

A graphic for Chapter 1, featuring the word "Chapter" in a script font above the number "1" in a large, bold, sans-serif font. The text is enclosed in a double-bordered rectangular box with a drop shadow effect.

Chapter 1

System Board

The V56LA is a high-performance system board with a 64-bit architecture. It supports the Intel P54C and P55C CPUs running at 100/120/133/150/166/200 MHz. It also supports 6x86/6x86L Cyrix/IBM and AMD K5/K6 CPUs. The system board utilizes the Peripheral Component Interconnect (PCI) local bus architecture that maximizes the system performance by enabling high-speed peripherals to match the speed of the microprocessor with its 120 MB or 132 MB per second transfer rate in burst mode.

A 1-MB or 2-MB SGRAM comes mounted onboard. Two DRAM banks composed of four 72-pin sockets come with the board to support single- and double-density SIMMs for a maximum system memory of 128 MB. The SIMM sockets accommodate both the standard page mode and extended data output (EDO) type SIMMs. The board supports a 256-KB or 512-KB pipeline burst second-level cache.

The system board includes a 188-pin connector for the slot board that contains the PCI and ISA bus slots. The two onboard PCI-enhanced IDE interfaces with a zero-wait state and 16.6 MB per second transfer rate support up to four IDE devices. Onboard I/O interfaces comprise of two UART 16550 serial ports, a parallel port with ECP/EPP feature, and PS/2 keyboard and mouse ports.

As added enhancements, the board also incorporates a Sound Blaster Pro-compatible audio subsystem plus plug-and-play (PnP), power management, and software shutdown features.

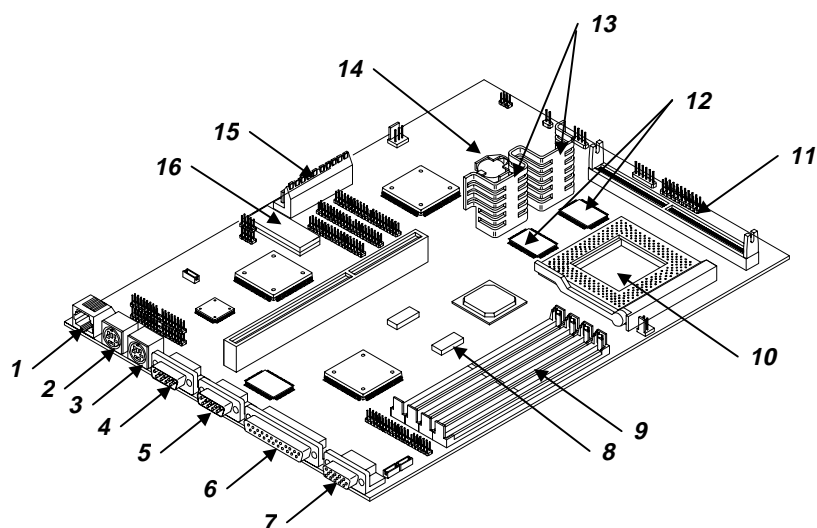
1.1 Major Components

The system board has the following major components:

- A zero-insertion force (ZIF) socket for Intel Pentium and Pentium/MMX, 6x86/6x86L Cyrix/IBM, and AMD K5/K6
- Two DRAM banks composed of four 72-pin SIMM sockets that support 4/8/16/32-MB 60/70ns SIMMs
- 256/512-KB write-back pipeline burst second-level cache
- 128/256-KB boot block mode Flash ROM for system BIOS, VGA BIOS, and PnP ESCD
- Two PCI-enhanced IDE interfaces that support up to four IDE devices
- System clock/calendar with 256-byte CMOS RAM
- Standard 1-MB SGRAM onboard
- 188-pin connector for PCI/ISA slot board
- Feature socket for multimedia or Ethernet solution
- 168-pin cache module socket for cache upgrade
- External ports:
 - PS/2 keyboard and mouse ports
 - Two buffered high-speed serial ports
 - One ECP/EPP high-speed parallel port
 - Video port
 - RJ-45 connector (optional)

1.1.1 System Board

Figure 1-1 shows the locations of the system board major components.



- | | |
|------------------------------|--|
| 1 RJ-45 connector (optional) | 10 CPU socket |
| 2 Keyboard port | 11 Pipeline burst second-level cache upgrade socket (optional) |
| 3 Mouse port | 12 Second-level cache onboard |
| 4 Serial port 1 | 13 CPU voltage regulators |
| 5 Serial port 2 | 14 Battery |
| 6 Parallel port | 15 Power connector |
| 7 Video port | 16 BIOS |
| 8 Tag SRAM | |
| 9 SIMM sockets | |

Figure 1-1 System Board Layout

1.1.2 Slot Boards

The system board comes with a slot board already installed. The slot board carries the PCI and ISA bus slots for system enhancements and future expansion.

