AM4002

AMC Module

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BIOS Guide

kontron

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Chapter 1

Starting BIOS Setup

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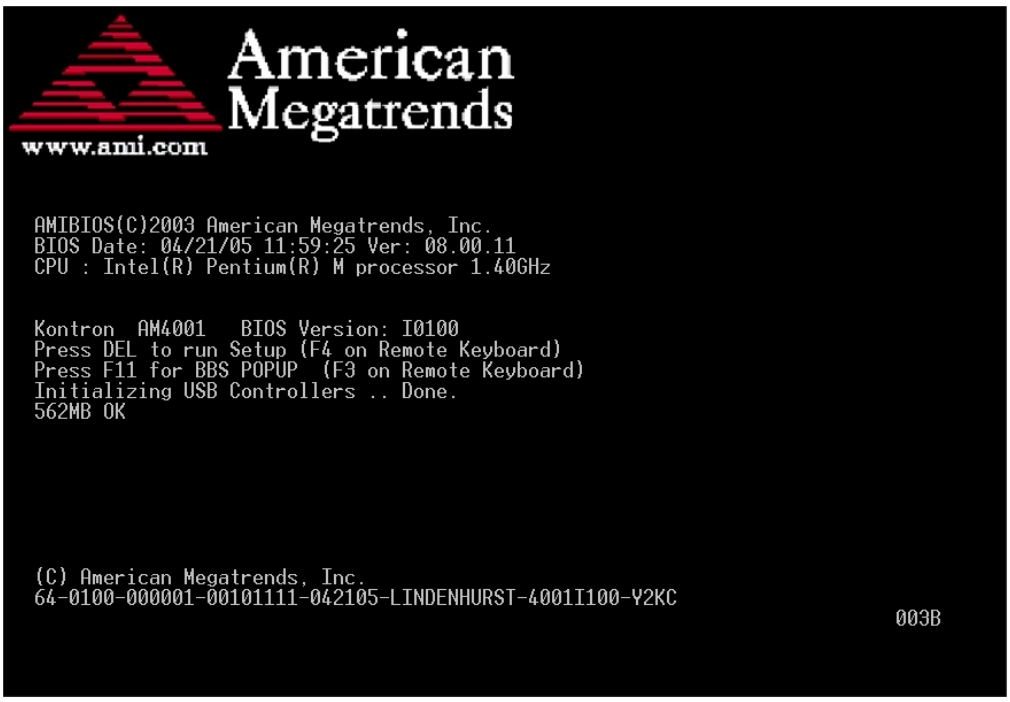
1. Starting BIOS Setup

The Advanced Mezzanine Card (AMC) described in this manual is provided with a Kontron customized, pre-installed and configured version of AMI's BIOS. This BIOS version is based on the AMIBIOS®8 core which provides a variety of new and enhanced functions specifically tailored to the hardware features provided by the AMC module.

To take full advantage of these functions, the BIOS comes with a setup program which provides quick and easy access to individual function settings for control or modification of the BIOS configuration.

This setup program allows the accessing of various menus which provide functions or access to sub-menus with more specific functions of their own. The individual menus and configurable functions are described in this guide.

To start the BIOS setup program, follow the steps below:

STEP	DESCRIPTION
1	Power on the AMC module
2	Press the <Delete> key on the keyboard when the following text prompt appears: Press DEL to run Setup 
3	After pressing the <Delete> key, the BIOS Main setup screen is displayed. Access is now available to all of the other setup screens by simply selecting the appropriate menu tab.

Note: If the AMC module is connected to a serial terminal, use the <F4> key to start the BIOS setup program. If a USB keyboard is connected to the AMC module, use the <Delete> key to start the BIOS setup program.

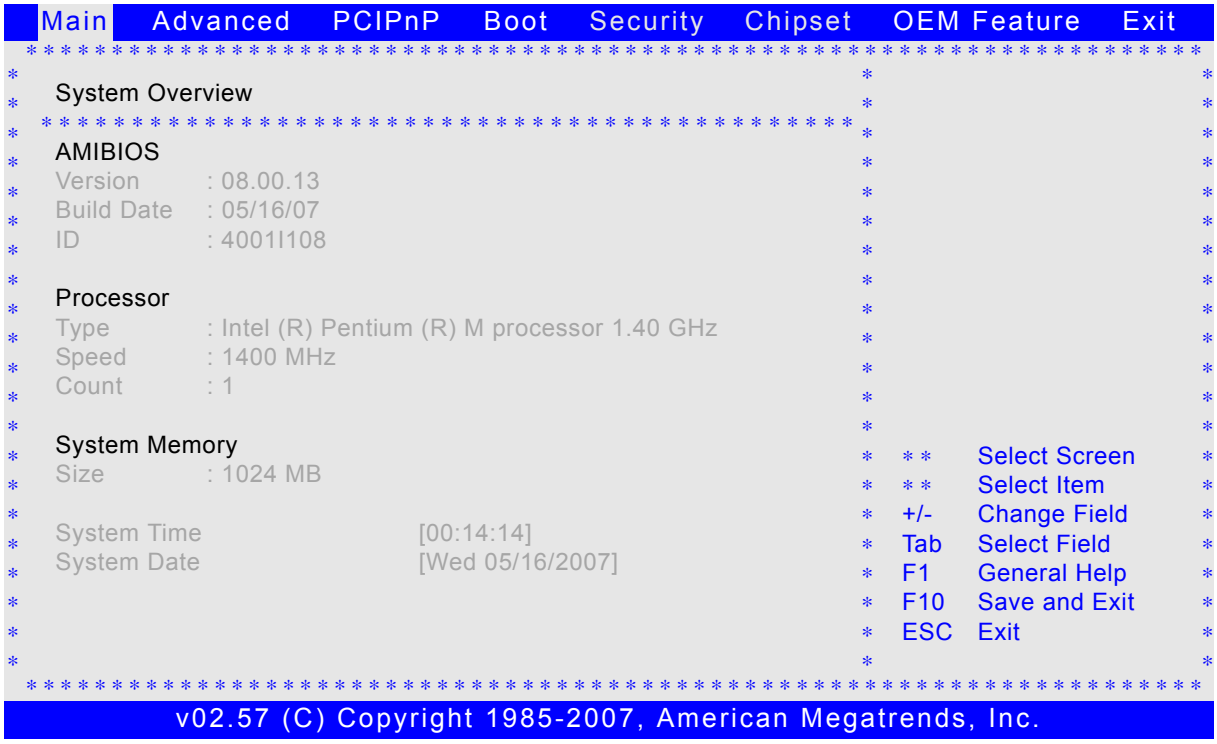
Main Setup Menu

The Main setup menu is the first screen that appears after starting the setup program.

At the top of this screen and all of the other major menu screens, there is a setup menu selection bar which permits access to all of the other major setup menus. These menus are selected via the left-right <Arrow> keys.

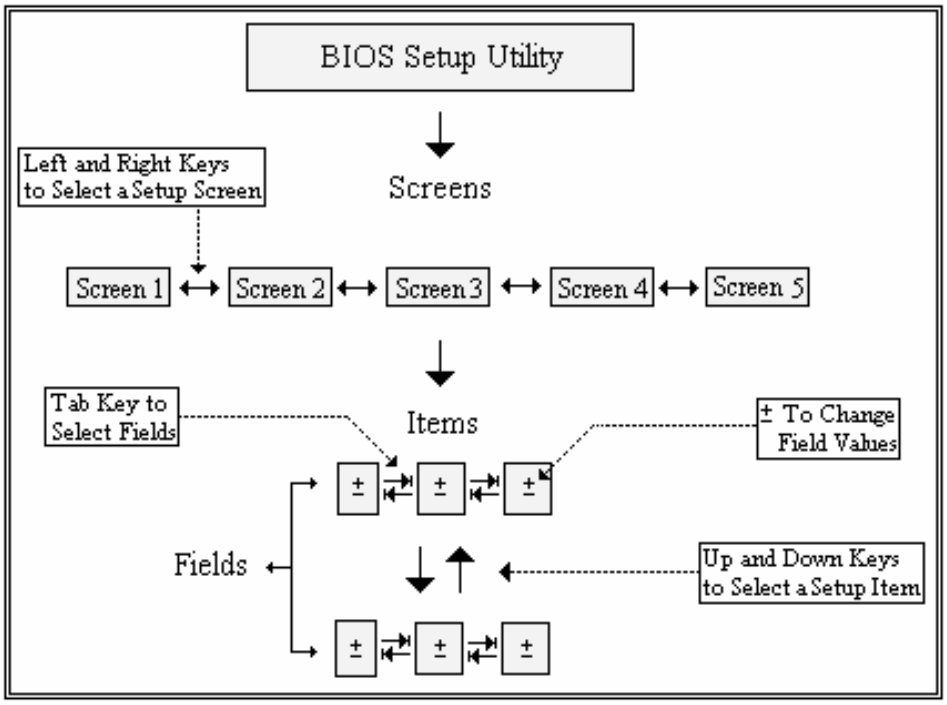
All setup menu screens have two main frames.The left frame displays all the functions that can be configured, which are displayed in blue. Functions displayed in gray provide information about the status or the operational configuration.

The right frame displays the key legend. Above the key legend is an area reserved for a text message. When a function is selected in the left frame, it is highlighted in white. Often a text message will accompany it.



Navigation

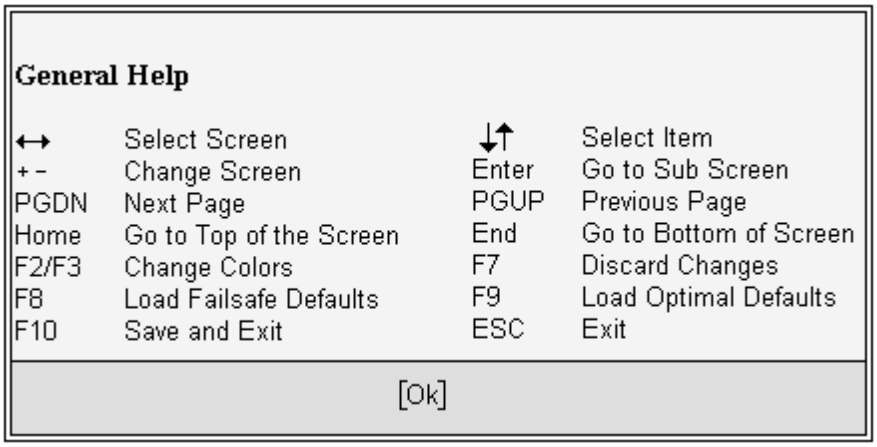
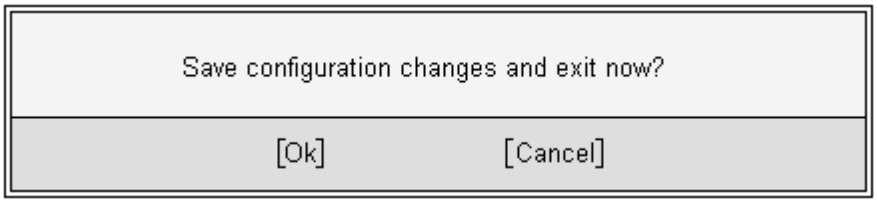
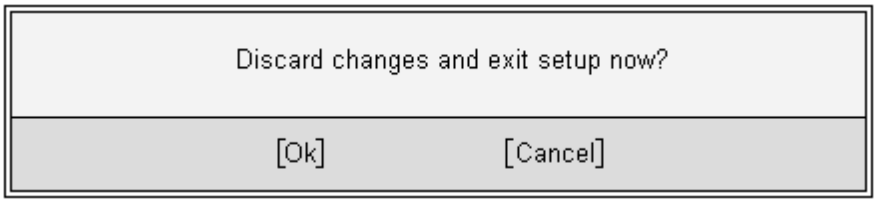
The BIOS setup program uses a hot key-based navigation system. Most of these hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.



Note: There is a hot key legend located in the right frame on most setup screens.

HOT KEY	DESCRIPTION
→ ← Left/Right	The left and right <Arrow> keys are used to select a major setup screen. For example: Main screen, Advanced screen, Chipset screen, and so on.
↑ ↓ Up/Down	The up and down <Arrow> keys are used to select a setup function or sub-screen.
+- Plus/Minus	The plus and minus keys are used to change the field value of a particular setup function. For example: Date and Time.
Tab	The tab key is used to select function fields.

Note: The <F8> key on the keyboard is the Fail-Safe key. It is not displayed on the key legend by default. To set the Fail-Safe default settings of the BIOS, press the <F8> key on your keyboard. It is located on the upper row of a standard 101 keyboard. The Fail-Safe default settings allow booting with the least amount of options set. This can lessen the probability of conflicting settings.

HOT KEY	DESCRIPTION
F1	The <F1> key is used to display the General Help screen. Press the <F1> key to open the General Help screen. 
F10	The <F10> key is used to save any changes that have been made and exit the Setup. Press the <F10> key to save the changes. The following screen will appear:  Press the <Enter> key to save the configuration and exit. To abort this function and return to the previous screen, use the <Arrow> key to select Cancel and then press the <Enter> key.
ESC	The <Esc> key is used to discard any changes that have been made and exit the Setup. Press the <Esc> key to exit the Setup without saving the changes. The following screen will appear:  Press the <Enter> key to discard changes and exit. To abort this function and return to the previous screen, use the <Arrow> key to select Cancel and then press the <Enter> key.
Enter	The <Enter> key is used to display or change the function setting listed for a particular setup item. The <Enter> key can also be used to display the setup sub-screens.

Note: If the AMC module is connected to a serial terminal, the <F8>, <F9> and <F10> keys cannot be used via the serial port.

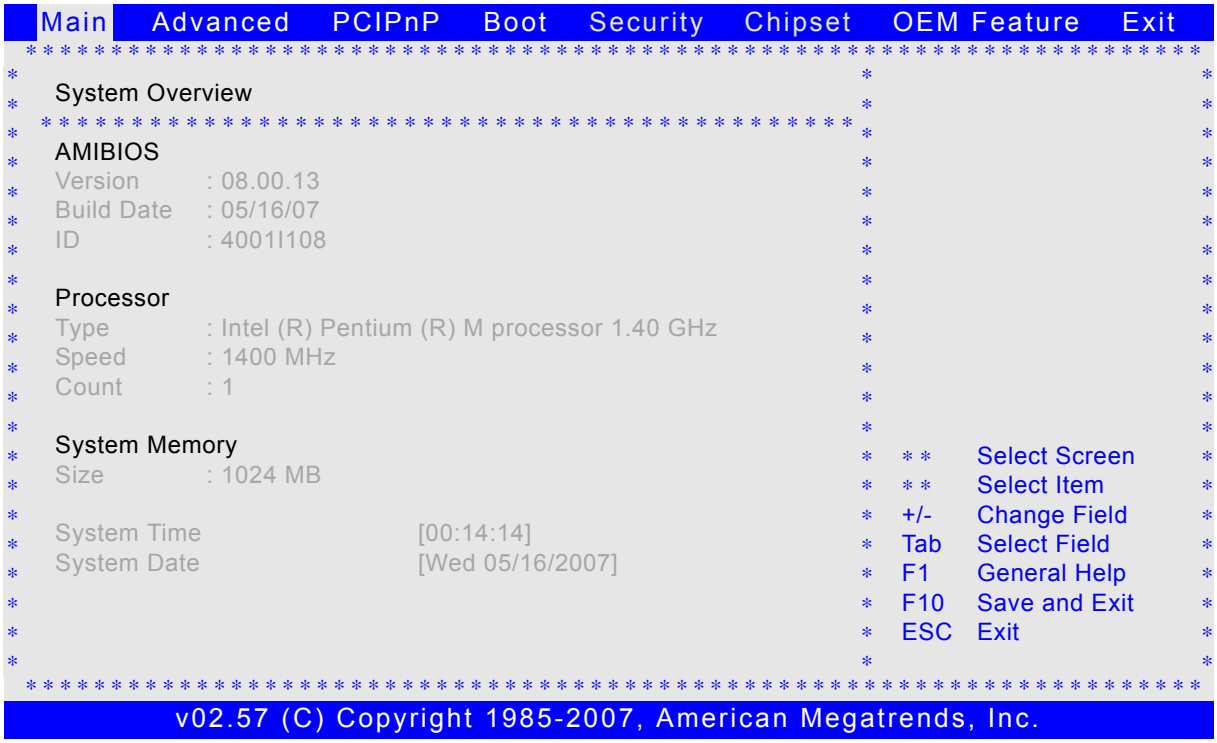
Chapter 2

Main Setup

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2. Main Setup

Upon entering the BIOS Setup program, the Main setup screen is displayed. This screen provides very basic system information as well as functions for setting the System Time and Date. In addition, the remaining major setup menus can be accessed from this screen. This screen can also be selected from any other major setup screen by using the Main tab.



System Time

SETTING	DESCRIPTION
<HH:MM:SS>	Use this function to change the system time. Select System Time using the up-down <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the left-right <Arrow> keys to move between fields.

Note: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

System Date

SETTING	DESCRIPTION
<MM/DD/YYYY>	Use this function to change the system date. Select System Date using the up-down <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the left-right <Arrow> keys to move between fields.

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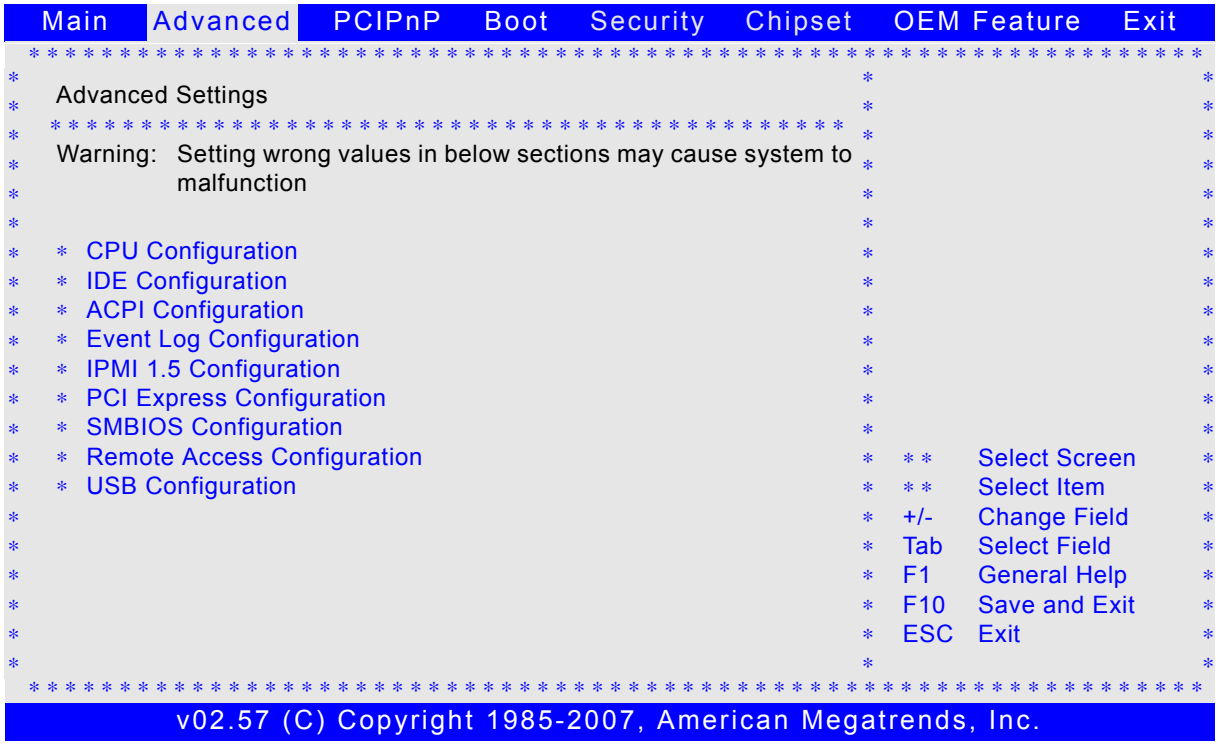
Chapter 3

Advanced Setup

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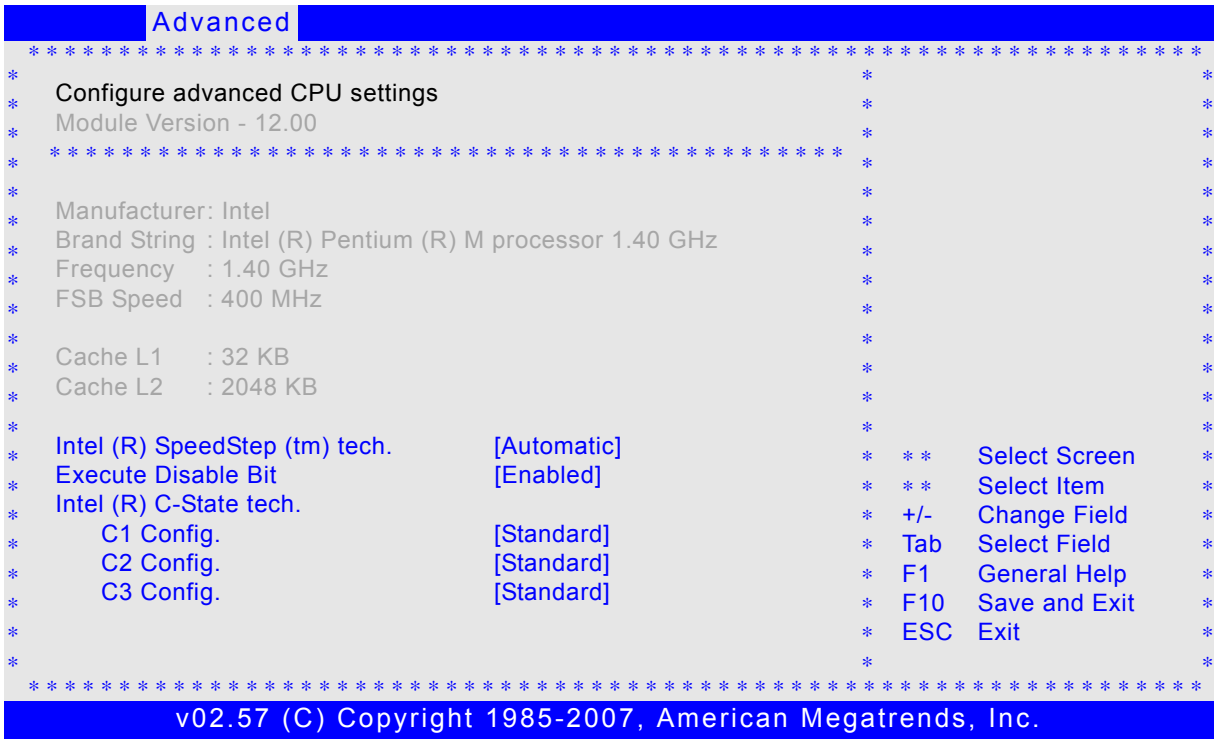
3. Advanced Setup

Select the Advanced tab to enter the Advanced Setup screen. This screen lists the advanced configuration sub-screens. To gain access to a sub-screen, select it and press <Enter>.



CPU CONFIGURATION SCREEN

The following screens provide basic information concerning the CPU and functions for specifying CPU configuration settings.



Intel® SpeedStep™ tech.

This function is used to specify the Intel® SpeedStep™ feature.

SETTING	DESCRIPTION
Disabled	Use this setting to disable this function. Use of this setting will force the BIOS to use minimum speed.
Minimum Speed	Use this setting to specify minimum speed.
Maximum Speed	Use this setting to specify maximum speed.
Automatic	Use this setting to permit the operating system to control the CPU speed. The BIOS will start with high CPU speed.

Optimal and Fail-Safe default settings: Automatic

Execute Disable Bit

This function is used to specify the Execute Disable Bit feature.

SETTING	DESCRIPTION
Disabled	Use this setting to disable this function. When this setting is used, the BIOS forces the XD feature flag to always return to 0.
Enabled	Use this setting to enable this function. When this setting is used, the executable code cannot be run in the data segment.

