

Technical Reference

**MB-P11
7-Slot Pentium® II
Motherboard with Intel 440LX Chipset**



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Features

- Pentium® II processor available from 233 MHz through 366 MHz.
- Intel 440LX chipset, supporting AGP, SDRAM, Ultra DMA/33 IDE and ACPI
- Supports CPU fan failure, overheat alarm and auto slow down CPU speed
- Supports Intel LDCM® Network Manageability
- Supports 3xDIMMs using 3.3 volt EDO or SDRAM DIMM modules
- Supports 8 MB through 384 MB SDRAM on-board memory
- Supports ECC or non-ECC type DRAM module
- Provides 1 ISA slot, 3 PCI slots, 1 shared ISA/PCI slot and 1 accelerated graphics port (AGP) slot
- Supports 2 channels of Ultra DMA/33 IDE ports for 4 IDE devices
- Supports 2 COM ports (16550), 1 LPT port (EPP/ECP), 1 floppy drive port
- Supports 2 universal serial bus (USB) ports, 1 PS/2 mouse/keyboard port

FCC Standards

The FCC (Federal Communications Commission) restricts the amount of radiation and radio frequency emissions coming from computing equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CSS Labs is not responsible for any radio or television interference caused by unauthorized modifications to this equipment. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

To ensure compliance to FCC non-interference regulations,

peripherals attached to this device require shielded I/O cables.

NOTICE: The use of a non-shielded I/O cable with this device is in violation of U.S. Federal law and will not allow the device to meet the maximum emission limits.

CAUTION: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Note: If you have purchased the miniature tower system, please note the following...

WARNING: The system is to be installed on desk or table tops only. The unit will become unstable if operated as a floor standing unit and unintentional force is applied to the top of the unit.

Turn the unit off and unplug the power cord before you open the cover to install any cards or peripheral devices.

WARNING

CAUTION: THERE IS A DANGER OF EXPLOSION IF THE BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

ATTENTION: IL Y A DANGER D'EXPLOSION S'IL Y A REMPLACEMENT INCORRECT DE LA BATTERIE. REMPLACER UNIQUEMENT AVEC UNE BATTERIE DU MEME TYPE OU D'UN TYPE RECOMMENDE PAR LE CONSTRUCTEUR. ETTERAU REBUT LES BATTERIES USAGEES CONFORMEMANT AUX INSTRUCTIONS DU FABRICATANT.

NOTICE

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Overview

This document describes the technical features of the motherboard. The topics include:

- **The Microprocessor** - description of the features of the Pentium II microprocessor
- **Motherboard** - illustration and brief description of the motherboard
- **Connectors** - description of connector locations and functions on the motherboard
- **Jumpers** - detailed description of the jumpers used to configure the motherboard
- **System Memory** - detailed description of system memory and how to add memory
- **System Memory Map** - listing of traditional address assignments for system memory
- **Configuration Utilities** - description and instructions for using the utility to configure the board's BIOS

The Microprocessor

The Pentium II microprocessor contains all the features of the Pentium and 80486 processors, and is 100% compatible with 8086/88, 80286, and 80386 DX and SX microprocessors. In addition, the Pentium II features:

- 64-bit Data Bus
- Superscalar Architecture
- Capability for executing two instructions in parallel.
- Pipelined Floating-Point Unit
- Separate 8 KB Code and 8 KB Data Caches (total 16 KB L1 cache)
- 256 KB or 512 KB internal L2 cache
- Bus Cycle Pipelining
- Writeback MESI Protocol in the Data Cache Internal Parity Checking
- IEEE 1149.1 Boundary Scan

It is available in a variety of speeds, from 233 MHz through 366 MHz.

The Motherboard

Cache Memory

The processor comes with 16 KB of L1 cache, and is available with 256 or 512 KB of internal L2 cache.

Accelerated Graphics Port

The Accelerated Graphics Port (AGP) is a port on the Host-to-PCI bridge that supports and AGP. The AGP provides fast access to system memory.

The AGP can be used as a fast PCI port (32 bits at 66 MHz versus 32 bits at 33 MHz), or as an AGP port supporting 2x data rate, a read queue and side band addressing.

Expansion Slots

There are a total of seven expansion slots and one accelerated graphics port (AGP). One slot provides an ISA bus, four slots are PCI busses and one PCI and one ISA are shared.

