CP6012

6U CompactPCI

Processor Board

Doc. ID: 36655, Rev. 1.0
August 23, 2007

BIOS Guide

kontron

Revision History

Publication Title:	CP6012 BIOS Guide	
Doc. ID:	36655	
Rev.	Brief Description of Changes	Date of Issue
1.0	Initial issue	Aug 23, 2007

Imprint

Kontron Modular Computers GmbH may be contacted via the following:

MAILING ADDRESS

Kontron Modular Computers GmbH
Sudetenstraße 7
D - 87600 Kaufbeuren Germany

TELEPHONE AND E-MAIL

+49 (0) 800-SALESKONTRON
sales@kontron.com

For further information about other Kontron products, please visit our Internet web site: www.kontron.com

Disclaimer

Table of Contents

This page has been intentionally left blank.

Chapter 1

Starting BIOS Setup

This page has been intentionally left blank.

1. Starting BIOS Setup

The CP6012 is provided with a Kontron-customized, pre-installed and configured version of AMI's BIOS. This BIOS is based on the AMIBIOS®8 core which provides a variety of new and enhanced functions specifically tailored to the hardware features of the CP6012.

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

The 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 the configurable functions are described in this guide.

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

STEP	DESCRIPTION
1	Power on the board
2	Press the <Delete> key on your keyboard when the following text prompt appears: Press DEL to run Setup 
3	After pressing the <Delete> key, the CP6012 Main BIOS Setup screen is displayed. Access is now available to all of the other setup screens by simply selecting the appropriate menu tab.

Note: The <Delete> key is normally used to start the BIOS Setup program. If the CP6012 is connected to a terminal, use the <F4> key to start the BIOS Setup program.

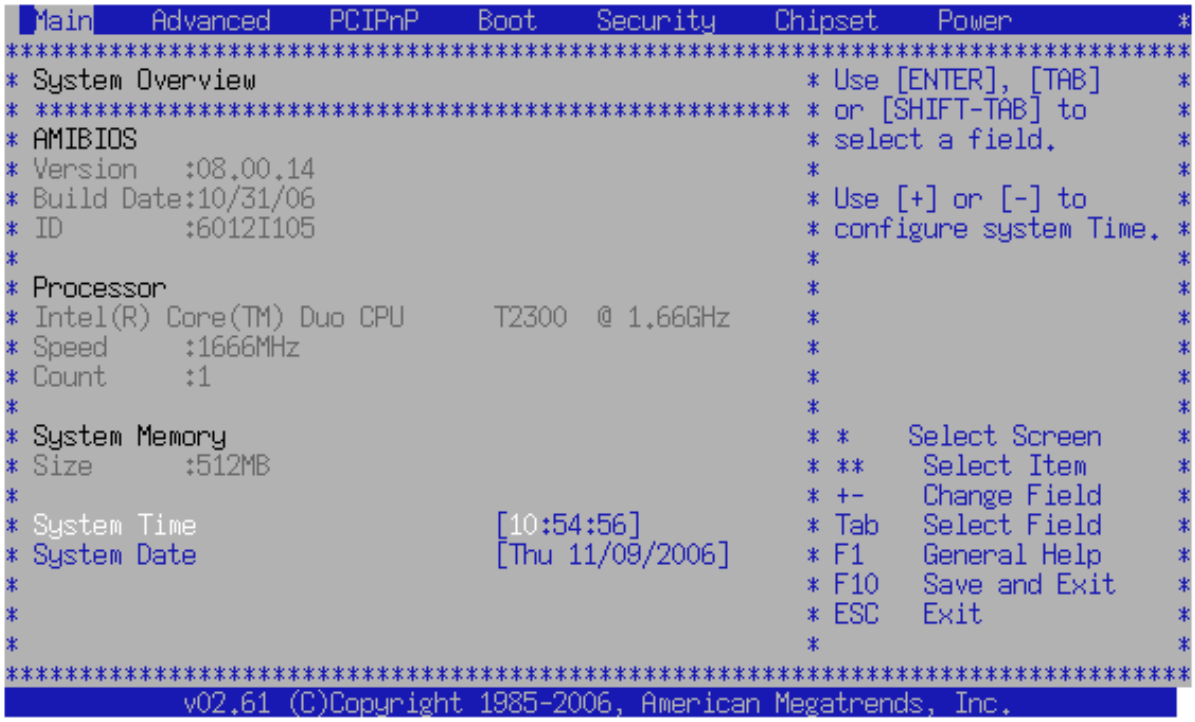
Main Setup Menu

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 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.

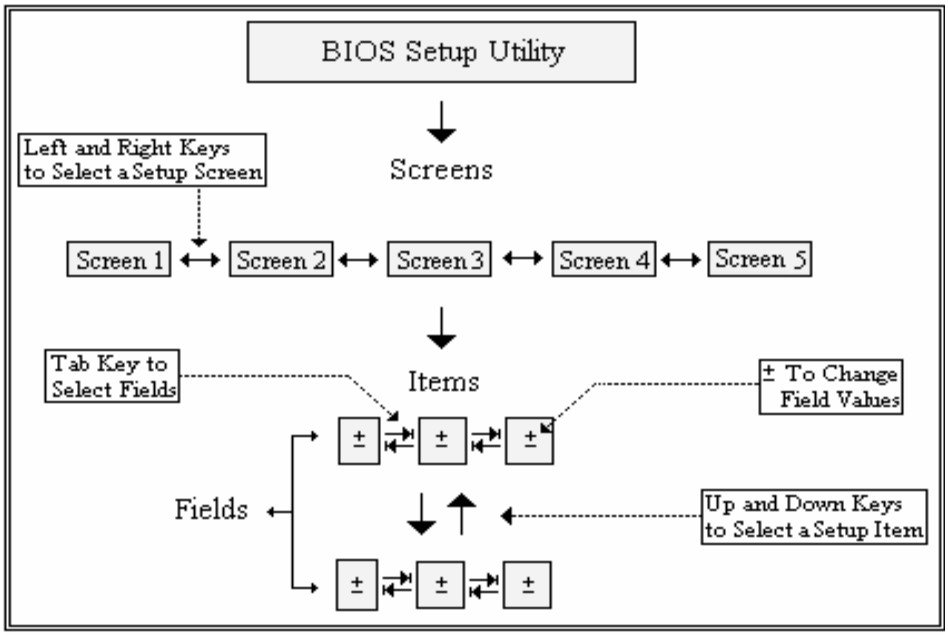
All setup menu screens have two main frames. The left frame displays all the functions that can be configured. They are displayed in blue. Functions displayed in gray provide information about the status or the operational configuration.

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



Navigation

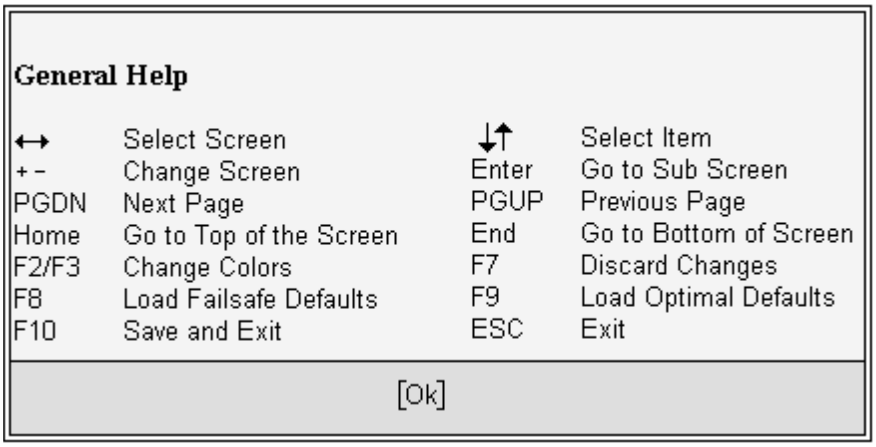
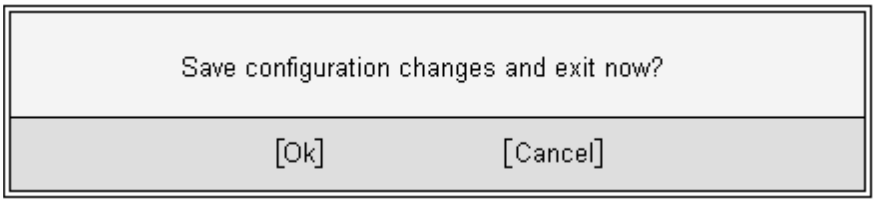
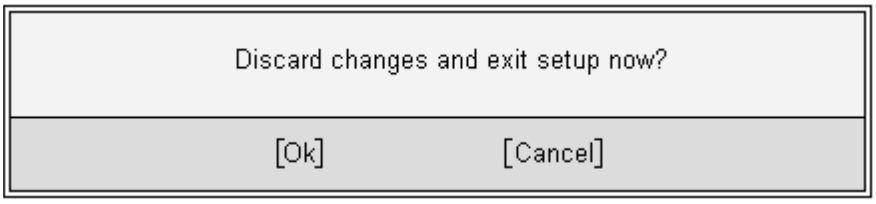
The CP6012 BIOS setup program uses a hot key-based navigation system. Most of these hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.



