

Tyan S1856 Tomahawk BX/A+

Addendum

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Addendum

AMI BIOS Configuration

The AMIBIOS Setup screen is shown below.

```

  AMI BIOS EASY SETUP UTILITY Ver.1.16
  (c)1998 American Megatrends, Inc. All Rights Reserved
  Main  Advanced  Security  Exit

  System Date Thu Oct 15 1998
  System Time 12:55:37

  Floppy Drive A 1.44 MB 3¼
  Floppy Drive B Not Installed

  Primary IDE Master Auto
  Primary IDE Slave Auto
  Secondary IDE Master Auto
  Secondary IDE Slave Auto

  Auto-Detect Hard Disks [ Enter ]

  Boot Sector Virus Protection Disabled

  Setup Help
  Month: Jan - Dec
  Day: 01 - 31
  Year: 1901 - 2099

  ↑ Previous Item
  ↓ Next Item
  ← Select Menu

  ESC:Exit Enter:Select F5:Setup Defaults F6:Original Values F10:Save & Exit
  
```

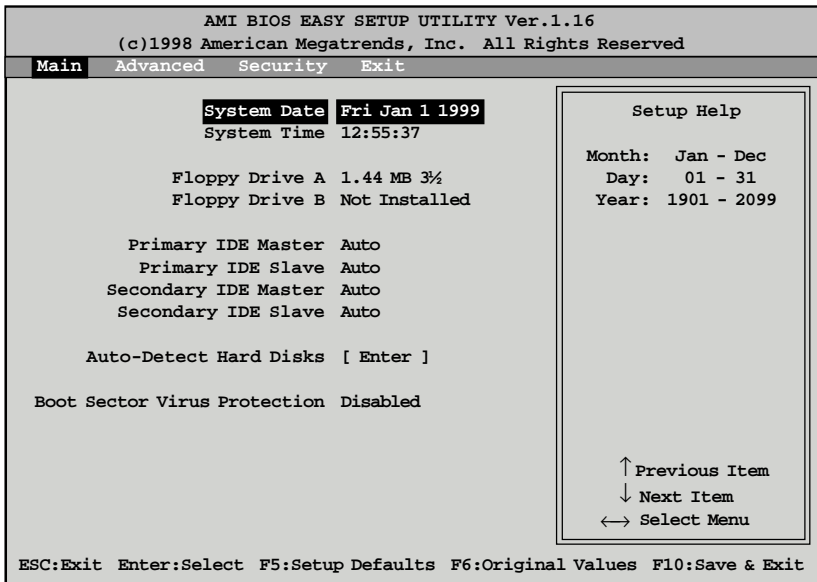
You can select a Setup option by using the following keyboard keys:

Key	Function
Tab	Moves from one box to the next
Arrow keys	Changes selections within a box
Enter	Opens highlighted selection

The pages which follow contain explanations of the settings for the AMIBIOS Setup menus. Drawings have been included for ease of reference. Overall, the AMIBIOS Setup program is easy to use, and fairly intuitive. Note that the graphics in the manual are simpler than those that appear on your screen.

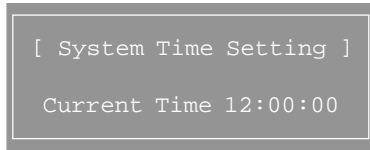
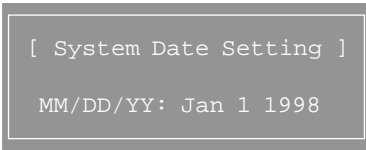
Main Setup

Select the AMIBIOS Setup options below by choosing Main Setup from the AMIBIOS Setup main menu. The Standard Setup menu screen is shown below.



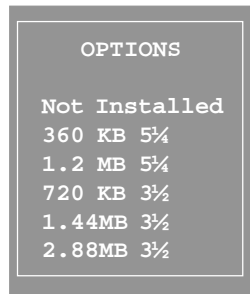
System Date/Time

You can type the date and time in directly, or select the portion of the date or time that you want to modify and adjust it using the ↑ ↓ cursor keys. The clock runs on a 24-hour cycle (i.e. 1:00 PM is 13:00).



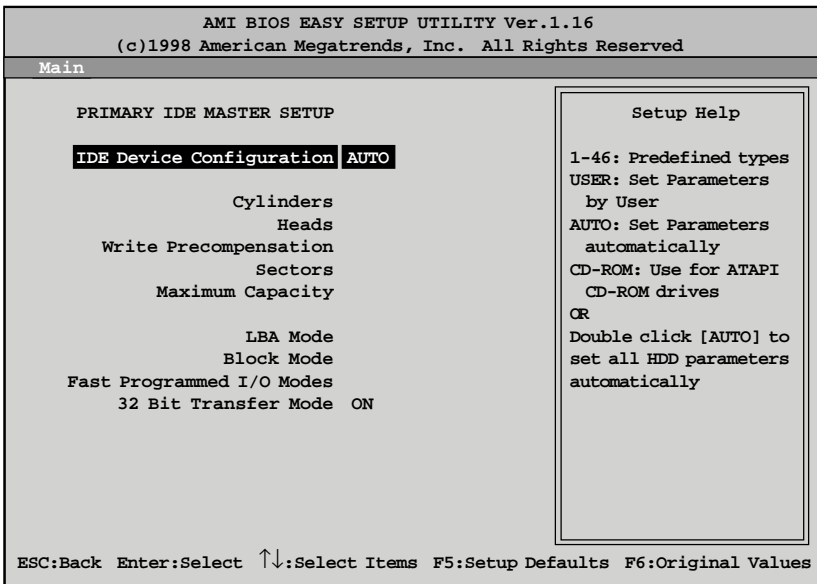
Floppy Drive A: and B:

Move the cursor to these fields via the arrow keys and select the floppy type. The settings are 360KB 5¼ inch, 1.2 MB 5¼ inch, 720KB 3½ inch, 1.44MB 3½ inch, or 2.88MB 3½ inch. If you are not sure what type of floppy drive you have, consult the documentation that came with your drive.



Primary Master, Primary Slave, Secondary Master, Secondary Slave

Select these options to configure the various drives. A screen with a list of drive parameters appears.



IDE Device Configuration: To have the BIOS autodetect the IDE drive, select Auto. Otherwise, you may choose one of the 46 drive types offered, or enter the parameters yourself (see Entering Drive Parameters on page 42). Consult the table below to see how to configure various drive types yourself.

Type	How to Configure
SCSI	Select <i>Type</i> . Select <i>Not Installed</i> on the drive parameter screen. The SCSI drivers provided by the SCSI manufacturer should allow you to configure the SCSI drive.
IDE	Select <i>Type</i> . Select <i>Auto</i> to let AMIBIOS determine the parameters. Click on <i>OK</i> when AMIBIOS displays the drive parameters. Select <i>LBA Mode</i> . Select <i>On</i> if the drive has a capacity greater than 540MB. Select <i>Block Mode</i> . Select <i>On</i> to allow block mode data transfers. Select <i>32-Bit Mode</i> . Select <i>On</i> to allow 32-bit data transfers. Select the <i>PIO Mode</i> . It is best to select <i>Auto</i> to allow AMIBIOS to determine the PIO mode. If you select a PIO mode that is not supported by the IDE drive, the drive will not work properly. If you are absolutely certain that you know the drive's PIO mode, select PIO mode 0-4, as appropriate.
CD-ROM	Select <i>Type</i> . Select <i>CDROM</i> . Click on <i>OK</i> when AMIBIOS displays the drive parameters.
Standard MFM	(MFM drives are older IDEs which use an encoding scheme that produces slower data access and less storage room.) Select <i>Type</i> . You must know the drive parameters. Select the drive type that exactly matches your drive's parameters.
Non-Standard MFM	Select <i>Type</i> . If the drive parameters do not match the drive parameters listed for drive types 1-46, select <i>User</i> and enter the correct hard disk drive parameters.