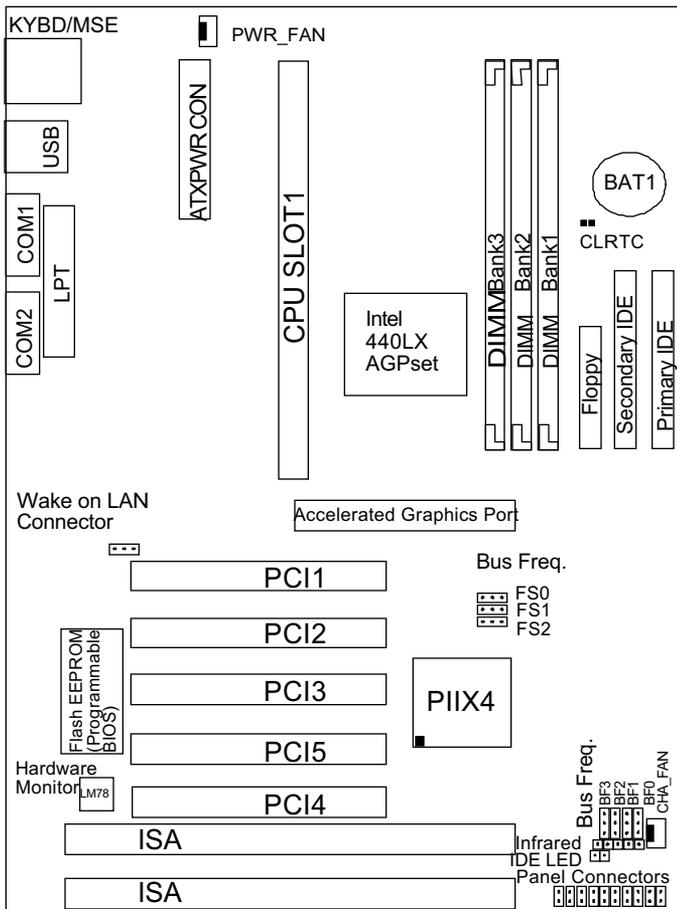


Figure 1: The Motherboard

Connectors

Connector	Description
COM1	Serial port 1
COM2	Serial port 2
LPT	Parallel port
USB	Universal Serial Bus
PS2KBD	PS/2 Keyboard
PS2MOUSE	PS/2 mouse port
PRI IDE	Primary IDE
SEC IDE	Secondary IDE
CHA_FAN	Chassis cooling fan
CPU_FAN	Processor cooling fan
PWR_FAN	Power supply fan
SPEAKER	Speaker (front panel)
RESET	Reset switch (front panel)
PWR LED	Power on LED (front panel)
IDELED	Hard drive LED
IR	Infrared option LED
PWR SW	Power ON/OFF switch (front panel)
MSG LED	System message LED (front panel)
SMI	SMI switch (front panel)
KEYLOCK	Keyboard lock (front panel)
POWER1	ATX power

Some of the board's connectors are described on the following pages.

Chassis, Processor and Power Supply Cooling Fans CHA_FAN, CPU_FAN, PWR_FAN

Pin	Assignment
1	Ground
2	+12 volt
3	Sense

Speaker

Pin	Assignment
1	VCC
2	NC
3	NC
4	Output

Reset Switch

The system's reset switch allows you to perform a partial, or "warm" boot.

Pin	Assignment
1	Ground
2	+12 volt

Power On LED PWR LED

The power ON LED provides visual confirmation that the system's power supply is providing power.

Pin	Assignment
1	LED power
2	NC
3	Ground

Hard Drive LED IDELED

The hard drive LED lights whenever the drive is being accessed by the system.

Pin	Assignment
1	LED power (+)
2	LED power (-)
3	NC
4	LED power (+)

Infrared IR

J7 connects to an optional infrared add-in controller. Infrared controllers can act as ports for a number of peripheral devices including mouse, printer and keyboard.

Pin	Assignment
1	IR data output
2	Ground
3	IR data input
4	NC
5	Power (+)

Jumpers

There are two sets of jumpers that configure the motherboard with the installed processor, and one jumper that allows you to clear real time clock (RTC) data from CMOS RAM. These are the CPU Bus Frequency (FS0, FS1, FS2), the CPU Core Bus Frequency (BF0, BF1, BF2, BF3) and CLRTC.