Note: There is a hot key legend located in the right frame on most CP6012 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 a sub-screen.
+- Plus/Minus	The *Plus and Minus* <Arrow> 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 CP6012 key legend by default. To set the Fail-Safe settings of the BIOS, press the <F8> key on your keyboard. It is located on the upper row of a standard 101 key-board. The Fail-Safe 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 you have made and exit CP6012 Setup. Press the <F10> key to save your 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 you have made and exit the CP6012 Setup. Press the <Esc> key to exit the CP6012 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 CP6012 is connected to a terminal, the <F8>, <F9> and <F10> keys cannot be used via the serial port.

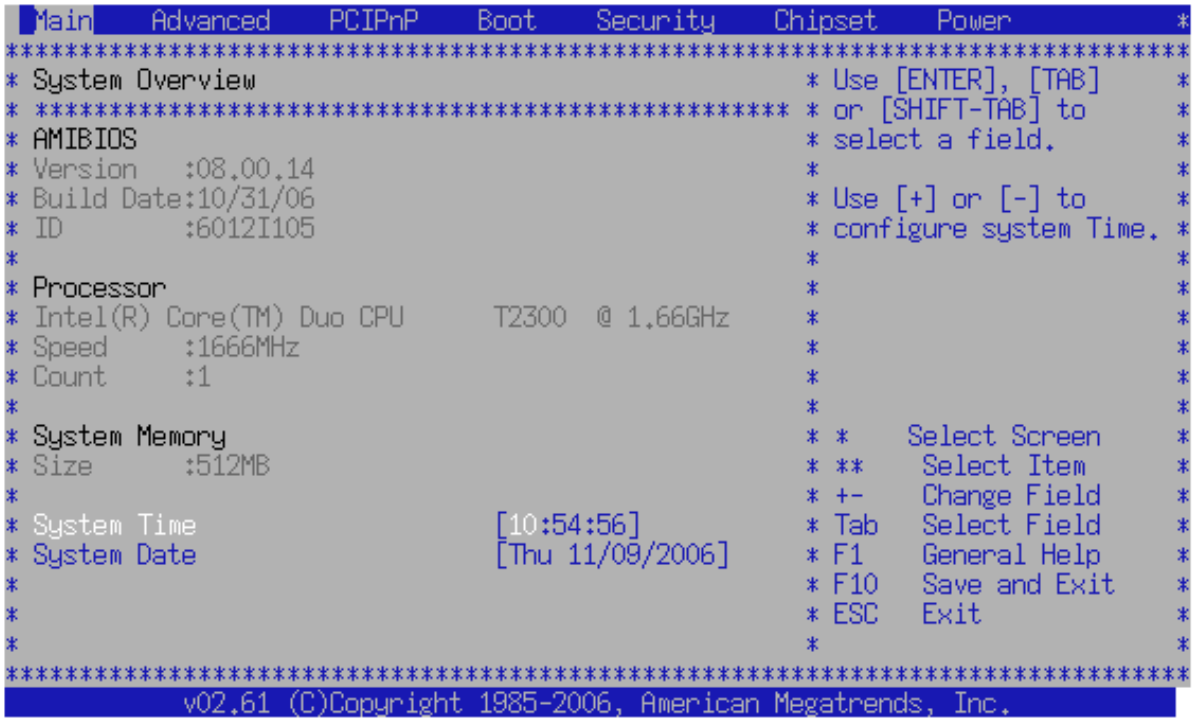
Chapter 2

Main Setup

This page has been intentionally left blank.

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 and Down <Arrow> keys. Enter the new values through the keyboard. Press the <Tab> key or the Left and 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 and Down <Arrow> keys. Enter the new values through the keyboard. Press the <Tab> key or the Left and Right <Arrow> keys to move between fields.

This page has been intentionally left blank.

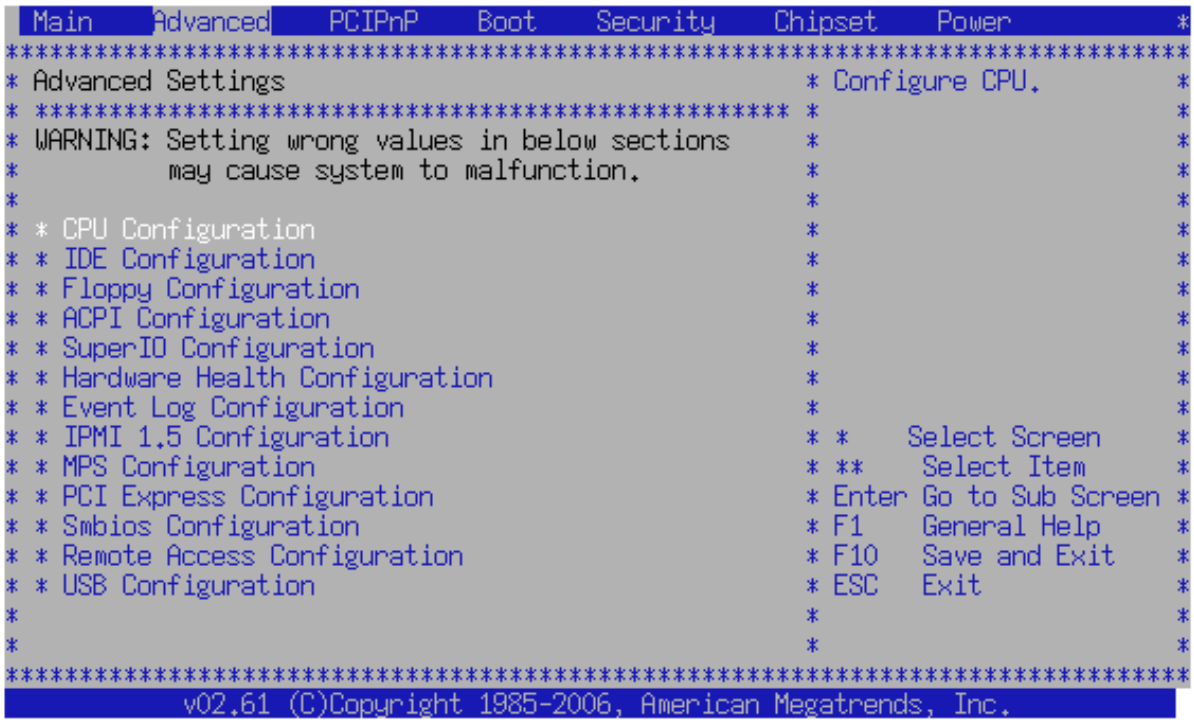
Chapter 3

Advanced Setup

This page has been intentionally left blank.

3. Advanced Setup

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



CPU CONFIGURATION SCREEN

This screen provides basic information about the CPU and functions for specifying CPU configuration settings.

Max CPUID Value Limit

This function is used to determine the values that the operating system can write to the CPUID's EAX register to obtain information about the processor.

Note: This function must be disabled for Windows XP.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Max. CPUID Value Limit.
Enabled	Use this setting to enable the Max. CPUID Value Limit.

Optimal and Fail-Safe default settings: Disabled

Execute Disable Bit

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

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Execute Disable Bit function. When this setting is used, the BIOS forces the XD feature flag to always return to 0.
Enabled	Use this setting to enable the Execute Disable Bit function.

Optimal and Fail-Safe default settings: Enabled

Core Multiprocessing

This function is used to enable the Core Multiprocessing feature.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Execute Disable Bit function. With this setting, the BIOS disables one execution core.
Enabled	Use this setting to enable the Execute Disable Bit function.

Optimal and Fail-Safe default settings: Enabled

CPU Thermal Monitor Function

This function is used to specify the Thermal Monitor Feature. BIOS chooses Intel® Thermal Monitor 1 (TM1) to control the processor temperature and the power consumption by activating the Thermal Control Circuit (TCC) when the processor silicon reaches its maximum operating temperature.

If the processor supports the Intel® Enhanced SpeedStep™ technology, BIOS chooses Intel® Thermal Monitor 2 (TM2), which controls the processor temperature and power consumption by initiating an Intel® Enhanced Speedstep™ Technology transition when the processor silicon reaches its maximum operating temperature.

If Disabled is selected, the BIOS disables the Thermal Monitor 1 or the Thermal Monitor 2 Feature respectively, i.e. the BIOS disables the CPU built in automatic thermal throttling. If the CPU becomes overheated, the CP6012 will shut off automatically.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the CPU Thermal Monitor function.
Enabled	Use this setting to enable the CPU Thermal Monitor function.

Optimal and Fail-Safe settings: Enabled

Note: Intel® Thermal Monitor 1 or Intel® Thermal Monitor 2 must be enabled for the processor to operate within specification.

