

**PowerLite Portable Workstation
Hardware Reference Guide**

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PowerLite Portable Workstation Hardware Reference Guide
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FCC Class B Notice

This equipment 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 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.

FCC Part 68

This equipment complies with part 68 of the FCC rules. On the bottom next to system label of this equipment is a label that contains, among other information, the FCC Registration Number, Ringer Equivalence Number (REN) and USOC jack type for this equipment. You must, upon request, provide this information to your telephone company.

An FCC compliant telephone cord and modular jack is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Pt 68 compliant. See installation instructions for details.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

If your telephone equipment causes harm to the telephone network, the Telephone Company may discontinue your service temporarily. If possible, they will notify you in advance, but if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

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If you experience trouble with this telephone equipment, please contact RDI Customer Service at (619) 558-6775 for information on obtaining service or repairs. The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

Shielded Cables

Connections between the PowerLite workstation and peripherals must be made using shielded cables in order to maintain compliance with FCC radio frequency emission limits.

Modifications

Modifications to this device not approved by RDI Computer Corporation may void the authority granted to the user by the FCC to operate this equipment.

DOC Class B Notice

This digital apparatus does not exceed Class B limits for radio noise emission for a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Avis

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Canadian Department of Communications Equipment Attachment Limitations

NOTICE: The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electronic inspection authority, or electrician, as appropriate.

NOTICE: The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100.

Safety Precautions



Warning: Hazardous voltages are present inside the PowerLite workstation. To reduce the risk of electrical shock and/or personal injury, follow the operating and installation instructions carefully.



Warning: Do not attempt to recharge alkaline or other non-rechargeable batteries with the PowerLite workstation's AC adapter/charger. Alkaline batteries cannot be recharged. Attempting to recharge alkaline batteries may cause personal injury and/or damage to the PowerLite workstation.



Warning: To prevent fire, shock hazard, or damage to the equipment, do not expose the PowerLite workstation to rain or moisture. Do not immerse the PowerLite workstation in water. If water has entered the PowerLite workstation cabinet, do not use the workstation until it has been inspected by an RDI-qualified service technician.



Warning: Do not dispose of PowerLite batteries in fire. Disposal of PowerLite batteries in fire may cause personal injury.



Warning: All service and upgrades to the PowerLite workstation must be performed by a trained technician only. Otherwise, you may encounter personal injury and/or damage your workstation.

Sicherheitshinweise

Warnung: Beim Betrieb der PowerLite workstation treten hohe Spannungen innerhalb des Gehäuses auf. Bitte befolgen Sie auf jeden Fall die Bedienungs- und Installationsanweisung um jegliches Risiko einer Verletzung oder eines Personenschadens zu vermeiden.

Warnung: Versuchen Sie auf keinen Fall, Ihre PowerLite workstation mit Trockenbatterien (Primärzellen) zu betreiben oder solche mit dem Netz/Ladegerät zu laden. Versuche dieser Art können Personen- oder Sachschaden zur Folge haben.

Warnung: Betreiben Sie Ihre PowerLite workstation nicht bei feuchten oder nassen Umgebungsbedingungen. Wenn Wasser oder Feuchtigkeit in das Gehäuse eingedrungen ist, sollten Sie Ihr Gerät vor Wiedereinbetriebnahme von einem qualifizierten Servicetechniker überprüfen lassen.

Important Safety Instructions

The following instructions pertain to the risk of fire, electric shock or bodily injury. Please read all of these instructions carefully.

1. Save these instructions for later use.
2. Follow all of the instructions and warnings marked on this product or included in this manual.
3. Do not use this computer on an unstable cart, stand or table. This product may fall, causing serious damage to the product.
4. Slots and openings in the cabinet and the back have been provided for ventilation. To ensure reliable operation of your computer, and to protect it from overheating, these openings must not be blocked or covered. Don't use this product on a bed, sofa, rug or other similar surface. This product should never be placed near an oven, a radiator, or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
5. Never push objects of any kind into the computer through the cabinet openings as they may touch dangerous voltage points or short out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the product.
6. This computer should only be connected to the AC power source indicated on your computer system's information label. If you are not sure of the type of AC power available, consult your dealer or local power company. Only connect this computer to a power outlet that matches the power requirements of this computer.
7. Do not allow anything to rest on the power cord. Do not locate this product where people will walk on the cord.
8. If you have to use an extension cord with this computer, make sure that the total amperage rating of all equipment plugged into it does not exceed the amperage rating of the extension cord. Also, make sure that the total of all products plugged into the main AC power outlet does not exceed 15 amps.
9. Unplug your computer from the main electrical power outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

10. Do not use this computer near water.
11. This product is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert or replace your obsolete outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.

Maintenance

If the product does not operate normally, adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and may require extensive repair work to restore the product to normal operation.

Unplug this product from the main power outlet and call for service under any of the following conditions:

- A. If 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 has been dropped or the cabinet has been damaged.
- E. If the product exhibits a distinct change in performance, indicating a need for service.

External SCSI Connections

When using external SCSI devices with your PowerLite, an active terminator with the appropriate connector is required. The following active terminators are available from Nu Data:

Connector	Nu Data Part Number
D50	1604
Centronics D50 Male	1602
Mini D50 SCSI II	1603

For more information, contact Nu Data at (908) 842-5757.

Wichtige Sicherheitsvorschriften Unbedingt Beachten

Allgemeine Sicherheit

Die nachfolgenden Anweisungen betreffen die Gefahr von Verletzungen Durch elektrische Spannung feuer und mechanische Einwirkung. Bitte lesen sie diese Anweisungen sorgfältig.

1. Beachten Sie alle Hinweise, die am Gerät selbst angebracht oder in den zugehörigen Handbüchern vermerkt sind.
2. Stellen Sie das Gerät an einem sicheren, stabilen Arbeitsplatz auf.
3. Am Gerät angebrachte Öffnungen (Schlitze und sonstige Öffnungen) dienen der Belüftung des Gerätes. Um ein zuverlässiges Arbeiten des Gerätes zu gewährleisten und um Überhitzung zu vermeiden, müssen diese Öffnungen unbedingt freigehalten werden. Betreiben Sie das Gerät nie auf Betten, Sofas oder anderen, weichen Unterlagen.
4. Stecken keine Gegenstände (Schraubenzieher, Büroklammern, etc.) in die Öffnungen. Sie würden damit Kurzschlüsse herbeiführen die zur Zerstörung des Geräts führen, sich der Gefahr eines Stromschlages aussetzen oder das Gerät in Brand setzen.
5. Das Gerät darf nur an vorschriftsmäßige Steckdosen mit der auf dem Gerät angegebenen Netzspannung angeschlossen werden. Wenn Sie nicht sicher sind, welche Netzspannung richtig ist, wenden Sie sich an den Lieferanten des Gerätes oder an das zuständige Elektrizitätswerk. Bitten nur an genügend stark abgesicherte Steckdosen anschließen, die der Leistungsaufnahme des Gerätes entsprechen.
6. Auf das Netzanschlusskabel dürfen keine Gegenstände gestellt werden. Legen Sie das Netzkabel so, daß niemand darauftreten oder darnüber stolpern kann.
7. Wenn Sie Verlängerungskabel benutzen, müssen Sie sicher sein, daß die gesamte Leistungsaufnahme nicht größer ist als das Verlängerungskabel zuläßt. Der gesamte Stromverbrauch aller angeschlossenen Geräte darf nicht mehr als 15 A betragen.
8. Wenn Sie das Gerät reinigen, muß das Netzkabel aus der Steckdose gezogen werden.
9. Das Gerät dürfen Sie nicht in der Nähe von Wasserleitungen benutzen.

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This chapter is an introduction to the "PowerLite Hardware Reference Guide." Topics in this chapter include:

- Conventions used in this guide
- A summary of chapters and appendixes in this guide
- Supplemental documentation

Conventions

The following conventions are used in this guide.

LEDs

LED indicators are shown in **bold, Helvetica** type. For example:

When the battery reaches the end of its charge, the **LOW BATT** LED goes ON.

Procedures

Procedures are numbered. Any action that occurs appears in *italics* below the step. For example:

1. Turn on your workstation.

Your PowerLite performs its self-test.


Notes

Information requiring special attention is preceded by **Note:** For example:

Note:

For your convenience, you can use your PowerLite's on-board LCD or attach an external monitor.

Warnings

Information of a hazardous nature is shown in *italics* and preceded by . For example:




Warning: *Do not allow the PowerLite batteries to fully discharge ("die") while operating the PowerLite from battery power because this may corrupt workstation files.*

Enter Key

The carriage return (or Enter) key is referred to as the RETURN key. This key is marked as ↵ on your PowerLite keyboard.

References

References to other information is preceded by . For example:



Before you operate your PowerLite from battery power, refer to the battery operation guidelines in Chapter 3.

Screen Messages

Screen messages appear in Geneva type within a box. For example:

After the PowerLite passes its self-test, the following initial message appears:

PowerLite, Keyboard Present
ROM Rev. x.xx, xx MB memory installed, Serial #xxxxx
Ethernet address x:x:xx:x:x:xx, Host ID: xxxxxxxx.

Variables

Variables appear as an italicized *x*. For example, the *x*'s in the screen on the previous page are variables because the values shown for ROM Rev., serial number, Ethernet address, and host ID will vary from system to system.

Chapters and Appendixes

Besides this Introduction, this guide contains:

Chapter 2, Features and Options

- Describes your PowerLite features
- Lists options for maximizing your portable workstation's capabilities

Chapter 3, Guided Tour

- Lists your PowerLite's many features
- Takes you on an in-depth tour of your PowerLite's features and options

Chapter 4, Operating Your PowerLite

- Describes system component connections
- Explains how to install the battery
- Provides steps for starting the system
- Describes how to install the operating system
- Provides tips for battery power operation
- Tells how to halt the operating system, power-down, and restart your PowerLite

Chapter 5, Peripheral Expansion Unit (PXU)

- Provides an overview of the optional PXU
- Describes how to install devices into the PXU

Chapter 6, Maintenance

- Describes how to clean your PowerLite
- Provides instructions for packing, shipping, and storing your PowerLite

Chapter 7, Detailed Hardware Description

- Provides detailed information about your PowerLite hardware

Appendix A, Specifications

- Lists PowerLite specifications

Appendix B, Connector Pin Assignments

- Lists PowerLite connector pin assignments

Appendix C, Boot PROM Settings

- Lists PowerLite Boot PROM settings

Appendix D, Low Battery Shutdown

- Describes the PowerLite's low battery shut-down procedure

Appendix E, Functional Diagram

- Provides a PowerLite functional diagram

Appendix F, External Monitor Matrix

- Shows a matrix of external monitor connections

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Supplemental Documentation

This guide is part of a set of documents provided by RDI for your convenience. Additional information can be found in the following RDI documents supplied with your PowerLite workstation:

- "PowerLite User's Guide"
- "PowerLite Software Reference Guide"

For more information about the Solaris operating system, refer to the "PowerLite Software Reference Guide."

Additional information about the operating system can be found in the following on-line documents:

- "OpenWindows 3.X User's Guide"
- "OpenWindows 3.X DeskSet Reference Guide"

Notes

2

Features and Options

This chapter describes your PowerLite's features and options.

Note:

Except for the PXU, which is user-upgradeable, all internal PowerLite upgrades must be performed at the factory.

PowerLite Features

Table 2-1 lists each feature and the page number where you can find more information about it. For a technical description, refer to Chapter 7.

Table 2-1. PowerLite Features

Feature	See...
SPARC-compatible system board	Page 2-2
Active matrix color display	Page 2-2
16 MB of RAM	Page 2-3
Support for three 340 MB hard drives	Page 2-3
3.5-inch floppy disk drive	Page 2-3
Sun Type 5-compatible keyboard	Page 2-4
Integrated trackball	Page 2-4
On-board microphone	Page 2-4
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Two serial ports and one AUI Ethernet port	Page 2-4
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One SCSI-2 port	Page 2-5
External keyboard port	Page 2-5
External audio jack	Page 2-6
Internal V.32bis FAX/modem	Page 2-6
Internal speaker	Page 2-6

SPARC Compatibility

Your PowerLite uses a SPARC-compatible system board that is compliant with SCD 1.0 and 2.0. This system board is based on the 50 MHz microSPARC processor technology, delivering 60 MIPS, 4.6 MFLOPS, and 26.4 SPECmarks. Your PowerLite also uses the LSI and NCR chipsets for Sun compatibility. As a result, any hardware or peripheral device compatible with Sun workstations is fully compatible with your PowerLite.

Display

Your PowerLite is configured with one of the following displays:

- 640 x 480 *Colorplus* active matrix color LCD. This display supports 256 colors from a palette of 262,144 colors and has a refresh rate of 60 Hz.

OR


- High-resolution 1024 x 768 active matrix color LCD. This display supports 256 colors from a palette of 512 colors and has a refresh rate of 60 Hz.

Both displays provide a 10.4-inch diagonal display, with a display response time of 80 ms. Both displays also have a brightness slide switch on the lower right side, which you can use to maximize viewing.

Note:

As an added convenience, your PowerLite provides a J13W3 connector on the back panel for attaching an external monitor with a resolution of 640 x 480, 1024 x 768, or 1152 x 900 (external 640 x 480 and 1024 x 768 monitors connect to the PowerLite via the supplied J13W3-to-VGA adapter). If your PowerLite has the 640 x 480

Color^{plus} LCD, you can connect an external 640 x 480 monitor and view information on both the LCD and external monitor simultaneously.

 For information on connecting external monitors, see Chapter 3 and Appendix F.

RAM

Your PowerLite is equipped with 16 MB of high-speed RAM with parity. System memory can be expanded to 80 MB, using the following configurations: 16 MB, 32 MB, 48 MB, and 80 MB. System memory expansion is accomplished using daughter boards, which are available through authorized RDI dealers.

Note: To upgrade RAM, the installed daughter board is replaced at the factory with one that contains the new amount of RAM.

Hard Drives

Your PowerLite accommodates up to three internal SCSI hard disk drives of various capacities to meet your requirements. The hard disk drives are 2.5-inch form factor drives. Each drive provides a 14 ms average access time, with a burst transfer rate of 10 Mbps.


Note: If you require large amounts of system storage, you can add a third hard drive in place of the floppy disk drive.

