

Technical Reference

SB-6862
Dual Pentium® Pro Single Board Computer
with Natoma Chipset



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Irvine, California 92614

Features

- Intel Pentium® Pro processor, upgradeable through 180 or 200 MHz; and dual Pentium® Pro upgrade
- Intel Natoma chipset
- Basic connectors provided for speakers, hard disk LED, reset/turbo LED, keylock, PS/2 mouse and CMOS battery
- System memory upgradeable to 1 GB using ‘x 64’ or ‘x 72’ dual inline memory modules (DIMM)
- Processor facilitated error correcting memory (ECC) using ‘x 72’ DIMM
- Processor-based cache: 256 KB or 512 KB on-board
- On-board E-IDE controller with separate master/slave IDE mode support for up to 4 IDE drives and support for up to 2 floppy drives
- On-board I/O: 2 serial, 2 universal serial bus (USB) and 1 parallel ports
- PS/2 keyboard mini-DIN connector; extra on-board PS/2 mouse connector

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 board. The topics include:

- The Microprocessor - description of the features of the Pentium® Pro microprocessor
- Board - illustration and brief description of the board
- Connectors - description of connector locations and functions on the board
- Jumpers - detailed description of the jumpers used to the board
- System Memory - detailed description of system memory how to add memory
- System Memory Map - listing of traditional address assignments for system memory
- Configuration Utilities - a description and instructions for the board's BIOS

The Microprocessor

The Pentium Pro 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 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 L1 cache)
- 256 KB or 512 KB internal L2 cache
- Bus Cycle Pipelining
- Writeback MESI Protocol in the Data Cache
- Internal Parity Checking

It is available in a variety of speeds, from 180 MHz through 200 MHz.

For additional information, talk to your authorized CSS Laboratories representative.

The Board

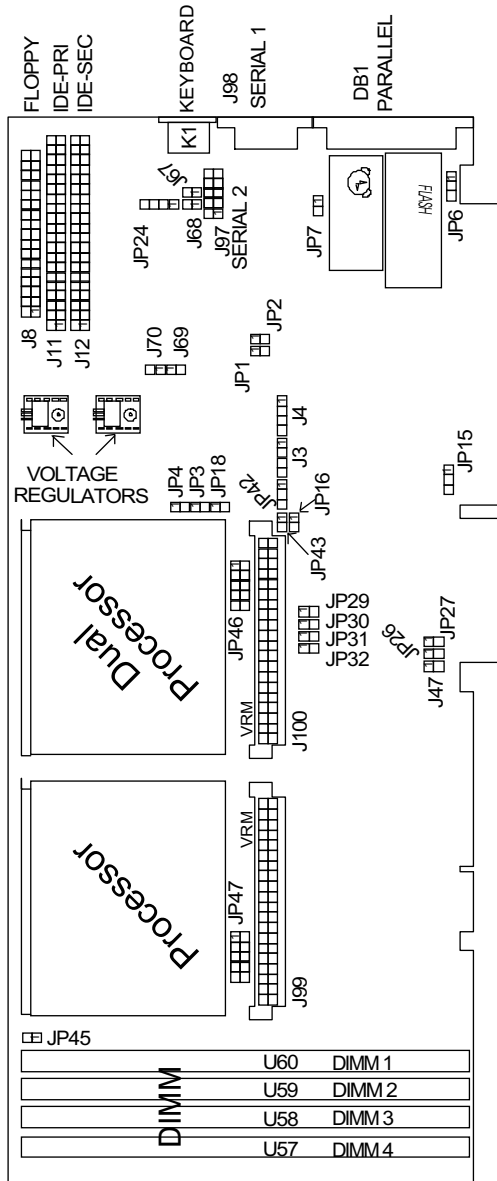


Figure 1: The Board

Voltage Regulator Module

A voltage regulator module installed on the board ensures that the correct voltage is provided to the particular processor installed.

When upgrading to the faster grade of Pentium processor, make sure to have the appropriate voltage regulator installed.

Board Connectors

Connector	Description
K1	Keyboard
J3, J4	Universal Serial Bus (USB)
J8	Floppy drive
J11	Primary IDE
J12	Secondary IDE
J98	Serial 1
J97	Serial 2
DB1	Parallel
JP18, JP45	12 volt CPU fans

Keyboard Connector K1

Keyboard plugs are keyed for proper installation.

