ALPINE WORKSTATION

User's Guide

WHEAT RIDGE, COLORADO

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Repair parts and replacement products shall be furnished on an exchange basis and will be new or reconditioned. Any repaired or replaced product shall carry only the unexpired term of the warranty.

This warranty is valid only if a completed Warranty Registration Card is received within thirty (30) days of the purchase date. This warranty is non-transferable. No warranties, either express or implied, are extended to persons who purchase the product in a used condition. The provisions hereof apply only to products manufactured by Aspen System, Inc.

Warranty Limitations

THE WARRANTIES SET FORTH HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALL OTHER WARRANTIES ARE EXCLUDED. ASPEN SYSTEMS, INC.'S TOTAL LIABILITY HEREUNDER SHALL NOT EXCEED THE PRICE PAID FOR THE PRODUCTS PURCHASED. IN NO EVENT SHALL ASPEN SYSTEMS, INC. BE LIABLE OR RESPONSIBLE FOR ANY DAMAGES ARISING FROM THE USE OF THIS PRODUCT, INCLUDING BUT NOT LIMITED TO DIRECT, INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE PRODUCT.

Shipping Discrepancies

You have three (3) days from receipt of product to notify Aspen Systems, Inc. of any shipping discrepancies.

Product Limitations

THIS PRODUCT IS DESIGNED FOR NORMAL COMMERCIAL USE. IT IS NOT INTENDED FOR USE IN NUCLEAR FACILITIES, MILITARY USE, OR ANY APPLICATION IN WHICH CRITICAL SAFETY IS A FACTOR.

Warranty Service

Products requiring repair under warranty require a return merchandise authorization (RMA) number. To obtain service under this warranty, contact Aspen Systems Technical Support from 9:00 a.m. to 5:00 p.m., Monday-Friday, MST at 800-992-9242 or 303-431-4606; 24 hour fax at 303-431-7196; or 24 hour Internet at techs@aspsys.com.

The RMA number must be clearly displayed on the outside of the shipping package. Units shipped without an RMA will not be accepted by Aspen Systems. Include the following information with the unit you are sending for repair:

- ✓ Proof of purchase.
- ✓ Date of purchase
- ✓ A brief description of the problem, including operating system, configuration, other devices or peripherals, and drivers.
- ✓ The RMA number.

Shipping Instructions

When shipping your system, use its original container(s) and send it postage prepaid and insured. Aspen Systems is not liable for damage or loss to/of the product during shipping.

Freight Damage

If you receive a package that has visible damage, please refuse the shipment. The freight carrier is responsible for shipping damage. If you accept and open a damaged shipment, contact the shipping carrier for inspection and recompense.

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Welcome

Congratulations on your purchase of an Aspen Systems ALPINE Workstation. The ALPINE combines Aspen Systems' leading-edge system architecture with Digital's AXP 21064/21064A microprocessor to give you one of the fastest desktop workstations in the world today.

About This Guide

This guide is designed to give beginning through advanced users quick, easy instructions for the normal, everyday operation of the ALPINE. While this guide is intended to give you a thorough overview of the ALPINE Workstation, it is not a stand-alone reference. Supplement the information in this guide with your Windows NT, Open VMS, or OSF/1 operating system user guide. If you require more specific technical information than is contained in this guide, contact Aspen Systems' Technical Support Department to obtain an ALPINE Technical Manual. This manual offers ALPINE technical specifications for product developers and advanced users.

This guide contains the following chapters:

Chapter 1	Explains how to set up, unpack, inspect, and install your system.
Chapter 2	Explains how to log on and log off the system, and basic operations such as soft booting and hard booting.
Chapter 3	Explains how to maintain your system.
Chapter 4	Explains how to upgrade your ALPINE. Card, memory, internal drive, and external device installation instructions are included in this chapter.
Chapter 5	Explains troubleshooting procedures.
Appendix A	Describes cable connections and port pinouts.
Appendix B	Provides ISA memory and interrupt usage.
Appendix C	Provides ALPINE hardware specifications.
Appendix D	Provides information about Windows NT factory configuration; ARC Console; Returning to a Stable Software Platform; and describes the drivers and cards that can be used on the ALPINE.
Appendix E	Provides basic information about installing various types of network cards onto your ALPINE.
Glossary	Provides definitions of common technical terminology.

Conventions

The following conventions are used in this guide:

< >	Designates a key name. For example <CTRL> means "Ctrl key." <DEL> means "Delete key."
▲WARNING	Signals that the subsequent information is vital to preventing personal injury and/or maintaining system integrity. Read these carefully.
☛NOTE	Indicates important information that should be read.
⇨	Indicates that the following information is one in a series of steps in a procedure.
✓	Indicates product features/components.
◗	Identifies a section heading.

Technical Support

Aspen Systems offers technical support Monday through Friday, 9:00 a.m. to 5 p.m., MST.

You can reach Aspen's Technical Support Department by phone, fax, or Internet:

Phone: 800-992-9242 or 303-431-4606
Fax: 303-431-7196
Internet: techs@aspsys.com

When contacting technical support, please include or have the following information ready:

ARC Console Revision (located at the top of the initial ARC Screen)
ALPINE Model Number
Cache Size
HAL Version, if applicable (located on the Windows NT set-up disk)
Memory Size/Jumper Settings
Network Card Type
Operating System
Peripherals
Processor Speed
Serial Number
Video Card Type

When calling Technical Support, please be seated in front of your system and ready to interact with the technician.

Unpacking the ALPINE ▸

▲WARNING: Failure to follow the directions contained in this section may result in personal injury, system failure, and/or the void of your system warranty.

▲WARNING: The ALPINE System and its monitor are heavy. Use two people to unpack these components in order to avoid personal injury and/or injury to the system.

Your ALPINE system comes in two boxes (one for your monitor, the other for your workstation and its accessories). After you have completely unpacked your ALPINE system, check to make sure that you have all of the following components:

✓ DB-9 Mouse Adapter
✓ Keyboard
✓ Monitor and Monitor Video Cable
✓ Mouse
✓ Power Cords: System and Monitor
✓ ALPINE Workstation User's Guide
✓ Operating System User's Guide and Floppy Disks
✓ Warranty/Registration Card (located on the back page of this guide)

Be Sure to Send Your Warranty Registration

Fill out the postage-paid Warranty/Registration card and mail it to Aspen Systems. This will expedite any technical support you may need and validate your warranty.

What to Do if a System Component is Damaged or Missing.

If any of your system components are damaged or missing, contact Aspen Systems Customer Service at 800-992-9242 or 303-431-4606 or your system integrator immediately. If you have a damaged component, Aspen Systems will issue you an RMA (Return Merchandise Authorization) which you must include when returning a non-functional item.

☞NOTE: Save your product packaging. You must return your unit and components in their original containers in order to receive service. (Refer to the *Product Warranty* section on p. ii-iii of this guide for more information.)

Save your product packaging. You will need this if you ever have to send your ALPINE or monitor back to Aspen for service or ship it elsewhere.

Inspecting Your ALPINE ▸

After unpacking the ALPINE, familiarize yourself with it and inspect it for loose parts and/or damage. (Go to Chapter 2, page 15 for instructions about how to inspect your system for the first time.)

Figure 1.1 shows the desktop ALPINE front panel. Figure 1.2 shows the tower ALPINE front panel.

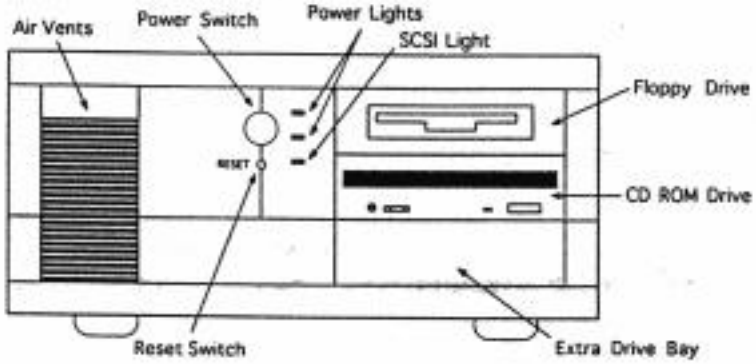


FIGURE 1.1: The Desktop ALPINE Front Panel

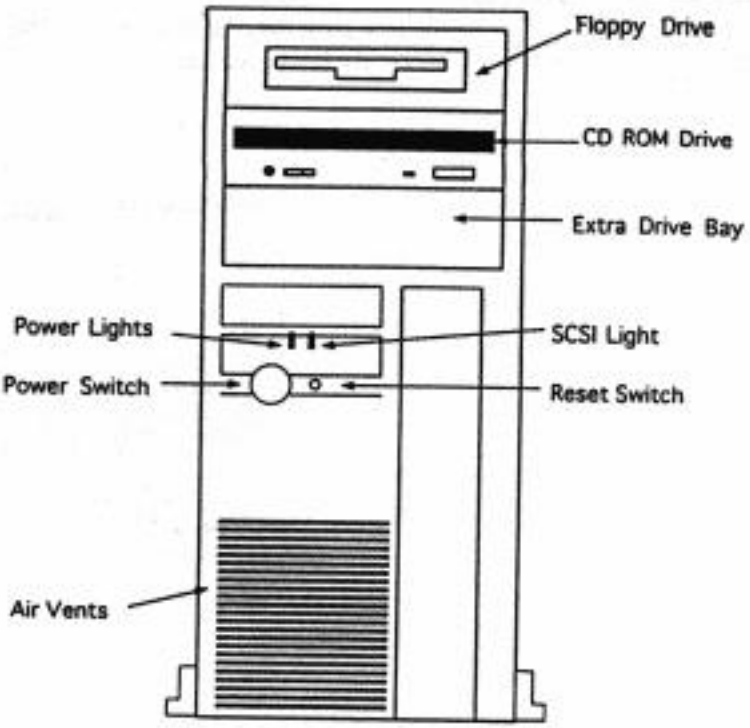


Figure 1.2: The Tower ALPINE Front Panel

Air Vents — These allow air to circulate freely inside the ALPINE case. Never block the air vents.

Power Switch — Pushing this button turns your system on and off.

Power Lights — These two lights illuminate when the system is powered "on."

SCSI Light — This light indicates activity on the SCSI bus. It flickers during an access to any internal or external FAST SCSI II device.

Floppy Drive — This drive accepts 1.44 Mbyte standard 3.5" floppy diskettes.

CD-ROM — This is a double-spin FAST SCSI II drive that accepts CD-ROM disks. The drive requires a caddy with cables (see *Chapter 4-28 ❑ Installing Floppy Drives, Hard Drives, and Storage Peripherals in the Additional Drive Bay*).

Extra Drive Bay — You can install an additional FAST SCSI II or floppy device in this drive bay. (See *Chapter 4-28 ❑ Installing Floppy Drives, Hard Drives, and Storage Peripherals in the Additional Drive Bay* for information about removing the ALPINE case.)

Reset Switch — This button is used to Hard-Reset the system. It is recessed and intentionally "stiff" to the touch in order to prevent accidental resets from occurring.

NOTE: Your ALPINE system may be installed with a network adapter or other system option, in which case your system will not exactly match the diagrams in this guide.

Figure 1.3 shows the desktop ALPINE rear panel. Figure 1.4 shows the tower ALPINE rear panel.

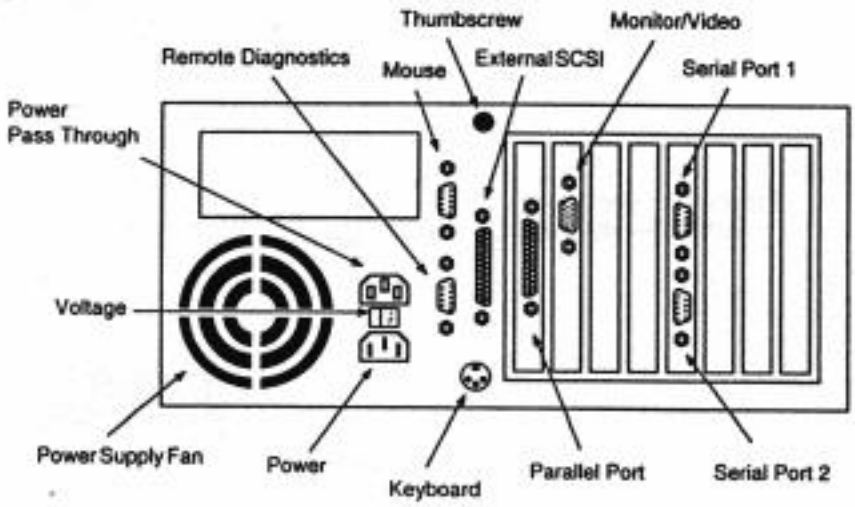


FIGURE 1.3: The Desktop ALPINE Rear Panel

Power Supply Fan

This fan air-cools the power supply. Never block this fan.

