-type DIMMs. You may install 64-MB, 128-MB, 256-MB, or 512-MB (single and double density) DIMMs for a maximum of 1.5-GB system memory.

Note: The SDRAM should work under 3.3 volts only; 5-volt memory devices are not supported.

This system board supports 100 and 133 MHz SDRAM. However, they cannot be used at the same time in the system.

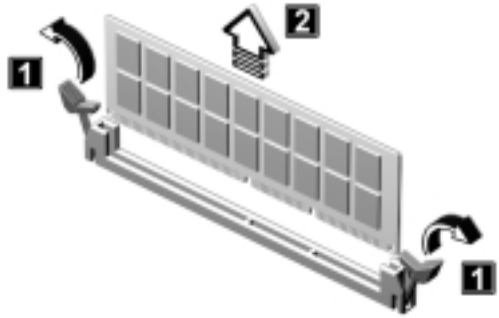
WARNING! Do not use both 100 MHz and 133 MHz SDRAM together. This might cause your system to malfunction. For a qualified DIMM vendor list, please contact your reseller.

Each of the DIMM sockets is independent of the others. This allows you to install DIMMs with different capacities to form different configurations.

To install a DIMM, align it to an empty slot and press it in until the holding clips secure the DIMM in place.

Note: The DIMM socket is slotted to ensure proper installation. If you slip in a DIMM but it does not completely fit, you may have inserted it the wrong way. Reverse the orientation of the DIMM.

To remove a DIMM, press the holding clips on both sides of the socket outward to release the DIMM.



Note: Place your fingers on the top of the DIMM before you press the holding clips to gently disengage the DIMM from the socket.

Reconfiguring the system

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

Installing expansion cards

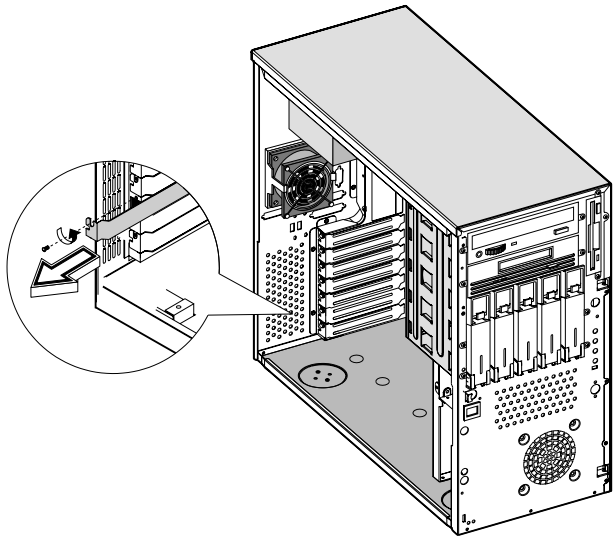
There are two kinds of expansion slots available on this system board: PCI (Peripheral Component Interconnect) and AGP (Accelerated Graphics Port).

To install expansion cards:

1. Locate an empty expansion slot on the system board.
2. Remove the metal bracket located opposite the empty expansion slot using a Phillips screwdriver.
3. Insert an expansion card into the slot. Make sure that the card is properly seated.
4. Secure the card to the housing with a screw.

When you turn on the system, BIOS automatically detects and assigns resources to the new device.

Note: BIOS detects and configures only PnP (Plug n Play) expansion cards.



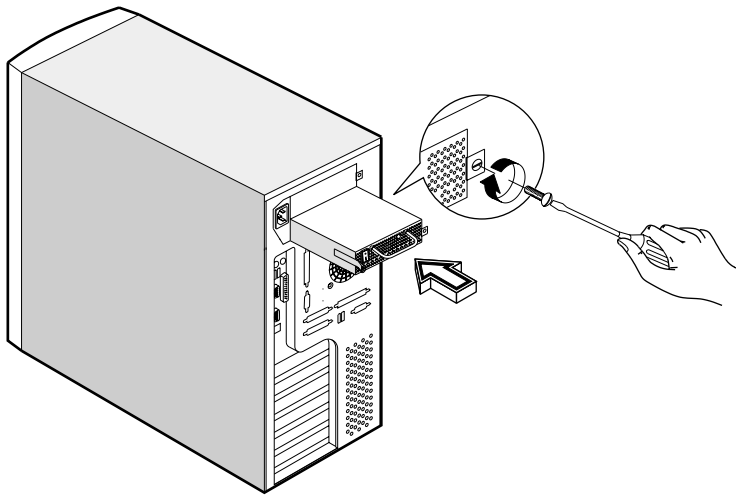
Hot-swappable redundant power supply module (optional)

The power subsystem consists of two hot-swappable power supply module bays that allow the installation of either one 280-watt fixed power supply or two 337-watt hot-swappable redundant power supply modules. A redundant power configuration enables a fully-configured system to continue running even if one power supply fails.

The system you have comes with a 280-watt fixed power supply.

To install a 337-watts hot-swappable redundant power supply module:

1. Insert the power supply into the housing.



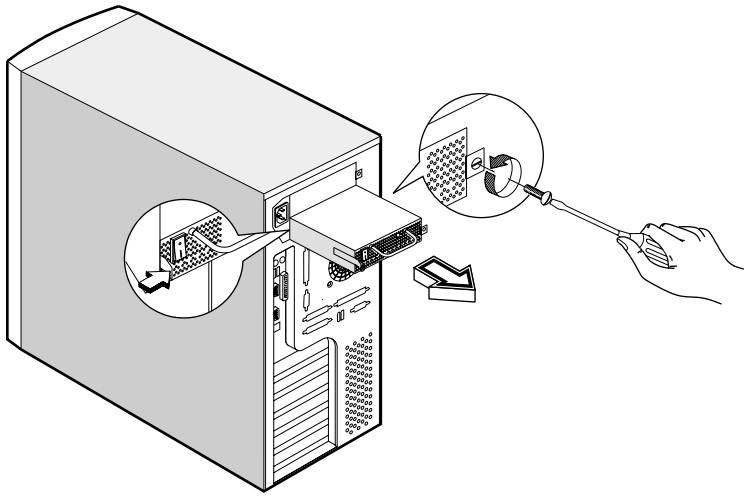
Make sure that the power supply is properly inserted.

2. Secure the power supply with a screw.

To remove a 337-watt hot-swappable redundant power supply:

1. Remove the screw using a flat-head screwdriver.

2. Lift up the metal handle with your right hand and push the lock with your thumb to release the power supply module.



3. Gently pull the power supply module out.

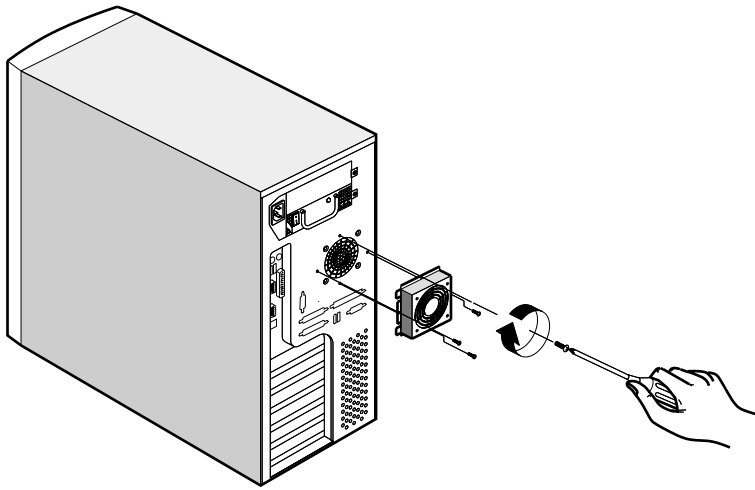
Note: The power supply subsystem should supply a minimum of 280-Watts to the whole system. If you only have one power supply or if you have two power supplies and are planning to remove both of them, remember to turn off the power first and disconnect the power cord from the electrical outlet.

Installing an external redundant system fan (optional)

An additional external redundant fan can be installed behind the system housing. This allows the system to operate properly even if the internal housing fan fails.

To install an external redundant fan:

1. Open the front panel and remove the left panel of the housing. See page 33 for more information.
2. Use the screwdriver to push open the plastic peg located below the internal system fan module.
3. Insert the redundant fan into the fan cage and attach the fan cage to the system housing with four screws.
4. Insert the fan cable (CNX7) into the peg hole and attach the cable to the system board. See the section “System Board Layout” for the location of this fan cable.



Chapter 4

BIOS Utility

This chapter gives information about the system BIOS and tells how to configure the system by changing the settings of the BIOS parameters.

Introduction

Most systems are already configured by the manufacturer or the dealer. There is no need to run Setup when starting the computer unless you get a Run Setup message.

The Setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

Note: If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

Before you run Setup, make sure that you have saved all open files. The system reboots immediately after you exit Setup.

Entering Setup

To enter Setup, simultaneously press the key combination **Ctrl+Alt+Esc**.

Note: You must press **Ctrl+Alt+Esc** while the system is booting. This key combination does not work any other time.

The system supports two Setup Utility levels: Basic and Advanced.

If you are an advanced user, you may want to check the detailed configuration of your system. Detailed system configurations are contained in the Advanced Level. To view the Advanced Level, press **F8** while viewing the main menu.

Use the **Up** and **Down** arrow keys to move around the Setup Utility screen.

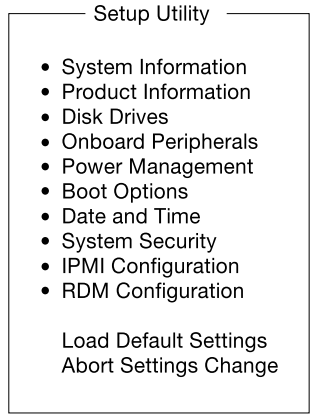
Use the **Left** and **Right** arrow keys to move to the next page or to return to the previous page if the setup screen has more than one page available.