Vanderpool Technology

This function is used to enable a Virtual Machine Manager (VMM) to utilize the additional hardware capabilities provided by the Vanderpool Technology. To change the state of this function, a hardware reset is necessary.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Vanderpool Technology.
Enabled	Use this setting to enable the Vanderpool Technology. A VMM can utilize the additional hardware capabilities provided by the Vanderpool Technology.

Optimal and Fail-Safe default settings: Enabled

Intel® SpeedStep™ tech.

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

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Intel® SpeedStep™ feature. Use of this setting will force the BIOS to use minimum speed.
Maximum Speed	Use this setting to set the maximum speed.
Minimum Speed	Use this setting to set the minimum speed.
Automatic	Use this setting to allow the operating system to control the CPU speed. The BIOS will start with high CPU speed.

Optimal and Fail-Safe default settings: Automatic

Intel® C-STATE tech.: Cn Config

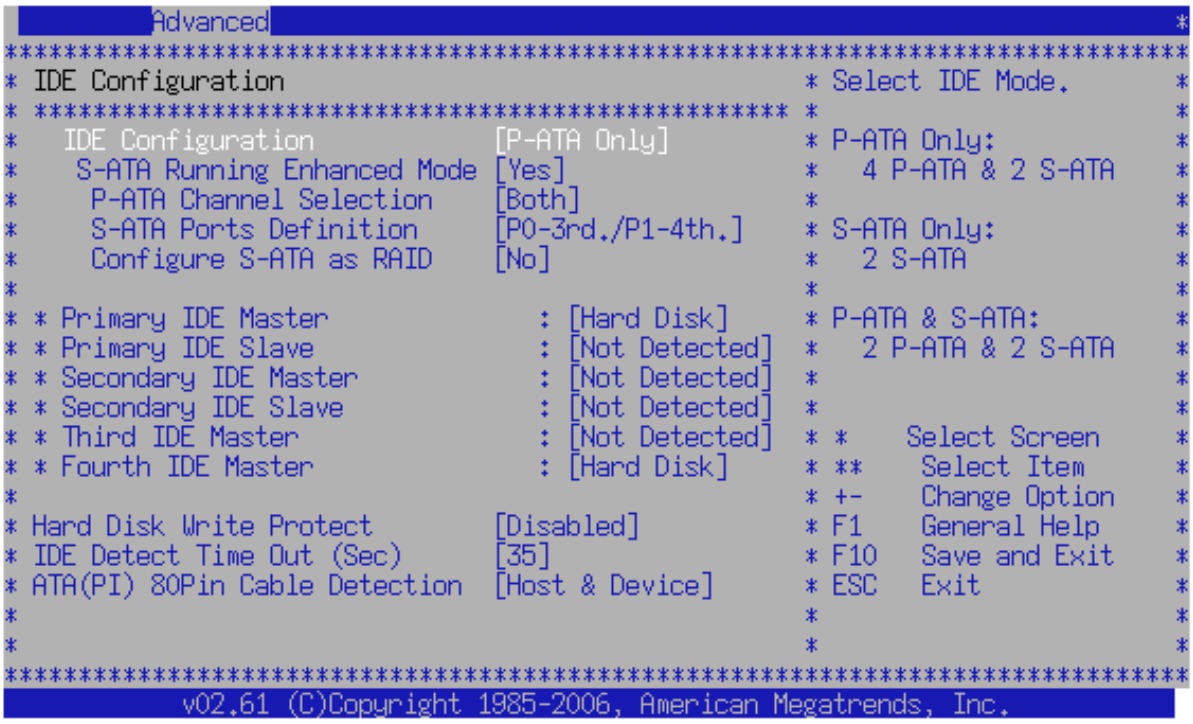
This function controls the availability of the CPU C-STATE power saving technology. The individual C-STATE functions are selectable independent of one another, i.e. C1, C2, C3, and C4 may be enabled/disabled in any combination.

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 and C2: Standard
Optimal and Fail-Safe default settings for C3 and C4: Disabled

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 completely disable all PATA and SATA devices. This setting prevents the OS from detecting the controller devices.
P-ATA only	Use this setting to allow the OS to detect 4 P-ATA and 2 S-ATA channels.
S-ATA only	Use this setting to allow the OS to detect 2 S-ATA channels.
P-ATA & S-ATA	Use this setting to allow the OS to detect 2 P-ATA and 2 S-ATA channels.

Optimal and Fail-Safe default settings: P-ATA only

Hard Disk Drive Write Protect

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

SETTING	DESCRIPTION
Disabled	Use this setting to allow the hard disk drive to be used normally. Read, write, and erase functions can be performed to the hard disk drive.
Enabled	Use this setting to prevent the hard disk drive from being erased.

Optimal and Fail-Safe default settings: Disabled

IDE Detect Timeout (Seconds)

This function is used to specify the number of seconds after which the BIOS stops searching for IDE devices. 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 IDE disk drives attached is found.

Note: Different IDE disk drives take longer for the BIOS to locate than others do.

SETTING	DESCRIPTION
0	This value is the best setting to use if the onboard IDE controllers are set to a specific IDE disk drive in the AMIBIOS.
5	Use this setting to stop the BIOS from searching the IDE bus for IDE disk drives within five seconds. A large majority of ultra ATA hard disk drives can be detected well within five seconds.
10	Use this setting to stop the BIOS from searching the IDE bus for IDE disk drives within 10 seconds.
15	Use this setting to stop the BIOS from searching the IDE bus for IDE disk drives within 15 seconds.
20	Use this setting to stop the BIOS from searching the IDE bus for IDE disk drives within 20 seconds.
25	Use this setting to stop the BIOS from searching the IDE bus for IDE disk drives within 25 seconds.
30	Use this setting to stop the BIOS from searching the IDE bus for IDE disk drives within 30 seconds.
35	Use this setting to stop the BIOS from searching the IDE bus for IDE disk drives within 35 seconds. This is the recommended setting when all IDE connectors are set to *AUTO* in the BIOS setting.

Optimal and Fail-Safe default settings: 35

ATA (PI) 80-Pin Cable Detection

This function is used to select the method used to detect the ATA (PI) 80-pin cable.

SETTING	DESCRIPTION
Host & Device	Use this setting when both the motherboard onboard IDE controller and the IDE disk drive are to be used to detect the type of IDE cable used.
Host	Use this setting when the motherboard onboard IDE controller is to be used to detect the type of IDE cable used.
Device	Use this setting when the IDE disk drive is to be used to detect the type of IDE cable used.

Optimal and Fail-Safe default settings: Host & Device

The use of an 80-conductor ATA cable is mandatory for running Ultra ATA/66, Ultra ATA/100 and Ultra ATA/133 IDE hard disk drives. The standard 40-conductor ATA cable cannot handle the higher speeds.

The 80-conductor ATA cable is plug-compatible with the standard 40-conductor ATA cable. Because of this, the system must determine the presence of the correct cable.

This detection is achieved via an open in the host connector in one of the lines on the 80-conductor ATA cable that is normally an unbroken connection in the standard 40-conductor ATA cable. It is this break that is used to make this determination. The BIOS can instruct the drive to run at the correct speed for the cable type detected.

Primary, Secondary, Third and Fourth IDE Master and Slave

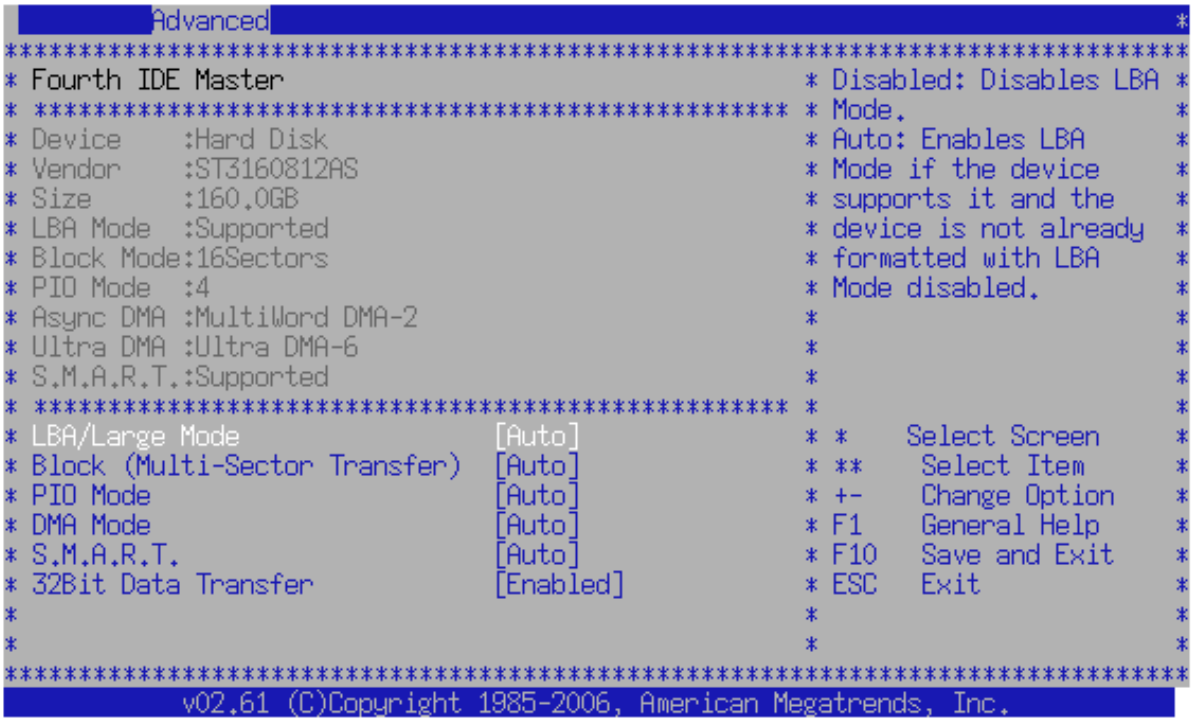
These functions provide access to the Primary, Secondary, Third and Fourth IDE Master and Slave sub-screens. They are only available if an IDE device is detected as Primary, Secondary, Third or Fourth IDE Master or Slave.

