Bull ESCALA E Series

Operator's Guide

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Operator's Guide

Hardware

December 1997

Suggestions and criticisms concerning the form, content, and presentation of this book are invited. A form is provided at the end of this book for this purpose.

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Communication Statements

The following statements apply to this product. The statements for other products intended for use with this product appears in their accompanying manuals.

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider or the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device 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.

EC Council Directive

This product is in conformity with the protection requirements of the following EC Council Directives:

- 89/336/EEC and 92/31/EEC (for the electromagnetic compatibility)
- 73/23/EEC (for the low voltage)
- 93/68/EEC (for CE marking).

Neither the provider nor the manufacturer can accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards not supplied by the manufacturer.

International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

Canadian Department of Communications Compliance Statement

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

VCCI Statement

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

The following is the translation of the VCCI Japanese statement in the box above.

This is a Class A product based on the standard of the Voluntary Control Council for Interferences by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

Safety Notices

Definitions of Safety Notices

A *danger* notice indicates the presence of a hazard that has the potential of causing death or serious personal injury.

A *caution* notice indicates the presence of a hazard that has the potential of causing moderate or minor personal injury.

A *warning* notice indicates an action that could cause damage to a program, device, system, or data.

Placement of Safety Notices Inside This Manual

System safety notices which do not refer to a specific situation are included in these pages. Any specific safety notices are mentioned inside this manual whenever these must be observed during system operating or handling.

IT Power Systems

This equipment has been designed also for connection to IT Power Systems.

Device Disconnection

To remove the primary power from the unit, unplug the "Appliance Coupler" on the rear side.
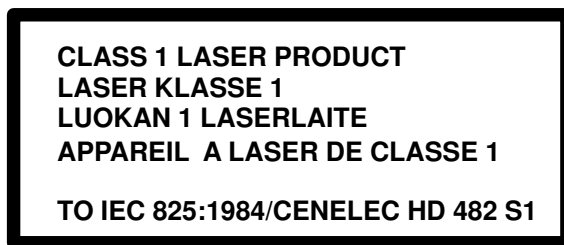
Laser Safety Information

Note: The Optical Link Card (OLC) referred to in this information is part of the Serial Optic Channel Converter assembly.

This system may contain a laser product called the Optical Link Card (OLC). In the U.S., the OLC is certified as a Class 1 laser product that conforms to the requirements contained in the Department of Health and Human Services (DHHS) regulation 21 CFR Subchapter J. Internationally, the OLC is certified as a Class 1 laser product that conforms to the requirements contained in the International Electrotechnical Commission (IEC) standard 825 (1984), the Verband Deutscher Elektrotechniker (VDE) standard 0837 (1986), and the CENELEC (European Committee for Electrotechnical Standardization) Harmonization Document HD 482 S1 (1988). The German testing institute VDE assigned a certificate of conformity to DIN IEC 825/VDE 0837/02.86 and CENELEC HD 482 S1/03.88; the certificate registration number is 3642.

In addition, Statens Provningsanstalt (Swedish National Testing Institute) tested and approved the OLC for use in Sweden as a Class 1 laser product and assigned the approval number SP LA 89:184. The CDRH certification label and the VDE certificate of conformity mark are located on the plastic retainer of the OLC product. The figure shows the system Class 1 information label required by IEC 825.

Class 1 laser products are not considered to be hazardous. The OLC internally contains a gallium aluminum arsenide (GaAlAs) semiconductor laser diode emitting in the wavelength range of 770 to 800 nanometers. This laser diode is a Class 3B laser that is rated at 5.0 milliwatts. The design of the OLC is such that access to laser radiation above a Class 1 level during operation, user maintenance, or service conditions is prevented.

CLASS 1 LASER PRODUCT
LASER KLASSE 1
LUOKAN 1 LASERLAITE
APPAREIL A LASER DE CLASSE 1

TO IEC 825:1984/CENELEC HD 482 S1

The Optical Link Card (OLC) must only be connected to another OLC or a compatible laser product. Any compatible laser product must contain the open fiber link detection and laser control safety system used in OLC. This is a requirement for correct operation of the optical link. In addition, the OLC product is designed and certified for use in applications with point-to-point optical links only. Using this product in any other type of optical link configuration (for example, links containing optical splitters or star couplers) is considered as not using the product correctly and may require that the user certify the laser product again for conformance to the laser safety regulations.

About This Guide

This guide contains information on the system and its operability, together with the description of the main operations the operator may execute.
This guide is also available in an online version.

Audience

This guide is addressed to the system operator.

How to Use This Guide

This guide is used by the operator to:

- Operate the system unit controls and features

- Operate and maintain the system devices

- Startup and shutdown the system.

Related Publications

- *Hardware Tasks: Where Do I Find the Information I Need?*, is a hardware task roadmap which helps you find the task related information inside the documentation kit.
  This booklet is available on paper only.

- *Setting Up the System*, contains information about system setup, system startup and explains what to do when the system arrives.
  This guide is available both on paper and in an online version.

- *Upgrading the System*, contains information about system upgrading in terms of memory, CPU's, controllers and devices. It is addressed to trained customers and service personnel.
  This guide is available both on paper and in an online version.

- *Maintenance and Service Guide*, provides the description of the base unit hardware components and the instructions for their installation and/or replacement. SCSI cables description and connection is also included. A section is dedicated to the maintenance tools provided with the system, such as offline tests, how to update system configuration parameters, for both the base unit and the disk expansion unit.
  This guide is addressed to people trained to perform service tasks on the system and is available on paper only.

- *AIX Installation Guide*, provides instructions for the installation of the operating system.
  This guide is available both on paper and in an online version.

- *Disks and Tapes Configuration Information*, describes the setting of addresses and switches for both disk and tape drives. It also includes information on CD-ROM drives setting.
  This guide is available on paper only.

In addition, if at least one disk expansion unit is connected to the base unit, you can find the relevant information in the disk expansion unit specific documentation.

- *Disk Expansion Unit Quick Set Up*, contains the connection procedure to the base unit and the hardware procedure for a quick set up of the disk expansion unit.
  This leaflet is available on paper only.

- *Using the Disk Expansion Unit*, contains information about the disk expansion unit operability, features and configuration rules.
  This guide is available on paper only.

- *Disk Expansion Unit Service Guide*, provides the description of the disk expansion unit hardware components, instructions for their installation and/or replacement and the SCSI cables description and connections. This guide is addressed to people trained to perform service tasks on the system.
  This guide is available on paper only.

Chapter 1. Description of the System
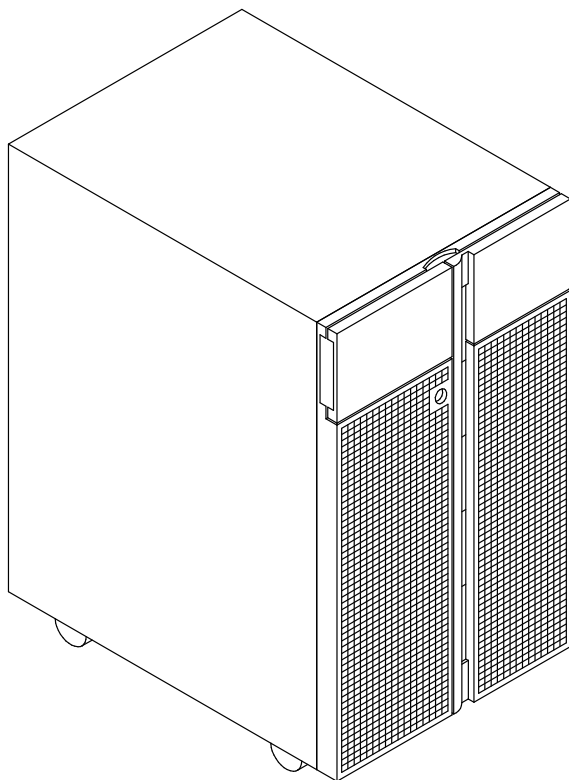
This section contains information to help you become familiar with the system.

❏ **System Presentation**

❏ **Operator Panel**

System Presentation

Your new system is a powerful PowerPC computer, easy to use and easy to maintain. It is a floor-standing unit, that has the following dimensions:

- Height 24.8" (630 mm) off the floor

- Width 13.9" (353 mm)

- Depth 19.7" (500 mm).

Front View of the Base Unit

The system operator's controls are on the front side of the unit, protected by two shutters.