The slot board may vary in size and layout depending on your system housing. Figures 1-2 to 1-6 show the slot board types.

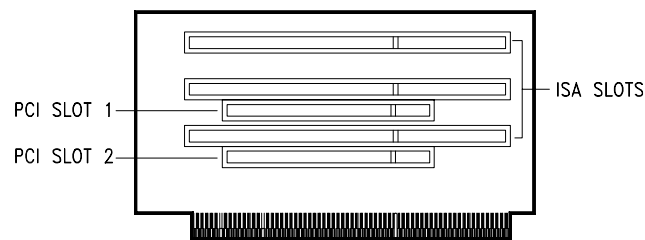


Figure 1-2 2-PCI/3-ISA Slot Board (for desktop systems)

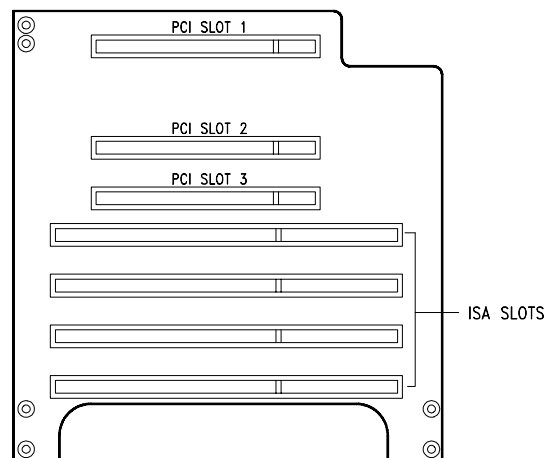


Figure 1-3 3-PCI/4-ISA Slot Board (for minitower systems)

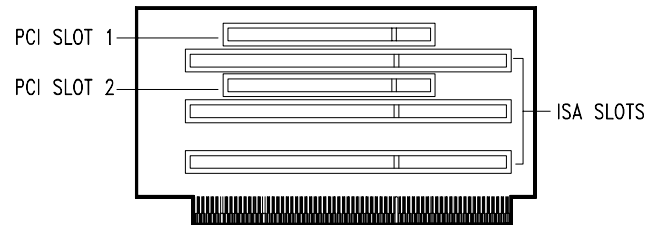


Figure 1-4 2-PCI/3-ISA Slot Board (for Aspire desktop systems)

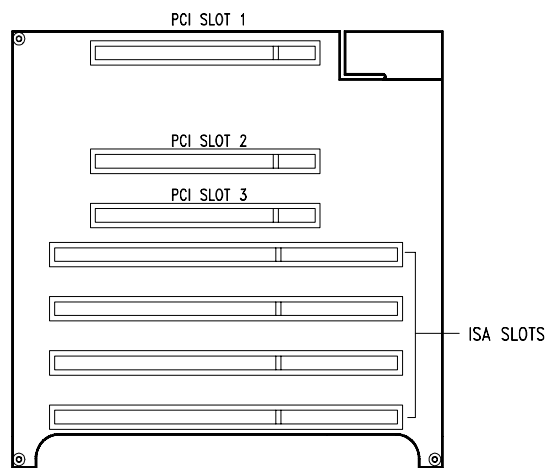


Figure 1-5 3-PCI/4-ISA Slot Board (for Aspire minitower systems)

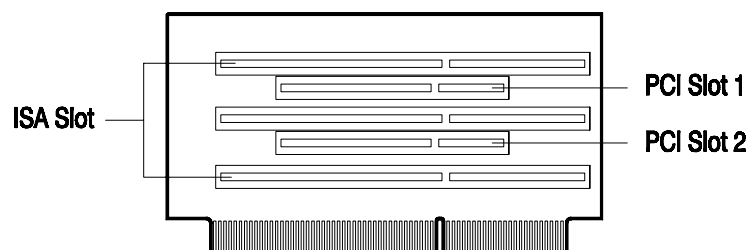


Figure 1-6 3-ISA Slot Board (for AcerBasic system)



*Refer to the corresponding housing manual
for slot board installation instructions.*

1.2 Jumpers and Connectors

1.2.1 Jumper and Connector Locations

Figure 1-7 shows the jumper and connector locations on the system board.