Optimal and Fail-Safe default settings: Enabled

Intel® C-STATE tech.: Cn Config

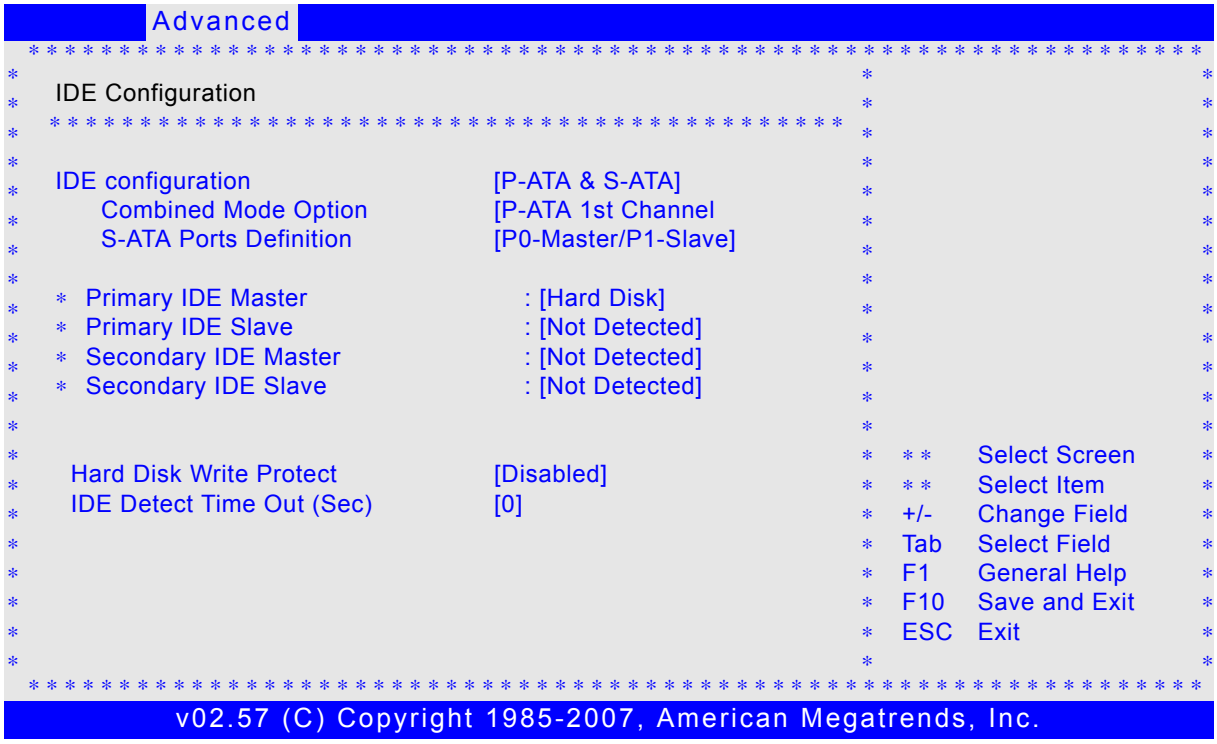
This function controls the availability of the CPU C-STATE power saving technology. The individual C-STATE functions are selectable independent of one another, i.e. C1, C2, and C3 may be enabled/disabled in any combination.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Cn Config.
Standard	Use this setting to make the Cn State available to the OS.

Optimal and Fail-Safe default settings for C1, C2, and C3: Standard

IDE CONFIGURATION SCREEN

This screen provides functions for specifying IDE configuration settings.



IDE Configuration

This function specifies the IDE channel modes.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the system from using the onboard controller.
P_ATA only	Use this setting to allow the system to detect 4 P-ATA & 2 S-ATA channels.
S-ATA only	Use this setting to allow the system to detect 2 S-ATA channels.
P-ATA & S-ATA	Use this setting to allow the system to detect the 2 P-ATA & 2 S-ATA channels.

Optimal and Fail-Safe default settings: P-ATA & S-ATA

Hard Disk Drive Write Protect

This function is to used to specify write protection for all hard disk drives in the system.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the hard disk drive write protect. When this setting is used, read, write, and erase functions can be performed on all of the hard disk drives.
Enabled	Use this setting to prevent all of the hard disk drives from being erased.

Optimal and Fail-Safe default settings: Disabled

IDE Detect Time Out (Sec)

SETTING	DESCRIPTION
0, 5, 10, 15, 20, 25, 30, 35 (in seconds)	Use one of these settings to specify how long the BIOS is to wait for IDE devices to be detected before continuing with booting. Basically, this enables fine-tuning of the settings to allow for faster boot times. Adjust this setting until a suitable timing that can detect all attached IDE disk drives is found.

Optimal and Fail-Safe default settings: 0

Primary, Secondary, Third and Fourth IDE Master and Slave

These functions provide access to the Primary, Secondary, Third and Fourth IDE Master and Slave sub-screens. They are only available if an IDE device is detected as Primary, Secondary, Third or Fourth IDE Master or Slave.

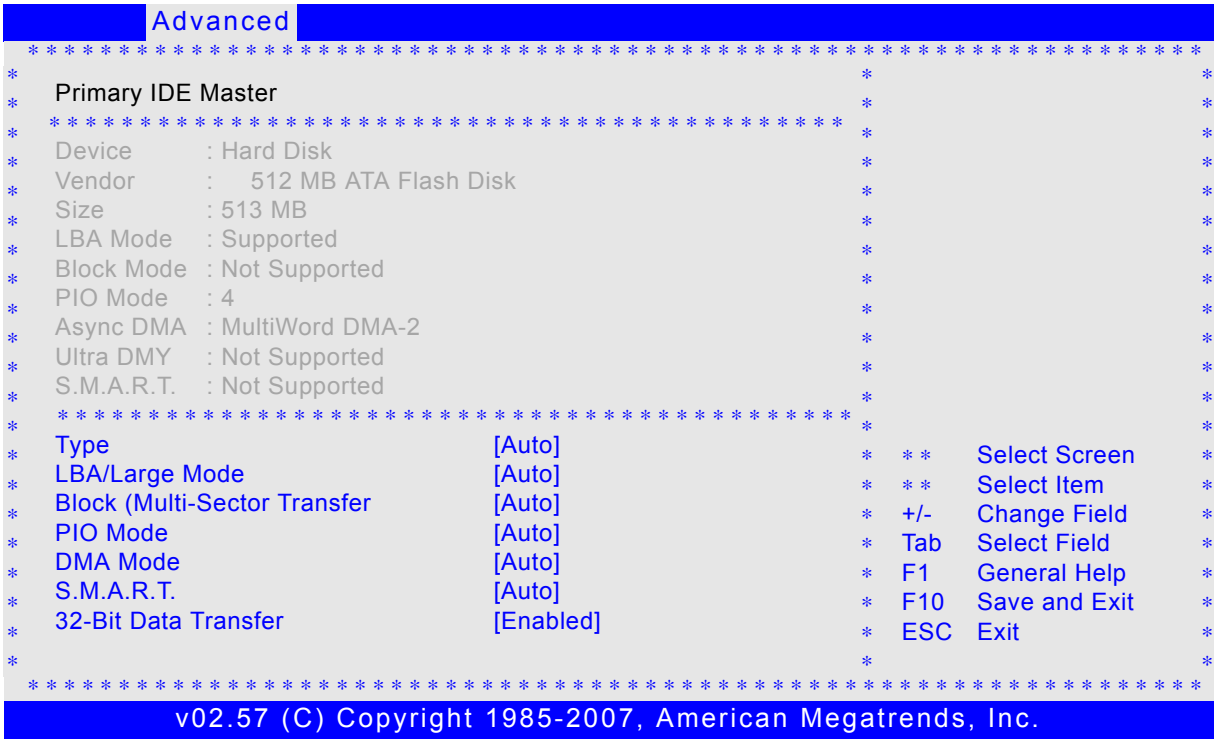
To access the submenu for the Primary, Secondary, Third and Fourth IDE Master and Slave drives, select the respective function from the IDE Configuration screen and press <Enter>.

The following screen is representative for the Primary, Secondary, Third and Fourth IDE Master and Slave devices.

Primary IDE Master Screen

This screen provides basic information concerning the primary IDE master device and functions for specifying device configuration settings.

This screen and the descriptions which follow are representative for the primary, secondary, third, and fourth IDE master and slave devices.



Drive Parameters

The “grayed-out” items in the left frame are the IDE disk drive parameters taken from the firmware of the IDE disk drive selected. The drive parameters listed are as follows:

PARAMETER	DESCRIPTION
Device	Type of device, such as hard disk drive.
Vendor	Manufacturer of the device.
Size	The size of the device.
LBA Mode	LBA (Logical Block Addressing) is a method of addressing data on a disk drive. The AM4002 supports 48-bit LBA mode. Thus, hard disks with a drive capacity greater than 137 GB can be used on the AM4002.
Block Mode	Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt.
PIO Mode	IDE PIO mode programs timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.
Async DMA	This indicates the highest Asynchronous DMA Mode that is supported.
Ultra DMA	This indicates the highest Synchronous DMA Mode that is supported.
S.M.A.R.T.	Self-Monitoring Analysis and Reporting Technology protocol used by IDE drives of some manufacturers to predict drive failures.

Type

SETTING	DESCRIPTION
Not Installed	Use this setting to prevent the BIOS from searching for an IDE disk drive on the specified channel.
Auto	Use this setting to permit the BIOS to auto detect the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.
CDROM	Use this setting to specify that an IDE CD-ROM drive is attached to the specified IDE channel. In this case, the BIOS will not attempt to search for other types of IDE disk drives on the specified channel.
ARMD	Use this setting to specify an ATAPI Removable Media Device. This includes, but is not limited to: • ZIP • LS-120

Optimal and Fail-Safe default settings: Auto

LBA/Large Mode

LBA (Logical Block Addressing) is a method of addressing data on a disk drive. In LBA mode, the AM4002 supports drive capacities greater than 137 GB (48-bit LBA mode).

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the BIOS from using Large Block Addressing mode control on the specified channel.
Auto	Use this setting to permit the BIOS to auto detect the Large Block Addressing mode control on the specified channel.

Optimal and Fail-Safe default settings: Auto

Block (Multi-Sector Transfer)

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the BIOS from using Multi-Sector Transfer on the specified channel. The data transfer to and from the device will be one sector at a time.
Auto	Use this setting to permit the BIOS to auto detect device support for Multi-Sector Transfers on the specified channel. If supported, the data transfer to and from the device will be multiple sectors at a time.

Optimal and Fail-Safe default settings: Auto

PIO Mode

IDE PIO (Programmable I/O) mode programs timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

SETTING	DESCRIPTION
Auto	Use this setting to permit the BIOS to auto detect the PIO mode. Specify Auto if the IDE disk drive support cannot be determined.
0	Use this setting to permit the BIOS to use PIO mode 0. This mode has a data transfer rate of 3.3 Mbit/s.
1	Use this setting to permit the BIOS to use PIO mode 1. This mode has a data transfer rate of 5.2 Mbit/s.
2	Use this setting to permit the BIOS to use PIO mode 2. This mode has a data transfer rate of 8.3 Mbit/s.
3	Use this setting to permit the BIOS to use PIO mode 3. This mode has a data transfer rate of 11.1 Mbit/s.
4	Use this setting to permit the BIOS to use PIO mode 4. This mode has a data transfer rate of 16.6 Mbit/s. This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.

Optimal and Fail-Safe default settings: Auto

DMA Mode

SETTING	DESCRIPTION
Auto	Use this setting to permit the BIOS to auto detect the DMA mode. Specify Auto if the IDE disk drive support cannot be determined.
SWDMA0	Use this setting to permit the BIOS to use Single Word DMA mode 0. This mode has a data transfer rate of 2.1 MBs.
SWDMA1	Use this setting to permit the BIOS to use Single Word DMA mode 1. This mode has a data transfer rate of 4.2 MBs.
SWDMA2	Use this setting to permit the BIOS to use Single Word DMA mode 2. This mode has a data transfer rate of 8.3 MBs.
MWDMA0	Use this setting to permit the BIOS to use Multi Word DMA mode 0. This mode has a data transfer rate of 4.2 MBs.
MWDMA1	Use this setting to permit the BIOS to use Multi Word DMA mode 1. This mode has a data transfer rate of 13.3 MBs.
MWDMA2	Use this setting to permit the BIOS to use Multi Word DMA mode 2. This mode has a data transfer rate of 16.6 MBs.
UDMA0	Use this setting to permit the BIOS to use Ultra DMA mode 0. This mode has a data transfer rate of 16.6 MBs. It has the same transfer rate as PIO mode 4 and Multi Word DMA mode 2.
UDMA1	Use this setting to permit the BIOS to use Ultra DMA mode 1. This mode has a data transfer rate of 25 MBs.
UDMA2	Use this setting to permit the BIOS to use Ultra DMA mode 2. This mode has a data transfer rate of 33.3 MBs.
UDMA3	Use this setting to permit the BIOS to use Ultra DMA mode 3. This mode has a data transfer rate of 44.4 MBs. To use this mode, it is required that an 80-conductor ATA cable is used.
UDMA4	Use this setting to permit the BIOS to use Ultra DMA mode 4. This mode has a data transfer rate of 66.6 MBs. To use this mode, it is required that an 80-conductor ATA cable is used.
UDMA5	Use this setting to permit the BIOS to use Ultra DMA mode 5. This mode has a data transfer rate of 99.9 MBs. To use this mode, it is required that an 80-conductor ATA cable is used.
UDMA6	Use this setting to permit the BIOS to use Ultra DMA mode 6. This mode has a data transfer rate of 133.2 MBs. To use this mode, it is required that an 80-conductor ATA cable is used.

Optimal and Fail-Safe default settings: Auto

S.M.A.R.T.

Self-Monitoring Analysis and Reporting Technology (S.M.A.R.T.): This feature can help predict impending drive failures.

SETTING	DESCRIPTION
Auto	Use this setting to permit the BIOS to auto detect hard disk drive support. Specify Auto if the IDE disk drive support cannot be determined.
Disabled	Use this setting to prevent the BIOS from using the S.M.A.R.T. feature.
Enabled	Use this setting to permit the BIOS to use the S.M.A.R.T. feature with hard disk drives that support this feature.

Optimal and Fail-Safe default settings: Auto

32-Bit Data Transfer

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the BIOS from using 32-bit data transfers.
Enabled	Use this setting to permit the BIOS to use 32-bit data transfers with hard disk drives that support this feature.

Optimal and Fail-Safe default settings: Disabled

ARMD Emulation Type

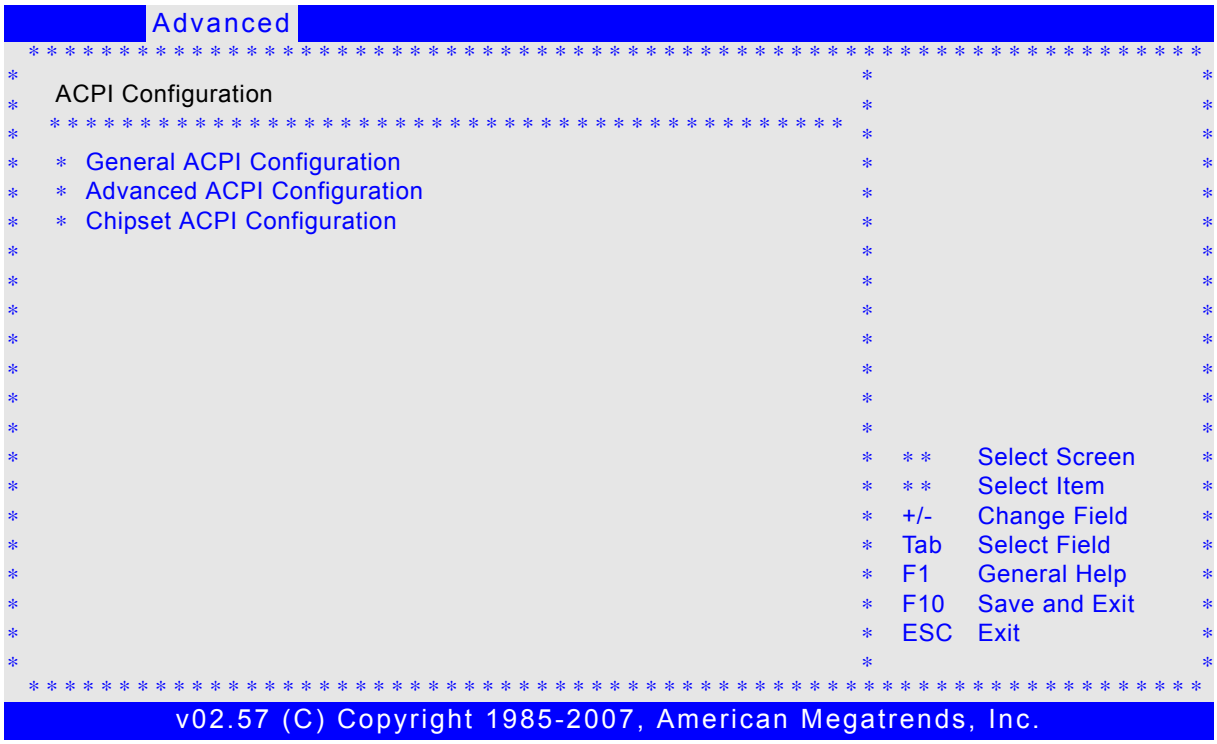
An ATAPI Removable Media Device (ARMD) is a device that uses removable media such as the LS120, MO (Magneto-Optical), or Iomega Zip drives. To boot from media on an ARMD, it is required to emulate booting from a floppy or hard disk drive. This is especially necessary when trying to boot to DOS.

SETTING	DESCRIPTION
Auto	Use this setting to permit the BIOS to automatically set the emulation used by ARMD.
Floppy	Use this setting to specify that the ARMD is to emulate a floppy drive during booting.
Hard disk drivel	Use this setting to specify that the ARMD to emulate a hard disk drive during booting.

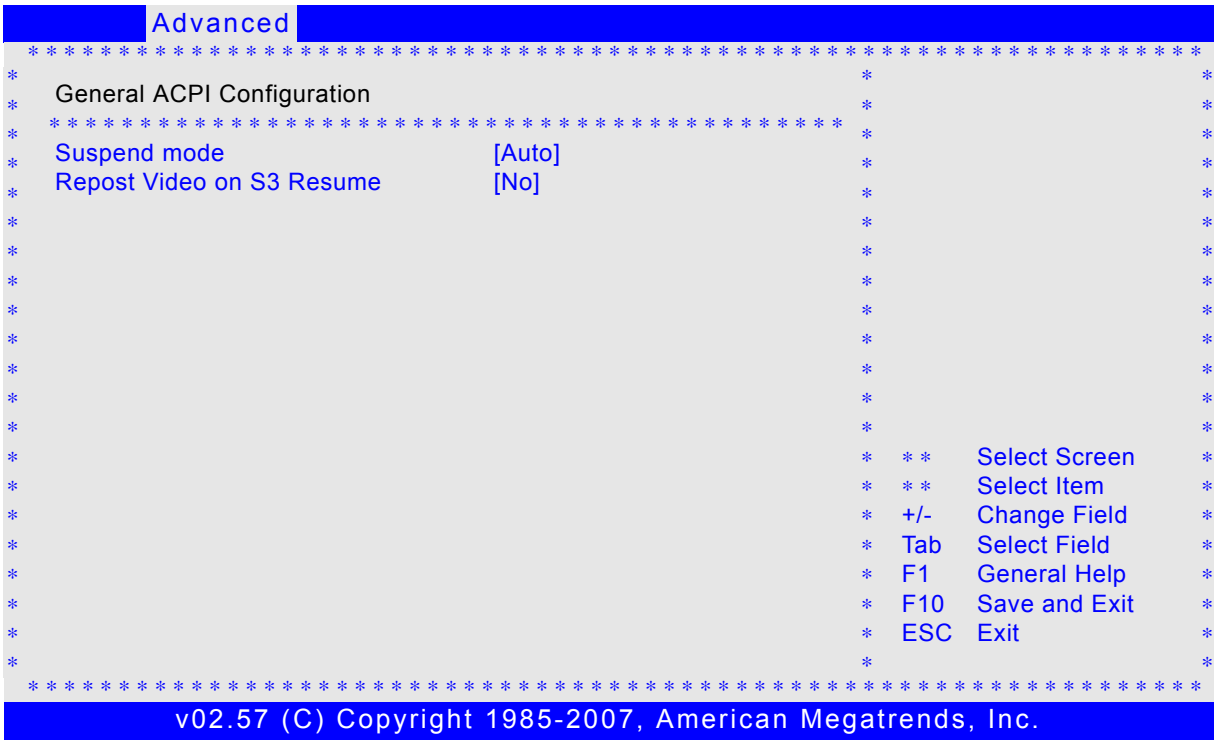
Optimal and Fail-Safe default settings: Auto

ACPI CONFIGURATION SCREEN

This screen provides access to sub-screens which permit the configuration of various Advanced Configuration and Power Interface (ACPI) functions. To gain access to a sub-screen, select it and press <Enter>.



General ACPI Configuration Screen



Suspend Mode

This function is used to select the ACPI state for System Suspend.

SETTING	DESCRIPTION
S1 (Pos)	Use this setting to allow the system to enter sleep mode.
Auto	Use this setting to automatically select the suspend mode via the operating system.

Optimal and Fail-Safe default settings: S1 (Pos)

Repost Video on S3 Resume

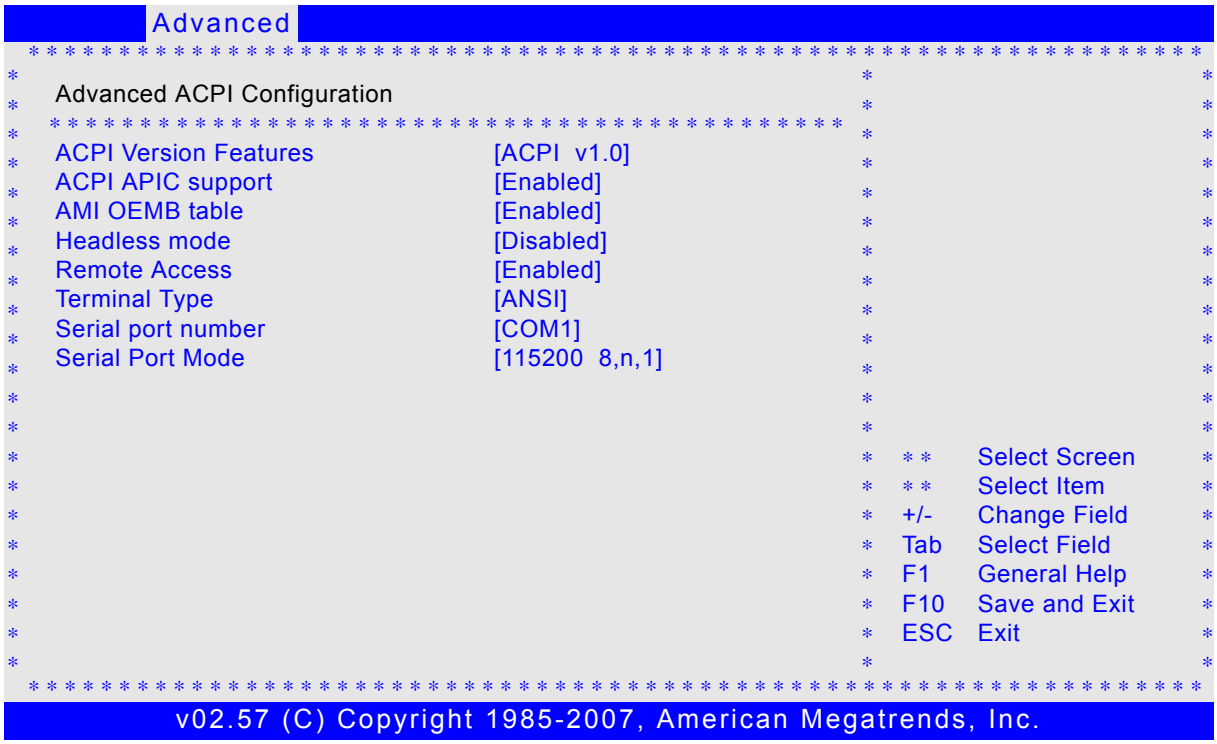
This function is used to enable video repost support.

Note: This function is available only when Suspend Mode is not set to S1 (Pos).

SETTING	DESCRIPTION
No	Use this setting to prevent invoking the Video BIOS after system wakeup from sleep state.
Yes	Use this setting to allow invoking the Video BIOS after system wakeup from sleep state.

Optimal and Fail-Safe default settings: No

Advanced ACPI Configuration Screen



ACPI Version Features

This function is used to select the ACPI specification version required by the BIOS for generating the ACPI tables.

SETTING	DESCRIPTION
ACPI v. 1.0	Use this setting to specify that RSDT, FACP and MADT follow the ACPI 1.0 specification.
ACPI v. 2.0	Use this setting to specify that XSDT, FACP and MADT follow the ACPI 2.0 specification.
ACPI v. 3.0	Use this setting to specify that XSDT, FACP and MADT follow the ACPI 3.0 specification.

Optimal and Fail-Safe default settings: ACPI v. 1.0

ACPI APIC Support

This function is used to include the ACPI APIC table pointer to the RSDT pointer list.

SETTING	DESCRIPTION
Disabled	Use this setting to exclude the ACPI APIC table pointer from the RSDT pointer list.
Enabled	Use this setting to include the ACPI APIC table pointer to the RSDT pointer list.

Optimal and Fail-Safe default settings: Enabled

AMI OEMB Table

This function is used to include the OEMB table pointer to R(X)SDT pointer list.

SETTING	DESCRIPTION
Disabled	Use this setting to exclude the OEMB table pointer from the R(X)SDT pointer list.
Enabled	Use this setting to include the OEMB table pointer to the R(X)SDT pointer list.

Optimal and Fail-Safe default settings: Enabled

Headless Mode

This function is used to update the ACPI FACP table to indicate headless operations.