LBA/Large Mode: These modes make it possible for the BIOS to take advantage of the additional space on drives which are larger than 504MB. This can be autodetected (when you select Auto for Type), or you can turn the modes On or Off yourself.

Block Mode: If On, Block Mode automatically detects the optimal number of block read/writes per sector that the drive can support.

Fast Programmed I/O Modes: Programmed Input/Output is a method of transmitting data between devices that uses the system's CPU as part of the data path. There are 6 modes - 5 with their own transmission speed and 1 auto mode. To use modes 3 and 4, you must be using an Enhanced IDE drive.

PIO Mode	Data Transfer Rate (MBps)
Auto	
0	3.3
1	5.2
2	8.3
3	11.1
4	16.6

32bit Transfer Mode: If On, allows for the transmission of 32 bits in parallel (i.e. at the same time). If Off, only 16 bits will be transmitted in parallel.

Entering Drive Parameters

If you select User for the drive Type, you can enter the hard disk drive parameters yourself. The drive parameters are as follows:

Parameter	Description
Type	The number for a drive with certain identification parameters (see the next page for a table of drive types).
Cylinders (Cyl)	The number of cylinders in the disk drive.
Heads (Hd)	The number of heads.
Write Precompensation (WP)	The actual physical size of a sector gets progressively smaller as the track diameter diminishes. Yet, each sector must still hold 512 bytes. Write precompensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors on inner tracks. This parameter is the track number on the disk surface where write precompensation begins.
Sectors (Sec)	The number of sectors per track. MFM drives have 17 sectors per track. RLL drives have 26 sectors per track. ESDI drives have 34 sectors per track. SCSI and IDE drives have even more sectors per track.
Size	The formatted capacity of the drive is the number of heads times the number of cylinders times the number of sectors per track times 512 (bytes per sector).

Auto-Detect Hard Disks

This option lets the system detect your hard disk(s) automatically for your convenience.

Boot Sector Virus Protection

The available settings for this option are 'Enable' and 'Disable'.

Default Settings

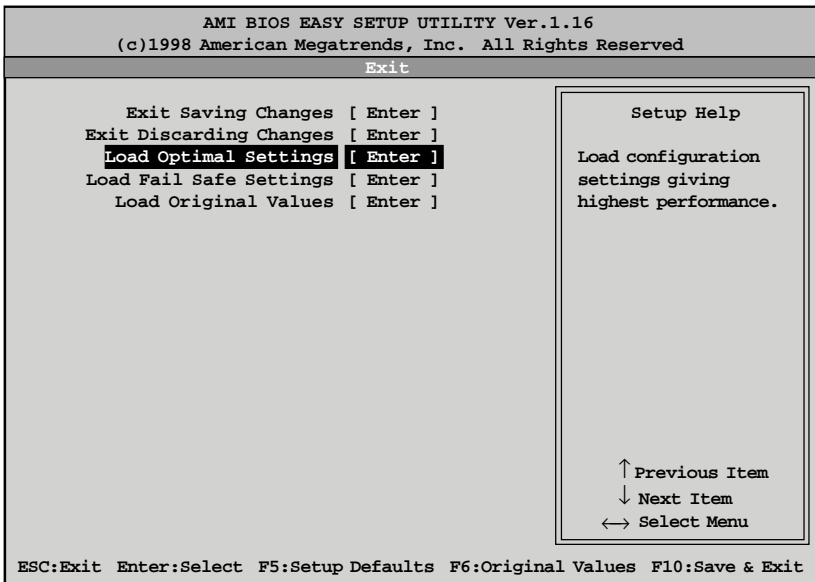
Every option in AMIBIOS Setup contains two default values: a Fail-Safe default and the Optimal default value. You can also choose to restore the original BIOS settings (i.e. those that your board came with) at any time. These options can be found in the 'Exit' menu.

Optimal Defaults

The Optimal default values provide optimum performance settings for all devices and system features.

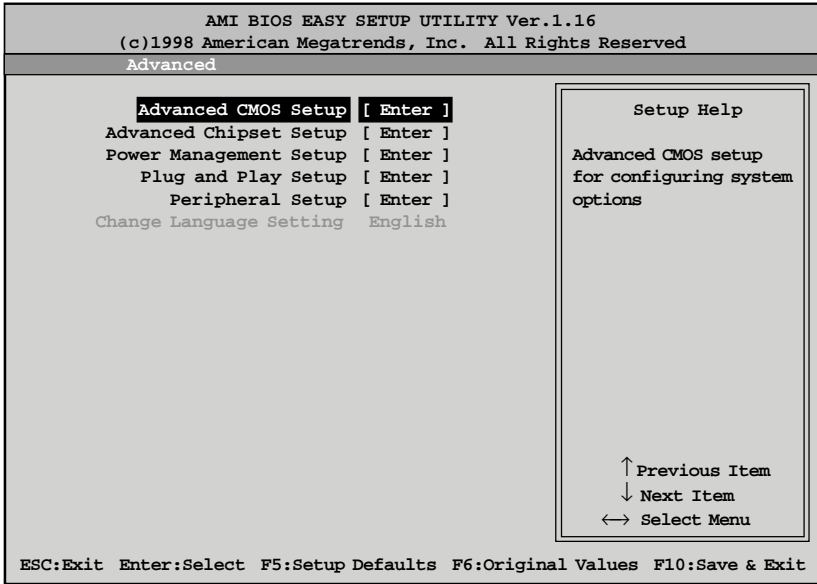
Fail-Safe Defaults

The Fail-Safe default settings consist of the safest set of parameters. Use them if the system is behaving erratically. They should always work but do not provide optimal system performance characteristics.



Advanced CMOS Setup

The Advanced Setup options included in the AMIBIOS Setup for the Thunder X are described in this chapter. Select Advanced Setup from the AMIBIOS Setup main menu to display the Advanced Setup options.