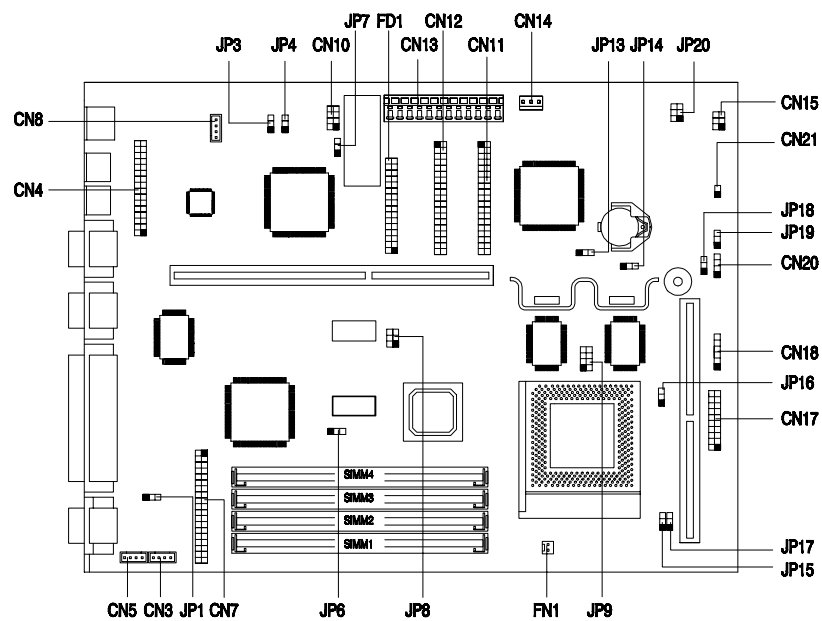


Figure 1-7 System Board Jumper and Connector Locations



The blackened pin of a jumper represents pin 1.

1.2.2 Jumper Settings

Table 1-1 lists the system board jumpers with their corresponding settings and functions.

Table 1-1 System Board Jumper Settings

Jumper	Setting	Function
JP1	1-2 2-3*	Onboard VGA Disabled Enabled
JP3	1-2* 2-3	BIOS Type Acer BIOS OEM BIOS
JP4	1-2 2-3*	Password Security Check password Bypass password
JP6	1-2* 2-3	Cache Size 256 KB 512 KB
JP7	1-2* 2-3	BIOS ROM Type Block ROM (2 Mbit) Flash ROM (Intel 28F001)
JP18	1-2 2-3*	LED Functions IDE and FDD LED IDE LED only
JP19	1-2* 2-3	External Switch Suspend button Reset button
JP20	1-2 and 4-5* 2-3 and 5-6	Software Shutdown Software shutdown Appears off

See Table 1-2 for the specific settings of jumpers JP8-JP15 and JP17 when selecting the CPU type and speed.

* Default setting

Table 1-2 CPU Type Selection

CPU	Jumper					
	JP8	JP9	JP13	JP14	JP15	JP17
Pentium						
P-100	3-6	ON	1-2	1-2	1-2	1-2
P-120	2-5	ON	1-2	1-2	1-2	2-3
P-133	3-6	ON	1-2	1-2	1-2	2-3
P-150	2-5	ON	1-2	1-2	2-3	2-3
P-166	3-6	ON	1-2	1-2	2-3	2-3
P-200	3-6	ON	1-2	1-2	2-3	1-2
Pentium ODP/MMX						
166	3-6	OFF	1-2	1-2	2-3	2-3
200	3-6	OFF	1-2	1-2	2-3	1-2
AMD K5						
PR120	2-5	ON	1-2	1-2	1-2	1-2
PR133	3-6	ON	1-2	1-2	1-2	1-2
PR150	2-5	ON	1-2	1-2	1-2	2-3
PR166	3-6	ON	1-2	1-2	1-2	2-3
Cyrilx/IBM 6x86						
P120+	1-4	ON	1-2	1-2	1-2	2-3
P150+	2-5	ON	1-2	1-2	1-2	2-3
P166+	3-6	ON	1-2	1-2	1-2	2-3
Cyrilx/IBM 6x86L						
P120+	1-4	OFF	1-2	1-2	1-2	2-3
P150+	2-5	OFF	1-2	1-2	1-2	2-3
P166+	3-6	OFF	1-2	1-2	1-2	2-3

1.2.3 Connector Functions

Table 1-3 lists the different connectors on the system board and their respective functions.