The first shutter covers the operator panel and floppy drive area (left side of the unit), the second one covers the media and disk devices area (right side of the unit).
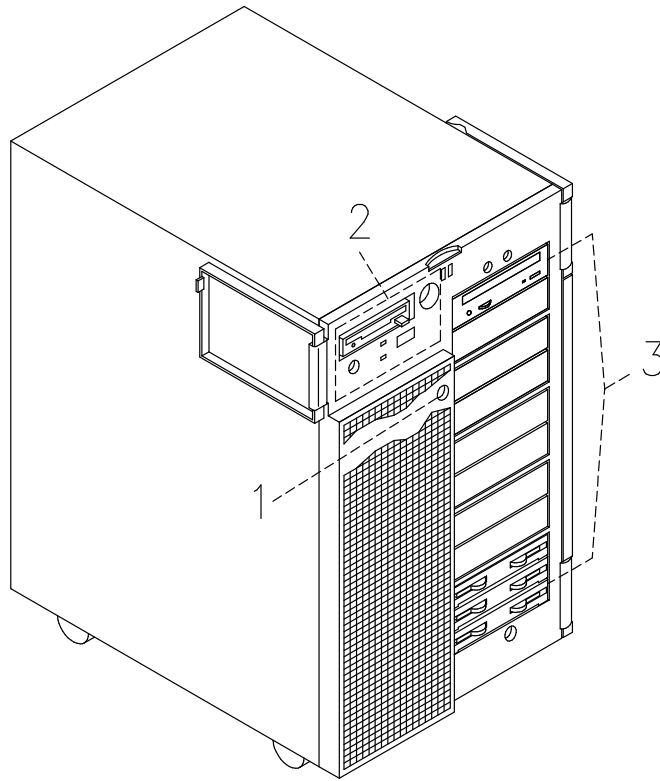
1 **Device Shutter Key Lock:** the key lock used to lock the device shutter

2 **Operator Panel:** the operator's control panel

3 **Media and Disk Devices Area:** the area where the operator can access these devices.

Rear View of the Base Unit

Connectors:

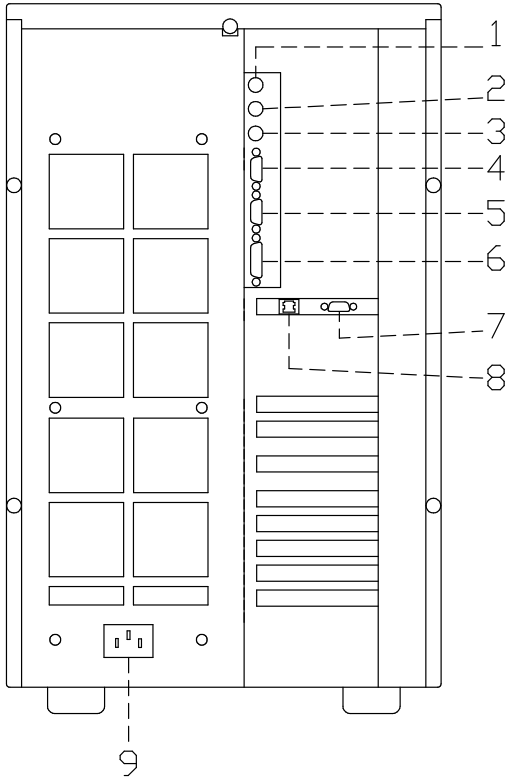|	
☐1	**RS-485:** for expansion unit connection
☐2	**Mouse:** 6-pin mini-DIN female
☐3	**Keyboard:** 6-pin mini-DIN female
☐4	**RS-232 serial port:** 9-pin male, COM2
☐5	**RS-232 serial port:** 9-pin male, COM1
☐6	**Parallel port:** 25-pin female
☐7	**Video graphics:** SVGA 15-pin female
☐8	**LAN 10 M-bit:** RJ-45
☐9	**Power cord receptacle**

Operator Panel

The operator panel is installed in the front of the unit.
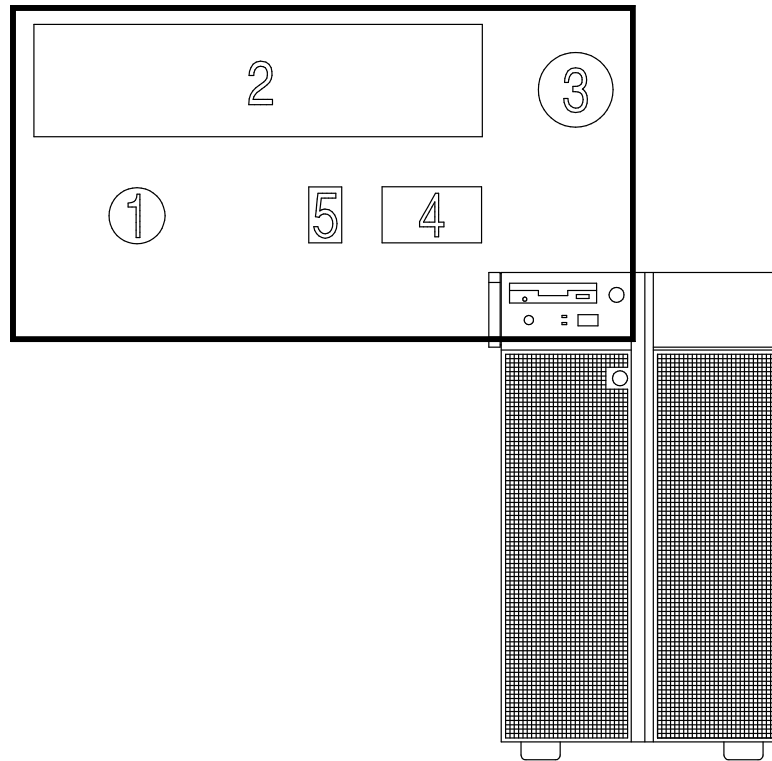
Operator Controls:

⒈ **Reset Button**

⒉ **3.5-Inch Diskette Drive**

⒊ **Key Mode Switch**

⒋ **3 x 1 Digit LED Hexadecimal Display**

⒌ **2 LEDs**

Reset Button

The Reset Button is located on the operator panel and is used to reset the system. It is active when the Key Mode Switch is in the Normal or in the Service position.

It is disabled when the Key Mode Switch is in the Secure and Power Off position.
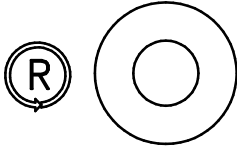
Warning: Pressing the Reset Button can cause data to be damaged or lost if the operating system is still running.

The Reset Button is used to:

- Reset the system unit (double click) and cause a boot when the Key Mode Switch is set to the Normal or to the Service position

- Start the dump program (single click) when a manual dump is needed

- Start the system unit without executing the extended initialization tests (single click just before moving the Key Mode Switch from the Power Off position to the Normal position or Service position).

Key Mode Switch

The Key Mode Switch provides four logical functions, which are enabled only when AC power is present in the base unit.

The four logical functions are:

⊚   **Power Off**

🔧   **Service**

OK   **Normal**

🔒   **Secure**

The key can be removed only in the Power Off and Secure positions. The key is locked in the Normal and Service positions for safety reasons.
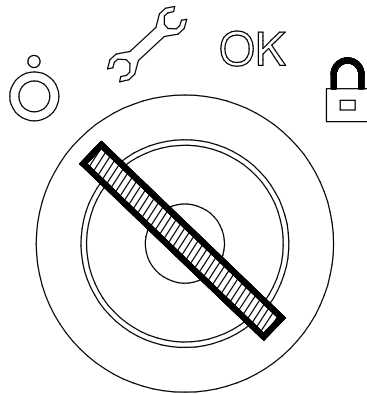
The following table summarizes the available operations for each Key Mode Switch position:

Note: During Remote Maintenance sessions the position of the key is not meaningful. All operations listed in the table can be performed.

Operation	Key Mode Switch Position			
	Power Off	**Service**	**Normal**	**Secure**
Use of the BUMP Console	Yes	Yes	Yes	Yes
Acces Open Firmware	No	Yes[1]	Yes[1]	No
Take a Dump	No	Yes	No	No
Reset	No	Yes	Yes	No
Do an Automatic Boot	No	Yes[2]	Yes	No
Do an Interactive Boot	No	Yes	Yes	No
Run a Remote Maintenance session[3]	Yes	Yes	Yes	Yes

Notes:

1. During Power On phase only.

2. Entering the diagnostic menu under Operating System.

3. The position of the key is not meaningful during Remote Maintenance session.

Power Off Position
This is the standby position. The system is not working but it is possible to call the standby menu for offline maintenance purposes.

Service Position
The Service position can be used either to do an automatic or an interactive power on, depending on the value of the Open Firmware `auto-boot?` flag (`true` by default, it performs an automatic boot). When the system is powered on with the key in this position, the operating system diagnostic mode is entered. Moreover, this position is used for some offline maintenance activities (e.g. offline test running).

OK **Normal Position**
The Normal position is for normal system operations. It can be used either to do an automatic or an interactive power on, depending on the value of the Open Firmware `auto-boot?` flag (`true` by default, it performs an automatic boot).

Secure Position
The Secure position prevents the system from booting. If the system is already booted, this position does not lock the system console or block system network communication.
When the operating system is up, turning the key to the Secure position disables the Reset Button. With the Key Mode Switch in this position, a passerby cannot accidentally press the Reset Button and cause a loss of data.

Note: The Key Mode Switch functions of the Disk Expansion Unit are described in the *Using the Disk Expansion Unit* manual.

3 x 1 Digit LED Hexadecimal Display

The operator panel contains the 3x1 Digit LED Hexadecimal Display, which visualizes the status of the system (standby, testing, error, etc.).

If you want to have a description of the hexadecimal display codes, refer to **Hexadecimal Display Tracing and Error Codes**, in the *Maintenance and Service Guide*. This guide is available at your supplier.

