



American
Megatrends

**Olympus II
User's Guide**

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Revision History

08/01/2001 Internal release.

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Preface

To the OEM Thank you for purchasing the high performance American Megatrends Olympus II motherboard. This product is a state of the art motherboard that includes the famous AMIBIOS. It is assumed that you have also licensed the rights to use the American Megatrends documentation for this American Megatrends product.

This manual was written for the OEM to assist in the proper installation and operation of this board. This manual describes the specifications and features of the Olympus II board. It explains how to assemble a system based on the Olympus II board and how to use the AMIBIOS that is specifically designed for this motherboard.

This manual is not meant to be read by the computer owner who purchases a computer with this motherboard. It is assumed that you, the computer manufacturer, will use this manual as a sourcebook of information, and that parts of this manual will be included in the computer owner's manual.

Disclaimer

AMI certifies only that this product will work correctly when this product is used with the same jumper settings, the same system configuration, the same memory module parts, and the same peripherals that were tested by AMI with this product. The complete list of tested jumper settings, system configurations, peripheral devices, and memory modules are documented in the AMI Compatibility Report for this product. Call your AMI sales representative for a copy of the Compatibility Report for this product.

Technical Support

AMI provides technical support for AMI products purchased directly from AMI or from an AMI-authorized reseller only.

If...	Then...
You purchased this product from AMI or from a certified AMI reseller,	Call AMI technical support at 770-246-8600. Please be prepared to specify the serial number of the product.
This AMI product was installed as part of a system manufactured by a company other than AMI or you purchased an AMI product from an unauthorized reseller,	Call the technical support department of the computer manufacturer or the unauthorized reseller. AMI does not provide direct technical support in this case.

If an American Megatrends motherboard fails to operate as described or you are in doubt about a configuration option, please call technical support at 770-246-8600.

Web Site

We invite you to access the American Megatrends world wide web site at:
<http://www.ami.com/>.

Packing List

You should have received the following:

- an Olympus II motherboard
 - one nine-pin serial cable with a D-type connector
 - one floppy cable and ATA-66 IDE cable
 - a warranty card
 - the *Olympus II User's Guide*
 - driver CD
 - back panel I/O shield and decal
-

Quality Assurance

AMI is Committed to Quality Products and Service

American Megatrends, Inc. is dedicated to providing the highest quality products and services available. In striving for this goal, AMI has voluntarily submitted itself to the International Organization for Standardization (ISO) for review. Following the ISO 9000 guidelines, American Megatrends has been certified compliant for the ISO 9002 standards. Being certified indicates the compliance to the ISO 9002 model for quality assurance in the production, installation, and servicing phase of AMI's business operations. The guiding principle of this model being the prevention of defects through the planning and application of "best practices" at every stage of business.

Being certified carries intrinsic benefits

- Error reductions resulting from better systematic inspection and testing.
 - Error reduction resulting from increased employee participation, involvement, awareness and systematic employee training.
 - Better products resulting from better design control. Improved productivity resulting from planning and teamwork.
 - Reduction in cost associated with failures.
 - Resolution of nonconformance and adoption of corrective and preventive action in a systematic way.
 - Improved communications both internally and externally which usually improves quality, efficiency, on time delivery and customer / supplier relations.
 - Recognition of compliance by an unbiased organization.
-

1 Hardware Features

Overview

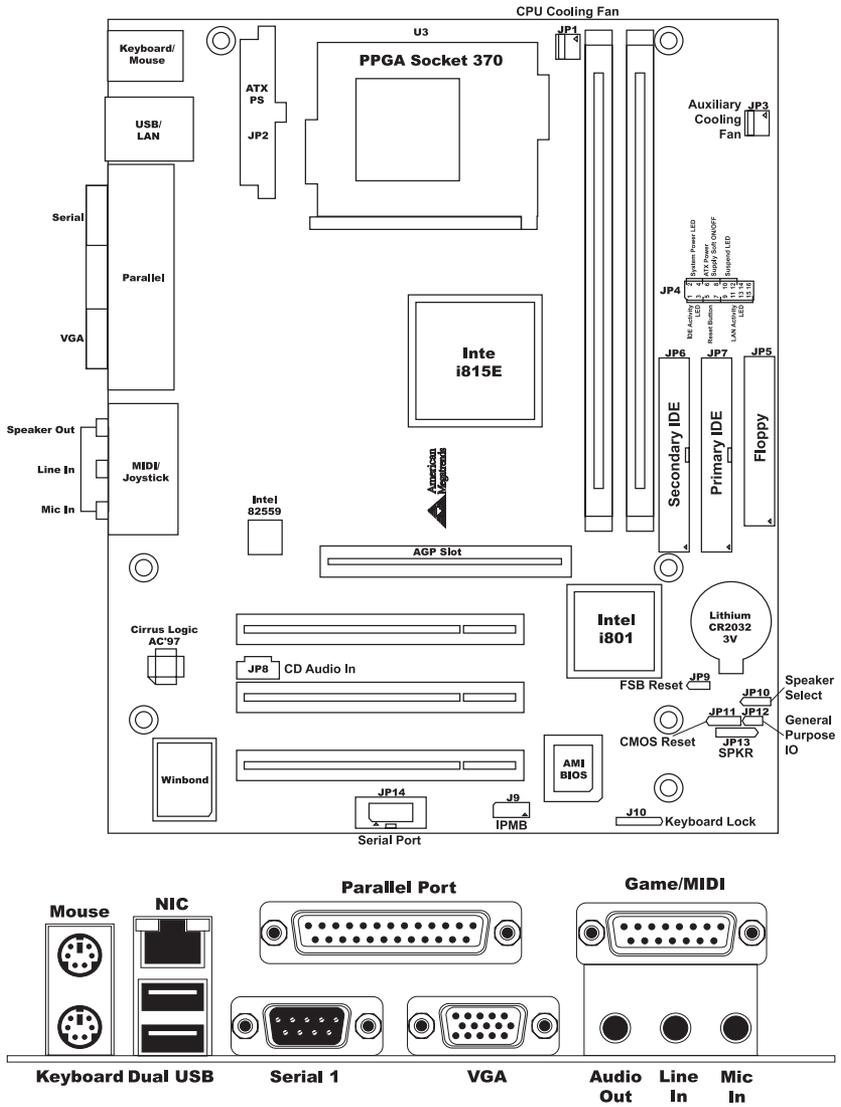
The AMI Olympus II motherboard is a board that can be used in various applications. This tightly integrated board combines American Megatrends' expertise in motherboard, firmware, and operating system environments. The AMI Olympus II motherboard architecture provides a compact, high-performance platform that addresses many applications. The following are just some of the possibilities:

- Entry Level Network Workstation
 - Stand Alone home computer
 - Web/Email Server Appliance
 - Small to Medium Business Server Appliance
 - Secure Socket Layer Appliance
 - Network Attached Storage Appliance
 - VPN/Firewall Appliance
 - Internet Caching Appliance
 - Internet Appliance/Thin Client
-

Features

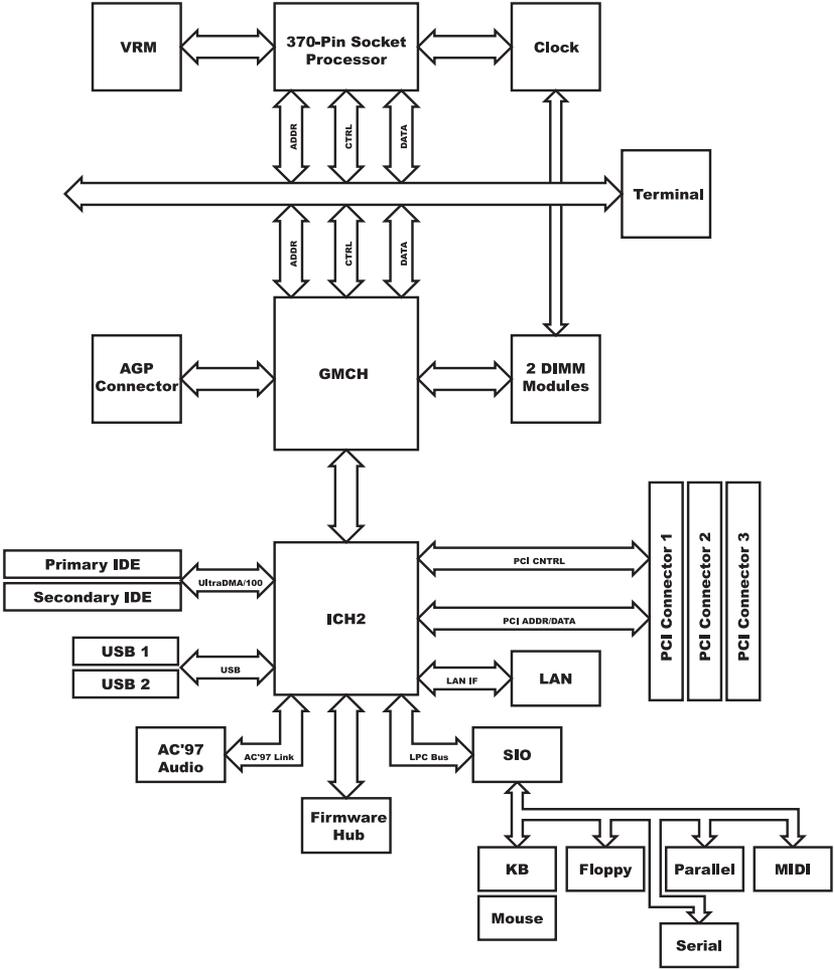
Item	Description
Form Factor	Micro ATX
Processor	Support for either an Intel® Pentium® III processor in a Flip Chip Pin Grid Array (FC-PGA) or an Intel® Celeron™ processor in an FCPGA or PPGA package.
Front Side Bus	<ul style="list-style-type: none">• 66 MHz• 100 MHz• 133 MHz
Memory	<ul style="list-style-type: none">• Two 168-pin dual inline memory module (DIMM) socket• Support for up to 256 MB of 100 MHz or 133 MHz non-ECC synchronous DRAM (SDRAM) per socket• Support for serial presence detect (SPD) and non SPD DIMMs
Chipset	Intel® 815E chipset, consists of: <ul style="list-style-type: none">• Intel® 82815E Graphics/Memory Controller Hub (GMCH)• Intel® 82801BA I/O Controller Hub (ICH2)• Intel® 82802AB Firmware Hub (FWH)
Onboard Video	<ul style="list-style-type: none">• Intel® 82815E GMCH
Onboard Audio	<ul style="list-style-type: none">• Cirrus Logic CS4299• Dual 250 mW/Channel Audio Amp
I/O Controller	<ul style="list-style-type: none">• Winbond W83627HF/F
Peripheral Devices	<ul style="list-style-type: none">• Up to two universal serial bus (USB) ports• Two IDE interface with Ultra DMA support
Serial Port	<ul style="list-style-type: none">• One standard serial port located on the back I/O shield• One 9-pin stake-pin serial debug port connector located on the motherboard
Parallel Port	<ul style="list-style-type: none">• One standard parallel port located on the back I/O shield
Game Port	<ul style="list-style-type: none">• One standard game/MIDI port located on the back I/O shield
Expansion Capabilities	<ul style="list-style-type: none">• Three PCI bus (3.3 V/5V)• One AGP slot
Onboard LAN	<ul style="list-style-type: none">• Intel 82559• 10/100 Base T with integrated MAC and PHY• PXE ROM Support
BIOS	<ul style="list-style-type: none">• AMIBIOS• Support for Advanced Configuration and Power Interface (ACPI), Plug and Play, and SMBIOS

Board Layout



Block Diagram

The block diagram for the Olympus II is shown below:



Processor

The Olympus II motherboard supports the following FCPGA and PPGA CPUs:

Processor Type	Processor Speed	System Bus Frequency	L1 Cache Size	L2 Cache Size	
Pentium® III processor (FCPGA) Coppermine	1.0 GHz	133 MHz	32 KB	256 KB	
	933 MHz	133 MHz	32 KB	256 KB	
	866 MHz	133 MHz	32 KB	256 KB	
	800EB MHz	133 MHz	32 KB	256 KB	
	733 MHz	133 MHz	32 KB	256 KB	
	667 MHz	133 MHz	32 KB	256 KB	
	600EB MHz	133 MHz	32 KB	256 KB	
	533EB MHz	133 MHz	32 KB	256 KB	
	850 MHz	100 MHz	32 KB	256 KB	
	800 MHz	100 MHz	32 KB	256 KB	
	750 MHz	100 MHz	32 KB	256 KB	
	700 MHz	100 MHz	32 KB	256 KB	
	650 MHz	100 MHz	32 KB	256 KB	
	600E MHz	100 MHz	32 KB	256 KB	
	550E MHz	100 MHz	32 KB	256 KB	
	500E MHz	100 MHz	32 KB	256 KB	
	Celeron™ processor	800 MHz (FCPGA)	66 MHz	32 KB	128 KB
		766 MHz (FCPGA)	66 MHz	32 KB	128 KB
		733 MHz (FCPGA)	66 MHz	32 KB	128 KB
700 MHz (FCPGA)		66 MHz	32 KB	128 KB	
667 MHz (FCPGA)		66 MHz	32 KB	128 KB	
633 MHz (FCPGA)		66 MHz	32 KB	128 KB	
600 MHz (FCPGA)		66 MHz	32 KB	128 KB	
566 MHz (FCPGA)		66 MHz	32 KB	128 KB	
533A MHz (FCPGA)		66 MHz	32 KB	128 KB	
500A MHz (FCPGA)		66 MHz	32 KB	128 KB	
533 MHz (PPGA)		66 MHz	32 KB	128 KB	
500 MHz (PPGA)		66 MHz	32 KB	128 KB	
466 MHz (PPGA)		66 MHz	32 KB	128 KB	
433 MHz (PPGA)		66 MHz	32 KB	128 KB	
400 MHz (PPGA)		66 MHz	32 KB	128 KB	
366 MHz (PPGA)		66 MHz	32 KB	128 KB	
333 MHz (PPGA)		66 MHz	32 KB	128 KB	
300A MHz (PPGA)		66 MHz	32 KB	128 KB	

Cont'd

Processor, Continued

Features	Intel® Pentium® III 133 MHz FSB	Intel® Pentium® III 100 MHz FSB	Intel® Celeron™ FCPGA	Intel® Celeron™ PPGA
FCPGA 370-pin Package	X	X	X	
PPGA 370-pin Package				X
0.18 Micron Process Technology	X	X	X	
0.25 Micron Process Technology				X
133 MHz System Bus	X			
100 MHz System Bus		X		
66 MHz System Bus			X	X
256 KB Level 2 Advanced Transfer Cache (full-speed)	X	X		
128 KB Level 2 Advanced Transfer Cache (full-speed)			X	X
Advanced System Buffering	X	X		
Streaming SIMD Extensions	X	X	X	
Intel® Processor Number Serial Number	X	X		
Dual Independent Bus Architecture	X	X	X	X
Dynamic Execution	X	X	X	X
Intel® MMX™ Media Enhancement Technology	X	X	X	X

Note:

‘A’, ‘E’, ‘B’ and ‘EB’ nomenclature is used to differentiate processors within a processor speed designation when there is an overlap between processor frequencies and functionality.

- ‘A’ designates 128 KB of On-die Cache on the Intel® Celeron™ 300A MHz processor.
- ‘A’ designates FCPGA 370-pin Package on the Intel® Celeron™ 500A MHz processor and faster.
- ‘E’ designates Advanced Transfer Cache and Advanced System Buffering support.
- ‘B’ designates 133 MHz System Bus support.
- ‘EB’ designates Advanced Transfer Cache, Advanced System Buffering and 133 MHz System Bus support.

System Memory

The Olympus II motherboard has two DIMM sockets. Each DIMM socket is a separate memory bank. The minimum amount of memory that can be installed is 32 MB. The maximum amount of memory is 512 MB. It supports the following memory features:

- 3.3V 168 pin SDRAM DIMM modules
- Unbuffered single sided or double sided DIMM modules
- Non-ECC and ECC DIMM modules
- Serial Presence Detect (SPD) and non SPD memory
- 133 MHz SDRAM or 100 MHz SDRAM DIMM modules
- Suspend to RAM

The following table is a list of SDRAM types that are supported per bank.

SDRAM	DIMM Size
2 M X 8 / 2 M X 8*	32 MB
4 M X 16	32 MB
4 M X 16 / 2 M X 8*	48 MB
4 M X 16 / 4 M X 16*	64 MB
8 M X 8	64 MB
8 M X 16	64 MB
8 M X 8 / 4 M X 16*	96 MB
8 M X 16 / 4 M X 16*	96 MB
8 M X 8 / 8 M X 8*	128 MB
8 M X 16 / 8 M X 16*	128 MB
16 M X 8	128 MB
16 M X 16	128 MB
16 M X 8 / 8 M X 8*	192 MB
16 M X 8 / 16 M X 8*	192 MB
16 X 16 / 16 M X 16*	256 MB
32 M X 8	256 MB
32 M X 8 / 32 M X 8*	256 MB

* Double sided SDRAM. Both the front and backsides of the DIMM module are populated.

PCI Bus Speed

AMIBIOS automatically configures the PCI slot. The PCI slot is synchronous with the CPU clock:

CPU External Clock Frequency	PCI Expansion Slot Frequency
66MHz	33 MHz
100 MHz	33 MHz
133 MHz	33 MHz

Intel® 815E Chipset

The Intel® 815E chipset consists of the following:

- 82815E Graphics Memory Controller Hub (GMCH)
- 82801BA I/O Controller Hub (ICH2)
- 82802AB Firmware Hub (FWH)

For more information on the Intel 815E chipset, visit the Intel website at the following address:

<http://www.intel.com/>

IDE Support

The Olympus II motherboard has two bus-mastering IDE interface that can be enabled independently. This interface supports the following:

- ATAPI devices (such as CD-ROM drives)
 - ATA devices using the transfer modes listed in the BIOS table on the next page
-

Cont'd

IDE Support, Continued

Feature	Options	Description
Type	<ul style="list-style-type: none">• None• User• Auto (default)• CD-ROM• ATAPI Removable• Other ATAPI• IDE Removable	Specifies the IDE configuration mode for IDE devices. <i>User</i> allows the user to change the other features in this table. <i>Auto</i> automatically sets the other features in this table. Any setting other than <i>None</i> or <i>Auto</i> enables the user to set features.
LBA Mode Control	<ul style="list-style-type: none">• Disabled• Enabled (default)	Enables or disables the LBA mode control.
Multi-Sector Transfers	<ul style="list-style-type: none">• Disabled• 2 Sectors• 4 Sectors• 8 Sectors• 16 Sectors (default)	Specifies number of sectors per block for transfers from the hard disk drive to memory. Check the hard disk drive's specifications for optimum setting.

The AMIBIOS supports logical block addressing (LBA) and extended cylinder head sectors (ECHS) translation modes. The drive reports the transfer rate and translation mode to the AMIBIOS.

The Olympus II motherboard supports laser servo (LS-120) diskette technology through its IDE interface. The LS-120 drive can be configured as a boot device by setting the AMIBIOS Setup program's Boot menu to one of the following:

- ARMD-FDD (ATAPI removable media device – floppy disk drive)
 - ARMD-HDD (ATAPI removable media device – hard disk drive)
-

Real Time Clock, CMOS SRAM, and Battery

The real time clock provides a time-of-day clock and a multicentury calendar with alarm features. The real time clock supports 256 bytes of battery-backed CMOS SRAM in two banks that are reserved for BIOS use.

A coin-cell battery powers the real time clock and CMOS memory. When the computer is not plugged into a wall socket, the battery has an estimated life of three years. When the computer is plugged-in, the 3.3 V standby current from the power supply extends the life of the battery. The clock is accurate to ± 13 minutes/year at 25°C with 3.3 VSB applied.

The time, date, and CMOS values can be specified in the BIOS Setup program. The CMOS values can be returned to their defaults by using the BIOS Setup program.

Note: If the battery and AC power fail, standard defaults, not custom defaults, will be loaded into CMOS RAM at power on.

Onboard I/O

The Winbond W83627HF controller provides the onboard I/O features. This includes the following basic I/O functions:

- Floppy disk drive controller
- Two 16550 serial ports
- Parallel port (EPP & ECP)
- PS/2 Keyboard and PS/2 Mouse
- Hardware monitoring functions

For more information on this chipset, visit the Winbond website at the following address:

<http://www.winbond.com/>

Graphics Subsystem

The Intel® 82815E GMCH graphics memory controller hub component provides the following graphics support features:

- integrated 2-D and 3-D graphics engines
- integrated hardware motion compression engine
- integrated 230 MHz RAMDAC

See the below table for the list of refresh rates supported.