SETTING	DESCRIPTION
Disabled	Use this setting to disable updating of the ACPI FACP table to indicate headless operation.
Enabled	Use this setting to enable updating of the ACPI FACP table to indicate headless operation.

Optimal and Fail-Safe default settings: Disabled

Remote Access

This function is used to enable the BIOS remote access feature.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the BIOS from using Remote Access.
Enabled	Use this setting to allow the system to use the remote access feature. The remote access feature requires a dedicated serial port connection.

Optimal and Fail-Safe default settings: Enabled

Terminal Type

This function is used to select the target terminal type.

Note: This function is only available when the Remote Access function is set to Enabled.

SETTING	DESCRIPTION
ANSI	Use this setting to specify that the target terminal type is ANSI.
VT100	Use this setting to specify that the target terminal type is VT100.
VT-UTF8	Use this setting to specify that the target terminal type is VT-UTF8.

Optimal and Fail-Safe default settings: ANSI

Serial Port Number

This function is used to select the serial port for console redirection.

Note: This function is only available when the Remote Access function is set to Enabled.

SETTING	DESCRIPTION
COM1	Use this setting to select COM1 (Communication port 1 to front I/O) as the remote access interface.
COM2	Use this setting to select COM2 (Communication port 2) for the remote access interface.

Optimal and Fail-Safe default settings: COM1

Serial Port Mode

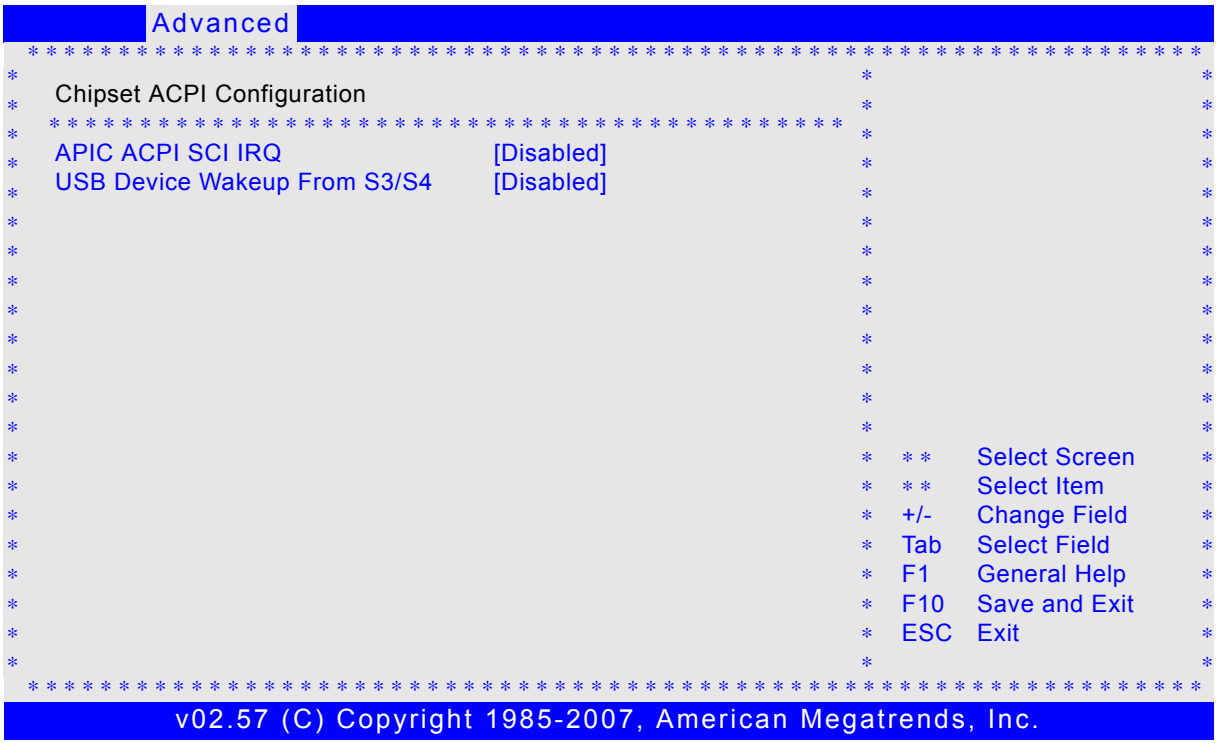
This function is used to select the baud rate (transmitted bits per second) of the serial port for console redirection.

Note: This function is only available when the Remote Access function is set to Enabled.

SETTING	DESCRIPTION
115200 8,n,1	Use this setting to select 115200 as the baud rate of the serial port.
57600 8,n,1	Use this setting to select 57600 as the baud rate of the serial port.
38400 8,n,1	Use this setting to select 38400 as the baud rate of the serial port.
19200 8,n,1	Use this setting to select 19200 as the baud rate of the serial port.
09600 8,n,1	Use this setting to select 09600 as the baud rate of the serial port.

Optimal and Fail-Safe default settings: 115200 8,n,1

Chipset ACPI Configuration Screen



APIC ACPI SCI IRQ

SETTING	DESCRIPTION
Disabled	Use this setting to disable APIC ACPI SCI IRQ.
Enabled	Use this setting to enable APIC ACPI SCI IRQ.

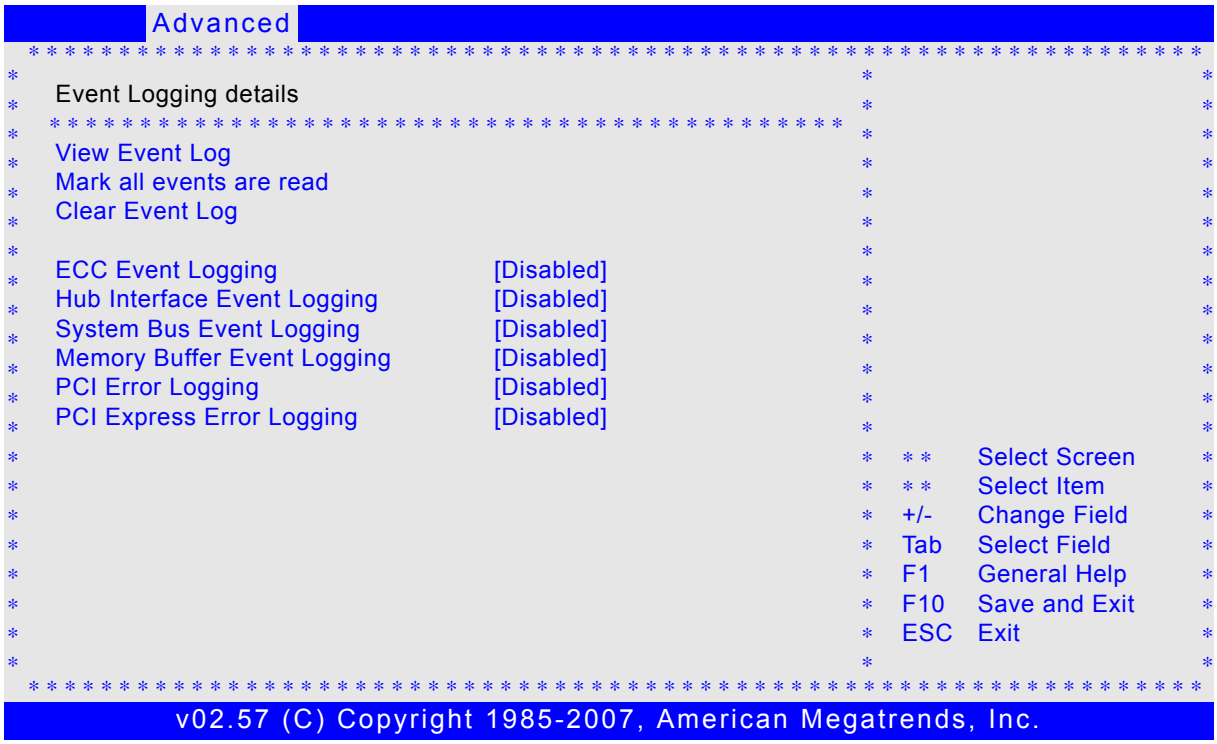
Optimal and Fail-Safe default settings: Disabled

USB Device Wakeup From S3/S4

SETTING	DESCRIPTION
Disabled	Use this setting to disable USB Device Wakeup from S3/S4.
Enabled	Use this setting to enable USB Device Wakeup from S3/S4.

Optimal and Fail-Safe default settings: Disabled

Event Log Configuration Screen



View Event Log

Selection of this function causes a popup window to appear with all unread events, for example:

01/01/02 13:12:56

CMOS time not set

Mark all events as read

Selection of this function causes all unread events to be marked as read.

Clear Event Log

Selection of this function causes the contents of the event log to be deleted.

ECC Event Logging

SETTING	DESCRIPTION
Disabled	Use this setting to disable ECC memory error event logging.
Enabled	Use this setting to enable ECC memory error event logging.

Optimal and Fail-Safe default settings: Disabled

Hub Interface Event Logging

SETTING	DESCRIPTION
Disabled	Use this setting to disable event logging of the I/O controller hub interface.
Enabled	Use this setting to enable event logging of the I/O controller hub interface.

Optimal and Fail-Safe default settings: Disabled

System Bus Event Logging

SETTING	DESCRIPTION
Disabled	Use this setting to disable system bus event logging.
Enabled	Use this setting to enable system bus event logging.

Optimal and Fail-Safe default settings: Disabled

Memory Buffer Event Logging

SETTING	DESCRIPTION
Disabled	Use this setting to disable memory buffer event logging.
Enabled	Use this setting to enable memory buffer event logging.

Optimal and Fail-Safe default settings: Disabled

PCI Error Logging

SETTING	DESCRIPTION
Disabled	Use this setting to disable PCI error logging.
Enabled	Use this setting to enable PCI error logging.

Optimal and Fail-Safe default settings: Disabled

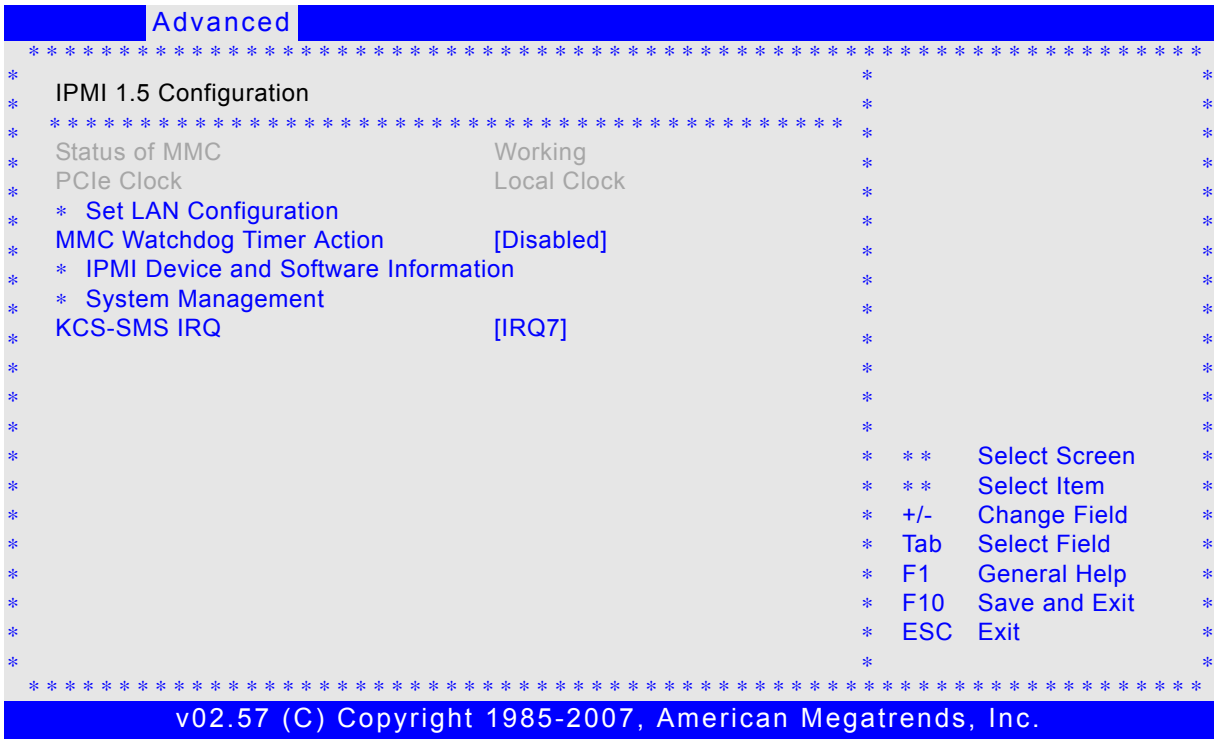
PCI Express Error Logging

SETTING	DESCRIPTION
Disabled	Use this setting to disable PCI Express error logging.
Enabled	Use this setting to enable PCI Express error logging.

Optimal and Fail-Safe default settings: Disabled

IPMI 1.5 CONFIGURATION SCREEN

The following screens provide the ability to view as well as clear the MMC event log. In addition, there are functions for accessing sub-screens and for specifying configuration settings.



Status of MMC

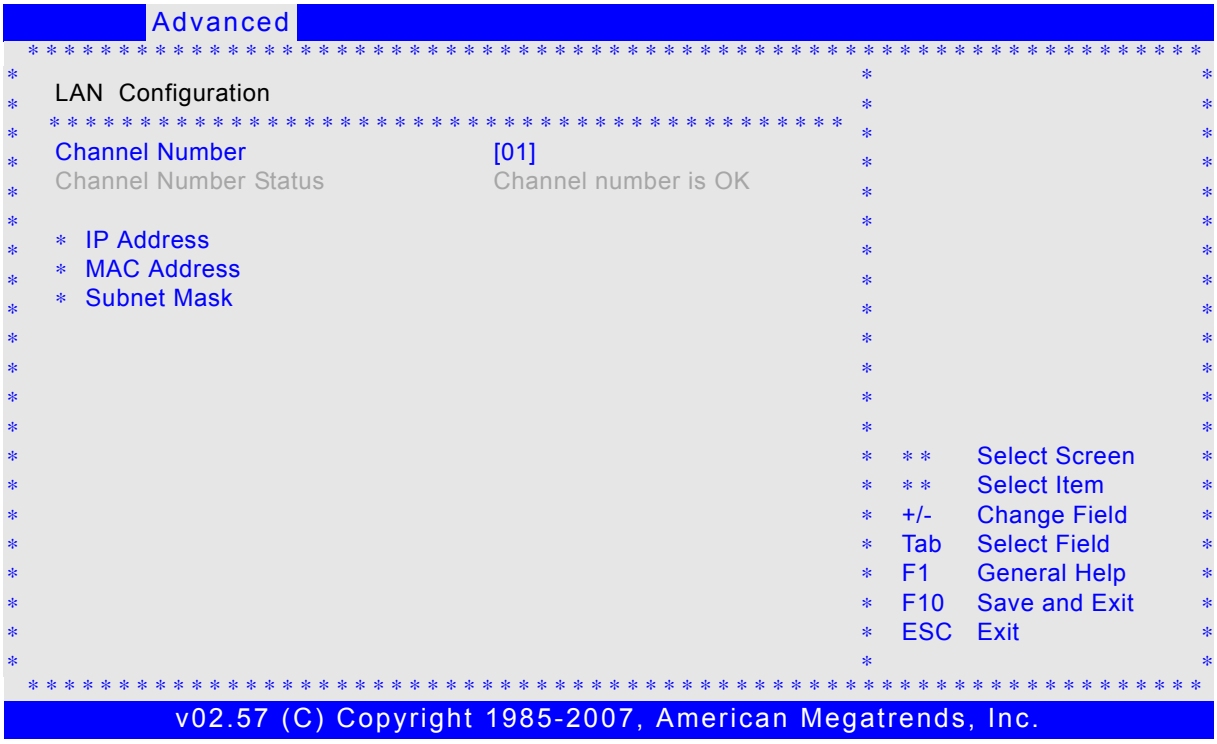
This is a display-only function which indicates the operational status of the MMC.

PCIe Clock

This is a display-only function that indicates which clock is active on the AMC module (either the local clock or the system clock).

Set LAN Configuration Screen

This screen provides functions to program the MMC with an IP address, a MAC address, a subnet mask and a gateway address. For further information concerning these settings, refer to the IPMI 1.5 Specification, Section 19.1.



Channel Number

SETTING	DESCRIPTION
<nn>	Use this function to specify the channel number for IPMI communications. If IPMI communicates through LAN channel 1, the channel number should remain at “01” and so on.

Channel Number Status

This is a display only function which indicates the validity of the channel number set with the Channel Number function.

IP Address

SETTING	DESCRIPTION
<nnn.nnn.nnn.nnn>	Use this function to specify the IP address for IPMI communications. Enter the address in decimal form where nnn. must be in the range: 000 to 255

Current IP Address

This is a display only function which indicates the current IP address setting for IPMI communications.

MAC Address

SETTING	DESCRIPTION
<XX:XX:XX:XX:XX:XX>	Use this function to specify the MAC address for IPMI communications. Enter the address in hexadecimal form where XX:. must be in the range: 00 to FF

Current MAC Address

This is a display only function which indicates the current MAC address setting for IPMI communications.

Subnet Mask

SETTING	DESCRIPTION
<nnn.nnn.nnn.nnn>	Use this function to specify the Subnet Mask for IPMI communications. Enter the address in decimal form where nnn. must be in the range: 000 to 255

Current Subnet Mask

This is a display only function which indicates the current Subnet Mask setting for IPMI communications.

MMC Watchdog Timer Action

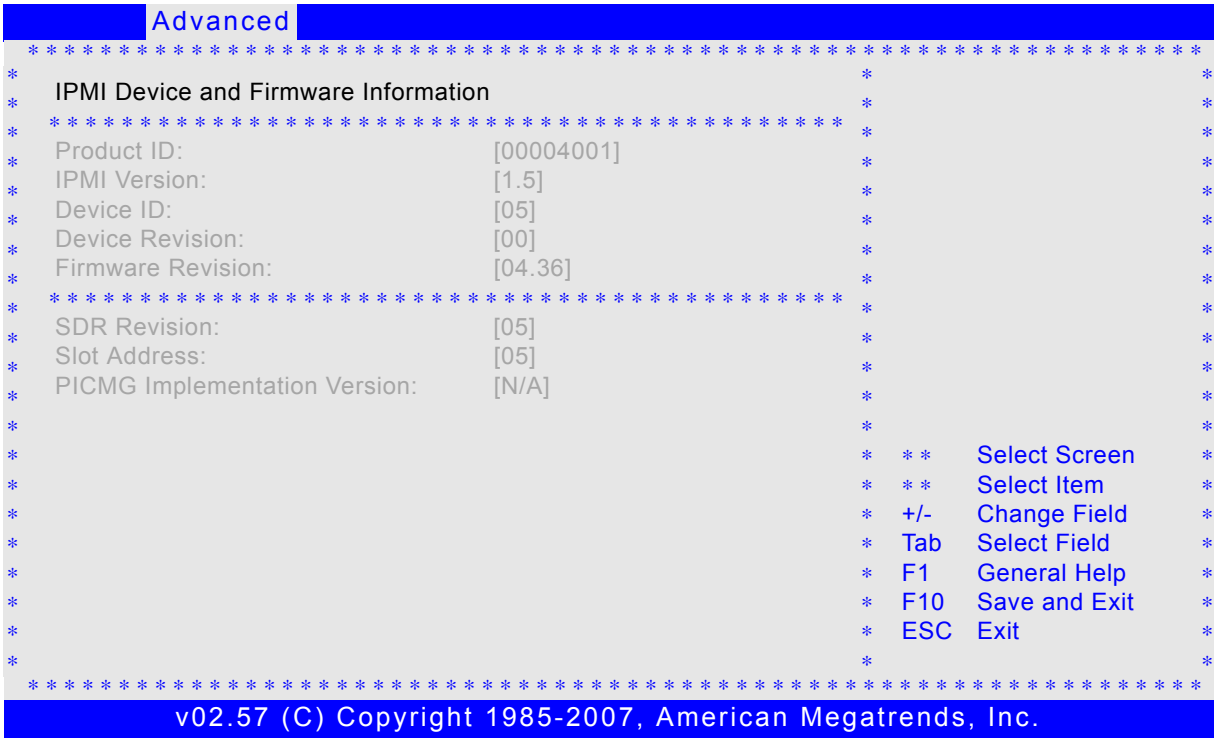
This function is used to specify what action if any the MMC is to perform in the event of a Watchdog timeout.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the computer system from invoking the MMC Watchdog function.
Reset System	Use this setting to specify that the MMC is to reset the system in the event of a Watchdog timeout.
Power Down	Use this setting to specify that the MMC is to power the system down in the event of a Watchdog timeout.
Power Cycle	Use this setting to specify that the MMC is to turn system power off and then on again in the event of a Watchdog timeout.

Optimal and Fail-Safe default settings: Disabled

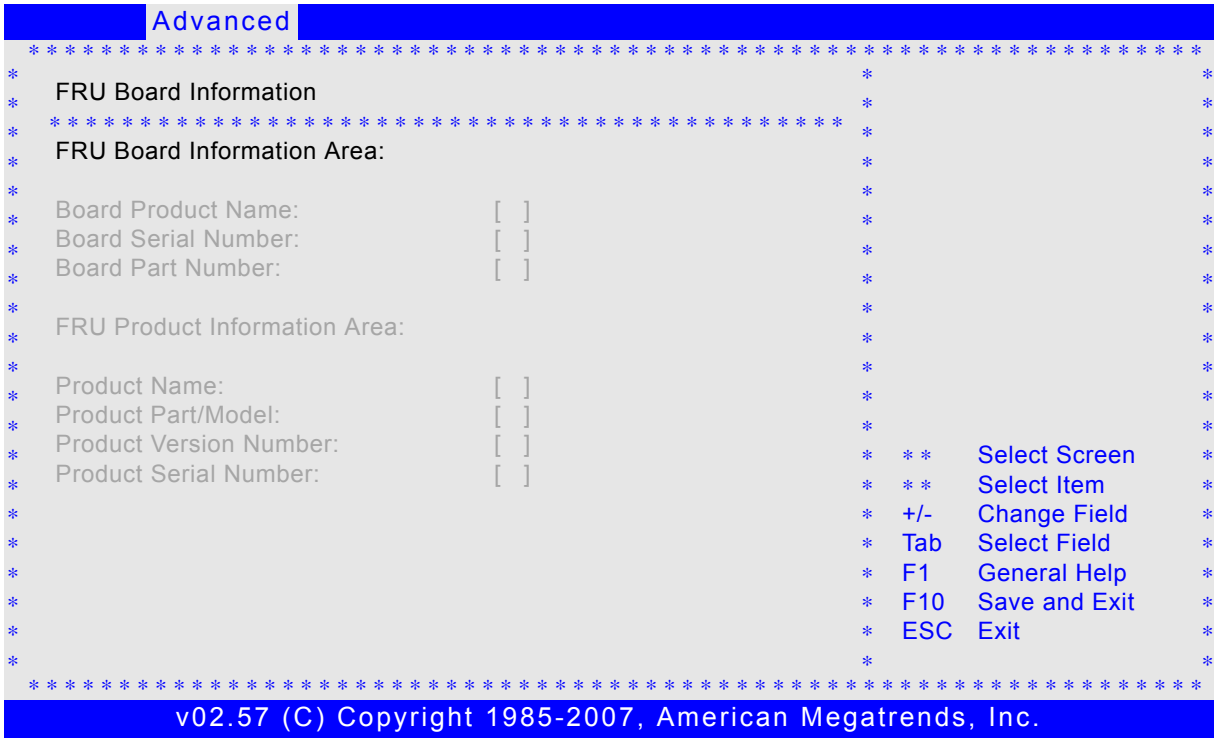
IPMI Device and Firmware Information Screen

This screen provides basic information concerning IPMI. There are no user configurable functions on this screen.



System Management Screen

This screen provides basic information concerning the FRU. There are no user configurable functions on this screen.