Table 1-3 Connector Functions

Connector	Function
CN1	Video port
CN3	Fax/modem/voice-in connector
CN4	Audio I/O board connector
CN5	Line-in for AMC connector
CN6	Slot board connector
CN7	ATI media connector
CN8	CD-in connector
CN10	WaveTable connector
CN11	IDE 1 connector
CN12	IDE 2 connector
CN13	Power connector
CN14	Software shutdown connector
CN15	Active/LED connector
CN17	Reset/LED connector
CN18	IrDA connector (optional)
CN20	FDD/HDD LED connector
CN21	Power switch connector
FD1	Diskette drive connector
FN1	CPU fan connector

Figure 1-8 shows the cables you can connect to the multifunction connector CN17.

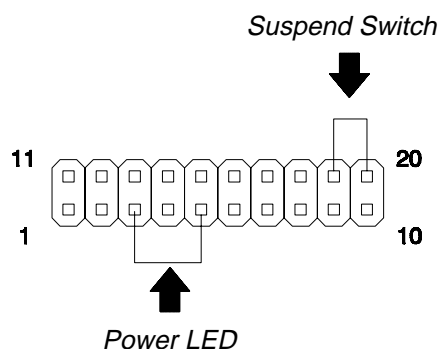


Figure 1-8 20-pin Reset/LED Connector (CN17)

1.3 ESD Precautions

Always observe the following electrostatic discharge (ESD) precautions before installing a system component:

1. Do not remove a component from its antistatic packaging until you are ready to install it.
2. Wear a wrist grounding strap before handling electronic components. Wrist grounding straps are available at most electronic component stores.



Do not attempt the procedures described in the following sections unless you are a qualified technician.

1.4 Memory Upgrade

The system board comes with four 72-pin SIMM sockets that support 4-MB and 16-MB single-density SIMMs and 8-MB and 32-MB double-density SIMMs. Table 1-4 lists the possible 64-bit memory configurations.

Table 1-4 Memory Configurations (64-bit)

Bank 0		Bank 1		Total Memory
SIMM-1	SIMM-2	SIMM-3	SIMM-4	
4 MB	4 MB			8 MB
		4 MB	4 MB	8 MB
8 MB	8 MB			16 MB
		8 MB	8 MB	16 MB
4 MB	4 MB	4 MB	4 MB	16 MB
4 MB	4 MB	8 MB	8 MB	24 MB
8 MB	8 MB	4 MB	4 MB	24 MB
8 MB	8 MB	8 MB	8 MB	32 MB
16 MB	16 MB			32 MB
		16 MB	16 MB	32 MB
4 MB	4 MB	16 MB	16 MB	40 MB
16 MB	16 MB	4 MB	4 MB	40 MB
8 MB	8 MB	16 MB	16 MB	48 MB
16 MB	16 MB	8 MB	8 MB	48 MB
16 MB	16 MB	16 MB	16 MB	64 MB
32 MB	32 MB			64 MB
		32 MB	32 MB	64 MB
4 MB	4 MB	32 MB	32 MB	72 MB
32 MB	32 MB	4 MB	4 MB	72 MB
8 MB	8 MB	32 MB	32 MB	80 MB
32 MB	32 MB	8 MB	8 MB	80 MB
16 MB	16 MB	32 MB	32 MB	96 MB
32 MB	32 MB	16 MB	16 MB	96 MB
32 MB	32 MB	32 MB	32 MB	128 MB

The system also supports 32-bit memory configurations. This feature allows you to install only one SIMM in a bank or in a configuration. Table 1-5 shows the 32-bit configurations.

Table 1-5 Memory Configurations (32-bit)

Bank 0		Bank 1		Total Memory
SIMM-1	SIMM-2	SIMM-3	SIMM-4	
4 MB*				4 MB
4 MB	4 MB	4 MB		12 MB
4 MB	4 MB	8 MB		16 MB
4 MB	4 MB	16 MB		24 MB
4 MB	4 MB	32 MB		40 MB
8 MB*				8 MB
8 MB	8 MB	4 MB		20 MB
8 MB	8 MB	8 MB		24 MB
8 MB	8 MB	16 MB		32 MB
8 MB	8 MB	32 MB		48 MB
16 MB*				16 MB
16 MB	16 MB	4 MB		36 MB
16 MB	16 MB	8 MB		40 MB
16 MB	16 MB	16 MB		48 MB
16 MB	16 MB	32 MB		64 MB
32 MB*				32 MB
32 MB	32 MB	4 MB		68 MB
32 MB	32 MB	8 MB		72 MB
32 MB	32 MB	16 MB		80 MB
32 MB	32 MB	32 MB		96 MB

* May also be installed in SIMM-2, SIMM-3, or SIMM-4.