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 information about the Primary IDE Master device and functions for specifying various device configuration settings.



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 CP6012 supports 48-bit LBA mode. Thus, hard disks with a drive capacity of greater than 137 GB and can be used on the CP6012.
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 allow 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. 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 maximum drive capacity is 137 GB.

Note: For drive capacities over 137 GB, the BIOS must be equipped with 48-bit LBA mode addressing. If not, install an ATA/133 IDE controller card that supports 48-bit LBA mode or contact Kontron for further assistance.

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 allow 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)

This function sets the block mode multi-sector transfer feature.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the BIOS from using Multi-Sector Transfer on the specified channel. The data to and from the device will occur one sector at a time.
Auto	Use this setting to allow the BIOS to auto detect device support for Multi-Sector Transfers on the specified channel. If supported, use this setting to allow the BIOS to auto detect the number of sectors per block for transfer from the hard disk drive to the memory. The data transfer to and from the device will occur multiple sectors at a time.

Optimal and Fail-Safe default settings: Auto

PIO Mode

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

Optimal and Fail-Safe default settings: Auto

DMA Mode

This function is used to adjust the DMA mode options.

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

The Self-Monitoring Analysis and Reporting Technology (SMART) feature can help predict impending drive failures.

SETTING	DESCRIPTION
Auto	Use this setting to allow the BIOS to auto detect hard disk drive support if the IDE disk drive support cannot be determined.
Disabled	Use this setting to prevent the BIOS from using the SMART feature.
Enabled	Use this setting to allow the BIOS to use the SMART feature on support hard disk drives.

Optimal and Fail-Safe default settings: Auto

32Bit Data Transfer

This function is used to set the 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 allow the BIOS to use 32-bit data transfers on support hard disk drives.

Optimal and Fail-Safe default settings: Enabled

ARMD Emulation Type

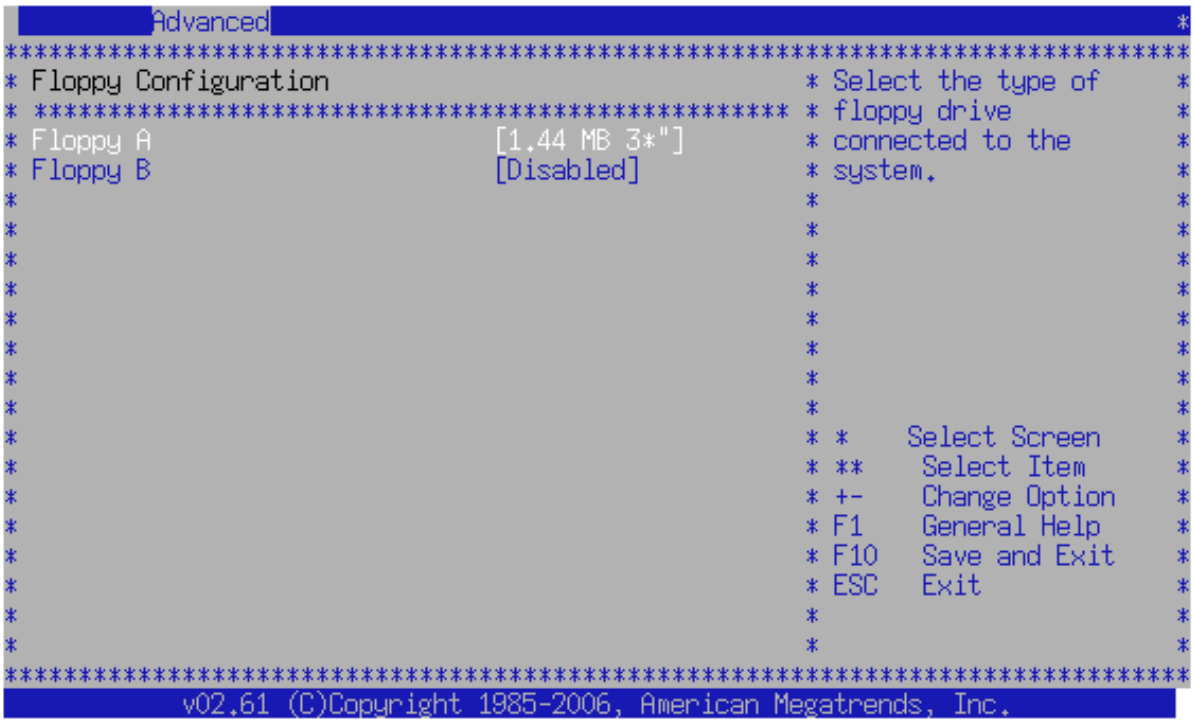
An ATAPI Removable Media Device (ARMD) is a device that uses removable media, such as the LS120, MO (Magneto-Optical), or Iomega Zip drives.To boot from media on an ARMD, it is required to emulate booting from a floppy or hard disk drive. This is especially necessary when trying to boot to DOS.

SETTING	DESCRIPTION
Auto	Use this setting to allow the BIOS to automatically set the emulation used by ARMD.
Floppy	Use this setting to specify that ARMD should emulate a floppy drive during boot up.
Hard disk drive	Use this setting to specify that ARMD should emulate a hard disk drive during boot up.

Optimal and Fail-Safe default settings: Auto

Floppy CONFIGURATION SCREEN

This screen provides functions for specifying the Floppy Configuration settings.



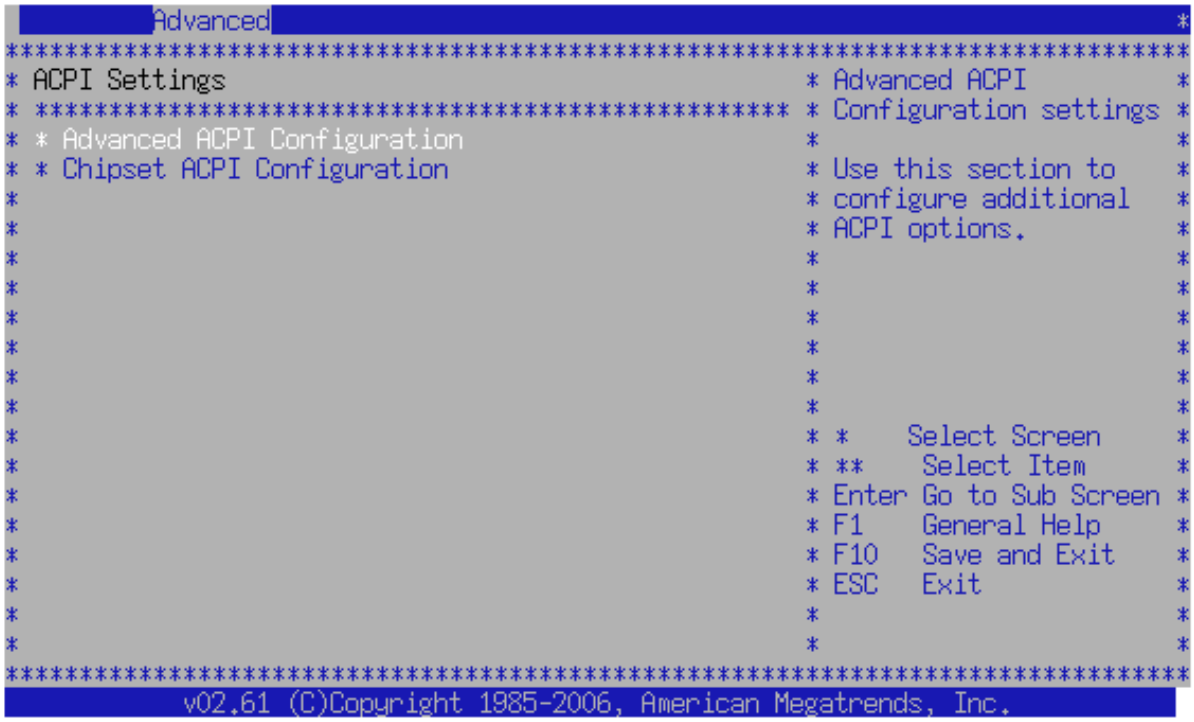
Floppy Drive A: and B:

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the use of the selected floppy disk drive channel. It is recommended to use this setting if no floppy disk drive is installed on the specified channel.
360 KB 5 1/4”	Use this setting if the floppy disk drive attached to the corresponding channel is a 360 KB 5 1/4” floppy disk drive.
1.2 MB 5 1/4”	Use this setting if the floppy disk drive attached to the corresponding channel is a 1.2 MB 5 1/4” floppy disk drive.
720 KB 3 1/2”	Use this setting if the floppy disk drive attached to the corresponding channel is a 720 KB 3 1/2” floppy disk drive.
1.44 MB 3 1/2”	Use this setting if the floppy disk drive attached to the corresponding channel is a 1.44 MB 3 1/2” floppy disk drive.