KCS-SMS IRQ

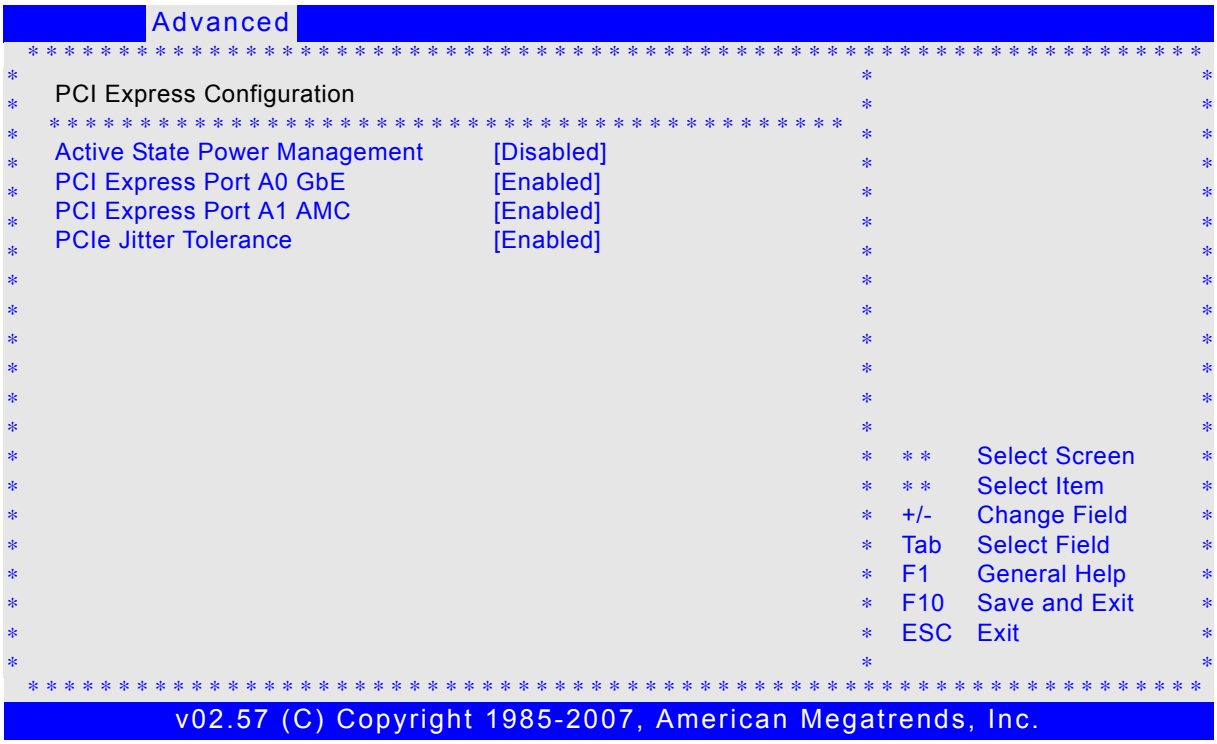
This function is used to reserve an IRQ for the system management software.

SETTING	DESCRIPTION
Disabled	Use this setting to disable IRQ reservation for the system management software.
IRQ7	Use this setting to reserve an IRQ for the system management software.

Optimal and Fail-Safe default settings: Disabled

PCI EXPRESS CONFIGURATION SCREEN

This screen provides functions for specifying configuration settings.



Active State Power Management

SETTING	DESCRIPTION
Disabled	Use this setting to disable the PCI Express Active State Power Management on the L0 and L1 links.
Enabled	Use this setting to permit the PCI Express Active State Power Management on the L0 and L1 links.

Optimal and Fail-Safe default settings: Disabled

PCI Express Port A0/A1

This function is used to select the PCI Express port.

SETTING	DESCRIPTION
Disabled	Use this setting to always hide Port A0.
Enabled	Use this setting to make Port A1 visible.
Auto	Use this setting to make Port A0 visible when the PCI Express card is inserted.

Optimal and Fail-Safe default settings: Enabled

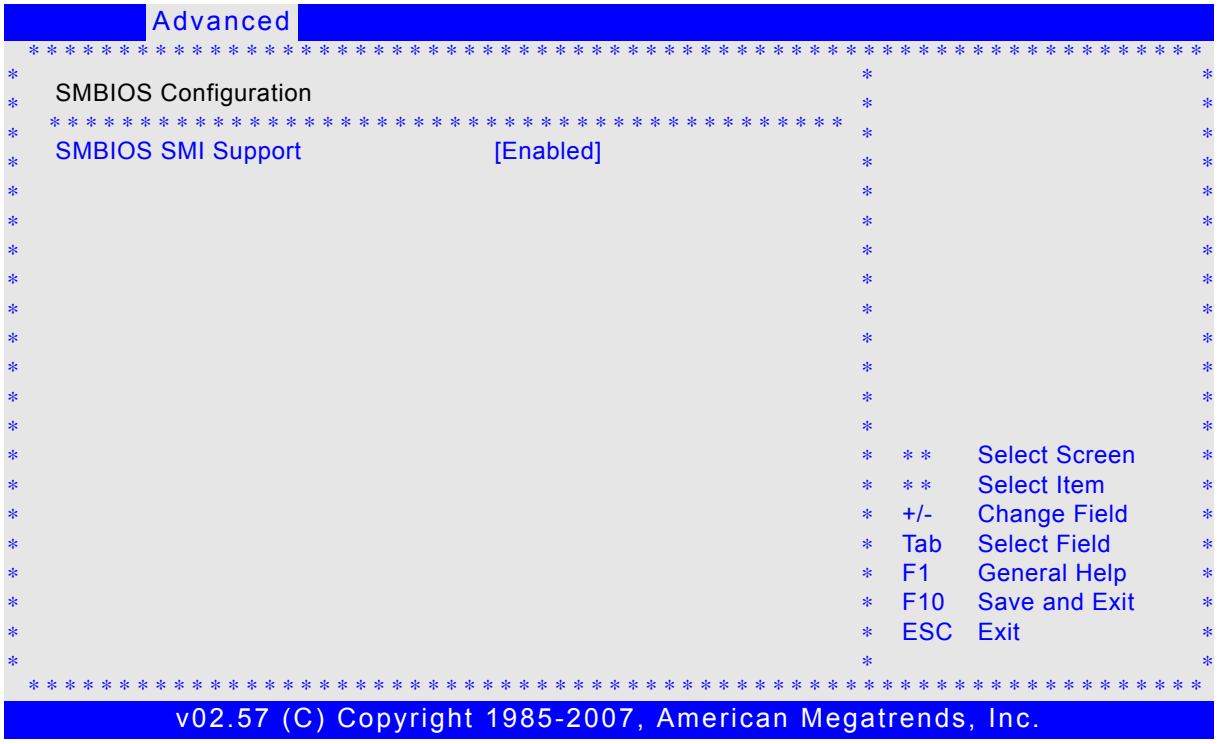
PCIe Jitter Tolerance

SETTING	DESCRIPTION
Disabled	Use this setting to disable PCIe jitter tolerance.
Enabled	Use this setting to enable PCIe jitter tolerance.

Optimal and Fail-Safe default settings: Enabled

SMBIOS CONFIGURATION SCREEN

This screen provides one function for specifying the configuration of the SMBIOS SMI support.



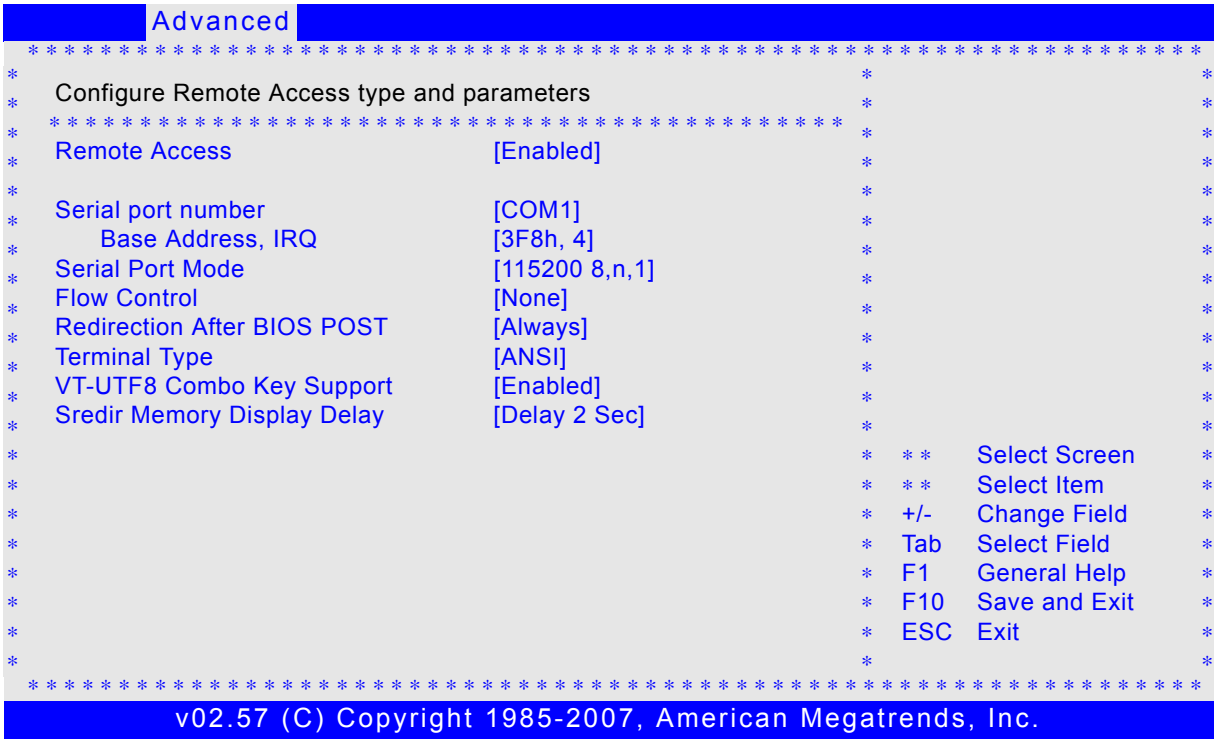
SMBIOS SMI Support

SETTING	DESCRIPTION
Disabled	Use this setting to disable the SMBIOS SMI support.
Enabled	Use this setting to permit the SMBIOS SMI support for the PNP Function 50 h – 54 h.

Optimal and Fail-Safe default settings: Enabled

REMOTE ACCESS CONFIGURATION SCREEN

This screen provides functions for specifying configuration settings.



Remote Access

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the BIOS from using Remote Access.
Enabled	Use this setting to permit the system to use the remote access feature. The remote access feature requires a dedicated serial port connection.

Optimal and Fail-Safe default settings: Enabled

Serial Port Number

This function is used to select the serial port for console redirection. It is not available if Remote Access is set to Disabled.

SETTING	DESCRIPTION
COM1	Use this setting to select COM1 (communication port 1) as the remote access interface.
COM2	Use this setting to select COM2 (communication port 2) as the remote access interface.
COM3	COM3 is the COM port of the 82571EB Ethernet controller. Console redirection is not supported on this port.

Optimal and Fail-Safe default settings: COM1

Base Address, IRQ

This is a display only function which indicates the base address and IRQ for the serial port specified above. This information is derived from the settings specified by the ICH SIO Serial Port 1/2 Address function on the South Bridge Chipset Configuration screen.

Serial Port Mode

This function is used to specify the baud rate of the serial port used for console redirection. It is not available if Remote Access is set to Disabled.

SETTING	DESCRIPTION
115200 8,n,1 57600 8,n,1 38400 8,n,1 19200 8,n,1 09600 8,n,1	Use one of these settings to specify the baud rate for the serial port used for console redirection.

Optimal and Fail-Safe default settings: 11520 8,n,1

Flow Control

This function is used to select the flow control of the serial port used for console redirection. It is not available if Remote Access is set to Disabled.

SETTING	DESCRIPTION
None	Use this setting to disable flow control.
Software	Use this setting to select the flow control by software.
Hardware	Use this setting to select the flow control by hardware.

Optimal and Fail-Safe default settings: None

Redirection After BIOS POST

This function is used to select redirection after BIOS POST for the serial port used for console redirection. It is not available if Remote Access is set to Disabled.

SETTING	DESCRIPTION
Disabled	Use this setting to turn off the redirection after POST.
BootLoader	Use this setting to activate the redirection during POST and during BootLoader.
Always	Use this setting to set redirection to always active.

Optimal and Fail-Safe default settings: Always

Terminal Type

This function is used to select the target terminal type for the serial port used for console redirection. It is not available if Remote Access is set to Disabled.

SETTING	DESCRIPTION
ANSI	Use this setting to select the target terminal type: ANSI.
VT100	Use this setting to select the target terminal type: VT100.
VT-UTF8	Use this setting to select the target terminal type: VT-UTF8.

Optimal and Fail-Safe default settings: ANSI

VT-UTF8 Combo Key Support

This function is used to enable or disable the VT-UTF8 combo key support for the serial port used for console redirection. It is not available if Remote Access is set to Disabled.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the VT-UTF8 combination key support for the ANSI/VT100 terminals.
Enabled	Use this setting to enable the VT-UTF8 combination key support for the ANSI/VT100 terminals.

Optimal and Fail-Safe default settings: Enabled

Sredir Memory Display Delay

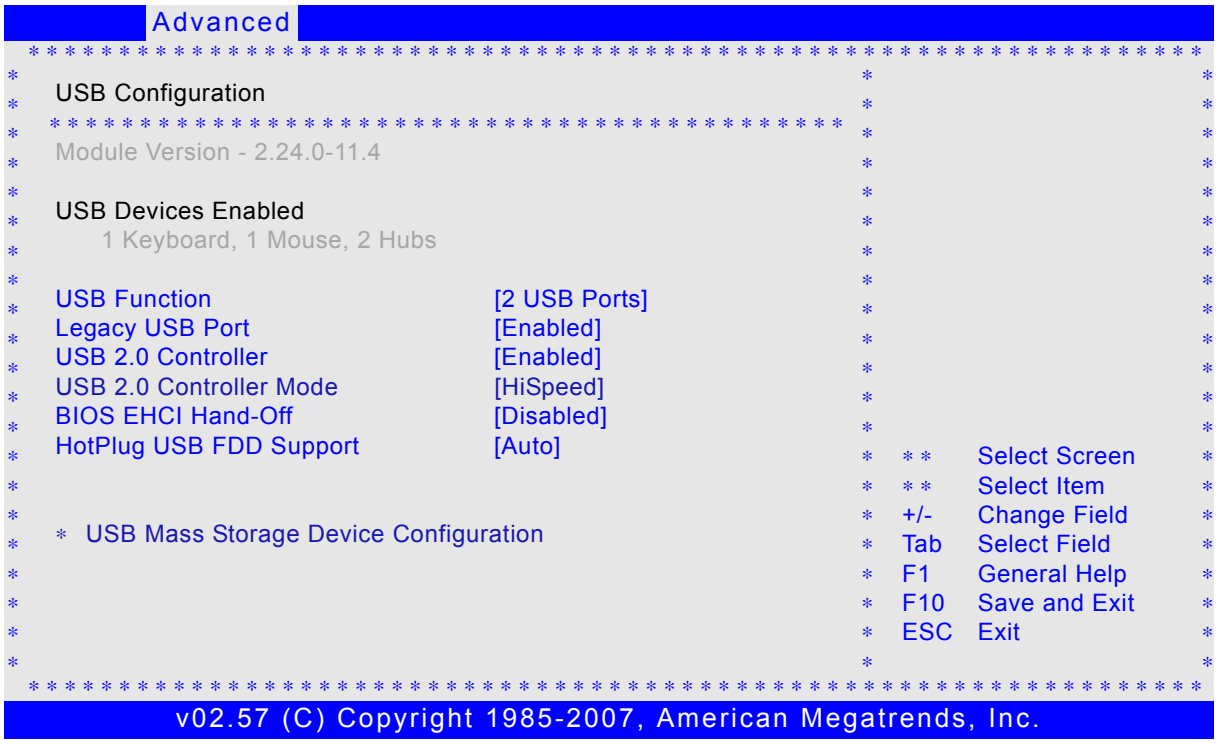
This function is used to select the time during which the serial redirection memory usage information is displayed on the serial console at start of POST. It is not available if Remote Access is set to Disabled.

SETTING	DESCRIPTION
No Delay	Use this setting to disable delaying.
Delay 1 sec. Delay 2 sec. Delay 4 sec.	Use one of these settings to specify displaying of the serial redirection memory usage information for the time specified (in seconds)

Optimal and Fail-Safe default settings: Delay 2 Sec.

USB CONFIGURATION SCREEN

The following screens provide basic information concerning the USB configuration and functions for specifying configuration settings.



Module Version

This is a display only function which indicates the module version.

USB Devices Enabled

This is a display only function which indicates any USB devices connected to the AM4002.

USB Function

SETTING	DESCRIPTION
Disabled	Use this setting to disable initialization of the onboard USB ports.
2 USB Ports	Use this setting to specify the allocation of 2 USB ports.
All USB Ports	Use this setting to specify the allocation of all USB ports.

Optimal and Fail-Safe default settings: 2 USB Ports

Legacy USB Support

This function is not available if USB Function is set to Disabled.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the legacy USB support (e.g. a USB keyboard cannot be used to change the BIOS settings).
Enabled	Use this setting to enable the legacy USB support.
Auto	Use this setting to disable the legacy USB support if there are no USB devices connected.

Optimal and Fail-Safe default settings: Enabled

USB 2.0 Controller

This function is not available if USB Function is set to Disabled.

SETTING	DESCRIPTION
Disabled	Use this setting to disable initialization of the USB 2.0 controller (EHCI).
Enabled	Use this setting to enable the USB 2.0 controller.

Optimal setting: Enabled

Fail-Safe default setting: Disabled

USB 2.0 Controller Mode

This function is not available if USB Function is set to Disabled.

SETTING	DESCRIPTION
Full Speed	Use this setting to configure the USB 2.0 controller for Full Speed (12 Mbps).
HiSpeed	Use this setting to configure the USB 2.0 controller for HiSpeed (480 Mbps).

Optimal and Fail-Safe default settings: HiSpeed

BIOS EHCI Hand-Off

This function is used to enable or disable a workaround for operating systems without EHCI hand-off support. The EHCI ownership change should be claimed by the ECHI driver.

SETTING	DESCRIPTION
Disabled	Use this setting to disable EHC1 hand-off support.
Enabled	Use this setting to enable EHC1 hand-off support.

Optimal and Fail-Safe default settings: Disabled

Hotplug USB FDD Support

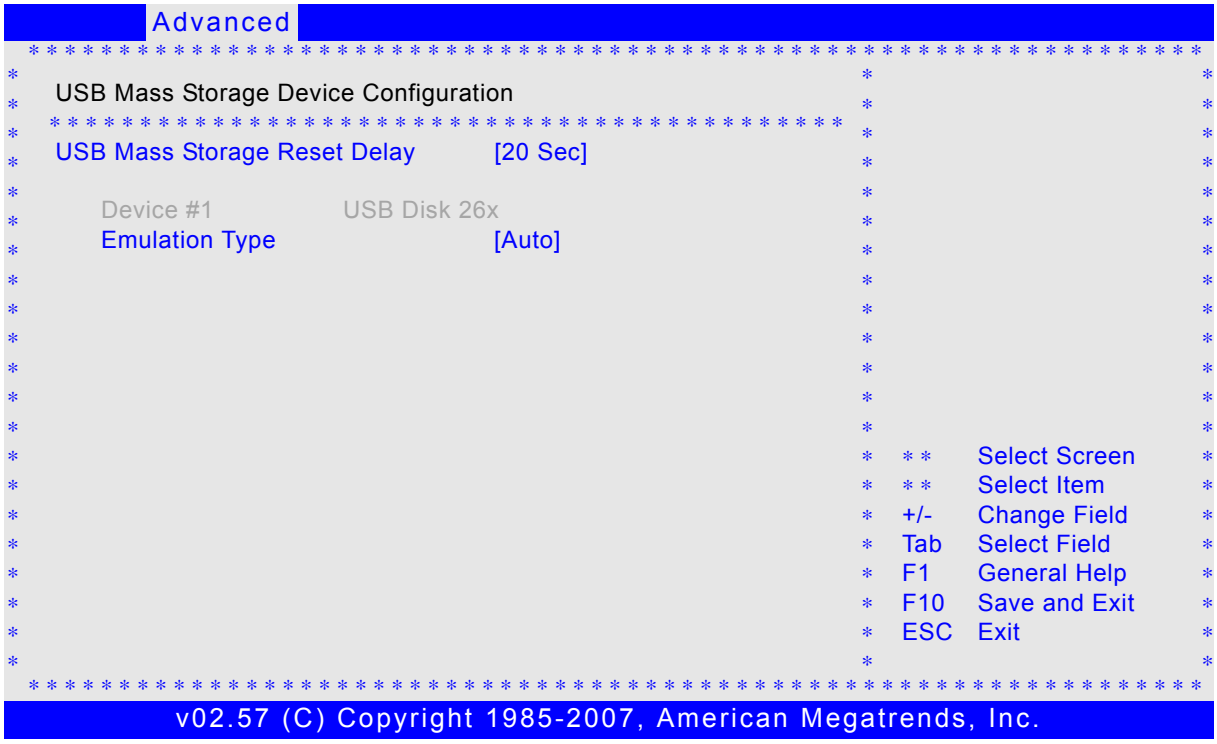
This function is used to configure the legacy USB FDD support.

SETTING	DESCRIPTION
Enabled	Use this setting to always create an USB FDD dummy device.
Auto	Use this setting to create an FDD dummy device only if there is no USB FDD device present at power on.

Optimal and Fail-Safe default settings: Auto

USB Mass Storage Device Configuration Screen

This screen provides basic information concerning the USB mass storage device configuration and functions for specifying configuration settings. This function is only available when a USB mass storage device is detected.



USB Mass Storage Reset Delay

SETTING	DESCRIPTION
10 Sec 20 Sec 30 Sec 40 Sec	Use one of these settings to specify how long the POST is to wait for the USB mass storage device after the start unit command.

Optimal and Fail-Safe default settings: 20 Sec

Emulation Type

SETTING	DESCRIPTION
Auto Floppy Forced FDD Hard Disk CDROM	Use one of these settings to specify the type of device to emulate.

Optimal and Fail-Safe default settings: Auto

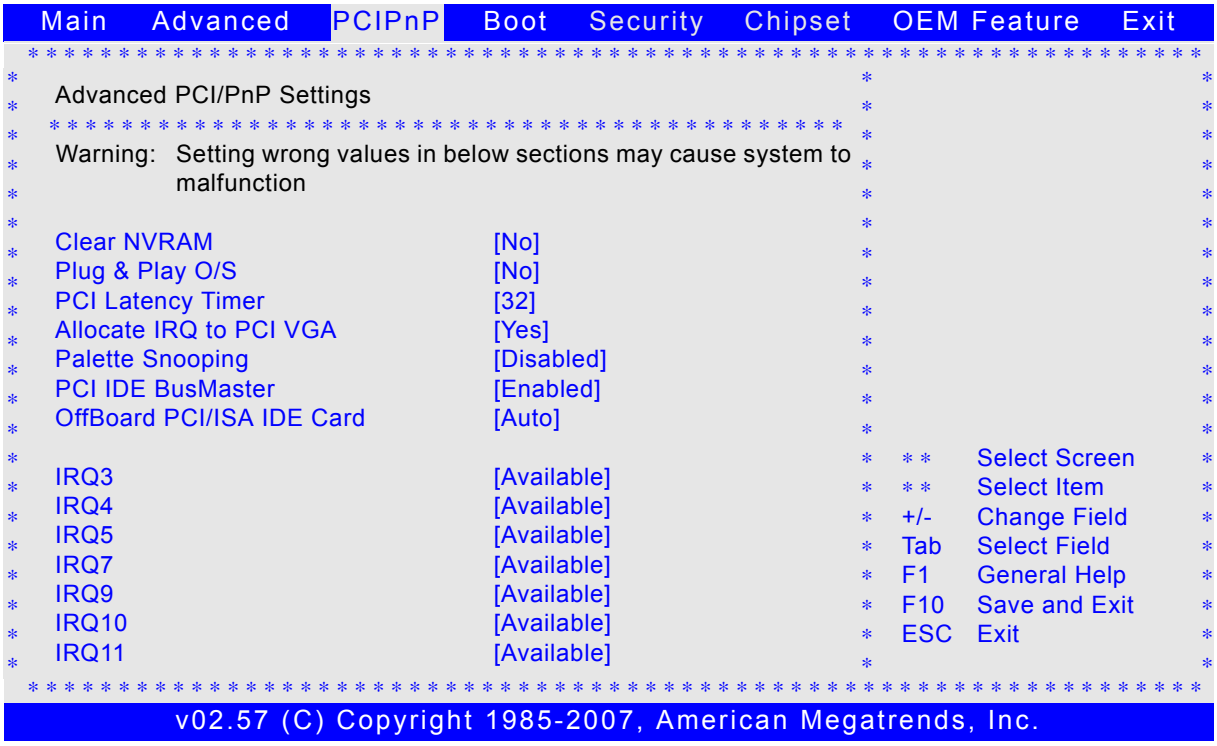
Chapter 4

PCI/PnP Setup

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4. PCI/PnP Setup

Select the PCI/PnP tab to enter the PCI/PnP Setup screen. This screen provides functions for specifying configuration settings.



Clear NVRAM

This function is used to force the BIOS to clear the Non-Volatile Random Access Memory (NVRAM).

SETTING	DESCRIPTION
No	This setting is automatically selected by the BIOS.
Yes	Use this setting to clear the NVRAM before the system is booted. The system sets this function back to No automatically after booting.

Optimal and Fail-Safe default settings: No

Plug and Play O/S

SETTING	DESCRIPTION
No	Use this setting for operating systems that do not meet the Plug and Play specifications. It allows the BIOS to configure all the devices in the system.
Yes	Use this setting to permit the operating system to change the interrupt, I/O, and DMA settings. This setting is for a system which is running a Plug and Play aware operating system.