1.4.1 Installing a SIMM

Follow these steps to install a SIMM:

1. Carefully slip a SIMM at a 45° angle into a socket making sure that the curved edge indicating the pin 1 of the SIMM matches pin 1 of the socket.



A SIMM fits only in one direction. If you slip in a SIMM but would not completely fit, you may have inserted it the wrong way. Reverse the orientation of the SIMM.

2. Gently push the SIMM to a vertical position until the pegs of the socket slip into the holes on the SIMM, and the holding clips lock the SIMM into position. The SIMM should be at a 90° angle when installed.

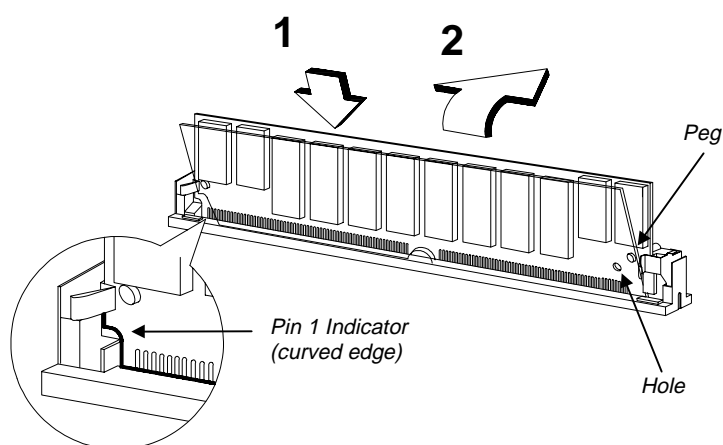


Figure 1-8 Installing a SIMM

1.4.2 Removing a SIMM

Follow these steps to remove a SIMM:

1. Press the holding clips on both sides of the SIMM outward to release it.
2. Move the SIMM to a 45° angle.
3. Pull the SIMM out of the socket.

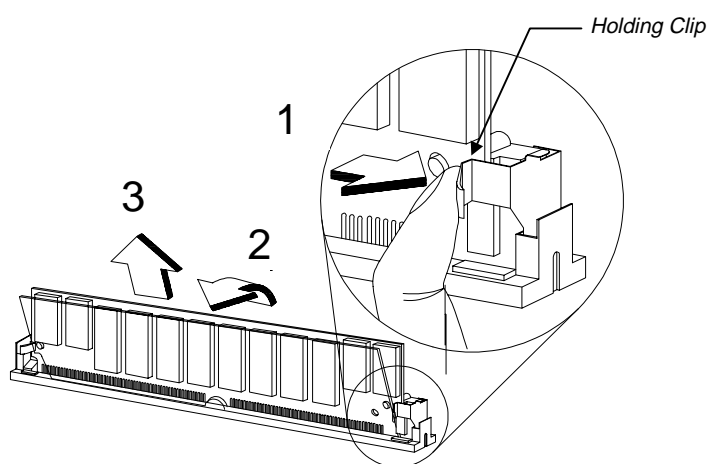


Figure 1-9 Removing a SIMM



Always remove SIMMs from the socket labeled SIMM-4, then SIMM-3, and so on.

1.4.3 SIMM Type Selection

When selecting SIMMs to install, make sure to take note of the height limitations of the slot board installed in the system.

Table 1-6 shows the SIMM height limitations for the different slot boards.

Table 1-6 SIMM Height Limitations

Slot Board	SIMM Height Limit
Aspire Desktop and AcerBasic	23.3 mm
Aspire Minitower	28.8 mm
ID2PN and ID2M	21.8 mm
IDABN	26.8 mm

1.4.4 Reconfiguring the System

You must enter Setup after installing or removing SIMMs to reconfigure the system.

Follow these steps to reconfigure the system:

1. Turn the system on. A memory error message appears, indicating that the total memory does not match the value stored in CMOS.
2. Press **CTRL** + **ALT** + **ESC** to enter Setup. A warning message appears indicating an incorrect memory configuration.
3. Press **ESC** twice to exit and reboot the system.

The system boots with the new memory configuration.

1.5 IDE Hard Disk Support

The system board supports four IDE hard disks, or any other IDE devices, through the two onboard PCI IDE interfaces. See Figure 1-1 for the location.

Follow the instructions in the housing installation manual on how to install a hard disk in the system. Connect the cables according to the IDE hard disk configuration in Table 1-7.