Power Pass Through

This is an auxiliary power socket that you can plug your monitor or other peripheral device into rather than into a separate power outlet. Contact Aspen Systems or your system integrator for a special monitor power cable if you want to plug your monitor into the power pass through.

Remote Diagnostics Port

▲WARNING: Never plug a device into the diagnostics port unless directed to do so by Aspen Systems Technical Support or your system integrator.

This port lets technicians perform remote diagnostics on your system, even in the event of a complete system shut-down. (See *Chapter 5 ❑ Trouble Shooting* for information about hooking up the ALPINE for remote diagnostics technical support.)

Mouse Port

This is the port into which you insert the mouse cable. The ALPINE accepts only PS/2-style mice and comes with a custom DB/9 mouse adapter.

Replacement adapters are available only through your system integrator or Aspen Systems.

Voltage Switch

▲WARNING: Failure to set the voltage switch correctly will damage the power supply. Be certain the voltage displayed on the switch matches your locally supplied voltage.

This switch lets you adapt your ALPINE run at either 110-120V or 220-240V.

Thumbscrew

This screw attaches the ALPINE outer plastic case to the inner system frame.

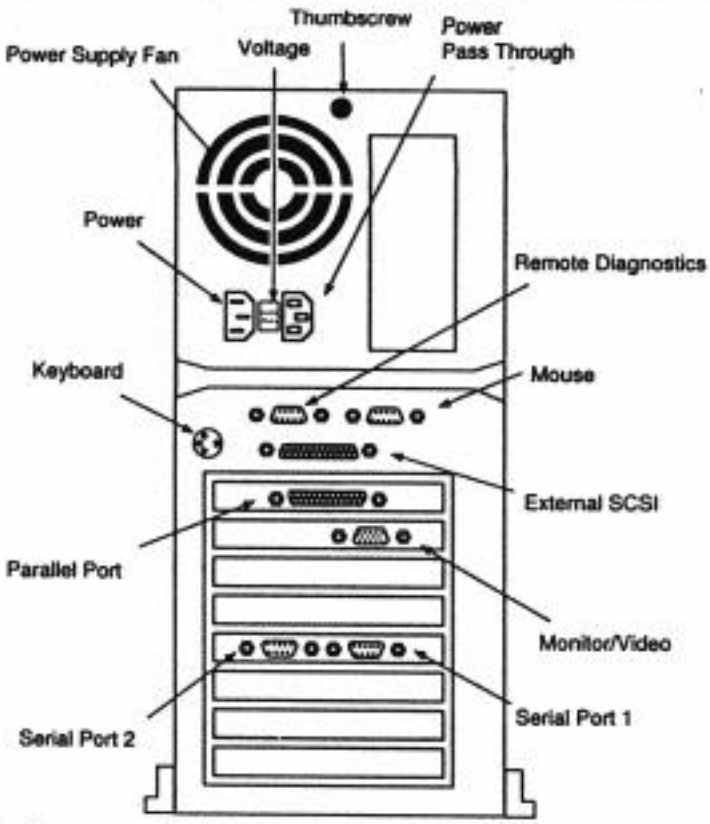


FIGURE 1.4: The Tower ALPINE Rear Panel

Monitor/Video Port This is the port to which you connect your monitor/video cable.

Power This is the outlet into which you plug the system power cord.

External FAST SCSI II This is the port to which you connect external FAST SCSI II devices to the system.

▲WARNING: If the external FAST SCSI II port is used in addition to internal FAST SCSI II devices, the internal SCSI termination must be removed. See *Appendix A* for information about removing the internal SCSI termination.

Serial Ports 1 and 2 These ports are standard, 9-pin serial ports and are NS16550 compatible.

Parallel Port This port is a standard 25-pin parallel port, offering bi-directional and high-speed capabilities. It supports ECP, EPP, and fast centronics protocols.

Keyboard Port This port supports AT-style keyboards. The keyboard must be plugged into this port before powering on the system.

Preparing to Set Up the ALPINE

The ALPINE is available in both desktop and tower configurations. Figure 1.5 shows the ALPINE in a desktop configuration and Figure 1.6 in a tower configuration.

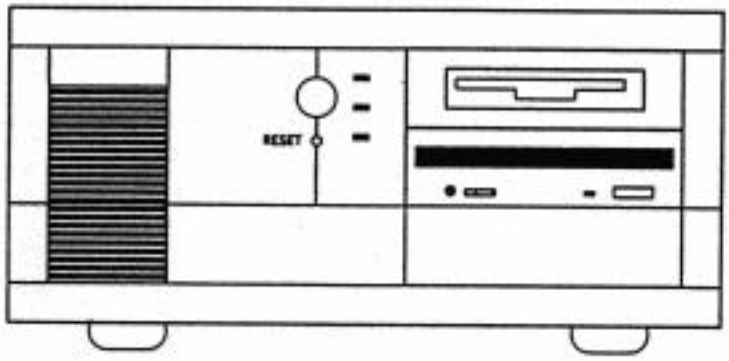


FIGURE 1.5: Desktop Configuration

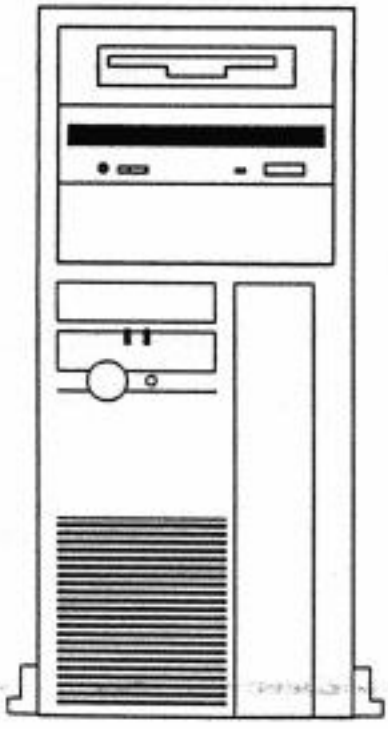


FIGURE 1.6: Tower Configuration

Placing Your ALPINE System

It is important to find a suitable location to place your system. While the ALPINE was designed for heavy commercial operation, its working location needs to meet certain environmental criteria in order for it to operate efficiently.

Choose a location for your system that meets the following requirements:

✓ Is located near a grounded AC power source.
✓ Has a stable temperature (the temperature should not vary more than 20°F/hour).
✓ Is not in direct sunlight or close to a heat source, such as a radiator.
✓ Offers at least 4" of space around the entire system in order to guarantee adequate ventilation.
✓ Is relatively dust- and dirt-free.

Using Floor Stands with the ALPINE

Your system should be placed on a flat, stable surface. If you are using a floor stand, make sure that it is rated for a load of at least 35 lbs.

Setting Up the ALPINE

▲WARNING: Do not jar or drop the system or components.

Before you set up your system, you should have unpacked it, familiarized yourself with it, and found a location for it that meets the requirements stated in the previous section.

You will need the following components in order set up the system:

✓ ALPINE unit (CPU) and power cord.
✓ Keyboard.
✓ Monitor, monitor video cable, and monitor power cord.
✓ Mouse and DB-9 mouse adapter.

Check Your ALPINE for Loose Parts

You should remove your system case and check for parts that may have loosened during shipping before using your ALPINE for the first time. The ALPINE is available in desktop and tower configurations. The following section explains how to remove and inspect the desktop-configured ALPINE. Go to page 17 in this chapter for instructions about inspecting and removing the tower-configuration ALPINE case.

Procedure for Inspecting the Desktop ALPINE

Remove the ALPINE case cover.

⇨Remove the thumbscrew located on the top center back of the ALPINE (see Figure 1.3) by turning it counterclockwise.

⇨Place your thumbs on the two thumbwings located on the lower rear sides of the plastic casing.

⇨With your thumbs, gently push out the casing horizontally, away from the system.

▲WARNING: Power-off your system and unplug it from the AC outlet before removing the ALPINE case. Failure to do so may result in personal injury, system failure, and the void of your warranty. Never touch the port connector pins. Take anti-static precautions whenever removing the ALPINE case and/or touching the inside of your system. Anti-static precautions include:
- Wear an anti-static wrist band.
- Ground yourself when touching the exposed system.
- Do not work on or near carpeting (stand on concrete, terrazzo, linoleum, or an anti-static mat and place your system on a table).
- Do not wear clothing that creates static electricity when removing the ALPINE case or changing its internal cards and devices. Failure to take anti-static precautions may result in system failure and will void your warranty.

⇨While continuing to push outward, gently lift up the casing.

⇨The front of the casing will disengage when you have lifted the casing approximately 40° from its original position.

⇨Lift the case off the system.

Inspect the Inside of the System

⇨Visually inspect the inside of the ALPINE for parts that may have loosened due to unusually rough shipping. While the ALPINE components should not dislodge even when subjected to rough handling, check for dislodged fans, cables, or other loose parts. Contact Aspen Systems Customer Service or your system integrator immediately if you find a loose part.

Remove the Desktop ALPINE Configuration Front Panel

⇨Remove the ALPINE case (if you are following the procedure for inspecting your system for the first time, you have already done this).

⇨Gently push down on the front panel's three plastic tabs. The tabs are located on the top right, top left, and top middle (directly in back of the power button) of the ALPINE inside front frame. This will release the front panel.

Inspect the Inside Front System Panel

⇨Visually inspect the inside of the ALPINE front panel for a loose speaker. If the speaker is loose, contact Aspen Systems Customer Service or your system integrator.

Replace the Desktop ALPINE Configuration Inside Front Panel

▲WARNING: Failure to adequately secure the front panel will cause the ALPINE power button to fail.

⇨Holding the front panel's bottom at a 45° angle to the system's inside frame, place the three bottom front panel tabs into their corresponding tab cutouts in the system's bottom inner frame.

⇨Gently push the top of the front panel against the system's inner metal frame. You will hear the right top tab lock into the frame.

⇨Check the middle top and left top tabs to ensure that they have securely snapped into place.

Replace the Case Cover

⇨Lift the case and gently rest the case's front edge directly in back of the ALPINE front panel (the case's top front edge will be at a 90° angle to the front panel).

➪Place your thumbs on the thumbwings.

➪Gently push the back sides of the casing out horizontally, while simultaneously lowering the casing back until it is at a 45° angle to the system.

➪Gently push the front of the case against the front panel.

➪Continue pushing gently forward and out while lowering the case onto the back of the ALPINE.

➪When the case is completely lowered onto the system, check to make sure that the case's outer and inner system casing is aligned, and push down gently on the top back of the case until you hear a soft "snap," indicating that it has locked into place.

➪Gently push forward on the unit's front panel to ensure that it has not loosened during this procedure. (If the front panel is not secured, the power switch will not work correctly.)

➪Replace the back thumbscrew by turning it clockwise.

➪Skip the following section and proceed to the *Place Your System in Its Permanent Location* section on page 19.

Procedure for Inspecting the Tower ALPINE

Remove the Tower ALPINE Case Cover

➪Remove the thumbscrew located on the top center back of the ALPINE by turning it counterclockwise (see Figure 1.4).

➪Place your thumbs on the thumbtabs located on the bottom right and left of the plastic casing's rear panel.

➪With your thumbs on the thumbtabs, gently push the casing out horizontally, away from the system.

➪Gently pull the casing toward you.

➪After you have pulled approximately one-third of the casing off of the system, lift the case up and completely off the system by gently pulling the sides of the plastic case away from the system while lifting up.

Inspect the Inside of the System

➪Visually inspect the inside of the ALPINE for parts that may have loosened due to unusually rough shipping. While the ALPINE components should not dislodge even when subjected to rough handling, check for dislodged fans, cables, or other loose parts. Contact Aspen Systems Customer Service or your system integrator immediately if you find a loose part.