Floppy Disk Drive

Your PowerLite comes with a low-profile 3.5-inch floppy disk drive. This drive automatically adjusts to accommodate 720 KB or 1.44 MB diskettes.

Keyboard

Your PowerLite's 104-key keyboard provides all the functions of a Sun Type-5 US keyboard and includes 15 function keys. The PowerLite's keys are full-sized and full-travel.


 For added convenience, your PowerLite can accommodate an external Sun mouse or keyboard (refer to page 2-5).

Trackball

Your PowerLite keyboard includes an integrated three-button, 16 mm trackball for applications that require a pointing device.

Microphone

Your PowerLite also includes a microphone, located between the keyboard and the LCD. You can use this microphone to record your voice for applications that can process digitized voices.

 Your PowerLite also provides an audio jack for connecting an external microphone (refer to page 2-6).

10-BaseT Ethernet Connector

The PowerLite back panel has a built-in 10-BaseT twisted-pair Ethernet port.

Serial and AUI Ports

The PowerLite back panel provides two serial ports and one Attachment Unit Interface (AUI) port integrated into a single 36-pin connector. To access these ports, use the supplied I/O breakout cable, as described in Chapter 3.

Each serial port supports asynchronous and synchronous communications at speeds from 300 to 38,400 bps. Each port supports a complete set of the EIA RS-232C modem signals, including synchronous transmit and receive clock signals.

Note: Serial port B is automatically disabled when the FAX/modem is enabled via Boot PROM settings (see Appendix C).

Note: Although the PowerLite provides a 10-BaseT port and an AUI Ethernet port, only one of these Ethernet ports can be used at a time.

Parallel Port

The PowerLite back panel provides a 25-pin Centronics-compatible parallel port.

SCSI-2 Port

The PowerLite back panel provides a standard 10 Mbps fast Small Computer Systems Interface-2 (SCSI-2) port, which can accommodate devices such as an external hard drive or CD-ROM drive.

Note: When connecting a SCSI device, refer to page vii for information on providing the necessary termination

External Keyboard Port

You can connect an external Sun Type-4 or Type-5 keyboard to the external keyboard connector on the PowerLite back panel when the PowerLite is turned on or off. If you connect the external keyboard with the PowerLite turned on, you can immediately use the external keyboard to type.

Note: If you connect an external keyboard, the on-board keyboard becomes temporarily disabled until you remove the external keyboard.

External Audio Jack

The PowerLite back panel contains an audio jack for connecting an external speaker.

Note: If an external audio device is plugged into the audio input jack, the PowerLite's internal speaker is automatically disabled.

Internal FAX/Modem

Your PowerLite contains an internal V.32*bis* FAX/modem, which lets you perform data and FAX operations at speeds up to 14,400 bps, with a maximum throughput of 38,400 bps.

The FAX/modem uses the industry standard V.42 and MNP 1-4 error-correction protocols and V.42*bis* and MNP 5 data compression protocols. These protocols ensure that your data is exchanged error-free, at the fastest speed possible, with modems that also support these protocols.

Note: When the FAX/modem is enabled, serial port B is automatically disabled.

Internal Speaker

Your PowerLite has a built-in audio speaker, which can reproduce sounds generated by application programs.

Options


The following sections describe the options available for your PowerLite.

Peripheral Expansion Unit

The Peripheral Expansion Unit (PXU) significantly expands your PowerLite's capabilities by adding:

- Two 3.5-inch expansion bays for SCSI or loadable devices
- Two standard single SBus cards or one two-slot SBus card

The PXU shares the same footprint as the PowerLite, allowing it to dock to your PowerLite without occupying additional desktop real estate.

 For more information about the PXU, refer to Chapter 5.

RDI cg3 SBus Video Card

You can obtain an RDI cg3 SBus video card for your PowerLite's PXU. This cg3-compatible video card supports:

- VGA color resolution (640 x 480)
- Super VGA color and greyscale resolution (1024 x 768)
- Sun color and grayscale resolution (1152 x 900)

Languages

Standard C, FORTRAN, C++, ADA, and a wide selection of other languages are available from SunPro or third parties.

Sources

PowerLite replacement parts and options are available from your authorized PowerLite dealer. Contact your local dealer or RDI for a listing of the dealers in your area.

The following items are available from your PowerLite representative:

- PXU
- RDI cg3 SBus video card
- AC adapter
- Rechargeable battery pack
- Nylon carrying case
- Solaris 2.3 operating system
- Hard carrying case
- Internal hard disk drive upgrades
- Expansion memory modules
- Three-button mouse
- Additional manuals

Note: Hard disk drives and memory modules must be installed by a trained technician.

The following items are available from Sun Microsystems dealers:

- Solaris operating systems on CD-ROM or cartridge tape
- Three-button mouse
- Color, monochrome, and grayscale video monitors
- Video monitor cables
- SBus boards (frame buffers, Ethernet ports, etc.)
- Laser printers
- Serial port cables
- Answer Book CDs

The following items are available from third-party suppliers:

- Ethernet transceiver cables
- Three-button mouse
- Color, monochrome, and grayscale video monitors
- Video monitor cables
- SCSI devices (hard disk drives, CD-ROMs, cartridge tape drives, etc.)
- SBus boards (frame buffers, network interface boards, etc.)
- Laser printers
- External modems
- Serial port cables
- Audio input/output devices (amplifiers, microphones, etc.)

Notes

3

Guided Tour

This chapter provides a guided tour of your PowerLite workstation. Topics include:

- Setting up your PowerLite — see the next section
- Touring your PowerLite — see page 3-2

Setting Up Your PowerLite

Your PowerLite is designed to provide many years of error-free operation. To prolong the life of your PowerLite, make sure the location where you set it up conforms to the following guidelines:

- Position the PowerLite so you can easily access the connectors on the back and the floppy disk drive on the right side.
- The area where you place the PowerLite should allow you to open the display screen completely, without obstruction.
- Make sure adequate ventilation is provided for the PowerLite. Do not cover or block the ventilation slots on the enclosure.
- Never spray or directly apply any cleaners or other agents directly to your PowerLite or screen. Never apply wax or solvents to the screen.
- If you will be connecting to an Ethernet network, set up your PowerLite on a work surface near the Ethernet tap and within reach of the Ethernet cable.

If you will be powering the PowerLite from AC power:

- Locate the PowerLite near a grounded AC outlet.
- Make sure the outlet is not controlled by a wall switch, which can cause the PowerLite to be turned off accidentally.
- Be sure the power switch on the back of the PowerLite is in the OFF (0) position before connecting the AC adapter. Never connect the AC adapter with the power switch in the ON (1) position.
- Use only the supplied AC adapter with your PowerLite. Do not use an AC adapter designed for use with another product.

Touring Your PowerLite

The following sections take you on a guided tour of your PowerLite. If you do not have time for the complete tour, refer to Table 3-1 for a list of the PowerLite features and the page to turn for more information.

Table 3-1. PowerLite Features

Feature	Location	See...
LCD screen	Under front cover	Page 3-3
LEDs	Below screen	Page 3-4
Microphone	Left of the LEDs	Page 3-6
Keyboard	Below LEDs	Page 3-6
Trackball	Below keyboard	Page 3-6
3.5-inch floppy disk drive	Right side	Page 3-6
Power switch	Back panel	Page 3-7

Table 3-1. PowerLite Features

Feature	Location	See...
Power input socket	Back panel	Page 3-8
Expansion connectors	Back panel	Page 3-8
PXU docking connector	Bottom	Page 3-11
Battery compartment	Front left side	Page 3-11

Accessing the Display Screen

Depending on the PowerLite model, the on-board LCD is either a high-resolution 1024 x 768 active matrix LCD or a 640 x 480 *Colorplus* active matrix LCD. The LCD is illuminated by a fluorescent sidelight and can be read at wide viewing angles.

The display is located on the inside of the top cover. When you are not using your PowerLite, or when you transport it, the cover should remain closed. This protects the display against damage.

To access the display screen:

1. Slide the two display cover latches (see Figure 3-1).
2. Gently raise the cover until it is at its full upright position.

You can adjust the screen ± 27 degrees toward you or away from you, and use the slide switch at the lower-right side of the screen to adjust the brightness.


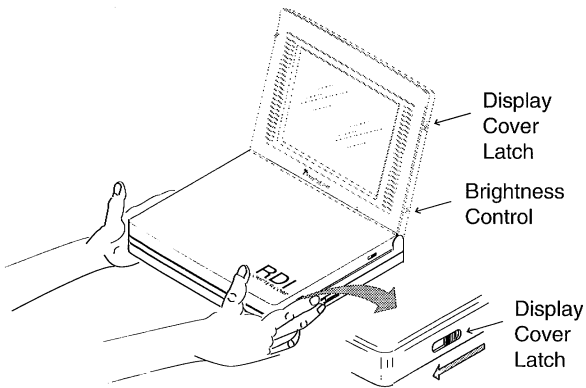
 You can also connect an external monitor to your PowerLite (see page 3-10 and Appendix F).

Figure 3-1. Raising the Display Cover



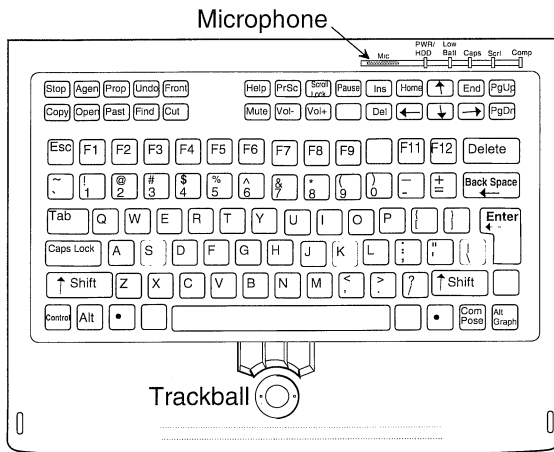
To close the screen:

1. Gently pull the screen forward and down.
2. Carefully press the back of the cover down toward the keyboard until both case latches "click" into their closed positions.

LED Indicators

A row of five LED indicators appears below the LCD. Figure 3-2 shows their location. Table 3-2 describes their function.

Figure 3-2. PowerLite Keyboard



Guided Tour

Table 3-2. PowerLite LEDs

LED	Function
Pwr/HDD	ON when the PowerLite is turned on. FLASHES when data is read from or written to the PowerLite hard disk drive.
Low Batt	FLASHES when the battery reaches the end of its charge. You have about 10 minutes to save and complete your work before the battery charge is exhausted. Either switch to AC power or power-down the workstation.
Caps	ON when the Caps Lock key is activated.
Scrl	ON when the Scroll Lock key is activated.
Comp	ON when the Compose key is activated.

Microphone

An on-board microphone is located to the left of the LEDs (see Figure 3-2). This microphone can be used for voice recording applications such as voice mail.

Note:

If you connect an external microphone to the PowerLite, the on-board microphone is automatically disabled.

Keyboard

The PowerLite is equipped with a 104-key keyboard that provides all of the functions of a Sun-5 keyboard (see Figure 3-2). The keyboard includes a row of 15 function keys, located at the top of the keyboard.



For added convenience, you can connect an external Sun-4 or Sun-5 keyboard to your PowerLite and use it to enter data (refer to page 3-8).

Trackball

The keyboard contains an integrated, three-button trackball (see Figure 3-2). The trackball is 16 mm in size and is pixel accurate.

Floppy Disk Drive

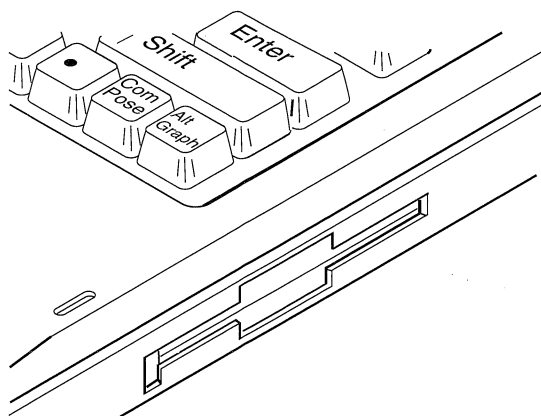
If you face the front of the PowerLite, you will find a 3.5-inch floppy disk drive along the front-right side of the workstation (see Figure 3-3). The floppy disk drive supports both 720 KB, Double-Sided, Double-Density (DSDD) diskettes and 1.44 MB, Double-Sided, High-Density (DSHD) diskettes. The floppy disk drive automatically senses the density of the installed media and adjusts to read and write correctly.

To eject a floppy disk, press the disk-eject tab on the left side of the floppy disk drive (the UNIX command "eject" will not automatically eject a floppy disk).

Note:

If your PowerLite contains three hard disk drives, the third hard disk drive replaces the floppy disk drive.

Figure 3-3. Floppy Disk Drive

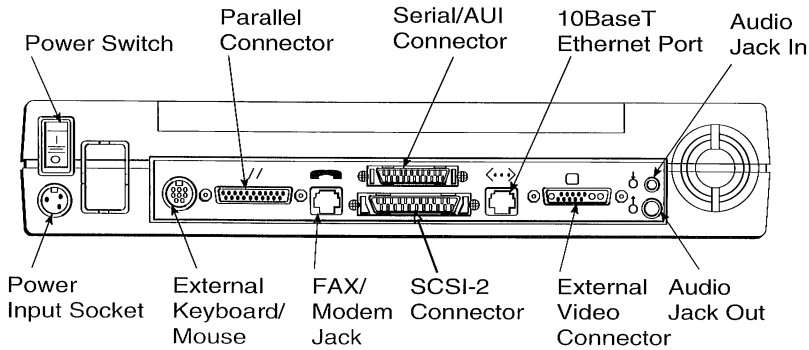


Power Switch

Facing the back of the PowerLite, the power switch is located at the left side of the rear panel (see Figure 3-4).

The power switch is a rocker switch and is labeled with international symbols for ON (1) and for OFF (O). To turn power on, press the side labeled 1 until it clicks. To turn power off, press the side labeled O until it clicks.

Figure 3-4. PowerLite Rear Panel



Power Input Socket

Facing the back of the PowerLite, the power input socket is immediately below the power switch (see Figure 3-4). This socket accommodates the AC adapter.

Expansion Connectors

The PowerLite rear panel has a variety of input/output (I/O) connectors for connecting expansion devices (see Figure 3-4). The following sections describe these connectors.