Use the **Page Up**, **Page Down**, **+**, or **-** keys to select the options if they are available.

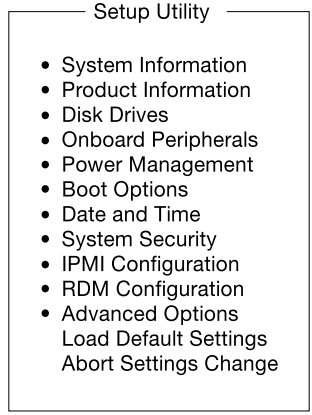
Press **Esc** to return to the main menu.

Note: A parameter with an asterisk (*) mark indicates that the parameter appears only when you are in the Advanced Level. Also, grayed items on the screens have fixed settings and are not user-configurable.

Basic Setup Utility main menu



Advanced Setup Utility main menu



i

System information

The following screen appears when you select System Information from the main menu:

System Information

```
Processor.....Pentium III
Processor Speed.....733 MHz
CPU/SDRAM Bus Frequency.....133/133 MHz
Level 1 Cache.....32 KB, Enabled
Level 2 Cache.....256 KB, Enabled
Diskette Drive A.....1.44 MB, 3.5-inch
Diskette Drive B.....None

IDE Primary Channel Master.....None
IDE Primary Channel Slave.....None
IDE Secondary Channel Master.....IDE CD-ROM
IDE Secondary Channel Slave.....None

Total Memory.....768 MB
  1st Bank.....Registered SDRAM, 256 MB
  2nd Bank.....Registered SDRAM, 256 MB
  3rd Bank.....Registered SDRAM, 256 MB

Serial Port 1.....3F8h, IRQ 4
Serial Port 2.....2F8h, IRQ 3
Parallel Port.....378h, IRQ 7
PS/2 Mouse.....Installed
```

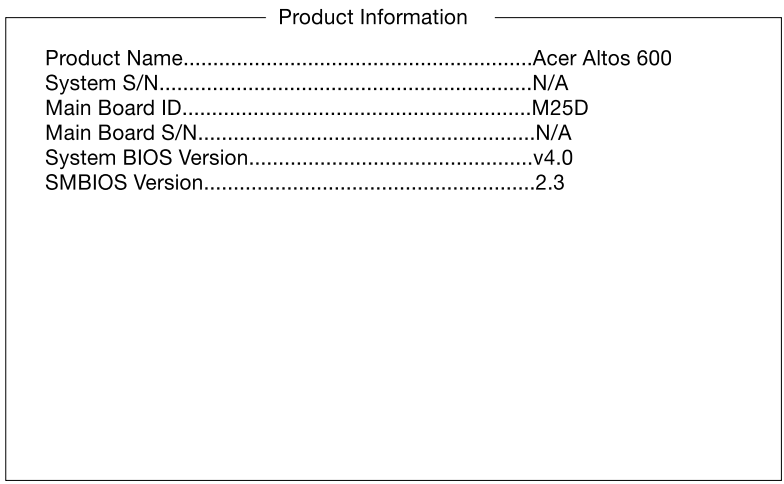
Parameter	Description
Processor	Type of processor currently installed in your system
Processor speed	Clock speed of the processor currently installed in your system
CPU/SDRAM bus frequency	Specifies the value of FSB/memory bus frequency
Level 1 cache size	Total amount of first-level or the internal fast accessed memory size (i.e., the memory integrated into the CPU)

Parameter	Description
Level 2 cache size	Total amount of second-level cache memory size that comes with the CPU. The available cache sizes are 256 or 512 KB
Diskette drives A and B	System's current diskette drive A and drive B settings
IDE primary channel master	Current configuration of the IDE device connected to the master port of the primary IDE channel
IDE primary channel slave	Current configuration of the IDE device connected to the slave port of the primary IDE channel
IDE secondary channel master	Current configuration of the IDE device connected to the master port of the secondary IDE channel
IDE secondary channel slave	Current configuration of the IDE device connected to the slave port of the secondary IDE channel
Total memory	Total amount of onboard memory. The memory size is automatically detected by BIOS during the POST. If you install additional memory, the system automatically adjusts this parameter to display the new memory size
1st/2nd/3rd bank	Type and size of DRAM installed in DIMM sockets 1, 2, and 3 respectively. The None setting indicates that there is no DRAM installed
Serial port 1	Serial port 1 address and IRQ setting
Serial port 2	Serial port 2 address and IRQ setting
Parallel por	Parallel port address and IRQ setting
PS/2 mouse	Pointing device installation setting. Displays None if no pointing device is installed

Product information

Product Information contains the general data about the system, such as the product name, serial number, BIOS version, etc. This information is necessary for troubleshooting (may be required when asking for technical support).

The following shows how the Product Information screen appears:

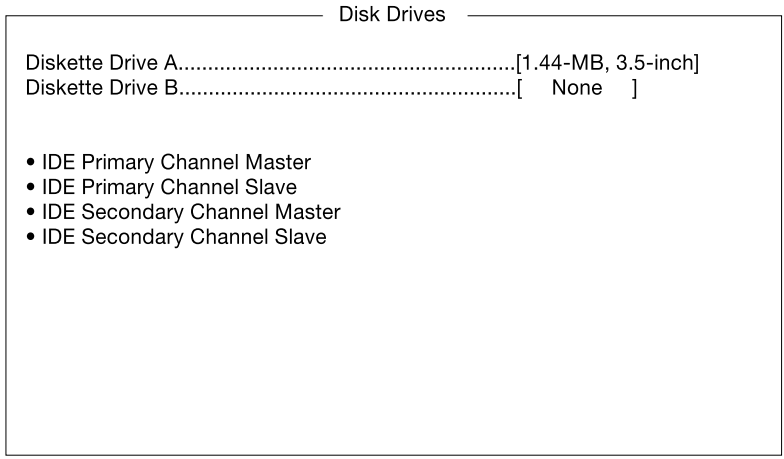


Parameter	Description
Product name	Official name of the system
System S/N	System’s serial number
Main board ID	Mainboard’s identification number
Main board S/N	Mainboard’s serial number
System BIOS version	Version of the BIOS utility
SMBIOS version	Version of the SMBIOS

Disk drives

Select Disk Drives to input configuration values for disk drives.

The following screen shows the Disk Drives menu:



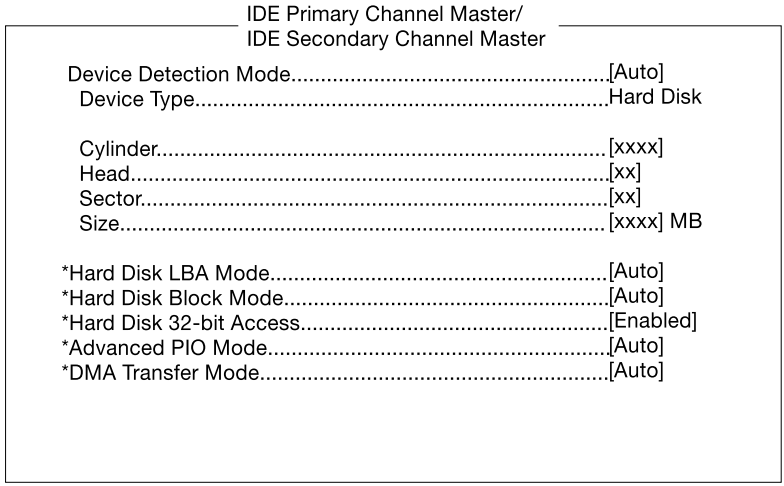
The following table describes the parameters in this screen.

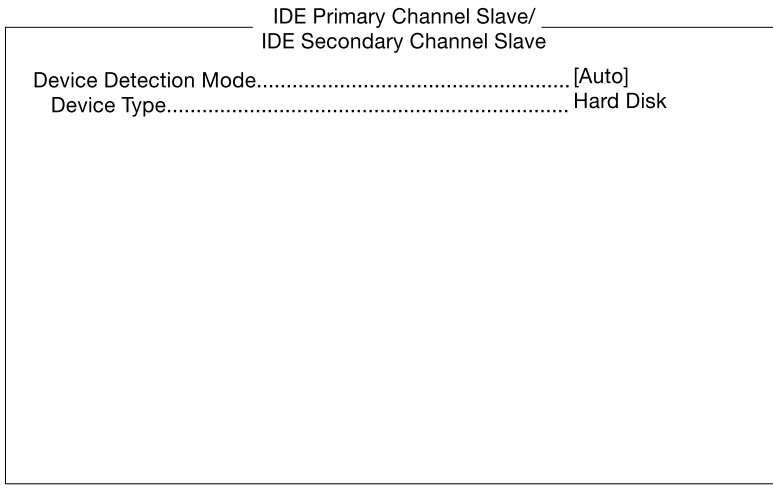
Parameter	Description	Option
Diskette drive A and B	Selects the floppy disk drive type	**1.44 MB, 3.5-inch** None 360 KB, 5.25-inch 1.2 MB, 5.25-inch 720 KB, 3.5-inch 2.88 MB, 3.5-inch

Parameter	Description	Option
IDE primary channel master and slave IDE secondary channel master and slave	These items let you select the IDE hard disk parameters that your system supports. Auto enables BIOS to automatically detect the parameters of installed HDDs during the POST (power-on self-test). If you prefer to enter HDD parameters manually, select User. Select None if no HDD is connected to the system. The IDE CD-ROM is always automatically detected	