Remove the Tower ALPINE Front Panel

- ⇨Remove the ALPINE case (if you are following the procedure for inspecting your system for the first time, you have already done this).
- ⇨Gently push down on the front panel's plastic tabs. Two tabs are located on the top right and left of the ALPINE inside frame. A third tab is located halfway down the ALPINE inside front frame on the right side.
- ⇨Tilt the front panel forward toward you. This will release the front panel from the inside system frame.
- ⇨Lift the front panel off the inside system frame.

Inspect the Inside Front System Panel

- ⇨Visually inspect the inside of the ALPINE front panel for a loose speaker. If the speaker is loose, contact Aspen Systems Customer Service or your system integrator.

Replace the Tower ALPINE Front Panel

- ⇨Holding the front panel's bottom at a 30° angle to the system's inside frame, place the bottom tabs into the tab cutouts on the ALPINE inside front frame.
- ⇨Gently push the front panel against the system's inner metal frame. You will hear the top tabs and side tab lock into the frame.
- ⇨Check the tabs to ensure that they are engaged.

Replace the Tower ALPINE Casing

- ⇨Place your system in its normal operating position, with its back toward you (the power supply fan will be on the top, expansion slots on the bottom).
- ⇨Holding the plastic outer case (your hands should be placed on either side of the bottom of the case, midway between the case's front and back feet), gently pull the plastic case's sides out and lower the plastic case over the inside frame.
- ⇨Place the bottom thumbtabs into their slots on the inside frame.
- ⇨Gently squeeze the front of the plastic case in toward the system frame while simultaneously pushing the plastic case forward to secure it to the plastic front panel.
- ⇨Check all seams where the plastic case and plastic front panel join to ensure a smooth fit.
- ⇨Replace the top back thumbscrew by turning it clockwise.

Place Your System in Its Permanent Location

⇨Place your system in its permanent location, taking into consideration the requirements discussed in the *Preparing to Set Up the ALPINE* section.

⇨Place your monitor in its permanent location. (It is acceptable to place the monitor on top of the system case.)

Connect System Cables

⇨Connect the video cable to the monitor. Refer to Figures 1.7 and 1.8 for instructions on connecting both Mini D-15 cabling (standard with ALPINE monitor) and BNC cabling.

⇨Connect the power cord to the monitor. (See Figures 1.7 and 1.8.)

⇨Tighten the thumbscrews on both ends of the monitor video cable.

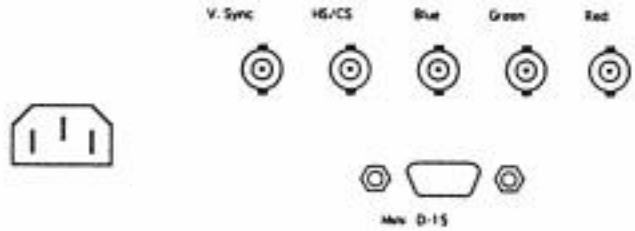


FIGURE 1.7: ALPINE Monitor Video Connectors

FIGURE 1.8: Connecting Monitor Power and Video Cables to the ALPINE

▲WARNING: Never disconnect the keyboard, mouse, video, or any other cable when the system is powered on.

▲WARNING: Before turning on your system, make certain that your system's voltage switch (a red switch located on the ALPINE rear panel) is set for the appropriate voltage in your area. (See Figures 1.3 and 1.4.) The ALPINE has a 270 watt power supply that can operate at either 110-120 VAC or 220-240 VAC.

▲WARNING: Do not modify the power cord or attempt to use the power cord if not compatible with your AC outlet. If the power cord is not compatible, contact Aspen Systems Technical Support. Modifying the power cord in any manner may result in personal injury or system failure and will void your system warranty.

➪Connect the system power cord to the ALPINE. (See Figures 1.3 and 1.4 for the location of the system power outlet.)

➪Place the keyboard and mouse in their permanent locations.

➪Connect the keyboard and mouse cables to the system. (See Figures 1.3 and 1.4 for the location of the system keyboard and mouse ports.)

➪Re-check all your cable connections, making certain that they are secure.

➪Connect the system power cord to a grounded AC power outlet.

This completes *Chapter 1 ❑ Setting Up Your System*.

Chapter 2 ❑ Using Your System will show you how to log on, log off, and perform basic functions on your ALPINE.

❑ 2 Using Your System

▲WARNING: Windows NT, Open VMS, and OSF/1 are a multitasking operating systems (two or more programs can run simultaneously)—because of their multitasking capabilities, it is important to adhere to the following procedures when logging onto, operating, and logging off of your system. Failure to do so may corrupt your hard drive and cause future system failure.

This chapter will teach you how to log onto, log off of, and perform hard and soft resets to, your ALPINE.

Starting Your System

When powering on your system, always turn your monitor on first, followed by any peripheral devices, before turning on your system unit. For example, if you have a monitor and tape backup drive connected to your system, turn on these devices in this order: monitor, tape backup drive, system unit. Similarly, if you have an external hard drive, an external CD-ROM drive, and monitor, turn your system on in this order: monitor, CD-ROM and/or hard drive, system unit. Follow these steps when starting your system:

▲WARNING: Be sure to turn on your monitor and peripherals before turning on your system in order to maintain system integrity

✓ Turn on your monitor.
✓ Turn on any attached peripheral devices.
✓ Press the ALPINE power switch. (See Figure 1.1)

When the system receives power, the two power indicator lights on the ALPINE front panel will light up and the SCSI light will flicker.

System Log On

After your system has performed its startup/diagnostic test sequence, the following will appear on your screen:

Boot [Default Operating System]
Boot an alternate operating system
Run a program
Supplementary menu

FIGURE 2.1: The ALPINE ARC Console Boot Menu

NOTE: Your ALPINE comes installed with either Windows NT, OSF/1, or Open VMS operating systems. The name of your default operating system will be displayed on the first line of the Boot Menu.

Loading Your Operating System

To load your operating system, open the "Boot [Default Operating System]" option by highlighting it using <↑> and <↓> on your keyboard and pressing <Enter>.

For additional information about your operating system not covered in this section, refer to your operating system user's guide and/or the appropriate operating system appendix in this guide.

System Log Off

Follow these steps when logging off, soft resetting, or hard resetting your system:

▲WARNING: Follow these procedures whenever you power-off, soft reset, or hard reset your system. Failure to do so may result in system failure and void your warranty.

➪Close your operating system. (See your operating system user's guide for further information about closing your operating system.)

⇨If powering off, turn off your peripherals, monitor, and system, in that order.

This procedure will prevent hard drive corruption and/or losing your data files.

System Resets

There are two types of system resets that you can perform on your ALPINE: soft resets and hard resets. Soft resets reload your default operating system, but do not interrupt power to your monitor and peripheral devices. Hard resets reload your default operating system and interrupt power to your system, monitor, and peripheral devices.

Soft Reset

To soft reset your system, follow these steps:

⇨Exit from your operating system.

⇨Press the "Reset" button on the front of your ALPINE (see Figure 1.1).

The ALPINE will automatically re-start and return you to the ARC Console Boot menu.

Hard Reset

To hard reset your system, follow these steps:

⇨Exit from your operating system.

⇨Turn off your system.

⇨Turn your system on again. The ALPINE will re-start, perform its start-up sequence, and return you to the ARC Console Boot menu.

Installing Alternate Operating Systems

▲WARNING: Be sure to install only Alpha-version operating systems. Call Aspen Systems Technical Support or your system integrator for a list of Alpha-version operating systems and software.

You can install and use operating systems other than your default operating system on the ALPINE. Use the Setup disks that come with your ALPINE when installing operating systems. Refer to your operating system user's guide for additional instructions about installing and using an alternate operating system.

Ethernet Cards and Networking

If your system came installed with an Ethernet card, use the Ethernet setup disks that came with your system when installing and/or re-installing Ethernet software. Refer to Appendices D and E for additional information about Ethernet.

This completes *Chapter 2 ❑ Using Your System.*

Chapter 3 ❑ System Maintenance will show you how to perform necessary maintenance on your ALPINE.

❑ 3 System Maintenance

Your ALPINE is designed to withstand heavy commercial use. You must, however, perform simple, routine system maintenance to ensure your ALPINE's optimal performance.

Remove dust and dirt from your system regularly

Wipe dust and particles from your keyboard, monitor, and system unit regularly. Do not use liquid to clean your keyboard, monitor, or system unit—use a soft, dry cloth only. You may use a household-grade glass cleaner to clean your monitor screen, but do not let any moisture enter the monitor's housing.

Routinely clean your power supply and system fans. To clean the fans, remove the ALPINE cover case (see *Chapter 1-15 ❑ Setting Up the ALPINE*) and use compressed air to remove any accumulated dust or dirt.

How to clean liquids spilled on the keyboard

Routinely remove dust from system connectors using compressed air.

If you spill liquids on the keyboard, follow these steps:

⇨Turn off the system. (See *Chapter 2-21 ❑ System Log Off.*)

⇨Unplug the keyboard from the system.

⇨Drain the keyboard.

⇨Wipe the keyboard off.

⇨Allow the keyboard to dry overnight before reattaching it to the system.

If the keyboard does not function, or if you spill coffee, tea, carbonated beverage, or any acidic liquid on the keyboard, contact Aspen Systems or your system integrator.

This completes *Chapter 3 ❑ System Maintenance*.

Chapter 4 ❑ Upgrading Your System will show you how to add memory, cards, and devices to your ALPINE.

The ALPINE Slots, Ports, and Bays

The ALPINE is designed to allow you complete upgrading flexibility. The following slots, ports, and bays are available for expansion:

✓ -3- PCI Slots
✓ -3- ISA Slots
✓ -1- Internal SCSI Port
✓ -1- External SCSI Port
✓ -1- Parallel Port
✓ -2- Serial Ports

Typical factory-installed add-ons

Most ALPINE systems come factory-installed with one 3.5-inch internal floppy drive, one internal CD-ROM drive, and one internal hard drive. If you have specific questions not covered in the following section regarding add-on compatibility or installation, call Aspen Systems Technical Support or your system integrator for additional information.

▲WARNING: Unplug the system and attached peripherals when adding or removing any internal or external devices. The ALPINE power supply supplies voltage power to your system. Never touch the power supply when the system is plugged into the power outlet. The power supply should be serviced only by Aspen Systems or one of its authorized agents. Any modifications to or tampering with the power supply by any person other than an Aspen Systems-authorized technician will render your system warranty void.

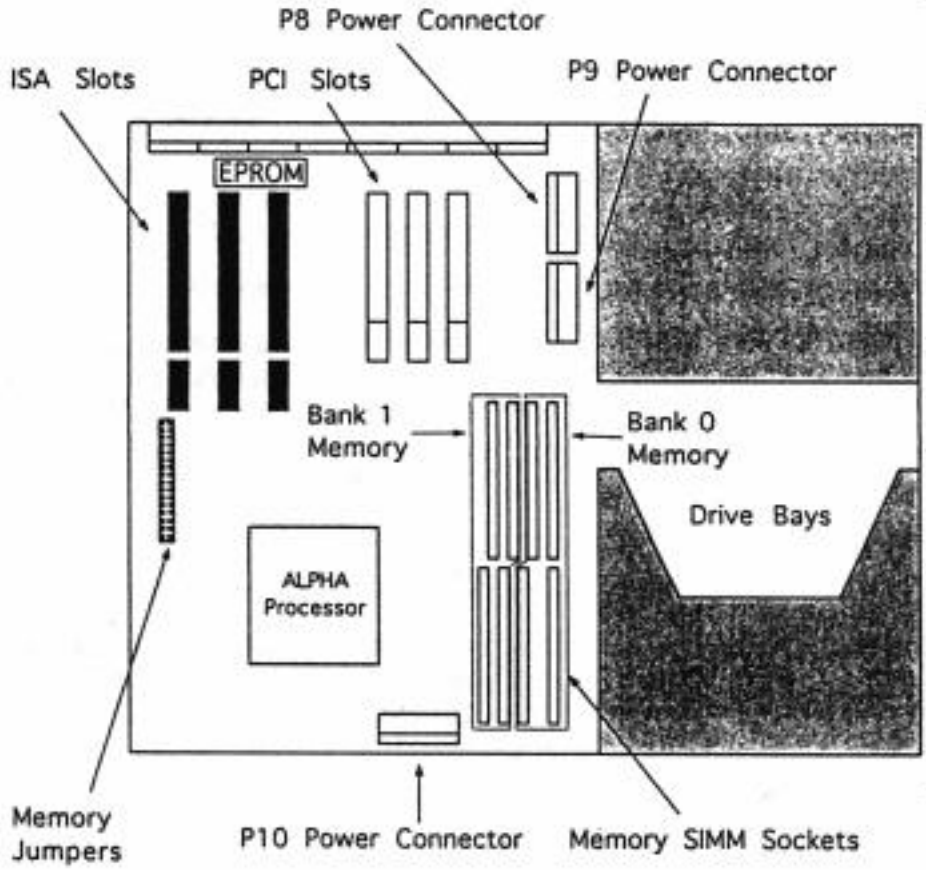


FIGURE 4.1: Inside the ALPINE

▲WARNING: Take anti-static precautions whenever removing the ALPINE case and/or touching the inside of your system. Anti-static precautions include:
- Wear an anti-static wrist band.
- Ground yourself when touching the exposed system.
- Do not work on or near carpeting (stand on concrete, terrazzo, linoleum, or an anti-static mat and place your system on a table).
- Do not wear clothing that creates static electricity when removing the ALPINE case or changing its internal cards and devices.