Advanced CMOS Setup Default Settings Chart

Setting Option	Optimal Default	Fail-Safe Default
Quick Boot	Disabled	Disabled
Primary Master ARMD Emulated as	Auto	Auto
Primary Slave ARMD Emulated as	Auto	Auto
Secondary Master ARMD Emulated as	Auto	Auto
Secondary Slave ARMD Emulated as	Auto	Auto
1st Boot Device	Floppy	Floppy
2nd Boot Device	1st IDE-HDD	1st IDE-HDD
3rd Boot Device	ATAPI CDROM	ATAPI CDROM
Try Other Boot Devices	Yes	Yes
Floppy Access Control	Read-Write	Read-Write
Hard Disk Access Control	Read-Write	Read-Write

Settings Chart (Continued)

Setting Option	Optimal Default	Fail-Safe Default
S.M.A.R.T. for Hard Disks	Disabled	Disabled
Boot Up Num-Lock	On	On
PS/2 Mouse Support	Enabled	Enabled
Primary Display	VGA/EGA	VGA/EGA
Password Check	Setup	Setup
Boot To OS/2	No	No
Internal Cache	WriteBack	WriteBack
System BIOS Cacheable	Enabled	Disabled
Cache Bus ECC **	Enabled	Enabled
Default Primary Video	AGP	AGP
MPS Revision	1.1	1.1
C000,16K Shadow	Cached	Cached
C400,16K Shadow	Cached	Cached
C800,16K Shadow	Disabled	Disabled
CC00,16K Shadow	Disabled	Disabled
D000,16K Shadow	Disabled	Disabled
D400,16K Shadow	Disabled	Disabled
D800,16K Shadow	Disabled	Disabled
DC00,16K Shadow	Disabled	Disabled

** Setting option not selectable

Advanced Setup

Quick Boot

Set this option to Enabled to instruct AMIBIOS to boot quickly when the computer is powered on. This option replaces the old Above 1 MB Memory Test Advanced Setup option. The settings are:

Setting	Description
Disabled	AMIBIOS tests all system memory. AMIBIOS waits up to 40 seconds for a READY signal from the IDE hard disk drive. AMIBIOS waits for .5 seconds after sending a RESET signal to the IDE drive to allow the IDE drive time to get ready again. AMIBIOS checks for a <De> key press and runs AMIBIOS Setup if the key has been pressed.
Enabled	AMIBIOS does not test system memory above 1MB. AMIBIOS does not wait up to 40 seconds for a READY signal from the IDE hard disk drive. If a READY signal is not received immediately from the IDE drive, AMIBIOS does not configure that drive. AMIBIOS does not wait for .5 seconds after sending a RESET signal to the IDE drive to allow the IDE drive time to get ready again. You cannot run AMIBIOS Setup at system boot, because there is no delay for the Hit to run Setup message.

Pri/Sec Master/Slave ARMD Emulated as

ATAPI Removable Media Disks (e.g. ZIP drives) are hybrid drives. They are removable, and can be used as floppy drives, but also have great capacity and so are sometimes used as hard drives. These four options ensure that, if you have an ARMD attached as a master or slave device, it can be properly detected by the system. The settings are Auto, Floppy, and Hard Disk.

1st Boot Device

This option sets the type of device for the first boot drive that the AMIBIOS attempts to boot from after AMIBIOS POST completes. The settings are Disabled, 1st IDE-HDD, 2nd IDE-HDD, 3rd IDE-HDD, 4th IDE-HDD, Floppy, ARMD-FDD, ARMD-HDD, ATAPI CDROM, SCSI, NETWORK, and I₂O.

2nd Boot Device

This option sets the type of device for the second boot drive that the AMIBIOS attempts to boot from after AMIBIOS POST completes. The settings are Disabled, 1st IDE-HDD, 2nd IDE-HDD, 3rd IDE-HDD, 4th IDE-HDD, Floppy, ARMD-FDD, ARMD-HDD, ATAPI CDROM, and SCSI.

3rd Boot Device

This option sets the type of device for the third boot drive that the AMIBIOS attempts to boot from after AMIBIOS POST completes. The settings are Disabled, 1st IDE-HDD, 2nd IDE-HDD, 3rd IDE-HDD, 4th IDE-HDD, Floppy, ARMD-FDD, ARMD-HDD, ATAPI CDROM.

Try Other Boot Devices

Set this option to Yes to instruct AMIBIOS to attempt to boot from any other drive in the system if it cannot find a boot drive among the drives specified in the 1st Boot Device, 2nd Boot Device, and 3rd Boot Device options. The settings are Yes or No.

Floppy Access Control

This option specifies the read-write access that is set when booting from a floppy drive. The settings are Read-Write or Read-Only.

Hard Disk Access Control

This option specifies the read-write access that is set when booting from a hard disk drive. The settings are Read-Write or Read-Only.

S.M.A.R.T. for Hard Disks

Set this option to Enabled to permit AMIBIOS to use the SMART (System

Management and Reporting Technologies) protocol for reporting server system information over a network. Enabling this feature allows you to back up your data when your hard disk is about to fail. The settings are Enabled or Disabled.

Boot Up Num-Lock

Set this option to Off to turn the Num Lock key off when the computer is booted so you can use the arrow keys on both the numeric keypad and the keyboard. The settings are On or Off.

PS/2 Mouse Support

Set this option to Enabled to enable AMIBIOS support for a PS/2-type mouse. The BIOS will allocate IRQ12 for the PS/2 mouse. The settings are Enabled or Disabled.

Primary Display

This option configures the type of monitor attached to the computer. The settings are Absent, VGA/EGA, CGA40x25, CGA80x25, or Mono.

Password Check

This option enables password checking every time the system boots or when you run AMIBIOS Setup. If Always is chosen, a user password prompt appears every time the computer is turned on. If Setup is chosen, the password prompt appears if AMIBIOS is executed.

Boot To OS/2

Set this option to Yes if you are running an OS/2 operating system and using more than 64 MB of system memory on the motherboard. The settings are Yes or No.

Internal Cache

This option sets the type of caching algorithm used by the L1 internal cache memory on the CPU. The settings are Disabled, WriteThru, or WriteBack.

System BIOS Cacheable

When set to Enabled, the contents of the F0000h system memory segment can be read from or written to cache memory. The contents of this memory segment are copied from the BIOS ROM to system RAM for faster execution. The settings are Enabled or Disabled. The Optimal default setting is Enabled.

Cache Bus ECC

When Enabled, this option permits ECC error checking on the L2 cache bus. This ensures that cached data is not improperly altered. The settings are Enabled or Disabled.

Default Primary Video

This option sets the primary video card as either AGP (Accelerated Graphics Port) card or a regular PCI video card. The settings are AGP or PCI.

MPS Revision

This option sets the Multi-Processor Symmetry. Then settings are 1.1 or 1.4.

C000,16K Shadow and C400,16K Shadow

These options specify how the 32 KB of video ROM at C0000h is treated. The settings are:

Setting	Description
Disabled	The contents of the video ROM are not copied to RAM.
Enabled	The contents of the video ROM area from C000h-C7FFFh are copied (shadowed) from ROM to RAM for faster execution.
Cached	The contents of the video ROM area from C000h-C7FFFh are copied from ROM to RAM and can be written to or read from cache memory.