IDE channel type

The following screens appear if you select the IDE drive parameters:





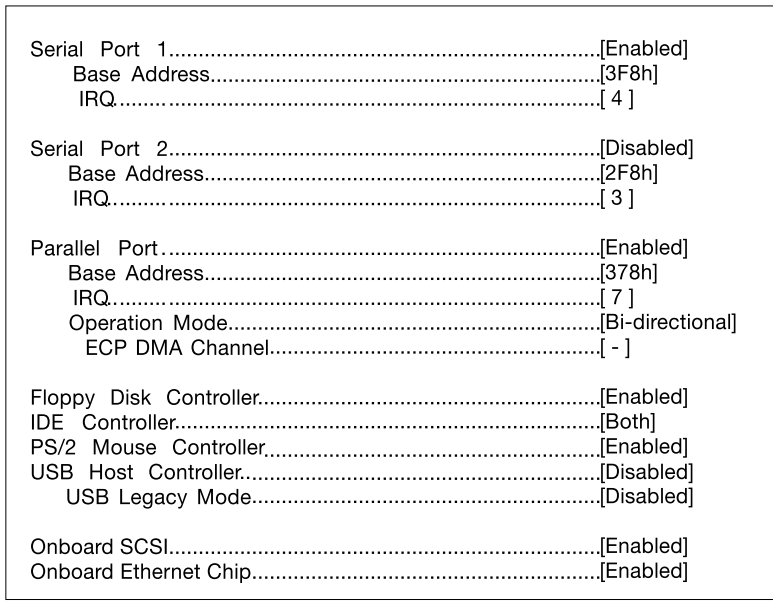
Note: A parameter with an asterisk (*) mark indicates that the parameter appears only when you are in the Advanced Level. See “Entering Setup” on page 52 for how to view the advanced level.

Parameter	Description	Option
Device detection mode	Lets you specify the type of hard disk installed in your system. If you want BIOS to automatically configure your hard disk, select Auto. If you know your hard disk type, you can enter the setting manually	**Auto** User None
Device Type	Indicates a hard disk type device	
Cylinder	Specifies the number of cylinders of your hard disk, and is automatically set depending on your Type parameter setting	User Input
Head	Specifies the number of heads of your hard disk, and is automatically set depending on your Type parameter setting	User Input
Sector	Specifies the number of sectors of your hard disk, and is automatically set depending on your Type parameter setting	User Input
Size	Specifies the size of your hard disk, in MB	User Input
Hard Disk LB Mode	When set to **Auto**, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows you to use a hard disk with a capacity of more than 528 MB. This is made possible through the Logical Block Address (LBA) mode translation. However, this enhanced IDE feature works only under DOS, Windows 3.x, Windows 95, Windows 98, Windows NT 3.5 and above, and Windows 2000. Other operating systems require this parameter to be set to **Disabled**.	Auto Disabled

Parameter	Description	Option
Hard Disk Block Mode	Enhances disk performance depending on the hard disk in use. If you set this parameter to Auto, the BIOS utility automatically detects if the installed hard disk drive suports the Block Mode function. If supported, it allows data transfer in blocks (multiple sectors) at a rate of 256 bytes per cycle.	Auto Disabled
Hard Disk 32-bit Access	Improves system performance by allowing the use of the 32-bit hard disk access. This enhanced IDE feature works only under DOS, Windows 3.x, Windows 95, Windows 98, Windows NT, Windows 2000, and Novell NetWare. If your software or hard disk does not support this function, set this parameter to Disabled.	Enabled Disabled
Advanced PIO Mode	When set to Auto, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows for faster data recovery and read/write timing that reduces hard disk activity time. This results in better hard disk performance. To disregard the feature, change the setting to Disabled.	Auto Mode 0 Mode 1 Mode 2 Mode 3 Mode 4 Disabled
DMA transfer mode	The Ultra DMA and Multi-DMA modes enhance hard disk performance by increasing the transfer rate. However, besides enabling these features in the BIOS Setup, both the Ultra DMA and Multi-DMA modes require the DMA driver to be loaded.	**Auto** Multiword Mode 0, 1, 2 Disabled

Onboard peripherals

Onboard Peripherals allows you to configure the onboard communication ports and the onboard devices. Selecting this option displays the following screen:



The following table describes the parameters in this screen.

Parameter	Description	Option
Serial port 1	Enables or disables serial port 1	Enabled Disabled
Base address	Sets the I/O base address of serial port 1	3F8h 2F8h 3E8h 2E8h
IRQ	Sets the IRQ (interrupt request) channel o serial port 1	4 11

Parameter	Description	Option
Serial Port 2	Enables or disables serial port 2	**Disabled** Enabled
Base Address	Sets the serial port 2 I/O base address	**2F8h** 3E8h 2E8h
IRQ	Sets the IRQ channel of serial port 2	**3** 10
Parallel Port	Enables or disables the parallel port	**Enabled** Disabled
Base Address	Sets a logical base address for the parallel port. This parameter is configurable only if the Parallel Port parameter is enabled	**378h** 278h
IRQ	Assigns an interrupt for the parallel port. This parameter is configurable only if the Parallel Port parameter is enabled. If you install an add-on card that has a parallel port whose address conflicts with the onboard parallel port, a warning appears on the screen. Check the parallel port address of the add-on card and change the address to one that does not conflict.	**7** 5
Operation Mode	Sets your parallel port's operation mode. This parameter is configurable only if the Parallel Port parameter is enabled	Enhanced Parallel Port (EPP) Bi-directional Extended Capabilities Port (ECP) Standard Parallel Port
ECP DMA Channel	Assigns a DMA channel for the ECP parallel port function. This parameter is configurable only if you select the Extended Capabilities Port (ECP) as the operation mode	
Floppy Disk Controller	Enables or disables the onboard floppy disk controller	Enabled Disabled

Parameter	Description	Option
IDE Controller	Enables or disables the onboard primary, secondary or both IDE interfaces	Both Primary Secondary Disabled
PS/2 Mouse Controller	Enables or disables the onboard PS/2 mouse controller	**Enabled** Disabled
USB Host Controller	Enables or disables the onboard USB host controller	**Enabled** Disabled
USB Legacy Mode	Activates or deactivates the USB keyboard connected to your system. When activated, the USB keyboard functions in a DOS environment	**Disabled** Enabled
Onboard SCSI	Enables or disables the onboard SCSI controller	**Enabled** Disabled
Onboard Ethernet chip	Enables or disables the onboard Ethernet controller	**Enabled** Disabled

Power management

The Power Management menu allows you to configure the system power-management feature.

The following screen shows the Power Management parameters and their default settings:

```
Power Management

Power Management Mode.....[Enabled]
  IDE Hard Disk Standby Timer..... [Off]
  System Sleep Timer..... [Off]
    Sleep Mode..... [-------]

Power Switch <4 sec. ..... [Power Off]

System wake-up event
  Modem Ring Indicator..... [Enabled]
  PCI Power Management.....[Enabled]
  RTC Alarm.....[Disabled]
    Resume Day.....[--]
    Resume Time.....[--:--:--]
Restart on AC/Power Failure.....[Enabled]
```

The following table describes the parameters in this screen.

Parameter	Description	Option
Power management mode	Allows you to reduce power consumption. When this parameter is set to Enabled, you can configure the IDE hard disk and system timers. Setting it to Disabled deactivates the power-management feature and its timers	**Enabled** Disabled
IDE hard disk standby timer	Allows the hard disk to enter standby mode after inactivity of 1 to 15 minutes, depending on your setting. When you access the hard disk again, allow 3 to 5 seconds (depending on the hard disk) for the disk to return to normal speed. Set this parameter to OFF if your hard disk does not support this function	**Off** 1 minute 15 minutes

Parameter	Description	Option
System sleep timer	This parameter sets the system to the lowest power-saving mode after a specified period of inactivity. Any keyboard or mouse action or any activity detected from the IRQ channels resumes system operation	**Off** On
Sleep mode	Lets you specify the power-saving mode that the system will enter after a specified period of inactivity. This parameter becomes configurable only if the System Sleep Timer is on. Any keyboard o mouse action, or any enabled monitored activities occurring through the IRQ channels resume system operation	**Standby** Suspend
Power switch < 4 sec.	When set to Power Off, the system automatically turns off when the power switch is pressed for less than 4 seconds. When set to Suspend, the system enters the suspend mode when the power switch is pressed for less than 4 seconds	**Power off** Suspend
System wake-up event	The system wake-up event allows the system to resume operation when the modem ring indicator is enabled	
Modem ring indicator	When Enabled, any fax/modem activity wakes up the system from suspend mode	**Enabled** Disabled
PCI power management	Enables or disabled the PCI power managment function	**Enabled** Disabled
RTC alarm	Allows you to set a certain time on a certain day to wake-up your system from suspend mode	**Disabled** Enabled
Resume day	If RTC alarm is enabled, the system will resume operation on the day indicated here	User input
Resume time	If RTC alarm is enabled, the system will resume operation at the time indicated here	User input

Parameter	Description	Option
Restart on AC/ Power failure	When power failure occurs and this setting is enabled, the system will be turned on, when the power comes back, if the system was on. When power failure occurs and this setting is disabled, the system remains off when the power comes back, even if the system was on before power failure occurs	**Enabled** Disabled

Boot options

This option allows you to specify your preferred settings for bootup.