 For a list of the connector pin assignments, refer to Appendix B.

External Keyboard/Mouse Connector

Facing the back of the PowerLite, the external keyboard/mouse connector is located to the right of the power input socket (see Figure 3-4). This connector accommodates external Sun Type-4 and Type-5 domestic and international keyboards, as well as an external mouse.

Note:

If you connect an external keyboard, the on-board keyboard is disabled until the external keyboard is removed.

Parallel Port Connector

Facing the back of the PowerLite, the parallel port is located to the right of the external keyboard connector (see Figure 3-4 on page 3-8). The parallel port is a female, 25-pin, Centronics-compatible connector, allowing you to connect your PowerLite to parallel printers and other compatible parallel devices.

FAX/Modem Connector

Facing the back of the PowerLite, the FAX/modem jack is located to the right of the parallel port connector (see Figure 3-4 on page 3-8). This standard RJ-11 telephone jack lets you connect the PowerLite's internal FAX/modem to the telephone line using a standard modular telephone cord. This allows you to exchange data and faxes with remote systems.

Serial and AUI Connector

Facing the back of the PowerLite, an integrated, 36-pin serial/AUI connector is located to the right of the FAX/modem connector (see Figure 3-4 on page 3-8). This connector can accommodate two serial devices and one AUI Ethernet connection using the I/O break-out cable supplied with your PowerLite. One end of the cable connects to the PowerLite serial/AUI connector; the other end has two DB25 connectors that attach to your serial devices and one AUI connector that can be connected to an Ethernet network.

Both serial ports provide a complete set of asynchronous modem control signals, as well as the transmit and receive clock signals required for synchronous communication. The serial ports support baud rates from 300 to 38,400 bps.

Note:

Serial port B is automatically disabled when the FAX/modem is enabled via Boot PROM settings (see Appendix C).

SCSI-2 Connector

Facing the back of the PowerLite, a SCSI-2 connector is located below the serial/AUI connector (see Figure 3-4 on page 3-8). This 50-pin, subminiature D-type, female connector lets you connect a total of seven SCSI devices, such as hard disk drives, CD-ROM drives, and cartridge tape drives, to your PowerLite.

If you connect SCSI devices, follow the manufacturer's instructions carefully. Pay particular attention to the requirements for setting unique SCSI device addresses and terminating the SCSI bus after the last installed device.



For information on terminating SCSI devices, refer to page vii.

10-BaseT Ethernet Connector

Facing the back of the PowerLite, a standard RJ-45 telephone jack is located to the right of the SCSI-2 connector (see Figure 3-4 on page 3-8). This jack supports a twisted-pair 10 Mbps (10-BaseT) Ethernet connection.

External Monitor Connector

Facing the back of the PowerLite, the external monitor connector is located to the right of the 10-BaseT Ethernet connector (see Figure 3-4 on page 3-8). This J13W3 connector can accommodate a 640 x 480 or a 1024 x 768 external monitor using a 13W3-to-VGA adapter. It can also accommodate an 1152 x 900 external monitor operating at 66 Hz.



For information on using external monitors, see Appendix F.

Note:

PowerLites that have a 640 x 480 Colorplus LCD let you view information simultaneously on an external 640 x 480 VGA monitor.

Audio Connectors

Facing the back of the PowerLite, a pair of audio jacks is located to the right of the external monitor connector (see Figure 3-4 on page 3-8). These jacks can accommodate an external microphone or loudspeakers.

PXU Docking Connector

The bottom of the PowerLite has a 120-pin connector, which allows the workstation to dock to the Peripheral Expansion Unit (PXU). The PXU significantly increases your PowerLite's capabilities while not requiring additional desktop space.



For more information on the PXU, refer to Chapter 5.

Battery Compartment

Facing the front of the PowerLite, you can find the battery compartment at the front-left side of the workstation. This compartment holds the Nickel-Cadmium (NiCad) battery pack that powers your PowerLite when AC power is not available.

The battery pack provides approximately two-to-three hours of continuous-use operation from a full charge, depending on your PowerLite configuration. When battery power is critically low, the **Low Batt** LED flashes, a "battery low" message appears, and an audible alarm sounds. You then have about 10 minutes to complete and save your

work before the battery charge is exhausted. Your PowerLite will continue to provide updates of battery life information as long as the low battery condition exists.

Either switch to AC power, or halt your PowerLite and power-down (as described in Chapter 4). If you continue to use battery power, the sequence described in Appendix D occurs, eventually leading to an automatic shutdown.

Note: If you halt and power-down your PowerLite, follow the proper shut down procedures described in Chapter 4. Otherwise, the files on your workstation may become corrupt.

You can use the AC adapter to recharge the battery pack. Recharging can be performed when the workstation is idle or in use. It takes approximately three hours to recharge the battery pack when the PowerLite is not being used, or 10 hours when the PowerLite is being used.

The battery pack can be discharged and recharged from 500 to 1,000 times before it needs to be replaced. This means you should receive from 1,500 to 2,000 hours of use over the lifetime of a battery pack. However, when you need to replace the battery pack, you can obtain replacement battery pack from your authorized PowerLite representative.



Warning: *Never use alkaline batteries with the PowerLite or try to recharge alkaline batteries with the AC adapter. Alkaline batteries cannot be recharged and may explode if you try to recharge them.*

Warnung: *PowerLite wird mit einem aufladbaren Nickel Cadmium Akku ausgeliefert. Versuchen sie auf keinen Fall, Ihre PowerLite workstation mit Trockenbatterien*

(Primärzellen) zu betreiben oder solche mit dem Netz/Ladegerät zu laden. Versuche dieser Art können Personen-oder Sachschaden zur Folge haben.



For information on installing the battery pack, refer to Chapter 4.

Note:

Be sure to turn off the PowerLite and open the PowerLite display before installing a new battery pack (as described in Chapter 4). Otherwise, you may damage the latch used to open the PowerLite display screen.

Notes

4

Operating Your PowerLite

Before you begin using your PowerLite, you should be aware of how to prepare it for operation. This chapter describes how to prepare your PowerLite for operation. Topics include:

- Connecting system components — see the next section
- Installing the battery pack — see page 4-7
- Starting the system — see page 4-11
- Halting the operating system — see page 4-14
- Powering-down your PowerLite — see page 4-15
- Restarting your PowerLite — see page 4-16

Connecting System Components

The following sections describe how to connect devices to your PowerLite.

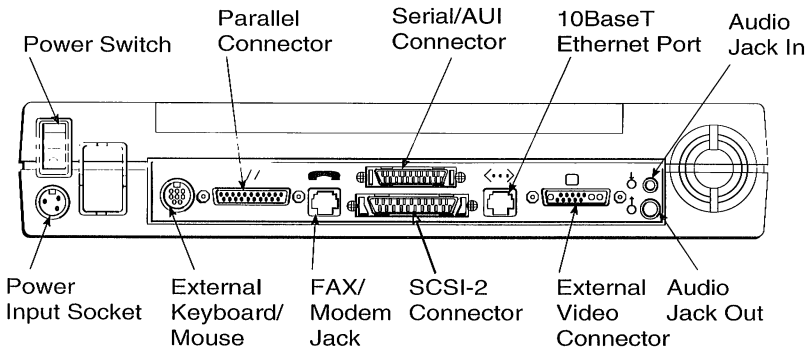
Connecting a Mouse or External Keyboard

Your PowerLite provides a round DIN-8 connector that can accommodate a mouse or external keyboard (see Figure 4-1). You can connect an external keyboard when the PowerLite is turned on or off.

If you connect an external keyboard to the PowerLite's external keyboard connector, the on-board keyboard becomes automatically disabled. You can then use the external keyboard for all your typing activities. When you remove the external keyboard, the on-board keyboard is automatically enabled once again.

For added convenience, you can connect an external mouse to your PowerLite. You can then use the external mouse or the PowerLite's on-board trackball to perform your pointing, clicking, and dragging tasks.

Figure 4-1. Back Panel Connections



Connecting an External Monitor

To connect an external 640 x 480, 1024 x 768, or 1152 x 900 (66 Hz) monitor:

1. If you will be attaching a 640 x 480 or 1024 x 768 external monitor, connect the 13W3-to-VGA adapter to the PowerLite's J13W3 external monitor connector. Then attach the external monitor to the adapter.

OR

If you will be attaching a 1152 x 900 external monitor, make sure it operates at 66 Hz. Then connect the external monitor directly to the PowerLite's J13W3 external monitor connector.

Note:

PowerLites with an on-board 640 x 480 Colorplus LCD let you view information simultaneously on the on-board LCD and on a 640 x 480 external monitor. If you connect a 1024 x 768 or 1152 x 900 external monitor, only the external monitor can be used for viewing; the on-board LCD will be blank until you turn off your PowerLite, remove the external monitor, and reboot your workstation.



For information on using external monitors, see Appendix F.

Connecting Serial and AUI Devices

The PowerLite's two serial connectors and one AUI connector are integrated into a single 36-pin connector on the back panel (see Figure 4-1). To access this connector, you need the I/O break-out cable supplied with your PowerLite (see Figure 4-2).

1. Turn off the PowerLite and the serial devices you will be connecting to it.
2. Connect the male end of the I/O break-out cable to the PowerLite's 36-pin connector on the rear panel (see Figure 4-2).
3. The other end of the I/O break-out cable has two 25-pin connectors for attaching serial devices and a 15-pin AUI connector for attaching to an Ethernet network (see Figure 4-2). Make the appropriate serial and AUI connections.

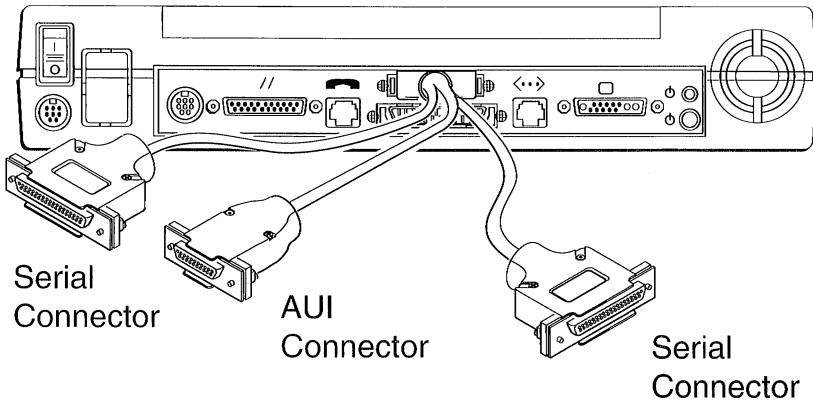


For more information on Ethernet connections, refer to page 4-5.



For a list of the pin assignments for the PowerLite connector and I/O break-out cable, refer to Appendix B.

Figure 4-2. I/O Break-Out Cable Connections




The two serial ports are designated A and B on the I/O break-out cable. When you connect serial devices to the I/O break-out cable, make sure the device intended for port A is plugged into the port A connector and the device intended for port B is plugged into the port B connector.

Note: Serial port B is automatically disabled when the FAX/modem is enabled.

Each serial port supports RS-232C operation, and both serial ports must operate at the same speed (from 300 to 38,400 bps).

Connecting a Parallel Device

The PowerLite back panel provides a 25-pin Centronics-compatible parallel port (see Figure 4-1 on page 4-2). This port can accommodate a parallel printer, plotter, or any Centronics-compatible parallel device. Turn off the PowerLite and the parallel device before making this connection.

 For a list of the parallel port pin assignments, refer to Appendix B.

Connecting a SCSI Device

The PowerLite back panel provides a SCSI-2 (Small Computer Systems Interface) connector (see Figure 4-1 on page 4-2). This 50-pin sub-miniature D-type female connector lets you connect up to seven SCSI devices, such as internal hard disk drives, CD-ROM drives, cartridge tape drives, and other peripherals. Turn off the PowerLite and the SCSI devices before making this connection.

 For a list of the SCSI port pin assignments, refer to Appendix B.

Follow the manufacturer's instructions carefully when connecting external SCSI devices to the system — especially when setting unique SCSI device addresses and terminating the SCSI bus after the last installed device.

Note: All SCSI buses require termination. If you will be chaining various SCSI devices to the PowerLite SCSI-2 connector, make sure the termination occurs only after the last SCSI device. Otherwise, you may encounter erratic performance with SCSI devices. Page vii provides helpful information on terminating SCSI devices.

Note: You may have to turn on the external SCSI devices before turning on the PowerLite. Refer to the manual that came with the SCSI device.


Connecting to an Ethernet Network

The PowerLite rear panel provides a built-in twisted-pair (10-BaseT) Ethernet network port (see Figure 4-1 on page 4-2). This RJ-45 telephone-type connector allows connection to twisted-pair Ethernet networks. A twisted-pair Ethernet cable is similar in appearance to a modular telephone cord.

Note: For your convenience, the PowerLite also provides an AUI port (described on the page 4-3), which allows connection to networks that use the Ethernet “thick cable” wiring system.


To connect the PowerLite to an Ethernet network:

1. With your PowerLite turned off, set it on a work surface near the Ethernet twisted-pair cable or transceiver/MAU.
2. Attach a twisted-pair cable to the PowerLite’s 10Base-T connector or attach the I/O break-out cable to the PowerLite’s serial/AUI connector (see Figure 4-1 on page 4-2 and Figure 4-2 on page 4-4).
3. If you will be using a MAU, connect it to the 15-pin AUI connector on the I/O break-out cable. Attach the Ethernet cable to the MAU. Leave enough slack to allow the cable to move freely. Push the cable end into the PowerLite connector until the cable is firmly seated.

 For twisted-pair and AUI port pin assignments, refer to Appendix B.

Connecting an Audio Device

Your PowerLite has two RCA-type audio jacks on the back panel (see Figure 4-1 on page 4-2). One jack accepts analog input signals from audio devices such as a CD or microphone. The other jack provides true stereophonic audio output signals for audio devices such as headphones or loudspeakers. The manual that came with your audio device will describe how to attach the audio device to your PowerLite.

 For a list of the audio port pin assignments, refer to Appendix B.

Installing the Battery Pack

If you want to operate your PowerLite from battery power, use the following procedure to install the battery pack.