Failure to take anti-static precautions may result in system failure and will void your warranty.

▲WARNING: Only install Alpha version drivers onto your system. Installing non-Alpha cards into your system may cause system/device failure.

Slots and Cards

ISA Slots

The ALPINE has three PCI and three ISA slots that let you install additional cards into your system.

The ISA slots are located on the left side of the inside of your ALPINE. (See Figure 4.1.)

The ISA slots let you add IBM PC-compatible cards to your system. As

System Interrupts and Memory Space Conflicts

with all IBM PC-compatible products, when installing cards into ISA slots, you must make certain not to create a conflict with system interrupts and memory spaces. If a conflict does occur, your ALPINE may work unreliably or may not boot. Refer to *Appendix B ❑ ISA Memory Interrupt and Usage* for further information.

ISA Card Drivers

When installing cards into the ISA slots, make sure that the card has a driver that adapts it to your specific operating system and that the driver is an Alpha version driver. This is necessary to create compatibility between your ALPINE and your card. Attempting to use standard DOS drivers or the card's ROM/firmware will result in an inoperative device.

PCI Slots

Note: The ALPINE's PCI slots support Intel standards.

The PCI slots are shorter than the ISA slots and are located to the right of the ISA slots. (See Figure 4.1.) The ALPINE PCI slots support the new PCI standard established by Intel Corporation. Any cards that work on Intel platforms will also work on the ALPINE System. As with ISA cards, you must install an Alpha driver that provides compatibility with both your operating system and the Alpha.

How to get a list of cards and drivers approved for use with the ALPINE

Contact Aspen Systems Technical Support or your system integrator for a list of cards and drivers that are approved for use with the ALPINE System.

Go to the *Installing Internal Cards* section in this chapter for information about installing cards in your ALPINE.

Memory

The ALPINE supports memory expansion of up to 1 Gigabyte using special SIMMS available through Aspen Systems, and up to 512MB using standard SIMMS.

Populating Bank 0 and Bank Memory

When adding or removing memory from your system, you must add or remove an entire bank at a time.

Memory Bank 0 consists of the two right-sided sockets. Bank 1 is comprised of the four left-sided sockets (see Figure 4.1). The two banks can be independently populated, although you cannot populate a single bank with different memory types.

For example, Bank 0 could be populated with 2Mx36 SIMMS, for a total of 32 Mbytes, while Bank 1 could be populated simultaneously with 8Mx36 SIMMS, for a total of 128 Mbytes. This would give you total system memory of 160 Mbytes. You cannot, however, place 2Mx36 SIMMS and 8Mx36 SIMMS in the same memory bank.

Operating System RAM Requirements

Since all operating systems have minimum RAM requirements, one of the two banks must always be populated to provide your operating system with memory.

Adding and Removing Memory

NOTE: When changing Bank 0 memory, remove any existing Bank 1 memory first. When changing both memory banks, remove the memory from both the banks, then insert the Bank 0 memory before the Bank 1 memory.

To add or remove memory, follow this procedure:

➪Remove the ALPINE case. (See *Chapter 1-15 ❑ Setting Up the ALPINE.*)

➪Locate the memory bank you want to modify. (See Figure 4.1.)

➪Rest the SIMM at a 45° angle on top of the SIMM holder and hook it on the notch. (See Figure 4.2.)

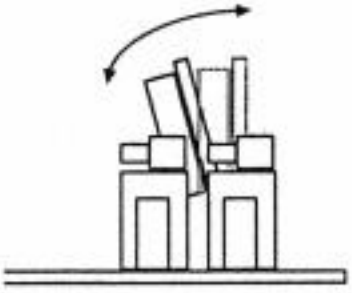
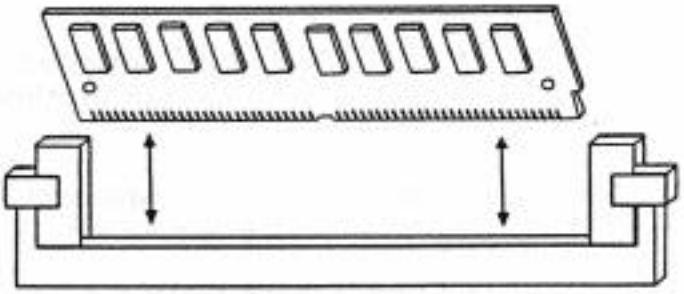


Figure 4.2: Inserting SIMMS into the ALPINE



➪Pressing down gently, move the SIMM until it rests at a 90° angle in the holder and press down until you hear a soft click as it snaps into place. The positioning tabs on the SIMM holder will show through the hole on the SIMM when it is placed correctly.

➪Secure the latches to lock the SIMM into place. If the SIMM has been inserted correctly, the latches will provide a snug, but not crushing, fit.

Memory Jumpers and Jumper Settings

If you have changed the memory configurations (if you added/removed memory, or replaced existing memory with another type of memory), you must change the jumper settings. (See Figure 4.1 for the location of Memory Jumpers and Table 4.1: Memory Jumper Settings.)

▲WARNING: Do not change any jumper settings other than the J25 memory jumpers. All other jumpers are pre-set at the factory. If jumpers other than the J25 jumpers are altered, the result may be temporary or permanent system failure.

Table 4.1: J25 Memory Jumper Settings

TOTAL MEMORY (MB)	Bank 0 (MB)	Bank 1 (MB)	Jumper Positions 14	13	12	9	8	7
0	0	0	on	on	on	on	on	on
16	0	16	on	on	on	on	on	off
16	16	0	on	on	off	on	on	on
32	16	16	on	on	off	on	on	off
32	0	32	on	on	on	on	off	on
32	32	0	on	off	on	on	on	on
48	16	32	on	on	off	on	off	on
48	32	16	on	off	on	on	on	off
64	32	32	on	off	on	on	off	on
64	0	64	on	on	on	on	off	off
64	64	0	on	off	off	on	on	on
80	64	16	on	off	off	on	on	off
80	16	64	on	on	off	on	off	off
96	64	32	on	off	off	on	off	on
96	32	64	on	off	on	on	off	off
128	64	64	on	off	off	on	off	off
128	0	128	on	on	on	off	on	on
128	128	0	off	on	on	on	on	on
144	128	16	off	on	on	on	on	off
144	16	128	on	on	off	off	on	on
160	128	32	off	on	on	on	off	on
160	32	128	on	off	on	off	on	on
192	128	64	off	on	on	on	off	off
192	64	128	on	off	off	off	on	on
256	128	128	off	on	on	off	on	on
256	0	256	on	on	on	off	on	off
256	256	0	off	on	off	on	on	on
272	256	16	off	on	off	on	on	off
272	16	256	on	on	off	off	on	off
288	256	32	off	on	off	on	off	on
288	32	256	on	off	on	off	on	off
320	256	64	off	on	off	on	off	off
320	64	256	on	off	off	off	on	off
384	256	128	off	on	off	off	on	on
384	128	256	off	on	on	off	on	off
512	256	256	off	on	off	off	on	off

In order to attain a specific size of memory in a bank, all four SIMM slots must be populated with the same type of memory (see Table 4.2, which follows).

Table 4.2: SIMM Types

Bank Memory Size (MB)	SIMM Type
16	1M x 36
32	2M x 36
64	4M x 36
128	8M x 36
256	16M x 36

In order for the system to run reliably, the speed of the slowest memory in each bank must be indicated. Table 4.3 shows the settings for Bank 0 and Bank 1 memory.

Table 4.3: Memory Jumper Speed Settings

Bank 0 Speed	Jumper Position 16	15	Bank 1 Speed	Jumper Position 11	10
80	on	on	80	on	on
70	on	off	70	on	off
60	off	on	60	off	on
reserved	off	off	reserved	off	off

Removing SIMMS from the ALPINE

To Remove SIMMS:

⇨Pull the two latches located on the SIMM's edges outward. The SIMM should loosen and fall forward.

⇨Remove the SIMM.

Installing and Removing Floppy Drives, Hard Drives, or Tape Drives in the Additional Drive Bay

The ALPINE has three internal bays for drives and storage devices, including SCSI. Most ALPINEs have two devices pre-installed and come with one set of snap rails (for 5 1/4" devices) and one bracket (for mounting 3 1/2" floppy drives), which are used to install additional devices in the ALPINE drive bays. If you need additional snap rails or brackets, they can be purchased through your system integrator or Aspen Systems.

NOTE: Use Snap Rails to install 5 1/4" devices and Brackets to install 3 1/2" devices into the drive bays.

Procedure for Installing Devices into the ALPINE's Drive Bays

When adding a device to your ALPINE, follow this procedure:

⇨After the system is powered down, unplug your ALPINE, monitor, and any attached peripherals from the AC socket.

⇨Remove the system's case and front panel (see *Chapter 1-15 ❑ Setting Up the ALPINE* for instructions).

The drive bays are located on the right-side of the desktop ALPINE front inside panel (see Figure 1.1) and on the top of the ALPINE tower inside panel (see Figure 1.2).

Refer to the diagrams in Figure 4.3 to attach snap rails or brackets to your device.

▲WARNING: Follow this procedure exactly. Failure to do so may result in an unreliable system.

▲WARNING: Never touch internal system components. Wear an anti-static wrist band and unplug the system and attached peripherals whenever removing the ALPINE case or changing internal cards and devices. Failure to do so may result in system failure and the void of your warranty.

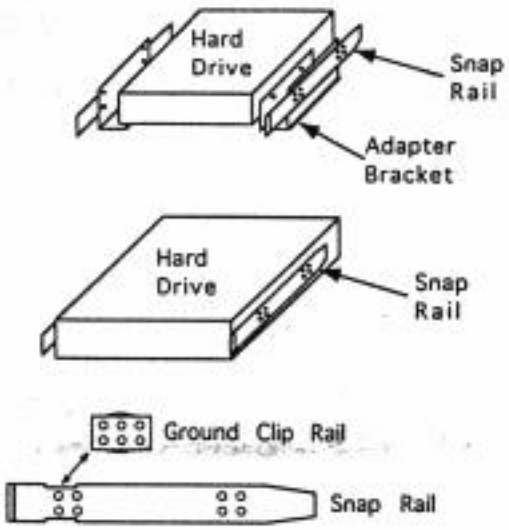


FIGURE 4.3: Attaching Snap Rails and Brackets

⇨After attaching the snap rails or brackets to the device, simply slide the device, back side first, into the drive bay. The bracket or slide rail will make a snapping noise when the device has been secured.

Attaching SCSI or Floppy Cables to a Device

⇨If you are installing a SCSI device, attach the 50-pin SCSI ribbon cable to the device, or, if you are installing a floppy drive, attach the 26-pin floppy cable to the floppy drive. (See Figure 4.1 for the locations of the various ALPINE internal cable connectors.)

▲WARNING: Always use the SCSI cable's pull tabs to remove the cable from the motherboard or device. Pulling on the ribbon cable itself can irreparably damage it.

⇨Attach the power cable (which is already attached on one end to the system's power supply) to the device's power outlet.

NOTE: When setting SCSI ID Selects, do not set them to 0, 6, or 7. These selects are pre-assigned for factory-installed devices.