Table 1-7 IDE Hard Disk Configuration

IDE Connector	Master	Slave
Channel 1	Hard disk 0	Hard disk 1
Channel 2	Hard disk 2	Hard disk 3

1.6 CPU Installation

The system board comes with a zero-insertion force (ZIF) CPU socket for easy installation.

Follow these steps to install a Pentium CPU:

1. Lift up the socket lever.
2. Insert the CPU to the socket. Make sure that the notched corner of the CPU matches the pin 1 indicator on the socket.



Be careful not to bend any pins.

3. Pull down the socket lever.

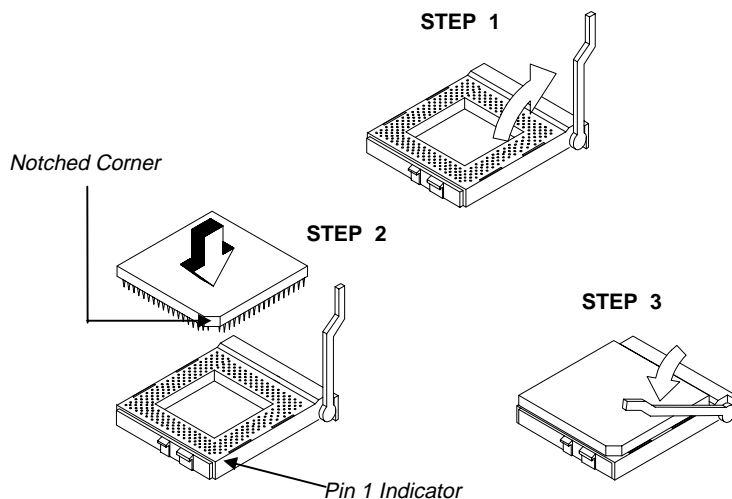


Figure 1-10 Installing a Pentium CPU

4. Set the CPU jumpers accordingly. Refer to Table 1-1.

1.7 Video Memory Upgrade

Larger video memory allows you to display higher resolutions and more colors. The system board comes with a 1-MB video memory onboard upgradable to 2 MB.

1.8 Second-level Cache Configuration

The system board supports 256-KB or 512-KB pipeline burst second-level cache. Table 1-8 shows the second-level cache configurations. Note that the cache is mounted onboard and not user-upgradable.

Table 1-8 Second-level Cache Configurations

Cache Size	Data SRAM Type	Tag SRAM Type
256 KB onboard	7 ns 32K * 32 x 2	15 ns 32K * 32 x 1
512 KB onboard	7 ns 32K * 32 x 2	15 ns * 8K 15 ns x 1

1.9 Audio Features

The system board supports a audio features compatible with Sound Blaster, Sound Blaster Pro, and Windows Sound System. It has connectors onboard to accommodate the audio-I/O board, WaveTable, CD-ROM, and fax-voice modem.



You may disable the audio feature in the BIOS Utility.

1.9.1 Installing the Audio-I/O Board

The connector CN4 on the system board accommodates the audio-I/O board. Figure 1-11 shows how to install the board.

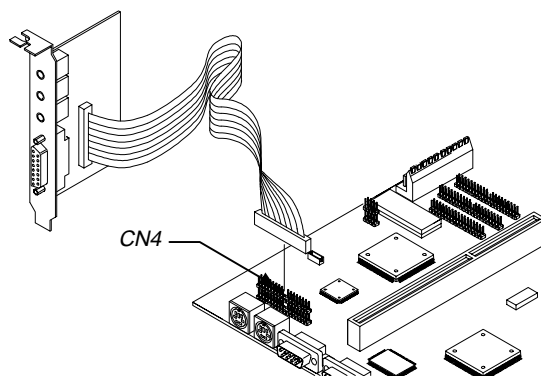


Figure 1-11 Installing the Audio-I/O Board

1.9.2 Audio-I/O Board Features

The audio-I/O board consists of microphone port, line-in port, line-out port, and MIDI/game port. These ports accommodate the external audio devices.