1. With the PowerLite turned off, open the PowerLite display screen.

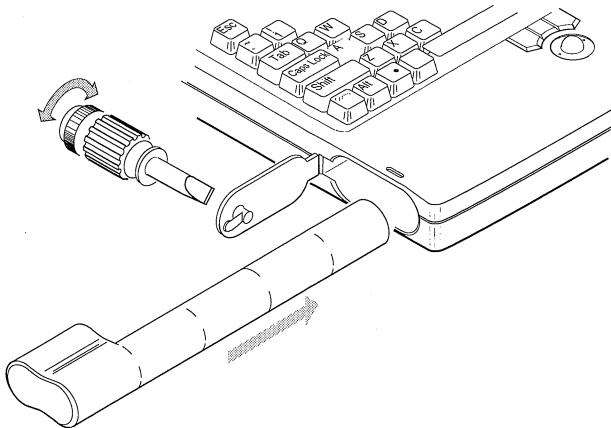


Warning: Make sure the PowerLite display screen is open before installing the battery. Otherwise, you may damage the latch used to open the display screen.

Warnung: Vor Öffnen des Akkufaches, muß der Deckelverschluß (Bildschirm) entriegelt sein. Beim Auswechseln des Akkus und geschlossenem Deckel kann es zu einer Beschädigung des Verschlusses kommen.

2. Face the front of the PowerLite and locate the battery compartment along the front-left side (see Figure 4-3).

Figure 4-3. Installing a Battery Pack



3. Using a flathead screwdriver, turn the battery compartment door one-quarter turn counter-clockwise (see Figure 4-3).
4. Open the compartment door, insert the battery pack as shown in Figure 4-3, and close the door.
5. Secure the door by turning the screw one-quarter turn clockwise.
6. After installing a new battery pack, use the AC adapter to recharge the battery pack. It takes about three hours to recharge a new battery if the PowerLite is not being used, or about 10 hours if the PowerLite is in use. After fully charging the battery pack, you can operate your PowerLite for two-to-three hours, depending on your configuration and applications.

When operating your PowerLite from battery power, pay particular attention to:

- Low battery warning — when the battery reaches the end of its charge, the **Batt Low** LED flashes, a “battery low” message appears, and an audible alarm (beeping) sounds, indicating you have approximately 10 minutes to complete your work before the battery charge is exhausted.

When this occurs, follow the proper power-down procedure (described on page 4-14) to quickly halt and power-down the PowerLite, or connect the AC adapter to recharge the batteries. Your PowerLite will continue to remind you about the low battery status every minute the PowerLite continues to use battery power. For more information, refer to Appendix D.

- Running down the battery pack — at least once a month, disconnect the AC adapter and run the PowerLite battery pack down until the **Batt Low** LED flashes. Then plug the AC adapter back in. This will properly cycle the PowerLite batteries and extend their life.



Warning: *DO NOT allow the batteries to fully discharge (“die”) while operating the PowerLite from battery power, because this may corrupt your workstation files.*

Warnung: *Vermeiden Sie auf jeden Fall eine Entladung des Akkus unter die Abschaltschwelle Ihrer PowerLite workstation, da durch ungewolltes Abschalten Daten verlorengehen, oder verändert werden können.*

- NiCad Memory — NiCad batteries have a memory. If NiCad batteries are consistently recharged from a level above full discharge, the full discharge level will rise to the routine recharge point. This means that if you consistently recharge your batteries before they reach their low power warning level (that is, if you “top-off”), your discharge level will occur sooner than if you consistently allowed your batteries to approach full discharge before recharging them.

To avoid this, allow your batteries to reach the low power warning before starting a full recharge. Then fully recharge the batteries; this is called cycling your batteries.

Your PowerLite NiCad batteries will attain their optimal charge capacity after about five complete cycles. Do not be alarmed if during the early cycles, the batteries only run 80% to 90% before requiring recharge; this is normal. After about five cycles, the batteries should easily run for a normal time span.

If your batteries have been set aside unconnected for a period of time, you may notice

that during the first cycle after their reconnection and use, their performance has dropped off slightly by 10 to 20%; this is normal in NiCad batteries which have been recently dormant. If you complete one full discharge-recharge cycle, the batteries will regain optimal charge levels.

- Swapping battery packs — one way to obtain maximum use out of the PowerLite's portability is to precharge one or more rechargeable battery packs before operating the workstation from battery power. For example, you may purchase additional battery packs, charge them, and carry them with you into the field. As each battery pack becomes discharged, bring the PowerLite to a halt, as described on page 4-14, then remove the discharged pack and replace it with one that is fully charged.

Note:

If you shut down the PowerLite to swap batteries, you must follow proper shut down procedures described on page 4-14. Otherwise, the system and user files system may become corrupt.

- Replacing battery packs — when NiCad batteries reach the end of their service life, they indicate their impending failure by providing shorter and shorter intervals of service between recharging and finally by failing to hold a charge. When this occurs, you must replace the worn out battery pack with a new one. Replacement battery packs can be ordered from your PowerLite representative.

Note:

If you shut down the PowerLite to install a spare battery, you must follow proper shut down procedures described on page 4-14. Failing to do so may cause the files on your system to become corrupt. Also, make sure the

PowerLite display is open before opening the battery compartment; otherwise, you may damage the workstation.

Note:

Worn battery packs should be discarded in accordance with the disposal requirements for your area.

Starting the System

To power-up your PowerLite:

1. Make sure the PowerLite is at room temperature before powering-up. This is particularly important when the workstation is brought from a very cold environment into a warm room. In such cases, moisture can condense on and inside the workstation and cause problems. Allow at least two hours for the PowerLite's temperature to stabilize after bringing it from a very cold or very warm environment before proceeding.
2. If you will be using your PowerLite on an Ethernet network, contact the person responsible for your computer network (the Network Administrator) to obtain the following information:
 - A hostname that does not duplicate an existing hostname
 - A four-digit Internet address
 - An optional Network Information Service (NIS) domain name
 - A user account and password if using NIS
 - An Ethernet cable

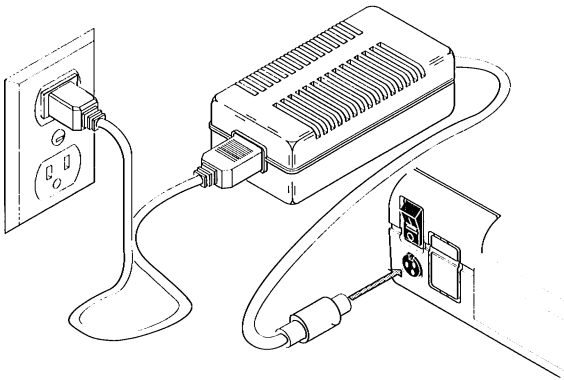
Then connect the Ethernet cable to the appropriate PowerLite connector (refer to page 4-5 for more information).

3. If you will be operating the PowerLite from AC power, plug the polarized connector from the AC adapter into the power input socket on the PowerLite (see Figure 4-4). Then plug the AC cable plug into a nearby AC outlet.


Note:

The AC adapter can be plugged into a 90- or 240-Volt source at 50 or 60 Hz. The AC adapter will automatically adjust to the AC input voltage and frequency. The only requirement is that the AC adapter/charger must correctly fit the AC outlet.

Figure 4-4. Connecting to AC Power



4. Make sure that all cables attached to peripherals (such as printers, mouse, monitor, or SCSI devices) are securely plugged into the correct connectors. Pay particular attention to the two serial ports: check that the device intended for attachment to port A is not accidentally plugged into port B.

-  For more information on connecting devices to your PowerLite, refer to Chapter 3.
5. Make certain that each device is plugged into an AC outlet or power strip. External peripherals such as monitors and SCSI devices require their own power cords.
 6. If SCSI devices are connected to the PowerLite, make sure a SCSI bus terminator is installed on the last SCSI device only; otherwise, you may experience erratic performance. For more information, refer to the documentation for your SCSI device.
 7. Power- up peripherals such as SCSI devices or a monitor before powering-up the PowerLite. Refer to the instructions that came with the peripherals for more information about starting order.
 8. Use the PowerLite's power switch on the back panel to turn on your workstation.

*The **Pwr/HDD** LED lights and the other LEDs flicker briefly. The PowerLite begins its self-test diagnostics and starts to boot. It is normal for the screen to be blank for up to 20 seconds before displaying the following initial message:*

```
PowerLite, Keyboard Present
ROM Rev.x.xx, xx MB memory installed,
Serial #xxxxx.
Ethernet address x:x:xx:x:x:xx,
Host ID: xxxxxxxx.
```

A variety of system messages will be displayed on the screen as the power-up diagnostics proceed. After the last system message, the screen will display the "hostname console login" prompt.

```
hostname console login:
```

- ☞ If the PowerLite does not respond when the power switch is turned on, refer to the “PowerLite User’s Guide” for troubleshooting suggestions.

After powering-up your PowerLite for the first time, you are ready to configure your workstation.

- ☞ Refer to the “PowerLite Software Reference Guide” for information on configuring your workstation.

Halting the Operating System

To ensure that system and user files on your PowerLite do not become corrupted, save your work and shut down the system in an orderly manner before you halt and power-down the PowerLite. The following procedure describes how to halt the Solaris 1.X and 2.X operating systems.

1. Save all your work files.
2. At the current prompt, type **logout** and press the RETURN key.
3. When the “*hostname* console login” prompt appears, log in as “root”.
4. Enter your password at the “Password” prompt.
5. Type **halt** and press RETURN to halt the operating system.

Note: In some cases, the system may not accept the “halt” command. If this occurs, type the command `/usr/sbin/halt` and press RETURN. The program responds by displaying the following series of messages:

```
Syncing file systems... done
Halted
Program terminated
Powering-Down Your PowerLite
OK
```

Powering-Down Your PowerLite

After using the procedure in the previous section to halt the operating system, perform the following procedure to power-down your PowerLite.

1. Power-down peripherals such as SCSI devices or a monitor.
2. Turn off the PowerLite.

*The hard disk automatically parks the heads and spins down. The display clears, the display backlight goes out, and the **Pwr/HDD** LED goes out.*

3. If you want to move the PowerLite after powering-down, disconnect all cables and connectors (including the AC adapter cable) from the PowerLite.
4. Close and latch the rear panel cover, then fold the display cover down and close and latch the case.
5. You can now move the PowerLite to a new location, reconnect, and restart.

Note:

If you move your PowerLite to a different network, or move to standalone operation, you should run "Admintool" from OpenWindows before moving the workstation. Doing this lets you select the correct configuration for the new network, and will enable the system to boot correctly after being moved.

Restarting Your PowerLite

Restarting a PowerLite that has been halted and powered-down is a simple procedure.

1. Verify that cables from all connected peripheral devices, such as SCSI devices or an external monitor, are connected to the appropriate connectors on the back of the PowerLite.
2. Power-up the peripherals before powering-up the PowerLite (see the peripheral manuals for more information).
3. Turn on the PowerLite.

*The **Pwr/HDD** LED goes ON or flickers and the PowerLite begins its self-test diagnostics and starts to boot. It is normal for the screen to be blank for up to 20 seconds before displaying the following initial message:*

```
PowerLite, Keyboard Present
ROM Rev.x.xx, xx MB memory installed, Serial #xxxxxx
Ethernet address x:x:x:x:x:xx, Host ID: xxxxxxxxx.
```

Various system messages will appear on the screen during the boot process. After the last system message, the screen will display the "hostname console login" prompt, where "hostname" is the one you entered when you configured your PowerLite:

```
hostname console login:
```

4. Enter your user ID at the "hostname console login" prompt and press RETURN.

The following prompt appears:

```
Password:
```

5. Enter your password at the "Password" prompt and press RETURN.



For complete information on configuring your PowerLite, refer to the "PowerLite Software Reference Guide."

Notes

5

Peripheral Expansion Unit (PXU)

The Peripheral Expansion Unit (PXU) is a PowerLite option designed for users with demanding computing requirements. The PXU provides a graceful way of dramatically increasing your PowerLite's expansion capabilities without occupying any additional desktop space.

This chapter describes the PXU, how to install SBus cards and SCSI devices into it, and how to connect it to your PowerLite. If you are not using the PXU option, you can skip this chapter.

Overview

The PXU is a sleek, lightweight unit that provides:

- Two 3.5-inch low-profile SCSI expansion bays. These bays accommodate hard disk drives or 1-inch-high loadable devices.
- Two single standard SBus slots. These slots support a wide range of standard third-party SBus products, including graphics accelerators and video cards for running high-end image, graphic, and multimedia applications. These slots can also accommodate SBus cards for FDDI-, ISDN-, and IBM-based networks, allowing your PowerLite to interface with most network environments.

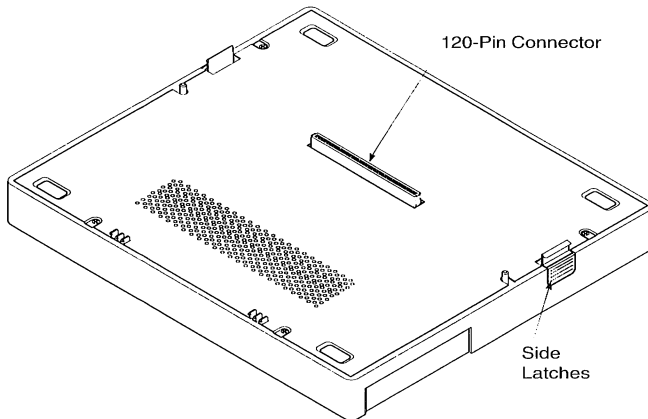
The PXU "docks" to your PowerLite using a 120-pin connector at the top-center of the PXU. The PXU is attached and removed from the PowerLite using quick-release mounts, allowing users of all technical abilities to easily connect the PXU to the PowerLite. Moreover, the PXU has the same small footprint as your PowerLite and weighs less than 6.5 pounds when fully configured. Figure 5-1 shows the PXU.