Optimal and Fail-Safe default settings for floppy drive A: 1.44 MB 3 1/2”
Optimal and Fail-Safe default settings for floppy drive B: Disabled

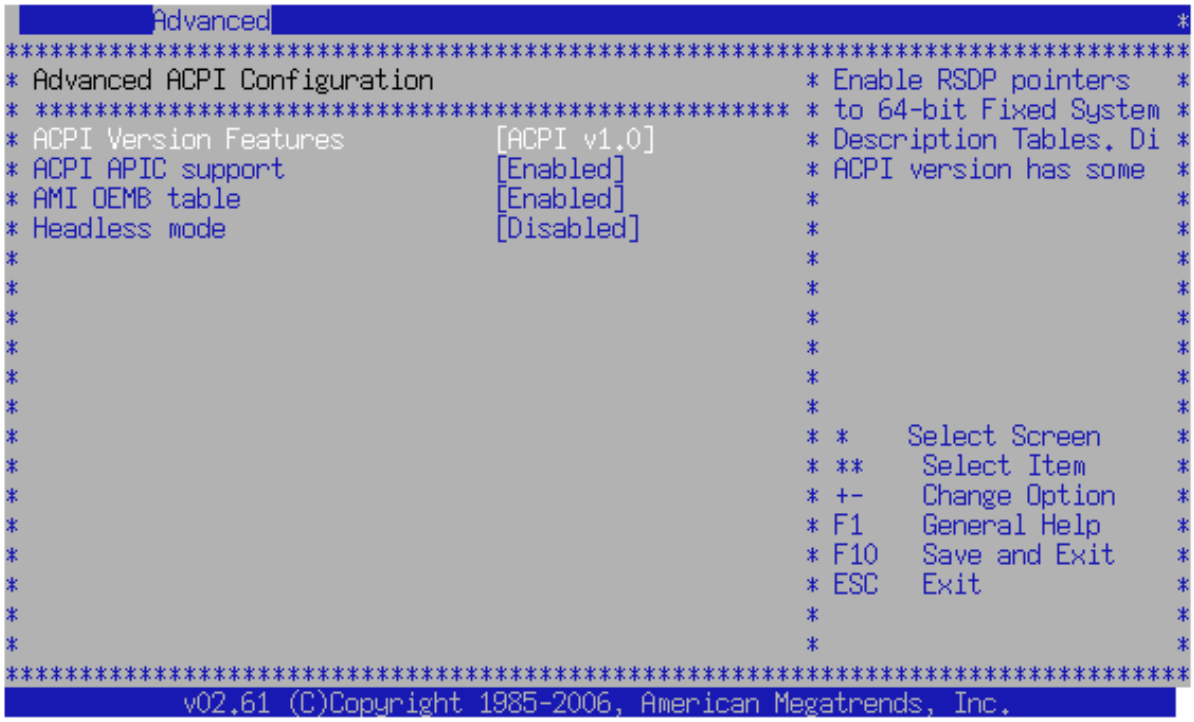
ACPI CONFIGURATION SCREEN

This screen provides access to the Advanced Configuration and Power Interface (ACPI) setup sub-screens.



Advanced ACPI Configuration Screen

This screen provides functions for specifying the advanced ACPI configuration settings.



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

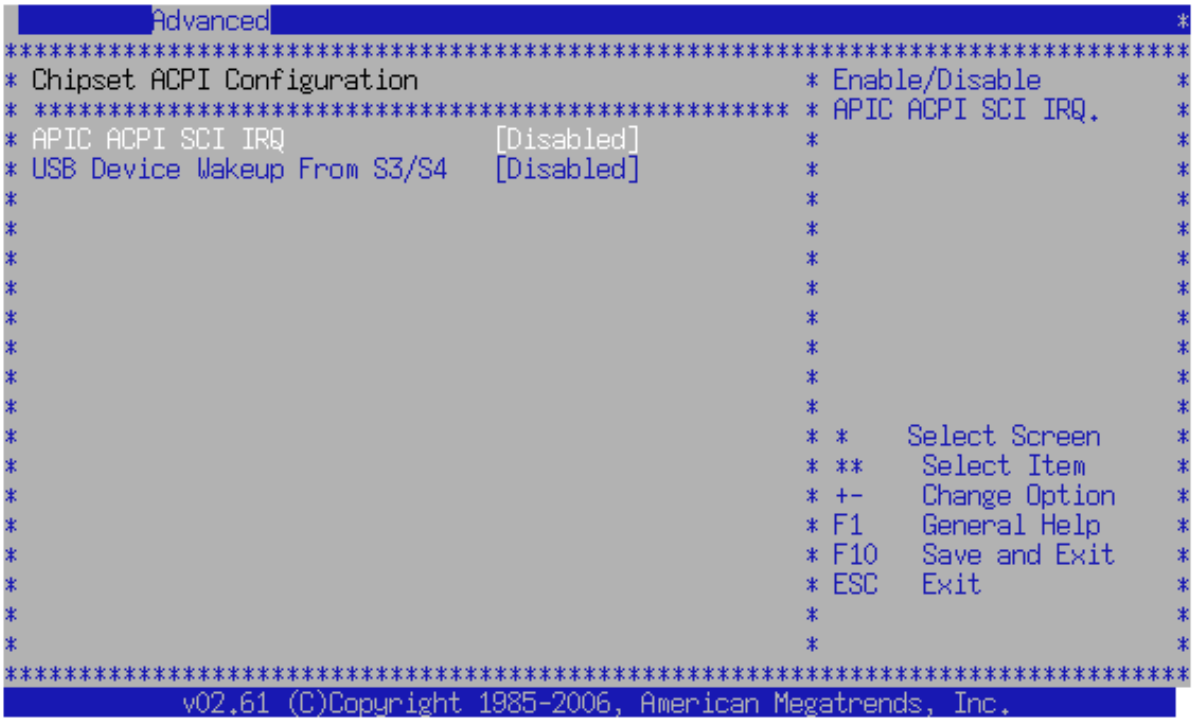
This function is used to update the ACPI FACP table to indicate headless operations.

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

Chipset ACPI Configuration Screen

This screen provides functions for specifying the chipset ACPI configuration settings.



APIC ACPI SCI IRQ

This function enables/disables the APIC ACPI SCI IRQ.

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

Optimal and Fail-Safe default settings: Disabled

USB Device Wakeup from S3/S4

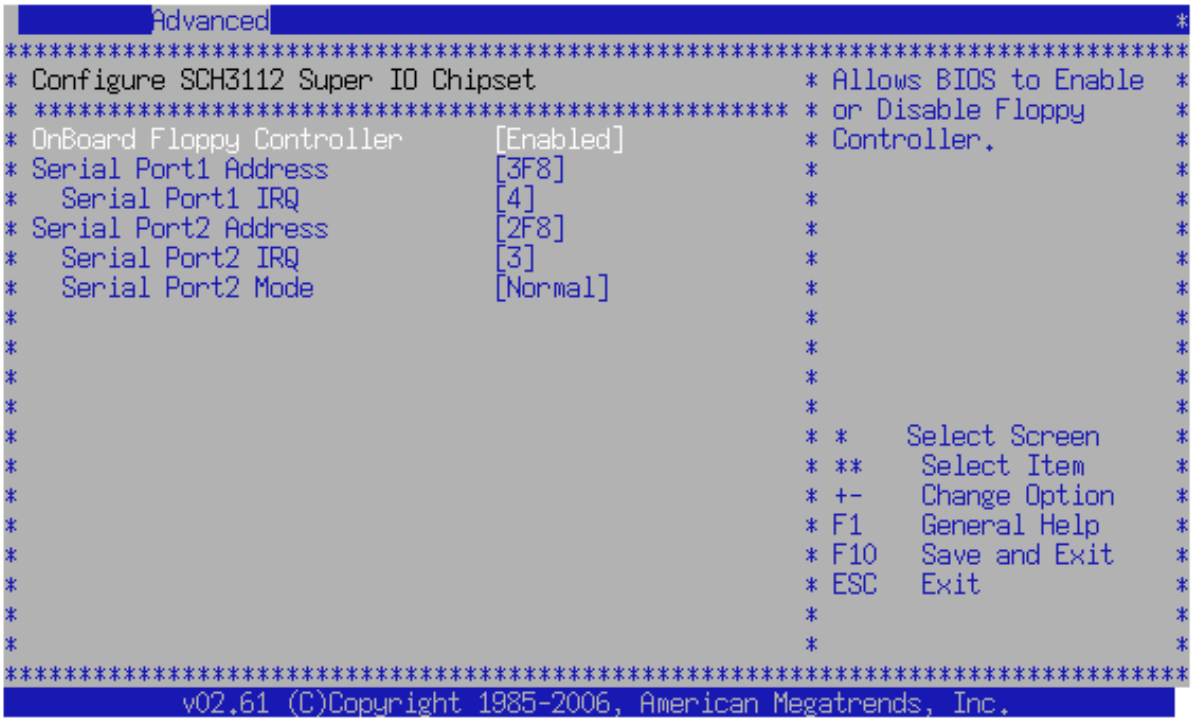
This function enables/disables the USB Device Wakeup from S3/S4 sleep state.