⇨Set the SCSI ID Selects. (Refer to the device's user's guide for these jumper settings.) The ALPINE host adapter is ID 7. If you have a factory-installed CD-ROM drive, its ID Select is 6; a factory-installed hard-drive has ID Select 0. For this reason, never set the ID Select of a SCSI add-on device at 0, 6, or 7. Setting two or more devices on the same ID setting will render your devices and/or system inoperable until the incorrect ID settings have been changed.

NOTE: Use the shortest cable possible when attaching SCSI devices.

⇨Use the shortest cables possible to connect your device to the ALPINE. When true Fast SCSI devices are used this becomes critical for reducing noise on the SCSI cable signals. Internal cables should be placed in a manner that minimizes contact between the case and the SCSI internal cable to reduce SCSI signal noise. Excess SCSI noise will make your SCSI peripherals work unreliably.

SCSI Terminators

⇨SCSI is designed to have two terminators, one at either end of the drive chain. If internal drives are being used, the last drive should have a terminator installed. If external drives are being used, the last device should have a terminator. If either external or internal drives are being used, but not both, there should be SCSI terminators on the motherboard. If both internal and external drives are being used, the SCSI terminators on the mother board should be removed. (See Figure 4.4, p. 30 for terminator options.)

⇨Replace the ALPINE case and front panel.

Removing Devices from the ALPINE

When removing a device from your ALPINE, follow this procedure:

⇨Turn off system power and unplug your system and attached peripherals from the AC outlet.

⇨Remove the ALPINE case and front panel (see *Chapter 1-15 ❑ Setting Up the ALPINE* for instructions).

⇨Remove the power cable and ribbon cable from the device you are removing.

➪Press in on the two plastic tabs on the right and left sides of the 3 1/2" adapter bracket or slide rail and, while pushing in on the tabs, slide the device out of the bay.

➪Replace the terminators, if necessary. See Figure 4.3 for terminator (Always save your terminators in the event that you later change your system configuration.)

➪Replace the ALPINE case and front panel.

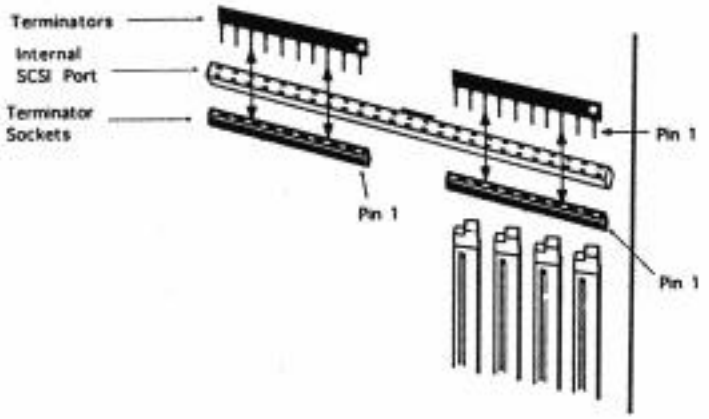


Figure 4.4: Terminator Options

Installing Internal Cards

To install internal cards, follow this procedure:

➪Remove the ALPINE case (see *Chapter 1-15 ❑ Setting Up the ALPINE*).

➪Refer to Figure 4.1 for the location of the ALPINE PCI and ISA slots.

➪Refer to your card's user guide for installation instructions.

➪Replace the ALPINE case.

Adding External Devices

▲WARNING: The last external SCSI device must be terminated. If the external FAST SCSI II port is used in addition to internal FAST SCSI II devices, the internal SCSI termination must be removed.

The ALPINE has one SCSI, one parallel, and two serial ports that let you add external devices to your system. Refer to your device's user's guide when installing these devices. Refer to *Appendix A ❑ Cable Connections and Port Pin-Outs* for pin-out information. Refer to Figure 1.2 for the location of these ports.

SCSI Cable Requirements

When installing an external SCSI device, the SCSI cable should meet the following requirements:

✓ Less than 3 feet in length.
✓ Must be a shielded cable.

The SCSI II bays and ports will support SCSI I devices.

Upgrading the EPROM

▲WARNING: Always use an IC extraction tool when removing any chip from your system. Failure to do so may irreparably damage your motherboard or chip.

NOTE: The location of the notch on the U-59 chip coincides with a notch on the motherboard.

▲WARNING: Never touch internal system components. Wear an anti-static wrist band and unplug the system and attached peripherals whenever removing the ALPINE case or changing internal cards and devices. Failure to do so may result in system failure and the void of your warranty.

To install a new EPROM, follow this procedure:

⇨Remove your ALPINE case.

⇨Locate the U-59 chip (located above the ISA B and C slots—see Figure 4.1).

⇨Remove the U-59 chip by gently pulling up on the chip with an IC extraction tool until it frees from its socket.

⇨Straighten the connectors on your new EPROM by resting it on its side on a hard, level surface and gently pressing down on the EPROM until the pins are at a 90° angle to the top of the chip.

⇨Repeat this last procedure for the other side of the EPROM.

⇨Align the notch in the EPROM with the corresponding notch on your motherboard. This notch is located under the socket.

⇨Gently push the EPROM into place in the motherboard socket.

⇨Make certain that all of the chip's pins are fully inserted into the motherboard socket.

Upgrading the Cache and Processor

Both the ALPINE processor and cache are upgradable by Aspen Systems or one of its authorized agents. Contact Aspen Systems or your system integrator for more information.

This completes *Chapter 4 ❑ Upgrading Your System.*

Chapter 5 ❑ Troubleshooting will show you how to troubleshoot problems on your ALPINE.

❑ 5 Troubleshooting

▲WARNING: Exit your operating system and turn off the power to your system and to any attached devices before disconnecting any cables from your system.

While every ALPINE System is individually tested for reliability prior to shipping, it may, occasionally, exhibit problems. The majority of problems users have are the result of adding onto the system after purchase. These problems often occur when adding internal and/or external devices.

How this chapter is divided

This chapter is divided into sections that are designed to help you quickly identify problems. These sections include:

- ✓ Start-Up Problems, which includes start-up, monitor/display, mouse, and keyboard problems.
- ✓ Hardware Problems, which discusses SCSI device problems, hard drive problems, and problems that can occur when adding additional memory.
- ✓ Software Problems, which discusses common software problems.

Error Messages

Refer to the section that seems most appropriate to the problem you are experiencing. If you receive error messages from your operating system, refer to your operating system user's guide.

When to call Technical Support

If you cannot readily identify a hardware or software problem with your ALPINE, refer to the Technical Support portion of this section.

Start-up Problems

This section addresses problems that sometimes occur during the initial set-up and daily operation of your ALPINE.

Power Problems

Problem	Possible Solution
No power light.	Check the power cord connection to the system and the AC outlet. Check the case's front panel to make sure it is securely in place. Check the voltage switch on the back of the system to make sure it is set for the correct voltage. The AC outlet may not work. Plug your system into an alternate AC outlet. The power supply may be damaged. Contact Aspen Systems Customer Service or your system integrator.
Power light comes on, but system does not boot.	Check to make sure that you have not connected a device to the diagnotics port.

Monitor Problems	No images appear on the monitor.	Make sure the monitor is turned on. Check the video cable connections to the monitor and system. Check the power cable to the monitor and AC outlet. The AC outlet may not work. Plug your monitor into an alternate AC outlet. Check to make sure the voltage switch is set for the correct voltage in your area. Check the contrast/brightness level of your monitor. If you are not using an Aspen Systems monitor, the ALPINE factory pre-configured video resolution and video frequency may not be compatible with your monitor. You can adjust the video frequency and resolution by referring to your video card or monitor user's guide and/or call Technical Support. The monitor or video card may have failed. Contact Aspen Systems or your systems integrator. The monitor may be defective. Contact Aspen Systems or your system integrator.
Distorted Images	Images on screen are distorted.	Make sure that there are no other monitors operating within two feet of your monitor. This may cause interference. Check your cable connections. If you are using an RGB coax connector cable, make sure that the connectors are attached correctly. The video resolution may be set up incorrectly or may not be supported by the monitor. Contact Aspen Systems Technical Support.

Keyboard Problems	Keyboard does not operate.	Check to make sure your monitor is turned on. Check the keyboard cable connection to your system by turning off the system, unplugging the keyboard, and reattaching the keyboard. Your keyboard may have failed. Contact Aspen Systems or your system integrator.
	Keyboard does not register all characters typed.	Check the keyboard cable connection to your system. The keyboard may have dust/particles stuck between keys. Wipe keyboard with soft cloth. Spray between the keys with compressed air. Your keyboard may have failed. Contact Aspen Systems or your system integrator.
Mouse Problems	The mouse pointer does not appear on the screen.	Check the mouse cable connection. Make sure the mouse is securely plugged into the adapter and that the adapter is secured to the system mouse port, not in the serial or diagnostics port. Make sure you are using the correct type of mouse adapter. Your mouse may have failed. Contact Aspen Systems or your system integrator.
Error Messages	Error messages appear on screen at start-up.	Refer to your Windows NT, Open VMS, or OSF/1 user's guide for operating system error codes.
System Will Not Shut Down	System will not shut down.	If you have a network card installed, make certain that the system is connected to the network.

Hardware Problems

▲WARNING: Exit your operating system and turn off the power to your system and to any attached devices before disconnecting any cables from your system.

NOTE: Whenever replacing the ALPINE front panel, make sure that it is securely reattached. If it is not secured, the ALPINE power switch will not operate.

Most hardware installation problems on the ALPINE fall into two categories: incorrect installation or using non-Alpha drivers. (See the *Software Solutions* section, later in this chapter, for information about drivers.) Additional problems sometimes occur when you add, remove, or change cards, devices, and memory on the ALPINE. If you have recently changed your system configuration, follow the appropriate steps in this section and/or return to the original system configuration prior to installation (refer to your operating system user's guide or the appropriate appendix in this guide for instructions on returning to a prior software configuration, or call Aspen Systems Technical Support).

SCSI Problems

Problem	Possible Solution
SCSI light does not illuminate start-up.	Check for loose cables on external, and then internal, SCSI devices.
	Minimize your external SCSI cable length if it is over 18".
	Check for contact between your internal SCSI cable and the system case.
	Check for a loose SCSI light cable motherboard connection.
	Check that the SCSI light is securely plugged in with the correct polarity.
	Check the SCSI light, which may be plugged in backwards.
New SCSI device is inoperable.	Make sure that you have not assigned two devices the same SCSI ID Select. (See Appendix A.)
	Check SCSI cabling.
	Check your SCSI termination. (See Appendix A.)
	Make sure your device is a true SCSI device.
	Refer to your operating system's user's guide to restore your system to its previous configuration.
	If the above does not correct the problem, contact Aspen Systems Technical Support or your system integrator.

Internal Add-On Problems	System does not boot and you have recently added an internal card to the system.	Check to make sure the front panel is secure. Check to make sure the card is secured in its slot. Check memory spaces and system interrupts if it is an ISA card (see Appendix B). Remove the card. It may not be compatible or working correctly.
	System does not boot and you have recently added or removed SIMMS.	Remove SIMM modules that may be defective or are labeled the wrong size. Check the memory jumper settings. Check to make sure that the SIMMS are securely in place. Make certain that you changed only the memory jumper settings (J25), not other system jumper settings. (See *Chapter 4-27 ❑ Memory.*)
External Add-On Problems	New serial or parallel device does not operate.	Check cabling. Check power to the device. Check pin-outs. (See Appendix A.)
Network Problems	System fails during network installation or access.	Contact Aspen Systems Technical Support or your network card vendor. If possible, verify that other systems can communicate with the network.

Software Problems

The most common software errors that users make with the ALPINE are installing non-Alpha operating system and drivers.

Adding Additional Operating Systems

Your ALPINE came installed with an operating system designed specifically for use with the Alpha chip. If you add another operating system to your ALPINE, be sure that it is an Alpha version designed specifically for the Alpha platform.

Installing Non-Alpha Drivers

If you install a non-Alpha driver, your device will not work. If you have installed a driver or an additional operating system (every ALPINE comes pre-installed with a default operating system) that is not Alpha-compatible,

refer to your operating system user's guide to restore your system to its original configuration.

Contacting Technical Support

Aspen Systems offers technical support Monday-Friday, from 9:00 a.m. to 5:00 p.m., MST. In the US, call 800-992-9242 or 303-431-4606. Outside the US, call 011-303-431-4606. You can also fax at 011-303-431-7196, or Internet techs@aspsys.com, your questions to our technical support staff. When you call or correspond, please have the following information available:

ARC Console Revision
ALPINE Model Number
Cache Type
HAL Version, if applicable (located on the Windows NT Set-Up disk)
Memory Size
Network Card Type
Operating System
Processor Speed
Serial Number
Video Type

If calling, please be seated at your system and ready to interact with the technician.