Pin	Assignment	Pin	Assignment
1	Clock	4	Ground
2	Data	5	+5 Vdc
3	Not used		

Primary IDE Drive Header J11

J11 is the connector for the primary on-board PCI IDE drive controller. Pin 1 is marked. When connecting your hard drive, orient the cable's pin one with pin 1 of J11.

Secondary IDE Drive Header J12

J10 is the connector for the secondary on-board PCI IDE hard drive controller. Pin 1 is marked. Use this to cable your IDE hard drive. When connecting your hard drive, orient the ribbon's pin one with pin 1 of J71.

Parallel Port DB1

DB1 provides the connection for the board's parallel port.

Serial Port 1 Connector J98

J98 provides the connection for serial port 1 (COM 1).

Serial Port 2 Connector J97

J97 provides the connection for the board's serial port 2 (COM 2).

Floppy Drive Connector J8

J8 connects the floppy drive to the controller provided on the board.

Universal Serial Bus Connectors J3, J4

The motherboard provides two 4-pin universal serial bus (USB) connectors.

Fan Connectors JP18, JP45

These fans provide cooling for the powerful Pentium Pro processors. JP45 connects to the primary processor's fan. JP18 connects to the dual processor fan.

Pin	Assignment
1	12 volt
2	Ground

Jumpers

The board's jumpers are pre-configured at the factory. Read the following section carefully, before configuring your system.

The board has the following jumpers:

Jumper	Description
JP4	Processor bus clock speed
JP26, JP27	Processor bus frequency
JP32, JP31 JP30, JP29	Processor speed ratio
JP69, JP24 JP1, JP2, J70	Test pins (jumper closed)
J47, JP47, JP46	Test pins (jumper open)

Processor Bus Clock Speed JP4, JP3

Pentium Pro processors are designed with one of two bus clock speeds. The bus clock speed is always a fraction of the processor's internal speed.

Bus Clock Speed	JP4	JP3
60 MHz	IN	OUT
66 MHz	OUT	IN

Processor Bus Frequency JP26, JP27

JP26 and JP27 synchronize the processor bus frequency with the processor's speed.

Processor Bus Frequency	JP26	JP27
60 MHz	IN	OUT
66 MHz	OUT	IN

Processor Speed Ratio JP32, JP31, JP30, JP29

The Pentium Pro uses a clock multiplier to run at a speed faster than the processor bus.

These jumpers match the installed processor's speed with single board computer's defined processor speed.

When upgrading processors, you may need to adjust these jumpers.

Processor Speed Ratio	JP32	JP31	JP30	JP29
2x	ON	ON	ON	ON
2.5x	ON	ON	ON	OFF
3x	ON	ON	OFF	ON
4x	ON	OFF	ON	ON
4.5x	ON	OFF	ON	OFF

The following table matches processor speed, processor clock and the board's processor bus speed:

Processor Type/Speed	Clock Ratio	Processor Bus Speed
180 MHz	3x	60 MHz
200 MHz	3x	66 MHz

System Memory

There are a total of four banks available for memory upgrades. The board supports DIMM in the following combinations:

1M x 64/72	= 8 MB/bank
2M x 64/72	= 16 MB/bank
4M x 64/72	= 32 MB/bank
8M x 64/72	= 64 MB/bank
16M x 64/72	= 128 MB/bank
32M x 64/72	= 256 MB/bank

Installing and Removing DIMM

Read these instructions completely before installing or removing DIMMs. The DIMM is held by plastic press-clips on both sides of the slot.

Installing DIMM

- 1) Hold the DIMM so that the gold tab is pointing toward the slot. The DIMM is keyed so that it will only snap into the slot when positioned correctly.
- 2) Press one end of the DIMM until it inserts and its press-clip snaps into place.
- 3) Press the other end of the DIMM until it inserts and its press-clip snaps into place.

Removing DIMM

- 1) Pull both press-clips simultaneously, until the DIMM pops up from its slot.