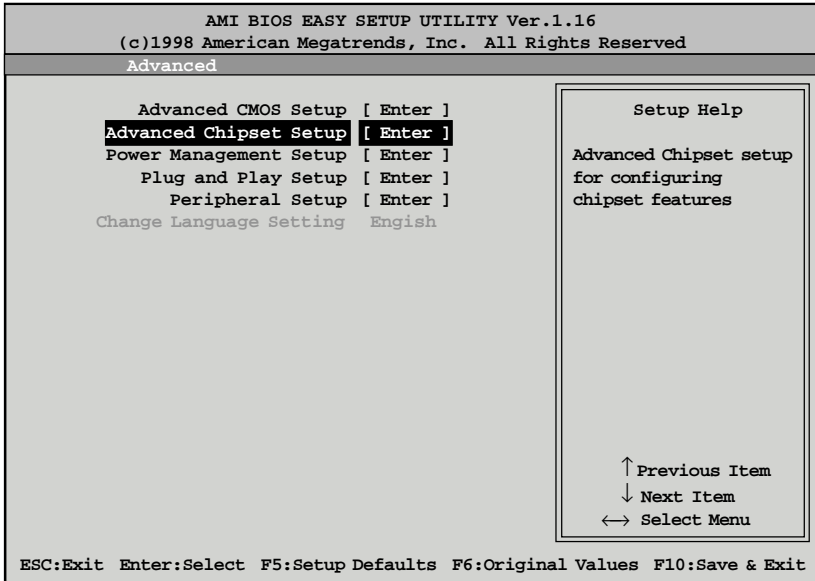
C800,16K Shadow; CC00,16K Shadow; D000,16K Shadow; D400,16K Shadow; D800, 16K Shadow; and DC00,16K Shadow

These options enable shadowing of the contents of the ROM area named in the option. The ROM area not used by ISA adapter cards is allocated to PCI adapter cards. The settings are:

Setting	Description
Disabled	The contents of the video ROM are not copied to RAM.
Enabled	The contents of the designated ROM area are copied (shadowed) from ROM to RAM for faster execution.
Cached	The contents of the designated ROM area are copied from ROM to RAM and can be written to or read from cache memory.

Advanced Chipset Setup

Choose Chipset Setup on the AMIBIOS Setup main menu. All Chipset Setup options are then displayed. AMIBIOS Setup can be customized. AMIBIOS Setup can be customized via AMIBCP. See the AMIBIOS Utilities Guide for additional information.



Advanced Chipset Setup Default Settings Chart

Setting Option	Optimal Default	Fail-Safe Default
USB Function	Disabled	Disabled
*** USB KB/Mouse Legacy Support	Disabled	Disabled
*** Port 64/60 Emulation	Disabled	Disabled
SERR#	Disabled	Disabled
PERR#	Disabled	Disabled
WSC# Handshake	Enabled	Enabled
USWC Write Post	Enabled	Enabled
Master Latency Timer (Clks)	64	64
Multi-Trans Timer (Clks)	32	32
PCI1to PCI0 Access	Disabled	Disabled
Method of Memory Detection	Auto & SPD	Auto & SPD
*** DRAM Integrity Mode	N/A	N/A

Settings Chart (continued)

Setting Option	Optimal Default	Fail-Safe Default
DRAM Refresh Rate	15.6 us	15.6 us
Memory Hole	Disabled	Disabled
SDRAM RAS# to CAS# Delay	3SCLKs	3SCLKs
SDRAM RAS# Precharge	3SCLKs	3SCLKs
Power Down SDRAM	Disabled	Disabled
ACPI Control Register	Disabled	Disabled
Gated Clock	Disabled	Disabled
Graphics Aperture Size	64 M B	64 M B
Search for MDA Resources	Yes	Yes
AGP Multi-Trans Timer (AGP Clks)	32	Disabled
AGP Low-Priority Timer (Clks)	16	Disabled
AGP SERR	Disabled	Disabled
AGP Parity Error Response	Disabled	Disabled
8bit I/O Recovery Time	Disabled	Disabled
16bit I/O Recovery Time	Disabled	Disabled
PIIX4 SERR#	Disabled	Disabled
USB Passive Release	Enabled	Enabled
PIIX4 Passive Release	Enabled	Enabled
PIIX4 Delayed Transaction	Disabled	Disabled
Type FDM A Buffer Control1	Disabled	Disabled
Type FDM A Buffer Control2	Disabled	Disabled
DMA -0 Type	Normal ISA	Normal ISA
DMA -1 Type	Normal ISA	Normal ISA
DMA -2 Type	Normal ISA	Normal ISA
DMA -3 Type	Normal ISA	Normal ISA
DMA -4 Type	Normal ISA	Normal ISA
DMA -5 Type	Normal ISA	Normal ISA
DMA -6 Type	Normal ISA	Normal ISA
DMA -7 Type	Normal ISA	Normal ISA
CPU Bus Frequency	Auto	Auto

*** Setting option not selectable.

USB Function

Set this option to Enabled to enable USB (Universal Serial Bus) support. The settings are Enabled or Disabled.

USB KB/Mouse Legacy Support

Set this option to Enabled to enable support for older keyboards and mouse devices if the USB Function option is set to Enabled. The settings are Enabled or Disabled.

Port 64/60 Emulation

Setting this option to Enabled allows a USB keyboard to act like a legacy keyboard. If this option is not Enabled, USB keyboard lights will not work under Windows NT. With other operating systems, a USB keyboard will work normally with this option Disabled. The settings are Enabled or Disabled.

SERR#

Set this option to Enabled to enable the SERR# signal on the bus. The settings are Enabled or Disabled.

PERR#

Set this option to Enabled to enable the PERR# signal on the bus. The settings are Enabled or Disabled. The Optimal and Fail-safe default settings are Disabled.

WSC# Handshake

Set this option to Enabled to enable handshaking for the WSC# signal. Handshaking is a form of encryption; see the Glossary for more information. The settings are Enabled or Disabled.

USWC Write Post

This option sets the status of USWC posted writes to I/O. USWC is a type of memory that is used by VGA devices. The settings are:

Setting	Description
Enabled	USWC posted writes to I/O are enabled.
Disabled	USWC posted writes to I/O are disabled.

BX Master Latency Timer (Clks)

This option specifies the master latency timer (in PCI clocks) for devices in the computer. The settings are Disabled, 32, 64, 96, 128, 160, 192, or 224.

Multi-Trans Timer (Clks)

This option specifies the multi-trans latency timings (in PCI clocks) for devices in the computer. The settings are Disabled, 32, 64, 96, 128, 160, 192, or 224.

PCI1 to PCI0 Access

Set this option to Enabled to enable access between two different PCI buses (PCI1 and PCI0). The settings are Enabled or Disabled.

Method of Memory Detection

This option determines how your system will detect the type of system memory you have installed. Options are Auto+SPD or Auto only.

DRAM Integrity Mode

This option sets the type of system memory checking. The settings are:

Setting	Description
Non ECC	No error checking or error reporting is done.
EC	Errors are detected, but no corrections will be made.
ECC Hardware	Errors are detected, and single bit errors are corrected.

DRAM Refresh Rate

This option specifies the interval between refresh signals to DRAM system memory. The settings are 15.6 us (microseconds), 31.2 us, 62.4 us, 124.8 us, or 249.6 us.

Memory Hole

This option specifies the location of an area of memory that cannot be addressed on the ISA bus. The settings are Disabled, 512KB-640KB, or 15MB-16MB.

SDRAM RAS# to CAS# Delay

This option specifies the length of the a inserted between the RAS and CAS signals of the DRAM system memory access cycle if SDRAM is installed. The settings are Auto, 2 SCLKs or 3 SCLKs. The Optimal default setting is Auto.

SDRAM RAS# Precharge

(CHANGE) This option specifies the length of the RAS precharge part of the DRAM system memory access cycle when SDRAM system memory is installed in this computer. The settings are Auto, 2 SCLKs, or 3 SCLKs.