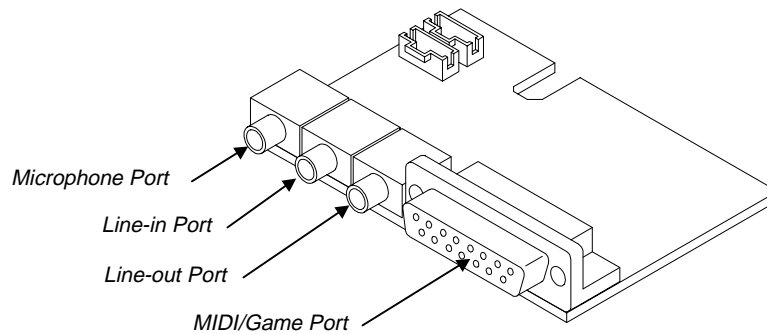


Figure 1-12 Audio-I/O Board

The internal connectors on the audio-I/O board are useful for system housings with built-in speakers, microphone, amplifier, or auxiliary devices. With the internal audio connectors functioning exactly as the external audio ports, you can utilize all the sound features supported by the system board.

Since external speakers, microphone, and other audio devices give better sound quality, the external audio ports take higher priority than the internal connectors. When you attach external audio devices to the ports, the internal audio devices are automatically disabled.

1.9.3 WaveTable Daughterboard (Optional)



The system board supports a WaveTable daughterboard as option. The WaveTable does not come with the basic system.

The WaveTable daughterboard supports the same external connectors as the audio-I/O board but comes with enhanced audio features. It bundles chipsets that work together to produce better sound quality.

Figure 1-13 shows the WaveTable installation.

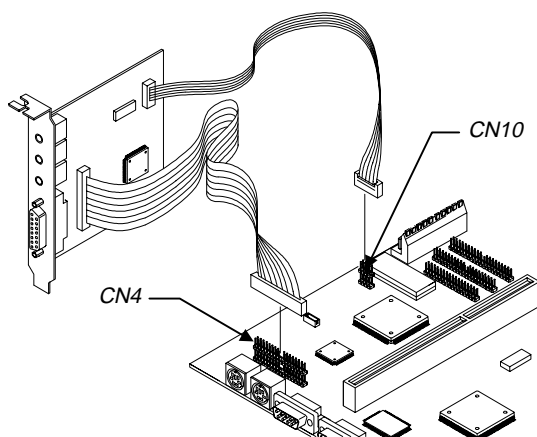


Figure 1-13 WaveTable Daughterboard

1.9.4 Audio-I/O Devices

Figure 1-14 shows the various devices that you can connect to the audio-I/O board.

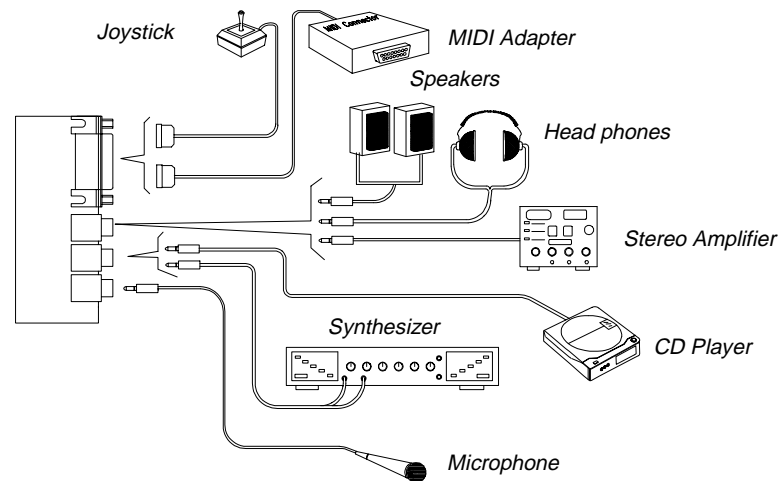


Figure 1-14 Audio I/O External Devices

1.10 QuickStart Power Saving Feature (for Aspire models only)

The system board supports a special power saving feature called QuickStart mode. QuickStart turns off the hard disk, monitor, keyboard, and mouse once you press the power switch for less than four seconds while the system is on.



This feature requires the Power Saving Operation Mode parameter in the BIOS to be set to QuickStart. See Chapter 2 for more information on the setting description.

1.10.1 QuickStart Mode Operation

At any time while the system is running, enter the QuickStart mode by simply pressing the power switch for less than four seconds. This action causes the system to rest (QuickStart state 1) by turning off the keyboard, mouse, and monitor. After the specified time in the QuickStart State Timer parameter in BIOS, the system sleeps (QuickStart state 2) and turns off the hard disk.

Once the system enters QuickStart mode, the hard disk/message LED and keyboard LED go off, while the power and monitor LEDs start blinking.

When a message comes, the hard disk/message LED starts blinking orange, then green when the hard disk reads the message. After getting the message, the hard disk and the LED go off again.

Press the power switch again for less than four seconds to return to the normal mode.