Resolution	Color Palette	Available Refresh Frequencies (Hz)
320 x 200	256 colors	70
	64 K colors	70
	16 M colors	70
320 x 240	256 colors	70
	64 K colors	70
	16 M colors	70
352 x 480	256 colors	70
	64 K colors	70
	16 M colors	70
352x 576	256 colors	70
	64 K colors	70
	16 M colors	70
400 x 300	256 colors	70
	64 K colors	70
	16 M colors	70
512 x 384	256 colors	70
	64 K colors	70
	16 M colors	70
640 x 400	256 colors	70
	64 K colors	70
	16 M colors	70
640 x 480	256 colors	60, 70, 72, 75, 85
	64 K colors	60, 75, 85
	64 K colors	70, 72
	16 M colors	60, 70, 72, 75, 85
800 x 600	256 colors	60, 70, 72, 75, 85
	64 K colors	60, 70, 72, 75, 85
	16 M colors	60, 70, 72, 75, 85

Cont'd

Graphics Subsystem, Continued

Resolution	Color Palette	Available Refresh Frequencies (Hz)
1024 x 768	256 colors	60, 70, 75, 85
	64 K colors	60, 70, 75
	64 K colors	85
	16 M colors	60, 70, 75, 85
1152 x 864	256 colors	60, 70, 72, 75
	256 colors	85
	64 K colors	60, 70
	64 K colors	72, 75, 85
	16 M colors	60
	16 M colors	75, 85
1280 x 768	256 colors	60
	64 K colors	60
	16 M colors	60
1280 x 1024	256 colors	60
	256 colors	70, 72, 75, 85
	64 K colors	60, 70, 72, 75, 85
	16 M colors	60, 70, 75, 85
1600 x 1200	256 colors	60, 70, 72, 75

AGP Expansion Slot

The Olympus II has one AGP expansion slot. It supports the following:

- Graphics Performance Accelerator (GPA) cards with 133 MHz SDRAM display cache
 - AGP adapter cards with either 3.3 V or 1.5 V I/O
-

Audio Subsystem

The Olympus II has an onboard audio subsystem. It consists of the following chipsets:

- Intel 82801BA I/O Controller Hub
 - Cirrus Logic CS4299 analog codec
-

Cont'd

Audio Subsystem, Continued

The onboard audio subsystem supports the following audio connections:

- Two analog stereo inputs (one internal CD-ROM audio and one external Line-In jack)
- One external mono microphone input jack
- One external stereo jack

For more information on the Cirrus Logic CS4299 chipset, visit the Cirrus Logic website at the following address:

<http://www.cirrus.com/>

For more information on the Intel 82801BA chipset, visit the Intel website at the following address:

<http://www.intel.com/>

LAN Subsystem

The Olympus II network interface controller subsystem integrates the Intel 82559 chipset. This chipset provides the Physical Layer and Media Access Controller layer information. It supports full duplex 10/100 Mbps data transmission and reception.

For more information about this chipset, visit the Intel website at the following address:

<http://www.intel.com/>

Hardware Monitoring Components

The hardware monitor component provides low-cost instrumentation capabilities. They include the following:

- Internal ambient temperature sensing
 - Remote thermal diode sensing for direct monitoring of processor temperature
 - Power supply monitoring (+12, +5, +3.3 VCC Core) to detect levels above or below acceptable values
 - I²C interface with IPMB connector
-

Power Management Features

Power management is implemented at several levels, including:

Software Support

- Advanced Configuration and Power Interface (ACPI)
- Advanced Power Management (APM)

Hardware Support

- Power connector using power button
 - Wake on network event
 - Fan Connectors
 - Wake from USB
 - Wake from Keyboard
 - Wake from PME#
-

ACPI

If the motherboard is used with an ACPI-aware operating system, the BIOS can provide ACPI support. ACPI gives the operating system direct control over the power management and Plug and Play functions of a computer. The use of ACPI with this motherboard requires the support of an operating system that provides full ACPI functionality. ACPI features include:

- Plug and Play (including bus and device enumeration)
 - Power management control of individual devices, add-in boards (some add-in boards may require an ACPI-aware driver), video displays, and hard disk drives.
 - methods for achieving less than 30-watt system operation in the Power On Suspend sleeping state, and less than 5-watt system operation in the Suspend to RAM sleeping state
 - a Soft-off feature that enables the operating system to power off the computer
 - support for multiple wake events
 - support for a front panel power and sleep mode switch
-

System States and Power States

Under ACPI, the operating system directs all system and device power state transitions. The operating system puts devices in and out of low-power states based on user preferences and knowledge of how devices are being used by applications. Devices that are not being used can be turned off. The operating system uses information from applications and user settings to put the system as a whole into a low-power state.

Cont'd

System States and Power States, Continued

The Olympus II motherboard supports the following power states:

Global States	Sleeping States	CPU States	Device States	Targeting System Power*
G0 – working state	S0 – working	C0 – working	D0 – working state	Full power > 30 W
G1 – sleeping state	S1 – CPU stopped	C1 – stop grant	D1, D2, D3 – device specification specific	5 W < power < 30 W
G2 – mechanical off. AC power is disconnected from the computer.	No power to the system.	no power	D3 – no power for wake up logic, except when provided by battery or external source.	No power to the system so that service can be performed.

* Total system power is dependent on the system configuration, including add-in boards and peripherals powered by the system chassis' power supply.

** Dependent on the standby power consumption of wake up devices used in the system.

Plug and Play

In addition to power management, ACPI provides controls and information so that the operating system can facilitate Plug and Play device enumeration and configuration. ACPI is used only to enumerate and configure devices that do not have other hardware standards for enumeration and configuration. PCI devices on a desktop board, for example, are not enumerated by ACPI.

Power Connector

When used with an ATX-compliant power supply that supports remote power on/off, the motherboard can turn off the system power through software control. To enable soft-off control in software, advanced power management must be enabled in the BIOS Setup program and in the operating system. When the system BIOS receives the correct power management command from the operating system, the BIOS turns off the power to the computer.

With soft-off enabled, if power to the computer is interrupted by a power outage or a disconnected power cord, when power resumes, the computer returns to the power state it was in before power was interrupted (on or off).

Fan Connector

The Olympus II motherboard has two fan connector for a processor fan or active fan heatsink.

Connector	Function
Processor Fan	Provides +12 V DC for a processor fan or active fan heatsink.
Chassis Fan	Provides +12 V DC for a chassis fan. The fan can be switched on or off depending on the power management state of the computer.

2 Hardware Installation

Overview

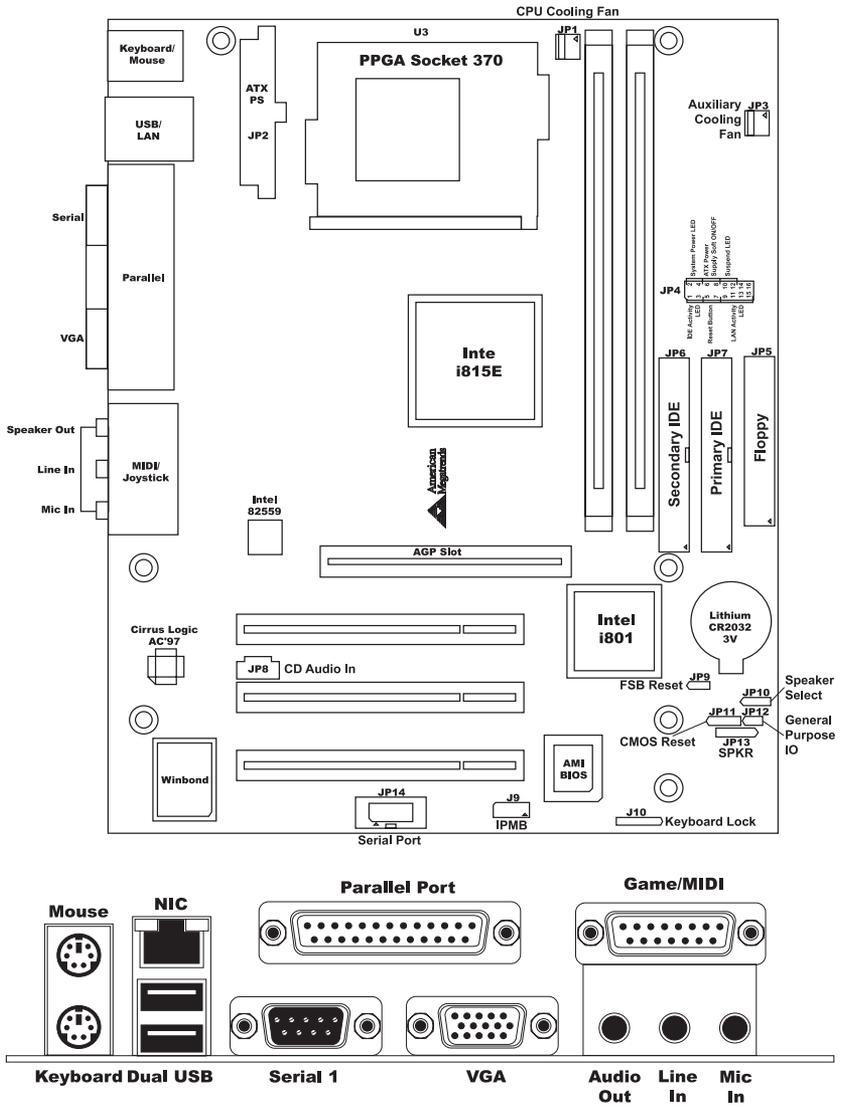
This covers the basic hardware installation of the Olympus II motherboard.

Motherboard Installation

Use the following steps to install the motherboard, memory, CPU, and connectors.

Step	Action
1	Unpack the Motherboard (<i>and check jumper settings</i>)
2	Install Memory
3	Install CPU and Connect CPU Heatsink and Fan
4	Install the Motherboard (<i>and I/O shield</i>)
5	Attach Internal Cables
6	Installing Expansion Boards
7	Connect External Cables
8	Install Drivers
9	Test and Configure

Motherboard Layout



Step 1 Unpack the Motherboard

Step	Action
1	Inspect the cardboard carton for obvious damage. If damaged, call 770-246-8600. Leave the motherboard in its original packing.
2	Perform all unpacking and installation procedures on a ground-connected anti-static mat. Wear an anti-static wristband grounded at the same point as the anti-static mat. Or use a sheet of conductive aluminum foil grounded through a 1-megohm resistor instead of the anti-static mat. Similarly, a strip of conductive aluminum foil wrapped around the wrist and grounded through a 1 megaohm resistor serves the same purpose as the wristband.
3	Inside the carton, the motherboard is packed in an anti-static bag, and sandwiched between sheets of sponge. Remove the sponge and the anti-static bag. Place the motherboard on a grounded anti-static surface component side up. Save the original packing material.
4	Inspect the motherboard for damage. Do not apply power to the motherboard if it has been damaged.
5	If the motherboard is undamaged, it is ready to be installed.

Avoid Electro-Static Discharge (ESD)



Electro-Static Discharge (ESD) will damage the motherboard and other system components. Keep the motherboard in the anti-static bag until it is to be installed. Wear an anti-static wrist-grounding strap before handling the motherboard. Make sure you stand on an anti-static mat when handling the motherboard.

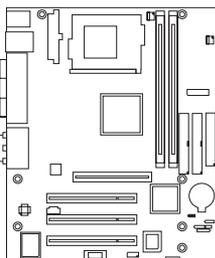
Avoid contact with any component or connector on any adapter card, printed circuit board, or memory module. Handle these components by the mounting bracket.

See Appendix A for more information on ESD.

Step 1 Unpack the Motherboard, Continued

Set Jumpers Set all jumpers and install the CPU before placing the motherboard in the chassis.

JP9 FSB Reset Confirm that JP9 is not shorted by a jumper.



Pin	Signal Name
1	Power
2	AC SDATA OUT

When pins 1 and 2 are shorted, the CPU bus speed is reset to 2:1.

You can use this jumper to set the CPU clock multiplier to the lowest setting. This is useful if the CPU clock multiplier is set higher than the CPU is rated for.

For example:

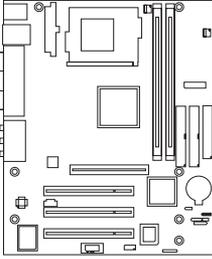
If you over-clock the CPU and the motherboard cannot boot up, you can short jumper JP9 to force the board to reset the CPU clock multiplier.

Note: A large majority of Intel® Pentium® processors supported on the Olympus 2 have an internal CPU clock multiplier lock on the CPU ratio. These specific processors cannot be forced to a higher or lower speed.

Step 1 Unpack the Motherboard, Continued

JP10 Speaker Select

Confirm that pins 1 and 2 are shorted.

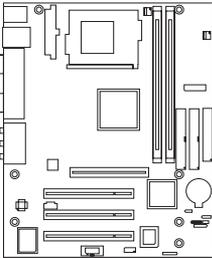


Pin	Signal Name
1	AC97 Speaker
2	Speaker
3	External Speaker

When pins 1 and 2 are shorted, the internal speaker will be enabled. When 2 and 3 are shorted, the internal speaker will be enabled.

JP11 CMOS Reset

Confirm that pins 1 and 2 are shorted.



Pin	Signal Name
1	Power
2	RTC Reset
3	Ground

When pins 2 and 3 are shorted, the CMOS information will be erased.

Cont'd

Step 1 Unpack the Motherboard, Continued

JP11 is a 3-pin berg that can be used to erase the contents of CMOS RAM, where all system configuration information is stored.

Before you change JP11 from the default setting (1-2), turn off the power supply using the mechanical switch (not the soft-off power button.) This switch is normally located on the power supply. If there is no switch, remove the AC cord going to the power supplies.

To drain CMOS RAM power, perform the following steps:

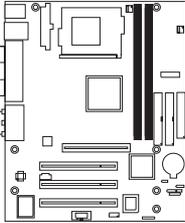
Step	Action
1	Turn off power to the computer.
2	Remove the computer cover.
3	Remove the jumper from pins 1-2 of JP11.
4	Place a shorting bridge on pins 2-3 of JP11.
5	Wait for five seconds.
6	Remove the shorting bridge from pins 2-3 of JP11.
7	Put the shorting bridge back on pins 1-2 of JP11.
8	Turn on computer power again. Since you drained power from CMOS RAM, all system configuration information has been erased. You must now re-enter the system configuration information by running AMIBIOS Setup.

You must then reboot the computer, run AMIBIOS Setup, and restore all system configuration information. The JP11 settings are:

CMOS Drain	JP Setting
Normal operation (factory setting).	1-2
The contents of CMOS RAM are destroyed.	2-3

Step 2 Install Memory

Memory



The Olympus II has two 72-bit SDRAM DIMM (Dual Inline Memory Module) sockets. The minimum amount of system memory supported by the Olympus II motherboard is 32 MB. You can use combinations of the following:

- 32 MB 168-pin 3.3V SDRAM
 - 64 MB 168-pin 3.3V SDRAM
 - 128 MB 168-pin 3.3V SDRAM
 - 256 MB 168-pin 3.3V SDRAM
-

FSB 100

DIMM Location	DIMM Module Size
DIMM 0	32, 64, 128, 256 MB
DIMM 1	32, 64, 128, 256 MB
DIMM 2	32, 64, 128, 256 MB, 512 MB
Total system memory size	512 MB

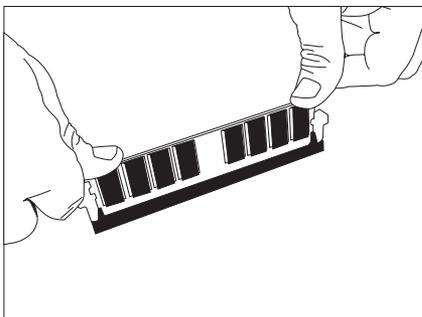
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Step 2 Install Memory, Continued

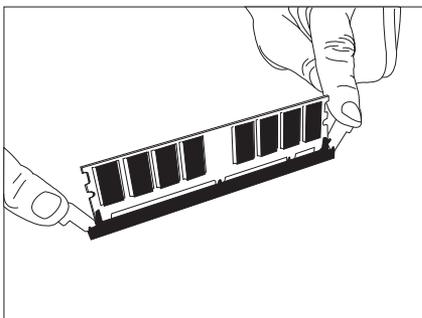
FSB 133

DIMM Location	DIMM Module Size
DIMM 0	32, 64, 128, 256 MB
DIMM 1	32, 64, 128, 256 MB
Total system memory size	512 MB

Inserting the Modules Locate the DIMM slot(s) you will be using. Match the DIMM module and DIMM slot so that the notches align properly. Insert the module by sliding it straight down into the slot. Using your thumbs, press down on the module until the tabs lock in place.



To remove the module, press down on the tabs. This will eject the module.



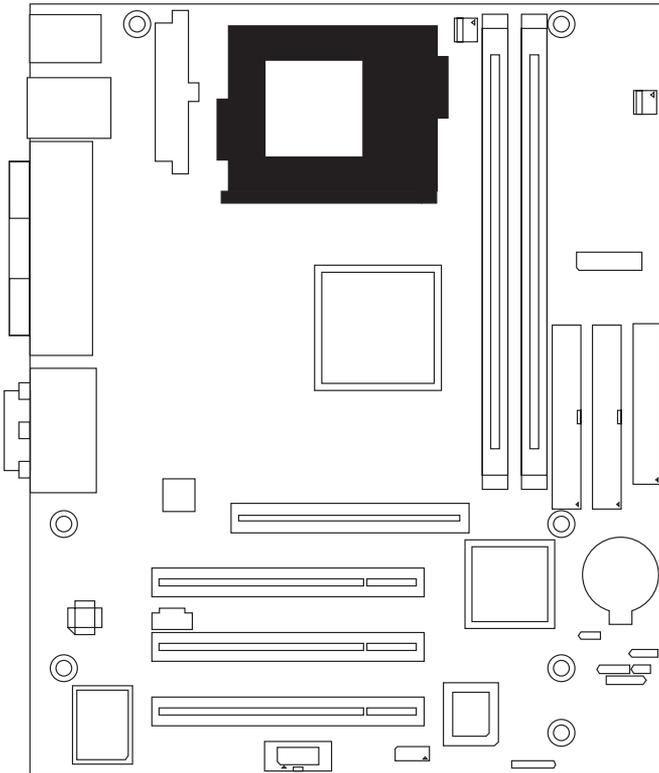
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Step 2 Install Memory, Continued

Memory Display System memory is reported by AMIBIOS as it boots and again when the AMIBIOS System Configuration Screen is displayed just before the operating system boots. The memory displayed by AMIBIOS on the System Configuration Screen is 384 KB less than the total memory installed.

Step 3 Install CPU and Connect Heatsink and Fan

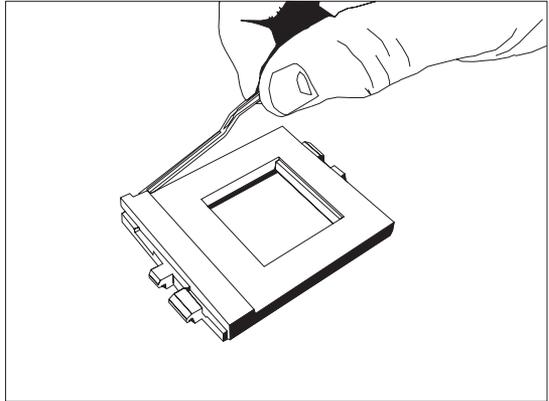
The Olympus II motherboard is equipped with a Socket 370 ZIF (zero insertion force) socket. The CPU socket is diagramed below.



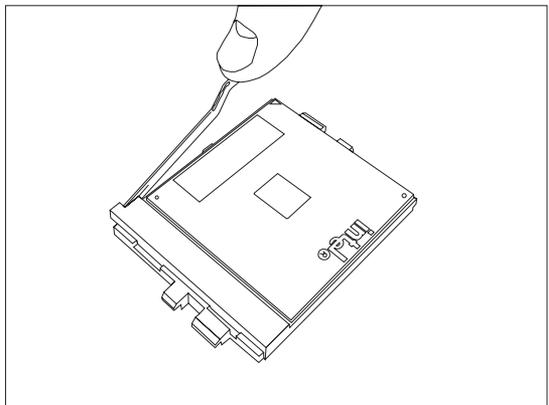
Cont'd

Step 3 Install CPU and Connect Heatsink and Fan, continued

Lift the lever on the ZIF socket.



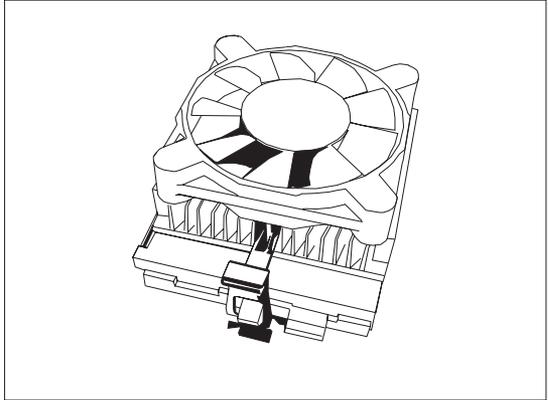
Place the CPU into the ZIF socket. The CPU can only be inserted one way. It fits snug and does not require force to be inserted. Once inserted, depress the lever to secure the CPU to the ZIF socket.