System Memory Configuration

RAM	Bank 0	Bank 1	Bank 2	Bank 3
8 MB	1M x 64/72			
16 MB	1M x 64/72	1M x 64/72		
16 MB	2M x 64/72			
24 MB	1M x 64/72	1M x 64/72	1M x 64/72	
24 MB	1M x 64/72	2M x 64/72		
32 MB	1M x 64/72	1M x 64/72	1M x 64/72	1M x 64/72
32 MB	2M x 64/72	2M x 64/72		
32 MB	4M x 64/72			
32 MB	2M x 64/72	1M x 64/72	1M x 64/72	
32 MB	2M x 64/72	2M x 64/72		
40 MB	1M x 64/72	2M x 64/72	2M x 64/72	
40 MB	1M x 64/72	4M x 64/72		
40 MB	2M x 64/72	1M x 64/72	1M x 64/72	1M x 64/72
48 MB	4M x 64/72	1M x 64/72	1M x 64/72	
48 MB	2M x 64/72	2M x 64/72	2M x 64/72	
48 MB	2M x 64/72	4M x 64/72		
48 MB	4M x 64/72	1M x 64/72	1M x 64/72	
48 MB	4M x 64/72	2M x 64/72		
56 MB	1M x 64/72	2M x 64/72	2M x 64/72	2M x 64/72
56 MB	4M x 64/72	1M x 64/72	1M x 64/72	1M x 64/72
64 MB	2M x 64/72	2M x 64/72	2M x 64/72	2M x 64/72
64 MB	8M x 64/72			
64 MB	4M x 64/72	4M x 64/72		
64 MB	4M x 64/72	2M x 64/72	2M x 64/72	
64 MB	4M x 64/72	4M x 64/72		
72 MB	8M x 64/72	1M x 64/72		
72 MB	1M x 64/72	4M x 64/72	4M x 64/72	
80 MB	2M x 64/72	8M x 64/72		
80 MB	2M x 64/72	4M x 64/72	4M x 64/72	
80 MB	4M x 64/72	2M x 64/72	2M x 64/72	2M x 64/72
80 MB	8M x 64/72	1M x 64/72	1M x 64/72	

RAM	Bank 0	Bank 1	Bank 2	Bank 3
88 MB	8M x 64/72	1M x 64/72	1M x 64/72	1M x 64/72
96 MB	4M x 64/72	4M x 64/72	4M x 64/72	
96 MB	4M x 64/72	8M x 64/72		
104 MB	1M x 64/72	4M x 64/72	4M x 64/72	4M x 64/72
112 MB	2M x 64/72	4M x 64/72	4M x 64/72	4M x 64/72
128 MB	4M x 64/72	4M x 64/72	4M x 64/72	4M x 64/72
128 MB	8M x 64/72	8M x 64/72		
128 MB	16M x 64/72			
136 MB	16M x 64/72	1M x 64/72		
136 MB	1M x 64/72	8M x 64/72	8M x 64/72	
144 MB	2M x 64/72	16M x 64/72		
144 MB	2M x 64/72	8M x 64/72	8M x 64/72	
144 MB	16M x 64/72	1M x 64/72	1M x 64/72	
152 MB	16M x 64/72	1M x 64/72	1M x 64/72	1M x 64/72
160 MB	16M x 64/72	2M x 64/72	2M x 64/72	
160 MB	16M x 64/72	4M x 64/72		
160 MB	4M x 64/72	8M x 64/72	8M x 64/72	
176 MB	16M x 64/72	2M x 64/72	2M x 64/72	2M x 64/72
192 MB	8M x 64/72	8M x 64/72	8M x 64/72	
192 MB	16M x 64/72	4M x 64/72	4M x 64/72	
192 MB	16M x 64/72	8M x 64/72		
200 MB	1M x 64/72	8M x 64/72	8M x 64/72	8M x 64/72
208 MB	2M x 64/72	8M x 64/72	8M x 64/72	8M x 64/72
224 MB	4M x 64/72	8M x 64/72	8M x 64/72	8M x 64/72
224 MB	16M x 64/7	24M x 64/7	24M x 64/72	4M x 64/72
256 MB	8M x 64/72	8M x 64/72	8M x 64/72	8M x 64/72
256 MB	16M x 64/72	16M x 64/72		
256 MB	32M x 64/72			
256 MB	16M x 64/72	8M x 64/72	8M x 64/72	
256 MB	16M x 64/72	16M x 64/72		
264 MB	32M x 64/72	1M x 64/72		
264 MB	1M x 64/72	16M x 64/72	16M x 64/72	