The following screen appears if you select Boot Options from the main menu:

Boot Options

```
Boot Sequence
    1st [Floppy Disk A:]
    2nd [Hard Disk C:]
    3rd [IDE CD-ROM]

Fast Boot.....[Auto]
Silent Boot.....[Enabled]
Num Lock After Boot.....[Enabled]
Memory Test.....[Disabled]
Release All Blocked Memory.....[Disabled]
*Configuration Table.....[Enabled]
*POST Error Stop.....[Enabled]

*Single Processor MP Table.....[Enabled]
*MP Table Version.....[v1.4]
```

Note: A parameter with an asterisk (*) mark indicates that the parameter appears only when you are in the Advanced Level. See “Entering Setup” on page 52 for how to view the advanced level.

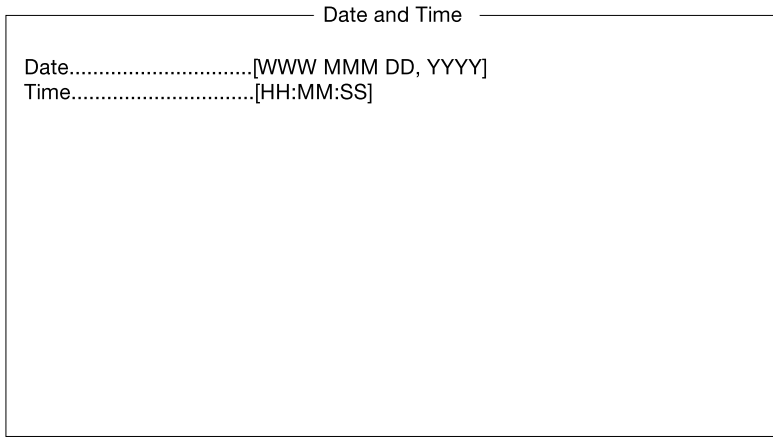
The following table describes the parameters in this screen. Settings in **boldface** are the default and suggested parameter settings.

Parameter	Description	Option
Boot Sequence	This parameter allows you to specify the boot search sequence during POST. **1st**. The system checks this drive first. **2nd**. The system then checks this drive if it can not boot from the 1st specified drive. **3rd**. If the 1st and 2nd searches fail then it boots from this drive. BIOS will display an error message if the drive(s specified is not bootable	
Fast boot	Allows the system to boot faster by skipping some POST routines	Disabled **Auto**
Silent boot	Enables or disables the Silent Boot function. When set to Enabled, BIOS is in graphical mode and displays only an identification logo during POST and while booting. After booting the screen displays the operating system prompt (such as DOS) or logo (such as Windows 95). If any error occurs while booting, the system automatically switches to the text mode. Even if your setting is Enabled, you may also switch to the text mode while booting by pressing the Delete key when you see the "Press DELETE key to enter setup" message on the screen. When set to Disabled, BIOS is in the conventional text mode where you see the system initialization details on the screen	Enabled **Disabled**
Num lock after boot	Allows you to activate the Num Lock function upon booting	Enabled **Disabled**
Memory test	When set to Enabled, this parameter allows the system to perform a RAM test during the POST routine. When set to Disabled, the system detects only the memory size and bypasses the test routine	Enabled **Disabled**

Parameter	Description	Option
Release all blocked memory	When set to Enabled, this parameter allows the system to bypass testing the defective memory banks detected earlier	**Disabled** Enabled
Configuration table	Displays preboot system configuration table when enabled	**Enabled** Disabled
POST Error Stop	When enabled, if the POST finds an error, it will stop and the user has to press F1 to continue. I disabled, even when the POST finds an error, it will not stop	**Enabled** o Disabled
Single Processor MP Table	Enabling this parameter allows BIOS to create a multiprocessor (MP) table for Windows NT use. In a single-processor system running Windows NT, you may disable this parameter to enhance system performance. If you install another processor for a dual (or multiprocessor) system, enable this parameter and then reinstall Windows NT. In cases when this parameter is enabled before installing Windows NT in a single-processor system, you may upgrade to a multiprocessor system without reinstalling Windows NT	**Enabled** o Disabled
MP Table Version	This parameter shows the multiprocessor specification compliance version. The default setting is V1.4. If you install an older operating system, particularly SCO UNIX V3.2.x.x or earlier, set this parameter to V1.1	**V1.4** or V1.1

Date and time

The real-time clock keeps the system date and time. After setting the date and time, you do not need to enter them every time you turn on the system. As long as the internal battery remains good (approximately seven years) and connected, the clock continues to keep the date and time accurately even when the power is off.

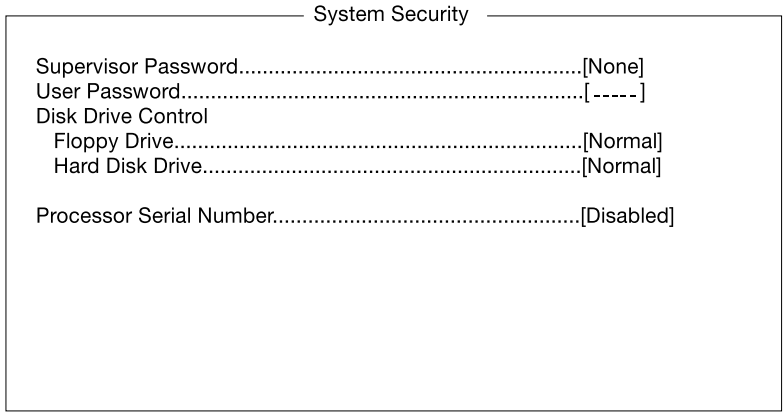


Parameter	Description
Date	Set the date following the weekday-month-day-year format. Valid values for weekday, month, day, and year are: Weekday: Sun, Mon, Tue, Wed, Thu, Fri, Sat Month: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec Day: 1 to 31 Year: 1980 to 2079
Time	Set the time following the hour-minute-second format. Valid values for hour, minute, and second are: Hour: 00 to 23 Minute: 00 to 59 Second: 00 to 59

System security

The Setup program has a number of security features to prevent unauthorized access to the system and its data.

The following screen appears when you select System Security from the main menu:



Parameter	Description	Option
Supervisor Password	Prevents unauthorized access to the BIOS utility. The Preset setting allows you to set a Supervisor password	**None** Present
User Password	Secures your system against unauthorized use. Once you set this password, you have to type it whenever you boot the system. User password is available only when a supervisor password is set. The Preset settings allows you to set a user password	**None** Present

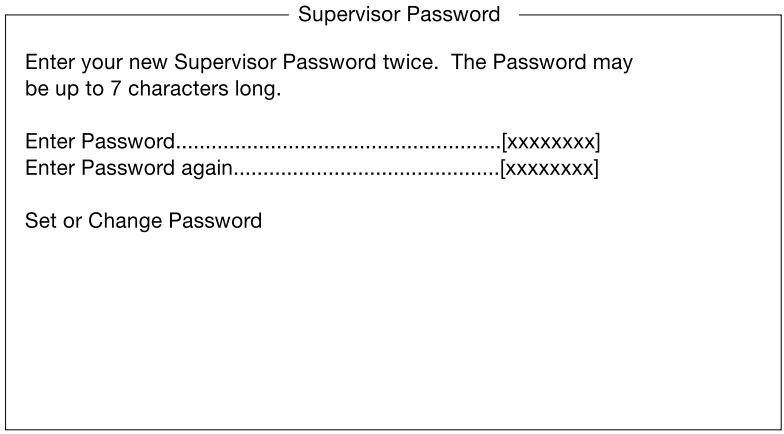
Parameter	Description	Option
Disk Drive Control	The disk drive control features enable or disable the read/write functions of disk drives. These features can also control the diskette drive boot function to prevent loading operating systems or other programs from a certain drive while the other drives remain operational	
Floppy Drive	Sets the control level of the floppy drive	Normal Write Protect All Sectors Write Protect Boot Sectors Disabled
Hard Disk Drive	Sets the controller of the IDE drive	Normal Write Protect All Sectors Write Protect Boot Sectors Disabled
Processor Serial Number	The Pentium III processor incorporates an individual serial number in each chip that can identify individual CPUs. When **Enabled**, CPUs can be identified by processor serial number. Disable this parameter to deactivate this feature.	**Disabled** Enabled

Supervisor password

Setting and changing the password

To set or change a supervisor password:

1. Enable the Supervisor Password parameter in the System Security menu b pressing the Up or Down arrow key to select Present. The Supervisor Password window appears:



2. Type a password. The password may consist of up to seven characters.

Note: Be very careful when typing your password because the actual characters do not appear on the screen.

3. Press the Enter key. Retype the password to verify your first entry then press Enter.
4. Highlight the “Set or Change Password” option and press the Enter key.
5. Press the Esc key to return to the System Security screen.
6. Press the Esc key to exit Setup. The Exit Setup screen appears.
7. Choose “Yes” to save your settings and exit Setup. Your password will be saved to CMOS.

Removing a password

To remove your supervisor password:

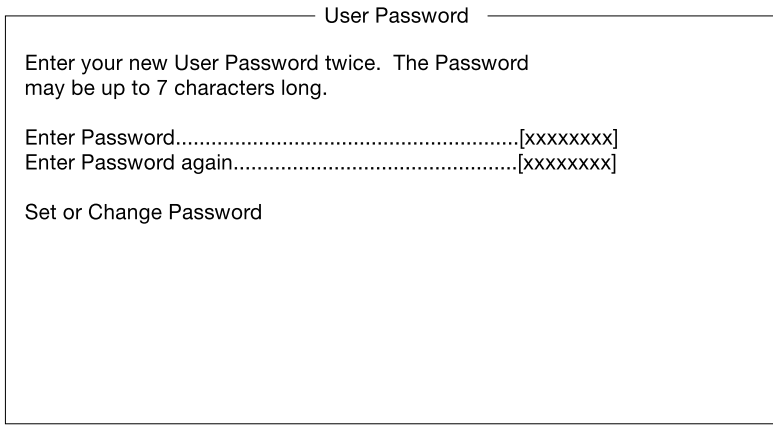
1. Disable the Supervisor Password parameter in the System Security menu by pressing the up or down arrow key to select None.
2. Press the Esc key to return to the System Security menu and then press the Esc key again to exit Setup. The Exit Setup screen appears:
3. Choose Yes to save your settings and exit Setup. Your previous password will be removed from CMOS.