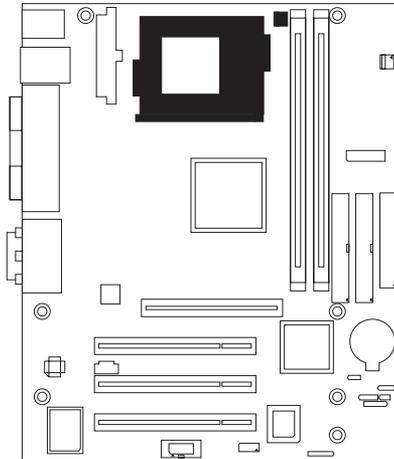
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Step 3 Install CPU and Connect Heatsink and Fan, Continued

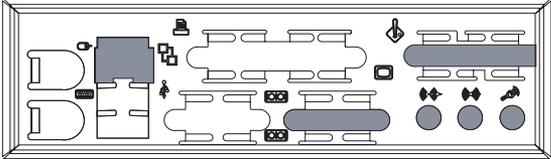
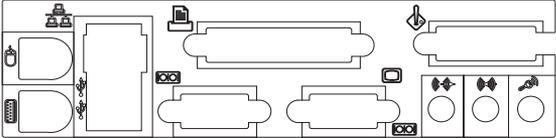
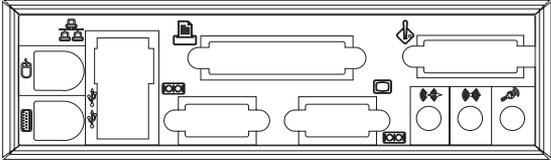
To install the heatsink and cooling fan, place the heat sink on top of the CPU and clip it to the ZIF socket.



Connect the fan power cable to the adjacent CPU Fan header JP1.

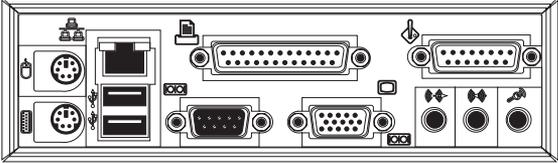
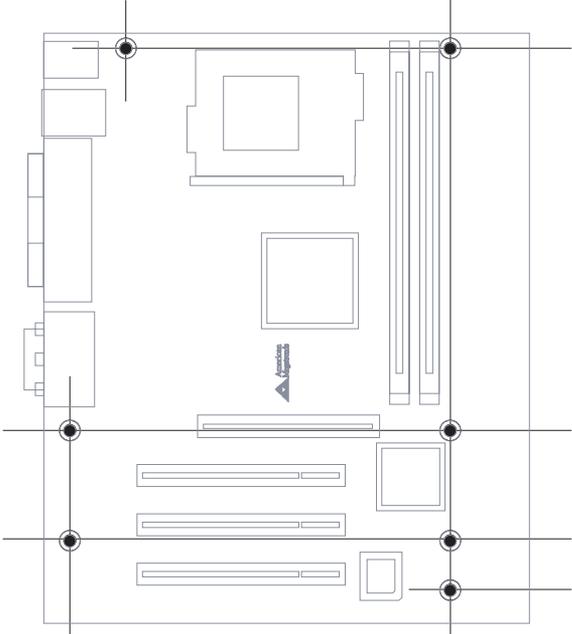


Step 4 Install the Motherboard

Step	Action
1	 Place the chassis on an anti-static mat. Connect the chassis to ground to avoid static damage during installation. Connect an alligator clip with a wire lead to any unpainted part of the chassis. Ground the other end of the lead at the same point as the mat and the wristband.
2	Rotate the chassis so the front is to the right, and the rear is to the left. The side facing you is where the motherboard is mounted. The power supply is mounted at the far end of the chassis.
3	Hold the motherboard with the component-side facing up. The printer, serial, VGA, LAN, and dual USB ports should be to the left.
4	<p>Remove the I/O shield that is currently installed in the chassis if applicable. Locate the I/O shield that came with the Olympus 2 and remove the extra metal plates that cover the openings for the LAN, VGA, MIDI/Game, Audio Out, Line In, and MIC In ports. These ports are highlighted in gray in the illustration below:</p>  <p>Locate the I/O shield label and remove the protective backing. The I/O shield label is illustrated below:</p>  <p>Attach it to the I/O shield.</p>  <p>Install the Olympus 2 I/O shield into the chassis.</p>

Cont'd

Step 4 Install the Motherboard, Continued

Step	Action
5	<p>Carefully slide the motherboard into the chassis. Make certain the edge connectors fit the I/O shield port openings in the rear of the chassis. The motherboard should rest level with the chassis.</p>  <p>The diagram shows a perspective view of the rear panel of a chassis. On the left, there are two circular ports (likely for audio or video). In the center, there is a large rectangular port (likely for a floppy disk drive). To the right of that are two rows of ports: a top row with a parallel port and a serial port, and a bottom row with a serial port and a parallel port. On the far right, there are three circular ports (likely for audio or video). Arrows point from these ports to their corresponding locations on the motherboard shown in the next diagram.</p>
6	<p>Place the mounting screws in the holes provided and tighten them. If necessary, shift the motherboard slightly to align the mounting holes on the motherboard with the holes on the chassis.</p>  <p>The diagram shows a top-down view of a motherboard. It is surrounded by a rectangular frame representing the chassis. There are eight circular holes in the frame, four on the left and four on the right. Two screws are shown being inserted into the top two holes. A vertical arrow labeled 'Alignment' points to the center of the motherboard, indicating that it should be centered within the chassis.</p>

Warning

If using metallic screws, make sure you use them only in the plated mounting holes.

If using metallic screws, make sure the head of the screw fits completely inside the plated mounting holes.

Cont'd

Step 5 Attach Internal Cables

Connectors The Olympus II motherboard includes many connectors. Connection instructions, illustrations of connectors, and pin-out locations are supplied in the following pages. A list of all connectors described in this manual are as follows:

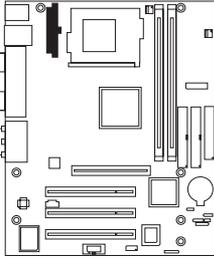
Location	Connector	Turn to
J5	AGP slot	45
J6	PCI slot	45
J7	PCI slot	45
J8	PCI slot	45
J9	IPMB	43
J10	Keyboard lock	34
JP1	CPU cooling fan	42
JP2	ATX power socket	33
JP3	Auxiliary Cooling fan	43
JP4	Front panel	39-41
JP5	Floppy	35
JP6	Primary IDE	36
JP7	Secondary IDE	36
JP8	CD audio in	44
JP9	FSB reset	22
JP10	Speaker select	23
JP11	CMOS reset	23,24
JP12	General purpose I/O	44
JP13	Internal speaker	42
JP14	Serial port	44

Cont'd

Step 5 Attach Internal Cables, Continued

JP2 ATX Power Supply Connector Attach the cable from the power supply to the connector located at JP2. The socket is keyed so that the ATX power supply connector can only mount one way.

The power connector pinout is:



Pin	Signal Name	Pin	Signal Name
1	+ 3.3 V	11	+ 3.3 V
2	+ 3.3 V	12	- 12 V
3	Ground	13	Ground
4	+ 5 V (VCC)	14	PSON
5	Ground	15	Ground
6	+ 5 V (VCC)	16	Ground
7	Ground	17	Ground
8	Power Good	18	- 5 V
9	5 VSB	19	+ 5 V
10	+ 12 V	20	+ 5 V

The power supply should match the physical configuration of the chassis. Make sure the power switch is Off before assembly.

Before attaching all components, make sure the proper voltage has been selected. Power supplies often can run on a wide range of voltages and must be set (usually via a switch) to the proper range. Use at least a 300-watt ATX power supply, which should have built-in filters to suppress radiated emissions. Power supply voltage depends upon system load. For example, +12V rating should be matched to the amount of the external load.

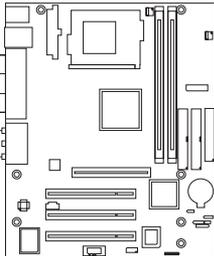
Attach the cables from the power supply to the power connector(s) on the motherboard. ATX-compatible power supplies can have either one or two 20-pin connectors. You can use either one or both power connectors.

You can connect the ATX power supply to either J4 or J5 on the motherboard, or you can use both connectors if there are two power cables from the ATX power supply.

Cont'd

Step 5 Attach Internal Cables, Continued

J10 Keyboard Lock Connector If your chassis has a keyboard lock, attach the keyboard lock cable to pins 1 and 2 on the J10 five pin header.



Pin	Signal Name
1	+5V Power
2	Ground
3	Ground
4	Keyboard Lock
5	Ground

When the keyboard lock is engaged, the keyboard attached to the PS2 or USB ports will be disabled. Instead, the following warning message appears:

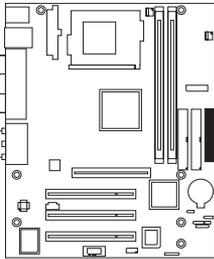
```
Unlock Keyboard  
Press F1 to Resume
```

Note: Pins 1, 2, and 3 on the J10 five pin header can be used to light the chassis front panel Power LED connector when the system is powered on.

Cont'd

Step 5 Attach Internal Cables, Continued

JP5 Floppy Drive Connector

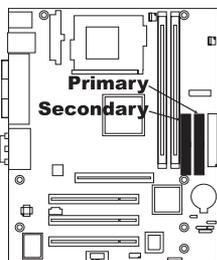


Pin	Signal Name	Pin	Signal Name
1	Ground	2	DENSEL
3	Ground	4	Reserved
5	Key	6	FDEDIN
7	Ground	8	FDINDX# (Index)
9	Ground	10	FDM00# (Motor Enabled A)
11	Ground	12	No Connect
13	Ground	14	FDDS0# (Drive Select A)
15	Ground	16	No Connect
17	No Connect	18	FDDIR# (Stepper Motor Direction)
19	Ground	20	FDSTEP# (Step Pulse)
21	Ground	22	FDWD# (Write Data)
23	Ground	24	FDWE# (Write Enable)
25	Ground	26	FDTRK0# (Track 0)
27	No Connect	28	FDWPD# (Write Protect)
29	Ground	30	FDRDATA# (Read Data)
31	Ground	32	FDHEAD# (Side 1 Select)
33	Ground	34	DSKCHG# (Diskette Change)

Cont'd

Step 5 Attach Internal Cables, Continued

JP6 And JP7 IDE Connectors



Pin	Signal Name	Pin	Signal Name
1	Reset IDE	2	Ground
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Ground	20	Key
21	DDRQ0	22	Ground
23	I/O Write#	24	Ground
25	I/O Read#	26	Ground
27	IOCHRDY	28	P ALE (Cable Select Pull-up)
29	DDACK0#	30	Ground
31	IRQ 14	32	Reserved
33	DAG1 (Address 1)	34	ATA 6 Detect
35	DAG0 (Address 0)	36	DAG2 (Address 2)
37	Chip Select 1P#	38	Chip Select 3P#
39	Activity#	40	Ground

JP7 is the primary IDE (Integrated Drive Electronics) hard disk drive connector. Both the primary master and the primary slave IDE drives must be connected by cable to JP7.

JP6 is the secondary IDE hard disk connector.

Cont'd

Step 5 Attach Internal Cables, Continued

JP7 is a 40-pin dual-inline berg that connects an IDE drive to the primary onboard IDE connector. This motherboard supports the following:

	Data Transfer Rate (max.)	Cable	Conductors	CRC
DMA Mode 1	11.1 MBs	40-pin IDE	40-pin	no
Multi-word DMA Mode 1	13.3 MBs	40-pin IDE	40-pin	no
Multi-word DMA Mode 2	16.6 MBs	40-pin IDE	40-pin	no
Ultra ATA Mode 2 ATA-33	33.3 MBs	40-pin IDE	40-pin	yes
Ultra ATA Mode 4 ATA-66	66.6 MBs	40-pin IDE	80-pin	yes
Ultra ATA Mode 4 ATA-100	99.9 MBs	40-pin IDE	80-pin	yes

These IDE features are configured in Peripheral Setup in the AMIBIOS Setup utility.

The IDE cable that is included with the Olympus 2 motherboard is a color-coded, 80 conductor/40 pin, ATA-66 IDE cable. Connect the blue connector to JP7 and the black connector to the primary master IDE device. The white connector is reserved for the primary slave IDE device.

Cont'd

Step 5 Attach Internal Cables, Continued

Ultra ATA-100 The Olympus 2 motherboard supports Ultra DMA-100. In order to take advantage of this feature, you must have the following:

- DMA-aware operating system
- Ultra ATA-100 compatible IDE device
- 40-pin 80-conductor cable (included)

Note: Some IDE devices that are ATA-33 cannot be used with the Ultra ATA-66 cable. If the device is not recognized, you must use a standard IDE cable. The Olympus 2 motherboard does not include a standard IDE cable.

Caution

When ordering a third party replacement Ultra ATA-66 cable, you must specify a 40-pin Ultra ATA-66 cable. Ultra ATA-66 compliant specifications remove pin 28 on the 40-pin box header. A standard Ultra ATA-66 cable will only accept a 39-pin header. The Olympus 2 motherboard does not have pin 28 removed on the IDE header. If you purchase a third party standard Ultra ATA-66 cable, it will not fit on the Olympus 2 motherboard. Forcing it to fit will physically damage the IDE header.

Cont'd

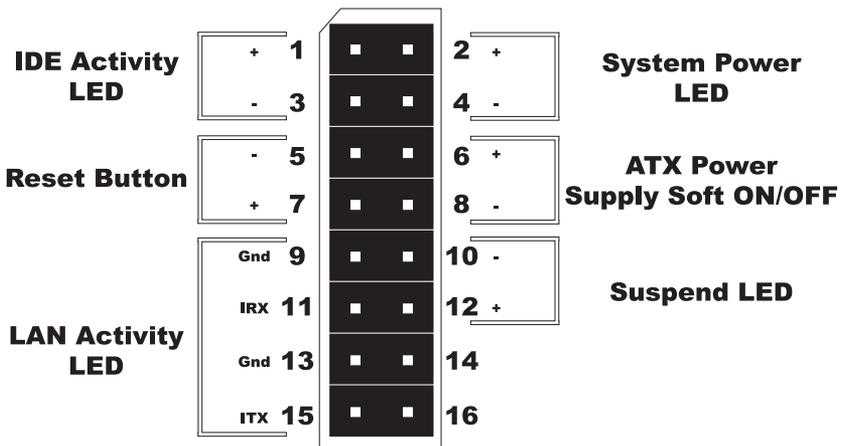
Step 5 Attach Internal Cables, Continued

JP4 Front Panel Connector

The *JP4 Front Panel Connector* provides front panel chassis connections for the following connectors:

Connector	Pins	Turn to
IDE Activity LED	1 and 3	
System Power LED	2 and 4	
Reset Button	5 and 7	
ATX Power Supply Soft ON/OFF	6 and 8	
LAN Activity LED	9, 11, 13, and 15	
Suspend LED	10 and 12	

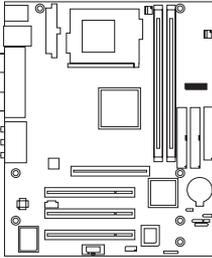
The following is a diagram of the JP4 header:



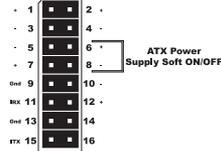
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Step 5 Attach Internal Cables, Continued

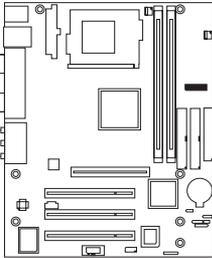
JP4 ATX Power Supply Soft ON/OFF Connector



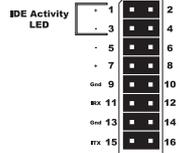
Pin	Signal Name
6	Power
8	Ground



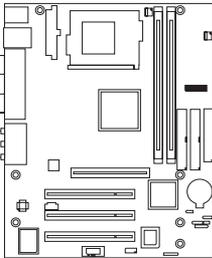
JP4 Hard Disk Activity LED Connector



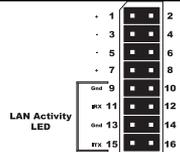
Pin	Signal Name
1	HD Activity LED
3	Ground



JP4 LAN Activity LED Connector



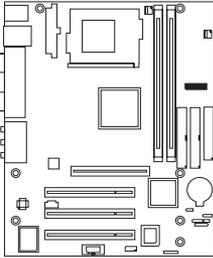
Pin	Signal Name
9	Ground
11	IRX
13	Ground
15	ITX



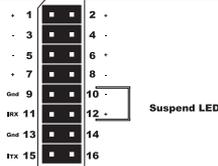
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Step 5 Attach Internal Cables, Continued

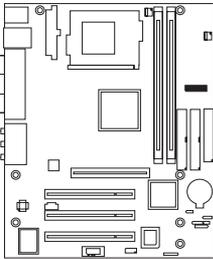
JP4 Suspend LED Connector



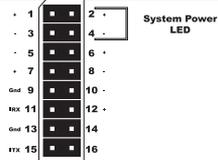
Pin	Signal Name
10	Ground
12	Power



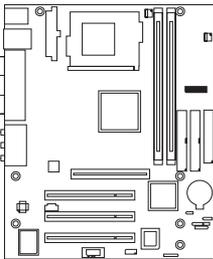
JP4 System Power LED Connector



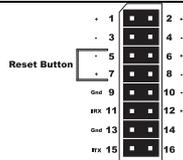
Pin	Signal Name
2	Power
4	Ground



JP4 Reset Button Connector



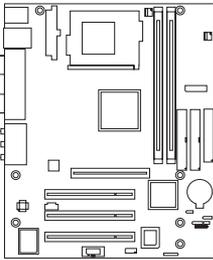
Pin	Signal Name
5	Ground
7	Reset



Cont'd

Step 5 Attach Internal Cables, Continued

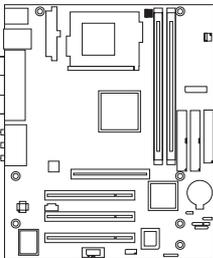
JP13 Internal Speaker Connector



Pin	Signal Name
1	Data Out
2	Not Connected
3	Ground
4	VCC

If your chassis has an internal chassis speaker, connect the chassis speaker to JP13.

JP1 CPU Cooling Fan Connector



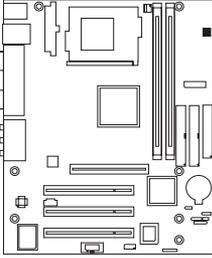
Pin	Signal Name
1	Ground
2	+ 12 V
3	Tachometer Output

Attach the CPU cooling fan to JP1.

Cont'd

Step 5 Attach Internal Cables, Continued

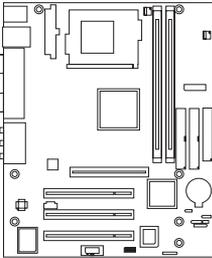
JP3 Auxiliary Cooling Fan Connector



Pin	Signal Name
1	Ground
2	+ 12 V
3	Tachometer Output

If your chassis has an internal chassis cooling fan, you can attach the chassis cooling fan to JP3.

J9 IPMB/PC BUS Connector



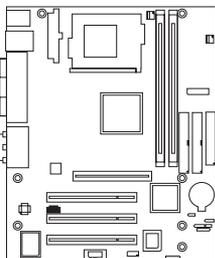
Pin	Signal Name
1	Clock
2	Ground
3	Data

You can connect an IPMB connector to J9 if you are going to monitor temperature and fan RPM speeds.

Cont'd

Step 5 Attach Internal Cables, Continued

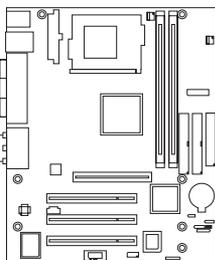
JP8 CD Audio In Connector



Pin	Signal Name
1	CD Left Audio
2	Ground
3	Ground
4	CD Right Audio

If you have a CD-ROM drive, you can attach the audio cable from the CD-ROM drive to JP8.

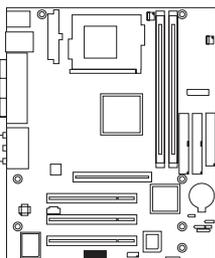
JP12 General Purpose I/O Connector



Pin	Signal Name
1	ICH2 GPIO16
2	Ground

JP12 is used for a general purpose I/O connector. You can design a device to utilize this connector.

JP14 Onboard Serial Port Connector



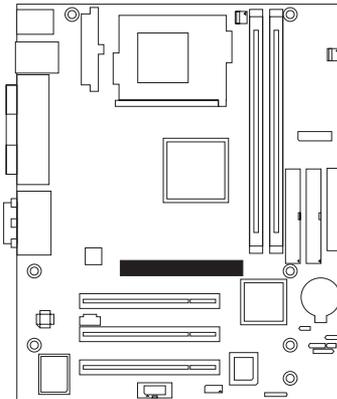
Pin	Signal Name
1	DCD (Data Carrier Detect)
2	DSR (Data Set Ready)
3	SIN# (Serial Data In)
4	RTS (Request to Send)
5	SOUT# (Serial Data Out)
6	CTS (Clear to Send)
7	DTR (Data Terminal Ready)
8	RI (Ring Indicator)
9	Ground
10	Key

Attach the external nine-pin serial cable with a D-type connector to jumper JP14.

Step 6 Install Expansion Boards

AGP Slot

The Olympus II incorporates one AGP slot for a video graphics adapter. The Olympus II AGP slot can accept a standard AGP expansion board.