Power Down SDRAM

If this option is set to Enabled, the SDRAM Power Down feature is enabled. The settings are Enabled or Disabled.

ACPI Control Register

Set this option to Enabled to enable the ACPI (Advanced Configuration and Power Interface) control register. The settings are Enabled or Disabled. The Optimal and Fail-safe default settings are Enabled.

Gated Clock

Set this option to Enabled to enable the gated clock. The settings are Enabled or Disabled.

Graphics Aperture Size

This option specifies the amount of system memory that can be used by the Accelerated Graphics Port (AGP). The settings are 4 MB, 8 MB, 16 MB, 32 MB, 64 MB, 128 MB, or 256 MB.

Search for MDA Resources

Set this option to Yes to let AMIBIOS search for MDA resources. The settings are Yes or No.

AGP Multi-Trans Timer (AGP Clks)

This option sets the AGP multi-trans timer. The settings are in units of AGP Clocks. The settings are Disabled, 32, 64, 96, 128, 160, 192, or 224.

AGP Low-Priority Timer (Clks)

This option sets the AGP low priority timer. The settings are in units of AGP Clocks. The settings are Disabled, 16, 32, 48, 64, 80, 96, 112, 128, 144, 176, 192, 208, 224, or 240.

AGPSERR

Set this option to Enabled to enable the AGP SERR signal. The settings are Enabled or Disabled.

AGP Parity Error Response

Set this option to Enabled to enable AGP parity error response. The settings are Enabled or Disabled.

8bit I/O Recovery Time

This option specifies the length of a delay inserted between consecutive 8-bit I/O operations. The settings are Disabled and from 1 to 8 Sysclk (system clocks) in increments of one.

16bit I/O Recovery Time

This option specifies the length of a delay inserted between consecutive 16-bit I/O operations. The settings are Disabled and from 1 to 4 Sysclk (system clocks) in increments of one.

PIIX4SERR#

Set this option to Enabled to enable the SERR# signal for the Intel PIIX4 chip. The settings are Enabled or Disabled.

USB Passive Release

Set this option to Enabled to enable passive release for USB. The settings are Enabled or Disabled.

PIIX4 Passive Release

Set this option to Enabled to enable passive release for the Intel PIIX4e chip. This option must be Enabled to provide PCI 2.1 compliance. The settings are Enabled or Disabled.

PIIX4DELAYED TRANSACTION

Set this option to Enabled to enable delayed transactions for the Intel PIIX4 chip. This option must be Enabled to provide PCI 2.1 compliance. The settings are Enabled or Disabled.

TypeF DMA Buffer Control1 and 2

These options specify the DMA channel where TypeF buffer control is implemented. The settings are Disabled, Channel-0, Channel-1, Channel-2, Channel-3, Channel-5, Channel-6, or Channel-7.

DMA-*n* Type

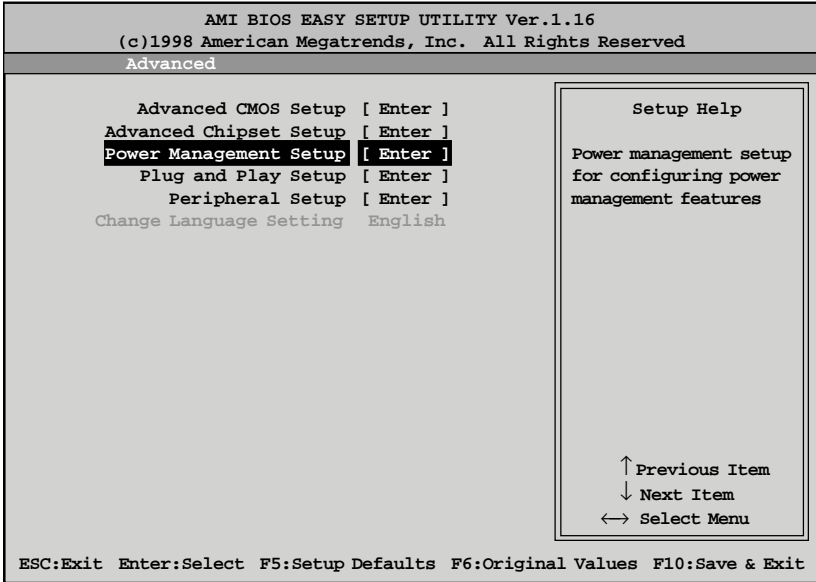
These options specify the bus that the specified DMA channel can be used on. The settings are Normal ISA, PC/PCI, or Distributed.

CPU Bus Frequency

This option provides selective CPU Bus Frequency; however, it is strongly recommended that the default setting (Auto) be selected. Unpredictable situations may arise if the Intel default CPU bus speed is not used. The settings are Auto, 66.8MHz, 68.5MHz, 75MHz, 83.3MHz, 100MHz, 103MHz, or 112MHz.

Power Management Setup

The AMIBIOS Setup options described in this section are selected by choosing Power Management Setup from the AMIBIOS Setup main menu.



Power Management Setup Default Settings Chart

Setting Option	Optimal Default	Fail-Safe Default
ACPI Aware O/S	No	No
Power Management / APM	Enabled	Enabled
Power Button Function	On/Off	On/Off
Green PC Monitor Power State	Suspend	Stand By
Video Power Down Mode	Suspend	Disabled
Hard Disk Power Down Mode	Suspend	Disabled
Hard Disk Time Out (Minute)	Disabled	Disabled
Power Saving Type	Sleep	Sleep
Standby / Suspend Timer Unit	4 min	4 min
Standby Time Out	Disabled	Disabled
Suspend Time Out	Disabled	Disabled
Slow Clock Ratio	50% - 62.5%	50% - 62.5%
Display Activity	Ignore	Ignore

Setting Option	Optimal Default	Fail-Safe Default
Device 6 (Serial port 1)	Monitor	Monitor
Device 7 (Serial port 2)	Monitor	Monitor
Device 8 (Parallel port)	Monitor	Monitor
Device 5 (Floppy disk)	Monitor	Monitor
Device 0 (Primary master IDE)	Monitor	Monitor
Device 1 (Primary slave IDE)	Monitor	Monitor
Device 2 (Secondary master IDE)	Monitor	Monitor
Device 3 (Secondary slave IDE)	Monitor	Monitor
LAN Wake-up	Disabled	Disabled
Ring Wake-up	Disabled	Disabled
PC 98 Power LED	Disabled	Disabled
Fan OFF at Suspend	Enabled	Enabled
RTC Wake-up	Disabled	Disabled
***Hour	N/A	N/A
***Minute	N/A	N/A

*** Setting option not selectable.

ACPI Aware O/S

Set this option to Yes to enable Advanced Configuration and Power Interface (ACPI) BIOS for an ACPI-aware operating system.

Power Management/APM

Set this option to Enabled to enable the chipset power management and APM (Advanced Power Management) features. The settings are Enabled or Disabled.

Power Button Function

This option specifies how the power button mounted externally on the computer chassis is used. See Soft Power Connector on page 31 for more information. The settings are shown in the table below.

Setting	Description
On/Off	Pushing the power button turns the computer on or off.
Suspend	Pushing the power button places the computer in Suspend mode or Full On power mode.