User Password

Setting and changing the password

To set or change a user password:

1. Enable the User Password parameter in the System Security menu by pressing the Up or Down arrow key to select Present. The User Password window appears:



2. Type a password. The password may consist of up to seven characters.
3. Press the Enter key. Retype the password to verify your first entry then press Enter.
4. Highlight the “Set or Change Password” option and press the Enter key.
5. Press the Esc key to return to the System Security screen.

6. Press the Esc key to exit Setup. The Exit Setup screen appears.
7. Choose “Yes” to save your settings and exit Setup. Your password will be saved to CMOS.

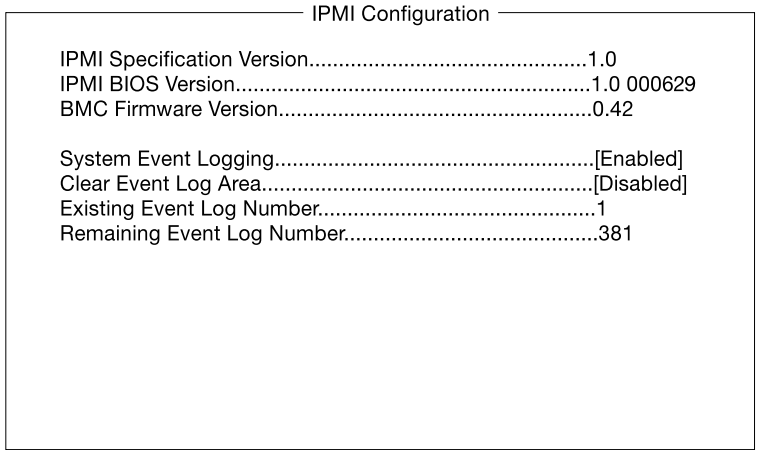
Removing a Password

To remove your user password:

1. Disable the User Password parameter in the System Security menu by pressing the Up or Down arrow key to select None.
2. Press the Esc key to return to the System Security menu and then press the Esc key again to exit Setup. The Exit Setup screen appears.
3. Choose Yes to save your settings and exit Setup. Your previous password will be removed from CMOS.

IPMI (Intelligent Platform Management Interface) configuration

The system event log enables you to record and monitor events that occur in your system like system temperature changes, fan stops, and others. This feature also allows you to specify the appropriate settings for your system's event handling.

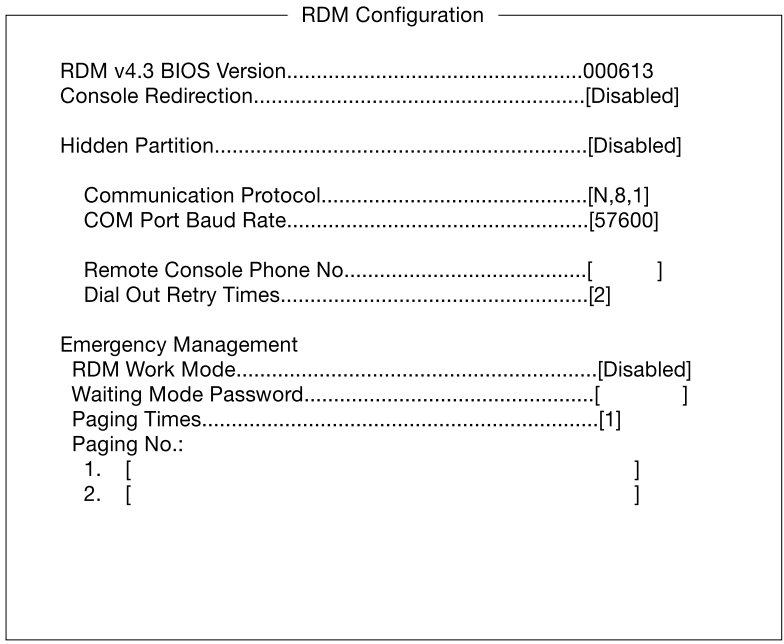


The following table describes the parameters in the IPMI configuration screen.

Parameter	Description	Option
IPMI specification version	Specifies the version of Intelligent Platform Management Interface (IPMI)	
IPMI BIOS version	Shows the version of IPMI BIOS	
BMC firmware version	Specifies the version of BaseBoard Management Controller (BMC) Firmware.	
System Event logging	Enables or disables the event logging function of your system	**Enabled** Disabled

Parameter	Description	Option
Clear event log area	Clears the event log whenever the event log area is full	**Disabled** Enabled
Existing event log number	Number of events currently located in the event log area	
Remaining event log number	Number of spaces that are still available for logging system events	
View event logs	Opens the system event log file for viewing	
Event control		
BIOS POST	BIOS checks the bad processors and memory modules during POST. When this parameter is Enabled, BIOS will stop POST operation whenever it finds a bad processor or memory. Otherwise, if Disabled the system will continue running.	**Enabled** Disabled
Memory ECC	ECC or error correcting code tests the accuracy of data as it passes in and out of memory. This parameter enables or disables the monitoring of this function.	**Enabled** Disabled
PCI devices	PCI or Peripheral Component Interconnect is a 32-bit bus that supports a 64-bit extension for ne processors, such as the Pentium. It can run at clock speeds of 33 or 66 MHz. This paramete monitors the activity of this bus when set to enabled.	**Enabled** Disabled

RDM (Remote Diagnostic Manager) configuration



The following table describes the parameters in the console redirection screen.

Parameter	Description	Option
RDM 4.3 BIOS version	Shows the version number of the RDM BIOS	

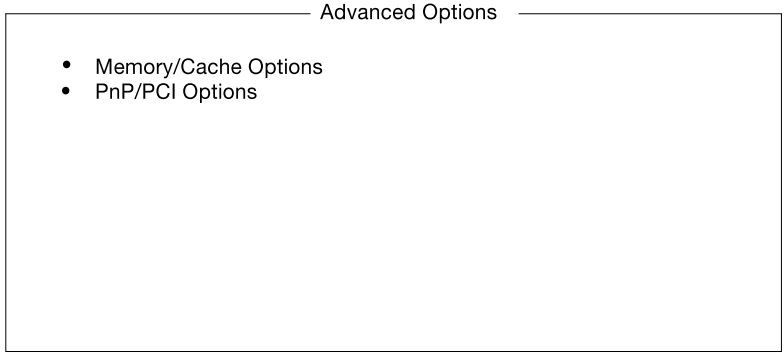
Parameter	Description	Option
Console redirection	This parameter lets you enable or disable the connection to the RDM manager station. If enabled and conditions are met, the RDM enabled server automatically dials the RDM manage station using the phone number specified in the Remote Console Phone No. parameter when the server reboots. Once the connection is established, both the RDM server and RDM manager station display the same screen which enables the RDM manager station to function the same as the server console. Setting this to Disabled deactivates the RDM manager station	Disabled Enabled
Hidden partition	If you want the hidden partition to become accessible, set this parameter to Enabled. When enabled, the server boots to the hidden partition	Disabled Enabled
Communication protocol	This parameter specifies the parity, stop bits, and data length for the COM port to be used for the RDM connection. This is fixed at **N**(none), 8, 1 setting and is non-configurable	**N**, 8, or 1
COM port baud rate	This parameter lets you set the transfer rate of the COM for the RDM connection. The parameter setting depends on your modem specification; therefore, before you change the setting of this parameter, check your modem user guide	9600 57600
Remote console phone no.	This parameter allows you to set the phone number of the RDM manager station that the RDM module must dial once RDM is activated and the Remote Console is enabled. To set, simply highlight the parameter and enter the Remote Console phone number. If the remote console phone number is using X line, then you must enter six commas (,) after the phone number and before the extension number, if any. When entering the extension number, we recommend that you insert a comma after each number. The commas specify delay. If this parameter is left blank, the Remote Console calling function is disregarded.	User input

Parameter	Description	Option
Dial out retry times	This parameter lets you specify the maximum number of times the RDM server must retry to connect to the RDM manager station once the server fails and RDM is activated. If the serve has completed the specified number of tries and the connection still fails, the server bypasses RDM and goes into normal mode.	2 4 8 Infinite
Emergency management		
RDM work mode	When detecting system failure, the RDM module will take some actions according to the mode. 1. Waiting: Page and wait for the RDM Station to call in 2. Reboot: Page, then reboot 3. Disabled: No action **Note:** If Waiting is selected, the password must be set to at least three characters	Disabled Waiting Reboot
Waiting mode password	Prevents unauthorized access to the server	User input
Paging times	Allows you to set the number of times that the RDM module must dial when the server fails or hangs	**1**, 2, 4, or
Paging No.	Allows you to set the pager number that the RD module must dial when the server fails or hangs	User input