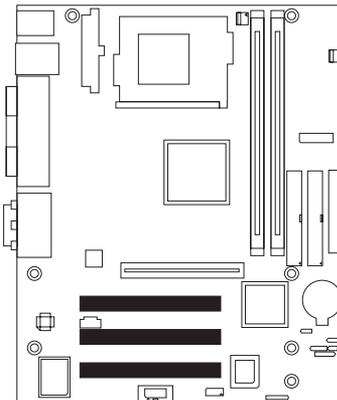


Note:

Read the documentation for the expansion board before installing it into the system.

PCI Slot

The Olympus II incorporates three PCI slots for a various expansion boards. The Olympus II PCI slots can accept standard 32 bit PCI expansion boards.



Note:

Read the documentation for the expansion board before installing it into the system.

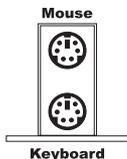
Step 7 Connecting External Cables

Caution

Only the back panel I/O connectors of the motherboard have overcurrent protection. The internal motherboard connectors are not overcurrent protected, and should connect only to devices inside the system chassis, such as fans and internal peripherals. Do not use these connectors for powering devices external to the system chassis. A fault in the load presented by the external devices could cause damage to the system, the interconnecting cable, and the external devices themselves.



PS/2 Mouse External Connector



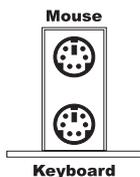
Pin	Signal Name
1	Mouse Data
2	Not Connected
3	Ground
4	Fused + 5 V
5	Mouse Clock
6	Not Connected

Cont'd

Step 7 Connecting External Cables, Continued



PS/2 Keyboard External Connector



Pin	Signal Name
1	Keyboard Data
2	Not Connected
3	Ground
4	Fused + 5 V
5	Keyboard Clock
6	Not Connected



Dual USB External Connectors



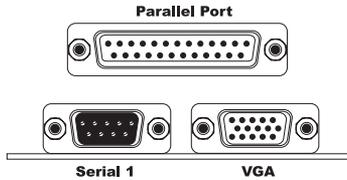
Pin	Signal Name
1	Fused + 5 V
2	USBP0# / USBP1#
3	USBP0 / USBP1
4	Ground

Cont'd

Step 7 Connecting External Cables, Continued



Parallel Port External Connector



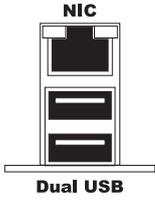
Pin	Signal Name		
	STD	ECP	EPP
1	Strobe #	Strobe #	Strobe #
2	PD0	PD0	PD0
3	PD1	PD1	PD1
4	PD2	PD2	PD2
5	PD3	PD3	PD3
6	PD4	PD4	PD4
7	PD5		PD5
8	PD6	PD6	PD6
9	PD7	PD7	PD7
10	ACK #	ACK #	INTR
11	BUSY	BUSY #, PERIPHACK	WAIT #
12	PERROR	PE, ACKREVERSE #	PE
13	Select	Select	Select
14	AUDOFD #	AUDOFD #, HOSTACK	DATASTB #
15	FAULT #	FAULT #, PERIPHREQST #	FAULT #
16	INIT #	INIT #, REVERSERQST #	RESET#
17	SLCTIN #	SLCTIN #	ADDRSTB #
18	Ground	Ground	Ground
19	Ground	Ground	Ground
20	Ground	Ground	Ground
21	Ground	Ground	Ground
22	Ground	Ground	Ground
23	Ground	Ground	Ground
24	Ground	Ground	Ground
25	Ground	Ground	Ground

Cont'd

Step 7 Connecting External Cables, Continued



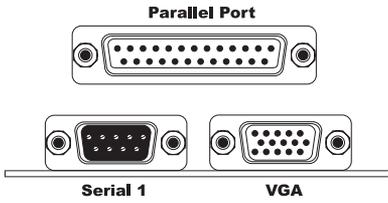
LAN External Connector



Pin	Signal Name
1	TX+
2	TX-
3	RX+
4	Ground
5	Ground
6	RX-
7	Ground
8	Ground



Serial Port Connector



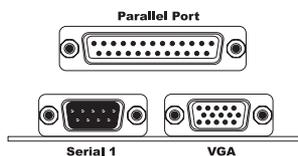
Pin	Signal Name
1	DCD (Data Carrier Detect)
2	DSR (Data Set Ready)
3	SIN# (Serial Data In)
4	RTS (Request to Send)
5	SOUT# (Serial Data Out)
6	CTS (Clear to Send)
7	DTR (Data Terminal Ready)
8	RI (Ring Indicator)
9	Ground
10	Key

Cont'd

Step 7 Connecting External Cables, Continued



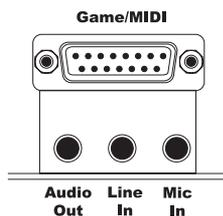
VGA Connector



Pin	Signal Name
1	Red
2	Green
3	Blue
4	+5V
5	Ground
6	Ground
7	Ground
8	Ground
9	+5V
10	Ground
11	+5V
12	5VDDCDA
13	5VHSYNC
14	5VVSNC
15	5VDDCCL



Game/MIDI Port Connector

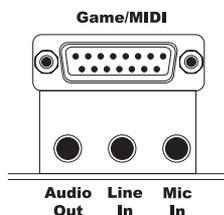


Pin	Signal Name
1	Ground
2	GPSA1
3	GPX1
4	Ground
5	Ground
6	GPY1
7	GPSA2
8	Ground
9	Ground
10	GPSB1
11	GPX2
12	MSO
13	GPY2
14	GPSB2
15	MSI

Cont'd

Step 7 Connecting External Cables, Continued

External Audio Connectors



Jack	Pin	Signal Name
 Audio Out	1	Audio Right
	2	Ground
	3	Ground
	4	Audio Left
	5	Ground
 Line In	1	Line Right
	2	Ground
	3	Ground
	4	Line Left
	5	Ground
 Mic In	1	+5V
	2	Ground
	3	Ground
	4	Mic
	5	Ground

Step 8 Install Drivers

Install the software drivers.

Step 9 Test and Configure

Test the board and make sure the configurations are correct.

3 AMIBIOS Setup

In ISA and PCI systems, the system parameters (such as amount of memory, type of disk drives and video displays, and many other elements) are stored in CMOS RAM. Unlike the DRAM (dynamic random access memory) that is used for standard system memory, CMOS RAM requires very little power. When the system is turned off, a back-up battery provides power to CMOS RAM, which retains the system parameters. Every time the system is powered-on, the system is configured with the values stored in CMOS RAM by the system BIOS, which gains control when the system is powered on.

The system parameters are configured by a system BIOS Setup utility. Historically, BIOS Setup utilities have been character-based, required keyboard input, and have had user interfaces that were not very intuitive. The BIOS chips acts as an interface between the processor and the rest of the motherboard's components. This chapter describes the parameters in the Setup program and explains how to modify the settings for your system configuration.

Starting AMIBIOS Setup As POST executes, the following appears:

Hit DEL if you want to run SETUP

Press Delete to run AMIBIOS Setup.

AMIBIOS Setup Menu

The AMIBIOS Setup main menu appears as shown below. Each menu item is described in this chapter.

There is a Fail-Safe setting not shown as one of the BIOS options. To set the Fail-Safe settings, press the F8 key on the keyboard. It is located on the upper row of a standard 104 keys keyboard. The Fail-Safe settings allow the motherboard to bootup with the least amount of options set.

BIOS SETUP UTILITY	
Main	Advanced Chipset PCIPnP Power Boot Security Exit
AMIBIOS Version :	07.00xx
BIOS Release Date:	xx/xx/xx
BIOS Filename :	0AAXC001
Processor Type :	PentiumIII™
Processor Speed :	933MHz
System Memory :	255MB
System Time	[10:10:00]
System Date	[Thu 09/04/00]
	↔ Select Screen ↑↓ Select Item +- Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
V02.03 (C)Copyright 1985-2001, American Megatrends, Inc.	

Section 1 Main Setup

Choose Main the BIOS Setup from the AMIBIOS Setup Utility main menu. All Main Setup options are described in this section. The Main the BIOS Setup screen is shown below.

BIOS SETUP UTILITY	
Main	Advanced Chipset PCI/PnP Power Boot Security Exit
AMIBIOS Version :	07.00xx
BIOS Release Date :	xx/xx/xx
BIOS Filename :	0AAXC001
Processor Type :	PentiumIII™
Processor Speed :	933MHz
System Memory :	255MB
System Time	[10:10:00]
System Date	[Thu 09/04/00]
	← Select Screen ↑↓ Select Item +- Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
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System Time/System Date Use this option to change the system time or date. Highlight Time or Date using the arrow keys. Enter new values through the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format. The time is in 24-hour format, also. For example, 5:30 a.m. appears as 05:30:00, and 5:30 p.m. as 17:30:00.

Press <PgUp> or <PgDn> after you have selected an option to display the complete list of valid setting in the bottom section of the screen. For example, when the cursor is in the Date field, the options for month, day, and year display, as seen in the screen above.

Section 2 Advanced BIOS Setup

Choose Advanced BIOS Setup from the AMIBIOS Setup Utility main menu. Select one of the items in the left frame of the screen, such as SuperIO Configuration, to go to the sub screen for that item. Advanced BIOS Setup options are displayed by highlighting the option using the arrow keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screen is shown below. The sub screens are described on the following pages.

BIOS SETUP UTILITY	
Main	Advanced
Chipset PCIPnP Power Boot Security Exit	<pre> Setup Warning Setting items on this screen to incorrect values may cause the system to malfunction! > Port Configuration > IDE Configuration > Floppy Configuration > Boot Setting Configuration > Event Log Configuration > System Health Monitoring Hardware > Remote Access Configuration Configure SuperIO Chipset Winbond627F ↔ Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit </pre>
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Cont'd

Advanced BIOS Setup, Continued

IO PORT CONFIGURATION SCREEN

IO Port Configuration Screen You can use this screen to select options for the Super I/O settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen is shown below.

I/O Port Configuration	
Advanced	
Configure Serial Port(s) and Parallel Port	
Serial Port1 Address	[3F8/IRQ4]
Serial Port2 Address	[2F8/IRQ3]
Serial Port2 Mode	[Normal]
IR Duplex Mode	[Half Duplex]
Parallel Port Address	[378]
Parallel Port Mode	[ECP]
ECP Mode DMA Channel	[3]
EPP Version	[1.9]
Parallel Port IRQ	[7]
Onboard Game/Midi Port	[Enabled]
Game Port Base Address	[200]
MIDI Port Base Address	[298]
	←→ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

Serial Port1 Address This option specifies the base I/O port address and Interrupt Request address of serial port 1. The Optimal setting is *3F8/IRQ4*. The Fail-Safe default setting is *Disabled*.

Option	Description
<i>Disabled</i>	This option prevents the serial port from accessing any system resources. It is not made available.
<i>3F8/IRQ4</i>	This option allows the serial port to use 3F8 as its I/O port address and IRQ 4 for the interrupt address. This is the default setting. The majority of serial port 1 or COM1 ports on computer systems use IRQ4 and I/O Port 3F8 as the standard setting. The most common serial device connected to this port is a mouse. If the system will not use a serial device, it is best to set this port to <i>Disabled</i> .
<i>3E8/IRQ4</i>	This option allows the serial port to use 3E8 as its I/O port address and IRQ 4 for the interrupt address. If the system will not use a serial device, it is best to set this port to <i>Disabled</i> .
<i>2E8/IRQ3</i>	This option allows the serial port to use 2E8 as its I/O port address and IRQ 3 for the interrupt address. If the system will not use a serial device, it is best to set this port to <i>Disabled</i> .

Serial Port2 Address This option specifies the base I/O port address and Interrupt Request address of serial port 2. The Optimal setting is *2F8/IRQ3*. The Fail-Safe setting is *Disabled*.

Option	Description
<i>Disabled</i>	This option prevents the serial port from accessing any system resources. It is not made available.
<i>2F8/IRQ3</i>	This option allows the serial port to use 2F8 as its I/O port address and IRQ 3 for the interrupt address. This is the default setting. The majority of serial port 2 or COM2 ports on computer systems use IRQ3 and I/O Port 2F8 as the standard setting. If the system will not use a serial device, it is best to set this port to <i>Disabled</i> .
<i>3E8/IRQ4</i>	This option allows the serial port to use 3E8 as its I/O port address and IRQ 4 for the interrupt address. If the system will not use a serial device, it is best to set this port to <i>Disabled</i> .
<i>2E8/IRQ3</i>	This option allows the serial port to use 2E8 as its I/O port address and IRQ 3 for the interrupt address. If the system will not use a serial device, it is best to set this port to <i>Disabled</i> .

Cont'd

Advanced BIOS Setup, Continued

Serial Port2 Mode This option specifies the mode of the secondary onboard serial port I/O port. The Optimal and Fail-Safe setting is *Normal*. When selecting settings other than *Normal*, more choices become available under it. The options are all related to Infrared settings.

IrDA (Infrared Data Association) has about the same transfer rate as that of a parallel port.

Option	Description
<i>Normal</i>	This option allows the motherboard to set the secondary onboard serial port to standard serial port.
<i>IRDA1.6ms</i>	This option allows the serial port 2 to communicate at a signaling rate of 115.2 KBs using a RZI modulation for a pulse duration of 1.6 μ S.
<i>IRDA3/16</i>	This option allows the serial port 2 to communicate at a signaling rate of 115.2 KBs using a RZI modulation for a pulse duration of 3/16 bit time.
<i>ASK IR</i>	ASK IR is short for Amplitude Shift Key Infra Red. It is a protocol developed by Sharp for use with its range of electronic organizers. Sharp was a manufacturing partner for the Apple MessagePad and released a similar model at the same time. Apple adopted the Sharp protocol, and included an application in the Newton OS 1.x to connect via infrared to Sharp organizers and exchange data. This Infrared protocol is widely used in Japan.
<i>ASKIR500</i>	ASK IR 500 is short for Amplitude Shift Key Infra Red and 500 KHz clock. It uses 9.6 Kbps (19.2 and 38.4 Kbps are also possible) asynchronous data format of 8 data bits, 1 stop bit, and odd parity. The <i>start</i> bit as well as all 0 bit in data/parity are transmitted as IR square wave at 500 KHz (DASK sub-carrier). The <i>stop</i> bit as well as all 1 bit in data/parity are represented by the absence of any IR transmission.
<i>ASKIRDem</i>	ASK IR Dem is short for Amplitude Shift Key Infra Red Demodulation. This option is the same as ASK IR, but instead it uses demodulation.
<i>ASKIRD500</i>	ASK IRD 500 is short for Amplitude Shift Key Infra Red Demodulation and 500 KHz clock. This option is the same as ASK IR 500, but instead it uses demodulation.

Cont'd

Advanced BIOS Setup, Continued

IR Mode This table lists the infrared transmit and receive signals the Winbond W83627HF I/O chipset recognizes.

Infrared Mode	IRTX (transmit)	IRRX (receive)
<i>IRDA1.6ms</i>	Active pulse 1.6 μ S	Demodulation into SINB/IRRX
<i>IRDA3/16</i>	Active pulse 3/16 bit time	Demodulation into SINB/IRRX
<i>ASK IR</i>	Inverting IRTX/SOUTB	Routed to SINB/IRRX
<i>ASKIR500</i>	Inverting IRTX/SOUTB and 500 kHz clock	Routed to SINB/IRRX
<i>ASKIRDem</i>	Inverting IRTX/SOUTB	Demodulation into SINB/IRRX
<i>ASKIRD500</i>	Inverting IRTX/SOUTB and 500 kHz clock	Demodulation into SINB/IRRX

IR Duplex Mode This option specifies the Infrared transfer used when any infrared option is enabled on serial port 2. The Optimal and Fail-Safe settings hide this option completely. The default setting is *Half Duplex*.

Option	Description
<i>Half Duplex</i>	This option allows the Infrared port to send or receive information, then send or receive information after the infrared port is clear. It cannot perform both a send and receive at the same time.
<i>Full</i>	This option allows the Infrared port to send and receive at the same time.

Advanced BIOS Setup, Continued

Parallel Port Address This option specifies the I/O address used by the parallel port. The Optimal setting is 378. The Fail-Safe setting is *Disabled*.

Option	Description
<i>Disabled</i>	This option prevents the parallel port from accessing any system resources. It is not made available.
378	This option allows the serial port to use 378 as its I/O port address. This is the default setting. The majority of parallel ports on computer systems use IRQ7 and I/O Port 378H as the standard setting.
278	This option allows the serial port to use 278 as its I/O port address.
3BC	This option allows the serial port to use 3BC as its I/O port address.

Parallel Port Mode This option specifies the parallel port mode. The Optimal setting is *Normal*. The Fail-Safe setting is *Disabled*.

Option	Description
<i>Normal</i>	This option allows the standard parallel port mode to be used. This is the default setting.
<i>Bi-Directional</i>	This option allows data to be sent to and received from the parallel port.
<i>EPP</i>	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bi-directional data transfer driven by the host device. When <i>EPP</i> is selected, you can select the <i>EPP Version</i> as either <i>1.7</i> or <i>1.9</i> .
<i>ECP</i>	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve data transfer rates up to 2.5 Megabits per second. ECP provides symmetric bi-directional communication. When <i>ECP</i> is selected, you can change the value of the <i>ECP Mode DMA Channel</i> . It can be set to <i>0</i> , <i>1</i> , or <i>3</i> .

Cont'd

Advanced BIOS Setup, Continued

Parallel Port IRQ This option specifies the IRQ used by the parallel port. The Optimal and Fail-Safe default setting is 7.

Option	Description
5	This option allows the serial port to use Interrupt 3.
7	This option allows the serial port to use Interrupt 7. This is the default setting. The majority of parallel ports on computer systems use IRQ7 and I/O Port 378H as the standard setting.

OnBoard Game/Midi Port This option specifies the onboard Game/Midi port to be either enabled or disabled. The Optimal and Fail-safe setting is *Enabled*.

Option	Description
<i>Disabled</i>	This option prevents the onboard Game/Midi Port to be used.
<i>Enabled</i>	This option allows the onboard Game/Midi Port to be used. This is the default setting.

Game Port Base address This option specifies the Game Port Base I/O address. The Optimal and Fail-safe setting is 200.

Option	Description
200	This option allows the onboard Game port to use 200 as its I/O port address. This is the default setting.
208	This option allows the onboard Game port to use 208 as its I/O port address.

MIDI Port Base address This option specifies the Game Port Base I/O address. The Optimal and Fail-safe setting is 298.

Option	Description
330	This option allows the onboard Midi port to use 330 as its I/O port address.
300	This option allows the onboard Midi port to use 300 as its I/O port address.
298	This option allows the onboard Midi port to use 298 as its I/O port address. This is the default setting.

Cont'd

Advanced BIOS Setup, Continued

IDE CONFIGURATION SCREEN

IDE Configuration Settings You can use this screen to select options for the IDE Configuration Settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. A description of the selected item appears on the right side of the screen. The settings are described on the following pages. The screen is shown below.

BIOS SETUP UTILITY	
Advanced	
IDE Configuration	
OnBoard IDE Controller	[Both]
> Primary IDE Master	: [Hard Disk]
> Primary IDE Slave	: [Not Detected]
> Secondary IDE Master	: [Not Detected]
> Secondary IDE Slave	: [Not Detected]
Hard Disk Write Protect	[Disabled]
ATA(PI) Detect Time Out (Seconds)	[35]
ATA(PI) 80Pin Cable Detection	[Host & Device]
	Disabled: disables the integrated IDE Controller. Primary: enables only the Primary IDE Controller. Secondary: enables only the Secondary IDE Controller. Both: enables both IDE Controllers.
	← Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

Onboard IDE Controller This option specifies the IDE channels used by the onboard IDE controller. The settings are *Disabled*, *Primary*, *Secondary*, and *Both*. The Optimal and Fail-Safe default setting is *Both*.

Option	Description
<i>Disabled</i>	This option prevents the computer system from using the onboard IDE controller.
<i>Primary</i>	This option allows the computer system to detect only the Primary IDE channel. This includes both the Primary Master and the Primary Slave.
<i>Secondary</i>	This option allows the computer system to detect only the Secondary IDE channel. This includes both the Secondary Master and the Secondary Slave.
<i>Both</i>	This option allows the computer system to detect both the Primary and Secondary channels. This includes the Primary Master, Primary Slave, Secondary Master, and Secondary Slave. This is the default setting.

Primary IDE Master and Primary IDE Slave Select one of these hard disk drives to configure the hard disk drive named in the option. Press <Enter> to access the sub screen.

Secondary IDE Master and Secondary IDE Slave Select one of these hard disk drives to configure the hard disk drive named in the option. Press <Enter> to access the sub screen.

Hard Disk Write Protect Set this option to protect the hard disk from being overwritten. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This option allows the hard disk drive to be used normally. Read, write, and erase functions can be performed to the hard disk drive. This is the default setting.
<i>Enabled</i>	This option prevents the hard disk drive from being erased.

Cont'd

Advanced BIOS Setup, Continued

ATA(PI) Detect Time Out (Seconds) Set this option to stop the system search for ATAPI devices within the specified number of seconds. The Optimal and Fail-Safe default settings is 35.