Green PC Monitor Power State

This option specifies the power state that the green PC-compliant video

monitor enters when AMIBIOS places it in a power saving state after the specified period of display inactivity has expired. The settings are Off, Stand By, or Suspend.

Video Power Down Mode

This option specifies the power state that the video subsystem enters when AMIBIOS places it in a power saving state after the specified period of display inactivity has expired. The settings are Stand By, Suspend, or Disabled.

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 settings are Disabled, Stand By, or Suspend.

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 (see above). The settings are Disabled, and from 1 to 15 minutes, in one minute intervals.

Power Saving Type

There are several types of sleeping states within the general sleep state. This option allows you to choose how “asleep” you want your system to be. In deeper sleep modes, more energy is saved. However, upon waking up, the system must “reorient” itself, and reestablish control over the system’s sleeping components. The settings are POS, Sleep, Stop Clock, and Deep Sleep. POS is the lightest sleep mode; Deep Sleep is the heaviest.

Standby/Suspend Timer Unit

This option specifies the unit of time used for the Standby and Suspend time out periods. The settings are 4 msec, 4 sec, 32 sec, or 4 min.

Standby Time Out

This option defines the length of time that the system, while in Full On state, must be inactive before it enters Standby mode. The settings are Disabled and from 4 minutes to 508 minutes, in increments of 4 minutes.

Suspend Time Out

This option defines the length of time that the system, while in Standby mode, must be inactive before it enters Suspend mode. The settings are Disabled and from 4 minutes to 508 minutes, in increments of 4 minutes.

Slow Clock Ratio

This option specifies the speed at which the system clock runs in the Standby Mode power saving state. The settings are expressed as a percentage of the normal CPU clock speed. The settings are 0-12.5%, 12.5%-25%, 25%-37.5%, 37.5%-50%, 50%-62.5%, 62.5%-75%, or 75-87.5%.

Display Activity

When set to Monitor, this option enables event monitoring on the video display. If set to Monitor and the computer is in a power saving state, display activity will cause the system to enter the Full On state. AMIBIOS reloads the Standby and Suspend time-out timers if display activity occurs. The settings are Monitor or Ignore.

Device *n* (Device identity)

When set to Monitor, these options enable event monitoring on the specified hardware interrupt request line. If set to Monitor and the computer is in a power saving state, any activity on the IRQ line will cause the system to enter the Full On state. AMIBIOS reloads the Standby and Suspend time-out timers if activity occurs on the specified IRQ line. The settings for each of these options are Monitor or Ignore.

LAN Wake-up

When this option is Enabled, the system will wake up when a signal is received on the Wake-on LAN header. In order for this wake up function to work, the system must have been brought up at least past the POST before it was last shut down (i.e. if you turn the system off before the POST, the registry will not be set, and the system will not be able to wake up using this function). This function requires an ATX 2.01 compliant power supply with 5V standby (STB5V) current of at least 800mA. The settings are Enabled or Disabled.

Ring Wake-up

The settings are Enabled or Disabled.

PC98 Power LED

When this option is Enabled, your power LED will turn to yellow when your system is in Suspend mode. Note that if you do not have a two-color LED, your LED will turn off when the system is in Suspend mode if this option is set to Enabled. The settings are Enabled or Disabled.

FAN OFF at Suspend

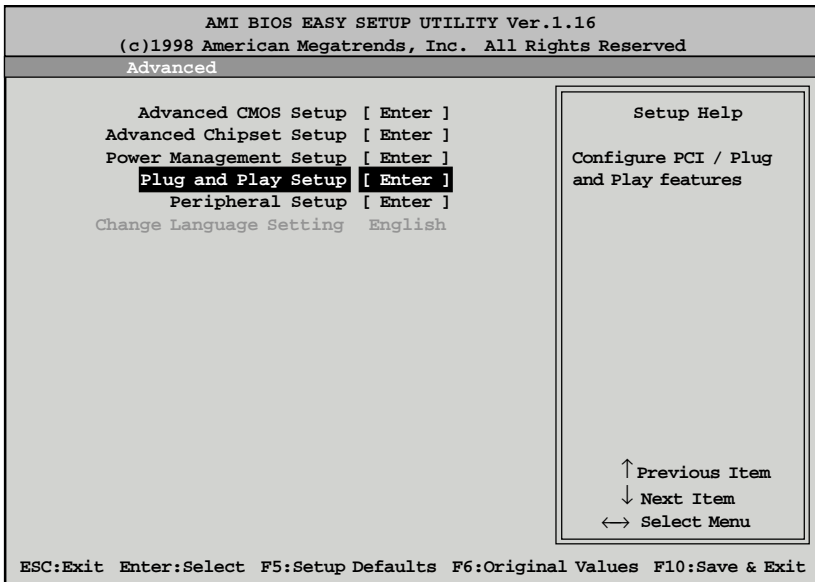
If this option is Enabled, the CPU fan will turn off when the system is in Suspend mode. If Disabled, the CPU fan will remain on while the system is in Suspend mode. The settings are Enabled or Disabled.

RTC Wake-up

If Enabled, this option allows you to set an hour and minute for the system to wake up. The next two fields allow you to choose the wake up time. Note that the time fields will not be available if this option is set to Disabled. In order for this wake up function to work, the system must have been brought up at least past the POST before it was last shut down (i.e. if you turn the system off before the POST, the registry will not be set, and the system will not be able to wake up using this function). The settings are Enabled or Disabled.

Plug and Play Setup

Choose PCI/Plug and Play Setup from the AMIBIOS Setup screen to display the PCI and Plug and Play Setup options, described below.



Plug and Play Setup Default Settings Chart

Setting Option	Optimal Default	Fail-Safe Default
Plug and Play Aware O/S	Yes	Yes
PCI Latency Timer (PCI Clocks)	64	64
PCI VGA Palette Snoop	Disabled	Disabled
Allocate IRQ to PCI VGA	Yes	Yes
PCI IDE Bus Master	Disabled	Disabled
Off Board PCI IDE Card	Auto	Auto
***Off Board PCI IDE Primary IRQ	Disabled	Disabled
***Off Board PCI IDE Secondary IRQ	Disabled	Disabled
PCI Slot 1 IRQ Priority	Auto	Auto
PCI Slot 2 IRQ Priority	Auto	Auto
PCI Slot 3 IRQ Priority	Auto	Auto
PCI Slot 4 IRQ Priority	Auto	Auto
DMA Channel 0	PnP	PnP
DMA Channel 1	PnP	PnP
DMA Channel 3	PnP	PnP
DMA Channel 5	PnP	PnP
DMA Channel 6	PnP	PnP
DMA Channel 7	PnP	PnP
IRQ 3	PCI/PnP	PCI/PnP
IRQ 4	PCI/PnP	PCI/PnP
IRQ 5	PCI/PnP	PCI/PnP
IRQ 7	PCI/PnP	PCI/PnP
IRQ 9	PCI/PnP	PCI/PnP
IRQ 10	PCI/PnP	PCI/PnP
IRQ 11	PCI/PnP	PCI/PnP
IRQ 12	PCI/PnP	PCI/PnP
IRQ 14	PCI/PnP	PCI/PnP
IRQ 15	PCI/PnP	PCI/PnP
Reserved Memory Size	Disabled	Disabled
*Reserved Memory Address	C8000	C8000
PCI Device Search Order	First-Last	First-Last
BIOS Devnode for Shadow RAM	Disabled	Disabled

*** Setting option is not selectable

Plug and Play Aware O/S

Set this option to Yes to inform AMIBIOS that the operating system can handle plug and Play (PnP) devices. The settings are No or Yes.