Optimal and Fail-Safe default settings: No

PCI Latency Timer

This function is used to specify the PCI Latency Timer. It sets the latency of all PCI devices on the PCI bus.

SETTING	DESCRIPTION
32 64 96 128 160 192 224 248	Use this setting to set the number of PCI clocks for the latency timer.

Optimal and Fail-Safe default settings: 32

Allocate IRQ to PCI VGA

This function is used to allow or restrict the system from giving the VGA adapter card an interrupt address.

SETTING	DESCRIPTION
Yes	Use this setting to allow the allocation of an IRQ to a VGA adapter card that uses the PCI local bus.
No	Use this setting to prevent the allocation of an IRQ to a VGA adapter card that uses the PCI local bus.

Optimal and Fail-Safe default settings: Yes

Palette Snooping

This function is used to allow the system to modify the Palette Snooping settings.

Note: Leave this function at Disabled unless the VGA card manufacturer requires Palette Snooping to be Enabled.

SETTING	DESCRIPTION
Disabled	Use this setting to inhibit palette snooping. Do not change this setting unless palette snooping is required by the graphics device.
Enabled	Use this setting to inform the PCI devices that an ISA based Graphics device is installed in the system. It does this so that the ISA based graphics card will function correctly. This does not necessarily indicate a physical ISA adapter card. The graphics chipset can be mounted on a PCI card. Always verify that palette snooping is required by the graphics device before using this setting.

Optimal and Fail-Safe default settings: Disabled

PCI IDE BusMaster

This function is used to allow or prevent the use of PCI IDE busmastering.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent PCI busmastering.
Enabled	Use this setting to specify that the IDE controller on the PCI local bus has mastering capabilities.

Optimal and Fail-Safe default settings: Enabled

OffBoard PCI/ISA IDE Card

This function is used to allow the OffBoard PCI/ISA IDE Card to be selected.

Note: It is recommended to leave this function at the default setting.

SETTING	DESCRIPTION
Auto	Use this setting to auto select the location of an OffBoard PCI IDE adapter card.
PCI Slot1	Use this setting to select PCI Slot 1 as the location of the OffBoard PCI IDE adapter card. This setting should only be used if there is an IDE adapter card installed in PCI Slot 1.
PCI Slot2	Use this setting to select PCI Slot 2 as the location of the OffBoard PCI IDE adapter card. This setting should only be used if there is an IDE adapter card installed in PCI Slot 2.
PCI Slot3	Use this setting to select PCI Slot 3 as the location of the OffBoard PCI IDE adapter card. This setting should only be used if there is an IDE adapter card installed in PCI Slot 3. This setting is available even if the motherboard does not have a PCI Slot 3. If the motherboard does not have a PCI Slot 3, do not use this setting.
PCI Slot4	This setting will select PCI Slot 4 as the location of the OffBoard PCI IDE adapter card. This setting should only be used if there is an IDE adapter card installed in PCI Slot 4. This setting is available even if the motherboard does not have a PCI Slot 4. If the motherboard does not have a PCI Slot 4, do not use this setting.
PCI Slot5	This setting will select PCI Slot 5 as the location of the OffBoard PCI IDE adapter card. This setting should only be used if there is an IDE adapter card installed in PCI Slot 5. This setting is available even if the motherboard does not have a PCI Slot 5. If the motherboard does not have a PCI Slot 5, do not use this setting.
PCI Slot6	This setting will select PCI Slot 6 as the location of the OffBoard PCI IDE adapter card. This setting should only be used if there is an IDE adapter card installed in PCI Slot 6. This setting is available even if the motherboard does not have a PCI Slot 6. If the motherboard does not have a PCI Slot 6, do not use this setting.

Optimal and Fail-Safe default settings: Auto

IRQs

This function is used to allow the IRQ settings to be modified. Each of these IRQs may be individually specified. To access IRQs that are not displayed, scroll the PCI/PnP Setup screen.

INTERRUPT	SETTING	DESCRIPTION
IRQ3 IRQ4 IRQ5 IRQ7 IRQ9 IRQ10 IRQ11 IRQ14 IRQ15	Reserved	Use this setting to allow the specified IRQ to be used by a legacy ISA device.
	Available	Use this setting to allow the specified IRQ to be used by a PCI/PnP device.

Optimal and Fail-Safe default settings: Available

DMA

This function is used to allow the DMA setting to be modified.

DMA CHANNEL	SETTING	DESCRIPTION
DMA Channel 0 DMA Channel 1 DMA Channel 3 DMA Channel 5 DMA Channel 6 DMA Channel 7	Reserved	Use this setting to allow the specified DMA to be used by a legacy ISA device.
	Available	Use this setting to allow the specified DMA to be used by PCI/PnP device.

Optimal and Fail-Safe default settings: Available

Reserved Memory Size

This function is used to allow the system to reserve memory that is used by ISA devices. Gaining access to this function normally requires scrolling of the PCI/PnP Setup screen.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent BIOS from reserving memory to ISA devices.
16K	Use this setting to allow the system to reserve 16K of the system memory to the ISA devices.
32K	Use this setting to allow the system to reserve 32K of the system memory to the ISA devices.
64K	Use this setting to allow the system to reserve 64K of the system memory to the ISA devices.

Optimal and Fail-Safe default settings: Disabled

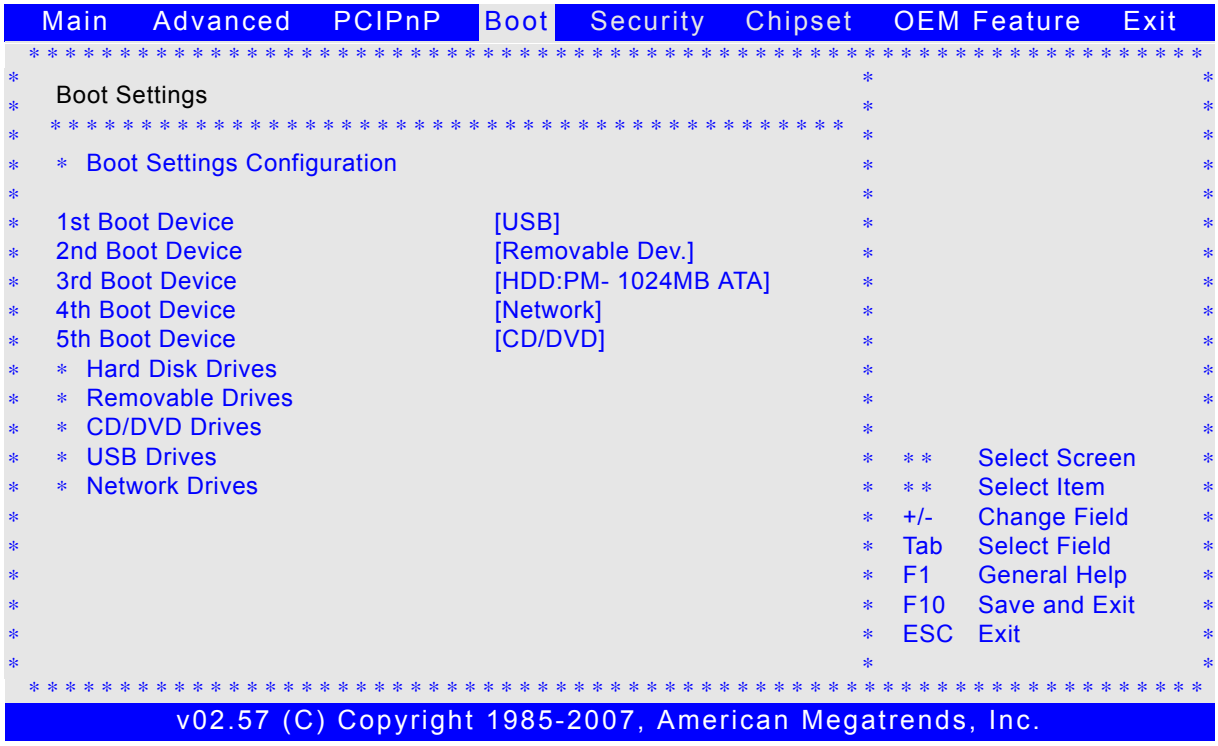
Chapter 5

Boot Setup

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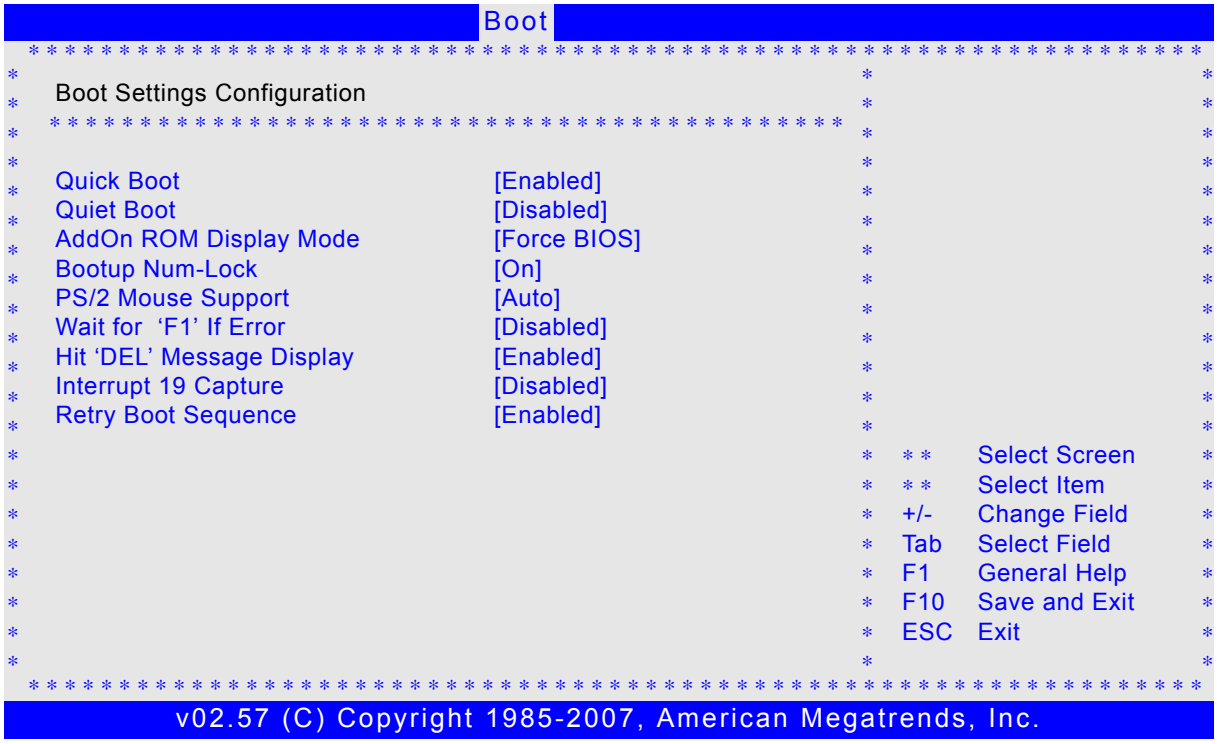
5. Boot Setup

Select the Boot tab to enter the Boot Setup screen. This screen lists a variety of configuration sub-screens. To gain access to a sub-screen, select it and press <Enter>.



BOOT SETTINGS CONFIGURATION SCREEN

This screen provides functions for specifying particular boot configuration settings.



Quick Boot

This function is used to skip certain POST tests to speed up the boot process.

SETTING	DESCRIPTION
Disabled	Use this setting to direct the BIOS to perform all POST tests.
Enabled	Use this setting to permit the BIOS to skip certain POST tests to boot faster.

Optimal and Fail-Safe default settings: Enabled

Quiet Boot

This function is used to allow the boot-up screen options to be modified between POST messages or OEM logo.

SETTING	DESCRIPTION
Disabled	Use this setting to specify the displaying of the POST messages during booting.
Enabled	Use this setting to specify the displaying of the OEM logo during booting.

Optimal and Fail-Safe default settings: Disabled

Add-On ROM Display Mode

This function is used to display add-on ROM (read-only memory) messages such as SCSI BIOS or VGA BIOS in addition to AM4002-specific information.

SETTING	DESCRIPTION
Force BIOS	Use this setting to specify that third party BIOS messages are also to be displayed during booting.
Keep Current	Use this setting to specify that only AM4002's BIOS messages are to be displayed during booting.

Optimal and Fail-Safe default settings: Force BIOS

Boot-Up Num-Lock

SETTING	DESCRIPTION
Off	Use this setting to specify that the keyboard Number Lock is not to be set during booting. To use the numeric keypad on the keyboard, press the Number Lock key located on the upper left-hand corner of the numeric keypad. The Number Lock LED on the keyboard will light up when the Number Lock is active.
On	Use this setting to specify that the keyboard Number Lock is to be set during booting. This allows the immediate use of the 10-key numeric key pad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard will be lit.

Optimal and Fail-Safe default settings: On

PS/2 Mouse Support

This function is used to allow the PS/2 mouse support to be adjusted.

Note: When a serial mouse is installed, use the setting Disabled.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the PS/2 mouse port from using system resources and becoming active.
Enabled	Use this setting to allow the system to use a PS/2 mouse.
Auto	Use this setting to allow the system to automatically use a PS/2 mouse if a PS/2 mouse is connected.

Optimal and Fail-Safe default settings: Auto

Wait for ‘F1’ If Error

SETTING	DESCRIPTION
Disabled	Use this setting to preclude the BIOS from waiting on an error for user intervention. In this case the system will continue booting up to the operating system. This setting should be used if there is a known reason for a BIOS error to occur such as the computer system does not have a keyboard currently attached.
Enabled	Use this setting to direct the BIOS to wait on an error for user intervention. If an error is detected, it may be possible to correct it by changing a BIOS setting. To do this, press <*F1*> to enter the BIOS Setup, and then change the BIOS setting as required. This can happen when upgrading the hardware, and the BIOS has not been set to recognize it.

Optimal and Fail-Safe default settings: Disabled

Hit ‘DEL’ Message Display

SETTING	DESCRIPTION
Disabled	Use this setting to preclude displaying of the message: "Hit DEL to enter Setup" during memory initialization. If Quiet Boot is enabled, this message will not be displayed.
Enabled	Use this setting to specify displaying of the message: "Hit DEL to enter Setup" during memory initialization.

Optimal and Fail-Safe default settings: Enabled

Interrupt 19 Capture

This function is used to permit option ROMs such as network controllers to trap the BIOS interrupt 19.

SETTING	DESCRIPTION
Disabled	Use this setting to preclude option ROMs from trapping the BIOS interrupt 19.
Enabled	Use this setting to permit option ROMs from trapping the BIOS interrupt 19.

Optimal and Fail-Safe default settings: Disabled

Retry Boot Sequence

This function is used to specify how the system is to respond to a boot error.

SETTING	DESCRIPTION
Disabled	Use this setting to direct the termination of booting and the display of an error message when a boot error has occurred.
Enabled	Use this setting to specify that booting should be attempted again until a boot device is found. To interrupt retrying, the system must be reset. This setting should be used if the AM4002 is to be booted from a network drive.

Optimal and Fail-Safe default settings: Enabled

1st - 5th Boot Device

These functions are used to specify the boot device category sequence.

SETTING	DESCRIPTION
USB, Removable-Device, Hard Drive, Network, CD/DVD	Use one of these settings to specify the boot device category for the selected function.

Optimal and Fail-Safe default settings:

- 1st Boot Device: USB
- 2nd Boot Device: Removable Device
- 3rd Boot Device: Hard Drive
- 4th Boot Device: Network
- 5th Boot Device: CD/DVD

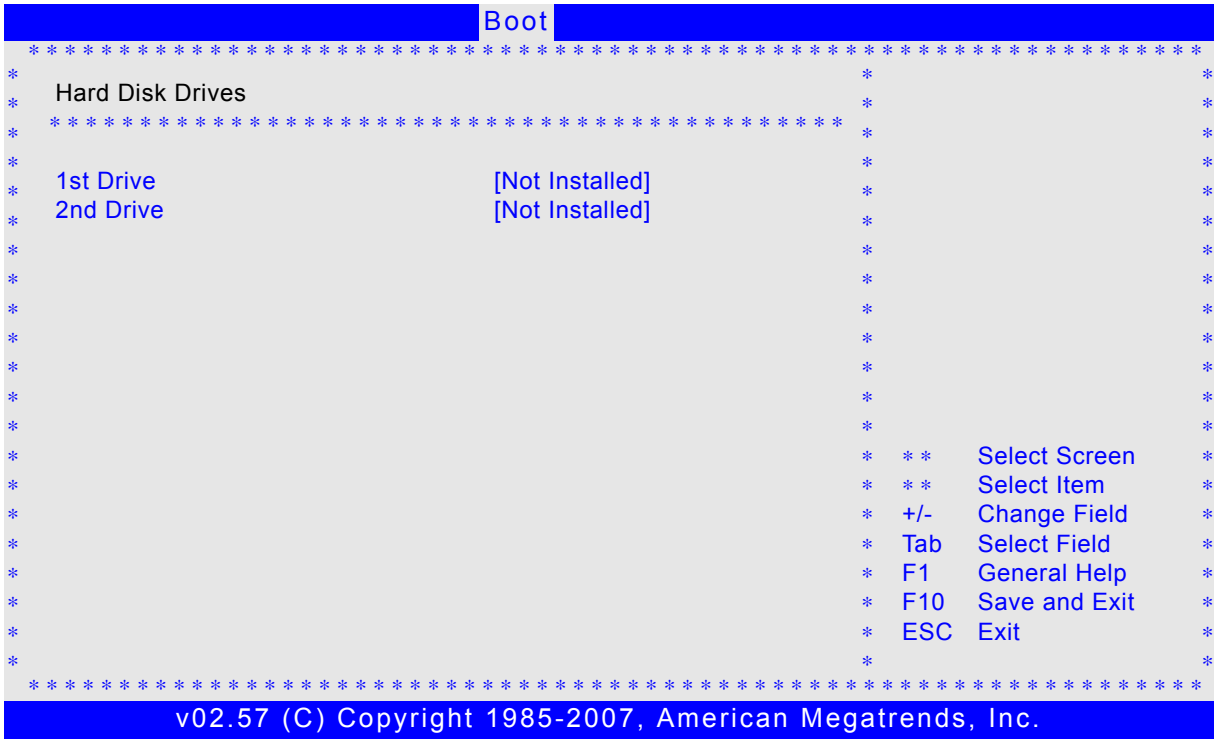
To establish the boot category sequence, select for each boot device (1st, 2nd, etc.) a boot category type from this menu.

When a boot category is selected, a list of devices in that category appears. For example, if the system has three hard disk drives connected, then the list will show all three hard disk drives. The order in which the drives appear is also the boot order within the category.

The selection of the physical device boot order within a category is done via the Drives subscreens accessible from the Boot Setup screen.

HARD DISK DRIVES SCREEN

This screen will provide a list of hard disk drives if drives are installed in the system. If more than one drive is installed, this screen also indicates the boot sequence of the drives. Furthermore, this screen provides functions for specifying the BIOS boot order of the drives when more than one drive is installed.



1st Drive, 2nd Drive, 3rd Drive, etc.

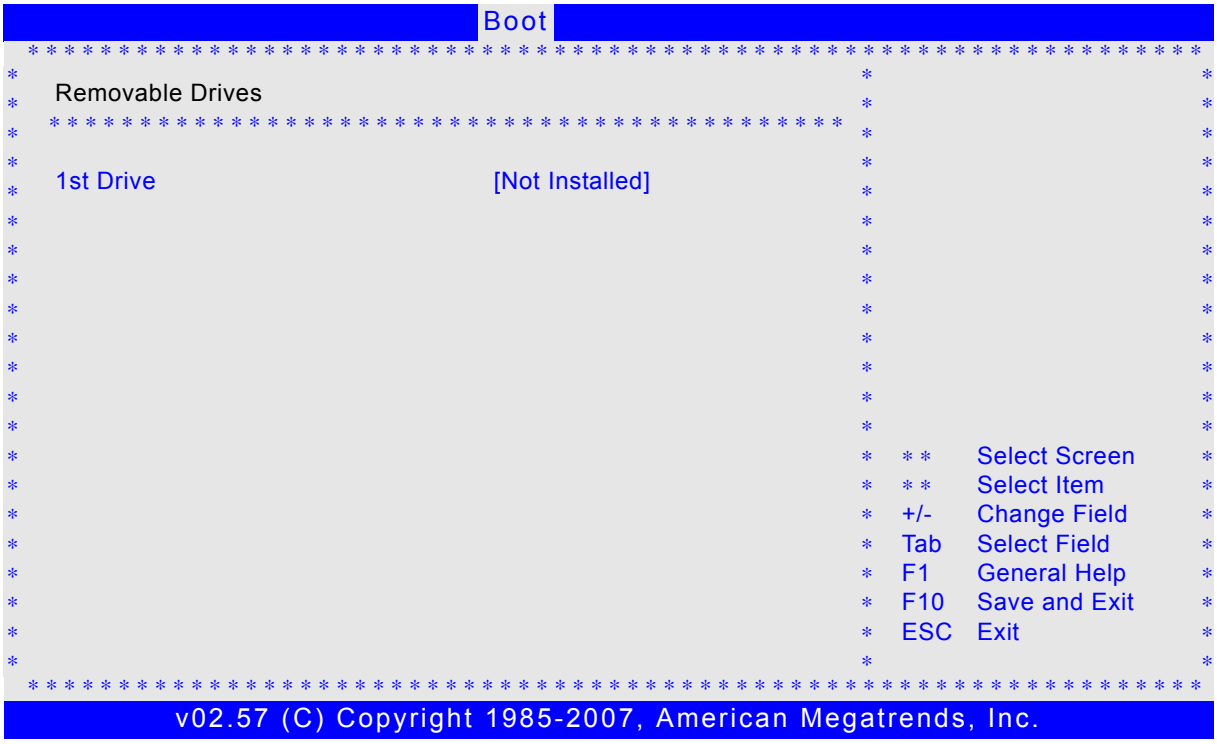
The function 1st Drive is used to provide generic information about the currently selected drive if a drive is installed. If more than one drive is installed, a list of the installed drives is provided, which allows the selection of one of the listed drives as the 1st Drive.

The functions 2nd Drive, 3rd Drive, etc. are only available when the respective hard disk drives are installed.

SETTING	DESCRIPTION
Not Installed	When displayed, indicates that there are no drives installed
<generic_drive_info>	When displayed, indicates the generic drive information of the 1st Drive
<generic_drive_info_1> ⋮ <generic_drive_info_n>	When displayed, indicates the drives installed and their current ordering for booting. As required, use one of these settings to select a new 1st Drive.

REMOVABLE DRIVES SCREEN

This screen will provide a list of removable drives if drives are installed in the system. If more than one drive is installed, this screen also indicates the boot sequence of the drives. Furthermore, this screen provides functions for specifying the BIOS boot order of the drives when more than one drive is installed.



1st Drive, 2nd Drive, 3rd Drive, etc.

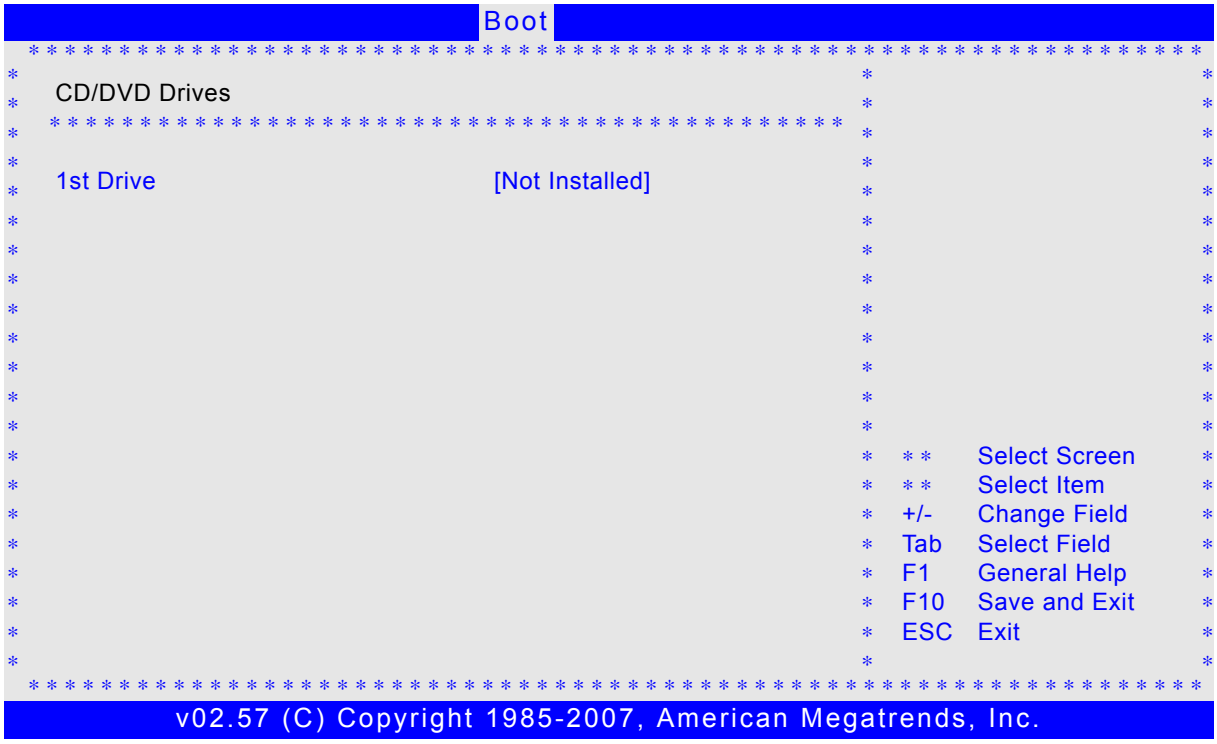
The function 1st Drive is used to provide generic information about the currently selected drive if a drive is installed. If more than one drive is installed, a list of the installed drives is provided, which allows the selection of one of the listed drives as the 1st Drive.