CPU Bus Frequency FS0, FS1, FS2

These jumpers tell the clock generator what frequency to send to the processor. This allows the selection of the processor's *external* frequency (or Bus Clock). The Bus Clock multiplied by the Bus Ratio equals the processor's internal frequency (the processor's advertised speed).

CPU Core Bus Frequency BF0, BF1, BF2, BF3

These jumpers set the frequency ratio between the *internal* frequency of the processor and the processor's external frequency. These must be set in conjunction with the CPU Bus Frequency jumpers.

Speed	Ratio	FS2	FS1	FS0	BF3	BF2	BF1	BF0
233 MHz	3.5	1-2	1-2	1-2	2-3	2-3	1-2	1-2
266 MHz	4	1-2	1-2	1-2	2-3	1-2	2-3	2-3
300 MHz	4.5	1-2	1-2	1-2	2-3	1-2	2-3	1-2
333 MHz	5	1-2	1-2	1-2	2-3	1-2	1-2	2-3

Clear Real Time Clock CLRTC

The CMOS RAM is powered by the onboard battery. To clear the RTC data, follow these steps:

- 1) Turn off the computer and unplug the AC power.
- 2) Short the two points labeled CLRTC by installing onto the pins and then removing a jumper shunt.
- 3) Plug in the AC power and turn on the computer.
- 4) Hold down the <Delete> key during bootup and enter BIOS setup to re-enter user preferences.

System Memory

Only dual inline memory modules (DIMM's) can be used with this motherboard. Three sockets are available for 3.3 volt unbuffered synchronous DRAMs (SDRAM) or EDO DRAM, of either 8, 16, 32, 64 or 128 MB to form a memory size between 8 MB and 384 MB.

To utilize the chipset's Error Checking and Correction (ECC) feature, you must use a DIMM module with nine chips per side (standard eight chips/side plus one parity chip) and make proper settings in the **BIOS Chipset Features Setup**.

Important: Memory speed setup is required through "Auto Configuration" in **BIOS Chipset Features Setup**.

Memory Configuration

Socket	128-pin DIMM Modules	Total
1	SDRAM/EDO 8, 16, 32, 64, 128 MB	
2	SDRAM/EDO 8, 16, 32, 64, 128 MB	
3	SDRAM/EDO 8, 16, 32, 64, 128 MB	
	Total System Memory (Max 384 MB)	

System Memory Map

Address (hex)	Name	Function
000000 to 9FFFFFFF	640 KB motherboard	system memory
0A0000 to 0BFFFF	128 KB video display ROM	reserved for graphics
0C0000 to 0DFFFF	128 KB I/O expansion ROM	reserved for ROM on I/O
0E0000 to 0EFFFF	64 KB reserved on motherboard	duplicate code assignment at FE0000
0F0000 to 0FFFFFFF	64 KB ROM on motherboard	duplicate code assignment at FF0000
100000 to FFFFFFFF	maximum memory is 15 MB	I/O channel memory
FE0000 to FEFFFF	64 KB reserved on motherboard	duplicate code assignment at 0E0000
FF0000 to FFFFFFFF	64 KB reserved on motherboard	duplicate code assignment at 0F0000

Timers

The system's three programmable timers/counters controlled by timer/counter chips are defined as channels 0 through 2 as indicated below:

- Channel 0: System Timer
- Channel 1: Refresh Request Generator
- Channel 2: Tone Generation for Speaker

System Interrupts

The processor has two controllers, supplying 16 IRQs. Below are assignments in decreasing priority.

LEVEL		FUNCTION
Microprocessor NMI		Parity or I/O Channel Check
Interrupt Controllers		
Ctrlr 1	Ctrlr 2	
IRQ0		
IRQ1		
IRQ2		
Interrupts IRQ8 - IRQ15 redirected to IRQ2		
	IRQ8	Real-Time clock interrupt
	IRQ9	Software re-directed to INT + AH (IRQ2)
	IRQ10	Reserved
	IRQ11	Reserved
	IRQ12	Reserved
	IRQ13	Coprocessor
	IRQ14	Fixed disk controller
	IRQ15	Reserved
IRQ3		Serial port 2
IRQ4		Serial port 1
IRQ5		Parallel port2
IRQ6		Diskette controller
IRQ7		Parallel port 1

Note: IRQ9, IRQ10, IRQ11, IRQ12, IRQ15, IRQ3, IRQ4, IRQ5 and IRQ7 can be redirected to PCI add-in boards.