Warning: *Devices installed in the PXU must be certified for FCC Class B operation by the manufacturer or vendor. Installing noncompliant products will void your PowerLite certifications.*

Warnung: *Baugruppen, die für den Einbau in die PXU vorgesehen sind, müssen mindestens den FCC Class B Vorschriften entsprechen. Bei Einbau von nicht freigegebenen Komponenten erlischt die PowerLite FCC Class B Betriebsgenehmigung.*

Figure 5-1. Peripheral Expansion Unit (PXU)



Connecting the PXU to the PowerLite

To connect the PXU to the Powerlite:

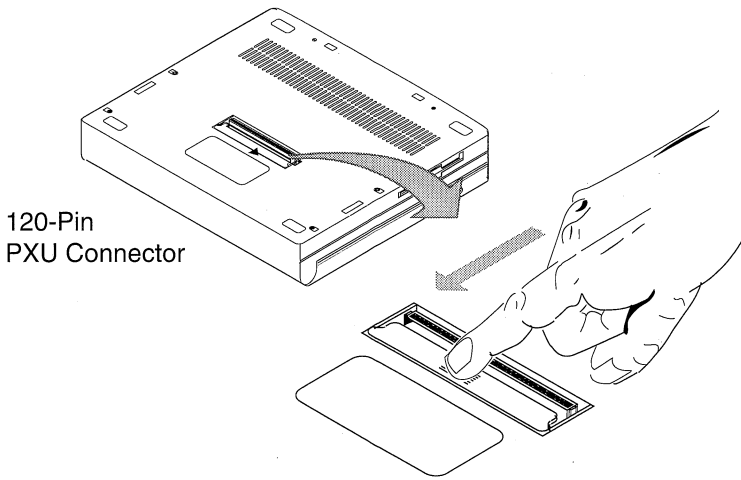
1. Use the shutdown procedures in Chapter 4 to halt and turn off your PowerLite. If the PowerLite is connected to an AC outlet, remove the AC adapter from the AC outlet.

Note:

If you do not properly halt your PowerLite, you may corrupt the system and user files on it.

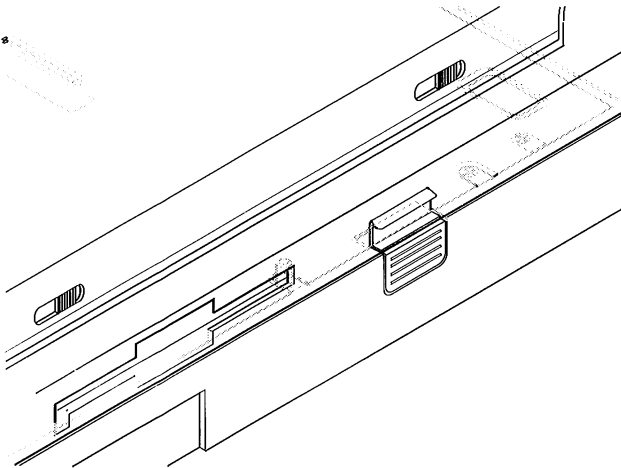
2. Locate the PXU connector door on the bottom of the PowerLite (see Figure 5-2). Then gently slide it open to expose the docking connector.

Figure 5-2. Accessing the PXU Connector



3. Place the PXU on a flat surface near your PowerLite.
4. Gently lift the PowerLite and orient it above the PXU, as shown in Figure 5-3.
5. Connect the hinges at the front of the PXU to the holes at the bottom-front of the PowerLite (see Figure 5-3).
6. Gently lower the PowerLite onto the PXU. Keep the PowerLite aligned with the mounts on the PXU. The PowerLite will snap into place when it is secure.

Figure 5-3. Connecting the PXU and PowerLite

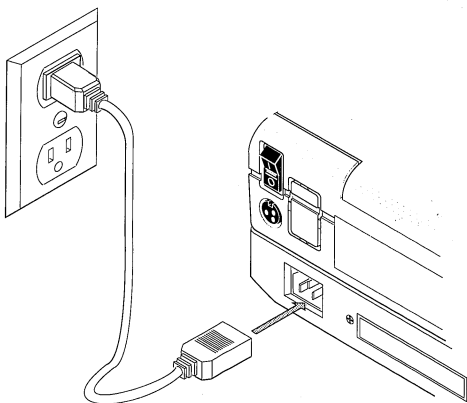


7. Use the supplied AC power cord to connect the PXU to an AC outlet (see Figure 5-4). The PXU must be connected to the PowerLite and an AC outlet.

Note:

The PXU does not have a power switch, since power is controlled by the PowerLite. When the PXU is not connected to the PowerLite, PXU DC power is off.

Figure 5-4. Connecting the PXU to an AC Outlet



8. Reconnect your PowerLite to the AC outlet.
9. Turn on your PowerLite.

Note:

If you failed to connect the PXU to an AC outlet, a warning message appears when the PowerLite boots. If you receive this message, turn off the PowerLite. Then plug the PXU into the AC outlet and turn on the PowerLite again.

Note:

Solaris may have to be modified to support devices installed in the PXU (refer to the "PowerLite Software Reference Guide").

Removing the PowerLite from the PXU

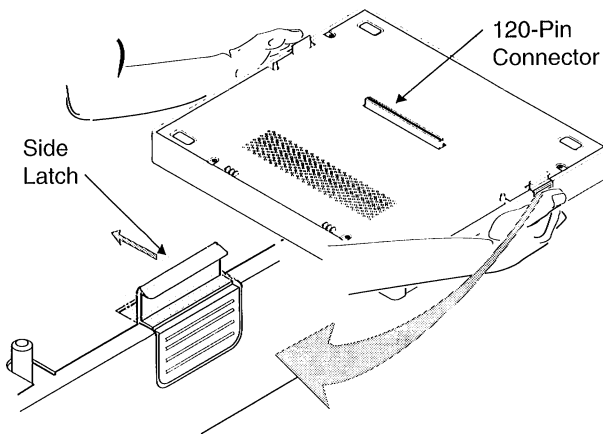
If you want to remove the PowerLite from the PXU:

1. Halt your PowerLite, as described in Chapter 4, then turn it off.

Note: If you do not properly halt your PowerLite, you may corrupt system and user files on your workstation.

2. Remove the PowerLite and PXU power cords from their AC outlets.
3. Find the side latches on either side of the PXU (see Figure 5-5). Then gently press the latches inwardly at the same time.

Figure 5-5. PXU Side Latches



4. Gently lift the back of the PowerLite and un-hinge the PowerLite from the PXU.
5. Remove the PowerLite from the PXU.
6. Close the connector door on the PowerLite to conceal the docking connector.

Adding Devices to the PXU

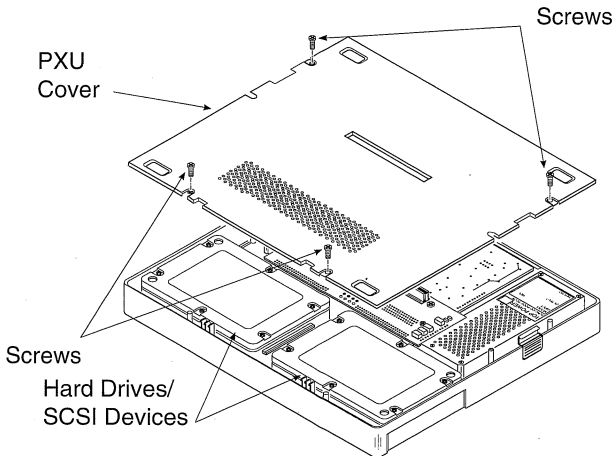
The following sections describe how to add SCSI devices, SBus cards, and a loadable device to the PXU.

Removing the PXU Cover

Before you can install devices in the PXU, use the following procedure to gain access to the inside of it.

1. If the PowerLite is connected to the PXU, use the instructions in the previous section to remove it.
2. With the PXU on a flat work area, remove the four Phillips' head screws shown in Figure 5-6. Then remove the PXU cover to access the inside of the PXU.

Figure 5-6. Removing the PXU Cover



3. If you are installing an SBus card, proceed to the next section. If you want to install a SCSI or loadable device, refer to page 5-11.

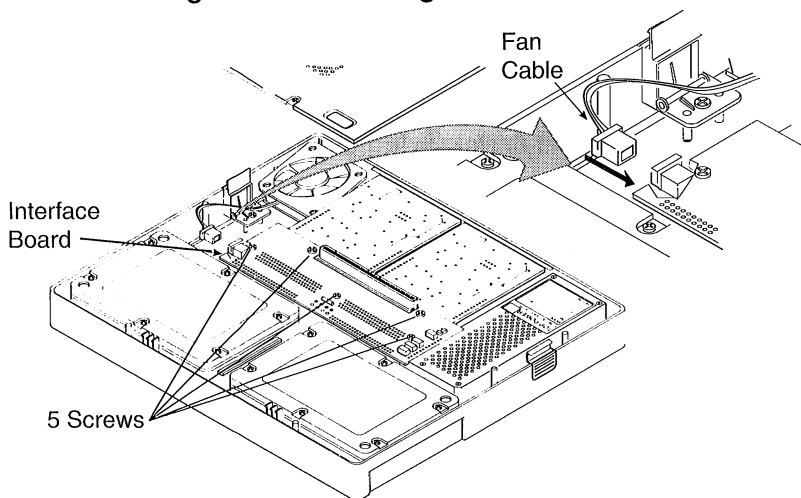
Installing SBus Cards

The PXU has two standard SBus slots. These slots can accommodate two single-slot SBus cards or one double-slot SBus card. The following procedure describes how to add SBus cards to the PXU.

After you gain access to the inside of the PXU, use the following procedure to install an SBus card.

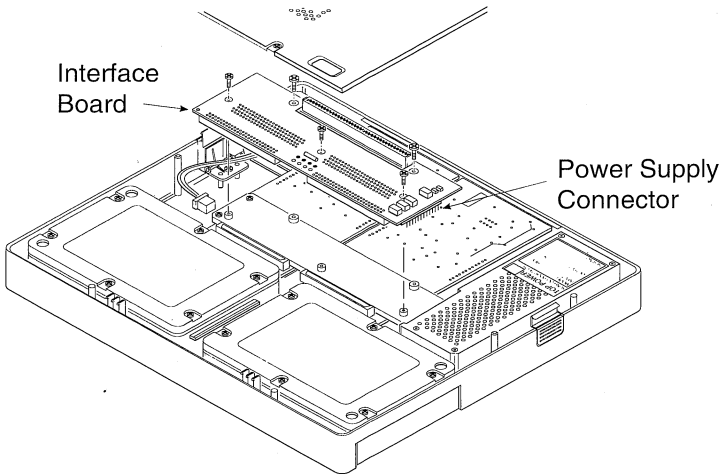
1. Remove the five Phillips' head screws from the interface board shown in Figure 5-7.
2. Unfasten the fan cable from the interface board shown in Figure 5-7.

Figure 5-7. Removing the Fan Cable



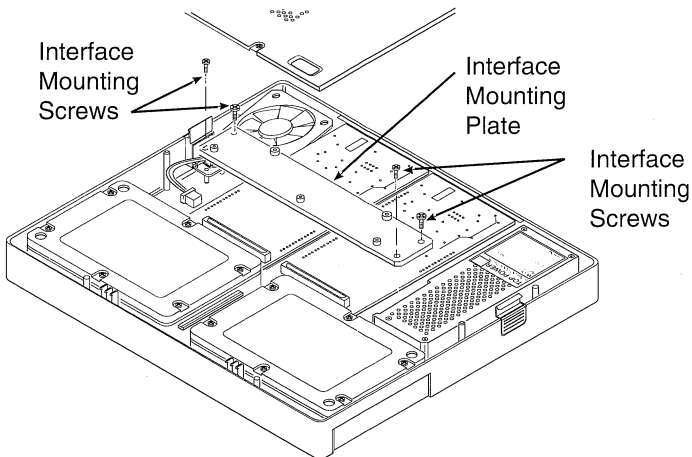
3. Gently remove the interface board from the power supply by lifting the board straight up (see Figure 5-8). Be careful not to lift at an angle or you may bend or break pins on the power supply connector.

Figure 5-8. Removing the Interface Board



4. Remove the interface mounting plate by unscrewing the four mounting screws (see Figure 5-9).

Figure 5-9. Removing the Interface Mounting Plate

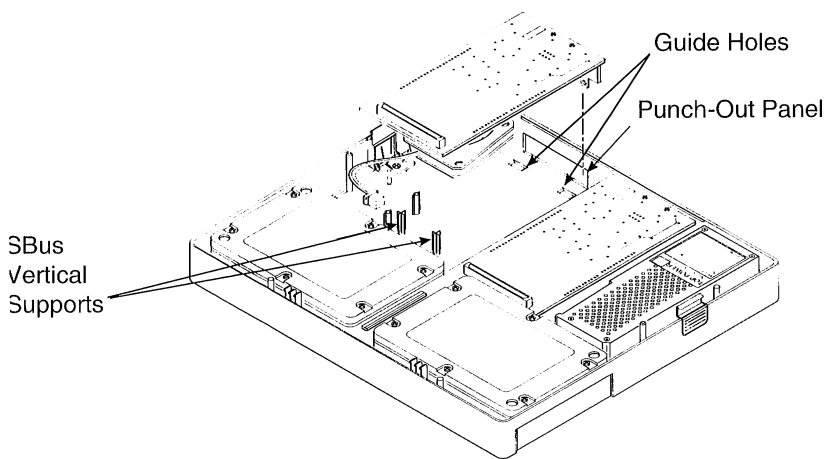


5. Hold the SBus card component-side down. The two tabs on the component side of the SBus card should be facing the outside of the PXU (see Figure 5-10).
6. Lower the SBus card so the tabs on the card fit into the two guide holes on the PXU (see Figure 5-10). The two holes on the other end of the SBus card's component side will slide into the SBus vertical supports on the PXU.

Note:

If you are installing a third-party SBus card that has a U-bracket, remove the U-bracket before installing the card. If the card has an external connector, remove the punch-out panel at the back of the PXU (see Figure 5-10).

Figure 5-10. Installing an SBus Card




7. Replace the interface mounting plate and secure with the four mounting screws you removed (see Figure 5-9 on page 5-9).

8. Align the connectors on either side of the interface board with the connectors on the SBus device and power supply. Then gently lower the interface board into position until it is securely seated (see Figure 5-8 on page 5-9).
9. Reinstall the five mounting screws you removed and reconnect the fan cable (see Figure 5-7 on page 5-8).

This completes the SBus card installation procedure.