In case you are not maintaining the system on your own and encounter an error (a flashing code on the display), follow the instructions described in **Problem Solving**, on page 3-9.
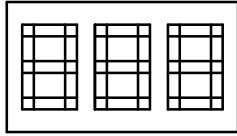
What the hexadecimal display shows and the way it shows it (blinking, steady), depends on the system status:

- **Tracing**:

  – During the Power On phases the hexadecimal display shows, without blinking, the Test Code of the test under execution.

- **Fault Detection**:

  – In case of fault detected by the system, the code displayed on the hexadecimal display either flashes or remains steady on the display for more than two minutes.

- **Power On phase completed correctly**:

  – The hexadecimal display is cleared.

2 LEDs

The system unit provides two LEDs which are located on the operator panel.

YELLOW

GREEN

Status Light States

- The **Yellow LED**, when lit, indicates that the Power-on Self-tests have been completed without errors and that the system is working under control of the operating system

- The **Green LED**, when lit, indicates that all voltages in the power supply are present and within specified limits and that all fans are running.

Chapter 2. Using Devices and Tools

This section gives a brief description of the supported devices and tools and explains how to work with them. For details on device characteristics, such as capacity, speed, transfer rate, please refer to the *Disks and Tapes Configuration Information* manual, delivered with the system.

❏ **Using the 3.5-Inch Diskette Drive**

❏ **Using the CD-ROM Drive**

❏ **Using the QIC Tape Drive**

❏ **Using the 8 mm Tape Drive**

❏ **Using the 4 mm Tape Drive**

❏ **Using Hard Disk Drives**

❏ **Using the Keyboard**

❏ **Using the Mouse**

Using the 3.5-Inch Diskette Drive

Functions
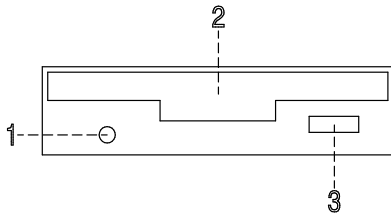
⊡ **In-Use Light**   Lights when the system is accessing the drive.

⊡ **Diskette Slot**   Where the diskette is inserted.

⊡ **Unload Button**   Used to unload the diskette from the drive.

Note: Do not stop the system unit or remove a diskette when the in-use light is on, or you may lose some of the data on the diskette.

Loading and Unloading the 3.5-Inch Diskette

To load a diskette into the drive, first insert the diskette in the diskette drive with the labeled metal shutter facing upward and with the bevelled corner on your right and away from you.

Push the diskette into the drive until you hear a click. The click indicates that the diskette is securely positioned in the drive.

To unload the diskette, push the unload button. The diskette ejects partially so that you can pull it out.

Types of 3.5-Inch Diskettes

**Warning:** Diskette drives and diskettes must be the correct type to store data successfully. If you use the wrong diskette in your 3.5-inch diskette drive, the data on the diskette could be destroyed.

The diskette drive uses the following 3.5-inch diskettes:

- 1.0M-Byte capacity (stores approximately 720K Bytes of data)
- 2.0M-Byte capacity (stores approximately 1.44M Bytes of data).
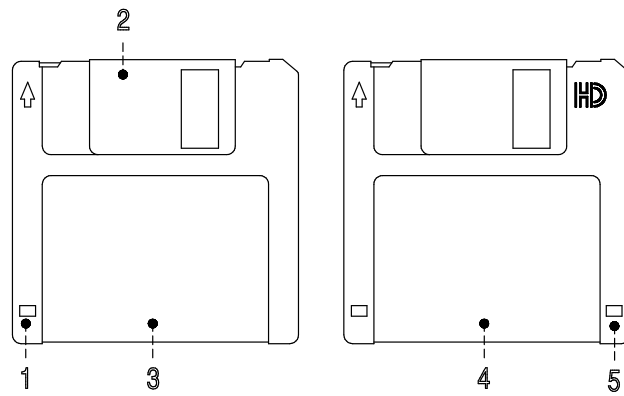
1 **Write-Protect Slot**

2 **Sliding Metal Shutter**

3 **1.0M-Byte diskette**

4 **2.0M-Byte diskette**

5 **Rectangular Cutout** (only for 2.0M-Byte diskette)

Setting the Write-Protect Tab

Write-protecting diskettes is necessary to avoid data loss.

When diskettes are write-protected, you can read data from the diskettes, but you cannot write data on them.

There is a write-protect tab on the 3.5-inch diskette.

To locate the write-protect tab, turn the diskette over with the label facing down.

To prevent writing on a diskette, slide down the write-protect tab to open the protect slot.

To allow writing on a diskette, slide up the write-protect tab to cover the protect slot.

Handling 3.5-Inch Diskettes

Be careful with your diskettes. Because each piece of information occupies such a small area on the diskette, small scratches, dust, food, or tobacco particles can make the information unusable. Be sure to remember the following:

- Do not touch the recording surfaces

- Keep diskettes away from magnets and magnetic field sources such as telephones, dictation equipment and electronic calculators

- Keep diskettes away from extreme heat and cold. The recommended temperature range is 10°C to 60°C (50°F to 140°F)

- Proper care helps prevent loss of data

- Make backup copies of your diskettes regularly.

Using the CD-ROM Drive

The internal CD-ROM drive is a read-only optical compact disk drive.

Functions

| 1   2   3   4   5   6 |
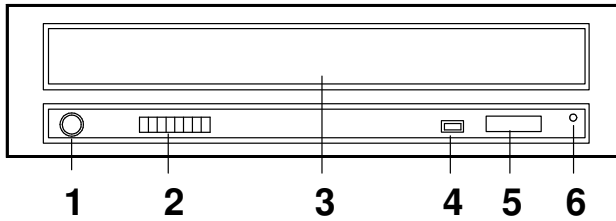
1. **Headphone Socket**
   Used for connect headphones to your CD-ROM drive.

2. **Volume Control**
   Used to control the level of the audio signal from the headphone socket.

3. **Drive Door**
   Prevents dust from entering into the drive.

4. **Busy Light**
   Used to indicate the condition of the drive.

5. **Unload Button**
   Used to open the disk tray.

6. **Emergency Eject**
   Used to manually open the disk tray.

When the CD-ROM is set to on, the status light indicates one of the several conditions. The status light states and the respective conditions of the CD-ROM are as follows:

LED off	Drive idle or no disk.
LED on	During date access and during data transfer.
LED continuously on	Media problem.
Blinks slow	Disk is probably dirty, so clean the disk.
Blinks normal	During audio play back.
Blinks fast	After drive door is closed.

Loading the CD-ROM

1. Press the unload button to open the disk tray. The disk tray slides out far enough to put in the disk. The disk holders are used to secure the disk into the tray.

   Notes:

   a. If the CD-ROM is used with the disk not set properly, the disk and the laser lens may be damaged. Be sure to set the disk properly and use the device correctly.

   b. Depending on the CD-ROM device model you are using, you may have either three or four disk holders. The procedures used to load or unload the disk are the same.

   c. Always handle the disk by the edge to avoid fingerprints and scratches that could affect the readability of the data stored on the disk.

2. Put the disk on the tray.

3. Gently push the tray. The tray slides into the drive and the disk is ready for reading.

Unloading the CD-ROM

Note: Always handle the disk by the edge to avoid fingerprints and scratches that could affect the readability of the data stored on the disk.

1. Push the unload button to open the disk tray.

2. Release the projections and gently pull the disk out of the holder.

3. Slide the disk upward and store it in its protective case.

Handling CD-ROMs

When you are using the CD-ROM, the following recommendations should be considered:

- Keep CD-ROMs in their protective case when they are not in use

- Do not touch the surface of a CD-ROM, handle a CD-ROM by its edges only

- Do not store CD-ROMs in dusty, smoky, or salty areas

- Do not subject CD-ROMs to sudden temperature changes, which may cause condensation to damage them

- Do not expose CD-ROMs to heat, direct sunlight, strong magnetism or corrosive gas.

Cleaning the CD-ROM Drive

The drive optics can be cleaned using an audio CD lens cleaner.

Using the QIC Tape Drive

The QIC tape drive is a high capacity tape drive. This drive is compatible with existing 1/4-inch streaming tape subsystems, which use the QIC formats (Quarter-Inch Cartridge drive standards).

Functions

The QIC tape drive has two green status lights and one amber status light. The on/off combinations of the status lights indicate the conditions of the QIC tape drive.
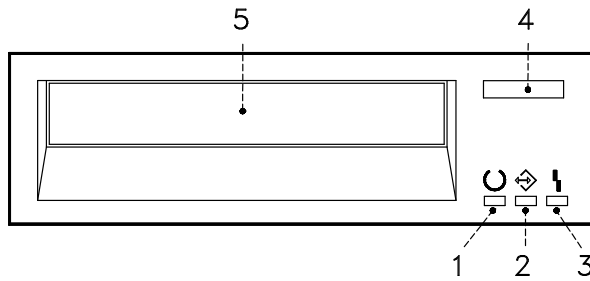
- ☐ **Ready LED (Green)**
- ☐ **Activity LED (Green)**
- ☐ **Error LED (Amber)**
- ☐ **Unload Button**
- ☐ **Drive Door**

Status Lights

The following table explains the meaning of the green and amber status lights.