The PCI standard has a 4-IRQ limitation. Some PCI add-in boards do not require IRQs. Some can share an IRQ with another board of the same model and manufacture. Check the add-in board's documentation for IRQ information.

Direct Memory Access

The system supports seven DMA channels:

Controller 1	Controller 2
Channel 0 - Spare	Channel 4 - Cascade for Controller 1
Channel 1 - SDLC	Channel 5 - Spare
Channel 2 - Diskette	Channel 6 - Spare
Channel 3 - Spare	Channel 7 - Spare

The first DMA controller holds channels 0 through 3. These channels support 8-bit data transfers between 8-bit I/O adapters and 8- or 16-bit system memory. Each channel can transfer data in 4 KB blocks.

The second DMA controller holds channels 4 through 7. Channel 4 cascades channels 0 through 3 to the microprocessor. Channel 5, 6 and 7 support 16-bit data transfers between 16-bit I/O adapters and 16-bit system memory. These DMA channels can transfer data throughout the 16 MB system-address space in 128 KB blocks.

Channel 5, 6 and 7 cannot transfer data on odd byte boundaries.

The I/O Address Map

Address (hex)	Function
000-01F	DMA #1
020-03F	INTR #1
040-05F	Timer
060-06F	Keyboard
070-07F	NMI mask register
080-09F	DMA page register
0A0-0BF	INTR #2
0C0-0DF	DMA #2
0F0-0F1	Clr/rst math coprocessor
0F8-0FF	Math coprocessor
1F0-1F8	Fixed disk
200-207	Joystick
278-27F	Secondary parallel port
2F8-2FF	Secondary serial port
300-31F	Prototype card
378-37F	Primary parallel port
380-38F	SDLC (secondary bisynchronous)
3A0-3AF	Primary bisynchronous
3B0-3BF	Monochrome display/printer adapter
3D0-3DF	Color/graphics monitor adapter
3F0-3F7	Diskette controller
3F8-3FF	Primary serial port

Configuration Utilities

Overview

BIOS Setup is a utility that defines and stores the configuration of the machine. When the system “boots”, the machine’s configuration loads into memory. Drives, video adapter, memory and keyboard are described to the system.

The program is built into the CMOS chip on the motherboard. To start the program, press the <Delete> key while the system is booting. The Utilities menu displays: If you discover after making and saving system changes that you have made a mistake, the BIOS lets you override the settings. Simply press <Insert> when you restart the computer.

ROM PCI/ISA BIOS CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES POWER MANAGEMENT SETUP PnP PCI CONFIGURATION SETUP LOAD BIOS DEFAULTS LOAD SETUP DEFAULTS	SUPERVISOR PASSWORD USER PASSWORD IDE HDD AUTO DETECTION EXIT WITHOUT SAVING
Esc: Quit F10 : Save & Exit Setup	↑↓→ : Select Item (Shift)F2 : Change Color
Time, Date, Hard Disk Type...	

Figure 2: The Main Menu

The following table gives a brief description of the Main Menu options.

Selection	Description
Standard CMOS	SetupStandard options for the computer.
BIOS Features Setup	Enhanced BIOS options.
Chipset FeaturesSetup	Options for the motherboard's chipset.
Power Management Setup	Advanced Power Management (APM) options.
PnP/PCIconfiguration	Plug and Play standard and PCI Local Bus configuration options.
Integrated Peripherals	I/O subsystems that depend on integrated peripherals controller on the motherboard.
IDE HDD Auto Detection	Automatically detect and configure IDE hard disk parameters.
Load Setup Defaults	Setup defaults are factory settings for optimal-performance operations.
User Password	Change, set of disable password. It allows you to limit access to the system and Setup, or just to Setup.
Save & Exit Setup	Save settings in CMOS and exit the program.
Exit Without Save	Abandon all changes and exit the program.

CMOS Setup Utility

This utility allows you to record your system setup.