Advanced options

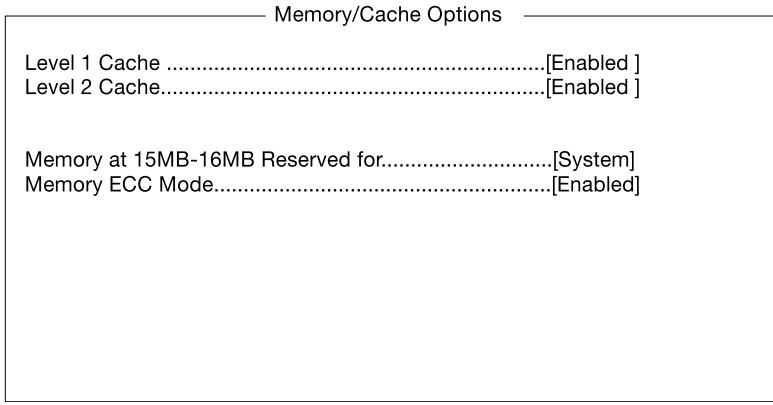
Note: To avoid damaging the system, do not change any settings in the Advanced Options if you are not a qualified technician

The following screen shows the Advanced Options parameters:



Memory/Cache options

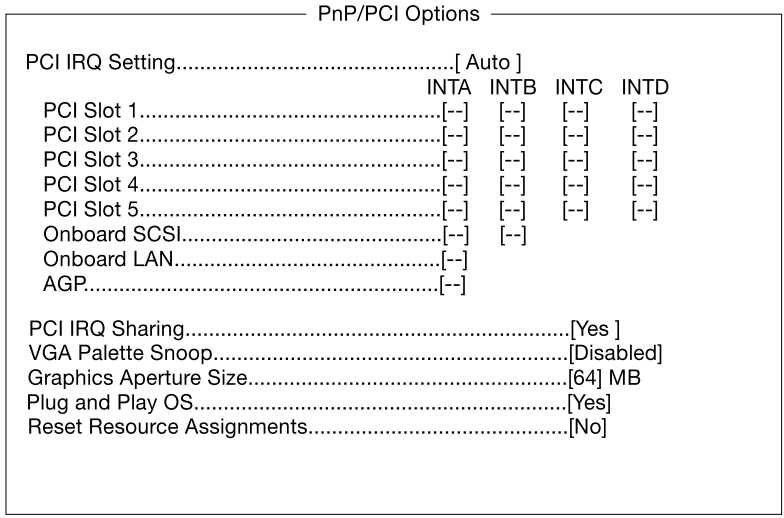
Memory/Cache Options allows you to configure the advanced system memory functions.



Parameter	Description	Option
Level 1 cache	Enables or disables the first-level or internal memory, that is, the memory integrated into the CPU	**Enabled** Disabled
Level 2 cache	Enables or disables the second-level cache memory which is incorporated in the CPU module	**Enabled** Disabled
Memory at 15MB-16MB reserved for	To prevent memory address conflicts between the system and expansion boards, reserve this memory range for the use of either the system or an expansion board	**System** Expansion board
Memory ECC mode	Enable or disable the ECC (error checking and correction) feature. The ECC feature enables BIOS to detect and correct data errors. Disable this parameter if you want to disregard the function.	**Enabled** or Disabled

PnP/PCI options

PnP/PCI Options allows you to specify the settings for your PCI devices. Selecting this option displays the following screen:



Parameter	Description	Option
PCI IRQ setting	Select Auto to let BIOS automatically configure the plug-and-play (PnP) devices installed on your system; Otherwise, select Manual **Note:** Refer to your manual for technical information about the PCI card	**Auto** Manual
PCI slots 1 to 5	When you set the PCI IRQ Setting parameter to Auto, these parameters specify the auto-assigned interrupt for each of the PCI devices. If you set the PCI IRQ Setting parameter to Manual, you need to specify the interrupt that you want to assign fo each PCI device installed in your system	User input
Onboard SCSI	Allows you to manually assign the interrupt for the onboard SCSI when the PCI IRQ Setting parameter is set to Manual. This parameter is grayed and not user-configurable when the PCI IRQ Setting is set to Auto	User input

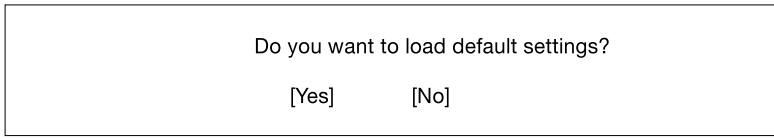
Parameter	Description	Option
Onboard LAN	When you set the PCI IRQ Setting parameter to Auto, this parameter specifies the auto-assigned interrupt for the onboard LAN. If you set the PCI IRQ Setting parameter to Manual, you need to specify the interrupt that you want to assign fo the onboard LAN installed in your system	User input
PCI IRQ sharing	Setting this parameter to Yes allows you to assign the same IRQ to two different devices. To disable the feature, select No. **Note:** If there are no IRQs available to assign for the remaining device function, we recommend that you enable this parameter	**Yes** No
VGA palette snoop	This parameter permits you to use the palette snooping feature if you installed more than one VGA card in the system. The VGA palette snoop function allows the control palette register (CPR) to manage and update the VGA RAMDAC (Digital Analog Converter, a color data storage) of each VGA card installed in the system. The snooping process lets the CPR send a signal to all the VGA cards so that they can update their individual RAMDACs. The signal goes through the cards continuously until all RAMDAC data has been updated. This allows the display of multiple images on the screen. **Note:** Some VGA cards have required settings fo this feature. Check your VGA card manual before setting this parameter	**Disabled** Enabled
Plug and play OS	When this parameter is set to Yes, BIOS initializes only PnP boot devices such as SCSI cards. When set to No, BIOS initializes all PnP boot and non-boot devices such as sound cards. **Note:** Set this parameter to Yes only if your operating system is Windows 95/98 or Windows 2000	**Yes** No

Parameter	Description	Option
Reset resource assignments	Set this parameter to Yes to avoid IRQ conflicts when installing non-PnP or PnP ISA cards. This clears all resource assignments and allows BIOS to reassign resources to all installed PnP devices the next time the system boots. After clearing the resource data, the parameter resets to No	**No** Yes

Load default settings

Use this option to load the default settings for the optimized system configuration. When you load the default settings, some of the parameters are grayed-out with their fixed settings. These grayed parameters are not user-configurable.

The following dialog box appears when you select Load Default Settings from the main menu:



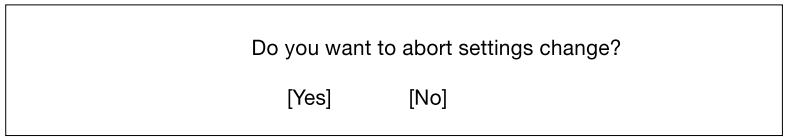
Select Yes to load the default settings.

Select No to ignore the message and return to the BIOS utility.

Abort settings change

Use this option to disregard your changes to the BIOS and reload your previous settings.

The following dialog box appears when you select Abort Settings Change from the main menu:



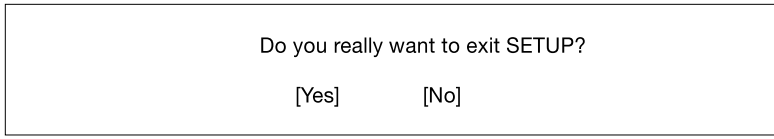
Select Yes to disregard your changes and reload your previous settings. After reload, the main menu appears on the screen.

Select No to ignore the message and return to the BIOS utility.

Exit Setup

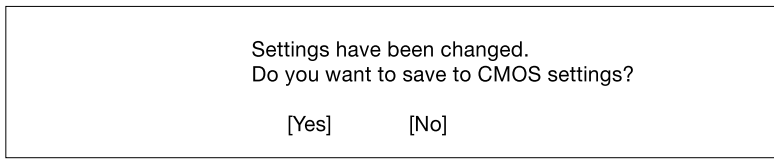
Examine the system configuration values. When you are satisfied that all the values are correct, write them down. Store the recorded values in a safe place. In the future, if the battery loses power or the CMOS chip is damaged, you will know what values to enter when you rerun Setup.

Press the ESC key to leave Setup. The following dialog box appears:



Use the arrow keys to select your response. Press the Enter key.

If you made any changes to the Setup utility, the dialog box below is displayed.



Use the arrow keys to select your response. Select Yes to save the changes in CMOS. Select No to retain the previous configuration values. Press the Enter key to exit.

Chapter 5

SCSI*Select* Utility

Overview

The SCSI*Select* utility allows you to change SCSI controller settings without opening the computer or changing jumpers.

Default Values

The following table lists the settings you can change with the SCSI*Select* utility and the default value for each setting. Some settings apply globally to the SCSI controller and all SCSI devices on the bus; other settings apply individually to each device on the bus.

Global Settings for SCSI Controller and All Devices	**Default Value**
Host Adapter SCSI ID	7
SCSI Parity Checking	Enabled
Host Adapter SCSI Termination	Enabled
Boot Channel/ Boot SCSI I/O	A First/0 (zero)
Host Adapter BIOS[1]	Enabled
Sync Transfer Rate (MB/sec)	160
Support Removable Disks Under BIOS as Fixed Disks	Boot only

BIOS Support for Bootable CD-ROM	Enabled
BIO	
Extended BIOS Translation for DOS Drives > 1 Gbyte	Enabled[2]
Display <Ctrl-A> Message During BIOS Initialization	Enabled
BIOS Support for Bootable CD-ROM	Enabled
BIOS Support for Int13 Extensions	Enabled
Individual Settings for Each SCSI Device	**Default Value**
Initiate Wide Negotiation	Yes
Maximum Sync Transfer Rate	160 MBytes/sec.
Enable Disconnection	Yes
Send Start Unit Command[1]	Yes
Initiate Wide Negotiation	Yes

[1] Settings are valid only if host adapter BIOS is enabled.

[2] Do not change this setting from the default.