Option	Description
0	This option is the best setting to use, if the onboard IDE controllers are set to specific IDE disk drives in the AMIBIOS.
5	This option will timeout the search for IDE disk drives in 5 seconds. A large majority of ultra ATA hard disk drives can be detected within 5 seconds.
10	This option will timeout the search for IDE disk drives in 10 seconds.
15	This option will timeout the search for IDE disk drives in 15 seconds.
20	This option will timeout the search for IDE disk drives in 20 seconds.
25	This option will timeout the search for IDE disk drives in 25 seconds.
30	This option will timeout the search for IDE disk drives in 30 seconds.
35	This option is default. It is the recommended setting if all IDE disk drives are set to AUTO in the BIOS settings. This is the default setting.

This feature allows the system to be modified in a way that can find all IDE disk drives in the shortest amount of time. This allows the user to bootup to the operating system quicker. Different IDE disk drives take longer for the BIOS to locate than others do. Adjust this setting until a suitable timing that can detect all IDE disk drives attached is found.

Cont'd

Advanced BIOS Setup, Continued

ATA(PI) 80Pin Cable Detection Set this option to select the method used to detect the ATA(PI) 80pin cable. The Optimal and Fail-Safe settings is *Host & Device*.

Option	Description
<i>Host</i>	This option uses the motherboard onboard IDE controller to detect the type of IDE cable used.
<i>Device</i>	This option uses the IDE disk drive to detect the type of IDE cable used.
<i>Host & Device</i>	This option uses both the motherboard onboard IDE controller and IDE disk drive to detect the type of IDE cable used. This is the default setting.

The 80-conductor cable is mandatory for running Ultra ATA/66. The usual 40-conductor cable ATA cable cannot handle the higher speed, and because the cables are plug compatible, the system must determine the presence of the correct cable.

This detection is achieved by having a break in one of the lines on the 80-conductor cable that is normally an unbroken connection in the existing cable. It is this break that is detected and the BIOS can instruct the drive to run at the correct speed for the cable type detected.

Cont'd

Advanced BIOS Setup, Continued

PRIMARY IDE MASTER AND SLAVE SUB SCREEN

Primary IDE Master and Slave Settings From the IDE Configuration screen, press <Enter> to access the sub screen for the primary and secondary IDE master and slave drives. Use this screen to select options for the Primary IDE drives. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen for the Primary IDE Master is shown below.

BIOS SETUP UTILITY	
Advanced	
Primary IDE Master	
<hr/>	
Device :	Hard Disk
Vendor :	ST320413A
Size :	20.0GB
LBA Mode :	Supported
Block Mode :	16Sectors
PIO Mode :	4
Async DMA :	MutiWord DMA-2
Ultra DMA :	Ultra DMA-2
S.M.A.R.T. :	Supported
<hr/>	
Type	Auto
LBA/Large Mode	Auto
Block (Multi-Sector Transfer)	Auto
PIO Mode	Auto
DMA Mode	Auto
S.M.A.R.T.	Auto
32Bit Data Transfer	Enabled
ARMD Emulation Type	Auto
	↔ Select Screen
	↑↓ Select Item
	+ - Change Option
	F1 General Help
	F10 Save and Exit
	ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

Drive Parameters The first list in the left frame is for the drive parameters. The drive parameters are:

Parameter	Description
Device	Type of device, such as Hard Disk.
Vendor	Manufacturer of the device.
Size	The size of the device.
LBA Mode	LBA (Logical Block Addressing) is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.
Block Mode	Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt.
PIO Mode	IDE PIO mode programs timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.
Async DMA	This indicates the highest Async DMA Mode that is supported.
Ultra DMA	This indicates the highest Sync DMA Mode that is supported.
S.M.A.R.T.	Self-Monitoring Analysis and Reporting Technology protocol used by IDE drives of some manufacturers to predict drive failures.

Type This option sets the type of device that the AMIBIOS attempts to boot from after AMIBIOS POST is completed. The Optimal and Fail-Safe default settings are *Auto*.

Option	Description
<i>Not Installed</i>	This option prevents the BIOS from attempting to search for an IDE disk drive on the specified channel.
<i>Auto</i>	This option allows the BIOS to attempt to auto detect the type of IDE disk drive attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel. This is the default setting.
<i>CDROM</i>	This option specifies an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS will not attempt to search for other types of IDE disk drives on the specified channel.
<i>ARMD</i>	This option specifies an ATAPI Removable Media Device. This includes, but is not limited to: <ul style="list-style-type: none">• ZIP• LS-120

Cont'd

Advanced BIOS Setup, Continued

LBA/Large Mode LBA (Logical Block Addressing) is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB. The default setting is *Auto*. The Optimal and Fail-Safe default settings are *Auto*.

Option	Description
<i>Disabled</i>	This option prevents the BIOS from using Large Block Addressing mode control on the specified channel.
<i>Auto</i>	This option allows the BIOS to auto detect the Large Block Addressing mode control on the specified channel. This is the default setting.

Block (Multi-Sector Transfer) This option sets the block mode multi sector transfers option. The Optimal and Fail-Safe default settings are *Auto*.

Option	Description
<i>Disabled</i>	This option prevents the BIOS from using Multi-Sector Transfer on the specified channel. The data to and from the device will occur one sector at a time.
<i>Auto</i>	This option allows the BIOS to auto detect device support for Multi-Sector Transfers on the specified channel. If supported, this option allows the BIOS to auto detect the number of sectors per block for transfer from the hard disk drive to memory. The data transfer to and from the device will occur multiple sectors at a time. This is the default setting.

Cont'd

Advanced BIOS Setup, Continued

PIO Mode IDE PIO (Programmable I/O) mode programs timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases. The Optimal and Fail-Safe default settings are *Auto*.

Option	Description
<i>Auto</i>	This option allows the BIOS to auto detect the PIO mode. Use this setting if the IDE disk drive support cannot be determined. This is the default setting.
<i>0</i>	This option allows the BIOS to use PIO mode 0. It has a data transfer rate of 3.3 MBs.
<i>1</i>	This option allows the BIOS to use PIO mode 1. It has a data transfer rate of 5.2 MBs.
<i>2</i>	This option allows the BIOS to use PIO mode 2. It has a data transfer rate of 8.3 MBs.
<i>3</i>	This option allows the BIOS to use PIO mode 3. It has a data transfer rate of 11.1 MBs.
<i>4</i>	This option allows the BIOS to use PIO mode 4. It has a data transfer rate of 16.6 MBs. This setting generally works with all hard disk drives manufactured after 1999. For other disk drive, such as IDE CD-ROM drives, check the manufacture specifications.

Cont'd

Advanced BIOS Setup, Continued

DMA Mode This option sets the DMA mode options. The Optimal and Fail-Safe default settings are *Auto*.

Option	Description
<i>Auto</i>	This option allows the BIOS to auto detect the DMA mode. Use this setting if the IDE disk drive support cannot be determined. This is the default setting.
<i>SWDMA0</i>	This option allows the BIOS to use Single Word DMA mode 0. It has a data transfer rate of 2.1 MBs.
<i>SWDMA1</i>	This option allows the BIOS to use Single Word DMA mode 1. It has a data transfer rate of 4.2 MBs.
<i>SWDMA2</i>	This option allows the BIOS to use Single Word DMA mode 2. It has a data transfer rate of 8.3 MBs.
<i>MWDMA0</i>	This option allows the BIOS to use Multi Word DMA mode 0. It has a data transfer rate of 4.2 MBs.
<i>MWDMA1</i>	This option allows the BIOS to use Multi Word DMA mode 1. It has a data transfer rate of 13.3 MBs.
<i>MWDMA2</i>	This option allows the BIOS to use Multi Word DMA mode 2. It has a data transfer rate of 16.6 MBs.
<i>UDMA0</i>	This option allows the BIOS to use Ultra DMA mode 0. It has a data transfer rate of 16.6 MBs. It has the same transfer rate as PIO mode 4 and Multi Word DMA mode 2.
<i>UDMA1</i>	This option allows the BIOS to use Ultra DMA mode 1. It has a data transfer rate of 25 MBs.
<i>UDMA2</i>	This option allows the BIOS to use Ultra DMA mode 2. It has a data transfer rate of 33.3 MBs.
<i>UDMA3</i>	This option allows the BIOS to use Ultra DMA mode 3. It has a data transfer rate of 44.4 MBs. To use this mode, it is required that an 80-conductor cable is used.
<i>UDMA4</i>	This option allows the BIOS to use Ultra DMA mode 4. It has a data transfer rate of 66.6 MBs. To use this mode, it is required that an 80-conductor cable is used.

Cont'd

Advanced BIOS Setup, Continued

S.M.A.R.T. for Hard Disks S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) feature can help predict impending drive failures. The Optimal and Fail-Safe default settings are *Auto*.

Option	Description
<i>Auto</i>	This option allows the BIOS to auto detect hard disk drive support. Use this setting if the IDE disk drive support cannot be determined. This is the default setting.
<i>Enabled</i>	This option allows the BIOS to use the S.M.A.R.T. feature on support hard disk drives.
<i>Disabled</i>	This option prevents the BIOS from using the S.M.A.R.T. feature.

32Bit Data Transfer This option sets the 32-bit data transfer option. The Optimal and Fail-Safe default settings are *Enabled*.

Option	Description
<i>Disabled</i>	This option prevents the BIOS from using 32-bit data transfers.
<i>Enabled</i>	This option allows the BIOS to use 32-bit data transfers on support hard disk drives. This is the default setting.

ARMD Emulation Type This option is used to select the emulation used when configuring an LS120, MO (Magneto-Optical), or Iomega Zip drive. The Optimal and Fail-Safe default settings are *Auto*.

Option	Description
<i>Auto</i>	This option allows the BIOS to automatically sets the emulation used by the ATAPI Removable Media Device. This is the default setting.
<i>Floppy</i>	This option allows the floppy emulation to be used by the ATAPI Removable Media Device.
<i>Hard Disk</i>	This option allows the hard disk emulation to be used by the ATAPI Removable Media Device.

Cont'd

Advanced BIOS Setup, Continued

FLOPPY CONFIGURATION SCREEN

Floppy Configuration Settings You can use this screen to select options for the Floppy Configuration Settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen is shown below.

BIOS SETUP UTILITY	
Advanced	
Floppy Configuration	
Floppy A	[1.44 MB 3½"]
Floppy B	[Disabled]
Floppy Drive Seek	[Disabled]
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

Floppy Drive A: and B: Move the cursor to these fields via \uparrow and \downarrow and select the floppy type. The Optimal setting for floppy drive A: is *1.44 MB 3½"*. The Fail-Safe setting for floppy drive A: is *1.44 MB 3½"*. The Optimal setting for floppy drive B: is *Disabled*. The Fail-Safe setting for floppy drive B: is *Disabled*.

Option	Description
<i>Disabled</i>	This option prevents the use of the selected floppy disk drive channel. This option should be set if no floppy disk drive will be installed using that particular channel.
<i>360 KB 5¼"</i>	This option should be set if the floppy disk drive attached to the corresponding channel is a 360 KB 5¼" floppy disk drive.
<i>1.2 MB 5¼"</i>	This option should be set if the floppy disk drive attached to the corresponding channel is a 1.2 MB 5¼" floppy disk drive.
<i>720 KB 3½"</i>	This option should be set if the floppy disk drive attached to the corresponding channel is a 720 KB 3½" floppy disk drive.
<i>1.44 MB 3½"</i>	This option should be set if the floppy disk drive attached to the corresponding channel is a 1.44 MB 3½" floppy disk drive. This is the default setting for the Floppy Drive A: setting.
<i>2.88 MB 3½"</i>	This option should be set if the floppy disk drive attached to the corresponding channel is a 2.88 MB 3½" floppy disk drive.

Floppy Drive Seek Set this option to seek the floppy disk drive during bootup. The Optimal and Fail-Safe settings is *Disabled*.

Option	Description
<i>Disabled</i>	This option prevents the BIOS from seeking the floppy disk drive during bootup. This is the default setting.
<i>Enabled</i>	This option allows the BIOS to seek the floppy disk drive during bootup. This will cause the floppy disk drive to temporarily power on during POST.

Cont'd

Advanced BIOS Setup, Continued

BOOT SETTINGS CONFIGURATION SCREEN

Boot Settings Configuration Use this screen to select options for the Boot Settings Configuration. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen is shown below.

BIOS SETUP UTILITY	
Advanced	
Boot Settings Configuration	Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
Quick Boot [Disabled] Quiet Boot [Enabled] Add-On ROM Display Mode [Force BIOS]	
Bootup Num-Lock [On] PS/2 Mouse Support [Enabled] Typematic Rate [Fast] System Keyboard [Present] Primary Display [VGA/EGA]	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

Quick Boot The Optimal and Fail-Safe default settings are *Disabled*.

Option	Description
<i>Disabled</i>	This option allows the BIOS to boot slowly when the computer is powered on. This is the default setting.
<i>Enabled</i>	This option allows the BIOS to boot quickly when the computer is powered on. The BIOS will not run certain POST tests.

Quiet Boot This option allows the bootup screen options to be modified between POST messages or OEM logo. The Optimal and Fail-Safe default settings is *Enabled*.

Option	Description
<i>Disabled</i>	This option allows the computer system to display the POST messages.
<i>Enabled</i>	This option allows the computer system to display the OEM logo. This is the default setting.

Add-On ROM Display Mode Set this option to display add-on ROM (read-only memory) messages. The Optimal and Fail-Safe default settings are *Force BIOS*. An example of this is a SCSI BIOS or VGA BIOS.

Option	Description
<i>Force BIOS</i>	This option allows the computer system to force a third party BIOS to display during system boot. This is the default setting.
<i>Keep Current</i>	This option allows the computer system to display the AMIBIOS information during system boot.

BootUp Num-Lock This option allows the Number Lock setting to be modified during bootup. The Optimal and Fail-Safe default settings are *On*.

Option	Description
<i>On</i>	This option allows the Number Lock on the keyboard to be enabled automatically when the computer system is bootup. This allows the immediate use of 10-keys numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard will be lit. This is the default setting.
<i>Off</i>	This option does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard will light up when the Number Lock is engaged.

Cont'd

Advanced BIOS Setup, Continued

PS/2 Mouse Support This option allows the PS/2 mouse support to be adjusted. The optimal and Fail-Safe default settings is *Enabled*.

Option	Description
<i>Disabled</i>	This option will prevent the PS/2 mouse port from using system resources and will prevent the port from being active. Use this setting if installing a serial mouse.
<i>Enabled</i>	This option allows the system to use a PS/2 mouse. This is the default setting.

Typematic Rate Set this option to select the rate at which the computer repeats a key that is held down. The Optimal and Fail-Safe default settings is *Fast*.

Option	Description
<i>Fast</i>	This option sets the rate the computer repeats a key to over 20 times per second. This is the default setting. Under normal operations, this setting should not be changed.
<i>Slow</i>	This option sets the rate the computer repeats a key to under 8 times per second.

Cont'd

Advanced BIOS Setup, Continued

System Keyboard Set this option to select whether a system keyboard is available. The Optimal and Fail-Safe default settings are *Present*.

Option	Description
<i>Present</i>	This option allows the use of a keyboard with the computer system. This is the default setting and should not be changed under normal use.
<i>Absent</i>	This option prevents the computer system from using a keyboard. Use this option if there is no keyboard attached to the computer system.

Primary Display This option configures the type of monitor attached to the computer. The Optimal and Fail-Safe default settings are *VGA/EGA*.

Option	Description
<i>Absent</i>	This option should be used if no display is installed on the system. An example of this is the system is acting as a file system. If this setting is accidentally set, the BIOS does not disable the VGA port.
<i>VGA/EGA</i>	This option sets the primary display to VGA/EGA. This is the default setting. It should only be changed if the computer system is not using a VGA or EGA monitor. XGA and SVGA are both considered extensions of VGA (although, SVGA is technically not a true standard).
<i>Color 40x25</i>	This option allows the use of a 16 color 40x25 monitor. If this option is accidentally set, the BIOS will issue an error message. It will state that the CMOS display type is wrong and to run the BIOS setup.
<i>Color 80x25</i>	This option allows the use of a color 80x25 monitor. If this option is accidentally set, the BIOS will issue an error message. It will state that the CMOS display type is wrong and to run the BIOS setup.
<i>Monochrome</i>	This option allows the use of a monochrome monitor. If this option is accidentally set, the BIOS will issue an error message. It will state that the CMOS display type is wrong and to run the BIOS setup.

Cont'd

Advanced BIOS Setup, Continued

EVENT LOG CONFIGURATION

Event Log Configuration Settings You can use this screen to select options for the Event Log Configuration Settings. You can access sub screens to view the event log and mark all events as read. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen is shown below.

BIOS SETUP UTILITY	
Advanced	
Event Log Configuration	ENABLED: Allow logging of events.
Event Log Area : Space Available	
Event Log Data : Valid	
Event Logging [Enabled]	
Clear All Event Logs [No]	
> View Event Log	
> Mark All Events As Read	
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Event Logging The Optimal and Fail-Safe default settings are *Enabled*.

Option	Description
<i>Disabled</i>	This prevents the BIOS from using internal BIOS memory from logging events.
<i>Enabled</i>	This option allows the system to log events. The events logged by AMIBIOS are post errors, such as a bad the BIOS, floppy error, or hard drive error. This is the default setting.

Cont'd

Advanced BIOS Setup, Continued

Clear All Event Logs The Optimal and Fail-Safe default settings are *No*.

Option	Description
<i>Yes</i>	This option clears all event logs and frees internal BIOS memory space.
<i>No</i>	This option does not clear any event logs and keeps them in internal BIOS memory. This is the default setting.

VIEW EVENT LOG SCREEN

View Event Log Screen You can use this screen to view the event log. On the Event Log Configuration screen, select View Event Log and press <Enter>.

MARK ALL EVENTS AS READ SCREEN

Mark All Events As Read Screen You can use this screen to mark all events as read. On the Event Log Configuration screen, select View All Events As Read Log and press <Enter>. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages.

Cont'd

Advanced BIOS Setup, Continued

SYSTEM HEALTH MONITORING HARDWARE

System Health Monitoring Hardware You can use this screen to select options for the System Health Monitoring Settings. You can access sub screens to view the ambient temperature and adjust the warning alarm values. There are other sub screens, use the up and down arrow keys to select one, and once in the sub screen, use the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The System Health Monitoring main screen is shown below.

BIOS SETUP UTILITY	
Advanced	
System Health Monitoring	ENABLED: Allow logging of events.
> CPU Temperature > CPU Core Voltage > VCC +3.3 Voltage > VCC +12 Voltage > VCC -12 Voltage > VCC +5 Voltage > CPU Fan RPM > Chassis Fan RPM	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

CPU TEMPERATURE SCREEN

CPU Temperature Settings From the System Health Monitoring screen, press <Enter> to access the sub screen for the ambient temperature settings. Use this screen to select settings for the warnings and alert settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen for the Ambient Temperature Settings is shown below.

BIOS SETUP UTILITY	
Advanced	
CPU Temperature (C°)	Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.
Current CPU Temperature	
CPU Temp Phy-High	90
CPU Temp Phy-Low	00
CPU Temperature High Alert	[90]
CPU Temperature High Warning	[70]
CPU Temperature Low Warning	[65]
CPU Temperature Low Alert	[00]
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

CPU Temperature High Alert Use the plus (+) and minus (-) keys to change the CPU temperature high alert setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

CPU Temperature High Warning Use the plus (+) and minus (-) keys to change the CPU temperature high warning setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

CPU Temperature Low Warning Use the plus (+) and minus (-) keys to change the CPU temperature low warning setting. The Optimal and Fail-Safe default settings is *00*.

CPU Temperature Low Alert Use the plus (+) and minus (-) keys to change the CPU temperature low alert setting. The Optimal and Fail-Safe default settings is *00*.

Cont'd

Advanced BIOS Setup, Continued

CPU CORE VOLTAGE SCREEN

CPU Core Voltage Settings From the System Health Monitoring screen, press <Enter> to access the sub screen for the CPU Core Voltage settings. Use this screen to select settings for the warnings and alert settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen for the CPU Core Voltage Settings is shown below.

BIOS SETUP UTILITY	
Advanced	
CPU Core Voltage	Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.
Current CPU Core Voltage	1.49
CPU Core Volt Phy-High	1.57
CPU Core Volt Phy-Low	1.42
CPU Core Voltage High Alert	[1.52]
CPU Core Voltage High Warning	[1.52]
CPU Core Voltage Low Warning	[1.37]
CPU Core Voltage Low Alert	[1.37]
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

CPU Core Voltage High Alert Use the plus (+) and minus (-) keys to change the CPU Core Voltage high alert setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

CPU Core Voltage High Warning Use the plus (+) and minus (-) keys to change the CPU Core Voltage high warning setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

CPU Core Voltage Low Warning Use the plus (+) and minus (-) keys to change the CPU Core Voltage low warning setting.

CPU Core Voltage Low Alert Use the plus (+) and minus (-) keys to change the CPU Core Voltage low alert setting.

Cont'd

Advanced BIOS Setup, Continued

VCC +3.3 VOLTAGE SCREEN

VCC +3.3 Voltage Settings From the System Health Monitoring screen, press <Enter> to access the sub screen for the VCC +3.3 Voltage settings. Use this screen to select settings for the warnings and alert settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen for the VCC +3.3 Voltage Settings is shown below.