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

Optimal and Fail-Safe default settings: Disabled

SUPER IO CONFIGURATION SCREEN

This screen provides functions for specifying the Super I/O settings.



Onboard Floppy Controller

This function is used to control the legacy disk controller.

SETTING	DESCRIPTION
Disabled	Use this setting to turn off all legacy diskette drives.
Enabled	Use this setting to enable the onboard legacy diskette controller.

Optimal and Fail-Safe default settings: Enabled

Serial Port1 Address

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

Note: If the system does not use a serial device, set this port to Disabled.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the serial port from accessing any system resources. When this setting is used, the serial port physically becomes unavailable.
3F8	Use this setting to allow the serial port to use 3F8 as its I/O port address.
2F8	Use this setting to allow the serial port to use 2F8 as its I/O port address.
3E8	Use this setting to allow the serial port to use 3E8 as its I/O port address.
2E8	Use this setting to allow the serial port to use 2E8 as its I/O port address.

Optimal and Fail-Safe default settings: 3F8

Serial Port1 IRQ

This function is used to specify the Interrupt Request address of Serial Port 1.

Note: This function is not available if Serial Port 1 Address is set to Disabled.

SETTING	DESCRIPTION
3	Use this setting to allow the serial port to use IRQ3 for the interrupt address.
4	Use this setting to allow the serial port to use IRQ4 for the interrupt address.

Optimal and Fail-Safe default settings: 4

Serial Port2 Address

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

Note: If the system does not use a serial device, set this port to Disabled.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the serial port from accessing any system resources. When this setting is used, the serial port physically becomes unavailable.
3F8	Use this setting to allow the serial port to use 3F8 as its I/O port address.
2F8	Use this setting to allow the serial port to use 2F8 as its I/O port address.
3E8	Use this setting to allow the serial port to use 3E8 as its I/O port address.
2E8	Use this setting to allow the serial port to use 2E8 as its I/O port address.

Optimal and Fail-Safe default settings: 2F8

Serial Port2 IRQ

This function is used to specify the Interrupt Request address of Serial Port 2.

Note: This function is not available if Serial Port 2 Address is set to Disabled.

SETTING	DESCRIPTION
3	Use this setting to allow the serial port to use IRQ3 for the interrupt address.
4	Use this setting to allow the serial port to use IRQ4 for the interrupt address.

Optimal and Fail-Safe default settings: 3

Serial Port2 Mode

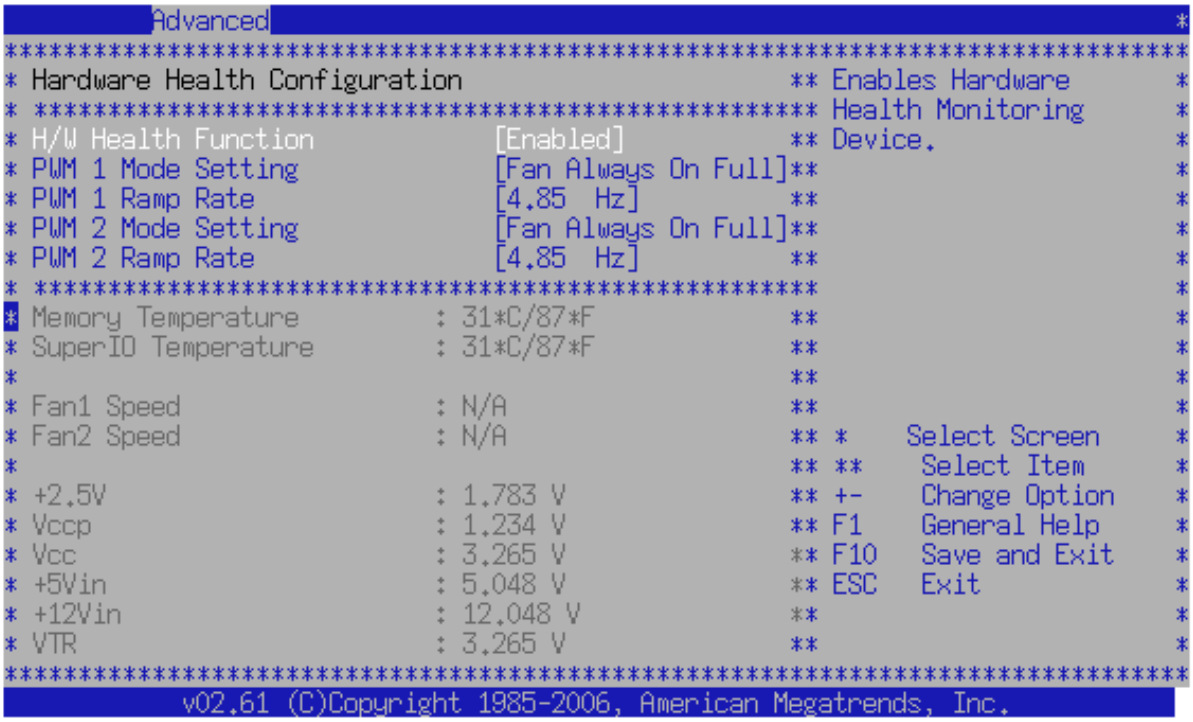
This function has no effect on the operation of the CP6012. It is recommended to leave this function at the default setting.

Optimal and Fail-Safe default settings: Normal

Note: This function is not available if Serial Port 2 Address is set to Disabled.

HARDWARE HEALTH CONFIGURATION SCREEN

This screen provides information about the hardware health attributes as well as functions for specifying the hardware health configuration settings.



Hardware Health Function

This function has no effect on the operation of the CP6012.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the H/W Health Function.
Enabled	Use this setting to enable the H/W Health Function.

Optimal and Fail-Safe default settings: Enabled

EVENT LOG CONFIGURATION SCREEN

This screen provides functions for specifying the event log configuration settings.

View Event Log

This function is used to display a pop-up window which contains all unread events (for example “01/01/02 13:12:56” or “CMOS time not set”, etc.).

Mark all events as read

This function is used to mark all unread events as read.

Clear Event Log

This function is used to remove all events from the event log.

ECC Event Logging

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

Optimal and Fail-Safe default settings: Disabled

Hub Interface Event Logging

SETTING	DESCRIPTION
Disabled	Use this setting to disable the hub interface event logging.
Enabled	Use this setting to enable the hub interface event logging.