Ready LED	Activity LED	Error LED	Drive State:
On	On	On	LED-test (2 sec. at Power-on). The LEDs are turned on one-by-one
Flashing	Off	Off	Power-up self-test or diagnostic cartridge activity
Off	Off	Off	Cartridge/tape not loaded
Off	Off	On	Cartridge/tape not loaded, cleaning required
On	Off	Off	Tape loaded, no tape movement
On	Flashing	Off	Tape loaded, tape movement
On	Off	On	Tape loaded, no tape movement, cleaning required
On	Flashing	On	Tape loaded, tape movement, cleaning required
On	Flashing	Off	Tape loading or unloading, or cartridge unloading
On	Flashing	On	Cleaning required
Off	Flashing	On	Cleaning loaded tape
Off	Off	Flashing	Unrecoverable drive failure, cartridge failure or Microcode download failure

Loading the 1/4-Inch Tape Cartridge

Before loading the tape cartridge, make sure the power is on and the write-protect tab on the tape cartridge is properly set. Refer to **Setting the Write-Protect Tab**, below.

Once the cartridge has been inserted, it automatically rewinds to the beginning of the tape.

1. Grasp the edges of the QIC tape cartridge with the write-protect switch at your right side and the window side of the cartridge facing up.

2. Slide the tape cartridge into the opening on the front of the QIC tape drive until the loading mechanism pulls the cartridge into the drive and the drive door closes. The Ready LED will light if the load operation was successful.

The tape takes few seconds to load. When the Ready LED lights, the drive is ready for data operations.

Commands can be entered while the tape is loading. Any commands to the tape drive start running once the tape has finished loading. Commands not requiring the tape cartridge will run immediately.

Unloading the 1/4-Inch Tape Cartridge

Push the unload button. The drive will rewind the tape within the cartridge and eject the cartridge from the drive opening.

The time required for a tape to rewind and unload depends on the position of the tape when the unload button is pushed.

If the tape cartridge cannot unload and has to be removed manually from the drive, contact your Service Representative.

Setting the Write-Protect Tab

Setting the write-protect tab on a tape cartridge is necessary so that information is not accidentally lost. When the write-protect tab of a tape cartridge is set (pointing to SAFE or locked padlock), information can be read from the tape but cannot be written to it.

Use a small screwdriver to turn the arrow to the desired position. The arrow must be pointing to one of the two positions.

Handling QIC Tape Cartridges

Information in this paragraph describes operating and storage conditions including temperature, relative humidity, and maximum wet bulb data.

Warning: The manufacturer has specified a set of temperature and humidity ranges in which the 1/4-inch data cartridge can operate with ease. Only regular cleaning procedures are required when operating the cartridge within this range. The risk of possible data loss is increased if 1/4-inch tape cartridges are operated, stored, or shipped outside the temperature or humidity ranges shown in the following table.

Before using a cartridge, always let it adjust (acclimate) to the operating environment. Do this by placing the cartridge with its container in the operating environment for as long as it has been away from this environment or for 24 hours, whichever is less.

Acclimation is necessary for any data cartridge that has been exposed to a different humidity environment or a temperature change of 11°C (20°F), or more.

- Recommended Operating Environment:
  - Temperature 5°C to 40°C (41°F to 104°F)
  - Relative Humidity 20% to 80% non condensing
  - Wet Bulb 26°C (79°F).
- Recommended Storage Environment:
  - Temperature -30°C to 60°C (-22°F to 140°F)
  - Relative Humidity 5% to 90% non condensing.

Cleaning the QIC Drive

Clean the recording head of the tape drive after the first 2 hours of tape movement when you are using new tape cartridges. If you are using QIC-2GB, QIC-1000 cartridges and the cartridges are not new, clean the recording head after every 8 hours of tape movement.

Use the instructions and materials provided in the cleaning kit to ensure proper operation of the tape drive.

Tape Cartridge Data Efficiency

Note: For maximum efficiency, operate the 1/4-inch tape drive in the streaming mode whenever possible.

The 1/4-inch tape cartridge efficiency is defined as the amount of data that can be stored on the cartridge and the rate at which the data can be read from the tape cartridge. When in use, the tape in the cartridge is moved at a constant speed of 72 inches per second. The speed for the QIC-2GB is 70.9 inches per second.

The following variables affect the amount of data that can be stored on a tape cartridge:

- Streaming mode or non-streaming mode
- Size of the data file
- Number of file marks per file
- Tape length
- Size of post/preamble.

Using the 8 mm Tape Drive

The 8 mm tape drive, is a high capacity tape drive. It is typically used as backup drive.

Functions

The 8 mm tape drive has one amber status light and two green status lights. The on/off combinations of the status lights indicate the conditions of the 8 mm tape drive.
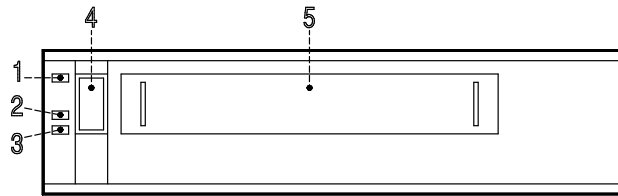
1 **Error LED (Amber)**

2 **SCSI LED (Green)**

3 **Motion LED (Green)**

4 **Unload Button**

5 **Drive Door**

Status Lights

The following table describes various LED combinations that occur during normal tape drive operation.

Error LED	SCSI LED	Motion LED	What Has Occurred:
On	On	On	Power-On Self-Test is running
Flashing [2]	Flashing [1]	Off	Failed Power-On Self-Test
Off	Flashing [1]	Off	Ready (no tape loaded)
Off	Flashing [1]	On	Ready (tape loaded)
Off	Flashing [1]	Flashing [3]	Normal tape motion
Off	Flashing [1]	Flashing [2]	High Speed tape motion
On	Flashing [1]	On	SCSI Bus reset
Flashing [3]	n/a	Off	Error
Flashing [2]	n/a	Flashing [2]	Time to clean
Off	Flashing [1]	Flashing [3]	Cleaning in progress

The LED is flashing:

   (1) irregular

   (2) fast = 4 flashes/second

   (3) slow = 1 flash/second

Note: If a fault or an error condition occurs, first try to recover by pressing the unload button. If the condition continues, call your Service Representative.

Loading the 8 mm Tape Cartridge

Before loading the tape cartridge, make sure the power is on and the write-protect tab on the tape cartridge is properly set. Refer to **Setting the Write-Protect Tab**, below.

1. Grasp the edges of the 8 mm tape cartridge with the write-protect switch towards you and the window side of the cartridge facing up.

2. Slide the tape cartridge into the opening on the front of the 8 mm tape drive until the loading mechanism pulls the cartridge into the drive and the drive door closes. The Motion LED will light if the load operation was successful.

The tape takes about 25 seconds to load. When the Motion LED lights, the drive is ready for data operations.

Commands can be entered while the tape is loading. Any commands to the tape drive start running once the tape has finished loading. Commands not requiring the tape cartridge will run immediately.
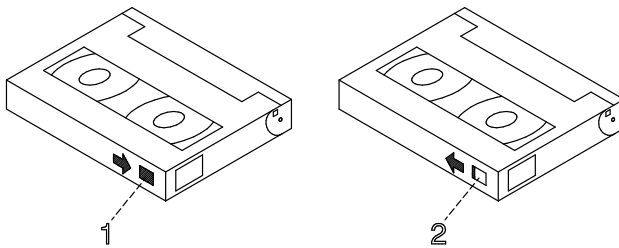
Unloading the 8 mm Tape Cartridge

Push the unload button. The drive will rewind the tape within the cartridge and eject the cartridge from the drive opening.

The time required for a tape to rewind and unload is between 18 seconds and 3 minutes, depending on the position of the tape when the unload button is pushed.

If the tape cartridge cannot unload and has to be removed manually from the drive, contact your Service Representative.

Setting the Write-Protect Tab

The window on the tape cartridge controls write-protection. When the write-protect tab of a tape cartridge is set (window closed), information can be read from the tape, but cannot be written to it. When the write-protect tab of a tape cartridge is not set (window open), information can be both written to and read from the tape. Trying to write to a 8 mm data cartridge with the window closed causes an error.

1 **Window Closed:** Write-Protect Tab Set

2 **Window Open:** Write-Protect Tab Not Set

Handling 8 mm Tapes

When loading a tape in the drive, the cartridge should be removed from the case very close to the front panel of the drive to minimize accumulation of air-born dust and dirt particles. The same process should be followed when removing the tape from the drive.

Do not permit smoking near the tape drive, as smoke particles can cause data errors.

Do not use excessive force when inserting or removing the cartridge from the drive. If it seems to hang up, gently repeat the load or unload process.

If the cartridge is placed inside a briefcase, and kept from moving around, it may be possible to safely transport it through hostile environments.

The case should be carried directly to the storage area and not be exposed to long periods of high or low temperatures.

It must never be left in a car window where sunshine can rapidly heat the air, and never left in a car overnight.

It should be noted that airport-style metal detectors and hand held scanners will not affect the data stored on the 8 mm tape.

- Recommended Operating Environment:

    - Temperature 5°C to 40°C (41°F to 104°F)
    - Relative Humidity 20% to 80% non condensing
    - Wet Bulb to 26°C (79°F).

- Recommended Storage Environment:

    - Temperature -40°C to 60°C (-40°F to 140°F)
    - Relative Humidity 10% to 90% non condensing.