The functions 2nd Drive, 3rd Drive, etc. are only available when the respective removable drives are installed.

SETTING	DESCRIPTION
Not Installed	When displayed, indicates that there are no drives installed
<generic_drive_info>	When displayed, indicates the generic drive information of the 1st Drive
<generic_drive_info_1> ⋮ <generic_drive_info_n>	When displayed, indicates the drives installed and their current ordering for booting. As required, use one of these settings to select a new 1st Drive.

CD/DVD DRIVES SCREEN

This screen will provide a list of CD/DVD drives if drives are installed in the system. If more than one drive is installed, this screen also indicates the boot sequence of the drives. Furthermore, this screen provides functions for specifying the BIOS boot order of the drives when more than one drive is installed.



1st Drive, 2nd Drive, 3rd Drive, etc.

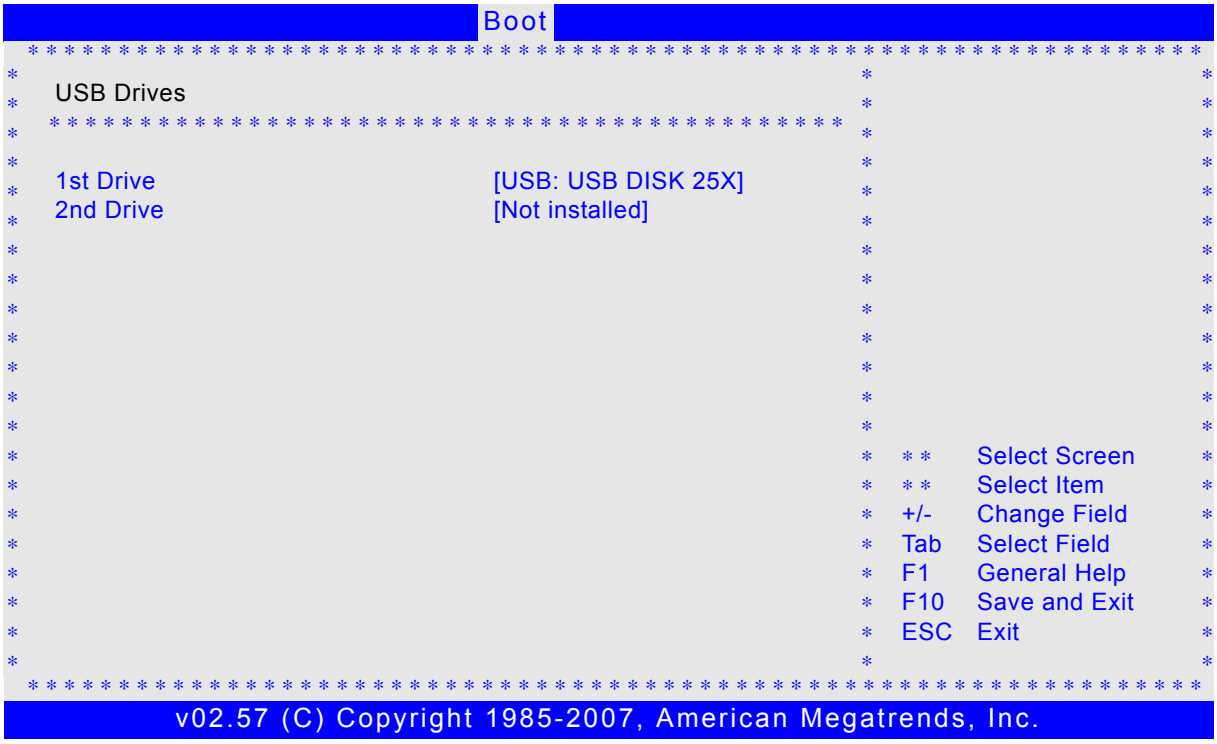
The function 1st Drive is used to provide generic information about the currently selected drive if a drive is installed. If more than one drive is installed, a list of the installed drives is provided, which allows the selection of one of the listed drives as the 1st Drive.

The functions 2nd Drive, 3rd Drive, etc. are only available when the respective CD/DVD drives are installed.

SETTING	DESCRIPTION
Not Installed	When displayed, indicates that there are no drives installed
<generic_drive_info>	When displayed, indicates the generic drive information of the 1st Drive
<generic_drive_info_1> ⋮ <generic_drive_info_n>	When displayed, indicates the drives installed and their current ordering for booting. As required, use one of these settings to select a new 1st Drive.

USB DRIVES SCREEN

This screen will provide a list of USB drives if drives are installed in the system. If more than one drive is installed, this screen also indicates the boot sequence of the drives. Furthermore, this screen provides functions for specifying the BIOS boot order of the drives when more than one drive is installed.



1st Drive, 2nd Drive, 3rd Drive, etc.

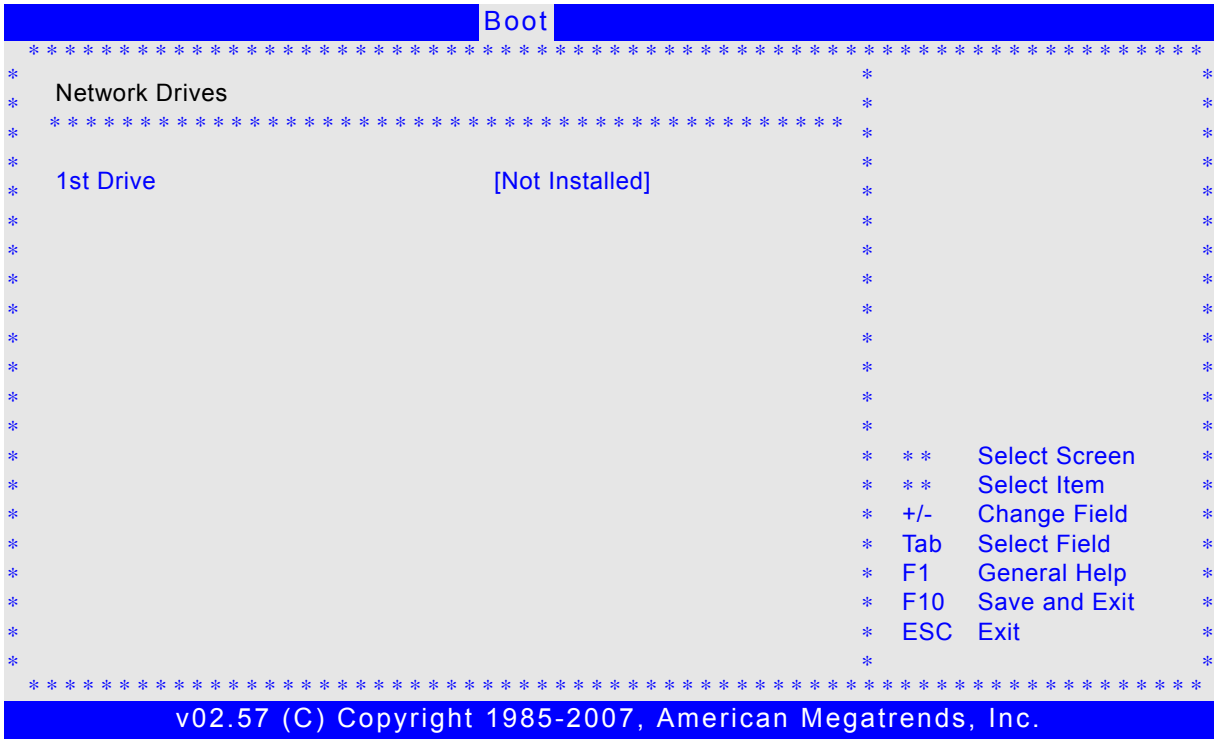
The function 1st Drive is used to provide generic information about the currently selected drive if a drive is installed. If more than one drive is installed, a list of the installed drives is provided, which allows the selection of one of the listed drives as the 1st Drive.

The functions 2nd Drive, 3rd Drive, etc. are only available when the respective USB drives are installed.

SETTING	DESCRIPTION
Not Installed	When displayed, indicates that there are no drives installed
<generic_drive_info>	When displayed, indicates the generic drive information of the 1st Drive
<generic_drive_info_1> ⋮ <generic_drive_info_n>	When displayed, indicates the drives installed and their current ordering for booting. As required, use one of these settings to select a new 1st Drive.

NETWORK DRIVES SCREEN

This screen indicates a list of network devices detected by the BIOS which may provide the possibility of booting from a network drive via PXE. If more than one device is available, this screen also indicates the boot sequence of the devices. Furthermore, this screen provides functions for specifying the BIOS boot order of the devices when more than one is available.



1st Drive, 2nd Drive, 3rd Drive, etc.

The function 1st Drive is used to provide generic information about the currently selected device if available. If more than one device is available, a list of the devices is provided, which allows the selection of one of the listed devices as the 1st Drive.

The functions 2nd Drive, 3rd Drive, etc. are only available when the respective network devices are available.

SETTING	DESCRIPTION
Not Installed	When displayed, indicates that there are no devices installed
<generic_drive_info>	When displayed, indicates the generic device information of the 1st Drive
<generic_drive_info_1> ⋮ <generic_drive_info_n>	When displayed, indicates the devices installed and their current ordering for booting. As required, use one of these settings to select a new 1st Drive.

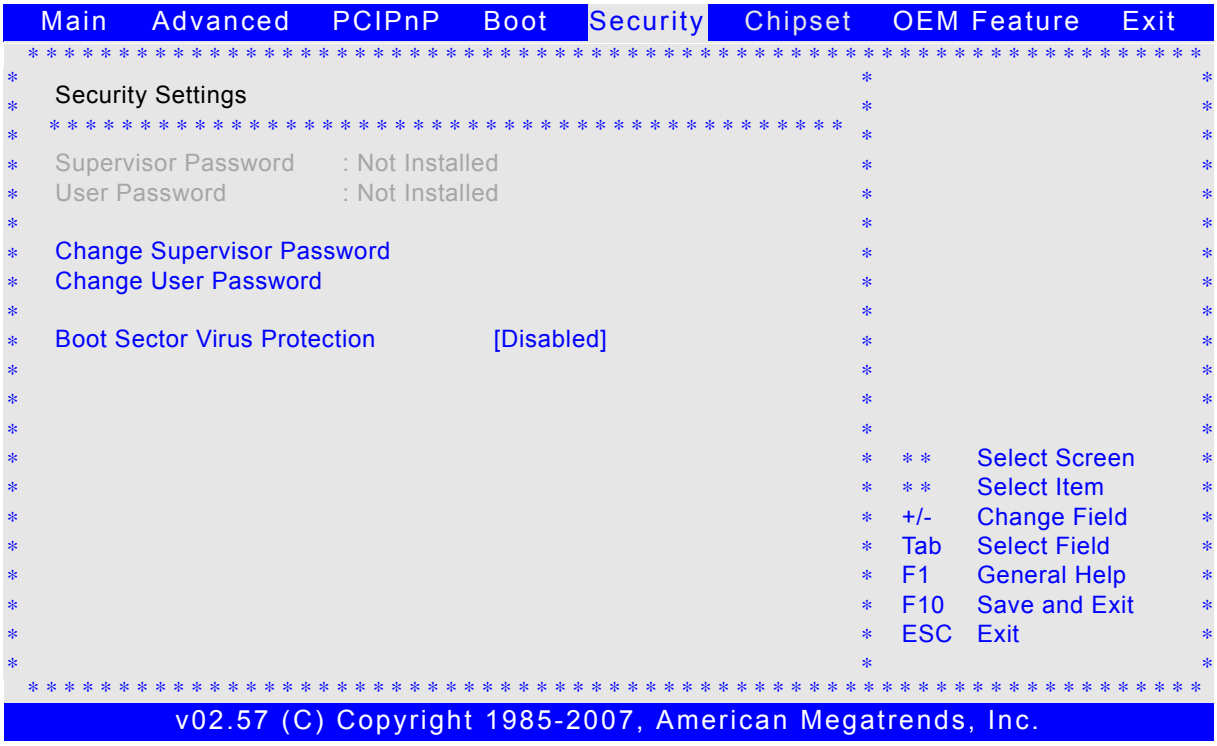
Chapter 6

Security Setup

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6. Security Setup

Select the Security tab to enter the Security Settings screen. This screen provides information concerning passwords and functions for specifying particular configuration settings.



Supervisor Password

This is a display only function indicating whether a Supervisor password has been assigned or not.

User Password

This is a display only function indicating whether a User password has been assigned or not.

Change Supervisor Password

This function is used to specify the Supervisor password. To set or change this password perform the following:

1. Select Change Supervisor Password and press <Enter>.

   A popup display appears requesting entry of the new password.
   There is a six character limit for the password.

2. Type the password and press <Enter> to set or change the password.

   A popup display appears again requesting password confirmation.

3. Type the password again and press <Enter>.

   A popup display appears confirming the installation of the password.

   The following two new functions appear on the screen:

   - User Access Level
   - Password Check

   These functions are used to specify the type of accessibility the user has within the BIOS Setup program as well as the password requirements for system booting and starting the BIOS Setup program.

4. Record the Supervisor password for future reference.

Change User Password

This function is used to specify the User password. To set or change this password perform the following:

1. Select Change User Password and press <Enter>.

   A popup display appears requesting entry of the new password.
   There is a six character limit for the password.

2. Type the password and press <Enter>

   A popup display appears again requesting password confirmation.

3. Type the password again and press <Enter>

   A popup display appears confirming the installation of the password.

   The following new functions appear on the screen:

   - Password Check
   - Clear User Password

   The Password Check function is used to specify the password usage requirements for the user when booting the system or attempting to start the BIOS Setup program.

4. Record the User password for future reference.

Clearing a Supervisor/User Password

Use the following procedure to clear a Supervisor/User password.

1. Select Change Supervisor/User Password and press <Enter>
   A popup display appears requesting entry the new password.
2. Press <Enter> again without making any entries
   A popup display appears confirming the deinstallation of the password.
3. Press <Enter>.

User Access Level

This function is used to specify the type of usage restriction(s) that a system supervisor may impose upon a user for the BIOS Setup program.

SETTING	DESCRIPTION
No Access	Use this setting to prevent a user from having access to the BIOS Setup program.
View Only	Use this setting to allow a user to only view the BIOS settings.
Limited	Use this setting to allow a user limited access to the BIOS Setup program. This setting allows only certain setting changes such Date and Time.
Full Access	Use this setting to permit a user to have full access to the BIOS Setup program except tor changing the Supervisor password.

Optimal and Fail-Safe default setting: Full Access

Password Check

This function is used to specify the password usage requirements for the user when booting the system or attempting to start the BIOS Setup program

SETTING	DESCRIPTION
Setup	Use this setting to require the system supervisor or user to enter the appropriate password to access to the BIOS Setup program.
Always	Use this setting to require the system supervisor or user to enter the appropriate password to access to the BIOS Setup program or for system booting.

Optimal and Fail-Safe default setting: Setup

Boot Sector Virus Protection

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Boot Sector Virus Protection.
Enabled	Use this setting to specify boot sector protection. AM4002 displays a warning when any program (or virus) issues a disk format command or attempts to write to the boot sector of the hard disk drive. If enabled, the following appears when a write is attempted to the boot sector. It may be necessary to type N several times to prevent the boot sector write. Boot Sector Write! Possible VIRUS: Continue (Y/N)? _ The following appears after any attempt to format any cylinder, head, or sector of any hard disk drive via the BIOS INT 13 Hard disk drive Service: Format!!! Possible VIRUS: Continue (Y/N)? _

Optimal and Fail-Safe setting: Disabled

AMC Module Password Support

Two Levels of Password Protection

The AM4002 provides for both a Supervisor and a User password. If both passwords are used, the Supervisor password must be set first.

The system can be configured so that all users must enter a password every time the system boots or when starting the BIOS Setup program, using either the Supervisor password or User password.

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

Remember the Password

It is highly recommended to keep a record of all passwords in a safe place. Forgotten passwords can lead to being completely locked out of the system. Booting may not be possible, and in the worst case the BIOS setup program will also not be accessible.

In this event, it will be necessary to contact Kontron’s Technical Support for further assistance.

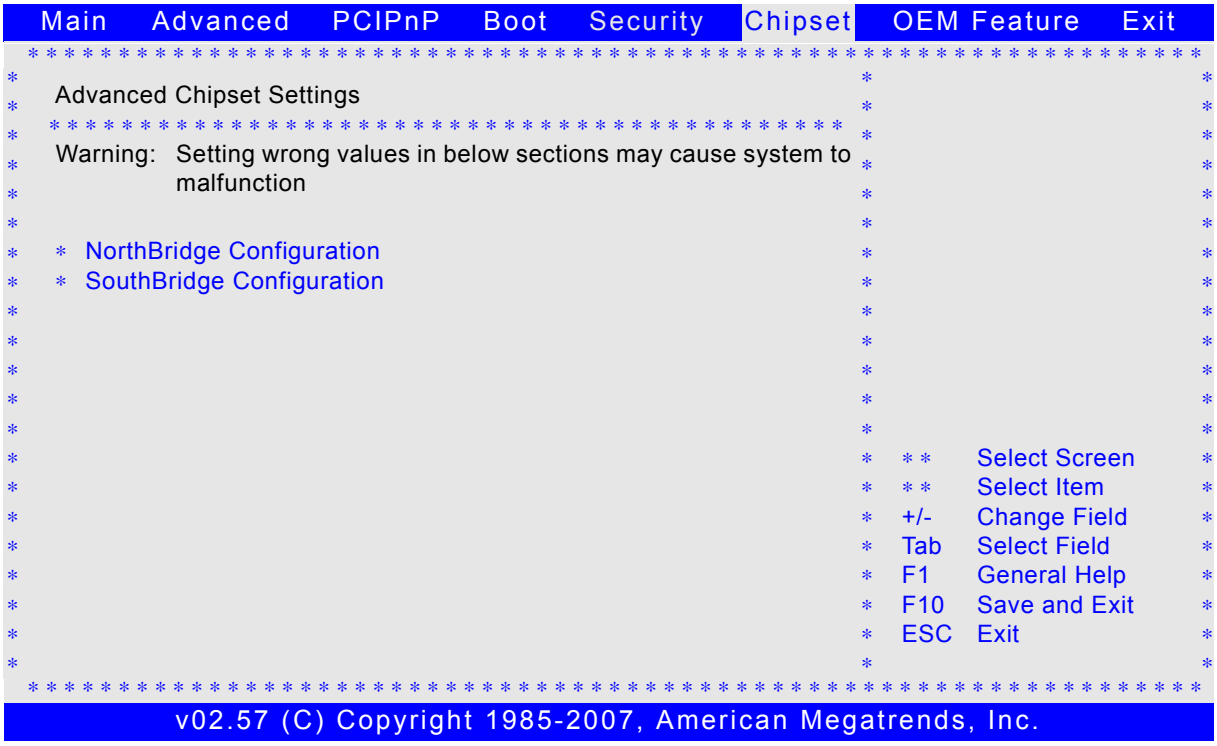
Chapter 7

Chipset Setup

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7. Chipset Setup

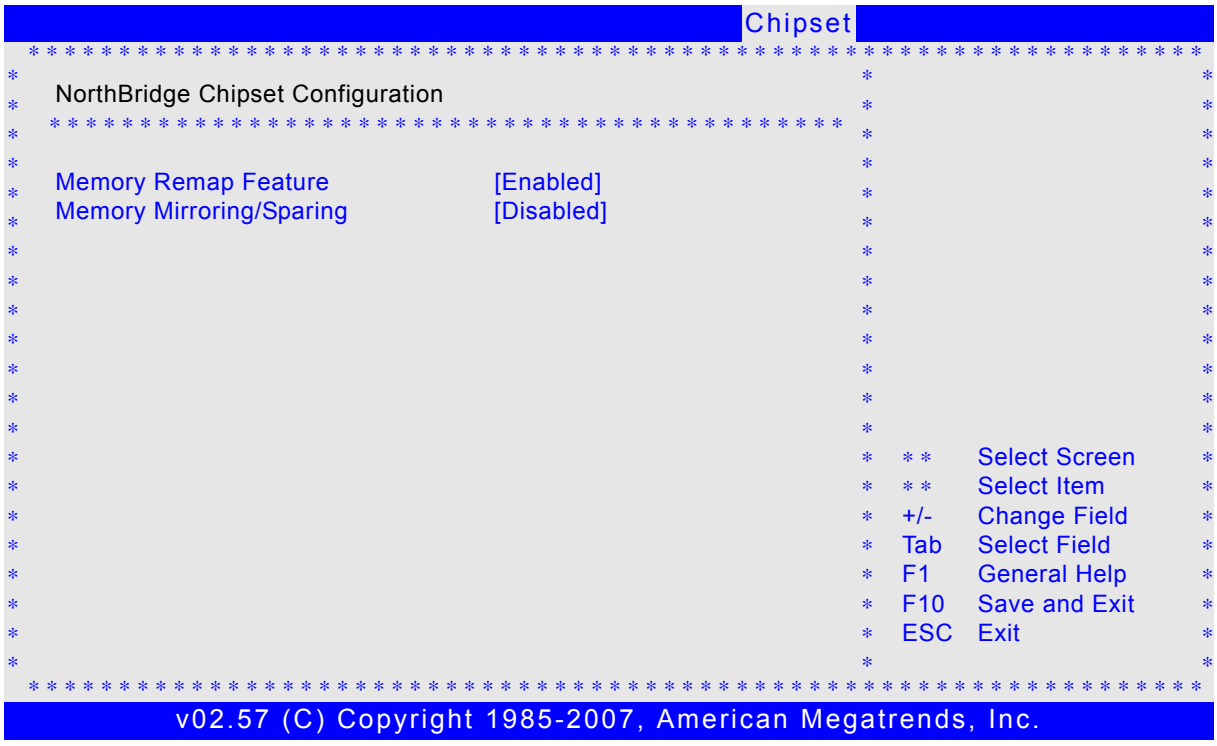
Select the Chipset tab to enter the Chipset Setup screen. This screen lists one configuration sub-screen. To gain access to this sub-screen, select it and press <Enter>.



NORTHBRIDGE CONFIGURATION SCREEN

This screen provides functions for specifying the NorthBridge configuration settings.

Note: The NorthBridge Configuration setup screen varies depending on the supported NorthBridge chipset.



Memory Remap Feature

SETTING	DESCRIPTION
Enabled	Use this setting to allow remapping of overlapped PCI memory above the physical memory.
Disabled	Use this setting to prevent remapping of overlapped PCI memory above the physical memory.