RAM	Bank 0	Bank 1	Bank 2	Bank 3
272 MB	32M x 64/72	1M x 64/72	1M x 64/72	
272 MB	32M x 64/72	2M x 64/72		
272 MB	2M x 64/72	16M x 64/72	16M x 64/72	
280 MB	32M x 64/72	1M x 64/72	1M x 64/72	1M x 64/72
288 MB	32M x 64/72	4M x 64/72		
288 MB	32M x 64/72	2M x 64/72	2M x 64/72	
288 MB	4M x 64/72	16M x 64/72	16M x 64/72	
304 MB	32M x 64/72	2M x 64/72	2M x 64/72	2M x 64/72
320 MB	32M x 64/72	4M x 64/72	4M x 64/72	
320 MB	16M x 64/72	8M x 64/72	8M x 64/72	8M x 64/72
320 MB	32M x 64/72	8M x 64/72		
352 MB	32M x 64/72	4M x 64/72	4M x 64/72	4M x 64/72
384 MB	16M x 64/72	16M x 64/72	16M x 64/72	
384 MB	16M x 64/72	32M x 64/72		
384 MB	32M x 64/72	8M x 64/72	8M x 64/72	
392 MB	1M x 64/72	16M x 64/72	16M x 64/72	16M x 64/72
400 MB	2M x 64/72	16M x 64/72	16M x 64/72	16M x 64/72
416 MB	4M x 64/72	16M x 64/72	16M x 64/72	16M x 64/72
448 MB	32M x 64/72	8M x 64/72	8M x 64/72	8M x 64/72
512 MB	16M x 64/72	16M x 64/72	16M x 64/72	16M x 64/72
512 MB	32M x 64/72	32M x 64/72		
512 MB	32M x 64/72	16M x 64/72	16M x 64/72	
520 MB	1M x 64/72	32M x 64/72	32M x 64/72	
528 MB	2M x 64/72	32M x 64/72	32M x 64/72	
544 MB	4M x 64/72	32M x 64/72	32M x 64/72	
640 MB	16M x 64/72	32M x 64/72	32M x 64/72	
640 MB	32M x 64/72	16M x 64/72	16M x 64/72	16M x 64/72
768 MB	32M x 64/72	32M x 64/72	32M x 64/72	
776 MB	1M x 64/72	32M x 64/72	32M x 64/72	32M x 64/72
784 MB	2M x 64/72	32M x 64/72	32M x 64/72	32M x 64/72
800 MB	4M x 64/72	32M x 64/72	32M x 64/72	32M x 64/72
896 MB	16M x 64/72	32M x 64/72	32M x 64/72	32M x 64/72
1 GB	32M x 64/72	32M x 64/72	32M x 64/72	32M x 64/72

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 has three programmable timers/counters controlled by timer/counter chips and defined as channels 0 through 2 as follows:

- Channel 0: System Timer
- Channel 1: Refresh Request Generator
- Channel 3: 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		
Ctrl 1	Ctrl 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

The BIOS Setup utility stores your system's configuration. The utility described below provides a bridge to PCI slots in excess of the four allowed by current standards.

When your system "boots", it's configuration is read into main memory. Hard drives, floppy drives, video adapter, memory and keyboard are described to the system.

The BIOS is pre-configured at the factory. This document is an overview of the BIOS.

To start the program, press the <Delete> key while the system is booting. The Utilities menu screen will display:

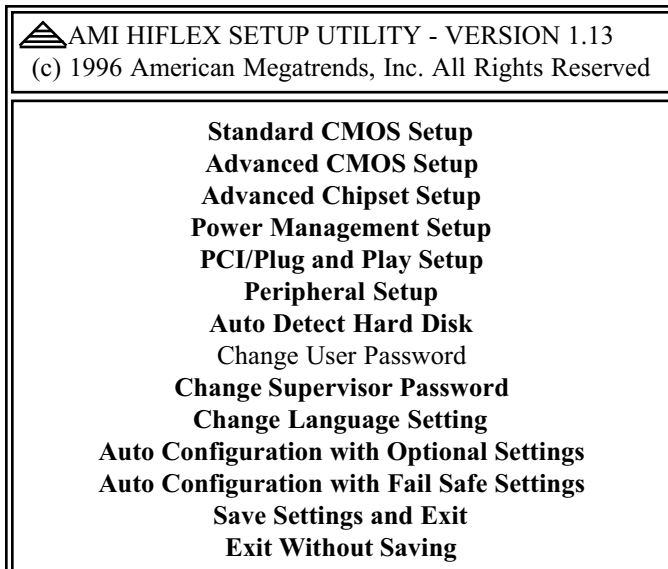


Figure 10: The Main Menu

The most commonly accessed selections are Standard CMOS Setup, Advanced CMOS Setup, Advanced Chipset Setup, Power Management Setup PCI/Plug and Play Setup, and Peripheral Setup.

Standard Setup

This utility allows you to record your system setup.