BIOS SETUP UTILITY	
Advanced	
VCC +3.3 Voltage	Lowest allowed value of High Alert is the current value of the High Warning.
Current VCC +3.3 Voltage	3.31
VCC +3.3 Voltage Phy-High	3.60
VCC +3.3 Voltage Phy-Low	3.00
VCC +3.3 Voltage High Alert	[3.60]
VCC +3.3 Voltage High Warning	[3.60]
VCC +3.3 Voltage Low Warning	[3.00]
VCC +3.3 Voltage Low Alert	[3.00]
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Advanced BIOS Setup, Continued

VCC +3.3 Voltage High Alert Use the plus (+) and minus (-) keys to change the VCC +3.3 Voltage high alert setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

VCC +3.3 Voltage High Warning Use the plus (+) and minus (-) keys to change the VCC +3.3 Voltage high warning setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

VCC +3.3 Voltage Low Warning Use the plus (+) and minus (-) keys to change the VCC +3.3 Voltage low warning setting.

VCC +3.3 Voltage Low Alert Use the plus (+) and minus (-) keys to change the VCC +3.3 Voltage low alert setting.

Cont'd

Advanced BIOS Setup, Continued

VCC +12 VOLTAGE SCREEN

VCC +12 Voltage Settings From the System Health Monitoring screen, press <Enter> to access the sub screen for the VCC +12 Voltage settings. Use this screen to select settings for the warnings and alert settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen for the VCC +12 Voltage Settings is shown below.

BIOS SETUP UTILITY	
Advanced	
VCC +12 Voltage	Lowest allowed value of High Alert is the current value of the High Warning.
Current VCC +12 Voltage	16.39
VCC +12 Voltage Phy-High	13.20
VCC +12 Voltage Phy-Low	10.80
VCC +12 Voltage High Alert	[13.20]
VCC +12 Voltage High Warning	[13.20]
VCC +12 Voltage Low Warning	[10.80]
VCC +12 Voltage Low Alert	[10.80]
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Advanced BIOS Setup, Continued

VCC +12 Voltage High Alert Use the plus (+) and minus (-) keys to change the VCC +12 Voltage high alert setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

VCC +12 Voltage High Warning Use the plus (+) and minus (-) keys to change the VCC +12 Voltage high warning setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

VCC +12 Voltage Low Warning Use the plus (+) and minus (-) keys to change the VCC +12 Voltage low warning setting.

VCC +12 Voltage Low Alert Use the plus (+) and minus (-) keys to change the VCC +12 Voltage low alert setting.

Cont'd

Advanced BIOS Setup, Continued

VCC -12 VOLTAGE SCREEN

VCC -12 Voltage Settings From the System Health Monitoring screen, press <Enter> to access the sub screen for the VCC -12 Voltage settings. Use this screen to select settings for the warnings and alert settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen for the VCC -12 Voltage Settings is shown below.

BIOS SETUP UTILITY	
Advanced	
VCC -12 Voltage	Lowest allowed value of High Alert is the current value of the High Warning.
Current VCC -12 Voltage	6.08
VCC -12 Voltage Phy-High	-10.80
VCC -12 Voltage Phy-Low	-13.20
VCC -12 Voltage High Alert	[-10.80]
VCC -12 Voltage High Warning	[-10.80]
VCC -12 Voltage Low Warning	[-13.20]
VCC -12 Voltage Low Alert	[-13.20]
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Advanced BIOS Setup, Continued

VCC -12 Voltage High Alert Use the plus (+) and minus (-) keys to change the VCC -12 Voltage high alert setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

VCC -12 Voltage High Warning Use the plus (+) and minus (-) keys to change the VCC -12 Voltage high warning setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

VCC -12 Voltage Low Warning Use the plus (+) and minus (-) keys to change the VCC -12 Voltage low warning setting.

VCC -12 Voltage Low Alert Use the plus (+) and minus (-) keys to change the VCC -12 Voltage low alert setting.

Cont'd

Advanced BIOS Setup, Continued

VCC +5 VOLTAGE SCREEN

VCC +5 Voltage Settings From the System Health Monitoring screen, press <Enter> to access the sub screen for the VCC +5 Voltage settings. Use this screen to select settings for the warnings and alert settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen for the VCC +5 Voltage Settings is shown below.

BIOS SETUP UTILITY	
Advanced	
VCC +5 Voltage	Lowest allowed value of High Alert is the current value of the High Warning.
Current VCC +5 Voltage	6.52
VCC +5 Voltage Phy-High	5.50
VCC +5 Voltage Phy-Low	4.50
VCC +5 Voltage High Alert	[5.50]
VCC +5 Voltage High Warning	[5.50]
VCC +5 Voltage Low Warning	[4.50]
VCC +5 Voltage Low Alert	[4.50]
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

VCC +5 Voltage High Alert Use the plus (+) and minus (-) keys to change the VCC +5 Voltage high alert setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

VCC +5 Voltage High Warning Use the plus (+) and minus (-) keys to change the VCC +5 Voltage high warning setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

VCC +5 Voltage Low Warning Use the plus (+) and minus (-) keys to change the VCC +5 Voltage low warning setting.

VCC +5 Voltage Low Alert Use the plus (+) and minus (-) keys to change the VCC +5 Voltage low alert setting.

Cont'd

Advanced BIOS Setup, Continued

CPU FAN RPM SCREEN

CPU Fan RPM Settings From the System Health Monitoring screen, press <Enter> to access the sub screen for the CPU Fan Speed settings. Use this screen to select settings for the warnings and alert settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen for the CPU Fan RPM Setting is shown below.

BIOS SETUP UTILITY	
Advanced	
CPU Fan RPM	Lowest allowed value of High Alert is the current value of the High Warning.
Current CPU Fan RPM	5160
CPU Fan RPM Phy-High	7500
CPU Fan RPM Phy-Low	3000
CPU Fan RPM High Alert	[7500]
CPU Fan RPM High Warning	[7500]
CPU Fan RPM Low Warning	[3000]
CPU Fan RPM Low Alert	[3000]
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

CPU Fan RPM High Alert Use the plus (+) and minus (-) keys to change the CPU Fan Speed high alert setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

CPU Fan RPM High Warning Use the plus (+) and minus (-) keys to change the CPU Fan Speed high warning setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

CPU Fan RPM Low Warning Use the plus (+) and minus (-) keys to change the CPU Fan Speed low warning setting.

CPU Fan RPM Low Alert Use the plus (+) and minus (-) keys to change the CPU Fan Speed low alert setting.

Cont'd

Advanced BIOS Setup, Continued

CHASSIS FAN RPM SCREEN

Chassis Fan RPM Settings From the System Health Monitoring screen, press <Enter> to access the sub screen for the System Fan Speed settings. Use this screen to select settings for the warnings and alert settings. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following page. The screen for the Chassis Fan RPM Setting is shown below. There is one system fan monitoring pin on the series 821 Olympus II motherboard. It is located at header JP3.

BIOS SETUP UTILITY	
Advanced	
Chassis Fan RPM	Lowest allowed value of High Alert is the current value of the High Warning.
Current Chassis Fan RPM	5160
Chassis Fan RPM Phy-High	7500
Chassis Fan RPM Phy-Low	3000
Chassis Fan RPM High Alert	[7500]
Chassis Fan RPM High Warning	[7500]
Chassis Fan RPM Low Warning	[3000]
Chassis Fan RPM Low Alert	[3000]
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

Chassis Fan RPM High Alert Use the plus (+) and minus (-) keys to change the System Fan Speed high alert setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

Chassis Fan RPM High Warning Use the plus (+) and minus (-) keys to change the System Fan Speed high warning setting. Lowest allowed value of High Alert is the current value of the High Warning. Highest allowed value of High Alert is the value of the Physical High Limit.

Chassis Fan RPM Low Warning Use the plus (+) and minus (-) keys to change the System Fan Speed low warning setting.

Chassis Fan RPM Low Alert Use the plus (+) and minus (-) keys to change the System Fan Speed low alert setting.

Cont'd

Advanced BIOS Setup, Continued

REMOTE ACCESS CONFIGURATION SCREEN

Remote Access Configuration Settings From the System Health Monitoring screen, press <Enter> to access the sub screen for the Remote Access Configuration settings. Use this screen to enable or disable remote access from one of the onboard COM ports. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The screen for the Remote Access Configuration is shown below.

BIOS SETUP UTILITY	
Advanced	
Configure Remote Access type and parameters	Select remote access type
Remote Access [Disabled]	
Serial port number [COM1]	
Serial Port Mode [115200 8,n,1]	
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Cont'd

Advanced BIOS Setup, Continued

Remote Access This setting allows you to change the remote accessibility setting of the motherboard. Serial remote access allows you to control the computer from a remote location through the use of the motherboards onboard Serial/COM ports. The Optimal and Fail-Safe default settings are *No*.

Option	Description
<i>Disabled</i>	This option restricts remote accessibility through the onboard Serial/COM ports. This is the default setting.
<i>Serial (ANSI) American National Standard Institute</i>	This option allows remote accessibility through one of the onboard Serial/COM ports.

Serial Port Number This setting allows you to select the Serial/COM port you want to use for remote access.

Option	Description
<i>COM1</i>	This option allows serial port one or COM one to be used for remote access. This is the default setting.
<i>COM2</i>	This option allows serial port two or COM one to be used for remote access.

Serial Port Mode This setting allows you to select the mode or baud rate of the data transfer (in bps or bits per second) on the Serial/COM port selected for remote access.

Option	Description
<i>115200 8,n,1</i>	This option changes the baud rate value to 115200 bps. This is the default setting.
<i>57600 8,n,1</i>	This option changes the baud rate value to 57600 bps.
<i>19200 8,n,1</i>	This option changes the baud rate value to 19200 bps.
<i>9600 8,n,1</i>	This option changes the baud rate value to 9600 bps.

Section 3 Chipset Setup

Choose Chipset Setup from the AMIBIOS Setup Utility main menu. The screen is shown below. All Chipset Setup options are described following the screen.

BIOS SETUP UTILITY							
Main	Advanced	Chipset	PCIPnP	Power	Boot	Security	Exit
> GMCH Configuration > ICH Configuration		Options for MCH					
C000,16k	Shadow		[Cached/WP]				
C400,16k	Shadow		[Cached/WP]				
C800,16k	Shadow		[Disabled]				
CC00,16k	Shadow		[Disabled]				
D000,16k	Shadow		[Disabled]				
D400,16k	Shadow		[Disabled]				
D800,16k	Shadow		[Disabled]				
DC00,16k	Shadow		[Disabled]				
		↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit					
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C000,16k Shadow This setting controls the location of the contents of the 16KB of ROM beginning at the C000 memory location. The Optimal and Fail-Safe settings are *Cached/WP*.

Option	Description
<i>Disabled</i>	The adapter ROM is not copied to RAM. The contents of the adapter ROM cannot be read from or written to cache memory.
<i>Enabled</i>	The contents of C000h are written to the same address in system memory (RAM) for faster execution.
<i>Cached/WP</i>	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the information is write protected. This is the default setting.

Cont'd

Chipset Setup, Continued

C400,16k Shadow This setting controls the location of the contents of the 16KB of ROM beginning at the C400 memory location. The Optimal and Fail-Safe settings are *Cached/WP*.

Option	Description
<i>Disabled</i>	The adapter ROM is not copied to RAM. The contents of the adapter ROM cannot be read from or written to cache memory.
<i>Enabled</i>	The contents of C400h are written to the same address in system memory (RAM) for faster execution.
<i>Cached/WP</i> (Write Protect)	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the information is write protected. This is the default setting.

C800,16k Shadow This setting controls the location of the contents of the 16KB of ROM beginning at the C800 memory location. The Optimal and Fail-Safe settings are *Disabled*.

Option	Description
<i>Disabled</i>	The adapter ROM is not copied to RAM. The contents of the adapter ROM cannot be read from or written to cache memory. This is the default setting.
<i>Enabled</i>	The contents of C800h are written to the same address in system memory (RAM) for faster execution.
<i>Cached/WP</i> (Write Protect)	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the information is write protected.

CC00,16k Shadow This setting controls the location of the contents of the 16KB of ROM beginning at the CC00 memory location. The Optimal and Fail-Safe settings are *Disabled*.

Option	Description
<i>Disabled</i>	The adapter ROM is not copied to RAM. The contents of the adapter ROM cannot be read from or written to cache memory. This is the default setting.
<i>Enabled</i>	The contents of CC00h are written to the same address in system memory (RAM) for faster execution.
<i>Cached/WP</i> (Write Protect)	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the information is write protected.

Cont'd

Chipset Setup, Continued

D000,16k Shadow This setting controls the location of the contents of the 16KB of ROM beginning at the D000 memory location. The Optimal and Fail-Safe settings are *Disabled*.

Option	Description
<i>Disabled</i>	The adapter ROM is not copied to RAM. The contents of the adapter ROM cannot be read from or written to cache memory. This is the default setting.
<i>Enabled</i>	The contents of D000h are written to the same address in system memory (RAM) for faster execution.
<i>Cached/WP</i> (Write Protect)	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the information is write protected.

D400,16k Shadow This setting controls the location of the contents of the 16KB of ROM beginning at the D400 memory location. The Optimal and Fail-Safe settings are *Disabled*.

Option	Description
<i>Disabled</i>	The adapter ROM is not copied to RAM. The contents of the adapter ROM cannot be read from or written to cache memory. This is the default setting.
<i>Enabled</i>	The contents of D400h are written to the same address in system memory (RAM) for faster execution.
<i>Cached/WP</i> (Write Protect)	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the information is write protected.

D800,16k Shadow This setting controls the location of the contents of the 16KB of ROM beginning at the D800 memory location. The Optimal and Fail-Safe settings are *Disabled*.

Option	Description
<i>Disabled</i>	The adapter ROM is not copied to RAM. The contents of the adapter ROM cannot be read from or written to cache memory. This is the default setting.
<i>Enabled</i>	The contents of D800h are written to the same address in system memory (RAM) for faster execution.
<i>Cached/WP</i> (Write Protect)	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the information is write protected.

Cont'd

Chipset Setup, Continued

DC00,16k Shadow This setting controls the location of the contents of the 16KB of ROM beginning at the DC00 memory location. The Optimal and Fail-Safe settings are *Disabled*.

Option	Description
<i>Disabled</i>	The adapter ROM is not copied to RAM. The contents of the adapter ROM cannot be read from or written to cache memory. This is the default setting.
<i>Enabled</i>	The contents of DC00h are written to the same address in system memory (RAM) for faster execution.
<i>Cached/WP</i> (Write Protect)	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the information is write protected.

More Information on Shadowing ROM instructions are very slow. ROM Shadowing copies the contents of the ROM into memory, disables the ROM and makes the memory look like the original ROM. This is done so that the code is executed faster. A drawback to this is, you will lose the corresponding amount of extended memory, but is not a problem running Microsoft Windows based operating systems.

Flash ROM is faster than standard ROM. If an adapter uses a Flash ROM, this setting should be *Disabled*.

Cont'd

Chipset Setup, Continued

GMCH CONFIGURATION

GMCH Configuration GMCH stands for Graphics and Memory Controller Hub. It is the main chipset on the motherboard. It controls the AGP functions and system memory. It also houses an integrated graphics chip based on the Intel 740 graphics chip.

You can use this screen to select options for the GMCH Configuration. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen is shown below.

BIOS SETUP UTILITY	
Chipset	
Memory Hole [Disabled]	
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Note: The *Memory Hole* option is the only option available under the *GMCH Configuration* sub menu as of the release of this manual.

Cont'd

Chipset Setup, Continued

Memory Hole This setting allows you to set aside the 15 MB to 16 MB area of memory for expansion boards that require access to it to function properly.

This setting should be disabled unless you have a card that you know requires this setting. The Optimal and Fail-Safe default setting is *Disabled*.

Option	Description
<i>Disabled</i>	This option prevents the system from setting aside the 15 MB to 16 MB area of memory. This is the default setting.
<i>15MB-16MB</i>	This option allows you to set aside the 15 MB to 16 MB area of memory for expansion boards that require access to it to function properly.

Cont'd

Chipset Setup, Continued

ICH CONFIGURATION

ICH Configuration ICH stands for I/O Controller Hub. It is a chipset on the motherboard that controls the basic I/O functions, USB ports, audio functions, modem functions, IDE channels, and PCI slots.

You can use this screen to select options for the ICH Configuration. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen is shown below.

BIOS SETUP UTILITY	
Chipset	
Sound Blaster Decode	[Disabled]
Microsoft Sound Decode	[Disabled]
MIDI Decode	[Disabled]
Adlib Range 388h-38Bh	[Enabled]
Game Port	[Enabled]
LPC 4Eh-4Fh Decode	[Enabled]
	↔ Select Screen
	↑↓ Select Item
	+ - Change Option
	F1 General Help
	F10 Save and Exit
	ESC Exit
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Cont'd

Chipset Setup, Continued

Sound Blaster Decode This setting allows the Sound Blaster Decode to be adjusted. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This option to prevents support for the Sound Blaster Decode. This is the default setting.
<i>Enabled</i>	This option to allows support for the Sound Blaster Decode.

Microsoft Sound Decode This setting allows the Microsoft Sound Decode to be adjusted. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This option to prevents support for the Microsoft Sound Decode. This is the default setting.
<i>Enabled</i>	This option to allows support for the Microsoft Sound Decode.

MIDI Decode This setting allows the MIDI Decode to be adjusted. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This option to prevents support for the MIDI Decode. This is the default setting.
<i>Enabled</i>	This option to allows support for the MIDI Decode.

Adlib Range 388h-38Bh This setting allows the Adlib Range 388h-38Bh to be adjusted. The Optimal and Fail-Safe default settings is *Enabled*.

Option	Description
<i>Disabled</i>	This option to prevents support for the Adlib Range 388h-38Bh.
<i>Enabled</i>	This option to allows support for the Adlib Range 388h-38Bh. This is the default setting.

Cont'd

Chipset Setup, Continued

Game Port This setting allows the Game Port to be adjusted. The Optimal and Fail-Safe default settings is *Enabled*.

Option	Description
<i>Disabled</i>	This option to prevents support for Game Port A.
<i>Enabled</i>	This option to allows support for Game Port A. This is the default setting.

LPC 4Eh-4Fh Decode This setting allows the LPC 4Eh-4Fh Decode to be adjusted. The Optimal and Fail-Safe default settings is *Enabled*.

Option	Description
<i>Disabled</i>	This option to prevents support for the LPC 4Eh-4Fh Decode.
<i>Enabled</i>	This option to allows support for the LPC 4Eh-4Fh Decode. This is the default setting.

PCIPnP Setup, Continued

PCI Latency Timer This option allows the PCI Latency Timer to be adjusted. This option sets the latency of all PCI devices on the PCI bus. The settings are in units equal to PCI clocks. The Optimal and Fail-Safe default settings is *64*.

Option	Description
<i>32</i>	This option sets the PCI latency to 32 PCI clocks.
<i>64</i>	This option sets the PCI latency to 64 PCI clocks. This is the default setting.
<i>96</i>	This option sets the PCI latency to 96 PCI clocks.
<i>128</i>	This option sets the PCI latency to 128 PCI clocks.
<i>160</i>	This option sets the PCI latency to 160 PCI clocks.
<i>192</i>	This option sets the PCI latency to 192 PCI clocks.
<i>224</i>	This option sets the PCI latency to 224 PCI clocks.
<i>248</i>	This option sets the PCI latency to 248 PCI clocks.

Allocate IRQ to VGA This option allows the system to adjust the Allocate IRQ to VGA setting. The Optimal and Fail-Safe default settings is *Yes*.

Option	Description
<i>Yes</i>	This option allows the allocation of an IRQ to a VGA adapter card that uses the PCI local bus. This is the default setting.
<i>No</i>	This option prevents the allocation of an IRQ to a VGA adapter card that uses the PCI local bus.

Cont'd

PCIPnP Setup, Continued

Palette Snooping This option allows the system to modify the Palette Snooping settings. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This is the default setting and should not be changed unless the VGA card manufacturer requires Palette Snooping to be Enabled.
<i>Enabled</i>	This setting informs the PCI devices that an ISA based Graphics device is installed in the system so the card will function correctly. This does not necessarily indicate a physical ISA adapter card. The graphics chipset can be mounted on a PCI card. Always check with your adapter card manuals first, before modifying the default settings in the BIOS.

PCI IDE BusMaster This option allows the PCI IDE busmastering to be set. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This option prevents PCI busmastering. This is the default setting.
<i>Enabled</i>	This option specifies that the IDE controller on the PCI local bus has mastering capabilities.

USB Function This option allows the system to adjust the onboard USB function. The Optimal and Fail-Safe default settings is *Enabled*.

Option	Description
<i>Disabled</i>	This setting prevents the use of the USB port.
<i>Enabled</i>	This setting allows the use of the USB port. This is the default setting.

Cont'd

PCIPnP Setup, Continued

Legacy USB Support

This option allows Legacy USB Support. The Optimal and Fail-Safe default settings is *Auto*.

Option	Description
<i>Disabled</i>	This option prevents the use of any USB device in DOS or during system boot.
<i>Enabled</i>	This option allows the use of USB devices during boot and while using DOS.
<i>Auto</i>	This option auto detects USB Keyboards or Mice and if found, allows them to be utilized during boot and while using DOS. This is the default setting.