Note: Before using a data cartridge, allow it to acclimate to the operating environment (24 hours or the amount of time it has been exposed to dissimilar conditions).

Cleaning the Tape Path on the 8 mm Tape Drive

Warning: Do not use video cleaning cartridges in the 8 mm tape drive. Video cleaning cartridges can damage the 8 mm tape drive. Some video cleaning cartridges are extremely abrasive. An 8 mm tape drive may be permanently damaged after only a few cleaning operations using an abrasive-type cleaning cartridge.

When the tape drive requires cleaning, the Error and the Motion LEDs flash. You should clean the tape drive as soon as possible after the LEDs begin flashing. Use the **Exabyte Premium 8 mm Cleaning Cartridge** to clean your 8 mm tape drive.

The 8 mm tape path should be cleaned either approximately every 30 hours of tape motion or once a month.

More frequent cleaning may be required if the drive is operated in a dusty environment or in humid conditions. If dust is allowed to accumulate, the drive has to perform more reads and writes. That can cause a data loss. This can be prevented by regularly scheduled cleaning of the drive.

The cleaning cartridge can clean the drive up to 12 times before being discarded. If you attempt to use an 8 mm cleaning cartridge more than 12 times, the tape drive automatically detects the error and ejects the cleaning cartridge with the disturbance status light remaining on.

Before loading the 8 mm cleaning cartridge, make sure the power to the 8 mm tape drive is on.

Archive Life

If proper storage conditions are maintained, quality 8 mm tapes can have a recorded data archive life of over 30 years:

- Use tapes with 4 to 20 passes on them. In the first few passes, new tapes shake off or shed excess magnetic media and binder deposited during the tape manufacturing process, these may result in higher soft error rates during the first few passes

- Pre-condition the tapes:

    – Write/Read tape to measure error statistics (from BOT to EOT)

    – Do this a minimum of 4 passes and a maximum of 20 passes

    – Do this on a known good drive

    – Physically examine the tape pack for correct winding

    – Use only tapes that have been temperature stabilized.

- Maintain constant environment:

    – Best environment is 18°C (65°F) at 40% RH

    – Control environment while transporting tapes

    – Ensure no chemical conditions exist

    – No dust

    – Have positive air pressure.

- Long Term Archiving Conditions:

    – 5°C to 32°C (41°F to 90°F)

    – Relative Humidity 20% to 60% non condensing

    – Wet bulb 26°C (79°F) maximum.

- Local Archiving Conditions Range:

    – 18°C to 40°C (65°F to 104°F)

    – Relative Humidity 40% to 60% non condensing.

- Store on edge in their protective enclosures and do not stack anything on top of them

- Keep the drive clean

- Store data in a streaming (not Start/Stop) mode; run the tape from BOT to EOT at normal speed

- Exercise the tapes once every 12 months by reading the entire tape, to remove any stress which has built up in the tape pack during the storage interval; this interval can be lessened at lower temperature conditions, and should be increased at higher temperature conditions.

Using the 4 mm Tape Drive

The 4 mm tape drive, is a high capacity tape drive. It is typically used as a backup drive.

Functions

The 4 mm tape drive has one green status light and one amber status light. The on/off combinations of the status light indicate the conditions of the 4 mm tape drive.
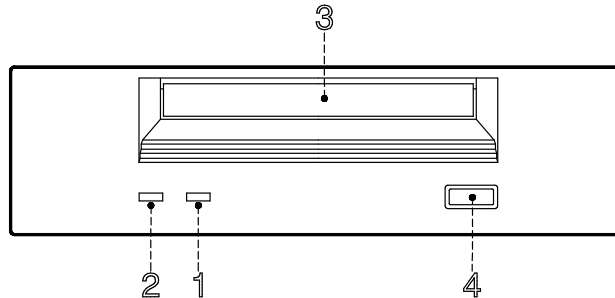
1 **Clean/Attention Light (Amber)**

2 **Tape Light (Green)**

3 **Drive Door**

4 **Unload Button**

Status Lights

Clean/Attention Light (Amber)
Flashes amber to indicate head cleaning is needed or a cartridge is near the end of its life. Steady amber indicates a serious fault.

Tape Light (Green)
Flashes green to show activity (loading, unloading, reading and writing). Steady green means a cartridge is loaded.

The following table explains the meaning of the green and amber status lights.

Green	Amber	Status
Flashing	Off	Load or unload
Fast Flashing	Off	Read or write
On	Off	Cartridge loaded
On, Off, or Flashing	Flashing	Cleaning needed signal
On, Off, or Flashing	On	Fault
Flashing	Off	Power-on (starts with two steady lights)

Loading the 4 mm Tape Cartridge

Before loading the tape cartridge, make sure the power is on and the write-protect tab on the tape cartridge is properly set. Refer to **Setting the Write-Protect Tab**, below.

To load the 4 mm tape cartridge, do the following:

1. Grasp the edges of the 4 mm tape cartridge with the write-protect tab towards you and the window side of the cartridge facing up.

2. Slide the tape cartridge into the opening on the front of the 4 mm tape drive until the loading mechanism pulls the cartridge into the drive and the drive door closes.

The 4 mm tape drive is ready for data operations when the tape cartridge is inserted. After the cartridge is inserted into the tape drive, the tape takes about 15 seconds to load.

Unloading the 4 mm Tape Cartridge

Before performing the unload operation, make sure the power to the 4 mm tape drive is on.

To unload and eject the tape cartridge, press the unload button. The 4 mm tape drive rewinds the tape and then ejects the tape cartridge from the tape drive.

The time required for a tape to rewind and unload is between 10 seconds and 1.5 minutes, depending on the position of the tape when the unload button is pushed.

Setting the Write-Protect Tab

The window on the tape cartridge controls write-protection. When the write-protect tab of a tape cartridge is set (window open), information can be read from the tape, but cannot be written to it. When the write-protect tab of a tape cartridge is not set (window closed), information can be both written to and read from the tape. Trying to write to a 4 mm data cartridge with the window open causes an error.
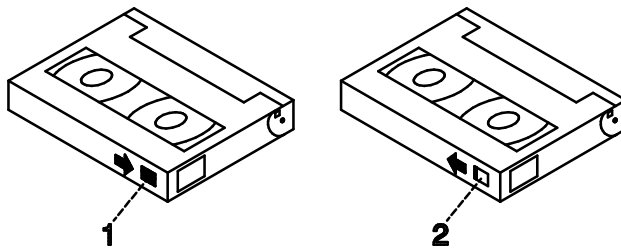
1 **Window Closed:** Write-Protect Tab Not Set

2 **Window Open:** Write-Protect Tab Set

Handling 4 mm Tapes

Information in this section describes operating and storage conditions including temperature, relative humidity, and maximum wet bulb data.

Warning: The manufacturer has specified a set of temperature and humidity ranges in which the 4 mm data cartridge can operate with ease. Only regular cleaning procedures, as described in **Cleaning the Tape Path on the 4 mm Tape Drive**, on page 2-16, are required when operating the cartridge within this range. The risk of possible data loss is increased if 4 mm tape cartridges are operated, stored, or shipped outside the temperature or humidity ranges shown in the following table.

Before using a cartridge, always let it adjust (acclimate) to the operating environment. Do this by placing the cartridge with its container in the operating environment for as long as it has been away from this environment or for 24 hours, whichever is less.

Acclimation is necessary for any data cartridge that has been exposed to a different humidity environment or a temperature change of 11°C (20°F), or more.

- Recommended Operating Environment:
    - Temperature 16°C to 32°C (60°F to 90°F)
    - Relative Humidity 20% to 80% non condensing
    - Wet Bulb to 26°C (79°F).
- Recommended Storage Environment:
    - Temperature 5°C to 32°C (40°F to 90°F)
    - Relative Humidity 20% to 80% non condensing.

Operating in Harsh Environments

The 4 mm tape drive is ideally suited to streaming operations, as opposed to tape movement operations involving multiple stop/starts and random searches. When the tape is used for frequent stop and start operations, streaming movement is beneficial and should be used whenever possible. This can be accomplished by ensuring that any save or restore operation is the only active operation performed by a device connected to this SCSI I/O controller.

Any tape that has been used outside the ranges specified in the previous table for an extended period of time (50 passes in 40 hours of nonstop operation) should not be used as an archival tape. Exposure to the environment will deteriorate the magnetic and physical strength of the tape. Do not store important data on a tape that has been used outside the specified ranges; transfer the data to a new tape for reliable archiving.

Cleaning the Tape Path on the 4 mm Tape Drive

The 4 mm tape path should be cleaned either approximately every 30 hours of tape motion or once a month, whichever occurs first. The 4 mm tape drive monitors the recording quality of the tape cartridge and indicates that the tape path requires cleaning when the clean/attention light (amber) is flashing, see page 2-13.

More frequent cleaning may be required if the drive is operated in a dusty environment or in humid conditions. If the dust is allowed to accumulate, the drive has to perform more reads and writes which can cause data loss. This can be prevented by regularly scheduled cleaning of the drive.

The cleaning cartridge can clean the 4 mm tape drive 50 times before it needs to be discarded. If you attempt to use a 4 mm cleaning cartridge more than 50 times, the tape drive automatically detects the error and ejects the cleaning cartridge with the clean/attention light (amber) remaining on, see page 2-13.