To start SETUP, Double-click on the **Standard Setup** icon on the Main Menu. Alter only the items that need to be changed or reset. If a selected option is correct, skip the corresponding step.

AMI BIOS SETUP - STANDARD CMOS SETUP										
(c) 1996 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yy)	:	Friday, March 3, 1997	Base Memory							640 KB
Time (hh/mm/ss)	:	11:11:00	Extd Memory							: 15 MB
Floppy Drive A	:	1.44 MB 3 1/2								
Floppy Drive B	:	Not Installed								
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32bit Mode
Pri Master	Auto									
Pri Slave	Auto									
Sec Master	Auto									
Sec Slave	Auto									
Boot Sector Virus Protection			Disabled							
Month:	Jan - Dec					Esc: Exit	↑↓		: Sel	
Day :	01 - 31					PgUp/PgDn : Modify				
Year :	1901 - 2099					F2/F3 : Color				

Figure 11: The Standard Setup Menu

Pri Master Primary master IDE/PCI hard drive. Define the parameters of your hard disk and modes. The default setting is Auto, to auto-detect drive type.

Pri Slave Primary slave IDE/PCI hard drive. Define the parameters of your hard disk and modes. The default setting is Auto, to auto-detect drive type.

Sec Master Secondary master IDE/PCI hard drive, if installed. Define the parameters of your hard disk and modes. The default setting is Not Installed.

Sec Slave Secondary slave IDE/PCI hard drive, if installed. Define the parameters of your hard disk and modes. The default setting is Not Installed.

Note: You may also manually enter the hard disk parameters. Two helpful tables appear at the end of this section. One describes drive parameters, and the other is a list of various hard drive parameters.

Floppy Drive A:/Floppy Drive B Select the type that matches the drive installed. Scroll through the fields using the up and down arrows. You may select from the following:

5.25"	3.5"
360 KB	720 KB
1.2 MB	1.44 MB
	2.88 MB

Date/Time Enter new values through the keyboard.

Use the arrow keys to toggle between items. Available options for the highlighted item are displayed on the right side of the menu. Press <PgUp> or <PgDn> to toggle through available options.

Advanced Setup

Advanced Setup allows you to fine tune some of the special features. These features are pre-set for you at the factory. Double-click the Advanced Setup icon on the Main Menu.

Use the arrow keys to toggle between items. Available options for the highlighted item are displayed on the right side of the menu. Press <PgUp> or <PgDn> to toggle through available options.

AMI BIOS SETUP - ADVANCED CMOS SETUP (c) 1996 American Megatrends, Inc. All Rights Reserved		
Quick Boot	Enabled	Available Options:
1st Boot Device	IDE-0	Disabled
2nd Boot Device	FLOPPY	Enabled
3rd Boot Device	CDROM	
Try Other Boot Devices	Yes	
Initial Display Mode	BIOS	
Display Mode at Add-On ROM Init	Force BIOS	
Floppy Access Control	Read Write	
Hard Disk Access Control	Read Write	
S.M.A.R.T. for Hard Disk	Disable	
Boot Up NumLock	On	
PS/2 Mouse Support	Enabled	
Primary Display	VGA/EGA	
Password Check	Setup	
Boot to OS/2	No	
CPU MicroCode Updation	Enabled	
P6 Internal Cache	Write Back	
System BIOS Cacheable	Enabled	Esc: Exit ↑↓ : Sel
C000, 16k Shadow	Cached	PgUp/PgDn : Modify
C400, 16k Shadow	Cached	F2/F3 : Color

Figure 12: The Advanced Setup Menu

Advanced Chipset Setup

This option lets you configure some of the advanced features of your particular system through the chipset. It was pre-configured at the factory and need not be altered. Double-click on the Chipset Setup icon on the Main Menu.

Use the arrow keys to toggle between items. Available options for the highlighted item are displayed on the right side of the menu. Press <PgUp> or <PgDn> to toggle through available options.