Preparing the ALPINE for Remote Diagnostics

NOTE: You will need a phone line to attach to your ALPINE so that a technician can call into your system.

If an authorized Aspen Systems Technical Support person instructs you to prepare your ALPINE for remote diagnostics, prepare your system, as follows:

⇨Obtain an external 9600 baud modem and a 9-pin serial cable.

⇨Set-up the Telecommunications Software as follows:
- ✓ 9600 baud
- ✓ no parity
- ✓ 8 bits, 1 stop bit

⇨Using another system (not the system on which you will be performing diagnostics), type the following AT commands to the modem:

ATQ1S0=1N1&K3&Q5&Y0<Enter>
AT&W0<Enter>

⇨Turn off the modem and connect it to the Diagnostic Port on the ALPINE.

⇨Wait a few seconds.

⇨Turn on the modem.

⇨Turn on the ALPINE. (The ALPINE should display a black screen.)

⇨Turn off the modem, wait a few seconds, and turn the modem back on.

Your ALPINE is now setup for remote diagnostics. Contact the technical support person to begin the remote diagnostics procedure.

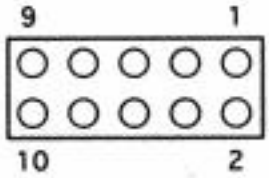
This completes *Chapter 5 ❑ Troubleshooting*. The following appendices give important technical information about your ALPINE and your default operating system.

External Connector Motherboard Connections

Every external connection (except the keyboard) must be connected by a cable to the motherboard. The difference between the motherboard connections and the external connections is the form factor and the numbering scheme. The pins on the external connections of the cables at times differ in total pin numbers (pin count) than the pins on the other ends of the cables that attach to the motherboard. In the tables of external connections that follow, the column "External Pin" defines the external pin number that relates to the function ("Function" column) of the port, while the "Motherboard Pin" column identifies the motherboard pin number that completes the specific communication function between the external pin and the internal motherboard pin. See Figure A-9 at the end of this appendix for a diagram of internal motherboard connections.

NOTE: For external connections, the numbering follows one side of the connector and then continues down the other side. For motherboard connectors, the numbering alternates between sides. This makes external pin one the same as motherboard pin one, and external pin two the same as motherboard pin three.

The external connectors that require internal connection are either DB-9 or DB-25, and their corresponding internal connectors are either Berg 5x2 or 13x2. Figure A-9 shows the form factor and numbering of the Berg 5x2 and 13x2 connectors.



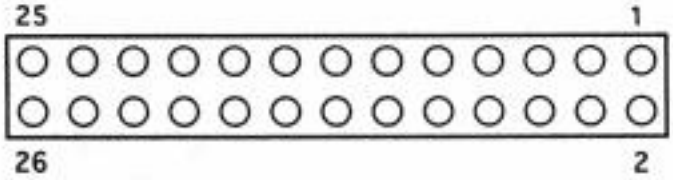


Figure A.1: Berg 5x2 and 13x2 Numbering

The following pages of this appendix give specifications for ALPINE internal and external connectors.

INTERNAL ❑ Floppy

Table A.2: Floppy Drive Pin Numbers and Functions

Pin Number	Function
odd pins	Ground
2	DenSel
4	Not Connected
6	Drate0
8	Index
10	Mtr0
12	Dr1
14	Dr0
16	Mtr1
18	Dir
20	Step
22	Wdata
24	Wgate
26	Trk0
28	Wrtprt
30	Rdata
32	Hdsel
34	Dskchg

INTERNAL ❑ FAST SCSI II

Table A.3: Internal FAST SCSI II Pin Numbers and Functions

Pin Number	Function
odd pins except 25	Ground
25	Not Connected
4	D1
6	D2
8	D3
10	D4
12	D5
14	D6
16	D7
18	Parity
20	Ground
22	Ground
24	Ground
26	Term Power
28	Ground
30	Ground
32	Atn
34	Not Connected
36	Busy
38	Acknowledge
40	Reset
42	Msg
44	Sel
46	Cd
48	Rq
50	Io

EXTERNAL ❑ Serial

Figure A.2: Serial Port Connector

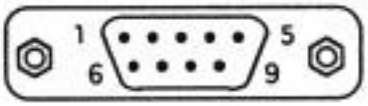


Table B.4: Serial Pin Numbers and Functions

External Pin	Motherboard Pin	Function
1	1	Data Carrier Detect
2	3	Serial Input
3	5	Serial Output
4	7	Data Terminal Ready
5	9	Ground
6	2	Data Set Ready
7	4	Ready to Send
8	6	Clear to Send
9	8	Ring Indicator

EXTERNAL ❑ Parallel

Figure A.3: Parallel Port Connector

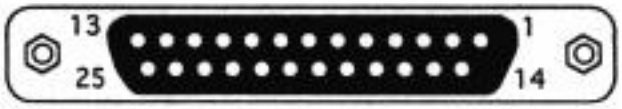


Table B.5: Parallel Pin Numbers and Functions

External Pin	Motherboard Pin	Function
1	1	Strobe
2	3	D0
3	5	D1
4	7	D2
5	9	D3
6	11	D4
7	13	D5
8	15	D6
9	17	D7
10	19	Acknowledge
11	21	Busy
12	23	Paper End
13	25	Select
14	2	Autofeed
15	4	Error
16	6	Initialize
17	8	Slin
18-25	10-24 even	Ground

EXTERNAL ❑ Mouse

Figure A.4: Mouse Connector

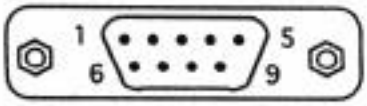


Table B.6: Mouse Pin Numbers and Functions

External Pin	Motherboard Pin	Function
1	1	Clock
2	3	Not Connected
3	5	Not Connected
4	7	Not Connected
5	9	Ground
6	2	Not Connected
7	4	Not Connected
8	6	+5 Volts
9	8	Data

EXTERNAL ❑ Keyboard

Figure A.5: Keyboard Connector

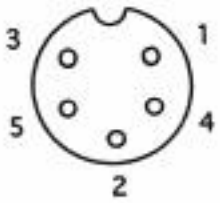


Table B.7: Keyboard Pin Numbers and Functions

Pin Number	Function
1	Clock
2	Data
3	Not Connected
4	Ground
5	+5 Volts

EXTERNAL ❑ FAST SCSI II

Figure A.6: External FAST SCSI II Connector

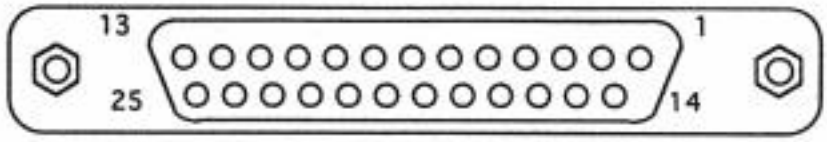


Table B.8: External FAST SCSI II Pin Numbers and Functions

External Pin	Motherboard Pin	Function
1	1	RQ
2	3	MSG
3	5	IO
4	7	Reset
5	9	Acknowledge
6	11	Busy
7	13	Ground
8	15	D0
9	17	Ground
10	19	D3
11	21	D5
12	23	D6
13	25	D7
14	2	Ground
15	4	CD
16	6	Ground
17	8	Atn
18	10	Ground
19	12	Sel
20	14	Parity
21	16	D1
22	18	D2
23	20	D4
24	22	Ground
25	24	Term Power

Reset This is a two-pin connector. When an attached switch is pressed, the pins short and the reset signal is activated, which makes your ALPINE perform a hard reset.

Zoom This is a two-pin connector that indicates power. The connector's positive side is marked '+' on the motherboard. The positive side on its mate is connected to a non-black wire.

Power This is a three-pin connector that indicates power. The connector's positive side is marked '+' on the motherboard. The positive side on its mate is connected to a non-black wire. The middle conductor is disabled.

Speaker This is a four-pin connector. The outside conductors are speaker connections.

SCSI Light This is a two-pin connector that indicates activity on the SCSI bus. The connector's positive side is marked '+' on the motherboard. The positive side on its mate is connected to a non-black wire.

Keylock This is a two-pin connector. When shorted by a switch, the keyboard is inoperative until the switch is released. (Not included on desktop ALPINE).

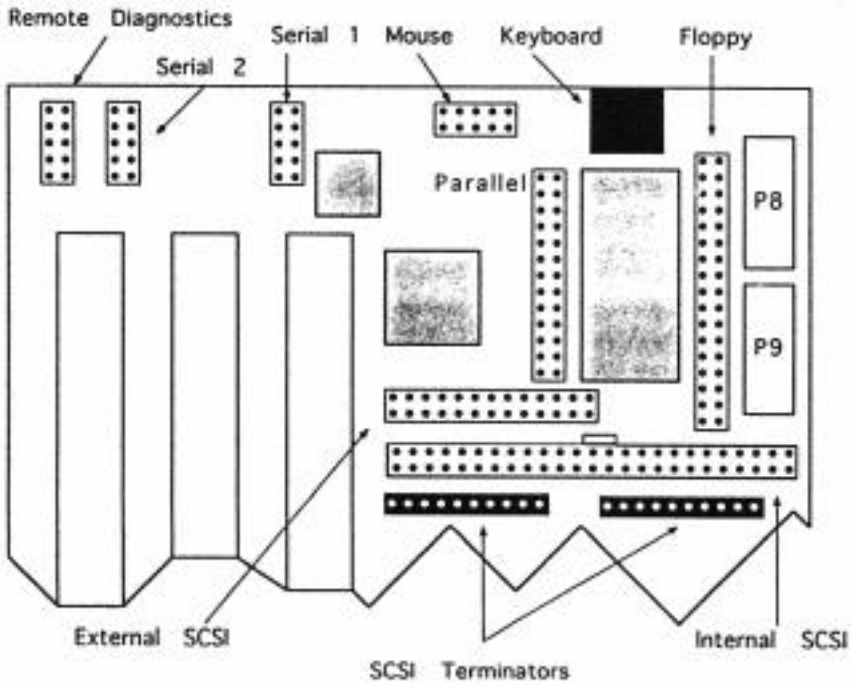


FIGURE A.7: Internal Motherboard Connections

APPENDIX ❑ B ISA Memory and Interrupt Usage

ISA I/O Ports

0-F	DMA1 control
20-21	Interrupt 1 Mask
40-43	Timer 1 Control
60	reset Ubus IRQ12
61	NMI status and control
60-66	Keyboard
70	CMOS RAM address and NMI Mask, write only
70-77	Real Time Clock
80-90	DMA control (page registers)
92	port 92 Register for Alt_20
94-9F	DMA control (page registers)
A0-A1	INT 2 control and mask
C0-DE	DMA 2 control
1F0-1F7	IDE0
278-27F	LPT1 not used
2F8-2FF	Com2
378-37F	LPT used
3BC-3BE	LPT used
3F0-3F1	82C735 config registers
0.	FDC/HDC Config
1.	Serial/Parallel Config
2.	Serial Pri/Sec Config
3.	Serial Port Test Mode
4.	Serial Port 2 24 MHz divide select
5.	FDC Config
6.	Mouse Config
7.	Mouse Base Add
8.	General Purpose Base Add
9.	General Purpose Config
378-37F	LPT2
3B4-3B5	VGA
3C0-3C5	VGA
3CA-3CF	VGA
3DA	VGA
3D4-3D5	VGA
3F2-3F7	Floppy
3F6-3F7	IDE1
3F8-3FF	COM1
40B	DMA1 ext Mode register
481-48B	DMA high page registers
4D6	DMA2 ext Mode register
678-672	LPT1-fast
800-8FF	CMOS memory lower bits
978-97F	lpt2-fast
C00	CMOS Page register

ISA Memory

A0000-B8000	VGA

ISA Interrupts

3,4	Communication Ports
6	Floppy
5	Printer
7	Other printer (unused)
11	NCR810 FAST SCSI II (For Windows NT v3.1 only)
9	PCI Slot A (Network card) (For Windows NT v3.1 only)
1, 12	Keyboard/mouse