Before loading the cleaning cartridge, make sure the power to the 4 mm tape drive is on.

To load the 4 mm cleaning cartridge, do the following:

1. Grasp the edges of the 4 mm cleaning cartridge with the window side of the cartridge facing up.

2. Slide the cleaning cartridge into the opening on the front of the 4 mm tape drive until the loading mechanism pulls the cartridge into the drive.

After the 4 mm cleaning cartridge has been fully inserted into the 4 mm tape drive, the following cleaning operations are performed automatically:

1. The cleaning tape is loaded into the tape path.

2. The drive is cleaned by moving the cleaning tape forward for approximately 30 seconds.

3. The tape is unloaded and the cleaning cartridge is ejected from the tape drive when the cleaning operation is complete.

4. A successful cleaning operation is indicated when the clean/attention light (amber) goes off, see page 2-13 (if it was activated before the cleaning operation).
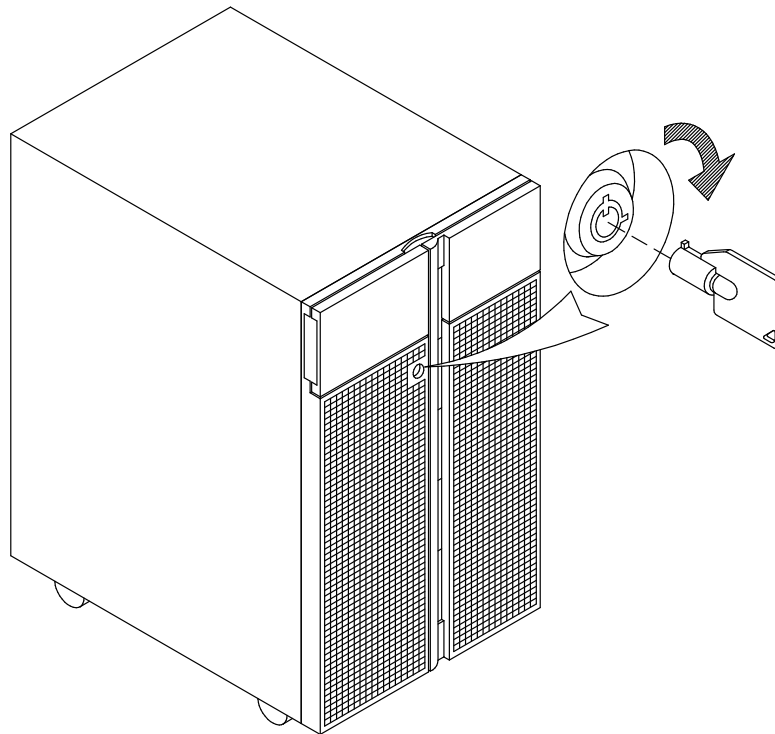
Using Hard Disk Drives

The hard disk drives are located in the device area on the right side of the unit front.

The working status of each hard disk drive installed on your system is given through two LEDs (green and amber lights) that are visible looking at the front of the system.

The meaning of the led status depends on your disk configuration. If the disk belongs to a RAID array, the amber LED light on and steady indicates a fault condition, the green LED light indicates disk activity.

If the disk does not belong to a RAID array, the amber led is not meaningful and the green LED indicates if the disk is powered on (green LED light on and steady) or is powered off (green LED light off).

Open the device shutter by turning the device shutter key to the right, to access the hard disks.

Note: If you need to install or remove the disk devices, refer respectively to **Hard Disk Drive Upgrading** or **Hard Disk Drive Removal**, in the *Upgrading the System* manual.

Using the Keyboard

There are several keyboards available with the system unit. The keyboards have various keys that enter data and control the cursor location.

The keyboards can be engraved for the languages of different countries. National languages can be set through the Open Firmware Graphic Menu. For further information, please refer to **Open Firmware System Menu**, on page 3-6.

The functions of each keyboard depend on the software used. The character sets for the keyboards are explained in your operating system documentation.
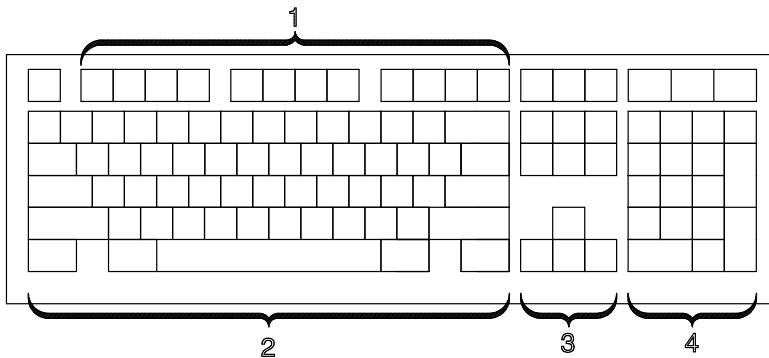
The keyboard is divided into four sections:

1 Function keys
> are multipurpose keys and their function is controlled by the operating system.

2 Typewriter keys
> are similar to a standard typewriter. Their function is controlled by the software.

3 Control keys
> move the cursor on the screen and do programmed control functions. The movement and functions depend upon the application used.

4 Numeric
> keypad is arranged like a calculator to help when typing numbers.

On all of the keyboards, you can adjust the tilt position for typing comfort. To tilt the keyboard, pull out the keyboard legs. The legs will snap into position. To decrease the tilt of the keyboard, rotate the keyboard legs until they snap into the bottom of the keyboard case.

Note: The keyboard plugged into the connector at the rear of the base unit, can be used only with the system graphic monitor.

Using the Mouse

The mouse is a hand-operated locating device. A two or three button mouse is available for use with the system unit.
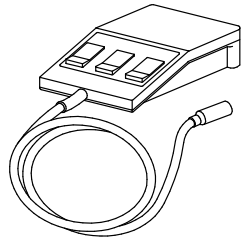
Consult your application publication for the exact use of the mouse.

You can use the mouse to perform such functions as positioning a cursor, selecting items from a menu, or moving around in your document much easier and faster than if you used only the keyboard. The cursor moves exactly as you move the mouse on a flat surface, such as a desktop.

When you move the mouse around on a flat surface the cursor moves on the display screen; the movement changes the position of the cursor.

With the mouse buttons, you can perform functions such as selecting and deselecting options, extending your selection, or choosing a command. The precise functioning of your mouse depends on the software you are using.

Note: The mouse plugged into the connector at the rear of the base unit, can be used only with the system graphic monitor.

Handling the Mouse

For best operation, handle the mouse with care. Incorrect handling can damage the mouse.

- Do not operate the mouse on cloth, unfinished wood, newspaper, or carpet
- Do not drop or hit the mouse
- Do not carry the mouse by holding onto the cable
- Do not expose the mouse to extreme temperatures or direct sunlight
- Do not place the mouse in liquid spills.

Cleaning the Mouse

1. Remove the retaining ring by turning it counterclockwise, in the direction of the arrow.
2. Remove the ball.
3. Inspect the ball for contaminants. Wipe it clean with a dry, lint-free cloth.
4. If the ball is dirty, wash it in warm, soapy water. Rinse and wipe the ball with a lint-free cloth until dry.
5. Inspect the ball cavity in the mouse for foreign materials. If there are any foreign materials, remove them.
6. Replace the ball.
7. Replace the retaining ring on the mouse and align it with the open slots in the ball cavity.
8. Turn the retaining ring clockwise until the open slots are covered and you hear the ring snap into place.

Care of the Mouse

The operating surface for the mouse should be smooth, clean, and flat. For example, you can operate the mouse on the following surfaces:

- Finished wood
- Glass
- Enamel
- Plastic
- Paper (except newspaper)
- Metal.

Rough surfaces collect contaminants that can be transferred to the interior of the mouse by the ball. The surface you use should be free from spills, dirt, dust, lint, wax, eraser dust, and other foreign matter. Rough surfaces can also cause the pads located on the bottom of the mouse to prematurely wear. A deeply pitted surface could cause erratic operation of the mouse.

- Inspect the work surface for spills or other contaminants
- Dust the work surface
- If you are using a paper pad, inspect it for wear and replace it if necessary.

Chapter 3. Maintaining the System

❏ **Starting and Stopping the System**

❏ **Maintaining System Configuration Variables**

❏ **Problem Solving**

Starting and Stopping the System

This section describes the steps for the power on and power off procedures for daily operation of your system.

❏ **Initial Startup**

❏ **Starting the System**

❏ **Logging into the System**

❏ **Stopping the System**

❏ **Rebooting the System**

Initial Startup

If you have just received your system and need to start it up for the first time, please refer to **Starting the System for the First Time**, in the *Setting Up the System* manual.
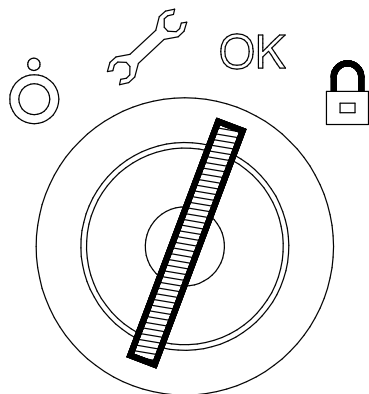
Starting the System

CAUTION:
For proper cooling and safe operation of the computer, all the covers must be in place before you power up the system.