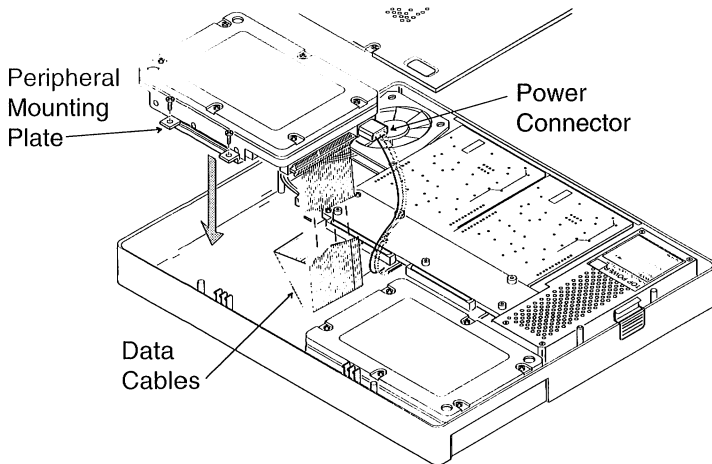
Installing a SCSI or Loadable Device

You can add a SCSI or a loadable device for floppy drives or floptical units to interchange data from other workstations or PCs quickly and easily. After you gain access to the inside of the PXU (as described on page 5-7), use the following procedure to install a SCSI or loadable device, such as a floppy disk or floptical drive.

1. Obtain the appropriate RDI Upgrade Kit from RDI Computer Corporation before performing this procedure.
 For more information on which RDI Upgrade Kit to obtain, contact RDI Customer Service and Support at (619) 558-6775.
2. Remove the five Phillips' head screws from the interface board, shown in Figure 5-7 on page 5-8.
3. Unfasten the fan cable from the interface board, shown in Figure 5-7 on page 5-8.
4. Gently remove the interface board from the power supply by lifting the board straight up (see Figure 5-8 on page 5-9). Be careful not to lift at an angle, or you may bend or break pins on the power supply connector.

5. Remove the interface mounting plate by unscrewing the four mounting screws (see Figure 5-9 on page 5-9).
6. Remove the peripheral mounting plate from the appropriate drive bay, then mount the peripheral to the mounting plate using the screws provided in the RDI Upgrade Kit (see Figure 5-11).

Figure 5-11. Installing a SCSI Device



7. Refer to the RDI Upgrade Kit for further installation instructions.
8. When you finish with the upgrade instructions, gently lower the interface board into position until it is securely seated (see Figure 5-8 on page 5-9).
9. Reinstall the five mounting screws you removed and reconnect the fan cable (see Figure 5-7 on page 5-8).

This completes the SCSI and loadable device installation procedure.

6

Maintenance

Now that you have obtained a PowerLite, it is important for you to maintain it. This chapter provides maintenance information for prolonging the life of your PowerLite.



Warning: *All service and upgrades to the PowerLite must be performed by a trained technician only. Otherwise, you may encounter personal injury, damage your PowerLite, and void your warranty.*

Warnung: *Das Öffnen des Gehäuses zum Zwecke der Reparatur oder zum Wechseln/Hinzufügen von Modulen darf nur von einem qualifizierten Servicetechniker durchgeführt werden. Es besteht Gefahr durch Elektroschock. Durch unsachgemäße Behandlung kann Ihre PowerLite workstation beschädigt werden, außerdem erlischt dadurch die Garantie.*

Cleaning Your PowerLite

The PowerLite is portable. As a result, it may be used in such places as factories, field offices, and construction sites where it is likely to collect dust and require occasional cleaning.

If you want to clean your PowerLite:

1. Properly halt the system, as described in Chapter 4.
2. Turn the power switch off.
3. Unplug the AC adapter/charger before cleaning.
4. Once the PowerLite is turned off, you can clean the case, display, and keytops with mild soap only.

5. When cleaning your PowerLite, avoid spraying or dripping liquid cleaner directly on the PowerLite. Moisten a lint-free cloth with cleaner and use the damp cloth to clean the PowerLite's surfaces.
6. Use a cotton-tipped swab moistened with cleaner to clean keytops, slots, and recesses. Do not use liquid cleaner on connectors or metal contacts. Use only a commercial contact cleaning spray on such parts.

Note:

Never use flammable or organic cleaning solvents to clean the PowerLite. Never use abrasive cleaners. Organic solvents and abrasive cleaners will damage the PowerLite's finish.

7. Use a commercial floppy disk drive cleaning kit to clean the floppy disk drive. Follow the kit manufacturer's instructions carefully.
8. Do not use liquid cleaners on any parts in the interior or exterior of the PowerLite. Accumulated dust may be blown out of the interior using dry low-pressure compressed air. Always wear eye protection when using compressed air to blow out dust.

Packing and Shipping

To pack your PowerLite for shipment:

1. Disconnect all cables from connectors on the PowerLite rear panel. Do not pack the PowerLite with cables still attached to connectors.
2. Verify that the battery compartment on the front-left side and the connector panel on the back of the PowerLite are closed.
3. Be sure the LCD lid is closed and locked into position.

4. Pack the PowerLite in the shipping carton. Use the original shipping carton and packing materials to repack the PowerLite.

If the original materials are unavailable, choose substitutes that will protect the PowerLite from shock, moisture, dust, and temperature extremes.

If substitute packing material is used, the PowerLite must be packed and secured a minimum of two inches from all interior packing carton walls.

Storing the PowerLite

If you intend to store the PowerLite longer than 60 days:

1. Make a complete backup copy of the contents of the hard disk.
2. Fully discharge and then remove the battery pack. Do not store the PowerLite for extended periods with the battery pack installed.
3. Disconnect all cables and pack the PowerLite as described in "Packing and Shipping."

When you want to start using your PowerLite again:

1. Give your PowerLite enough time to stabilize at room temperature before operating. This is particularly important when the workstation is brought from a very cold environment into a warm room. In such cases, moisture can condense on and inside the workstation and can cause problems. Allow at least two hours for the PowerLite's temperature to stabilize after bringing it from a very cold or very warm environment before proceeding.

2. Reinstall the battery pack and charge it for three hours without operating the PowerLite before attempting to operate the PowerLite on battery power.

7

Detailed Hardware Description

This chapter provides a detailed description of the PowerLite hardware.

Physical Packaging

The PowerLite provides a slim, clamshell-style package, while maintaining full workstation desktop configuration capability. The PowerLite has a laptop form-factor, with a weight of 8.5 pounds and a footprint of 11 inches deep by 13 inches wide. The Peripheral Expansion Unit (PXU) provides SBus slots and additional storage media expansion, can be attached to the PowerLite. The PXU connects to the bottom of the PowerLite using a proprietary 120-pin connector, and is the same footprint as the PowerLite laptop.

The keyboard is forward mounted in the base section of the PowerLite and the base section is sloped to provide a comfortable palm rest for wrist support during extended use. The center positioning of the 16 mm integrated trackball allows right- or left-handed usage. In this respect, the PowerLite looks and feels similar to the Apple PowerBook.

The textured case of the PowerLite provides non-slip carrying and scratch resistance. The hinged lid assembly allows 120° swivel for various viewing positions. The PowerLite may operate with the lid closed when an external monitor and keyboard are attached.

CPU Technology

The system motherboard is a dual-sided, 12.4-inch by 4.9-inch PCBA. This PCBA contains the processor, base memory (16 MB), and several embedded I/O controllers. Dual-sided surface mount technology and TAB packaging reduce physical requirements and improve reliability.

The PowerLite CPU utilizes the Texas Instruments' TMS390S10 50 MHz microSPARC processor. The 288-pin TAB device resides on the motherboard. The microSPARC processor chip houses both the IU and FPU functions, as well as first level caches. These caches contain 2 KB for data and 4 KB for instructions. The processor interfaces directly with the memory subsystem and the SBus. There are two companion ASICs, developed by NCR. With the processor chip, this chip set provides the core functions of a SPARC system, except display graphics and audio.

The Master I/O chip (NCR89C100), integrates high performance I/O macrocells and logic including a 7990-compatible Ethernet controller core, a fast 8-bit SCSI core, a high-speed parallel port, a DMA2 controller and a SBus interface.

The Slave I/O chip (NCR89C105) integrates most of the 8-bit system I/O functions including two dual channel 8530-compatible serial controllers, a high speed 82077AA-1 compatible floppy controller, counter/timers, interrupt control, and system reset logic. It also provides an SBus interface for several other byte-wide peripherals through an external expansion bus.

The NCR SLAVIO, NCR89C105, interfaces the 32-bit SBus to the peripheral controllers. The keyboard, floppy, Ethernet, serial, and parallel controllers are queued and buffered by the SLAVIO for high-speed throughput.

At 50 MHz, the CPU delivers 59.1 MIPS, 26.4 SPECmarks and 4.6 MFLOPS of performance.

Display Technology

640 x 480 Colorplus Active Matrix Display

The alternative internal display type is the 640 x 480 Colorplus panel, an active matrix, Thin Film Transfer (TFT) technology panel. The LCD provides a 10.4-inch diagonal viewing area with 8.63" by 6.38" dimensions. The LCD draws 10 watts and has a 60 Hz refresh rate.

Coupled with the on-board S4 video controller and Bt445 RAMDAC, a cg3-type graphics display is supported. Up to 256 colors from a palette of 262,144 colors can be simultaneously displayed.

1024 x 768 Active Matrix Display

The high-resolution 1024 x 768 panel uses active matrix, TFT technology. The LCD provides a 10.4-inch diagonal viewing area with dimensions of 8.63 by 6.38 inches. The LCD draws approximately 13 watts and has a 60 Hz refresh rate.

Coupled with the on-board S4 video controller and Bt445 RAMDAC, PowerLite provides a cg3-type display. Up to 256 colors from a palette of 512 can be simultaneously displayed.

Display Controller

The PowerLite has a multifunctional and multi-resolution display controller. First, the display controller drives the internal display, and second, the controller provides output to an attached external monitor.

The external monitor attaches to the system through a standard 13W3 connector on the rear panel. The controller uses the LSI Logic L64825 SBus graphics controller (S4). The Brooktree BT445 RAMDAC and 1 MB of VRAM support the controller.

When using the 640 x 480 internal LCD, an external 640 x 480 syncing monitor can be attached, allowing simultaneous LCD and monitor operation. This requires a 13W3 to VGA adapter. If an external 1024 x 768 (also requiring 13W3-to-VGA adapter) or 1152 x 900 (66 Hz) monitor is to be used, the internal LCD will not operate (i.e., it will be blanked). The 1024 x 768 PowerLite does not support simultaneous LCD operation with any external monitor.

System Memory

Memory on the PowerLite is accessed through a 64-bit data path. Memory has two bits of parity, one for each 32-bit data element. The memory subsystem supports memory of 60 ns access time.

PowerLite has a base memory configuration of 16 MB. The base memory is integrated on the motherboard and additional memory upgrades provide a maximum configuration of 80 MB. Plug-in expansion modules provide add-on memory. Multiple versions of the expansion module are available, each providing a different amount of add-on memory. Since there is only one expansion module, RDI provides several sizes, as shown in the following table. These memory modules use fixed population (that is, they have no sockets, thereby not allowing untrained user installation of DRAMs).

Table 7-1. Memory Configurations	
Valid Memory Configuration	Add-on Memory Module Required
16 MB	None
32 MB	16 MB module
48 MB	32 MB module
80 MB	64 MB module

For incremental upgrades, you replace the memory module. For example, assume you have a system that has 32 MB total memory with a 16 MB expansion module installed and want 48 MB total. To obtain this desired configuration, you would buy, and have trained service personnel install, the 32 MB expansion module.

Note:

Only trained service personnel should replace the memory modules.

Hard Disk Storage

The PowerLite uses low-profile, 2.5-inch SCSI internal hard drives (HDDs) of various capacities to meet your particular requirements. These drives require only 5v input and dissipate approximately 2 watts of power.

PowerLite supports configurations of one to three HDDs. If one or two HDDs are installed, the floppy drive can also remain installed. If you want three HDDs, then the third HDD replaces the floppy.

The PXU allows two additional low-profile 3.5-inch SCSI devices to be added. At introduction, RDI will offer the PXU with a single 3.5-inch, 450 MB HDD installed and the option of a second 450 MB HDD or floppy disk drive.

Floppy Disk

The PowerLites come with a 3.5-inch 744 KB/1.44 MB low profile floppy disk drive. The floppy drive provides media ejection via a manual push button. It does not provide software eject. The floppy drive is removed from PowerLite models that have three hard disk drives.

Keyboard and Trackball

A full-sized, 104-key, 15-function key keyboard is standard with each PowerLite. The keyboard allows key functionality and placement of a Sun Type-5 keyboard. The keyboard has an integrated three-button 16 mm micro trackball. The dual-ported keyboard controller supports simultaneous external and internal keyboard connection. The PowerLite supports external Sun Type-4 and Type-5 domestic and international keyboards.

If you connect an external keyboard, the on-board keyboard becomes temporarily disabled. For your convenience, you can connect and use an external keyboard when the PowerLite is powered-up. When you remove the external keyboard, the on-board keyboard automatically becomes enabled once again.

An integrated micro trackball facilitates mouseless operation. The trackball is 16 mm in size, has three buttons, and is pixel-accurate. The trackball can be used even when an external mouse or an external keyboard with a mouse is connected to the PowerLite.

FAX/Modem

The PowerLite provides an integrated FAX/modem with a standard RJ-11 connector on the rear panel. The FAX/modem is configured to operate over serial port B. Using an environment variable in the Open Boot PROM, you can select whether serial port B is to be used for the FAX/modem or as a serial line. The default setting is as a FAX/modem. Serial port B is automatically disabled when the FAX/modem is enabled.

The PowerLite incorporates V.32*bis* (14,400 bps) operation with V.42 and MNP 2-4 error correction and V.42*bis* and MNP 5 data compression.

Power Supply

The PowerLite gets power from the internal battery pack or by connecting the external AC power adapter/charger. This adapter operates from 100-240 VAC. The adapter provides both DC power input for running the system and contains the battery charging circuitry. The adapter provides 12 volts into the main system. Battery charge management follows negative-delta-V and Delta-T/Delta-t schemes, and a charge time cutoff. A maximum absolute temperature shutoff ensures that the maximum charge is provided to the battery, but does not reach temperatures high enough to cause damage or limit lifetime.

Battery Technology and Recharging

Nickel Cadmium "D" type cells provide battery operation. The 5000 mA_H NiCads provide two-to-three hours of battery operation, depending on system configuration. The battery pack has six cells, supplying nine volts to the internal DC power converter.