System Dimensions ◗	Weight: 24 lbs. Height: 7" Width: 16" Depth: 15"
Electrical Specifications ◗	
Input Voltage	100-120 VAC or 220-240 VAC
Frequency Range	50/60 Hz.
Power Consumption	6.8A max. at 115VAC
General Specifications ◗	
Processor	166MHz, 200MHz, 233MHz, or 275MHz DEC Alpha, 64 bit internal data bus, 128 bit external data path, 34 bit physical, 64 bit virtual address bus
Internal Cache	
166, 200 MHz Alpha	8 Kbyte cache
233, 275 MHz Alpha	16Kbyte cache
External Cache	512 Kbyte or 2 Mbyte cache, 128 bit wide write-back cache
Minimum RAM	16 Megabyte - 128 bit wide access into a wide range of memory
Maximum RAM	1 Gigabyte of DRAM 267 MB/s CPU write bandwidth
Expansion ◗	
3 PCI Slots	Supports cards with a throughput up to 133 MB/second 120 MB/s DMA write bandwidth 70 MB/s DMA read bandwidth
3 ISA Slots	Expansion for IBM PC compatible cards.
FAST SCSI II	Bus mastering PCI controller with hard drive transfer rates of (internal/external ports) up to 10 Mbytes/second
Floppy	Standard format floppies, 1.44 or 2.88 MByte
2 Serial Ports	Standard 9-pin serial ports that are NS16550 compatible Supports protocols up to 115.2K baud, 16-byte FIFO
1 Parallel Port	Standard 25-pin parallel port with bi-directional and high speed capabilities (ECP, EPP, and fast centronics protocols) Capable of up to 2 MB/second with fast protocols 128-byte FIFO
Keyboard	Standard 101 key DIN connector
Mouse	9-pin connector for use with a PS-2 style mouse
Diagnostic Port	Remote diagnostic capability for technical support
PCI Video	High-speed video graphics
Optional PCI Ethernet	Ethernet capability

Operating Conditions

Temperature Range	10°C to 35°C (50°F to 95°F)
Relative Humidity	10% to 90% (noncondensing)
Maximum Wet Bulb Temperature	46°C (115°F)
Minimum Dew Point	28°C (82°F)
Temperature Rate of Change	11°C per hour (20°F per hour)

Windows NT Configuration

Your system's Windows NT operating system has been pre-configured by Aspen Systems. The following section describes your Window's preset configuration and shows you how to use, change, and reconfigure it as needed. If you have any questions regarding the following section, please call Aspen Systems Technical Support or your system integrator. For the latest information on ALPINE specifics, read the Readme.txt file loated on the Windows NT Setup disk.

Partition Information

The ALPINE has a 512MB SCSI hard drive. Its ID select is 0 and is connected to the onboard NCR810 SCSI controller. The drive is partitioned into two logical partitions. The first partition, Partition 1, is a 5 Megabyte FAT partition. The remainder of the hard drive is on Partition 2, which is a NTFS partition. This appears as your "D:" drive.

Installed Drivers

The ALPINE has the following cards and drivers:

Video:
Card: ATI Mach32 PCI VRAM Driver: ATI 1024x768x256 colors

SCSI:
Onboard: NCR810 Fast SCSI II Driver: 810 miniport

Ethernet (optional):
Card: Cogent Triple Port Ethernet Driver: DEC DC21040

Emergency Repair Disk

The emergency repair disk is used to repair damage to your Windows NT installation. If you perform a full repair, you must revert back to the exact system setup that was used during the factory installation. Your emergency repair disk is initialized for a system installed with an onboard NCR810 and an ATI/PCI card at 1024x768x256 colors.

Changing Registration

Windows NT is pre-configured for an organization name, owner name, and machine name. These are set-up as follows:

Organization: "Company X"
Owner: "Department Y"
Machine name: ALPINE

Procedure for Changing Organization/Name Registration

These names can be changed by using the REGEDT32.EXE program in Windows NT's Program Manager. To change the name of the Organization or Owner, follow this procedure:

⇨Select the "Run" option from the "File" menu from the Windows NT Program Manager.

⇨Type "REGEDT32" as the filename and press <Enter>.

⇨Select the window for HKEY_LOCAL_MACHINE.

⇨Go to the path:
HKEY_LOCAL_MACHINE.SOFTWARE.Microsoft.Windows NT.CurrentVersion. (This is accomplished by double clicking on each successive element in the path, much in the same way as you would for descending down directories in the File Manager.)

⇨Select the key "RegisteredOwner" or "RegisteredOrganization" located in the right side of the window.

⇨Select the "String" option in the "Edit" menu.

⇨Modify the string.

⇨Click once on "OK".

Procedure for Changing Machine Name Registration

The procedure for changing the machine name is the same as the above procedure, with one exception: The name must be changed in two paths. The two paths are:

HKEY_LOCAL_MACHINE.SYSTEM.CurrentControlSet.Control.ComputerName
HKEY_LOCAL_MACHINE.SYSTEM.CurrentControlSet.Control.ComputerName.ActiveComputerName

After you change the names, you must shut down the system and reboot in order for the changes to take effect.

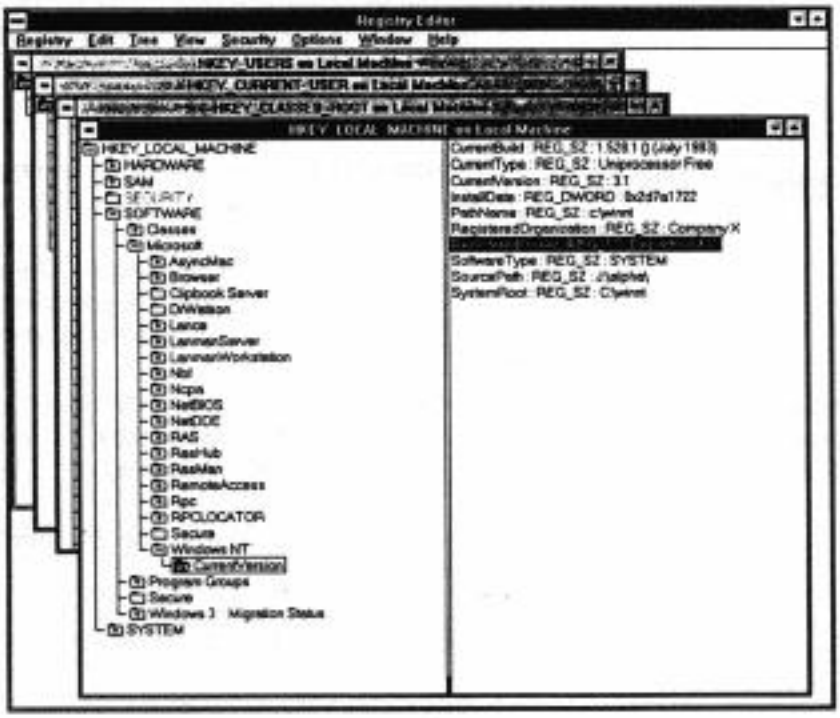


Figure D.1: The Registry Editor Screen

Demos

Your ALPINE comes pre-installed with a number of demos,. These are located in the following two directories in the "Demos" program group:

The VIDEO directory contains still pictures and moving pictures.
The DEMOS\MOGLDEMO directory contains 3-dimensional demos.

Still pictures are located in "\video\image". Moving pictures are located in "\video\AVI" and "\video\MPEG."

These are public domain and freely distributable.

The ARC Console Menus

The ARC Console Menus give you control over essential system functions. The ARC Console is startup firmware code that is embedded on the ALPINE motherboard. The motherboard uses this code to provide Windows NT with system (including peripheral) information that it requires to perform correctly. This section provides an overview of a few of the everyday applications that you can perform using Window NT's ARC Console.

Common Uses of the ARC Console Menus

There a number of ARC functions that you will probably use during your everyday operations. If you ever change your boot device or floppy configuration, or set an autoboot, you will use the ARC Console. The most common interaction you will have with ARC is every time you power-on your system. When you turn on system power or perform a system reset, the ALPINE will load the ARC Boot Menu, which appears on your monitor as follows:

Boot Menu

Boot Windows NT
Boot an alternate operating system
Run a program
Supplementary menu

Figure D.2: The ARC Console Boot Menu

The Boot Menu offers you the following options:

NOTE: With all the ARC Console menus, you can select an option by highlighting it using <↑> or <↓> and pressing <Enter>.

✓ "Boot Windows NT" loads Windows NT onto your system.

✓ "Boot an alternate operating system" lists all bootable partitions available on your system. These partitions include alternate operating systems. Windows NT will also appear in this list. When you select a partition, the operating system on that partition will be loaded onto the system.

✓ "Run a program" lets you run software programs from floppy, hard, or CD-ROM drives. To choose the program and device to run it from, enter the Device/Filename. You can find the "Device" name by using the "List Available Boot Devices" in the Supplementary Menu (see the Supplementary Menu section in this Appendix). The filename is the same as it appears on your device. For example, you could load the Windows NT "cd:\alpha\arcinst" file, on the Windows NT CD-ROM, which is used to set up a new drive when the Windows NT system is not available.

✓ "Supplementary menu" brings up the ARC Console Supplementary menu.

Supplementary Menu

Figure D.3: The ARC Console Supplementary Menu

Install new firmware
Install Windows NT from CD-ROM
Set up the system...
List available boot devices
Boot menu...

✓ "Install new firmware" is not applicable to the ALPINE system.

✓ "Install Windows NT from CD-ROM" lets you set-up or repair partitions.

✓ "Set up the system..." takes you to the Setup menu.

✓ "List available boot devices" lists all devices that are attached to the system.

✓ "Boot menu..." returns you to the boot menu.

Setup Menu

Figure D.4: The ARC Console Setup Menu

Set system time
Set default environment variables
Set default configuration
Manage boot selection menu
Setup autoboot
Edit environment variables
Reset system to factory defaults

Help
Switch to Open VMS or OSF/1 console
Supplementary menu, and do not save changes...
Supplementary menu, and save changes...

While at first glance the setup menu seems to offer a variety of options, only a few are useful for everyday operation:

✓ "Set system time" lets you set the ALPINE internal clock.

✓ "Set default configuration" is used to change the number or types of floppy drives on a system.

✓ "Setup autoboot" lets you pre-set your system to automatically boot your default partition at a specified time without your interaction.

✓ "Manage boot selection menu" brings up the ARC Console Manage Boot Selections menu.

Manage Boot Selections Menu

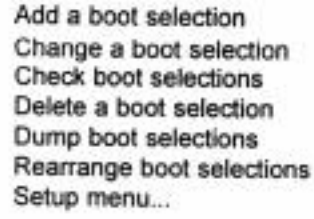


Figure D.5: The ARC Console Manage Boot Selections Menu

▲WARNING: Use care when changing your boot partition information. Making incorrect boot selection changes can lead to an inoperable system—the system will not know from where to load the operating system.

The Manage Boot Selections menu lets you change and/or make modifications to your boot selections.

✓"Add a boot selection" lets you add a new partition to boot from. (Windows will ask you to give the SCSI bus number, ID Select, and partition number and filename.)

✓"Change a boot selection" lets you modify the information you gave the system using "Add a boot selection". (Windows will ask you if you want to change any of the boot information. Usually, you change the ID Select or partition number, while the filename and bus number remain the same.)

✓"Check boot selections" checks to ensure that your list of boot selections is valid.

✓"Delete a boot selection" lets you remove a boot selection from the system.

✓"Dump boot selections" deletes all the boots currently on your system.

✓"Rearrange boot selections" lets you specify the default boot selection.

Returning to a Stable Software Configuration

There are three ways to return your system to a stable platform: one is by reverting your hardware back to its last known good configuration (see *Chapter 5-36 ❑ Internal Add-Ons)*, and the other two involve using Windows NT.

Use Last Known Good Configuration Procedure

☞NOTE: If you have changed any hardware since your last known good configuration, you will have to revert back to that hardware.

If you have installed new drivers, you will need to use the Use Last Known Good Configuration procedure. If this procedure does not work, you will need to repair your Windows NT configuration.

This procedure lets you revert back to the software configuration you had before installing your drivers. Follow this procedure:

⇨Reboot the machine.

⇨Select "Boot Windows NT" from the ARC Console Boot Menu. A message will appear on screen stating "Hit spacebar to use Last Known Good Configuration."

⇨Press the spacebar quickly.

⇨Choose the "Use Last Known Good Configuration" option, using <↑> and <↓>.