Follow these steps to power up the system for your daily operation.

1. If a disk expansion unit is connected, be sure that its Key Mode Switch is properly set. For detailed information, please refer to the *Using the Disk Expansion Unit* manual.

2. Be sure that the system unit, all external devices and expansion units (if any) are connected to the proper power outlets.

3. Switch on the external devices (if connected).

4. Switch on the system console.

5. Power on the system setting the base unit Key Mode Switch to the Normal position.

6. The system begins its normal startup routine and is ready for use.

7. You can now log into the system.

Note: In case you power on the system by setting the Key Mode Switch to the Service position, you enter the operating system diagnostic mode.

Logging into the System

Warning: After you have started the system, it may take a few minutes for your login prompt to appear on the display. This amount of time depends on your system configuration. Do not press any keys while you are waiting, as this may cause unexpected results.

When the login prompt appears on the display:

1. Type your login name and press the Enter key or click on the OK button.

2. If a *password* is required (the related prompt appears), type your password and press the Enter key or click on the OK button (the screen does not display your password as you type it).

   If the password prompt does not appear, you have no password defined and you can begin working on the operating system.

   If the system displays:

   `login incorrect`

   Log in again, and enter the correct login name and password. If you still have problems, ask your system administrator.

Stopping the System

Warning: When using the shutdown procedure for your system, enter the correct command before you stop the system. Failure to do so, may result in loss of data. Please refer to your operating system documentation.

1. Exit any applications that are running. Consult the applications manuals for instructions.
2. Be sure that the media drives do not contain any media.
3. Exit the operating system using the appropriate shutdown command.

   a. It is possible to execute the shutdown procedure from the system console (local or remote line) with the base unit key set to the Secure position. Remember, before rebooting the system, to set the base unit Key Mode Switch to the Normal or the Service position.

   b. When the shutdown program is executed, a warning message is sent to all connected terminals. You can specify the time period between the sending of the warning message and the system shutdown.

   Here is an example:

   ```
   shutdown -h +5r
   ```
   represents a period of 5 minutes.

   Warning: This period should allow all the users sufficient time to finish their sessions and save their data. The amount of time can vary from a few seconds (allowing the user to exit the vi editor, for example) to several minutes (allowing the user to properly finish the update of a database). In the case of a user updating a database, if the system is shutdown before the user has properly finished his update session, there can be loss of important data.

4. Set the base unit Key Mode Switch to the Power Off position.

Note: If nobody needs to use the system, set the Key Mode Switch to the Secure position and remove the key, to prevent unauthorized reset of the system.

Rebooting the System

A system reboot recopies the operating system from disk to memory and starts it without turning the system completely off. Reboot is also known as a system reset. It re initializes the operating system by repeating the Initial Program Load (IPL) operation.

The **reboot** command synchronizes the hard disks and performs some other shutdown activities without halting the system. Use the **reboot** command to reboot the operating system when it is accessed by only one user. The **shutdown** command is used instead of the **reboot** command when the system is running and multiple users are logged on.

Reboot to cause the system to recognize newly installed software, to reset peripheral devices or to recover from a system crash.

To reboot the system you must have root user authority.

At the prompt, enter:

```
reboot
```

The system reboots.

Maintaining System Configuration Variables

The system configuration variables can be displayed and modified in a controlled and interactive mode, through the user interface provided by the Open Firmware menu.

Notes:

1. **The modifications applied to the configuration variables do not take effect until a system restart.**

2. **The configuration variables must be modified with care to avoid compromising the system's behavior.**

Accessing Open Firmware

Open Firmware features are addressed to personnel trained to perform service tasks on the system. The user should have a good knowledge of the system architecture and hardware design.

For more information about Open Firmware features, please refer to the *Maintenance and Service Guide* manual.

How to Enter Open Firmware

The Open Firmware menu can be accessed through a graphic terminal connected to the SVGA port (default Open Firmware console port) or a terminal connected to the COM1 port.

You can enter the Open Firmware interface:

– Configuring the **auto-boot?** flag = **false**, or

– Typing any key before completion of boot image loading.
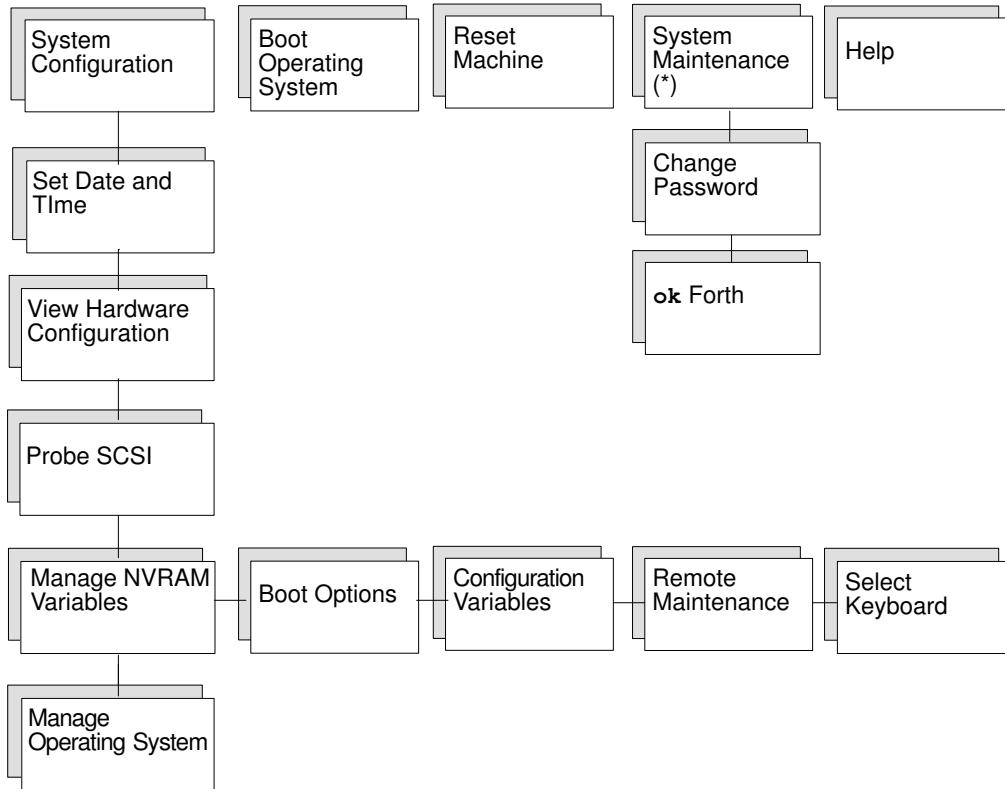
Entering the Open Firmware Menu

The following operating procedures are common to all screens in the menu tree:

- From the graphic console:

  – Use the arrows or *Tab* key or mouse click to move inside the screen

  – Use the *Enter* key or mouse click to select an item.

- From the BUMP console:

  – Enter the number identifying one item to select it

  – Press the *Enter* key to confirm the selection.

Open Firmware Menu

The following table summarizes the Open Firmware menu available features.

```
┌──────────────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────────┐
│ System       │  │ Boot         │  │ Reset        │  │ System       │  │ Help         │
│ Configuration│  │ Operating    │  │ Machine      │  │ Maintenance  │  │              │
│              │  │ System       │  │              │  │ (*)          │  │              │
└──────┬───────┘  └──────────────┘  └──────────────┘  └──────┬───────┘  └──────────────┘
       │                                                      │
┌──────┴───────┐                                       ┌──────┴───────┐
│ Set Date and │                                       │ Change       │
│ TIme         │                                       │ Password     │
└──────┬───────┘                                       └──────┬───────┘
       │                                                      │
┌──────┴───────┐                                       ┌──────┴───────┐
│ View Hardware│                                       │ ok Forth     │
│ Configuration│                                       │              │
└──────┬───────┘                                       └──────────────┘
       │
┌──────┴───────┐
│ Probe SCSI   │
│              │
└──────┬───────┘
       │
┌──────┴───────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────────┐
│ Manage NVRAM │──│ Boot Options │──│ Configuration│──│ Remote       │──│ Select       │
│ Variables    │  │              │  │ Variables    │  │ Maintenance  │  │ Keyboard     │
└──────┬───────┘  └──────────────┘  └──────────────┘  └──────────────┘  └──────────────┘
       │
┌──────┴───────┐
│ Manage       │
│ Operating    │
│ System       │
└──────────────┘
```

(*)   For security reasons, this option must be password protected.

Open Firmware Menu Description

The Open Firmware menu options are described below.

System Configuration

- **Set Date and Time**: to display and/or update the date and time of the system.

- **View Hardware Configuration**: to list all the present devices in the system. Each device is identified by a unique name representing the type of device and its location.

- **Probe SCSI**: to perform the identification of the devices connected to all the SCSI busses installed in the system unit.

- **Manage NVRAM Variables**: to display and/or update the common user Open Firmware variables stored in NVRAM.

  - **Boot options**: to display and/or modify the system boot options (**auto-boot?**, **boot-device**, **diag-switch?**).