PCI Latency Timer (PCI Clocks)

This option specifies the latency timings (in PCI clocks) for PCI devices installed in the PCI expansion slots. The settings are 32, 64, 96, 128, 160, 192, 224, or 248.

PCI VGA Palette Snoop

When this option is set to Enabled, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example, if there are two VGA devices in the computer (one PCI and one ISA) and this field is set for:

Setting	Description
Disabled	Data read and written by the CPU is only directed to the PCI VGA device's palette registers.
Enabled	Data read and written by the CPU is directed to the both the PCI VGA device's palette registers and the ISA VGA device palette registers, permitting the palette registers of both devices to be identical.

This option must be set to Enabled if any ISA adapter card installed in the system requires VGA palette snooping.

Allocate IRQ to PCI VGA

Set this option to Yes to allocate an IRQ to the VGA device on the PCI bus. The settings are Yes or No.

PCI IDE BusMaster

Set this option to Enabled to specify that the IDE controller on the PCI bus has bus mastering capability. The settings are Disabled or Enabled.

OffBoard PCI IDE Card

This option specifies whether or not an offboard PCI IDE controller adapter card is used in the computer, and where it is installed. If an offboard PCI IDE controller is used, the motherboard onboard IDE controller is automatically disabled. The settings are Auto and Slot1 through Slot6. If Auto is selected, AMIBIOS automatically determines the correct setting (including using the onboard controller if no offboard controller card is detected). This option forces IRQ 14 and 15 to a PCI slot on the PCI local bus. This is necessary to

support non-compliant PCI IDE adapter cards.

OffBoard PCI IDE Primary IRQ

This option specifies the PCI interrupt used by the primary IDE channel on the offboard PCI IDE controller. The settings are Disabled, Hardwired, INTA, INTB, INTC, or INTD.

Offboard PCI IDE Secondary IRQ

This option specifies the PCI interrupt used by the secondary IDE channel on the offboard PCI IDE controller. The settings are Disabled, Hardwired, INTA, INTB, INTC, or INTD.

PCI Slot *n* IRQ Priority

These options specify the IRQ priority for PCI devices installed in the PCI devices installed in the PCI expansion slots. The settings are Auto, IRQ 3, 4, 5, 7, 9, 10, and 11, in priority order.

DMA Channel *n*

These options allow you to specify the bus type used by each DMA channel. The settings are PnP or ISA/EISA .

IRQ_{*n*}

These options specify the bus that the specified IRQ line is used on. These options allow you to reserve IRQs for legacy ISA adapter cards. These options determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, you can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are configured as PCI/PnP. IRQ12 only appears if the Mouse Support option in Advanced Setup is set to Disabled. IRQ14 and 15 will not be available if the onboard PCI IDE is enabled. If all IRQs are set to ISA/EISA and IRQ14 and 15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices, because at least one IRQ must be available for PCI and PnP devices. The settings are ISA/EISA or PCI/PnP.

Reserved Memory Size

This option specifies the size of the memory area reserved for legacy ISA adapter cards. The settings are Disabled, 16K, 32K, or 64K.

Reserved Memory Address

This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards. This option does not appear if the Reserved Memory Size option is set to Disabled. The settings are C0000, C4000, C8000, CC000, D0000, D4000, D8000, or DC000.

PCI Device Search Order

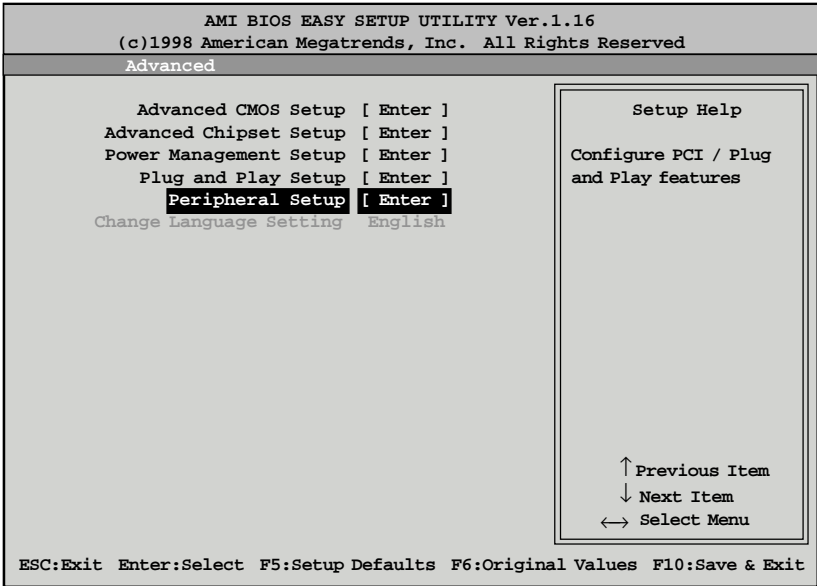
This option changes the BIOS scan order of the PCI slot - from first to last or last to first. The settings are First-Last or Last-First.

BIOS Devnode for Shadow RAM

This option is used for some add-on card ROMs which do not claim the correct memory range that they occupy. The settings are Disabled or Enabled.

Peripheral Setup

Peripheral Setup options are displayed by choosing Peripheral Setup from the AMIBIOS Setup main menu. All Peripheral Setup options are described here.



Peripheral Setup Default Settings Chart

Setting Option	Optimal Default	Fail-Safe Default
Overclock Warning Message	Enabled	Enabled
Power Loss Control	Always Off	Always Off
Keyboard Wake-up Function	Disabled	Disabled
Mouse Wake-up Function	Disabled	Disabled
CPU Current Temperature	(varies)	(varies)
ADM 1024 / ADM 9240 +Vccp1	2.05	2.05
ADM 1024 / ADM 9240 +2.5V	2.50	2.50
ADM 1024 / ADM 9240 +3.3V	3.27	3.72
ADM 1024 / ADM 9240 +5V	5.22	5.22
ADM 1024 / ADM 9240 +12V	11.91	11.91
*** ADM 1024 / ADM 9240 Fan1	N/A	N/A
Onboard FDC	Auto	Auto
Onboard Serial Port 1	Auto	Auto
Onboard Serial Port 2	Auto	Auto

Default Settings Chart (Continued)

Setting Option	Optimal Default	Fail-Safe Default
Serial Port 2 Mode	Normal	Normal
***IR Duplex Mode	Half	Half
Onboard Parallel Port	Auto	Auto
Parallel Port Mode	ECP	ECP
***EPP Version	N/A	N/A
Parallel Port IRQ	Auto	Auto
***Parallel Port DMA Channel	Auto	Auto
Onboard IDE	Both	Both

*** Setting Option is not Selectable

Overclock Warning Message

When enabled, this option sends a warning message if the CPU is overclocked. The settings are Enabled or Disabled.

Power Loss Control

This option enables the system to: (1) always power on when power is restored following a power outage; (2) always remain off when power is restored following a power outage; or (3) restore / maintain the last power status before power failure. The settings are Always On, Always Off, or Previous.