⇨Press <Enter>.

Remember, if you have changed any hardware since your last known good configuration, you will have to revert back to that hardware.

Repairing the Windows NT Configuration

If the "Use Last Known Good Configuration" procedure did not restore your system, or if Windows gives you a "corrupt file" error message, you can repair the Windows NT configuration.

To repair Windows NT, you will need:

✓ Windows NT CD-ROM

✓ Emergency Repair Disk

✓ Driver Disks

Procedure for Repairing Windows NT

To repair Windows NT, follow this procedure:

⇨Reboot your system.

⇨Select the "Supplementary Menu" option from the ARC Console Boot menu.

⇨Select "Install Windows NT from CD-ROM" from the ARC Console Supplementary Menu. (The system will ask whether you want to "Install Windows NT" or "Repair Windows NT".)

⇨Select "R" for "Repair Windows NT."

The following menu will appear:

[x] Verify Windows NT system files
[x] Verify files on the system partition
[x] Inspect configuration registry files
[ ] Unsecure Windows NT system files
Continue (perform selected tasks)

⇨Use <↑> and <↓> to highlight the option(s) you want.

⇨Press the spacebar to select "[x]" an option. If you want to unselect "[ ]" an option, highlight the option and press the spacebar to unselect it.

⇨Select "Continue" after you have chosen your options.

(Under most circumstances, the default options that are automatically selected when this menu is accessed can be used. If you have set the permissions on your system files incorrectly and/or the system is not working correctly, you can also select "Unsecure Windows NT System Files.")

The utility will now check the hard disk for errors and verify the files you have selected. If any of the files are corrupted, the utility will fix them. Be aware that if you have made any patches to your operating system, the repair utility will revert the patches. After this portion of the repair program is completed, the following menu will appear:

[ ] SYSTEM (System configuration)
[ ] SECURITY (Security Policy)
[ ] SAM (User Accounts Database)
[ ] DEFAULT (Default User Profile)
[ ] SOFTWARE (Software Information)
Continue (Restore Selected Files)

This menu lets your repair your Windows NT configuration. If the system identified a portion of the configuration as corrupt, the system will automatically mark the appropriate options that need repair. If you need to revert back to your original hardware and driver configuration, select "system configuration." The various configuration repairs are:

✓ SYSTEM effects:
Device drivers and services loaded by the system.
System memory management options.
Time and time zone configuration.
National language support configuration.
Event logging.

✓ SECURITY and SAM (must be repaired together) effect:
User groups and account. Information changed since Windows NT was installed will be eliminated.
Network Domain controller information will be restored to the setup during installation.

✓ DEFAULT effects:
New user information set up including personal program groups and screen colors.

Windows NT Configuration

The following sections include information about how your Windows NT is configured and how to change the configuration. This documentation assumes you have a knowledge of Windows NT and have read the owner's manual.

Floppies Shipped with the System

A number of floppies are shipped with your ALPINE. The disks that are designed to work with your ALPINE are marked as such. The remaining disks are used with Intel-based platforms. These disks came with the cards installed on your system and are included for completeness. Intel-based disks will not work with your ALPINE System.

Windows NT PCI Support

Aspen Systems is continually updating and adding to its library of Windows NT PCI Device Drivers. If you would like a list of currently-available drivers, call Aspen Systems Technical Support or your system integrator. The following section includes information about your Windows NT PCI Device Drivers. The current version of Windows NT (Version 3.1) was not originally designed for PCI support (the PCI bus was not yet released when this version of Windows NT was designed). As a result, the number of PCI cards that are supported by Windows NT will be limited until Windows NT Version 3.5, Windows NT for Workstations, is released.

PCI was designed to provide plug and play operation, which means that when installing a new card into a slot, one standard Windows NT driver will support it without having to change jumper settings or options such as memory or system interrupts. Windows NT Version 3.5 will support this.

Hardware Slots

Currently, particular PCI slots can only be populated with specific card types. PCI-A slot supports only the DEC DE435 PCI Ethernet card. PCI-C slot is designated the video card slot. Your machine has been installed with an ATI Mach32 PCI video card.

Drivers

Installing and removing drivers requires exactness under the current version of Windows NT. If you do not perform the following steps correctly, the machine will not boot. If this happens, use the Use Last Known Good Configuration or Repair Windows NT procedure to return your system to a stable platform.

The ATI Video Card

To install an ATI Video Card, follow this procedure:

⇨Make certain that you have a working configuration.

⇨Install your new drivers using "Windows NT Setup".

⇨Run "Windows NT Setup".

⇨Select "Change System Settings" from the "Options" menu.

⇨Choose the desired video mode. If you have not loaded the ATI card before, or if you are updating your drivers, select Other from the bottom of the list and insert the floppy with the video drivers into your floppy drive. When the system asks whether you want to use the Currently Installed Drivers, select this option, unless you are updating your drivers. If you are updating your drivers, select "Other" and insert the disk containing the new drivers.

Checking the Configuration Registry

Check the configuration registry with "REGEDT32" by following this procedure:

⇨Select "Run" from the "File" menu in Windows NT's "Program Manager."

⇨Type "REGEDT32" as the filename and press enter.

⇨Select the window for HKEY_LOCAL_MACHINE

⇨Go to the path: HEY_LOCAL_MACHINE.SYSTEM.CurrentControlSet.Services.ati.device0. This is accomplished by double clicking on each successive element in the path as you would for descending down directories in the "File Manager."

⇨Select the "atioem" key, located in the right of the window.

⇨Select "String" in the "Edit" menu.

⇨Modify the string to end with "atioem.dat".

⇨Write down this string.

⇨Click OK.

⇨Check to make sure that the file "atioem.dat" is located at its correct place on the drive as indicated in the registry. If it is not, copy this file from the ATI driver disk to the correct location.

⇨Reboot your machine.

When you perform this procedure correctly, the display will come up at the desired resolution. If your monitor does not support the desired resolution and the screen is unreadable, you can use the Use Last Known Good Configuration procedure to return to your previous setup.

The PCI Ethernet Controller

You can install the Ethernet controller in the "Network" portion of "Control Panels".

⇨If the system asks you whether you want to install the Network portion of Windows NT, make sure that you have the Windows NT CD-ROM inserted in the drive and answer "yes".

▲WARNING: When an Ethernet driver is installed, the card must be in the machine. The machine will not boot the Windows NT screen otherwise. If you want to remove the card, remove the driver first before powering down the machine.

⇨To add the PCI adapter, select "Add Adapter."

⇨If DEC DC21040 is in the selection, select it. Otherwise, select another and insert the Driver disk. Select DEC21040 from the new selections.

⇨At the configuration screen for the controller select the following:

Platform Type - DEC EB64
Slot Number - On board
IRQ Level - 9
Connection Type - AUI BNC

3COM Etherlink III ISA Ethernet Controller

The 3COM Etherlink card has been checked by Aspen Systems for compatibility with the ALPINE.

⇨The card settings should be:
IRQ10
Boot Prom Disabled
Coax (BNC) Transceiver type
Server mode
Allow 38400 baud modem in system.

In order to change these settings, the configuration program must be run on an Intel-based platform running DOS. These settings will work in the ALPINE, however, if you change them, be sure not to create a conflict. When the 3COM Etherlink III controller is installed, Windows NT needs to know the controller I/O port address. The card needs to be set up for I/O port 220. The driver will locate the remainder of the settings based on this setting.

APPENDIX ❑E Networking

Most of the information that you will need for networking can be found in your network card manual or your operating system user's guide. There are, however, certain general network installation procedures that you should follow when you install network cards on your ALPINE.

NOTE: Check with your network card user's guide to check whether jumpers need to be changed.

Review basic installation procedures and warnings in *Chapter 4 ❑ Upgrading Your System* before installing a network card.

Token Ring

If you are installing a token ring network, you will need to route a new cable to either the hub or to the neighboring computer. Refer to your network card manual or token ring hub manual for further information.

Ethernet

If you are installing an Ethernet network, there are three types of possible connections you may need to make (refer to your Ethernet user's guide). Some network cards do not support every type of network connection.

Twisted Pair

If you are installing a twisted pair network, connect the 8-pin (RJ-45) connector from the network hub into your network card. The connector should click and lock into place.

AUI Ethernet

If you are installing an AUI Ethernet network, connect the 15-pin AUI connector from your network hub to your network card. If a latch mechanism is available, it should be used to guarantee reliability on the network.

ThinWire

If you are installing a ThinWire network that uses coaxial cable and BNC connectors, use the following procedure:

⇨Attach a T-connector to your cable at the appropriate location. BNC connectors are attached by pushing together and rotating the shell clockwise. A ThinWire network should be composed of one long coaxial cable with T-connectors in the middle. These T-connectors should only be attached directly to computers and not other lengths of cable. If the cable must be cut for new connectors, please have a knowledgeable network technician perform the procedure. Installing new connectors onto cable requires precision. If this is not performed correctly, the network will not operate reliably.

⇨If the connection is at one of the two ends of the chain, a terminator should be installed on the open end of the T-connector.

⇨Attach the last open part of the T-connector to your network card.

Troubleshooting

If the network has been installed, but other nodes are not recognized, or if the operating system displays error messages, check the following:

⇨Check the cable connections on your system and, if you have one, your network hub to make sure that they are securely and correctly connected to your system.

➪Check your card jumper settings.

➪Check to make sure that your device drivers are correctly installed.

If none of these procedures resolves the problem, your card could be defective.

ANSI	American National Standards Institute, which develops computer standards.
Anti-static wrist strap	A strap that is worn when working on internal system components to prevent static electrical damage to the system. The strap is worn around the wrist and is grounded to your ALPINE system.
ARC Console	Startup firmware code necessary on the motherboard in order to boot Windows NT
Autoboot	The method by which the operating system is automatically loaded upon power-up.
Boot	The method by which your system brings itself to the point of user interface upon power-up or when the operating system is loaded.
Boot device	The device that stores the software code that performs system booting.
Bus	A group of wires that create a pathway between devices or components.
Cache	A small amount of additional fast memory that holds temporary data for frequently used, standard, and slower memory locations.
Console	A device that facilitates communications between the user and the system. For example, in the ALPINE system, this is the monitor and keyboard.
Controller	A system component that governs the operation of devices attached either internally or externally to the system.
Device	Any internally- or externally-attached piece of hardware that receives, stores, or transmits information. For example, external and/or internal DAT tape drives, CD-ROM drives, and floppy and hard drives are all considered devices.
Driver	A piece of software that communicates between the operating system and a piece of hardware
Emergency Repair Disk	A disk used for repairing the Windows NT system that is included with your ALPINE.
Ethernet	A type of network connection that allows systems connected to the network to operate multiple operating systems.
FAST SCSI	A new SCSI specification.
Firmware	ROM system code, similar to BIOS.
HAL	Hardware Abstraction Layer. A machine-specific driver for Windows NT.
ID Select	A number associated with every device on a SCSI bus that allows the ALPINE to differentiate between different SCSI devices.

ISA Bus	Industry Standard Architecture Bus. A bus that became a standard with the IBM PC/AT.
Log off	Exiting your operating system.
Log on	Loading your operating system and identifying yourself to the system by entering your name and/or password.
Network	Two or more linked systems that communicate with one another.
Partition	A hard drive segment that operates, and appears to the user, as a separate hard drive.
PCI Bus	Peripheral Component Interconnect bus. A high speed (133 Mbytes /sec) bus for peripherals.
Port	A socket located on the system which is used to connect hardware devices to the system.
Pulldown Menu	A menu in a program that, when clicked on with the mouse, reveals a number of other options to the user.
Registry	A set of configurations stored for the operating system.
SCSI	Small Computer System Interface. An ANSI-standard interface that allows multiple devices to be connected to the system simultaneously.
SCSI Bus	The pathway by which SCSI and other internal devices interact with one another.
SCSI jumpers	Removable connectors that determine a SCSI device's ID Select, termination, and other parameters. Each SCSI device must have a different ID Select.
Self-test	A test that is initiated by the system at power-up.
Shutdown	A procedure executed before turning off the machine or resetting the machine.
Slot	An internal connection for cards.
System	The combination of software, hardware, and peripheral devices that work to perform specific processing operations.
Termination	A requirement of SCSI that controls the noise of signals on the bus.
Terminator	A set of resistors that are used on the end of a SCSI bus to terminate the bus.

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