ROM PCI/ISA BIOS CMOS SETUP UTILITY AWARD SOFTWARE, Inc.								
Date (mm/dd/yy)	: Friday, March 3, 1997							
Time (hh/mm/ss)	: 11:11:00							
	Type	Size	Cyls	Head	Precomp	LandZ	Sect	Mode
Pri Master	Auto							
Pri Slave	Auto							
Sec Master	Auto							
Sec Slave	Auto							
Floppy Drive A	: 1.44 MB 3 1/2							Base Memory: 640K
Floppy Drive B	: Not Installed							Extended Memory: 48182K
Video: EGA/VGA								Other Memory: 384K
Halt On : All Errors								Total Memory: 49152K
Esc: Quit			↑↓→ : Select Item		PgUp/PgDn : Modify			
F10 : Save & Exit Setup			<Shift> F2 : Change Color					

Figure 3: The Standard Setup Menu

The values represented in this table are used as an example, and may not match your BIOS settings.

The Setup Procedure

To start Setup, highlight STANDARD CMOS SETUP on the Main Menu, and press <ENTER>. The current system configuration stored in CMOS is displayed. The screen image displayed in figure X is an example, and may differ slightly from your display.

The current cursor position is highlighted. The following list shows how to move the cursor around the screen and make selections:

Key	Action
Left and right arrows	Moves the cursor left to right and right to left.
Up and down arrows	Moves cursor up and down, and from field to field.
<Enter>	Selects the setting and moves cursor to next field.
<F10>	Saves the settings and exits Setup.
<Esc>	Exit to main screen from submenu.
<F1>	Help.

The values represented in this table are used as an example, and may not match your BIOS settings.

The current cursor position is highlighted. The following list shows how to move the cursor around the screen and make selections:

In order to use the <PgUp> and <PgDn> keys on the numeric key pad, you must turn the <NumLock> off.

Alter only the items that need to be changed or reset. If a highlighted option is correct, skip the corresponding step.

- 1) Start by entering the current date in the following format: mm/dd/yy. March 3, 1991 would be entered as 03/03/91. Press <Enter> to continue.
- 2) Enter the current time using military style, hh:mm:ss. 4:11 p.m. is entered as 16:11:00. Press <Enter> to continue.

- 3) Use the <PgUp> and <PgDn> keys to toggle between the floppy drive types. The supported drive types are:
5.25" - 360 KB 3.5" - 720 KB
 - 1.2 MB - 1.44 MB
 - 2.88 MB

After you find your floppy drive type, press the <Enter> key. Repeat this procedure for Floppy drive B:, or press <Enter> again to skip to the next step.

- 4) Use the <PgUp> and <PgDn> keys to toggle between the different hard drive types.

The lower right hand side of the Setup menu displays information about your system board:

Base Memory Size The amount of base (conventional) memory, 0 to 640 KB.

Extended Memory Size The amount of expansion memory extended beyond base memory.

Other Memory Other type of memory, usually memory above base and below 1 MB.

When you have made all the necessary changes, verify that the settings are correct. Press the <Esc> key. The screen displays the following:

Write data into CMOS and exit (Y/N)? Y

Type "Y" or "N", and press <Enter>. Entering "N" will send you back to the Setup menu, where you can make additional changes. Entering "Y" causes the system to accept the changes. The screen clears and the system reboots.

BIOS Features Setup

The BIOS Features Setup allows you to fine tune some of the BIOS's special features. It is configured for your system at the factory.

The values represented in this table are used as an example, and may not match your BIOS settings.

ROM PCI/ISA BIOS BIOS FEATURES SETUP AWARD SOFTWARE, INC.	
CPU Internal Core Speed: 120 MHz Virus Warning: Disabled CPU Level 1 Cache: Enabled CPU Level 2 Cache: Enabled BIOS Update: Enabled CPU Fast String: Enabled Quick Power On Self Test: Enabled HDD Sequence SCSI/IDE First: IDE Boot Sequence: C, A Boot Up Floppy Seek: Disabled Floppy Disk Access Control: R/W IDE HDD Block Mode Sector: HDDMAX Security Option: System PS/2 Mouse Function Control: Auto PCI/VGA Palette Snoop: Disabled OS/2 Onboard Memory >64M: Disabled	Video BIOS Shadow: Enabled C8000-CBFFF Shadow: Disabled CC000-CFFFF Shadow: Disabled CC000-CFFFF Shadow: Disabled D0000-D3FFF Shadow: Disabled D4000-D7FFF Shadow: Disabled D8000-DBFFF Shadow: Disabled DC000-DFFFF Shadow: Disabled Boot Up Num Lock Status: On Typematic Rate Setting: Disabled Typematic Rate (Chars/Sec): 6 Typematic Delay (Msec): 250 Esc : Quit ↑↓→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