Optimal and Fail-Safe default settings: Disabled

System Bus Event Logging

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

Optimal and Fail-Safe default settings: Disabled

Memory Buffer Event Logging

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

Optimal and Fail-Safe default settings: Disabled

PCI Error Logging

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

Optimal and Fail-Safe default settings: Disabled

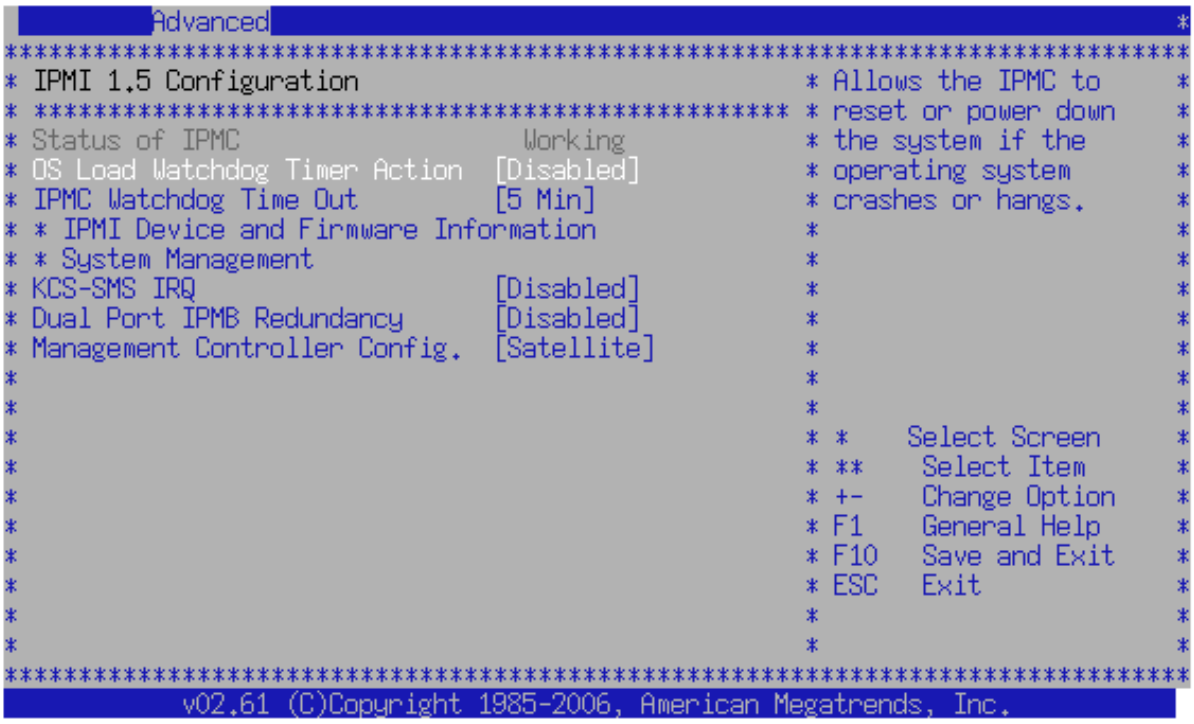
PCI Express Error Logging

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

Optimal and Fail-Safe default settings: Disabled

IPMI 1.5 CONFIGURATION SCREEN

This screen provides functions for specifying the IPMI 1.5 configuration settings.



Status of IPMC

This is a display-only function indicating the operating status of the IPMC.

OS Load Watchdog Timer Action

This function is used to specify the IPMC watchdog timer actions and to reset or power down the system if the operating system crashes or hangs.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the computer system from using the IPMC watchdog timer.
Reset System	Use this setting to reset the computer system.
Power Down	Use this setting to power down the computer system.
Power Cycle	Use this setting to power cycle the computer system

Optimal and Fail-Safe default settings: Disabled

IPMC Watchdog Timeout

This function specifies the length of time the system waits before assuming that the system has crashed and needs to be reset.

SETTING	DESCRIPTION
5 Min 1 Min 30 Sec 10 Sec	Use one of these settings to specify the IPMC watchdog timeout.

Optimal and Fail-Safe default settings: 5 Min

KCS-SMS IRQ

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

SETTING	DESCRIPTION
Disabled	Use this setting to specify that nor IRQ is reserved.
IRQ5/IRQ7	Use this setting to allow the computer system to select IRQ5/IRQ7 for the System Management Software.

Optimal and Fail-Safe default settings: Disabled

Dual-Port IPMB Redundancy

This function is used to select the dual-port Intelligent Platform Management Bus (IPMB) redundancy.

SETTING	DESCRIPTION
Disabled	Use this setting to specify that IPMB0 and IPMB1 operate as separate channels.
Enabled	Use this setting to specify that IPMB1 is hidden behind IPMB0 and used as a redundancy channel.

Optimal and Fail-Safe default settings: Disabled

Management Controller Configuration

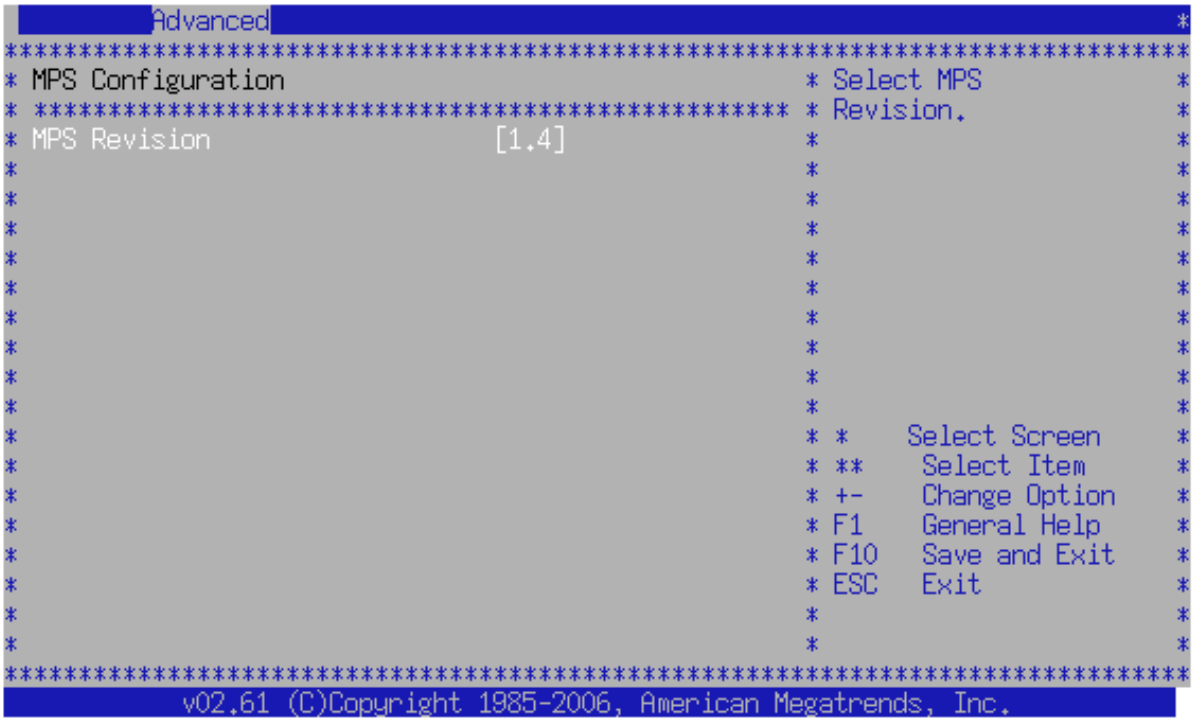
This function is used to select the Management Controller Configuration.

SETTING	DESCRIPTION
Baseboard	Use this setting to allow the computer system to use the Management Controller located on the baseboard.
Satellite	Use this setting to specify that the board acts as a Satellite Management Controller under the control of an external Central Management Controller.

Optimal and Fail-Safe default settings: Satellite

MPS CONFIGURATION SCREEN

This screen provides the function for selecting the revision of the MultiProcessor Specification (MPS).



MPS Revision

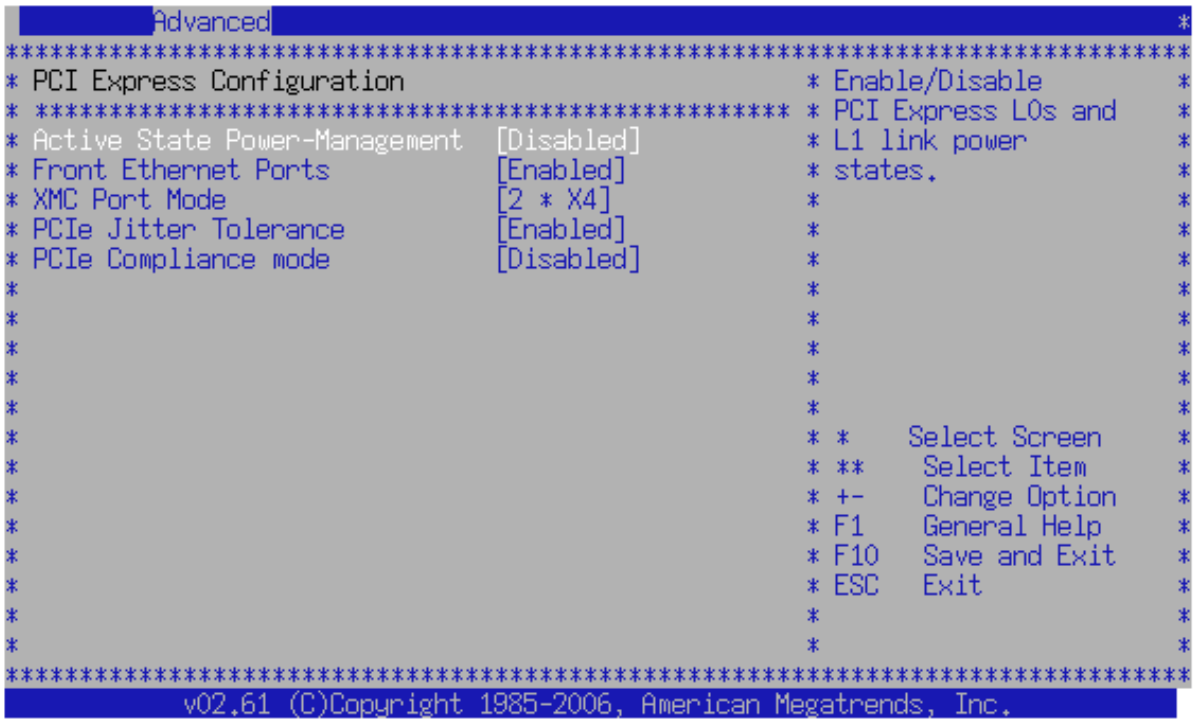
This function is used to select the revision of the MP Specification to be used for generating the MP table.