Section 5 Power Management Setup

Choose Power from the AMIBIOS Setup main menu. All Power Management Setup options are described in this section.

BIOS SETUP UTILITY		
Main	Advanced	Chipset PCI/PnP Power Boot Security Exit
ACPI Aware O/S		[No]
Repost Video on S3 Resume		[Yes]
Power Management/APM		[Enabled]
Standby Time Out		[Disabled]
Suspend Power Saving Type		[S1]
Suspend Time Out		[Disabled]
Power Button Mode		[On/Off]
AfterG3 Enable		[Enable]
Green PC Monitor Power State		[Suspend]
Video Power Down Mode		[Suspend]
Hard Disk Power Down Mode		[Suspend]
Hard Disk Time Out (Minute)		[Disabled]
Display Activity		[Ignore]
Manual Throttle Ratio		[50%]
THRM throttle Ratio		[50%]
Intruder Sel		[SMI]
Timer Overflow		[Disable]

↔ Select Screen
 ↑↓ Select Item
 +- Change Option
 F1 General Help
 F10 Save and Exit
 ESC Exit

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ACPI Aware O/S This option allows the system to utilize the Intel ACPI (Advanced Configuration and Power Interface) specification. The Optimal and Fail-Safe default settings is *Yes*.

Option	Description
No	This setting should be set if the operating system in use does not comply with the ACPI (Advanced Configuration and Power Interface) specification. DOS®, Windows 3.x®, and Windows NT® are examples of non-ACPI aware operating systems.
Yes	This setting should be set if the operating system complies with the ACPI (Advanced Configuration and Power Interface) specification. This is the default setting. Windows 95®, Windows 98® and Windows 2000® are examples of ACPI aware operating systems.

Cont'd

Power Management Setup, Continued

Repost Video on S3 Resume This option allows video repost support. The Optimal and Fail-Safe default settings is *Yes*.

Option	Description
<i>No</i>	This setting prevents the video BIOS to be initialized coming out of the S3 state.
<i>Yes</i>	This setting allows the video BIOS to be initialized coming out of the S3 state. Some video controllers require this option to be enabled. This is the default setting.

Power Management/APM This option allows Power Management/APM support. The Optimal and Fail-Safe default settings is *Enabled*.

Option	Description
<i>Disabled</i>	This option prevents the chipset power management and APM (Advanced Power Management) features.
<i>Enabled</i>	This option allows the chipset power management and APM (Advanced Power Management) features. This is the default setting.

Standby Time Out This option specifies the length of time the length of time the system needs to be inactive before it enters standby mode. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This option prevents the computer system from entering standby mode. This is the default setting.
<i>1Min</i>	This option allows the computer system to enter standby mode after being inactive for 1 minute.
<i>5Min</i>	This option allows the computer system to enter standby mode after being inactive for 5 minutes.
<i>10Min</i>	This option allows the computer system to enter standby mode after being inactive for 10 minutes.

Cont'd

Power Management Setup, Continued

Suspend Power Saving Type This option allows the Suspend Power Saving type to be specified. The Optimal and Fail-Safe default settings is *S1*.

Option	Description
<i>C2</i>	This setting allows the CPU (microprocessor) to be put in a low power state. In this state, incoming interrupts wake the CPU (microprocessor) to process them (I/O APIC).
<i>S1</i>	This setting allows the system to enter the S1 POS (Power On Suspend) state. While the system is in this state, the CPU is not executing instructions, all power resources that supply system level reference of S0 are off, system memory context is maintained, devices that reference power resources that are on are on, and devices that can wake the system can cause the CPU to continue to execute from where it left off. This is the default setting.

Suspend Time Out (Minute) This option specifies the length of time the length of time the system needs to be inactive before it enters suspend mode. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This setting prevents the system from entering suspend mode. This is the default setting.
<i>1Min</i>	This option allows the computer system to enter suspend mode after being inactive for 1 minute.
<i>5Min</i>	This option allows the computer system to enter suspend mode after being inactive for 5 minutes.
<i>10Min</i>	This option allows the computer system to enter suspend mode after being inactive for 10 minutes.

Cont'd

Power Management Setup, Continued

Power Button Mode This option specifies how the power button mounted externally on the computer chassis is used. The Optimal and Fail-Safe default settings is *On/Off*.

Option	Description
<i>On/Off</i>	Pushing the power button turns the computer on or off. This is the default setting. This is the default setting.
<i>Standby</i>	Pushing the power button places the computer in Standby mode
<i>Suspend</i>	Pushing the power button places the computer in Suspend mode or Full On power mode.

AfterG3 Enable This option allows AfterG3 Enable support. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This prevents the system to power on after power is applied to the system. This is the default setting.
<i>Enabled</i>	This allows the system to power on after power is applied to the system. This means that if an ATX compliant power supply is turned hard off, or unplugged from the wall (power socket supplying it power), the computer system will not power back on immediately after the power cord is reattached or the hard off switch is flipped back on. The power button on the front of the chassis is usually the soft off, meaning that there is still power being supplied to the motherboard even though the system looks completely off. Hard off means that there is not power being supplied to the system at all. The only power is coming from the backup battery on the motherboard.

Cont'd

Power Management Setup, Continued

Green PC Monitor Power State This option specifies the power state that the green PC-compliant video monitor enters when the BIOS places it in a power saving state after the specified period of display inactivity has expired. The Optimal and Fail-Safe settings is *Suspend*.

Option	Description
<i>Standby</i>	This option places the monitor into standby mode after the specified period of display inactivity has expired. This means the monitor is not off. The screen will appear blacked out. The standards do not cite specific power ratings because they vary from monitor to monitor.
<i>Suspend</i>	This option places the monitor into suspend mode after the specified period of display inactivity has expired. This means the monitor is not off. The screen will appear blacked out. The standards do not cite specific power ratings because they vary from monitor to monitor, but this setting uses less power than Standby mode. This is the default setting.
<i>Off</i>	This option powers off the monitor completely after the specified period of display inactivity has expired. The power button on the monitor must be pressed to power on the monitor.

Video Power Down Mode This option specifies the power state that the video subsystem enters when the BIOS places it in a power saving state after the specified period of display inactivity has expired. The Optimal and Fail-Safe settings is *Suspend*.

Option	Description
<i>Disabled</i>	This setting prevents the BIOS from initiating any power saving modes concerned with the video display or monitor.
<i>Standby</i>	This option places the monitor into standby mode after the specified period of display inactivity has expired. This means the monitor is not off. The screen will appear blacked out. The standards do not cite specific power ratings because they vary from monitor to monitor.
<i>Suspend</i>	This option places the monitor into suspend mode after the specified period of display inactivity has expired. This means the monitor is not off. The screen will appear blacked out. The standards do not cite specific power ratings because they vary from monitor to monitor, but this setting uses less power than Standby mode. This is the default setting.

Cont'd

Power Management Setup, Continued

Hard Disk Power Down Mode This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The Optimal and Fail-Safe settings is *Suspend*.

Option	Description
<i>Disabled</i>	This setting prevents hard disk power down mode.
<i>Standby</i>	This option stops the hard disk drives from spinning during a system standby.
<i>Suspend</i>	This option cuts the power to the hard disk drives during a system suspend. This is the default setting.

Hard Disk Time Out (Minute) This option specifies the length of a period of hard disk drive inactivity. When this length of time expires, the computer enters power-conserving state specified in the **Hard Disk Power Down Mode** option. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This setting prevents the BIOS from regulating when the hard disk drive goes into a low power state. This is the default setting.
<i>1</i>	This option allows the hard disk drive(s) to enter a low power state after being inactive for 1 minute.
<i>2</i>	This option allows the hard disk drive(s) to enter a low power state after being inactive for 2 minutes.
<i>3</i>	This option allows the hard disk drive(s) to enter a low power state after being inactive for 3 minutes.
<i>4</i>	This option allows the hard disk drive(s) to enter a low power state after being inactive for 4 minutes.
<i>5</i>	This option allows the hard disk drive(s) to enter a low power state after being inactive for 5 minutes.
<i>6</i>	This option allows the hard disk drive(s) to enter a low power state after being inactive for 6 minutes.
<i>7</i>	This option allows the hard disk drive(s) to enter a low power state after being inactive for 7 minutes.
<i>8</i>	This option allows the hard disk drive(s) to enter a low power state after being inactive for 8 minutes.
<i>9</i>	This option allows the hard disk drive(s) to enter a low power state after being inactive for 9 minutes.

Cont'd

Power Management Setup, Continued

Option	Description
10	This option allows the hard disk drive(s) to enter a low power state after being inactive for 10 minutes.
11	This option allows the hard disk drive(s) to enter a low power state after being inactive for 11 minutes.
12	This option allows the hard disk drive(s) to enter a low power state after being inactive for 12 minutes.
13	This option allows the hard disk drive(s) to enter a low power state after being inactive for 13 minutes.
14	This option allows the hard disk drive(s) to enter a low power state after being inactive for 14 minutes.
15	This option allows the hard disk drive(s) to enter a low power state after being inactive for 15 minutes.

Display Activity This option allows the Display Activity to be selected. The Optimal and Fail-Safe default settings is *Ignore*.

Option	Description
<i>Ignore</i>	This setting allows the display activity to prevent the system from waking from power management state. This is the default setting.
<i>Healthy Monitor Feature</i>	This setting allows the display activity to wake up the system from power management state.

Cont'd

Power Management Setup, Continued

Manual Throttle Ratio In power management state, BIOS can throttle the CPU clock to reduce power consumption. For example, a throttle ratio of 50% means the clock is turned off 50 percent of the time. The Optimal and Fail-Safe default settings is 50%.

Option	Description
87.5%	This setting allows the BIOS to throttle back the CPU clock to operate 87.5 percent of the time.
75.0%	This setting allows the BIOS to throttle back the CPU clock to operate 75 percent of the time.
62.5%	This setting allows the BIOS to throttle back the CPU clock to operate 62.5 percent of the time.
50%	This setting allows the BIOS to throttle back the CPU clock to operate 50 percent of the time. This is the default setting.
37.5%	This setting allows the BIOS to throttle back the CPU clock to operate 37.5 percent of the time.
25%	This setting allows the BIOS to throttle back the CPU clock to operate 25 percent of the time.
12.5%	This setting allows the BIOS to throttle back the CPU clock to operate 12.5 percent of the time.

THRM Throttle Ratio This option allows the THRM (thermal) Throttle Ratio to be selected. This type of throttling is used to lower power consumption and reduce thermals. The Optimal and Fail-Safe default settings is 50%.

Option	Description
87.5%	This setting allows the BIOS to throttle back the CPU clock to operate 87.5 percent of the time.
75.0%	This setting allows the BIOS to throttle back the CPU clock to operate 75 percent of the time.
62.5%	This setting allows the BIOS to throttle back the CPU clock to operate 62.5 percent of the time.
50%	This setting allows the BIOS to throttle back the CPU clock to operate 50 percent of the time. This is the default setting.
37.5%	This setting allows the BIOS to throttle back the CPU clock to operate 37.5 percent of the time.
25%	This setting allows the BIOS to throttle back the CPU clock to operate 25 percent of the time.
12.5%	This setting allows the BIOS to throttle back the CPU clock to operate 12.5 percent of the time.

Cont'd

Power Management Setup, Continued

Intruder Sel This option allows the Intruder Sel setting to be selected. The Optimal and Fail-Safe default settings is *SMI*.

Option	Description
<i>SCI</i>	SCI stands for System Control Interrupt. This is considered ACPI (Advanced Configuration and Power Interface) mode. The operating system uses the SCI interrupt to process ACPI (Advanced Configuration and Power Interface), events signaled by GPEs (general Purpose Event), whether the system is asleep or awake when the event occurs. In other words, the wake event has the side effect of causing the system to wake up if it is asleep, but its primary purpose is to generate an SCI that notifies the operating system that the event has occurred.
<i>SMI</i>	SMI stands for System Management Interrupt. This is considered Legacy mode. This is the default setting. It is used to log interrupt events to operating systems that do not support ACPI (Advanced Configuration and Power Interface) and operating systems that do.

Timer Overflow Enable This setting allows the system to generate a System Management Interrupt after a specific amount of time has passed. The Optimal and Fail-Safe default settings is *Disabled*.

Option	Description
<i>Disabled</i>	This prevents the system from generating a System Management Interrupt after a specific amount of time. This is the default setting.
<i>Enabled</i>	This allows the system to generate a System Management Interrupt after a specific amount of time has passed.

Section 6 Boot Setup

Choose Boot Setup from the AMIBIOS Setup main menu. All Boot Setup options are described in this section. Select an item on the Boot Setup screen to access the sub screen for:

- Boot Device Priority
- Hard Disk Drives
- Removable Devices
- ATAPI CD-ROM Drives

The Boot Setup screen is shown below:

BIOS SETUP UTILITY							
Main	Advanced	Chipset	PCIPnP	Power	Boot	Security	Exit
>	Boot Device Priority						
>	Hard Disk Drives						
>	Removable Devices						
>	ATAPI CDROM Drives						
					↔	Select Screen	
					↑↓	Select Item	
					Enter	Go to Sub Screen	
					F1	General Help	
					F10	Save and Exit	
					ESC	Exit	
V02.03 (C)Copyright 1985-2001, American Megatrends, Inc.							

Cont'd

BOOT DEVICE PRIORITY

Boot Device Priority Use this screen to specify the order in the system checks for the device to boot from. To access this screen, select Boot Device Priority on the Boot Setup screen and press <Enter>. The following screen displays:

BIOS SETUP UTILITY	
Boot	
1 st Boot Device 2 nd Boot Device 3 rd Boot Device	[Removable Dev.] [Hard Drive] [ATAPI CDROM]
Specifies the boot sequence from the available devices.	
↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
V02.03 (C) Copyright 1985-2001, American Megatrends, Inc.	

1st Boot Device

2nd Boot Device

3rd Boot Device Set the boot device options to determine the sequence in which the computer checks which device to boot from. The settings are *Removable Dev.*, *Hard Drive*, or *ATAPI CDROM*. The Optimal and Fail-Safe settings are:

- 1st boot device – *Removable Device*
- 2nd boot device – *Hard Drive*
- 3rd boot device – *ATAPI CDROM*

Cont'd

Boot Setup, Continued

HARD DISK DRIVES

Hard Disk Drives Use this screen to view the hard disk drives in the system. To access this screen, select Hard Disk Drives on the Boot Setup screen and press <Enter>. The following screen displays examples of hard disk drives:

BIOS SETUP UTILITY	
Boot	
1 st Hard Disk Drive [HDD Manuf/Model# Here]. 2 nd Hard Disk Device [HDD Manuf/Model# Here]	Specifies the boot sequence from the available devices. ↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
V02.03 (C)Copyright 1985-2001, American Megatrends, Inc.	

Cont'd

Boot Setup, Continued

ATAPI CDROM DRIVES

ATAPI CD-ROM Drives

Use this screen to view the ATAPI CD-ROM drives in the system. To access this screen, select ATAPI CDROM Drives on the Boot Setup screen and press <Enter>. The following screen displays examples of ATAPI CD-ROM Drives:

BIOS SETUP UTILITY	
Boot	
1 st ATAPI CDROM	[ATAPI CDROM Manufacturer]
	Specifies the boot sequence from the available devices.
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
V02.03 (C) Copyright 1985-2001, American Megatrends, Inc.	

Section 7 Security Setup

AMIBIOS Password Support

Two Levels of Password Protection AMIBIOS provides both a Supervisor and a User password. If you use both passwords, the Supervisor password must be set first.

The system can be configured so that all users must enter a password every time the system boots or when AMIBIOS Setup is executed, using either or both the Supervisor password or User password.

The Supervisor and User passwords activate two different levels of password security.

If you select password support, you are prompted for a 1 – 6 character password. Type the password on the keyboard. The password does not appear on the screen when typed. Make sure you write it down. If you forget it, you must drain NVRAM and reconfigure.

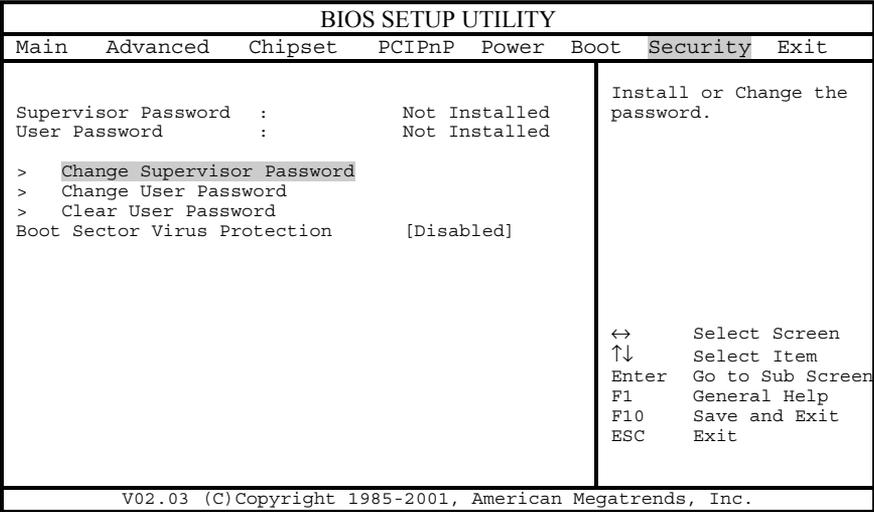
Remember the Password Keep a record of the new password when the password is changed. If you forget the password, you must erase the system configuration information in NVRAM. See Chapter 4 Deleting a Password for information about erasing system configuration information.

Security Setup

Choose Security Setup from the AMIBIOS Setup main menu. All Security Setup options, such as password protection and virus protection, are described in this section. To access the sub screen for the following items, select the item and press <Enter>:

- Change Supervisor Password
- Change User Password
- Clear User Password

The Security Setup screen is shown below. The sub screens are documented on the following pages.



Supervisor Password Indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

User Password Indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Cont'd

Security Setup, Continued

Change Supervisor Select this option and press <Enter> to access the sub screen. You can use the sub screen to change the supervisor password.

Change User Password Select this option and press <Enter> to access the sub screen. You can use the sub screen to change the user password.

Clear User Password Select this option and press <Enter> to access the sub screen. You can use the sub screen to clear the user password.

Boot Sector Virus Protection This option is near the bottom of the Security Setup screen. The Optimal and Fail-Safe default settings are *Disabled*

Option	Description
<i>Disabled</i>	
<i>Enabled</i>	<p>Choose <i>Enabled</i> to enable boot sector protection. AMIBIOS displays a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. If enabled, the following appears when a write is attempted to the boot sector. You may have to type <i>N</i> several times to prevent the boot sector write.</p> <pre>Boot Sector Write!!! Possible VIRUS: Continue (Y/N)? _</pre> <p>The following appears after any attempt to format any cylinder, head, or sector of any hard disk drive via the BIOS INT 13 Hard Disk Drive Service:</p> <pre>Format!!! Possible VIRUS: Continue (Y/N)? _</pre>

Cont'd

CHANGE SUPERVISOR PASSWORD

Change Supervisor Password Select Change Supervisor Password from the Security Setup menu and press <Enter>.

Enter New Password:

appears. Type the password and press <Enter>. The screen does not display the characters entered. Retype the password as prompted and press <Enter>. If the password confirmation is incorrect, an error message appears. The password is stored in NVRAM after AMIBIOS completes.

Change User Password Select Change User Password from the Security Setup menu and press <Enter>.

Enter New Password:

appears. Type the password and press <Enter>. The screen does not display the characters entered. Retype the password as prompted and press <Enter>. If the password confirmation is incorrect, an error message appears. The password is stored in NVRAM after AMIBIOS completes.

Clear User Password Select Clear User Password from the Security Setup menu and press <Enter>.

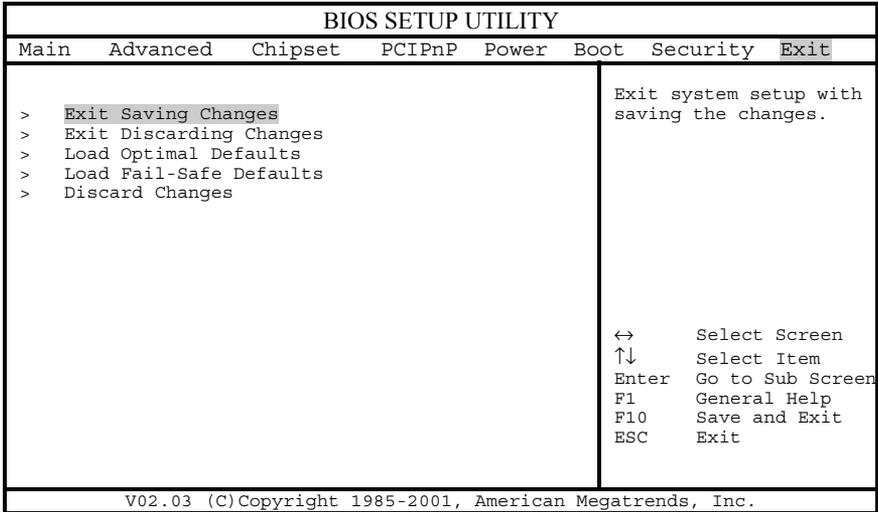
Clear New Password

[Ok] [Cancel]

appears. Type the password and press <Enter>. The screen does not display the characters entered. Retype the password as prompted and press <Enter>. If the password confirmation is incorrect, an error message appears. The password is stored in NVRAM after AMIBIOS completes.