AMI BIOS SETUP - ADVANCED CHIPSET SETUP (c) 1996 American Megatrends, Inc. All Rights Reserved		
USB Function	Disabled	Available Options: Disabled
USB KB/Mouse Legacy Support	Disabled	
USB Passive Release Enable	Disabled	Enabled
DRAM Speed (ns)	70	
DRAM Integrity Mode (ECC)	Disabled	
DRAM Fast head off	Disabled	
DRAM Refresh Type	CAS/RAS	
DRAM Refresh Queue	Enabled	
DRAM ECC Mode	Disabled	
VGA Frame Buffer USWC	Disabled	
PCI Frame Buffer USWC	Disabled	
Fixed Memory Hole	Disabled	
CPU to IDE Posting	Enabled	
USWC Write Posting	Disabled	
CPU to DRAM Pipeline	Enabled	
PCI Burst Write Combine	Enabled	
Read Around Write	Enabled	
Deturbo Mode	Disabled	Esc: Exit ↑↓: Sel
TypeF DMA Buffer Control 1	Disabled	PgUp/PgDn : Modify F2/F3 : Color

Figure 13: The Chipset Setup Menu

Power Management Setup

This utility lets you set the “green” functionality parameters.

AMI BIOS SETUP - POWER MANAGEMENT SETUP (c) 1996 American Megatrends, Inc. All Rights Reserved		
Standard Power Management	Enabled	Available Options:
Advanced Power Mngmt (APM)	Disabled	Disabled
Instant-On Timeout (minutes)	N/A	Enabled
Auxiliary Power Supply Timeout	Disabled	
DPMS Video Power Supply Timeout	Disabled	
Green PC Monitor Power State	Disabled	
Hard Disk Power Down Mode	Disabled	
Hard Disk Time Out (Minutes)	Disabled	
Standby Time Out (Minutes)	Disabled	
Suspend Time Out (Minutes)	Disabled	
Slow Clock Ratio	1:1	
IRQ3	Ignore	
IRQ4	Ignore	
IRQ5	Ignore	
IRQ7	Ignore	
IRQ9	Ignore	
IRQ10	Ignore	Esc: Exit ↑↓ : Sel
IRQ11	Ignore	PgUp/PgDn : Modify
IRQ15	Ignore	F2/F3 : Color

Figure 12: The Advanced Setup Menu

Instant On Timer is a green mode timer letting you wake the system up as it is triggered.

IRQ3, 4, 5, 7, 9, 10, 11, 12, 13, 14, 15 can be ignored or monitored. Monitored, IRQ activity wakes up the system.

Use the arrow keys to toggle between items. Available options for the highlighted item are displayed on the right side of the menu. Press <PgUp> or <PgDn> to toggle through available options.

PCI/PnP Setup

This menu allows you to define attributes of the PCI bus portion of the motherboard.

AMI BIOS SETUP - PLUG AND PLAY SETUP (c) 1996 American Megatrends, Inc. All Rights Reserved		
Plug and Play O/S	No	Available Options:
PCI Latency Timer (PCI Clocks)	64	Disabled
PCI VGA Palette Snooping	Disabled	Enabled
PCI IDE Bus Master	Disabled	
OffBoard PCI IDE Card	Auto	
OffBoard PCI IDE Primary IRQ	Disabled	
OffBoard PCI IDE Secondary IRQ	Disabled	
DMA Channel 0	PnP	
DMA Channel 1	PnP	
DMA Channel 3	PnP	
DMA Channel 5	PnP	
DMA Channel 6	PnP	
DMA Channel 7	PnP	
IRQ3	PCI/PnP	
IRQ4	PCI/PnP	
IRQ5	PCI/PnP	
IRQ7	PCI/PnP	
IRQ9	PCI/PnP	
IRQ10	PCI/PnP	Esc: Exit ↑↓ : Sel
IRQ11	PCI/PnP	PgUp/PgDn : Modify
IRQ15	PCI/PnP	F2/F3 : Color

Figure 15: The PCI/Plug and Play Setup Menu

Use the arrow keys to toggle between items. Available options for the highlighted item are displayed on the right side of the menu. Press <PgUp> or <PgDn> to toggle through available options.

Peripheral Setup

This menu allows you to specify the peripherals installed on your motherboard.

On-board IDE enables the on-board chipset E-IDE function.

Use the arrow keys to toggle between items. Press <Enter> to access the drop down selection menu.

Use the arrow keys to toggle between options. Press <Enter> to make a selection.

AMI BIOS SETUP - PERIPHERALS SETUP (c) 1996 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	Auto	Available Options: Disabled Enabled Esc: Exit ↑↓ : Sel PgUp/PgDn : Modify F2/F3 : Color
OnBoard Serial Port 1	Auto	
OnBoard Serial Port 2	Auto	
OnBoard Parallel Port	Auto	
Parallel Port Mode	ECP	
Parallel Port DMA Channel	3	
Parallel Port IRQ	Auto	
OnBoard IDE	Both	

Figure 16: The Periperals Setup Menu

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