The Altos 600 Series system is equipped with a dual SCSI channel controller that enhances your system's performance and flexibility.

When to Use the SCSI*Select* Utility

Use the SCSI*Select* utility if you need to:

- Change any of the default values listed in the settings table
- Check and/or change SCSI device settings that may conflict with those of other devices (e.g., SCSI ID)
- Perform low-level formatting on new SCSI disk devices

Running the SCSI*Select* Utility

To start SCSI*Select*, press **Ctrl+A** when the following is displayed during power-up or reset:

Press <Ctrl> <A> for SCSI*Select*™ Utility!

This message appears after BIOS and POST information displays, and after the banner listing the Adaptec AIC-7899 version number.

SCSI*Select* Utility Options

When the SCSI*Select* utility detects the AIC 7899 SCSI controller in your computer, it displays an Options menu.

In the Options menu, use the ↑ and ↓ keys and the **Enter** key to make selections in the SCSI*Select* utility. Press **Esc** at any time to return to the previous menu.

*You can press **F5** to toggle the display between color and monochrome modes. (This feature may not work on all monitors.)*

Configure/View Host Adapter Settings Menu

The Configure/View Host Adapter Settings menu lists three settings under SCSI Bus Interface Definitions and three additional options. Advanced users can access Boot Device Options, SCSI Device Configuration, and Advanced Configuration Options.

Use the cursor (↑ ↓) to move to your selection. Press **Enter** to display a pop-up menu of choices or to make selections. Press **Esc** at any time to return to the previous menu.

The default values for the AIC 7899 SCSI Bus Interface Definitions are:

SCSI Bus Interface Definitions	Default Value
Host Adapter SCSI ID	7
SCSI Parity Checking	Enabled
Host Adapter SCSI Termination	Enabled

Host Adapter SCSI ID

This option allows you to change the host controller SCSI ID. The default setting is SCSI ID 7. (We recommend that you not change this setting.) Some operating system software will not run unless the SCSI controller ID is set at 7.

Each SCSI device on the SCSI bus, including the SCSI controller, must be set to a unique SCSI ID. The SCSI ID serves two purposes: it uniquely identifies each SCSI device on the bus, and it determines the device's priority on the bus during the Arbitration phase. The Arbitration phase determines which device controls the bus when two or more devices request use of it.

SCSI Parity Checking

Select this option to enable or disable SCSI Parity Checking on the SCSI controller. The default setting is **Enabled**.

The SCSI controller always checks parity when reading from the SCSI bus to verify the correct transmission of data from your SCSI devices. You should disable SCSI Parity Checking if any attached SCSI devices do not support SCSI parity. (Most currently available SCSI devices do support SCSI parity.)

Host Adapter SCSI Termination

This option allows you to configure host controller SCSI termination

Boot Device Options

This option shows the target ID of the device you are booting from. The default setting is **0** (zero). We recommend that you not change this setting. Some operating systems will not run unless the boot device is set at zero.

The default values for the AIC 7899 SCSI Boot Device Options are:

SCSI Boot Device Options	Default Value
Boot Channel	A First
Boot SCSI ID	0
Boot LUN Number	0

SCSI Device Configuration

This option allows you to configure certain parameters of each SCSI device on the SCSI bus. The SCSI Device Configuration screen shows a column of information for each SCSI ID, even if some SCSI IDs are not assigned to a device.To configure a specific SCSI device, you need to know which SCSI ID it uses. See *SCSI Disk Utilities* later in this section to learn how to determine which SCSI ID is used by which device.

The default values for the AIC 7899 SCSI Device Configuration are:

SCSI Device Configuration	Default Value
Sync Transfer Rate (MB/Sec)	160
Initiate Wide Negotiation	Yes
Enable Disconnection	Yes
Send Start Unit Command	Yes
Enable Write-back Cache	N/A
BIOS Multiple LUN Support	No
Include in BIOS Scan	Yes

Sync Transfer Rate

This option determines the maximum synchronous data transfer rate that the SCSI controller can support. The SCSI controller supports rates up to the UltraWide SCSI maximum of 160.0 MBytes/sec. The default value is **160**.

Initiate Wide Negotiation

This option allows communication between all devices (lower 8-bit or upper 8-bit) on the wide (16-bit) SCSI bus. When set to **yes**, each device can connect on the bus. When set to **no** (disabled), communication can only occur on the lower 8-bits of the 16-bit SCSI bus. The default setting is **yes**.

Enable Disconnection

This option determines whether the SCSI controller allows a SCSI device to disconnect from the SCSI bus (sometimes called Disconnect/Reconnect). Disconnect/Reconnect allows the SCSI controller to perform other operations on the SCSI bus while the SCSI device is temporarily disconnected.

When set to **yes**, the SCSI device may disconnect from the SCSI bus. The SCSI device, however, may choose not to disconnect, even if permitted by the SCSI controller (this can usually be configured on the SCSI device). When set to **No**, the SCSI device is not allowed to disconnect from the SCSI bus. The default setting is Y**es**.

You should leave Enable Disconnection set to **yes** if two or more SCSI devices are connected to the SCSI controller. This optimizes SCSI bus performance. If only one SCSI device is connected to the SCSI controller, set Enable Disconnection to **no** to achieve slightly better performance.

Send Start Unit Command

This option, which is supported by some SCSI devices, determines whether the Start Unit Command (SCSI command 1B) is sent to the SCSI device (most devices do not require this). Enabling this option reduces the load on your computer's power supply by allowing the SCSI controller to power-up SCSI devices one-at-a-time when you boot your computer. Otherwise, the devices all power-up at the same time. Most devices require you to set a jumper before they can respond to this command.

When set to **yes**, the Start Unit Command is sent to the SCSI device during bootup. When set to **no**, each SCSI device powers-up in its normal fashion. The default setting is **no**.

The Send Start Unit Command setting is valid only if the host adapter BIOS is enabled.

If this option is enabled for more than one SCSI device, the Start Unit Command is sent first to the device with the lowest SCSI ID. When this device responds to the

SCSI controller, the Start Unit Command is sent to the next highest SCSI ID with a setting of **yes**. The process continues until all supported devices respond to the SCSI controller.

*If many drives are set to **yes** for Send Start Unit Command, the boot time varies depending on how long it takes each drive to spin up*

Advanced Configuration Options

When you select Advanced Configuration Options, the Advanced Configuration Options a screen appears.

The default values for the AIC 7899 SCSI Advanced Configuration are:

Advanced Configuration	**Default Value**
Reset SCSI Bus at IC Initialization	Enabled
Display Ctrl A Message During BIOS Initialization	Enabled
Extended BIOS Translation for DOS Drivers > 1 G byte	Enabled
Verbose/Silent Mode	Verbose
Host Adapter BIOS	Enabled
Support Removable Disks Under BIOS as Fixed Disks	Enabled
BIOS Support for Bootable CD-ROM	Enabled
BIOS Support for Int13 Extensions	Enabled

Do not change the default values in this screen unless absolutely necessary.

Host Adapter BIOS

This option enables or disables the SCSI controller BIOS. The default setting is **Enabled**.

The SCSI controller BIOS must be enabled if you want the computer to boot from a SCSI hard disk drive connected to the SCSI controller. Several SCSI*Select* options cannot be used unless the SCSI controller BIOS is enabled.

Support Removable Disks Under BIOS as Fixed Disks

This option allows you to control which removable-media drives are supported by the SCSI controller BIOS. It is only valid if the SCSI controller BIOS is enabled. The default setting is **Boot Only**. The following choices are available:

- **Boot Only** – Only the removable-media drive designated as the boot device is treated as a hard disk drive.
- **All Disks** – All removable-media drives supported by the BIOS are treated as hard disk drives.
- **Disabled** – No removable-media drives are treated as hard disk drives. In this situation, software drivers are needed because the drives are not controlled by the BIOS.

*Support for removable-media drives means only that the SCSI controller BIOS **allows** you to use a removable-media drive as if it were a hard disk drive; it does **not** mean you can remove the disk media during operation. If a removable-media SCSI device is controlled by the SCSI controller BIOS, **do not** remove the media while the drive is powered-on or you may lose data! If you want to be able to remove media while the power is on, install the removable-media device driver and set this option to **Disabled**.*

BIOS Support for Bootable CD-ROM

When this option is enabled, a bootable CD-ROM device may be used to directly load an operating system. The default setting is **Enabled**.

BIOS Support for Int13 Extensions

This option allows access to attached SCSI devices through BIOS Int13 functions. The default setting is **Enabled**.

SCSI Disk Utilities

When you select SCSI Disk Utilities from the Options menu the SCSI*Select* utility scans the SCSI bus and lists all SCSI devices installed on the SCSI bus. You can easily determine from this screen which SCSI ID is assigned to each device on the SCSI bus.

SCSI Device Configuration	Default Value
Sync Transfer Rate (MB/Sec)	160
Initiate Wide Negotiation	Yes
Enable Disconnection	Yes
Send Start Unit Command	Yes
Enable Write-back Cache	N/A
BIOS Multiple LUN Support	No
Include in BIOS Scan	Yes

When you highlight a disk device by moving to it with the cursor keys and press **Enter**, a small menu window appears. You then select **Format Disk** or **Verify Media** from this menu.

Use the cursor keys (↑ ↓) to move between options. Press **Enter** to display a pop-up menu with a selection of values. Use the cursor keys (↑ ↓) to select a value, and press **Enter** to make your -selection.

*Use SCSI Disk Utilities to check the hard disk drive firmware revision. (Select **SCSI Disk Utilities** from the Configure/View Host Adapter Settings screen. Use the arrow keys to highlight a disk device, then press **Enter** to display the firmware revision.)*

Format Disk

The **Format Disk** utility performs a low-level format on disk devices.