Figure 4: BIOS Features Setup

Chipset Features Setup

This option allows you to alter some of the technical features associated with the chipset. These values are optimized and set at the factory. The settings need only be changed if you are reconfiguring the system.

ROM PCI/ISA BIOS CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.	
EDO Auto Configuration: 60ns DRAM EDO Read Burst Timing: x222 EDO Write Burst Timing: x 222 EDO RAS to CAS Delay: 3T EDO RAS to CAS Delay: 3T SDRAM Configuration: 12ns SDRAM SDRAM RAS to CAS Delay: Auto SDRAM Precharge Time: Auto MA Wait State: AUto 16-bit I/O Recovery Time: 1 BUSCLK 8-bit I/O Recovery Time: 1 BUSCLK Graphics Aperture Size: 64 MB Video Memory Cache Mode: UC PCI 2.1 Support: Enabled Memory Hole at 15M-16M: Disabled DRAM are 64 (not 72) bits wide Data Integrity Mode: Non-ECC	Onboard FDC Controller: Enabled Onboard FDC Swap A&B: Enabled Onboard Serial Port 1: 3F8h/IRQ4 Onboard Serial Port 2: 2F8h/IRQ3 Onboard Parallel Port: 378h/IRQ7 Parallel Port Mode: ECP+EPP ECP DMA Select: 3 UART2 Use Infrared: Disabled IDE Ultra DMA Mode: Auto IDE0 Master PIO/DMA Mode: Auto IDE0 Slave PIO/DMA Mode: Auto IDE1 Master PIO/DMA Mode: Auto IDE1 Slave PIO/DMA Mode: Auto
	Esc : Quit ↑↓ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

Figure 5: BIOS Features Setup

The values represented in this table are used as an example, and may not match your BIOS settings.

Power Management

This option lets you select the type or degree of power saving for Doze, Standby and Suspend modes. See PM Timers for a brief description of both.

ROM PCI/ISA BIOS POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.	
Power Management : User Define Video Off Option : Suspend - Off Video Off Method : DPMS OFF **PM Timers** HDD Power Down : Disable Suspend Mode : Disable Suspend Mode : 1 minute **Power Up Control** PWR Button < 4 Secs : Soft Off PWR Up On Modem Act: Enabled AC PWR Loss Restart : Disabled Automatic Power Up : Disabled	**Fan Monitor** Chassis Fan Speed : 3300RPM CPU Fan Speed : 3800RPM Power Fan Speed : Ignore **Thermal Monitor** MB Temperature : 25C/77F **Voltage Monitor** VCORE Voltage : 3.3V +3.3V Voltage : 3.3V +5V Voltage : 5.0V +12V Voltage : 12.0V -12V Voltage : -12.0V -5V Voltage : -5V
	Esc : Quit ↑↓→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

Figure 6: Power Management Setup

Max Saving: Maximum power savings (SL processors only).

User Defined: Set each mode individually. Select time-out periods in PM Timers section.

Min Savings: Minimum savings. Inactivity period is 1 hour. in each mode, except hard drive.

Video Off Option Determines when to activate the video off feature for monitor power management.

The settings are *All Modes - Off*, *Always On*, *Suspend - Off*, and *Susp, Stby - Off*.

Video Off Method (DPMS Off) Determines the manner in which the monitor is blanked. The DPMS (display power management system) features allow the BIOS to control the video card display card if it supports the DPMS feature. *Blank Screen* only blanks the screen (use this for monitors without power management or “green” features). If set up in your system, your screen saver will not display with *Blank Screen* selected. *V/H SYNC + Blank* blanks the screen and turns off vertical and horizontal scanning.

The settings are *DPMS Off*, *DPMS Reduce ON*, *Blank Screen*, *V/H SYNC+Blank*, *DPMS Standby*, and *DPMS Suspend*.