  - **Configuration variables**
    To display and modify the parameters of the configuration variables, such as:

    input-device, identifies the console input device (usually **keyboard**, **com1** or **com2**).

    output-device, identifies the console output device (usually **screen**, **com1** or **com2**).

    pci0a-probe-list, lists which PCI bus device numbers to probe and in what order (the assumed value is system dependent and includes all available slots).

  - **Remote maintenance**
    To configure the remote maintenance flags, such as:

    sp-d-in, set to **true** gives remote maintenance authorization.

    sp-d-out, set to **true** sends an automatic notification to the Service Center, in case of system power on failure.

    sp-line, identifies the service line on which the remote connection will be established.

  - **Select keyboard**: to adopt the more suitable keyboard language.

- **Manage Operating System**: to display the first available boot device and/or select a different boot device.

  To select a different boot device, position on the device path displayed and edit it accordingly. The list of all the present devices is shown through **View Hardware Configuration** menu option.

  Select **OK**, to modify the boot device variable permanently.

  Select **Cancel**, to cancel the operation.

  Select **Boot** [(*)], to perform an immediate system boot from the defined boot device. The modification is valid for the next system initialization only and the first default value is automatically restored at the next system power on.

  Select **Default**, to restore the value of the first available default boot device.

Boot Operating System [(*)]

This option executes a system boot from the first available default device.

Reset Machine

This option performs a hard reset of the system unit.

`System Maintenance`

This option is reserved to the personnel who has a good knowledge of the system architecture and hardware design. For security reasons, this option must be password protected.

- **`Change Password`**: to modify the Open Firmware **`security-password`**.

- **`OK Forth`**: to access the Open Firmware user interface **`ok`** prompt.

(*) The boot options could be conditioned by the security level defined by the system administrator.

Problem Solving

In case of system problems, you can consult **What To Do When a Problem Occurs**, in the *Setting Up the System* manual.

If you decide to ask for assistance from your Service Representative, note that the following information might be required:

- Any message displayed on the operator panel display
- Any message displayed on the system console
- Description of the symptoms
- Your system serial number.

Remember to record this information before calling.

Identifying the System Serial Number

The system serial number is written on a label placed on the rear side of the unit. Its format is XAN - K*xx* - *Mnnnnn*, where:

K*xx*   is the system run code defined by the manufacturer
M   is a character that identifies the system model
nnnnn   is the system serial number (5 digits).

Note: XAN changes into XBH for the systems shipped to Brazil.
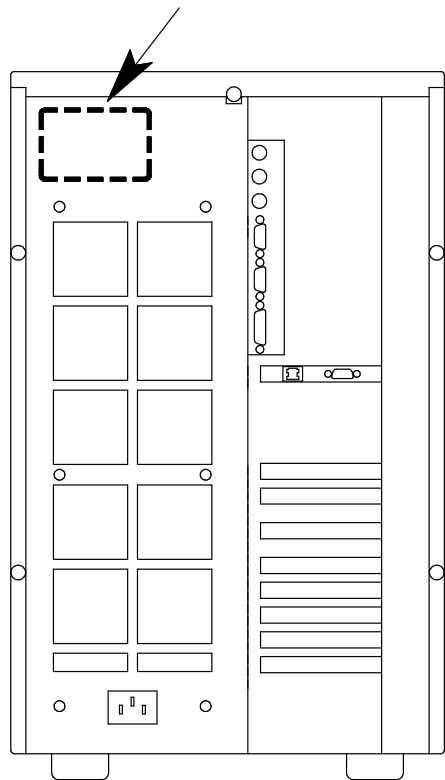
Glossary

A

A: Ampere.

AC: Alternating Current.

AIX: IBM's implementation of UNIX operating system.

ANSI: American National Standards Institute.

Appliance Coupler: A standard IEC 320 male plug placed on the system rear side.

ASCII: American Standard Code for Information Interchange.

AUI: Attachment Unit Interface.

B

bank: See memory bank.

BOT: Beginning Of Tape marker. A marker on a magnetic tape used to indicate the beginning of the recordable area; for example, a photoreflective strip, a transparent section of tape. Contrast with end of tape marker (EOT).

bulkhead: The pass-thru plate for the connection of the SCSI busses.

BUMP: Bring-Up Microprocessor. A low power microprocessor which monitors the system, especially during the various boot phases before the Operating System is loaded.

C

CD-ROM: Compact Disc Read-Only Memory. High-capacity read-only memory in the form of an optically readable compact disc.

chip: Synonym for integrated circuit (IC).

CPU: Central Processing Unit.

D

DDS: Digital Data Storage.

device shutter: The shutter which protects media and disk device areas. This shutter should be kept closed during system operations.

DIMM: Dual In-line Memory Module. It is the smallest component of the system memory.

disk cage: A metallic box which can host two or three disk carriers.

disk carrier: A sled used to install hard disk drives into the system.

E

ECC: Error Correcting Code.

ECMA: European Computer Manufacturers Association.

EDO: Extended Data Output.

EOT: End Of Tape marker.

F

FAST-10 WIDE-16: A standard SCSI interface, 16 bits, providing synchronous transfer rate of up to 10 MHz, with a data transfer speed of 20M bytes per second.

FAST-20 WIDE-16: An enhanced standard SCSI interface, 16 bits, providing synchronous transfer rate of up to 20 MHz, with a data transfer speed of up to 40M bytes per second. It is also called ULTRA WIDE.

firmware: It describes the microcode in read-only memory (ROM). It consists of an ordered set of instructions and data stored in a way that is functionally independent of main storage.

FPE: Full PCI Expander. It is a planar which connects up to seven controller cards.

G

No entries.

H

high availability: Continuous availability of system resources due to their redundant configuration.

hot swapping: The operation of removing a faulty hard disk drive and replacing it with a good one without interrupting the system activity.

I

ID: A number which uniquely identifies a device on a bus.

I/O: Input /Output.

IPL: Initial Program Load. It defines the firmware functional phases during the system initialization.

ISA: Industry Standard Architecture.

J

JBOD: Just a Bunch Of Disks.

K

Key Mode Switch: Key controlled switch which controls the system operation mode.

KP2: The back plane of a disk cage that connects two hard disk drives with 1.6 inch form factor.

KP3: The back plane of a disk cage that connects three hard disk drives with 1 inch form factor.

L

LAN: Local Area Network.

LED: Light-Emitting Diode. On the disk expansion unit operator panel, it indicates the power on status.

M

media and disk device areas: Areas which house the media drives and the hard disk drives.

memory bank: The minimum quantity of memory used by the system. It physically consists of two memory DIMM's. See also DIMM and riser.

multimedia: Information presented through more than one type of media. On computer systems, this media includes sound, graphics, animation and text.

multitasking: The ability to perform several tasks simultaneously. Multitasking allows you to run multiple applications at the same time and exchange information among them.

N

NVRAM: Non Volatile Random Access Memory.

O

OF: Open Firmware. See Open Firmware.

OP: Operator Panel. See Operator Panel.

Open Firmware: An architecture for the firmware that controls a computer before the Operating System execution. It also provides a user-interface.

Operating System: The software which manages the computer's resources and provides the operating environment for application programs.

Operator Panel: The system panel where the 3-Digit Hexadecimal Display and Key Mode Switch are located.

P

PCI: Peripheral Component Interconnect. A bus architecture that supports high-performance peripherals such as graphic boards, multimedia video cards and high-speed network adapters.

POST: Power On Self Test.

PowerPC: A standard RISC microprocessor family.

Q

QIC: Quarter-Inch Cartridge.

R

RAID: Redundant Array of Inexpensive Disks. A method of combining hard disk drives into one logical storage unit which offers disk-fault tolerance.

riser: A card which can host up to eight memory DIMM's. It is used to expand the system memory storage.

ROM: Read-Only Memory.

RS-232: An EIA interface standard that defines the physical, electronic and functional characteristics of an interface line.

RS-422: An EIA interface standard that defines the physical, electronic and functional characteristics of an interface line.

RS-485: The interface for base / disk expansion unit interconnection. This connection allows the remote control of the disk expansion unit power on/off.

RPE: Reduced PCI Expander. It is a planar which connects up to four controller cards.

S

SCSI: Small Computer System Interface. An input and output bus that provides a standard interface used to connect peripherals such as disks or tape drives in a daisy chain.

SCSI-ID: See ID.

slot cover: A metallic plate that covers free PCI/ISA controller card slots in order to protect the system unit from dust or debris, and to guide cooling air to the top of the unit.

SMIT: System Management Interface Tool. It is an interactive screen-oriented command interface. It is provided with your Operating System.

Stand-By menu: A menu which is available on the terminal connected to the COM1 port when the system is in standby state. It is used for system maintenance and testing activities.

SYSID: System Identification.

system console: A console, usually equipped with a keyboard and display screen, that is used by an operator to control and communicate with a system.

system planar: The planar which interconnects all the system resources.

SVGA: Super Video Graphics Array.

T

torx: A special screw with a six-point starlike hollow.

TSOPII: Tin Small Outline Package II.

U

ULTRA SCSI: See Fast-20 WIDE-16.

UPS: Uninterruptible Power Supply. A device which provides continuous power and sustains the system it is connected to, in case of outages.

V

V: Volt.

VCC: Voltage Continuous Current.

VGA: Video Graphics Array.

W

No entries.

X

No entries.

Y

No entries.

Z

No entries.

Index

Numbers

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