Keyboard Wake-up Function

This option allows for system power-on via the keyboard. The settings are Enabled or Disabled.

Mouse Wake-up Function

This option allows for system power-on via the mouse. The settings are Disabled, Left Button Once, Left Button Twice, Right Button Once, or Right Button Twice.

CPU Current Temperature

This displays the current temperature of the CPU.

ADM 1024 / ADM 9240 (+Vccp1, +2.5V, +3.3V, +5V, +12V, Fan1)

This displays the current System and CPU voltage information via the system management chip.

Onboard FDC

Set this option to Enabled to enable the floppy drive controller on the motherboard. The settings are Auto, Enabled, or Disabled.

Onboard Serial Port1

This option specifies the base I/O port address of serial port 1. The settings are Auto, Disabled, 3F8h, 2F8h, 3E8h, or 2E8h.

Onboard Serial Port2

This option specifies the base I/O port address of serial port 2. The settings are Auto, Disabled, 3F8h, 2F8h, 3E8h, or 2E8h.

Serial Port2 Mode

This option specifies the operating mode for serial port 2. This option will not appear if the Onboard Serial Port2 option is set to Disabled, or is set to Auto and your system does not have an onboard serial port 2. The settings are Normal, Sharp-IR, IrDA, and Consumer.

IR Transmission Mode

This option specifies the infrared transmission method. This option will not appear if the Serial Port2 Mode option is set to Normal. The settings are Full or Half.

Mode	Description
Full Duplex	Data is transmitted in two directions at once. Any data you send will not appear on your screen until it has been received by the other device and sent back to you. Full duplex is the faster of the two modes.
Half Duplex	Data is transmitted in only one direction at a time. Any data you send will be instantly displayed on your screen. Half duplex mode is easier for the devices to execute. Not all IR-capable devices can handle full duplex mode.

IR Receiver Pin

This option specifies which pin will act as the receiver for IR data transmission. This option will not appear if the Serial Port2 Mode option is set to Normal. The only setting is IRRX1.

OnBoard Parallel Port

This option specifies the base I/O port address of the parallel port on the motherboard. The settings are Auto, Disabled, 378, or 278.

Parallel Port Mode

This option specifies the parallel port mode. The settings are:

Setting	Description
Normal	The normal parallel port mode is used.
Bi-Dir	Use this setting to support bidirectional transfers on the parallel port.
EPP	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specifications. EPP uses the existing parallel port signals to provide asymmetric bidirectional data transfer driven by the host device.
ECP	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specifications. ECP uses the DMA protocol to achieve data transfer rates of up to 2.5 Megabits per second. ECP provides symmetric bidirectional communication.

EPP Version

This option specifies the Enhanced Parallel Port specification version number that is used in the system. This option only appears if the Parallel Port Mode option is set to EPP. The settings are 1.7 or 1.9. Version 1.9 is common on

newer devices; consult your device's user information for the appropriate port type. There are no default settings.

Parallel Port IRQ

This option specifies the IRQ used by the parallel port, and only appears if OnBoard Parallel Port is set to 278 or 378. The settings are 5 or 7.

Parallel Port DMA Channel

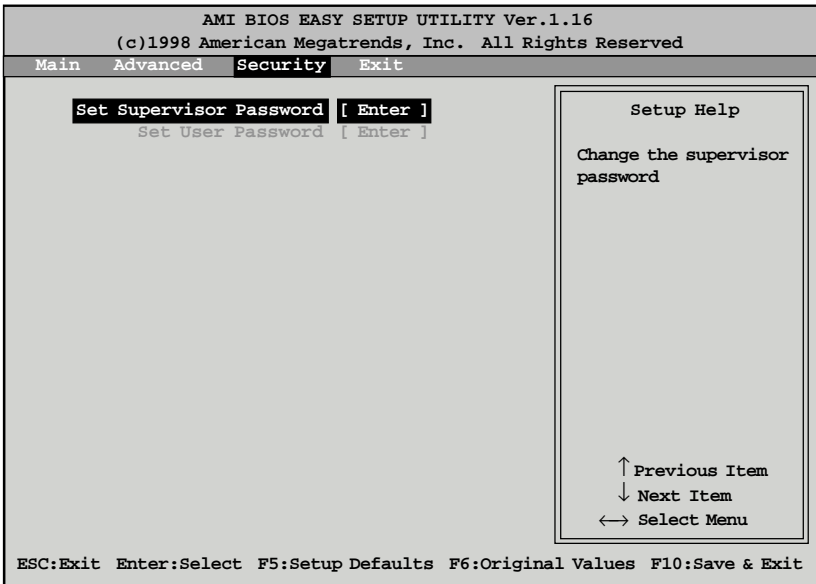
This option is only available if the setting for the Parallel Port Mode option is set to ECP and the OnBoard Parallel Port option is set to 378, 278, or 3BC. This option sets the DMA channel used by the parallel port. The settings are 0 through 7 in increments of one.

Onboard IDE

This option specifies the IDE channel used by the onboard IDE controller. The settings are Disabled, Primary, Secondary, or Both.

Supervisor and User Security

You can limit access to the Setup Program or to the system using the Supervisor and User password options (the Supervisor password gives you access to the Setup Program and the system; the User password, only to the system). Note that you must create a supervisor password before you create a user password.



When you select the Supervisor Security option, a dialog box will appear, allowing you to enter a password. You may either type the password in, or click on the onscreen buttons. Your password must be between one and six characters long.

Once you have entered your new password, you will be asked to confirm it. If the two passwords do not match, you will be prompted to enter a new password, and then to confirm it. This will continue until you enter the same series of characters both times. Once this is accomplished, a dialog box will appear and notify you that the Supervisor Password has been installed. You may then select the User Security option and enter a password for the user.

You can enter a new User password at any time simply by selecting the User Security option, and typing in a new password. To enter a new Supervisor

password, select the Supervisor Security option. You will be asked to enter the current password. After you do so, you will be prompted to enter the new password.

In either the Supervisor or User Security options, pressing <Enter> once when asked for a new password, and a second time when asked to confirm the new password, will uninstall the existing password. Note that uninstalling the Supervisor password uninstalls the User password as well.

Language Utility

Currently, the BIOS Setup program is available only in English.

Flash Writer Utility

The AMI Flash Writer Utility is now included in the AMIBIOS, and so it is simpler to upgrade the BIOS of your mainboard. The system BIOS is stored on a flash EEPROM ROM chip on the mainboard which can be erased and reprogrammed by following the directions on the following page.

1. From the DOS prompt, rename the BIOS file that you have downloaded to "amiboot.rom" and copy it on to a floppy disk.
2. Insert the floppy disk with the BIOS upgrade into the A: drive.
3. Turn the power off.
4. While holding the <Ctrl> and <Home> keys, turn the power on. The system will begin to read from the A: drive, and write the BIOS information contained on the floppy disk in that drive to the EEPROM ROM chip. When the BIOS has been totally reprogrammed, the system will reboot with the new BIOS in operation.
5. If the system does not reboot in three minutes, power down the system wait a few seconds, and then turn the power back on again. You will be prompted to press <F1> to run Setup. You may check your settings at this time, or simply save and exit the program.