Section 8 Exit Menu

Choose Exit from the AMIBIOS Setup main menu. All Exit options display. Click on the desired option and press <Enter>.



Exit Saving Changes When you have completed the system configuration changes, choose this option to leave AMIBIOS Setup and to reboot the computer so the new system configuration parameters can take effect. Select Exit Saving Changes from the Exit menu and press <Enter>.

Save Configuration Changes and Exit Now?
[Ok] [Cancel]

appears in the window. Click on Ok to save changes and exit.

Exit Discarding Changes Choose this option to quit AMIBIOS Setup without making any permanent changes to the system configuration. Select Exit Discarding Changes from the Exit menu and press <Enter>.

Discard Changes and Exit Setup Now?
[Ok] [Cancel]

appears in the window. Click on Ok to discard changes and exit.

Cont'd

Exit Menu, Continued

Load Optimal Defaults AMIBIOS automatically sets all AMIBIOS Setup options to a complete set of default settings when you choose this option. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal AMIBIOS Setup options if your computer is experiencing system configuration problems.

Select Load Optimal Defaults from the Exit menu and press <Enter>.

Load Optimal Defaults?

[Ok] [Cancel]

appears in the window. Click on Ok to load optimal defaults.

Load Fail-Safe Defaults AMIBIOS automatically sets all AMIBIOS Setup options to a complete set of default settings when you choose this option. The Fail-Safe settings are designed for maximum system stability, but not maximum performance. Choose the Fail-Safe AMIBIOS Setup options if your computer is experiencing system configuration problems.

Select Load Fail-Safe Defaults from the Exit menu and press <Enter>.

Load Fail-Safe Defaults?

[Ok] [Cancel]

appears in the window. Click on Ok to load Fail-Safe defaults.

Discard Changes Select Discard Changes from the Exit menu and press <Enter>.

Discard Changes?

[Ok] [Cancel]

appears in the window. Click on Ok to discard changes.

4 Programming Flash ROM

All versions of the AMIBIOS use Flash EPROM to store the system BIOS. The advantage of Flash EPROM is the EPROM chip does not have to be replaced to update the BIOS. The end user can actually reprogram the BIOS, using a ROM file supplied by American Megatrends. This chapter contains two procedures for programming Flash ROM:

- A) Using the <Ctrl> <Home> keys
 - B) Using the AMIFlash utility
-

A) Programming the Flash EPROM Using <Ctrl> <Home>

Step	Action
1	Turn power off. Make sure the motherboard has a working speaker attached to jumper JP13.
2	Insert the floppy disk with the S821P.ROM file in the root directory into drive A:.
3	Press and hold the <Ctrl> and <Home> keys down while turning the power on. Continue to hold the <Ctrl> and <Home> keys down until the access light on the floppy drive comes on. It may take 10 seconds or more before this light turns on. Since AMIBIOS uses a 4 megabit BIOS, the flashing process may take up to 3 minutes.
4	Release the <Ctrl> and <Home> keys. AMIBIOS issues a series of beep codes that indicate that the system BIOS ROM file is being updated.
5	When the flash ROM has successfully been programmed, the motherboard will reboot.
6	When the motherboard reboots, check the BIOS Release text at the bottom of the first boot screen to make sure that the correct BIOS has been used.
7	The error message NVRAM checksum bad, NVRAM cleared will appear during the first boot after a successful BIOS ROM update. This message indicates that the NVRAM area in the system BIOS has been cleared. AMIBIOS will reconstruct the NVRAM area before the system boots completely, so you can safely ignore this message.
8	<u>Load</u> the optional default and save.

Cont'd

Programming the Flash ROM, Continued

Bootblock Actions When you reprogram from system boot, the bootblock code performs the following:

Step	Action
1	Reads S821P.ROM from the root directory of the floppy disk in drive A:.
2	Erases the Flash EPROM.
3	Programs the Flash EPROM with the data read from the floppy disk in drive A:.
4	Generates a CPU reset, rebooting the system.

The bootblock part of the Flash EPROM is not programmed. Should you inadvertently open the disk drive door or turn power off to the system while programming the Flash EPROM, the bootblock will be unaffected. Simply turn power back on and begin the Flash ROM programming process again.

S821P.ROM

S821P.ROM resides on a floppy disk and contains the updated main BIOS code. American Megatrends will provide this file when the AMIBIOS for the AMIBIOS must be updated.

S821P.ROM must be present in the root directory of the floppy disk before the onboard Flash EPROM can be reprogrammed. The file that has the main BIOS code must be named S821P.ROM.

Cont'd

Programming the Flash ROM, Continued

Beep Codes The bootblock code produces a series of beeps during Flash ROM programming to: signify completion of a step (as shown on the previous page), or to signal an error. Error beeps are arranged in a coded sequence and have different meanings depending on when they occur. The error beep codes and when they can occur are:

Number of Beeps	Description
1	Insert diskette in floppy drive A:.
2	The S821P.ROM file was not found in the root directory of the diskette in floppy drive A:.
3	Base memory error.
4	Flash program successful.
5	Floppy read error.
6	Keyboard controller BAT command failed.
7	No Flash EPROM detected.
8	Floppy controller failure.
9	Boot Block BIOS checksum error.
10	Flash erase error.
11	Flash Program error.
12	S821P.ROM file size error.

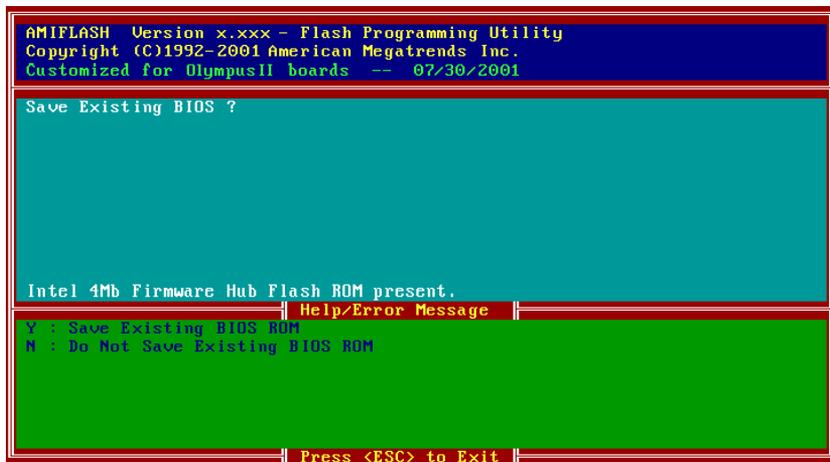
Cont'd

Programming the Flash ROM, Continued

B) Programming the Flash EPROM Using the AMIFlash Utility

AMIFlash utility runs in DOS only.

The main menu screen is shown below. You are prompted to save or delete the existing BIOS. Enter *Y* if you want to save the existing BIOS ROM, or *N* if you do not.



```
AMIFLASH Version x.xxx - Flash Programming Utility
Copyright (C)1992-2001 American Megatrends Inc.
Customized for OlympusII boards -- 07/30/2001

Save Existing BIOS ?

Intel 4Mb Firmware Hub Flash ROM present.
Help/Error Message
Y : Save Existing BIOS ROM
N : Do Not Save Existing BIOS ROM

Press <ESC> to Exit
```

Cont'd

Programming the Flash ROM, Continued

B) Programming the Flash EPROM Using the AMIFlash Utility, cont'd

Enter the filename, S821P.ROM, that you want to save the existing BIOS to and press <Enter>.

```
AMIFLASH Version x.xxx - Flash Programming Utility
Copyright (C)1992-2001 American Megatrends Inc.
Customized for OlympusII boards -- 07/30/2001

Save Existing BIOS ? y
Enter Filename      : s821p.bak

Intel 4Mb Firmware Hub Flash ROM present.
Help/Error Message
Enter the Filename to which Existing BIOS will be saved.
The Format:- (Drv:\Pathname\Filename.Ext)
The Filename must end with a <ENTER>.

Press <ESC> to Exit
```

Enter the BIOS filename from which the Flash ROM will be programmed and press <Enter>.

```
AMIFLASH Version x.xxx - Flash Programming Utility
Copyright (C)1992-2001 American Megatrends Inc.
Customized for OlympusII boards -- 07/30/2001

Save Existing BIOS ? y
Enter Filename      : s821p.bak

Enter BIOS Filename:

Intel 4Mb Firmware Hub Flash ROM present.
Help/Error Message
Enter the BIOS Filename from which Flash ROM will be programmed.
The Format:- (Drv:\Pathname\Filename.Ext)
The Filename must end with a <ENTER>.

Press <ESC> to Exit
```

Cont'd

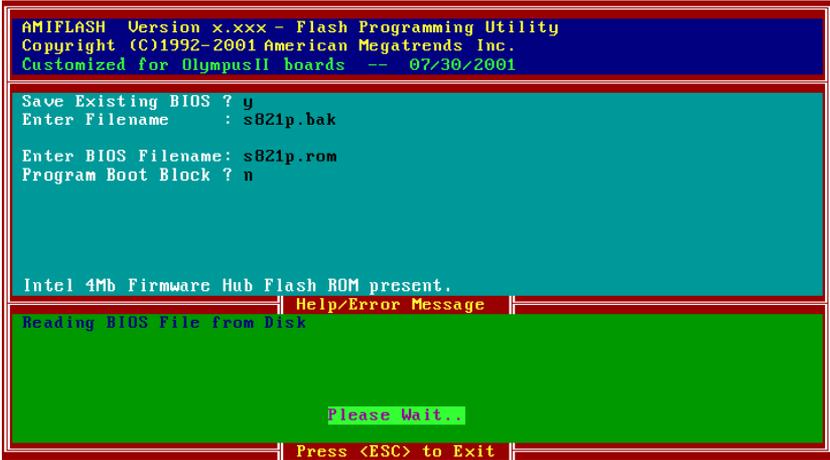
Programming the Flash ROM, Continued

B) Programming the Flash EPROM Using the AMIFlash Utility, cont'd

To enable this program to update bootblock code, perform the following procedure:

Step	Action
1	Turn the system off.
2	Turn the system on.
3	Boot to DOS using a bootable DOS disk or go to DOS mode directly from the operating system.
4	Run AMIFlash.
5	At the prompt "Program Boot Block?", type Y and press <Enter>.
6	After the boot block is programmed, reboot the system.
7	Turn the power off.

Enter Y if you want to program the boot block or N if you do not want to program the boot block.



Bootblock Code Checkpoint Codes

Code	Description
E0h	Verify the Boot Block BIOS checksum. Disable the internal cache, DMA, and interrupt controllers. Initialize the system timer. Start memory refresh.
E1h	Initialize the chipset registers. Set the BIOS size to 128K. Make the 512 KB base memory available.
E2h	Test the base 64 KB of system memory. Send the BAT command to the keyboard controller. Make sure that <Ctrl> <Home> was pressed. Verify the main system BIOS checksum.
E3h	The main system BIOS is good. Transfer control to the main system BIOS.
E4h	Start the memory test.
E5h	The memory test is over. Initialize the interrupt vector table.
E6h	Initialize the DMA and interrupt controllers.
E7h	Determine the CPU internal clock frequency.
E8h	Initialize the I/O chipset, if any.
E9h	Program the CPU clock-dependent chip set parameters.
EAh	Enable the timer and the floppy diskette interrupt. Enable the internal cache. Copy the boot block BIOS and pass control to the boot block BIOS in the 0000h segment.
EDh	Initialize the floppy drive.
EEh	Look for a diskette in drive A:. Read the first sector of the diskette.
EFh	Floppy read error.
F0h	Search for S821P.ROM in the root directory of the floppy diskette in drive A:.
F1h	The S821P.ROM file is not in the root directory.
F2h	Read the FAT table. Analyze the FAT to find the clusters occupied by the S821P.ROM.
F3h	Start reading the S821P.ROM file, cluster by cluster.
F4h	The S821P.ROM file is not the correct size.
F5h	Disable the internal cache. Raise the Vpp. Enable Flash write and reset the Flash ROM.
FBh	Detect the flash type.
FCh	Start erasing flash blocks.
FDh	Program the Flash ROM in the E0000-EFFFFh region.
FEh	Start programming Flash at F0000-FFFFF region.
FFh	Flash programming is successful. The system reboots.

5 Deleting a Password

If you forget the passwords you set up through AMIBIOS Setup, the only way you can restart the system is to erase the system configuration information where the passwords are stored. System configuration data is stored in CMOS RAM, a type of memory that consumes very little power.

Erase Old Password You can drain CMOS RAM power via JP11 on the motherboard. JP11 is a 3-pin berg with a default setting of pins 1 and 2 shorted by a jumper. Perform the following steps to erase the old password.

 **Important**

Make sure you are properly grounded before performing the following procedure. You must be certain that no electrostatic discharge (ESD) occurs. ESD can ruin your motherboard. Wear an antistatic wristband attached to a ground. See “Avoid Static Electricity” on the following page.



Step	Action
1	Turn the system power off and remove the system cover.
2	Remove the jumper from pins 1-2 of JP11 and place a shorting bridge on pins 2-3 of JP11.
3	Turn on system power for about 10 seconds.
4	Turn the system off again.
5	Remove the shorting bridge from pins 2-3 of JP11 and put it back on pins 1-2 of JP11.
6	Turn on system power again. Since you drained power from CMOS RAM, all system configuration information has been erased. You must now re-enter the system configuration information by running AMIBIOS Setup.

A Electro-Static Discharge



Avoid Electro-Static Discharge (ESD)

Electro-static discharge, or ESD, is a transfer of electrical energy between two objects. Electro-Static Discharge (ESD) can damage the motherboard and other system components. Keep the motherboard in the anti-static bag until it is to be installed. Wear an anti-static wrist-grounding strap before handling the motherboard. Make sure you stand on an anti-static mat when handling the motherboard.

Avoid contact with any component or connector on any adapter card, printed circuit board, or memory module. Handle these components by the mounting bracket.

The following are the four basic rules of Electro-Static Discharge:

- 1.) Handle all static-sensitive components at a static-safeguarded workstation. Ground the operator and the workstation. Use ionized air to neutralize non-conductors.
 - 2.) Transport all static-sensitive components in static-shielding containers or packages.
 - 3.) Monitor and test all static protection products and materials to make certain that they are working.
 - 4.) Make certain that your suppliers understand and practice the four basic rules.
-

More Electro-Static Discharge (ESD) Information

Electro-Static Discharge (ESD) is the inadvertent release and transmission of static electricity from one object to another. In technical terms, Electro-Static Discharge (ESD) is the transfer of an electric charge between two objects at different potentials. Static charge buildup is more of a problem in low humidity environments.

Electro-Static Discharge (ESD) can actually cause damage to electrical components within your system. If such damage occurs, your system may not boot or the processor may not function correctly. Components damaged by Electro-Static Discharge (ESD) must be repaired or replaced.

Visit the 3M Electronic Handling and Protection Division web site for more information concerning Electro-Static Discharge (ESD). Their site is located at:

<http://www.3m.com/EHPD/>

B Thermal Considerations

Thermal Considerations

Contributing Components Certain components in a system contribute more heat within a chassis than other components. The greatest of these is the processor (CPU). The chipsets on all internal boards will generate a considerable amount of heat.

The following would generate heat:

- The processor (CPU)
- All chipsets on the PCI add-on card
- All onboard chipsets on the motherboard
- All chips in any disk drive enclosure
- The power supply (if internal to the chassis)

Pay particular attention to these components when you are determining airflow within the chassis. You must make sure that they are adequately cooled. You must also make sure that the heat they generate is directed away from other heat-sensitive components and that it is evacuated out of the chassis.

Component Proximity to High Thermals Every internal component can be affected by system thermals. Processors, chipsets, and drives can overheat. Cables can be heat damaged if they rest too close to components that are too hot.

Although there are certain components in a system that require more cooling, it is important to ensure that all components receive adequate airflow to keep them cool. It is also important to ensure that cables are routed so they do not interfere with airflow, and are not in a position to be damaged if a nearby component gets hot.

Cont'd

Thermal Considerations, Continued

Internal Thermal Considerations Different configurations of motherboards, chassis, and system components result in different internal thermal conditions.

You should conduct thermal testing on one reference system with few peripherals and on another with many peripherals. Build these reference systems with the highest power processor available for the motherboard.

When testing the temperature within the chassis, be sure to specifically check the temperature within the drive bay(s) to ensure that there is sufficient airflow to cool the drives.

Chassis Fans Two different types of fans can be inside the chassis:

- Intake fans
- Exhaust fans

The chassis can have a general chassis fan. If your processor has a cooling fan/heatsink combination, then an exhaust fan may be the best solution, because it will enhance the airflow moving through the chassis to evacuate radiated heatsink thermals out of the chassis enclosure.

If two fans are used, one should always be an intake fan and the other should always be an exhaust fan.

Cont'd

Thermal Considerations, Continued

Adequate vents must be included in the system design to allow intake fan air to exit the chassis. Vent location is also important. If vents are located next to the intake fan, cooling air will exit through the vent right away and never circulate through the chassis. If your system uses an intake fan, vents should be located at the far corner of the chassis from the fan.

Exhaust fans also require that adequate venting is included in the system design to promote air movement through the chassis. Again, vent location is important.

Systems with "hot" peripherals that require cooling tend to work better with exhaust fans, while cooling for the boxed processor is maintained with an active fan heatsink. You should test each system configuration to see whether an intake or exhaust fan works best for that configuration.

Chassis Design Airflow is directed through the chassis by fans and vents. The chassis design must influence the airflow's path through the system to distribute adequate cooling to all components.

Fan and vent placements are vital design elements in controlling system thermals. If the intake fan pulls in cooling air that does not flow freely towards the evacuation vent, warm air will not exit easily out of the chassis. If an exhaust fan is used, it should be located in the path of air moving through the chassis so it can push the warm air out.

Another important design element is the positioning of vents and fans relative to each other inside the chassis to ensure that air moving in and out of the chassis actually circulates through the chassis.

Cont'd

Thermal Considerations, Continued

A critical factor to both intake and exhaust fans is the importance of keeping vents clear. Avoid any obstructions to vents that might cause a blockage of airflow passing through them. Route cables and select peripherals carefully so that they do not block the vents. Make sure these components do not restrict the necessary airflow within the chassis itself. Vents should be located at the opposite corner of the chassis from the fan, so that air moves completely through the chassis before exiting.

Cooling Fan/Heatsink Combination A cooling fan/heatsink is a heatsink that has a fan connected directly to it that moves heated air away from the heatsink. Cooling fan/heatsinks increase the effectiveness of the heatsink by moving air directly over its surfaces. The fan draws cooler air in from the chassis and pushes warmer air out the side vents of the heatsink. It is then up to the system fans and vents to evacuate this warmed air from the chassis.

Temperature Ranges The following values are ambient temperatures inside the system case. The board temperatures reflect the Intel® Pentium® III 933 MHz CPU Heat dissipation requirements because they will be the hottest motherboard components. Temperature specifications vary with the CPU frequency.

Frequency	Heat Sink	Airflow over CPU	Airflow over other components	Temperature Range
All frequencies	YES	200 feet per minute	Not critical	0 ° through 50 ° C. ambient

You must make sure that there is adequate airflow over the CPU inside the case.

Humidity The recommended humidity range for operation of the motherboard is 20 percent to 80 percent non-condensing.

C AMIBIOS Beep Codes

Number of Beeps	Error Type
1	Refresh Failure
2	Parity Error
3	Base 64K Memory Failure
4	Timer Not Operational
5	Processor Error
6	Not Available. Usually, 8042 – Gate A20 Failure
7	Processor Exception Interrupt Error
8	Display Memory Read/Write failure
9	ROM Checksum Error
10	CMOS Shutdown Register Read/Write
11	Cache Memory Bad

Except for beep code #8, these codes are always fatal.

Troubleshooting AMIBIOS Beep Codes

- For 1 beep, 2 beeps, or 3 beeps try reseating the memory first. If the error still occurs, replace the memory with known good chips.
- For 4 beeps, 5 beeps, 7 beeps, or 10 beeps the system board must be sent in for repair.
- 8 beeps indicate a memory error on the video adapter. Replace the video card or the memory on the video card.
- 9 beeps indicate faulty BIOS chip(s). It is not likely that this error can be corrected by reseating the chips. Consult the motherboard supplier or an AMI product distributor for replacement part(s).

Cont'd

Troubleshooting AMIBIOS Beep Codes, Continued

- If no beeps are heard and no display is on the screen, The first thing to check is the power supply. Connect an LED to the POWER LED connection on the motherboard. If this LED lights and the drive(s) spin up then the power supply will usually be good.
 - Next, inspect the motherboard for loose components. A loose or missing CPU, BIOS chip, or Chipset chip will cause the motherboard not to function.
 - Next, eliminate the possibility of interference by bad or improperly set up I/O cables by removing all cards and cables except the video debug cable. The system should at least power up and wait for a drive time-out. Insert the card and cables back into the system one at a time until the problem happens again. When the system does nothing, the problem will be with the last expansion card or cable that was put in.
 - If the above suggestions fail to cause any change in the dysfunction of the system, the motherboard must be returned for repair.
-

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