The battery charger circuit has two modes of operation, fast and trickle charge. Fast charge is enabled when the external DC power supply is connected and the system is powered off. Trickle charge operation is selected when the external DC power supply is connected and the system is powered on.

Fast charge provides a three-hour full recharge of the batteries, trickle charge will recharge the batteries in approximately 10 hours.

I/O

The PowerLite provides standard I/O functions found in desktop SPARC systems; serial communications, Ethernet, SCSI, and a parallel port.

PowerLite provides two serial ports that support asynchronous and synchronous communications. Each port provides a complete set of modem support signals, including transmit and receive clocks for synchronous operation. Baud rates from 300 to 38,400 bps are supported. These ports provide RS-232C interfaces. Both ports are provided through the standard I/O break-out cable, providing two DB25-type connectors and the AUI port.

The Ethernet provided has two different interface types: 10 Mbps twisted pair (10BaseT) or AUI (10Base5). Twisted pair connection is provided on the rear of the main unit and AUI is provided through the I/O break-out cable. The standard I/O break-out cable provides the AUI with a DB15 connector. This cable connects to the 36-pin connector above the SCSI port. A standard Centronics-compatible parallel port is provided for connection to printers and other compatible devices. The interface is provided at the rear of the main unit.

A standard 10 Mbps SCSI-2 interface is provided at the rear of the main unit for attaching external SCSI devices. This supports connecting external disk drives, CD-ROMs, etc. Transfer rates are 10 Mbps in synchronous and 5 Mbps for asynchronous operation. Standard Sun 8-bit, 8 kHz audio is provided on PowerLite. Audio jacks on the rear for an external speaker and microphone are provided. The PowerLite also has an internal speaker.

Peripheral Expansion Unit

The Peripheral Expansion Unit (PXU) supports SBus and peripheral expansion. The PXU has expansion bays for two 3.5-inch, 1-inch high SCSI devices, and slots for two standard SBus controllers. The PowerLite “docks” to the PXU through

a 120-pin connector located in the top center of the PXU. This is helped through several alignment guides to allow secure and positive connection.

The PXU has the same footprint as the PowerLite, 12.76 by 11.18 inches. The self-contained unit has a 50 watt, 100-240 VAC, 50-60 Hz power supply. The PXU cannot be powered by the main unit, and must be connected directly to an AC plug. The PXU does not have a power on/off switch since power is controlled by the main unit. When not connected to the main unit, DC power is always off.

The PXU allows easy attachment of extra disks. The right-most location can support a loadable device through a side located access.

The PXU also provides two standard single SBus slots. SBus cards mount in an inverted manner, securely captured in a special mounting system. Spacing between the SBus cards allows a single 2-slot SBus card to be used instead of two single-slot cards. All standard SBus modules are supported, and the PXU provides full SBus slot power requirements (i.e., 2A @ +5V and 30mA @ $\pm 12V$).

The PXU can permanently mount to the main unit, but the main unit cannot be powered up when a connected PXU is not plugged into AC (avoiding a situation where connected, unpowered SBus cards and SCSI devices/terminators are present).

Notes

Operating System	Solaris 1.1.1 or 2.X OpenWindows version 3.X
IU Processor	50 MHz
FPU Processor	Combined
Performance	59.1 MIPS 4.6 MFLOPS 26.4 SPECmarks
Memory	16 to 80 MB DRAM with parity Memory expansion using daughter boards
Cache	2 KB data and 4 KB instruction on-chip
Media	Floppy Disk Drive: 3.5 inch Auto-sensing 720 KB or 1.44 MB capacity Hard Disk Drive: 340 MB formatted 14 ms average seek time Optional 2- or 3-drive configuration

Display	Colorplus 640 x 480 or color 1024 x 768 active matrix LCD	
	<u>640 x 480</u>	<u>1024 x 768</u>
Palette	262,000	512
Pixel aspect ratio	1:1	1:1
Screen aspect ratio	4:3	4:3
Dot pitch.	33 mm	.20 mm
Dots per inch	77	120
Display height	6.38 inches (15.9 cm)	
Display width	8.63 inches (21.2 cm)	
Display Diagonal	10.4 inches (26.4 cm)	
Keyboard	104 keys Sun-5 compatible keyboard Three-button integrated trackball	
I/O Ports	Ethernet (10 Mbps) twisted pair (10BaseT) port Ethernet AUI port with standard adapter One parallel port Two RS-232C serial ports One 8-bit audio port (8-48 kHz) SCSI-2 interface: 50-pin SCSI header port External video: Sun J13W3 port Keyboard/mouse: 8-pin, mini-DIN port Peripheral expansion: 120-pin SCSI SBus	
Controls	Power on/off switch Display contrast	
LED Indicators	Pwr/HDD - Power on/hard disk activity Low Batt - Low battery charge warning Caps - Caps Lock key set Comp - Compose key set Scrl - Scroll Lock key set	

Internal FAX/Modem	V.32bis, V.32 modem, 14,400 bps Hayes AT command set V.42/MNP 2-4/MNP 5 Group III FAX, 14,400 bps Class 1 and 2
Optional Peripheral Expansion Unit	Two 3.5-inch x 1-inch peripheral expansion bays Two standard SBus slots Power supply
Other Features	Internal speaker and microphone Time-of-day clock with separate battery backup Nylon carrying case Docking station feature Simultaneous display capabilities when connecting PowerLite 640 x 480 model to VGA resolution external monitor
System Dimensions	
Height	2.2 inches (5.54 cm)
Width	12.75 inches (32.38 cm)
Length	11.18 inches (28.17 cm)
Volume	0.18 cu. ft. (0.05 cu. m)
Weight	8.5 pounds with battery
Battery weight	1.5 pounds
Environmental	
Altitude	0 to 10,000 ft. (0 to 3048 m)
Operating Temperature	+50 to +104 degrees F (10 to + 46 degrees C)
Storage Temperature	4 to +140 degrees F (-20 to + 60 degrees C)

Battery/Power Supply	NiCad battery (7.2 V) 5 Amp-hour capacity
Charge Life	2-to-3 hours in continuous use
Recharge Time	3 hours charging only
Trickle charge	10 hours Low battery sensing
AC Adapter/Charger	Automatic voltage and frequency sensing
Voltage	85-256 VAC
Frequency	47-63 Hz
Power supply	60 W continuous
DC output	12 Vdc @ 5 A
Length	6.5 inches (165 mm)
Width	3.15 inches (80 mm)
Height	2.16 inches (55 mm)
Weight	1.23 pounds (560 g)
AC cord	NEMA 15P 3-prong grounded plug, 3.3 ft. (1 m)
DC cord	Polarized male connector, 3 ft. (900 mm +/-5)
Regulatory	FCC Part 15 (Class B) VDE 0871 Certified (VDE-B) FCC Part 68 UL 1950 Certified CSA 950 Certified TUV EN 60950 Certified
Options	Expansion memory daughter boards Internal disk drive upgrades Peripheral Expansion Unit Nylon carrying case Antiglare screen Extra battery pack Hard carrying case Extra manual set

B

Connector Pin Assignments

This appendix describes the pin assignments for the PowerLite connectors listed in Table B-1.

Table B-1. PowerLite Connectors

Connector	See...
Keyboard connector	Page B-2
Ethernet twisted-pair connector	Page B-3
FAX/modem connector	Page B-4
Microphone In connector	Page B-5
Headphone Out connector	Page B-6
External monitor connector	Page B-7
SCSI-2 connector	Page B-8
Parallel port connector	Page B-9
Dual serial/AUI connector	Page B-10
Serial port-A connector	Page B-11
Serial port-B connector	Page B-12
AUI connector	Page B-13

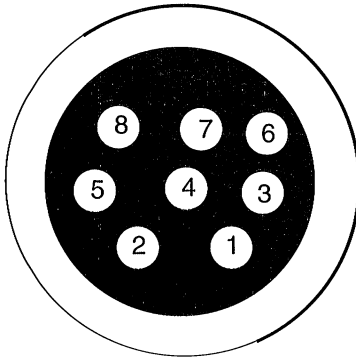
Keyboard Connector

The keyboard connector is a female, 8-pin miniature (DIN-8) connector. Table B-2 lists the pin assignments for this connector. Figure B-1 shows this connector.

**Table B-2. Keyboard Connector
Pin Assignments**

Pin	Signal
1	Ground
2	Ground
3	+5V
4	Mouse Data
5	Keyboard Data Out
6	Keyboard Data In
7	Reserved
8	+5V

Figure B-1. Keyboard Connector



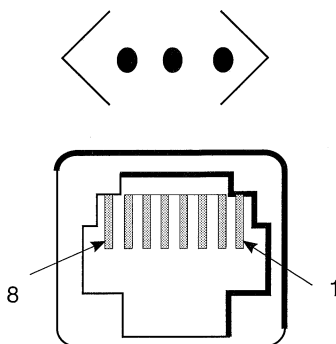
Ethernet Twisted-Pair Connector

The Ethernet twisted-pair connector is a female, 8-pin miniature RJ-45 telephone jack. Table B-3 lists the pin assignments for this connector. Figure B-2 shows this connector.

Table B-3. Ethernet Twisted-Pair Connector Pin Assignments

Pin	Signal
1	XFRM_TP_OUT
2	XFRM_TP_OUT_L
3	XFRM_TP_IN
4	NC
5	NC
6	XFRM_TP_IN_L
7	NC
8	NC

Figure B-2. Ethernet Twisted-Pair Connector



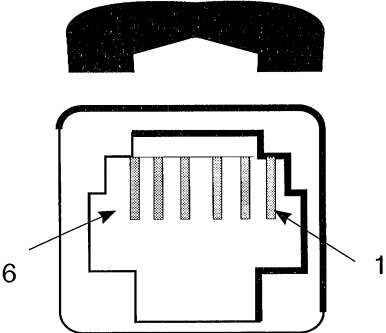
FAX/Modem Connector

The FAX/modem connector is a 6-pin RJ-11 telephone jack. Table B-4 lists the pin assignments for this connector. Figure B-3 shows this connector.

Table B-4. FAX/Modem Connector Pin Assignments

Pin	Signal
1	NC
2	NC
3	Tip
4	Ring
5	NC
6	NC

Figure B-3. FAX/Modem Connector



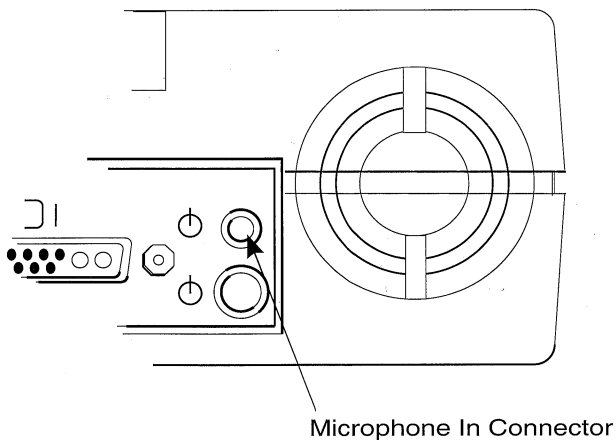
Microphone In Connector

The Microphone In connector is a female, RCA audio miniature jack. Table B-5 lists the pin assignments for this connector. Figure B-4 shows this connector.

Table B-5. Microphone In Connector Pin Assignments

Pin	Signal
1	AUDIOINRTN
2	AUDIOINLEFT
3	AUDIOINRIGHT

Figure B-4. Microphone In Connector



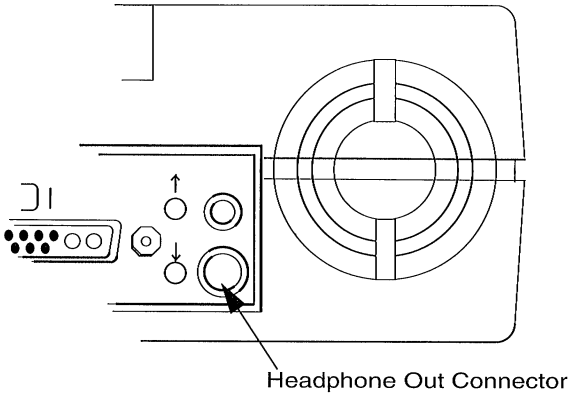
Headphone Out Connector

The Headphone Out connector is a female, RCA audio miniature jack. Table B-6 lists the pin assignments for this connector. Figure B-5 shows this connector.

Table B-6. Headphone Out Connector Pin Assignments

Pin	Signal
1	AUDIOOUTRTN
2	AUDIOOUTLEFT
3	AUDIOOUTRIGHT

Figure B-5. Headphone Out Connector



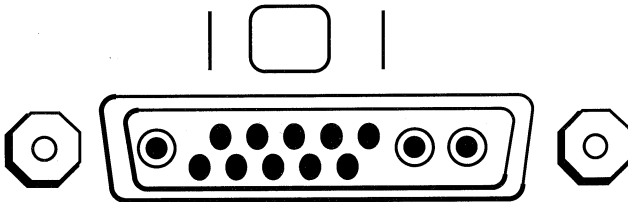
External Monitor Connector

The External monitor connector is a female, 13-pin J13W3 connector. Table B-7 lists the pin assignments for this connector. Figure B-6 shows this connector.

Table B-7. External Monitor Connector Pin Assignments

Pin	Signal	Pin	Signal
1	MONITOR_ID<5>	8	MONITOR_ID<2>
2	MONITOR_ID<6>	9	MONITOR_ID<1>
3	MONITOR_ID<3>	10	VIDEO_GND
4	VIDEO_GND	A1	RED
5	CSYNC_L	A2	GREEN/MONO
6	MONITOR_ID<4>	A3	BLUE
7	MONITOR_ID<7>		

Figure B-6. External Monitor Connector



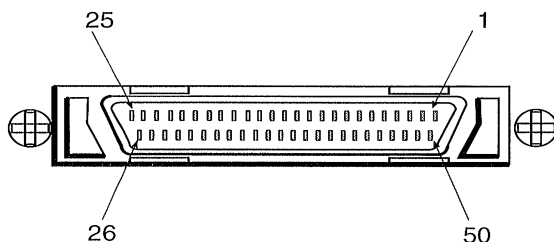
SCSI-2 Connector

The SCSI-2 connector is a female, 50-pin double-row polarized connector. Table B-8 lists the pin assignments for this connector. Figure B-7 shows this connector.