To enter or exit the QuickStart mode, make sure to press the power switch within four seconds. Pressing it for more than four seconds turns off the system.

1.11 Installing ISA Cards

Both PnP and non-PnP ISA cards require specific IRQs. When installing ISA cards, make sure that the IRQs required by these cards are not previously assigned to PCI devices to avoid resource conflicts.

Follow these steps when installing ISA cards:

1. Remove all PnP cards installed in the system, if any.
2. Install non-PnP ISA cards.
3. Turn on the system.
4. Use Windows 95 or ICU to manually assign the appropriate IRQs to the cards. This ensures that BIOS will not use the resources assigned to the non-PnP ISA cards.



BIOS detects and configures only PnP cards.

5. Turn off the system.
6. Install PnP ISA and PCI cards.
7. Turn on the system. This time PnP BIOS automatically configures the PnP ISA and PCI cards with the remaining free IRQs.

1.12 Error Messages

Do not continue using the computer if you receive an error message of any type. Note the message and take corrective action. This section explains the different types of error messages and corresponding corrective measures.

There are two general types of error messages:

- Software
- System

1.12.1 Software Error Messages

Software error messages are returned by your operating system or application. These messages typically occur after you boot the operating system or when you run your applications. If you receive this type of message, consult your application or operating system manual for help.

1.12.2 System Error Messages

A system error message indicates a problem with the computer itself. A message of this type normally appears during the power-on self-test, before the operating system prompt appears.

Table 1-9 lists the system error messages.

Table 1-9 *System Error Messages*

Message	Action
CMOS Battery Error	Replace the RTC chip or contact your dealer.
CMOS Checksum Error	Check the RTC chip and the necessary jumper. If the battery is still good, run Setup.
Display Card Mismatch	Run Setup
Diskette Drive Controller Error or Not Installed	Check and connect the control cable to the diskette controller.
Diskette Drive Error	Diskette may be defective. If not, replace the diskette drive.
Diskette Drive A Type Mismatch	Run Setup and select the proper drive type.
Diskette Drive B Type Mismatch	Run Setup and select the proper drive type.
Equipment Configuration Error	Modify the memory configuration to agree with one of the options in Tables 1-3 or 1-4.
Hard disk Controller Error	Run Setup.
Hard disk 0 Error	Check all cable connections. Replace hard disk.
Hard disk 1 Error	Check all cable connections. Replace hard disk.
Keyboard Error or No Keyboard Connected	Check and connect the keyboard to the system unit.
Keyboard Interface Error	Replace the keyboard or contact your dealer.

Table 1-9 *System Error Messages (continued)*

Message	Action
Memory Error at: MMMM:SSSS:OOO (W:XXXX, R:YYYY) where: M: MB, S: Segment, O: Offset, X/Y: write/read pattern	Check SIMMs on the system board. Contact your dealer.
CPU Clock Mismatch	Run Setup. Check if the CPU clock is correct. If correct, exit Setup and reboot the system. If the error message reappears, ask for technical assistance.
Onboard Serial Port 1 Conflict	Run Setup and disable the port.
Onboard Serial Port 2 Conflict	Run Setup and disable the port.
Onboard Parallel Port Conflict	Run Setup and disable the port.
Pointing Device Error	Check and connect pointing device.
Pointing Device Interface Error	Replace the pointing device or contact your dealer.
Press F1 key to continue or CTRL+ALT+ESC for Setup	Press F1 or CTRL+ALT+ESC to enter Setup.
Real Time Clock Error	Check the RTC chip. If it is still good, run Setup. If not, replace the RTC chip.

1.12.3 Correcting Error Conditions

As a general rule, if an error message says "Press F1 to continue," it is caused by a configuration problem, which can be easily corrected. An equipment malfunction is more likely to cause a fatal error, i.e., an error that causes complete system failure.

Here are some corrective measures for error conditions:

1. Run Setup. You must know the correct configuration values for your system before you enter Setup, which is why you should write them down when the system is correctly configured. An incorrect configuration is a major cause of power-on error messages, especially for a new system.
2. Remove the system unit cover. Check that the jumpers on the system board and any expansion boards are set correctly.
3. If you cannot access a new disk, it may be because your disk is not properly formatted. Format the disk first using the FDISK and FORMAT commands.
4. Check that all connectors and boards are securely plugged in.

If you go through the corrective steps above and still receive an error message, the cause may be an equipment malfunction.

If you are sure that your configuration values are correct and your battery is in good condition, the problem may lie in a damaged or defective chip.

In both cases, contact an authorized service center for assistance.