Optimal and Fail-Safe default setting: Enabled

Memory Mirroring/Sparing

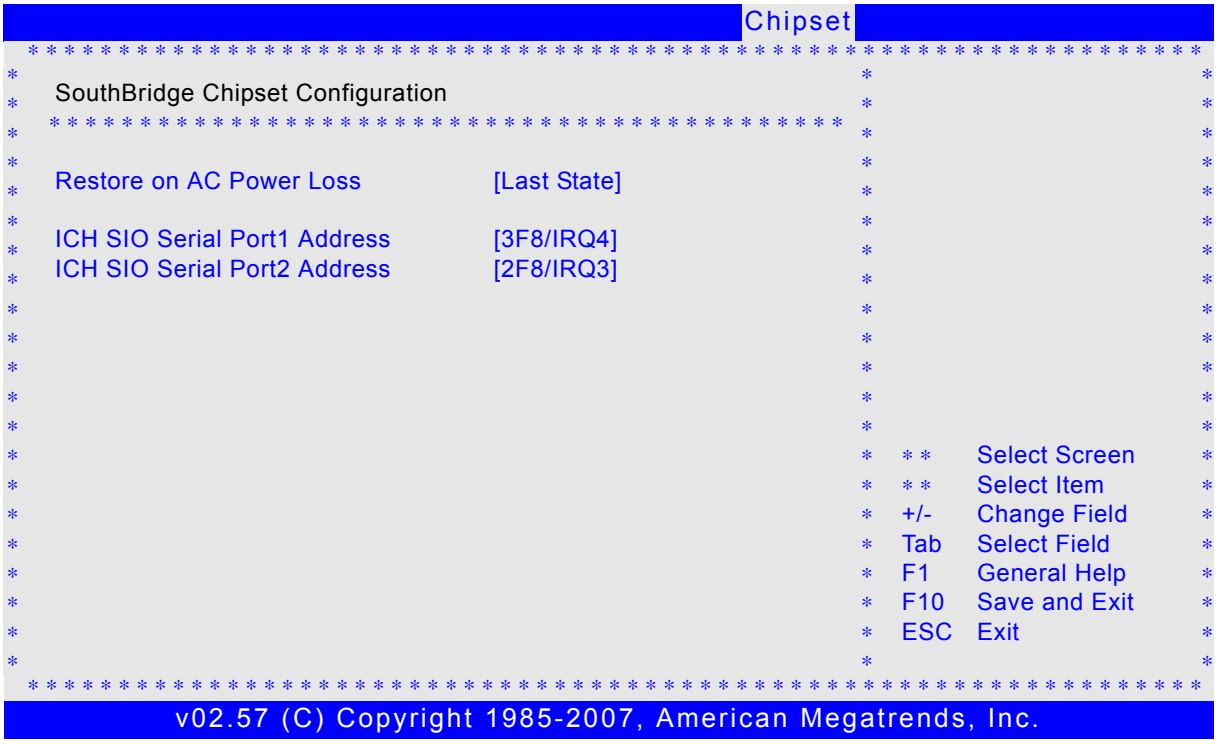
Note: This function is available only if the memory configuration supports mirroring/sparing.

SETTING	DESCRIPTION
Enabled	Use this setting enable the memory RAS feature (mirroring/sparing).
Disabled	Use this setting disable the memory RAS feature (mirroring/sparing).

Optimal and Fail-Safe default setting: Disabled

SOUTHBRIDGE CONFIGURATION SCREEN

This screen provides functions for specifying configuration settings.



Restore on AC Power Loss

This function is used to specify the state the system should return to when power is restored after AC power loss.

SETTING	DESCRIPTION
Power Off	Use this setting to leave the system in the power off state when power is restored.
Power On	Use this setting to restart the system when power is restored.
Last State	Use this setting to restore the system to the previous status before power loss occurred.

Optimal and Fail-Safe default setting: Last State

ICH SIO Serial Port1 Address

This function is used to specify the base I/O port address of Serial Port 1 and the IRQ for this port.

Note: If the system does not use this port, it is recommended to use the setting: Disabled.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the Serial Port 1 from accessing any system resources. When this setting is used, the serial port physically becomes unavailable.
3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3	Use one of these settings to specify an I/O address and IRQ for Serial Port 1.

Optimal and Fail-Safe default setting: 3F8/IRQ4

ICH SIO Serial Port2 Address

This function is used to specify the base I/O port address of Serial Port 2 and the IRQ for this port.

Note: If the system does not use this port, it is recommended to use the setting: Disabled.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the Serial Port 2 from accessing any system resources. When this setting is used, the serial port physically becomes unavailable.
3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3	Use one of these settings to specify an I/O address and IRQ for Serial Port 1.

Optimal and Fail-Safe default setting: 2F8/IRQ3

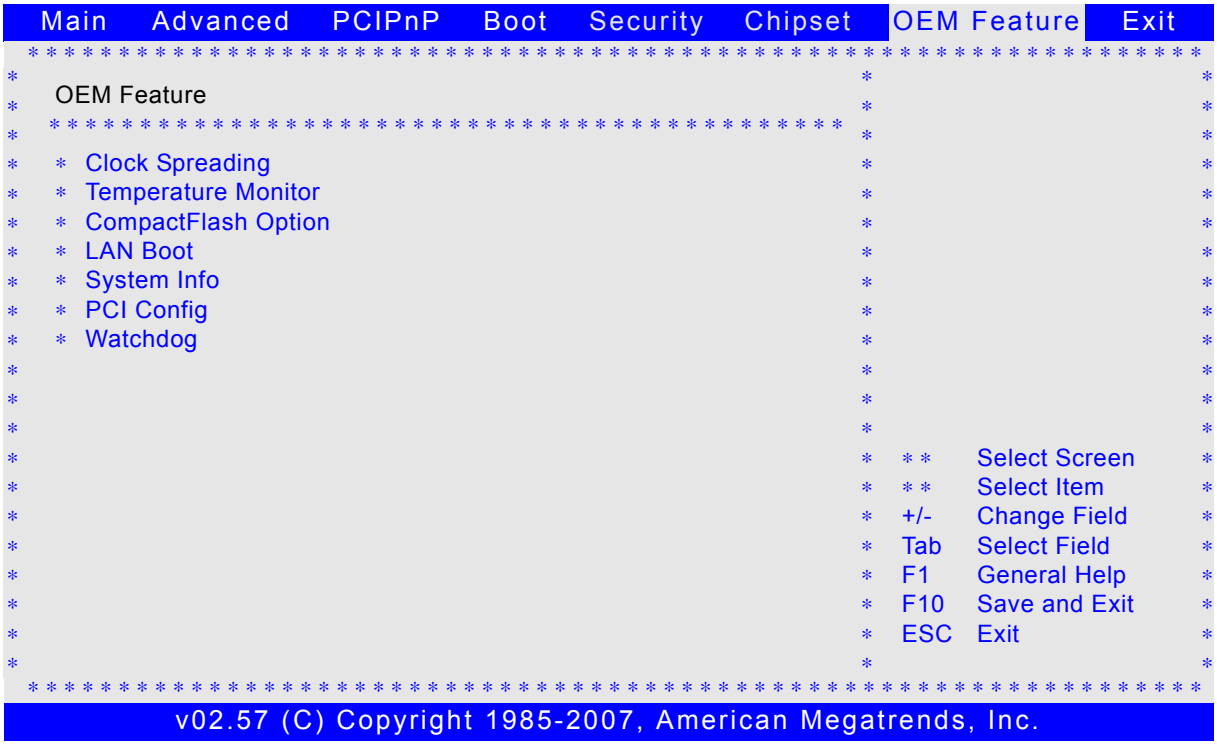
Chapter 8

OEM Feature

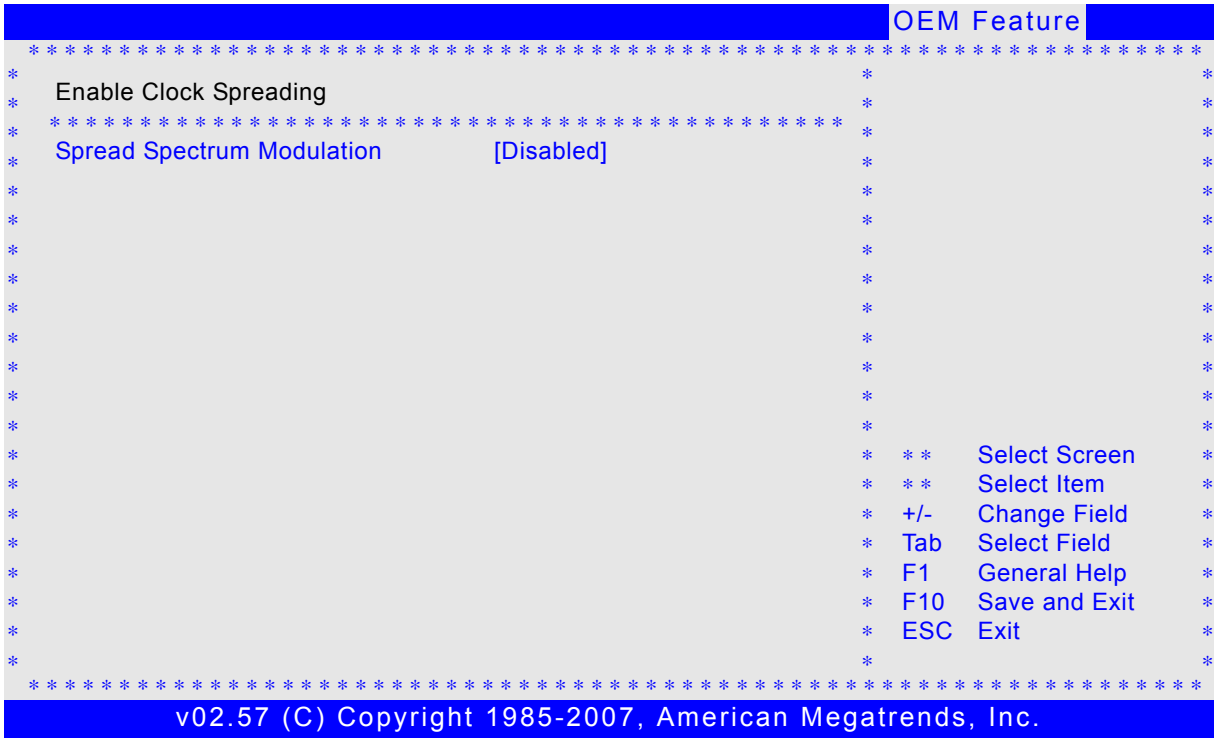
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8. OEM Feature

Select the OEM Feature tab to enter the OEM Feature Setup screen. The following screens provide a list of configuration sub-screens. To gain access to a sub-screen, select it and press <Enter>.



CLOCK SPREADING SCREEN

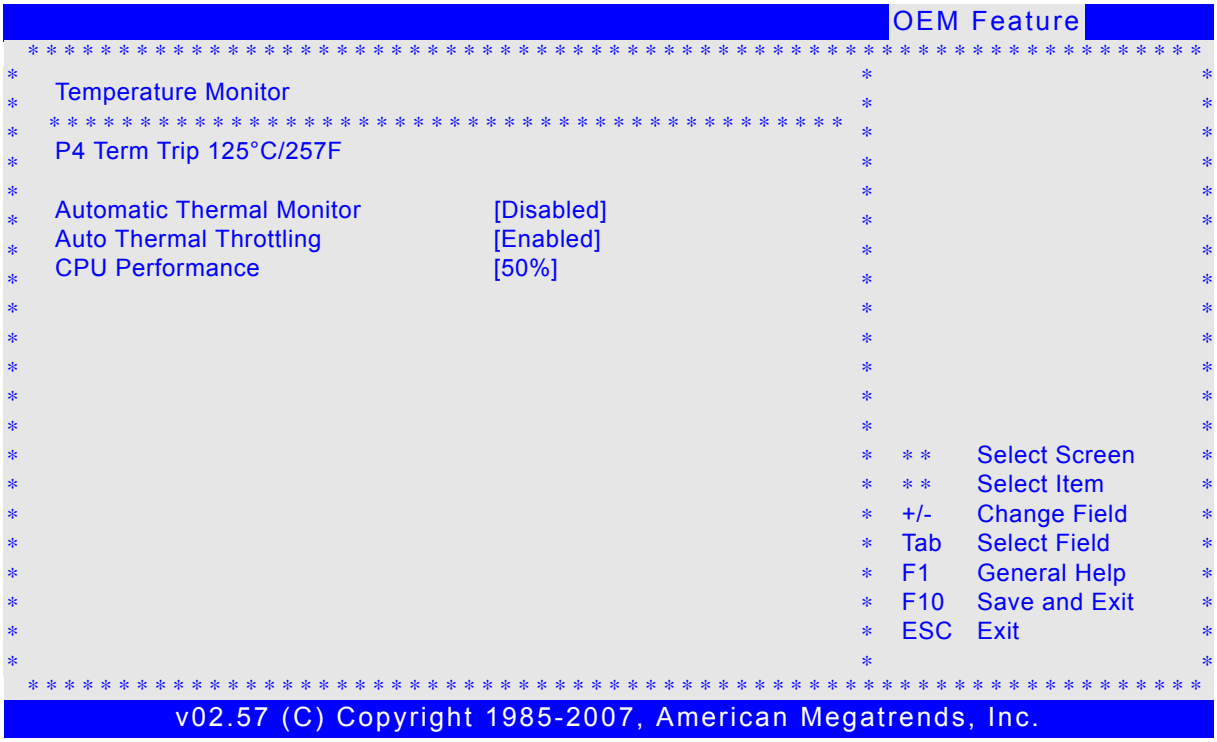


Spread Spectrum Modulation

SETTING	DESCRIPTION
Disabled	Use this setting to disable clock spread spectrum modulation.
Enabled	Use this setting to enable clock spread spectrum modulation. This typically reduces system EMI.

Optimal and Fail-Safe default setting: Disabled

TEMPERATURE MONITOR SCREEN



P4 Term Trip 125°C/257F

This is a display-only function which indicates the P4 max. temperature.

This function indicates the P4 max. temperature.

Automatic Thermal Monitor

Thermal Monitor is enabled and when the die temperature is very near to the temperature limits of the processor, the clocks will be modulated by alternately turning the clocks off and on at a duty cycle of 50 %.

SETTING	DESCRIPTION
Disabled	Use this setting to disable Automatic Thermal Monitor.
Enabled	Use this setting to enable Automatic Thermal Monitor.

Optimal and Fail-Safe default setting: Disabled

Auto Thermal Throttling

The BIOS programmed the CPU speed in the ICH register. The IPMI controller enables the throttling.

SETTING	DESCRIPTION
Disabled	Use this setting to disable Auto Thermal Throttling.
Enabled	Use this setting to enable Auto Thermal Throttling.

Optimal and Fail-Safe default setting: Enabled

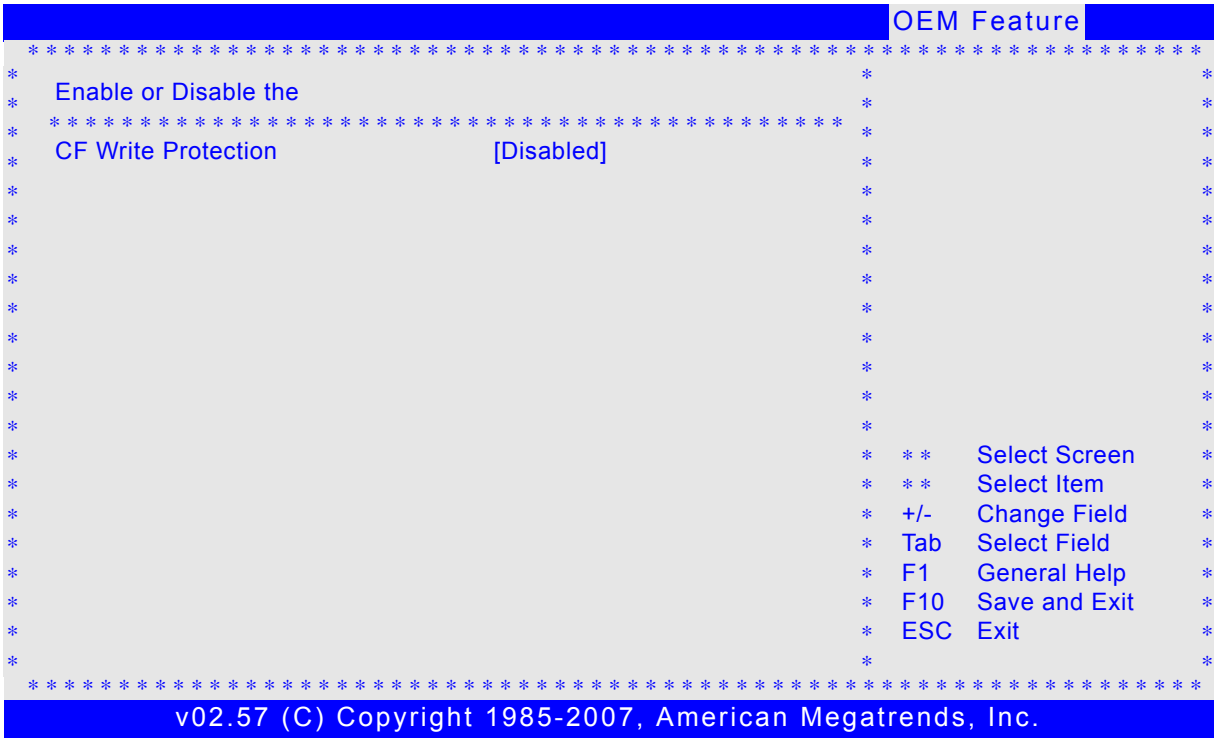
CPU Performance

The CPU performance will be reduced to the selected value when reaching the temperature threshold.

SETTING	DESCRIPTION
12.5 %	Use one of these settings to specify the CPU performance
25 %	
50 %	
75 %	

Optimal and Fail-Safe default setting: 50 %

COMPACTFLASH OPTION SCREEN

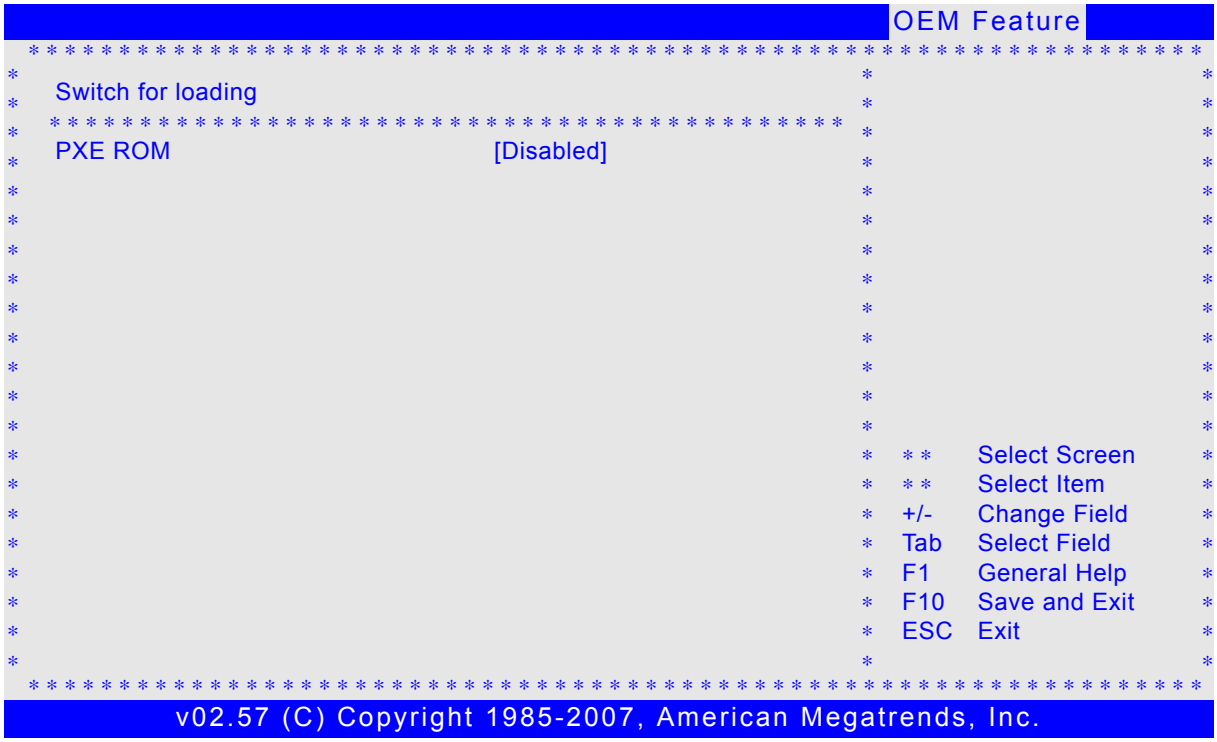


CF Write Protection

SETTING	DESCRIPTION
Disabled	Use this setting to disable write protection for the onboard CompactFlash.
Enabled	Use this setting to enable write protection for the onboard CompactFlash.

Optimal and Fail-Safe default setting: Disabled

LAN BOOT SCREEN



PXE ROM

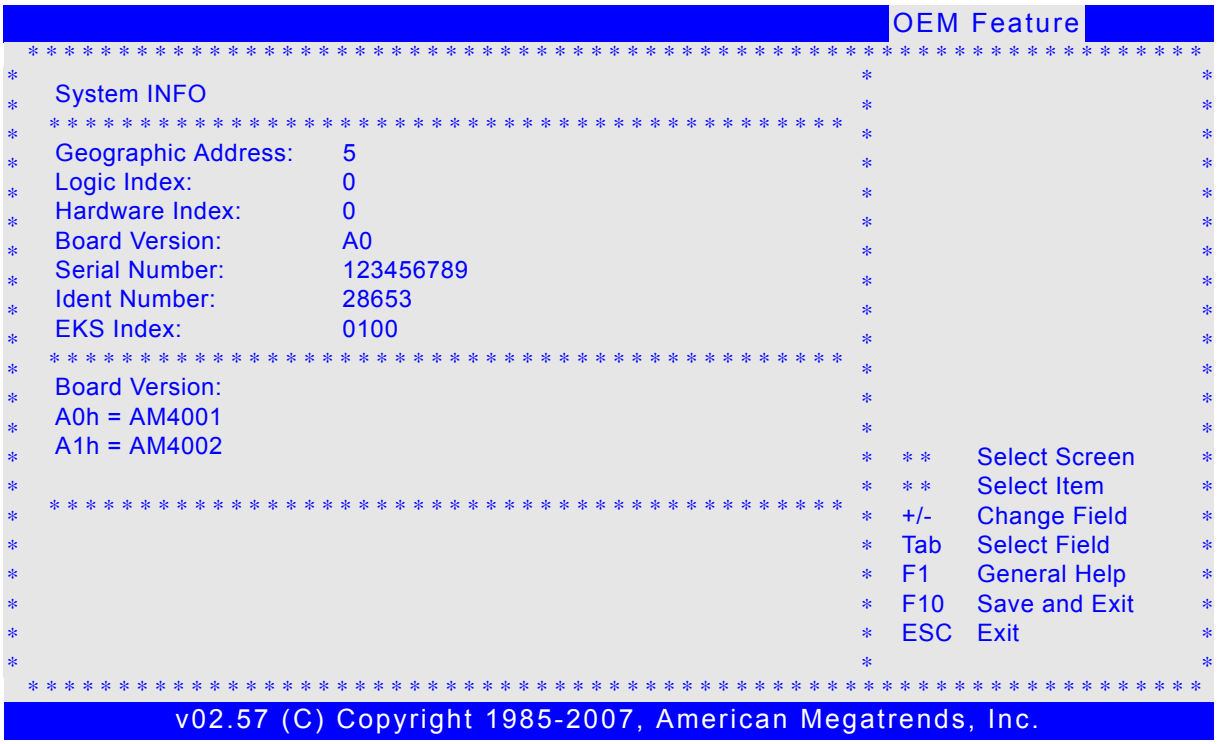
This function is used to specify the loading of the Ethernet expansion ROM to permit PXE booting.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the loading of the Ethernet expansion ROM.
Enabled	Use this setting to enable loading of the Ethernet expansion ROM to permit PXE booting.

Optimal and Fail-Safe default setting: Disabled

SYSTEM INFO SCREEN

This screen provides basic version and status information of various system elements. There are no user configurable functions on this screen. All of the functions listed on this screen are display only functions.



Geographic Address

This function provides the bay number in which the card is installed.

Logic Index

This function provides information which reflects the value of an onboard register. It shows the index of the onboard logic.

Hardware Index

This function provides information which reflects the value of an onboard register. It shows the index of the hardware.

Board Version

This function provides information which reflects the value of an onboard register. This must always correspond with the board on which the BIOS is installed.

Serial Number

This function provides Kontron internal information about the board. The serial number is unique to each board produced by Kontron and identifies a specific board.

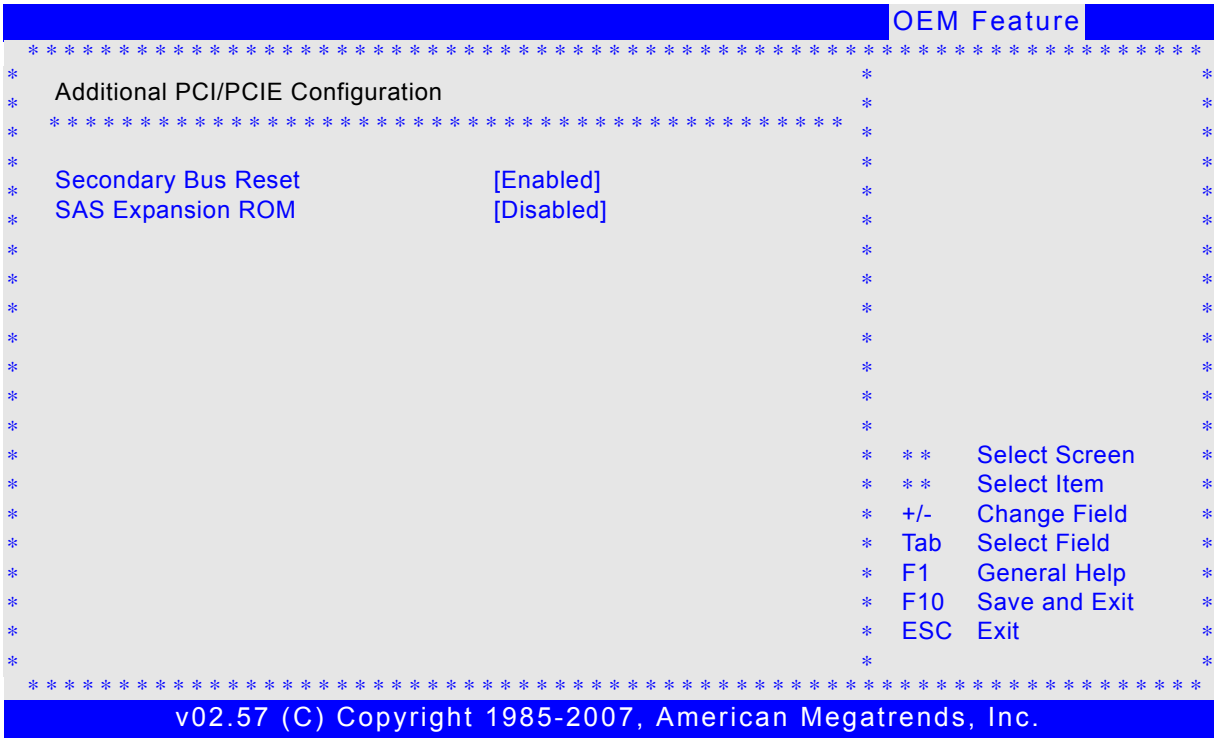
Ident Number

This function provides Kontron internal information about the board.