A low-level format destroys all data on the drive. Be sure to back up your data before performing this operation. You **cannot** abort a low-level format once it is started

Most SCSI disk devices are preformatted and do not need to be formatted again. The Adaptec **Format Disk** utility is compatible with the vast majority of SCSI disk drives. Run it on hard disk drives or removable-media drives that were previously used with a non-Adaptec SCSI controller.

Verify Disk Media

The **Verify Disk Media** utility scans the selected device's media for defects. If the utility finds bad blocks, it prompts you to reassign them; if you select **yes**, those blocks will no longer be used.

*Note: You can press **Esc** at any time to abort the **Verify Disk Media** utility.*

Configuring Multiple SCSI Controllers

Note: The AHA-3950 U2B SCSI controller is used as an example in the following discussion.

To use multiple PCI SCSI controllers, do the following:

1. Install the boot SCSI controller in the lowest PCI **Device** number. The **Device** number is determined by the slot number on the PCI bus.

   To find out the **Device** number of the AHA-3950 U2B SCSI controller(s), run the SCSI*Select* utility (by pressing the key combination **Ctrl + A** when it is displayed onscreen at bootup). Look on the first screen of SCSI*Select* in the upper right hand corner for **Bus:Device xx:xxh** (given in hex).

   If the **Device** number is high, move the AHA-3950 U2B SCSI controller to a PCI slot at the other end of the motherboard and rerun SCSI*Select* to see if the number is lower

   This step is a recommended solution for most PCI motherboards. You can also simply switch the AHA-3950 U2B SCSI controller into another PCI slot if the boot order is not what is desired.

2. If you are booting from the AHA-3950 U2B and using ISA/EISA-based host adapters as secondary devices, you must disable the BIOS on all ISA/EISA-based SCSI controllers.

3. If you are booting from ISA/EISA-based SCSI controllers and using the AHA-3950 U2B as a secondary device, see your ISA/EISA-based SCSI controller documentation to ensure the SCSI controller is at the lowest BIOS base address. ISA/EISA-based SCSI controllers which have their BIOS enabled boot before the AHA-3950 U2B.

SCSI Troubleshooting Checklist

The AIC 7899 SCSI controller has been tested for compatibility with a wide range of SCSI devices. Most problems that occur during installation result from errors in preparing and connecting devices on the SCSI bus.

Answer these questions first if a problem occurs during installation:

1. Are the power cables and SCSI interface cables properly connected?

   Connect internal SCSI devices to your computer's power supply. Connect the power cables of external SCSI devices to a grounded line power outlet. Follow the instructions in the computer and SCSI device documentation.

2. Is pin-1 orientation maintained throughout the SCSI bus?

3. Are the PCI bus and slot parameters set correctly in your computer's **Setup** program?

   The PCI bus is designed to assign IRQ, port address, and BIOS address settings automatically to the SCSI controller. But you may need to assign some of these values manually in the **Setup** program.

4. Is each SCSI device, including the SCSI controller, set to a unique SCSI ID?

5. Is SCSI termination set correctly?

If your problem is still not resolved, continue with the next section.

BIOS Startup Messages

After you have configured your SCSI controller, the SCSI controller BIOS displays a message when you boot your computer. Normally, this message lists the SCSI ID, manufacturer, model number and other information for each SCSI device that the BIOS detects.

If an initialization failure occurs, however, the SCSI controller BIOS displays a specific error message followed by a *BIOS Installation Failure* message. Here are some of these error messages and their meaning:

Warning!!!A drive larger than 1 gigabyte has been detected with 64 head / 32 sector partitioning. This drive is not compatible with the 255 head / 63 sector translation which has been enabled on this adapter. Data could be corrupted. Please check your system setup. Press any key to continue.

This message occurs only if Extended BIOS Translation is enabled in the SCSI*Select* utility. It means that the BIOS detected a large capacity drive with invalid partition information in the master boot record.

If you are using a drive larger than 1 GByte under MS-DOS 5.0 or above and this message appears, do the following:

1. Run the SCSI*Select* utility and set Extended BIOS Translation to **Disabled**. (See Extended BIOS Translation for DOS Drives > 1 GByte in the Advanced Configuration Options section).
2. Exit from the SCSI*Select* utility and back up the data on the disk drive, if you want to save it.
3. Perform a SCSI low-level format with the **Format Disk** utility under SCSI Disk Utilities in the SCSI*Select* utility.

   All data on the target drive will be lost when you run the **Format Disk** utility. Back up your data before you run it! You **cannot** abort a low-level format once it is started.

4. In the SCSI*Select* Advanced Configuration Options menu, set Extended BIOS -Translation to **Enabled**.
5. Partition the drive again.
6. Restore data to the drive, if necessary.

Device connected, but not ready

This message appears if the SCSI controller receives no answer when it requests data from an installed SCSI device. The SCSI controller skips this device and moves on to the next device on the bus.

Do the following if you see this message when you request data from a SCSI drive:

1. Run the SCSI*Select* utility and access SCSI Device Configuration. Locate the host controller's SCSI ID and set Send Start Unit Command to **yes**.
2. Exit the SCSI*Select* utility and request data from the drive again.
3. If the message still appears, follow the drive manufacturer's instructions to make sure the drive is set to spin-up when the power is switched ON.

Start unit request failed

The BIOS was unable to send a Start Unit Command to the device. Run the SCSI*Select* utility and disable Send Start Unit Command for the device.

Time-out failure during SCSI Inquiry command!

Time-out failure during SCSI Test Unit Ready command!

Time-out failure during Start Unit command!

An unexpected time-out occurred. Check SCSI bus termination. Try disconnecting the SCSI peripheral cables from the SCSI controller and then starting the computer. If the computer successfully restarts, check SCSI bus termination and cable connections. One of the devices on the SCSI bus may be defective.

Disk Drive Configuration Problems

This section describes situations that may occur if your computer has multiple disk drives, including combinations of standard disk drives and SCSI disk drives.

Note: "Standard disk drive" means a disk drive attached to the computer through a standard ISA/EISA, non-SCSI disk controller—for example, an IDE drive.

Standard hard disk drives can be set to the *installed* or *not installed* state by the **Setup** program supplied with the host computer. The **Setup** program allows you to select the number of standard hard disks that are recognized by the computer, regardless of whether they are physically installed. SCSI drives are not controlled through the **Setup** program.

If both SCSI and non-SCSI disk drives are installed, then the non-SCSI disk drive is *always* the boot device.

Booting the Computer from a SCSI Driv

1. Be sure that the SCSI boot drive is set to SCSI ID 0 and that there are no SCSI ID conflicts. Check the drive installation manual for information about setting the SCSI ID for that device. You can use the SCSI*Select* utility to determine the SCSI IDs of devices on the SCSI bus. See the section "Host Adapter SCSI ID".
2. Be sure that parity checking is consistently enabled or disabled on all devices on the SCSI bus. See the section "SCSI Parity Checking".
3. Try enabling Include in BIOS Scan in the SCSI Device Configuration option of the SCSI*Select* utility. See the section "SCSI Device Configuration".
4. Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. Doing this ensures that the new initial values are loaded.

5. Be sure that the SCSI bus is properly terminated. See the section “Setting SCSI Bus Termination”.
6. Be sure that the intended boot disk has an active partition and has been formatted.
7. Check cable connections and pin-1 orientation.

Using a Standard Drive as C and a SCSI Drive as D

1. Use the **Setup** program to map the second standard hard disk (if one exists) out of the configuration.
2. Disable Onboard SCSI Boot in Setup.
3. Be sure that the SCSI drive to be used as drive D is set to SCSI ID 0. Check the drive manual for information on setting the SCSI ID for that device. You can also use the SCSI*Select* utility to determine the SCSI addresses of peripherals on the SCSI bus. See the section “Host Adapter SCSI ID”.
4. Be sure that SCSI parity checking is consistently enabled or disabled on all devices on the SCSI bus.
5. Verify that the SCSI controller and the SCSI devices are properly configured and installed.
6. Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. Doing this ensures that the new initial values are loaded.
7. Be sure that the SCSI bus is properly terminated.
8. Be sure that the disk is formatted and has a partition.
9. Check cable connections and pin-1 orientation.

Using a SCSI Drive as C and Another SCSI Drive as D

1. Be sure that the SCSI drive to be used as drive C is set to SCSI ID 0. Check the disk drive manual for information on setting the SCSI ID for that device. You can also use the SCSI*Select* utility to determine the SCSI addresses of peripherals on the SCSI bus.See the section “Host Adapter SCSI ID”.
2. Set the SCSI drive to be used as drive D to SCSI ID 1. Check the drive manual for information on setting the SCSI ID for that device.
3. Try enabling **Include in BIOS Scan** in the SCSI Device Configuration option of the SCSI*Select* utility. See the section “SCSI Device Configuration”.

4. Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. This ensures that the ne initial values are loaded.
5. Be sure that SCSI parity checking is consistently enabled or disabled on all devices on the SCSI bus.
6. Verify that the SCSI controllers and the SCSI devices are properly configured and installed.
7. Be sure that the SCSI bus is properly terminated.
8. Be sure that, if necessary, the disk has a partition and is formatted.

Computer Hangs, or SCSI Controller Cannot Always Find the Drives

1. Check SCSI parity for consistency and be sure SCSI termination is set correctly.
2. Check cable length and integrity. Check pin-1 orientation.
3. If the SCSI controller LED remains on when the computer hangs, the host adapter may be interfering with your computer's operation. It may be installed in a motherboard slot that does not support First-Party DMA (i.e., Bus Master) data transfers.

Index