PM Timers

This section controls the time-out settings for the Power Management scheme. The fields included in this section are *HDD Power Down*, which places the hard disk into its lowest power consumption mode, and *Doze*, *Standby* and *Suspend* system inactivation modes.

The system automatically wakes up from any power saving mode when there is system activity such as when a key is pressed or when there is activity detected from the enabled IRQ channels.

Power Up Control

This section determines the ways the system can be controlled when it is started or restarted, when modem activity is detected, or when power to the computer is interrupted and reapplied. The *Soft-Off* mode refers to powering off the system through a momentary button switch (ATX switch) or through the software as opposed to disconnecting the AC power by way of a rocker switch or other means.

Fan Monitor (xxxxRPM)

The onboard hardware monitor is able to detect the *Chassis Fan Speed*, *CPU Fan Speed* and the *Power Supply Fan Speed*. Set to *Ignore* only if necessary.

Thermal Monitor

The onboard hardware monitor is able to detect the CPU and motherboard (MB) temperatures. These values refresh upon keyentries. Set to *Ignore* only if necessary.

Voltage Monitor

The onboard hardware monitor is able to detect the voltages put out by the voltage regulators. These values refresh upon key entries. Set to *Ignore* only if necessary.

Note: If any of the monitored items are out of range, an error message will appear: “Hardware Monitor found an error, enter POWER MANAGEMENT SETUP for details”. You will then be prompted to “Press **F1** to continue, **DEL** to enter SETUP”.

PnP/PCI Configuration Setup

These settings are pre-set at the factory and should be altered with care.

The values represented in this table are used as an example, and may not match your BIOS settings.

ROM PCI/ISA BIOS (<P2L97>) PnP/PCI CONFIGURATION SETUP AWARD SOFTWARE, INC.	
PNP OS Installed : No	DMA 1 Used By ISA : No/ICU
Slot 1 (RIGHT) IRQ : Auto	DMA 3 Used By ISA : No/ICU
Slot 2 IRQ : Auto	DMA 5 Used By ISA : No/ICU
Slot 3 IRQ : Auto	ISA MEM Block BASE : No/ICU
Slot 4/5 (LEFT) IRQ : Auto	SYMBIOS SCSI BIOS : Auto
PCI Latency Timer : 32 PCI Clock	
IRQ 3 Used By ISA : No/ICU	
IRQ 4 Used By ISA : No/ICU	
IRQ 5 Used By ISA : No/ICU	
IRQ 7 Used By ISA : No/ICU	
IRQ 9 Used By ISA : No/ICU	
IRQ 10 Used By ISA : No/ICU	
IRQ 11 Used By ISA : No/ICU	
IRQ 12 Used By ISA : No/ICU	
IRQ 14 Used By ISA : No/ICU	
IRQ 15 Used By ISA : No/ICU	
	Esc : Quit : Select Item F1 : Help ↑↓/BD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

Figure 7: Plug and Play/PCI Setup

Integrated Peripherals Configuration Setup

This program lets you setup the components that are integrated onto the motherboard. These features include the E-IDE controller and drives, universal serial bus (USB) controller, floppy controller, serial ports and parallel port.

ROM PCI/ISA BIOS INTEGRATED PERIPHERALS SETUP AWARD SOFTWARE, INC.	
IDE HDD Block Mode	: Enabled
PCI Slot IDE 2 nd Channel	: Enabled
On-Chip Primary PCI IDE	: Enabled
On-Chip Secondary PCI IDE	: Enabled
IDE Primary Master PIO	: Enabled
IDE Primary Slave PIO	: Enabled
IDE Secondary Master PIO	: Enabled
IDE Secondary Slave PIO	: Enabled
USB Controller	: Enabled
Onboard FDC Controller	: Enabled
Onboard Serial Port 1	: COM1/3F8
Onboard Serial Port 2	: COM2/2F8
Onboard Parallel Port	: 378/IRQ7
Parallel Port Mode	: Compatible
ECP Mode Use DMA	: 0
EPP Version	: 1.7
InfraRed Duplex Type	: Disabled
Esc : Quit ↑↓→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

Figure 8: Integrated Peripherals Configuration Setup

The settings are pre-set at the factory and should be altered with care. The values represented in this table are used as an example, and may not match your BIOS settings.