EKS Index

This function provides Kontron internal information about the board.

PCI CONFIG SCREEN



Secondary Bus Reset

This function is only available when the AM4002 is used in conjunction with the Kontron's ATCA AT8400 carrier board and is used to trigger a hot reset on the PLX Bridge of the AT8400. .

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Secondary Bus Reset function.
Enabled	Use this setting to enable the Secondary Bus Reset function.

Optimal and Fail-Safe default setting: Enabled

SAS Expansion ROM

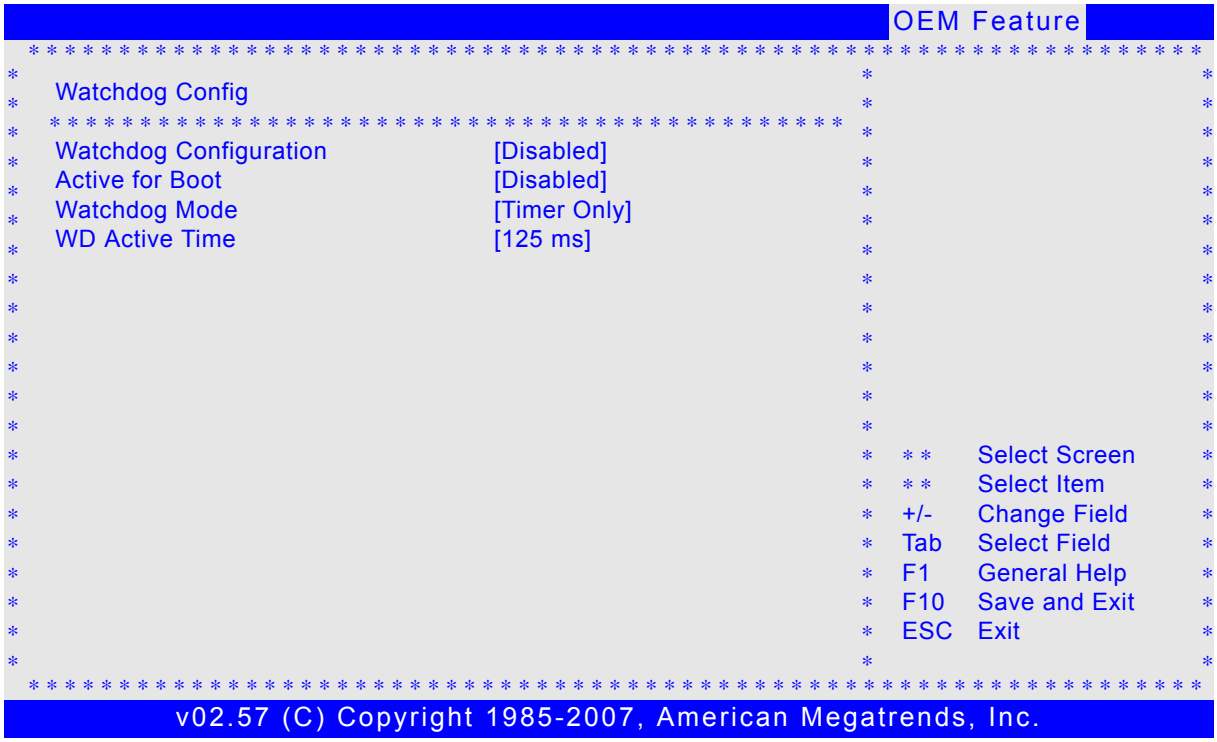
This is an OEM specific function which is designed to provide support for serial attached SCSI (SAS). It is only available when the AM4002 is used in conjunction with Kontron's ATCA AT8400 carrier board. When enabled, the Expansion ROM of the SAS controller on the AT8400 carrier board is accessible from the BIOS.

SETTING	DESCRIPTION
Disabled	Use this setting to disable BIOS access to the SAS controller Expansion ROM.
Enabled	Use this setting to enable BIOS access to the SAS controller Expansion ROM.

Optimal and Fail-Safe default setting: Disabled

Note: The LSI SAS Configuration Manager works only if the function Interrupt 19 Capture in Boot Settings Configuration is set to Enabled.

WATCHDOG SCREEN



Watchdog Configuration

SETTING	DESCRIPTION
Disabled	Use this setting to disable configuring of the Watchdog at end of the POST.
Enabled	Use this setting to specify the configuration of the Watchdog at end of the POST.

Optimal and Fail-Safe default setting: Disabled

Active for Boot

This function is only available when the Watchdog Configuration function is set to Enabled

SETTING	DESCRIPTION
Disabled	Use this setting to specify that the Watchdog timer must be started from the OS.
Enabled	Use this setting to specify that the Watchdog timer is to be started before the operating system is booted.

Optimal and Fail-Safe default setting: Disabled

Watchdog Mode

SETTING	DESCRIPTION
Timer Only	Use this setting to specify that the Watchdog is to be operated in Timer Only mode.
Reset	Use this setting to specify that the Watchdog is to reset the system if it is not retriggered within the selected time.
Interrupt	Use this setting to specify that the Watchdog is to generate an interrupt if it is not retriggered within the selected time.
Cascade (Interrupt + Reset)	Use this setting to specify that the Watchdog is to be operated in Cascade mode. In this mode, if the Watchdog is not retriggered within the selected time, an interrupt is generated and the Watchdog is automatically retriggered. If the Watchdog subsequently times out again, the system will be reset. If the Watchdog is retriggered normally after the interrupt, the next timeout will result in the generation of an interrupt and the automatic retriggering of the Watchdog.

Optimal and Fail-Safe default setting: Timer Only

WD Active Time

SETTING	DESCRIPTION
125 ms 250 ms 500 ms 1 s 2 s 4 s 8 s 16 s 32 s 64 s 128 s 256 s	Use one of these settings to specify the time after which the action selected occurs if the Watchdog timer is not retriggered.

Optimal and Fail-Safe default setting: 125 ms

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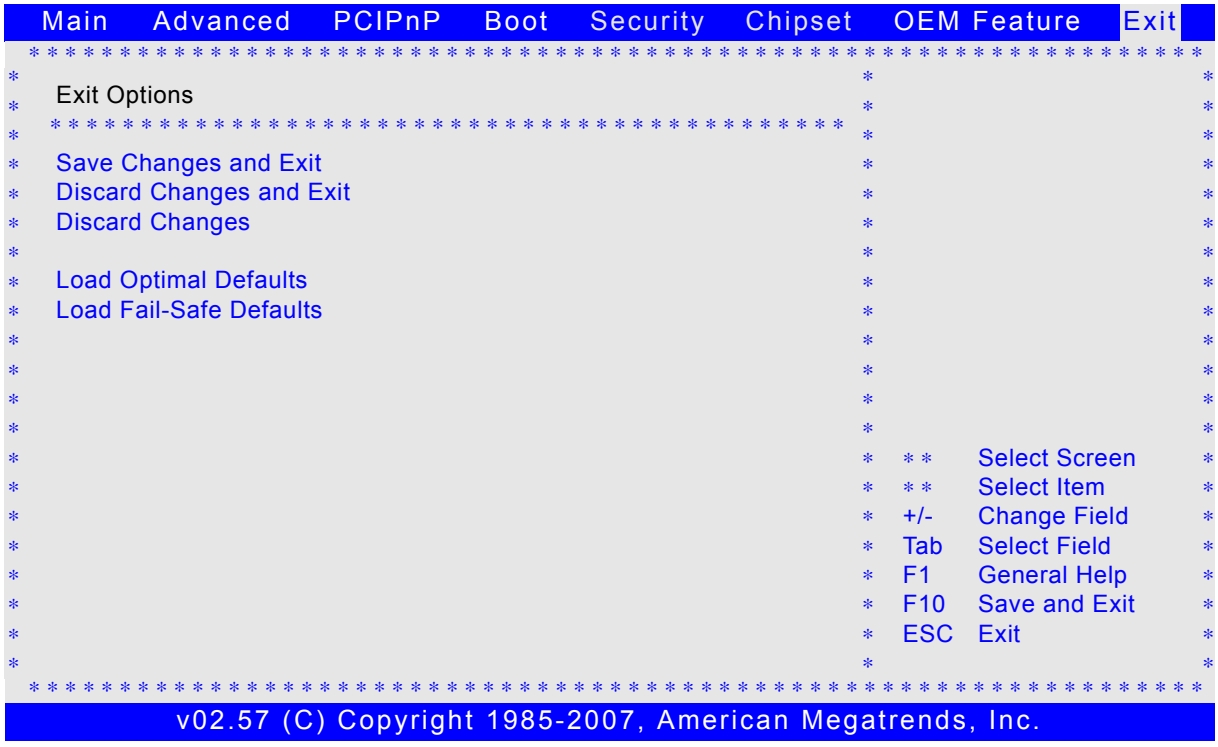
Chapter 9

Exit Menu

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9. Exit Menu

Select the Exit tab to enter the Exit menu screen. This screen provides functions for handling changes made to the BIOS settings and the exiting of the BIOS setup program. In addition, it provides functions for loading the Optimal and Fail-Safe default settings.



Save Changes and Exit

Upon completion the BIOS configuration changes, select this function to save the changes, exit the BIOS setup program, and reboot the computer so that the new configuration settings can take effect.

To accomplish this select this function and press <Enter>. A popup display appears requesting confirmation of the changes. To confirm, select [Ok] and then press <Enter>. To return to the BIOS setup program without saving changes, select [Cancel] and then press <Enter>.

Discard Changes and Exit

This function is used to exit the BIOS setup program without making any permanent changes to the BIOS configuration.

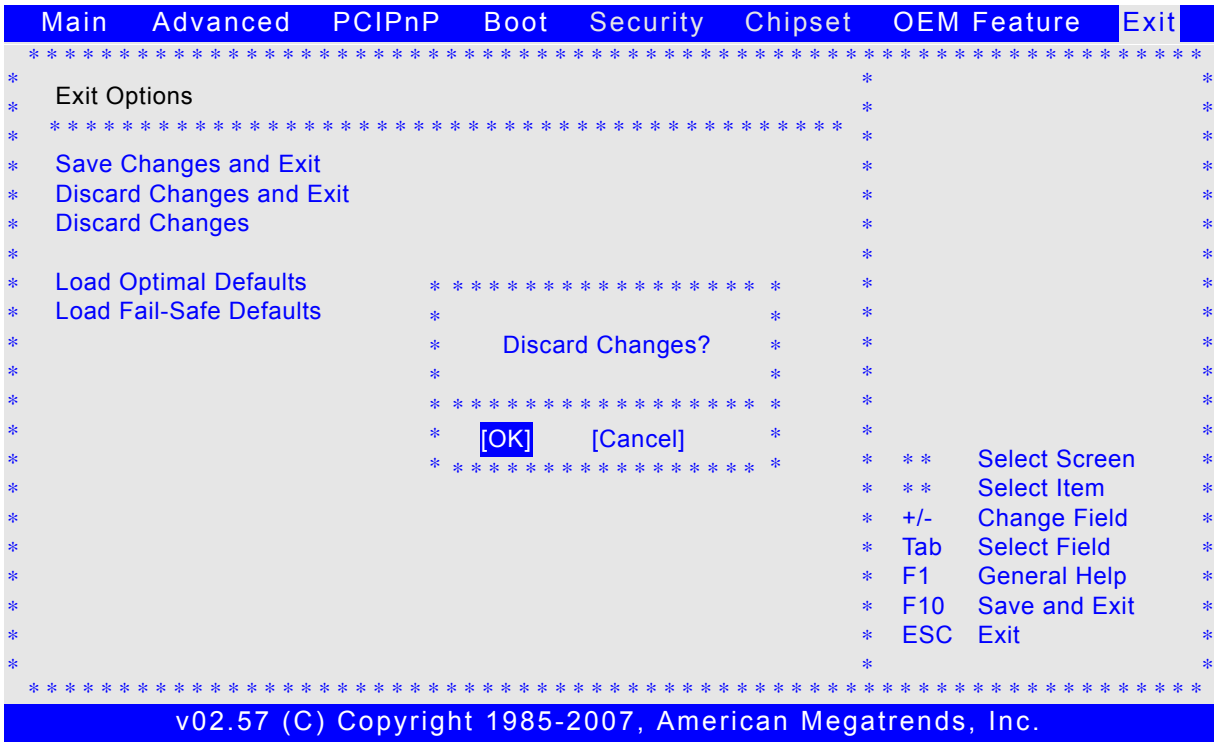
To accomplish this select this function and press <Enter>. A popup display appears requesting confirmation of the discarding of changes and setup exit. To confirm, select [Ok] and then press <Enter>. To return to the BIOS setup program without discarding the changes made, select [Cancel] and then press <Enter>.

Discard Changes

In the course of making configuration changes, it may be necessary to revert back to the previously stored settings and start over again without leaving the BIOS setup program. This function is used to reset the BIOS configuration to the last stored setup configuration so that new changes may be made.

To accomplish this select this function and press <Enter>. A popup display appears requesting confirmation of the discarding of changes. To confirm, select [Ok] and then press <Enter>. To return to the BIOS setup program without discarding the changes made, select [Cancel] and then press <Enter>.

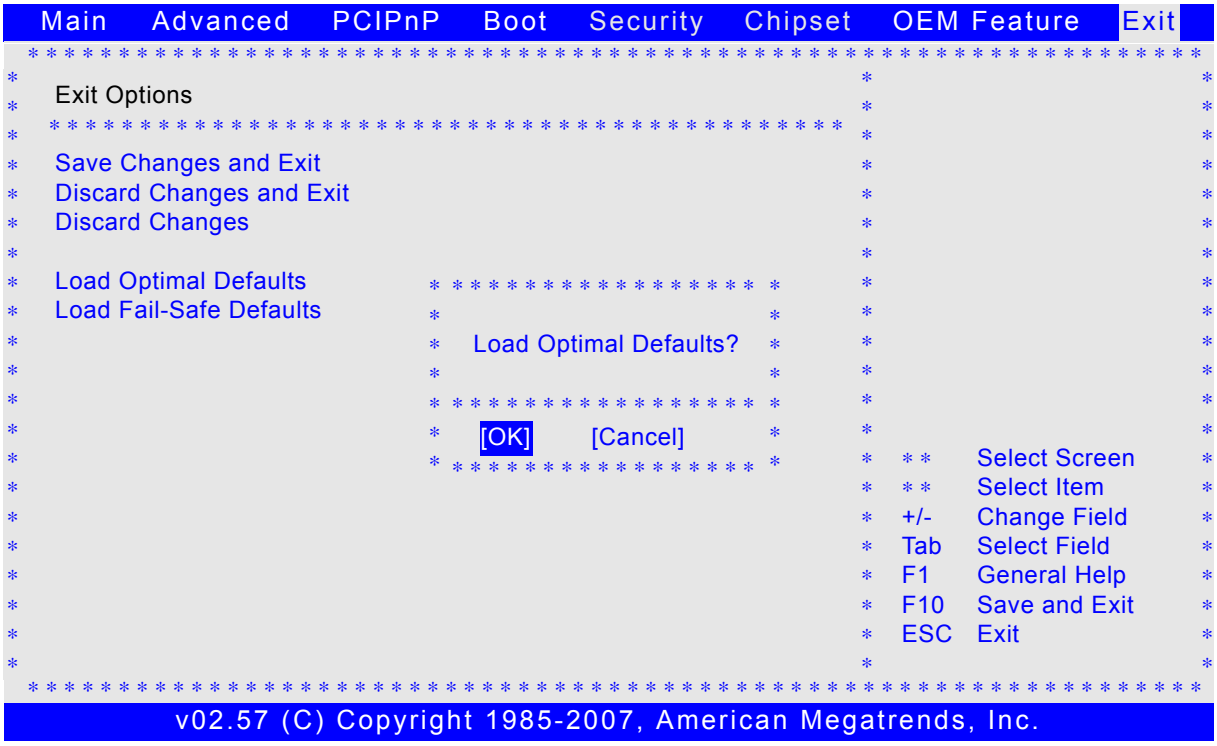
Discard Changes Screen



Load Optimal Defaults

This function is used to reconfigure the BIOS settings to a predefined set of Optimal default settings. The Optimal default settings are designed for maximum system performance, but may not work well for all computer applications. In particular, do not use the Optimal default settings if configuration problems are being experienced with the system.

To load the Optimal default settings select this function and press <Enter>. A popup display appears requesting confirmation of the loading. To confirm, select [Ok] and then press <Enter>. To return to the BIOS setup program without loading, select [Cancel] and then press <Enter>.



Load Fail-Safe Defaults

This function is used to reconfigure the BIOS settings to a predefined set of Fail-Safe default settings. The Fail-Safe default settings are designed for maximum system stability, but not maximum performance. Select the Fail-Safe default settings if configuration problems are being experienced with the system.

To load the Fail-Safe default settings select this function and press <Enter>. A popup display appears requesting confirmation of the loading. To confirm, select [Ok] and then press <Enter>. To return to the BIOS setup program without loading, select [Cancel] and then press <Enter>.

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Chapter 10

POST Codes

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10. POST Codes

For information about the POST code display LEDS, refer to the AM4002 User Guide.

Bootblock Initialization Code Checkpoints

The Bootblock initialization code sets up the chipset, memory and other components before system memory is available. The following table describes the type of checkpoints that may occur during the Bootblock initialization portion of the BIOS:

CHECKPOINT	DESCRIPTION
Before D1	Early chipset initialization is done. Early super I/O initialization is done including RTC and keyboard controller. NMI is disabled.
D1	Perform keyboard controller BAT test. Check if waking up from power management is in suspend state. Save power-on CPUID value in scratch CMOS.
D0	Go to flat mode with 4GB limit and GA20 enabled. Verify the Bootblock checksum.
D2	Disable CACHE before memory detection. Execute full memory sizing module. Verify that flat mode is enabled.
D3	If memory sizing module not executed, start memory refresh and do memory sizing in Bootblock code. Do additional chipset initialization. Re-enable CACHE. Verify that flat mode is enabled.
D4	Test base 512 KB memory. Adjust policies and cache first 8 MB. Set stack.
D5	Bootblock code is copied from ROM to lower system memory and control is given to it. BIOS now executes out of RAM.
D6	Both key sequence and OEM-specific method are checked to determine if BIOS recovery is forced. Main BIOS checksum is tested. If BIOS recovery is necessary, control flows to checkpoint E0. See *Bootblock Recovery Code Checkpoints* section of document for more information.
D7	Restore CPUID value back into register. The Bootblock-Runtime interface module is moved to system memory and control is given to it. Determine whether to execute serial flash.
D8	The Runtime module is uncompressed into memory. CPUID information is stored in memory.
D9	Store the uncompressed pointer for future use in PMM. Copying Main BIOS into memory. Leaves all RAM below 1 MB Read-Write including E000 and F000 shadow areas but closing SMRAM.
DA	Restore CPUID value back into register. Give control to BIOS POST (Execute POST Kernel). See *POST Code Checkpoints* section of document for more information.

Bootblock Recovery Code Checkpoints

The Bootblock recovery code gets control when the BIOS determines that a BIOS recovery needs to occur because the user has forced the update or the BIOS checksum is corrupt. The following table describes the type of checkpoints that may occur during the Bootblock recovery portion of the BIOS:

CHECKPOINT	DESCRIPTION
E0	Initialize the floppy controller in the super I/O. Some interrupt vectors are initialized. DMA controller is initialized. 8259 interrupt controller is initialized. L1 cache is enabled.
E9	Set up floppy controller and data. Attempt to read from floppy.
EA	Enable ATAPI hardware. Attempt to read from ARMD and ATAPI CDROM.
EB	Disable ATAPI hardware. Jump back to checkpoint E9.
EF	Read error occurred on media. Jump back to checkpoint EB.
E9 or EA	Determine information about root directory of recovery media.
F0	Search for pre-defined recovery file name in root directory.
F1	Recovery file not found.
F2	Start reading FAT table and analyze FAT to find the clusters occupied by the recovery file.
F3	Start reading the recovery file cluster by cluster.
F5	Disable L1 cache.
FA	Check the validity of the recovery file configuration to the current configuration of the flash part.
FB	Make flash write enabled through chipset and OEM-specific method. Detect proper flash part. Verify that the found flash part size equals the recovery file size.
F4	The recovery file size does not equal the found flash part size.
FC	Erase the flash part.
FD	Program the flash part.
FF	The flash has been updated successfully. Make flash write disabled. Disable ATAPI hardware. Restore CPUID value back into register. Give control to F000 ROM at F000:FFF0h.

POST Code Checkpoints

The POST code checkpoints are the largest set of checkpoints during the BIOS pre-boot process. The following table describes the type of checkpoints that may occur during the POST portion of the BIOS:

CHECKPOINT	DESCRIPTION
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialized CMOS as mentioned in the Kernel Variable "wCMOSFlags."
04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update the CMOS with the Fail-Safe values and clear passwords. Initialize status register A. Initializes data variables that are based on CMOS setup questions. Initializes both the 8259-compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
C0	Early CPU Init Start -- Disable Cache - Init Local APIC
C1	Set up boot strap processor information
C2	Set up boot strap processor for POST
C5	Enumerate and set up application processors
C6	Re-enable cache for boot strap processor
C7	Early CPU Init Exit
0A	Initializes the 8042-compatible keyboard controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of keyboard in KBC port.
0E	Testing and initialization of different input devices. Also, update the kernel variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.
24	Uncompress and initialize any platform-specific BIOS modules.
30	Initialize System Management Interrupt.
2A	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that has optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.
37	Displaying sign-on message, CPU information, setup key message, and any OEM-specific information.

CHECKPOINT	DESCRIPTION
38	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.
40	Detect different devices (parallel ports, serial ports, and coprocessor in CPU, etc.) successfully installed in the system and update the BDA, EBDA, etc.
50	Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7A	Initializes remaining option ROMs.
7C	Generate and write contents of ESCD in NVRAM.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.
87	Execute BIOS setup if needed / requested.
8C	Late POST initialization of chipset registers.
8D	Build ACPI tables (if ACPI is supported)
8E	Program the peripheral parameters. Enable/Disable NMI as selected
90	Late POST initialization of system management interrupt.
A0	Check boot password if installed.
A1	Clean up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module.
A7	Displays the system configuration screen if enabled. Initialize the CPUs before boot, which includes the programming of the MTRRs.
A8	Prepare CPU for OS boot including final MTRR values.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module.
AB	Prepare BBS for Int 19 boot.
AC	End of POST initialization of chipset registers.
B1	Save system context for ACPI.
00	Passes control to OS Loader (typically INT19h).

DIM Code Checkpoints

The Device Initialization Manager module gets control at various times during BIOS POST to initialize different BUSes. The following table describes the main checkpoints where the DIM module is accessed:

CHECKPOINT	DESCRIPTION
2A	Initialize different buses and perform the following functions: Reset, Detect, and Disable (function 0); Static Device Initialization (function 1); Boot Output Device Initialization (function 2). Function 0 disables all device nodes, PCI devices, and PnP ISA cards. It also assigns PCI bus numbers. Function 1 initializes all static devices that include manual configured onboard peripherals, memory and I/O decode windows in PCI-PCI bridges, and noncompliant PCI devices. Static resources are also reserved. Function 2 searches for and initializes any PnP, PCI, or AGP video devices.
38	Initialize different buses and perform the following functions: Boot Input Device Initialization (function 3); IPL Device Initialization (function 4); General Device Initialization (function 5). Function 3 searches for and configures PCI input devices and detects if system has standard keyboard controller. Function 4 searches for and configures all PnP and PCI boot devices. Function 5 configures all onboard peripherals that are set to an automatic configuration and configures all remaining PnP and PCI devices.

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