Table B-8. SCSI-2 Connector Pin Assignments

Pin	Signal	Pin	Signal
1 - 11	Ground	36	Ground
12	Reserved	37	Reserved
13	NC	38	TRMPWR
14	Reserved	39	Reserved
15 - 25	Ground	40	Ground
26	SD0-	41	ATN- (Attention-)
27	SD1-	42	Ground
28	SD2-	43	BSY- (Busy-)
29	SD3-	44	ACK- (Acknowledge-)
30	SD4-	45	RST- (Reset-)
31	SD5-	46	MSG- (Message-)
32	SD6-	47	SEL- (Select-)
33	SD7-	48	CD- (Command Data-)
34	SDP- (SCSI Parity)	49	REQ- (Request-)
35	Ground	50	IO (Input/Output Direction-)

Figure B-7. SCSI-2 Connector



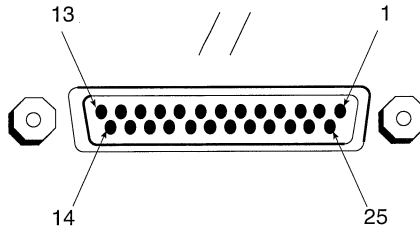
Parallel Port Connector

The parallel port connector on the break-out box is a female, 25-pin (DB25) connector. Table B-9 lists the pin assignments for this connector. Figure B-8 shows this connector.

Table B-9. Parallel Port Connector Pin Assignments

Pin	Signal	Pin	Signal
1	P_DATA-STROBE-L	10	P_ACKNOWLEDGE_L
2	P_DATA<0>	11	P_BUSY
3	P_DATA<1>	12	P_PE
4	P_DATA<2>	13	P_SLCT
5	P_DATA<3>	14	P_AUTO_FEED_L
6	P_DATA<4>	15	P_ERROR_L
7	P_DATA<5>	16	P_INIT_L
8	P_DATA<6>	17	P_SELECT_IN_L
9	P_DATA<7>	18 - 25	Ground

Figure B-8. Parallel Port Connector



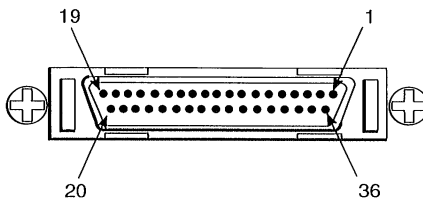
Dual Serial/AUI Connector

The dual serial/AUI connector on the PowerLite rear panel is a female, 36-pin double-row polarized connector. Table B-10 lists the pin assignments for this connector. Figure B-9 shows this connector.

**Table B-10. Dual Serial/AUI Connector
Pin Assignments**

Pin	Signal	Pin	Signal
1	Ground	19	DCDA
2	Ground	20	CTSA
3	COL-	21	TRXCA
4	COL+	22	DSRA
5	TXD-	23	Ground
6	TXD+	24	Ground
7	RXD-	25	RXCB
8	RXD+	26	TXDB
9	ENET 12V	27	RXCB
10	Ground	28	RXDB
11	Ground	29	RTXCB
12	Ground	30	RTSB
13	RXCA	31	DTRB
14	TXDA	32	RTSB
15	RTXCA	33	DCDB
16	RXDA	34	CTSB
17	DTRA	35	TRXCB
18	RTSA	36	DSRB

Figure B-9. Dual Serial/AUI Connector



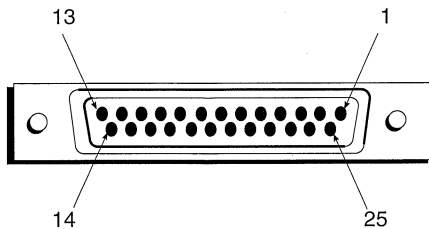
Serial Port-A Connector

The serial port-A connector on the I/O break-out cable is a female, 25-pin (DB25) connector. Table B-11 lists the pin assignments for this connector. Figure B-10 shows this connector.

Table B-11. Serial Port-A Connector Pin Assignments

Pin	Signal	Pin	Signal
1	NC	14	NC
2	SERIAL_TXD_A	15	SERIAL_RXC_A
3	SERIAL_RXD_A	16	NC
4	SERIAL_RTS_A	17	SERIAL_RXDCE_A
5	SERIAL_CTS_A	18	NC
6	SERIAL_DSR_A	19	NC
7	Ground	20	SERIAL_DTR_A
8	SERIAL_DCD_A	21	NC
9	P_DATA<7>	22	NC
10	NC	23	NC
11	NC	24	SERIAL_RXC_A
12	NC	25	NC
13	NC		

Figure B-10. Serial Port-A Connector



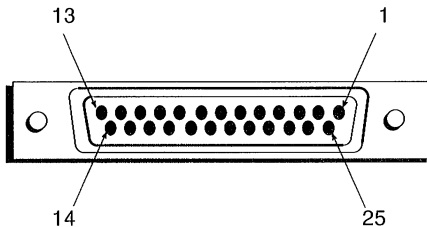
Serial Port-B Connector

The serial port-B connector on the I/O break-out cable is a female, 25-pin (DB25) connector. Table B-12 lists the pin assignments for this connector. Figure B-11 shows this connector.

Table B-12. Serial Port-B Connector Pin Assignments

Pin	Signal	Pin	Signal
1	NC	14	NC
2	SERIAL_TXD_B	15	SERIAL_RXC_BB
3	SERIBBL_RXD_B	16	NC
4	SERIAL_RTS_B	17	SERIAL_RXDCE_B
5	SERIAL_CTS_B	18	NC
6	SERIAL_DSR_B	19	NC
7	Ground	20	SERIAL_DTR_B
8	SERIAL_DCD_B	21	NC
9	P_DATA<7>	22	NC
10	NC	23	NC
11	NC	24	SERIAL_RXC_B
12	NC	25	NC
13	NC		

Figure B-11. Serial Port-B Connector



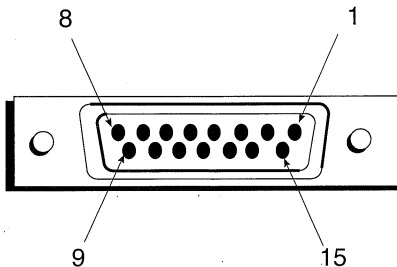
AUI Connector

The AUI connector on the I/O break-out cable is a female, 15-pin connector. Table B-13 lists the pin assignments for this connector. Figure B-12 shows this connector.

**Table B-13. AUI Connector
Pin Assignments**

Pin	Signal
1	NC
2	COL+
3	TxD+
4	NC
5	RXD+
6	Ground
7	NC
8	NC
9	COL -
10	TxD -
11	NC
12	RxD -
13	+12V
14	NC
15	NC

Figure B-12. AUI Connector



Notes

C

Boot PROM Settings

Table C-1 lists the PowerLite's Boot PROM settings. When you receive your PowerLite, its factory-set values will have been configured to default settings using the "set-defaults" command.

Table C-1. Boot PROM Settings

Parameter	Values	Default Value
faxmodem?	true/false	true
disk-on?	true/false	true
lcd-on?	true/false	true
io-on?	true/false	true
tpe-link test?	true/false	true
output device	screen	screen
input device	keyboard	keyboard
sbus probe list	40123	40123
keyboard click?	true/false	false
keymap		
ttyb-rts-dtr-off	true/false	false
ttyb-ignore-cd	true/false	true
ttya-rts-dtr-off	true/false	false
ttya-ignore-cd	true/false	true
ttyb-mode	9600, 8, n, 1, -	9600, 8, n, 1, -

Table C-1. Boot PROM Settings

Parameter	Values	Default Value
ttya-mode	9600, 8, n, 1, -	9600, 8, n, 1, -
fcode-debug?	true/false	false
auto-boot?	true/false	true
watchdog-reboot?	true/false	false
diag-file		
diag-device	net	net
boot-file		
boot-device	disk	disk
local-mac-address	true/false	false
screen-#columns	80	80
screen-#rows	34	34
selftest-#megs	1	1
scsi-initiator-id	7	7
use-nvramrc?	true/false	false
nvramrc		
summon-compac?	true/false	false
security-mode	none	none
security-password		
security-#badlogins	0	<no default>
oem-logo		<no default>
oem-logo?	true/false	false

Table C-1. Boot PROM Settings

Parameter	Values	Default Value
oem-banner		<no default>
oem-banner?	true/false	false
hardware-revision		<no default>
last-hardware-update		<no default>
testarea	0	0
mfg-switch?	true/false	false
diag-switch?	true/false	false

Notes

D

Low Battery Shutdown

This appendix describes the PowerLite's low battery shutdown sequence.

Overview

Your PowerLite's battery is uniquely designed to provide the longest possible duration. As with any battery, however, prolonged use will require the battery to be recharged. Typically, battery power will last from 1.5 to 2 hours, depending on the type and number of processes you are performing.

As battery power decreases, your PowerLite performs a sequence of events, described in Table D-1. During this sequence, your PowerLite provides constant messages that inform you of the battery's current status.

Note:

The **Duration** column in Table D-1 reflects approximate times during typical operating activities and conditions.

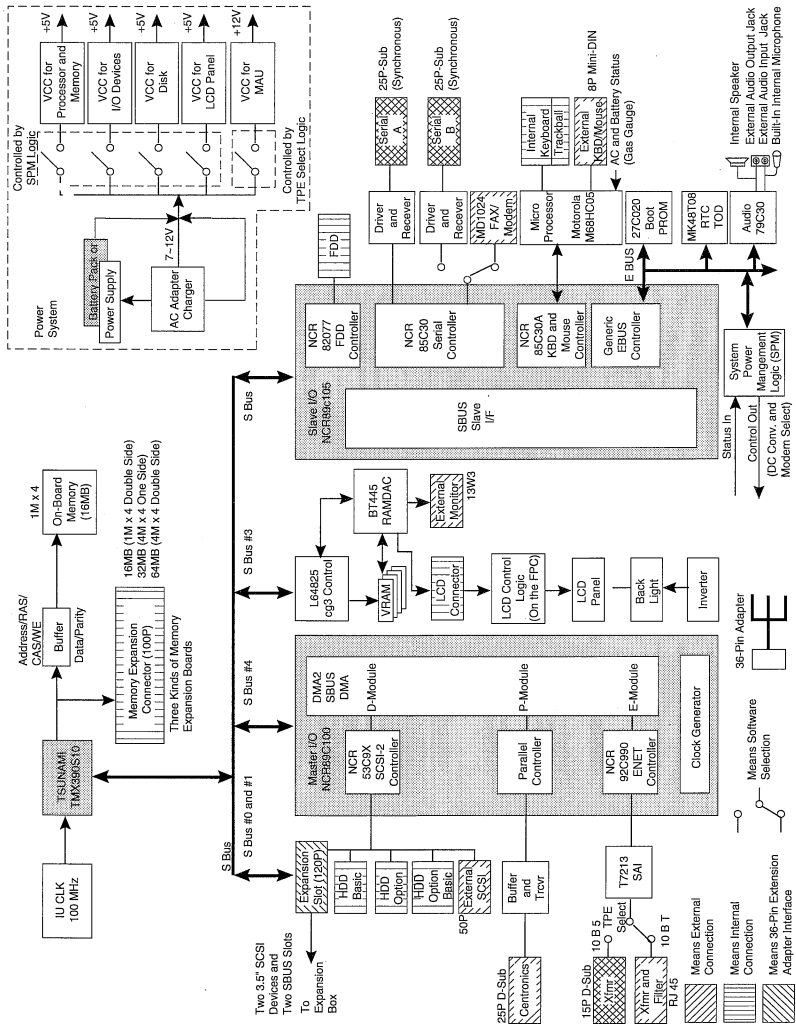
Table D-1. PowerLite Low Battery Shutdown

Battery Status	Duration (Estimated)	System Actions	Actions You Can Perform
Normal battery level	1.5 – 2 hours	None	—
Low battery condition	10 minutes	<p>Low Batt LED flashes.</p> <p>System beeps.</p> <p>System messages show amount of estimated battery life remaining.</p>	Attach AC adapter, or save and begin exiting processes.
Critical battery condition	2 minutes	Solaris starts automatic power shutdown procedure, after which it enters Forth Monitor (OBP).	Solaris shutdown cannot be interrupted. Attaching AC adapter will still require you to boot your PowerLite after the shutdown.
Power shutdown	30 seconds	System remains in OBP until battery power is exhausted, causing automatic power shutdown.	Connect the AC adapter and reboot the PowerLite.



Functional Diagram

This appendix provides a functional diagram of the PowerLite.



Diagram

Notes



External Monitor Matrix

This appendix provides a matrix you can refer to when connecting external monitors to the PowerLite.

Workstation LCD Resolution	External Monitor Resolution	External Monitor State Desired	Simultaneous With LCD	Auto Sensing	Command if No Auto-Sensing (see note below)	13W3-to-VGA Adapter Required
640 x 480	640 x 480	On	✓		640lcd-monitor	✓
640 x 480	640 x 480	On			640monitor-only	✓
640 x 480	LCD Only	Off			640lcd-only--(use this command to reset the display to the internal LCD after using the external monitor)	
640 x 480	1024 x 768	On			1024monitor-only	✓
640 x 480	LCD Only	Off			640lcd-only--(use this command to reset the display to the internal LCD after using the external monitor)	
640 x 480	1152 x 900	On		✓	(no commands are required to start external monitor)	
640 x 480	LCD Only	Off			640lcd-only--(use this command to reset the display to the internal LCD after using the external monitor)	
1024 x 768	640 x 480	On			640monitor-only	✓
1024 x 768	LCD Only	Off			1024lcd-only--(use this command to reset the display to the internal LCD after using the external monitor)	
1024 x 768	1024 x 768	On			1024monitor-only	✓
1024 x 768	LCD Only	Off			1024lcd-only--(use this command to reset the display to the internal LCD after using the external monitor)	
1024 x 768	1152 x 900	On		✓	(no commands are required to start external monitor)	
1024 x 768	LCD Only	Off			1024lcd-only--(use this command to reset the display to the internal LCD after using the external monitor)	

Note: To enter the command strings, press the "Stop" and "a" keys together during system boot or, at the root command line, type **halt** and press RETURN. The workstation will then be in "Open Boot PROM" (OBP) mode; that is, executing from the OBP code. You can then enter the command string. After you enter the command string, type **go** and press RETURN to resume using the PowerLite.

External CRT
Matrix

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