SETTING	DESCRIPTION
1.1	Use this setting to specify that the MP table complies with MPS Revision 1.1.
1.4	Use this setting to specify that the MP table complies with MPS Revision 1.4.

Optimal default setting: 1.4
Fail-Safe default setting: 1.1

PCI EXPRESS CONFIGURATION SCREEN

This screen provides the functions for specifying the PCI Express configuration settings.



Active State Power Management

This function is used to enable the PCI Express Active State Power Management on the A0, A1, and B0 links.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the PCI Express Active State Power Management on the A0, A1 and B0 links.
Enabled	Use this setting to enable the PCI Express Active State Power Management on the A0, A1 and B0 links.

Optimal and Fail-Safe default settings: Disabled

Front Ethernet Ports

This function is used to enable or disable the Front Ethernet Ports.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Front Ethernet Ports.
Enabled	Use this setting to enable the Front Ethernet Ports.

Optimal and Fail-Safe default settings: Enabled

XMC Port Mode

This function is used to select the PCI Express routing to the XMC connector.

SETTING	DESCRIPTION
2 * X4	Use this setting to route two X4 PCI Express lanes to the XMC connector.
1 * X4	Use this setting to route one X4 PCI Express lanes to the XMC connector.

Optimal and Fail-Safe default settings: 2 * X4

Note: The selected setting must comply with the requirements of the XMC module used.

PCIe Jitter Tolerance

This function is used to enable or disable the PCIe Jitter Tolerance.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the PCIe Jitter Tolerance.
Enabled	Use this setting to enable the PCIe Jitter Tolerance.

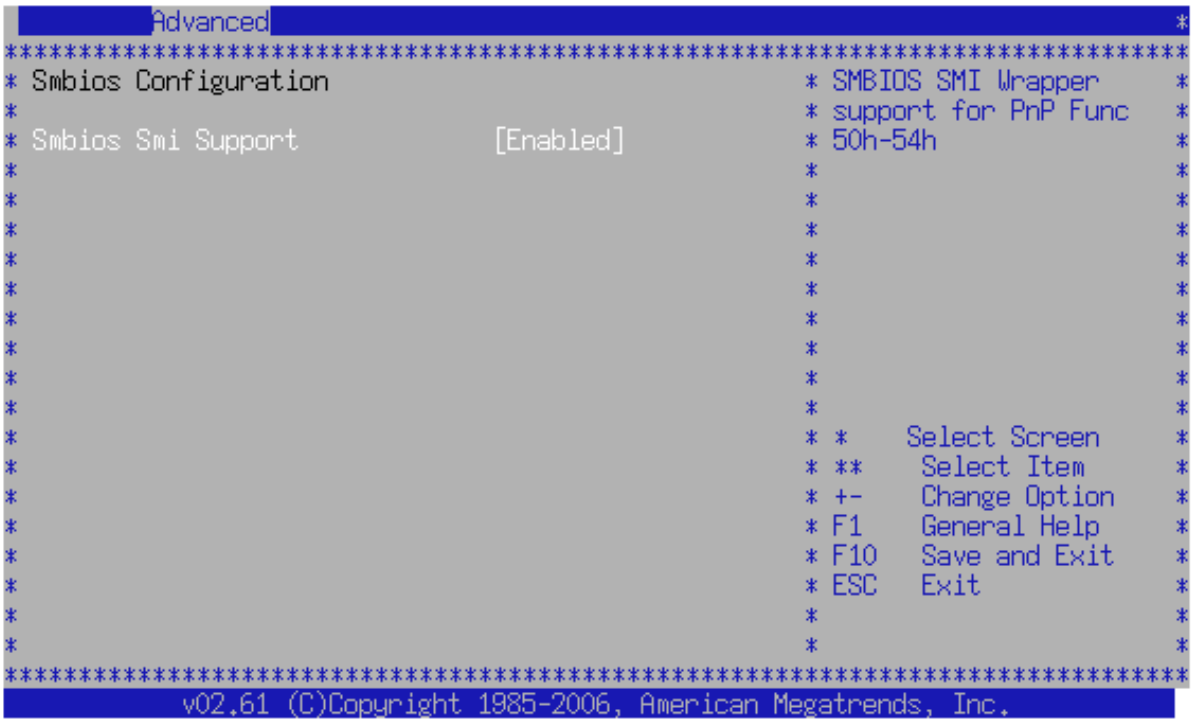
Optimal and Fail-Safe default settings: Enabled

PCIe Compliance Mode

This function is used for debug purposes only. For normal operation, this function should be always set to Disabled.

SMBIOS CONFIGURATION SCREEN

This screen provides the function for specifying the SMBIOS configuration.



SMBIOS SMI Support

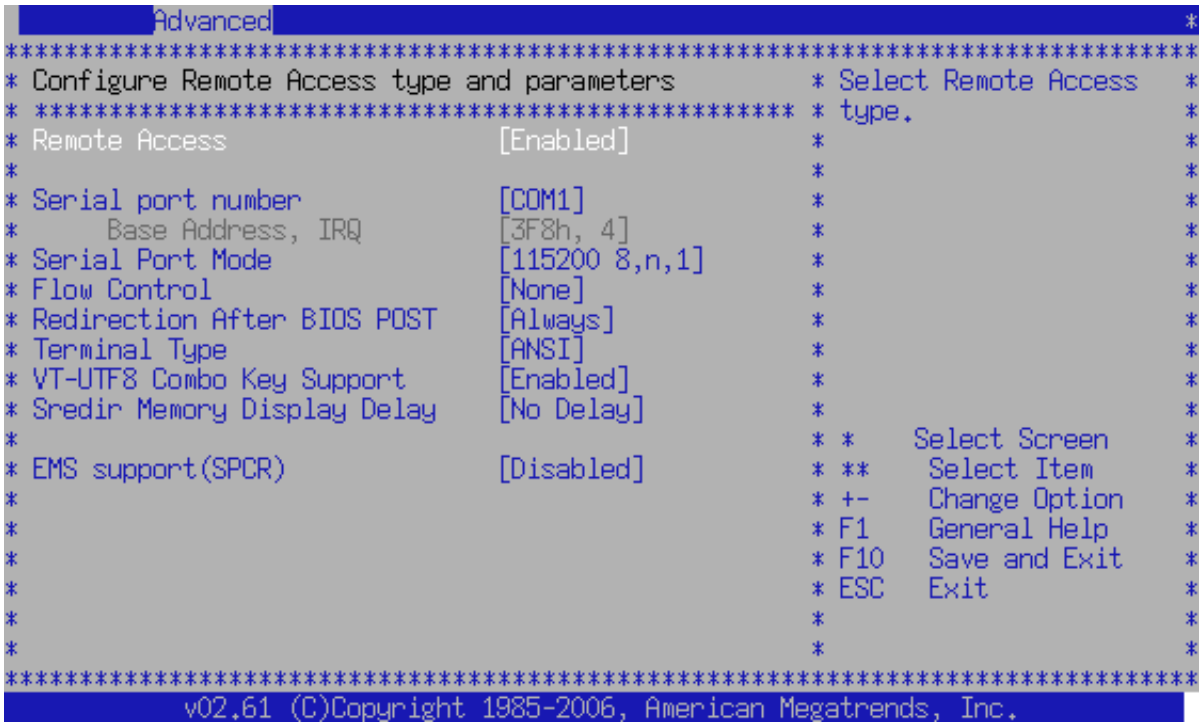
This function is used to enable the SMBIOS SMI support.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the SMBIOS SMI support.
Enabled	Use this setting to enable 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 remote access configuration settings.



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

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
ICH COM1	Use this setting to select ICH COM1 (Communication port 1) as the remote access interface.
ICH COM2	Use this setting to select ICH COM2 (Communication port 2) for the remote access interface.

Optimal and Fail-Safe default settings: ICH 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

Flow Control

This function is used to select the flow control for console redirection.

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

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

Optimal and Fail-Safe default settings: None

Redirection After BIOS POST

This function is used to select redirection after BIOS POST.

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

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 specify that the redirection is always active.

Optimal and Fail-Safe default settings: Always

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

VT-UTF8 Combo Key Support

This function is used to enable or disable the VT-UTF8 combo key support.

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

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.

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

SETTING	DESCRIPTION
No Delay	Use this setting to specify that the memory display does not pause during redirection.
Delay 1 Sec	Use this setting to set the delay to display memory information to one second.
Delay 2 Sec	Use this setting to set the delay to display memory information to two seconds.
Delay 4 Sec	Use this setting to set the delay to display memory information to four seconds.

Optimal and Fail-Safe default settings: No Delay

EMS Support (SPCR)

This function is used to enable the EMS (Emergency Management Services) support via the ACPI SPCR (Serial Port Console Redirection) table if console redirection is enabled.

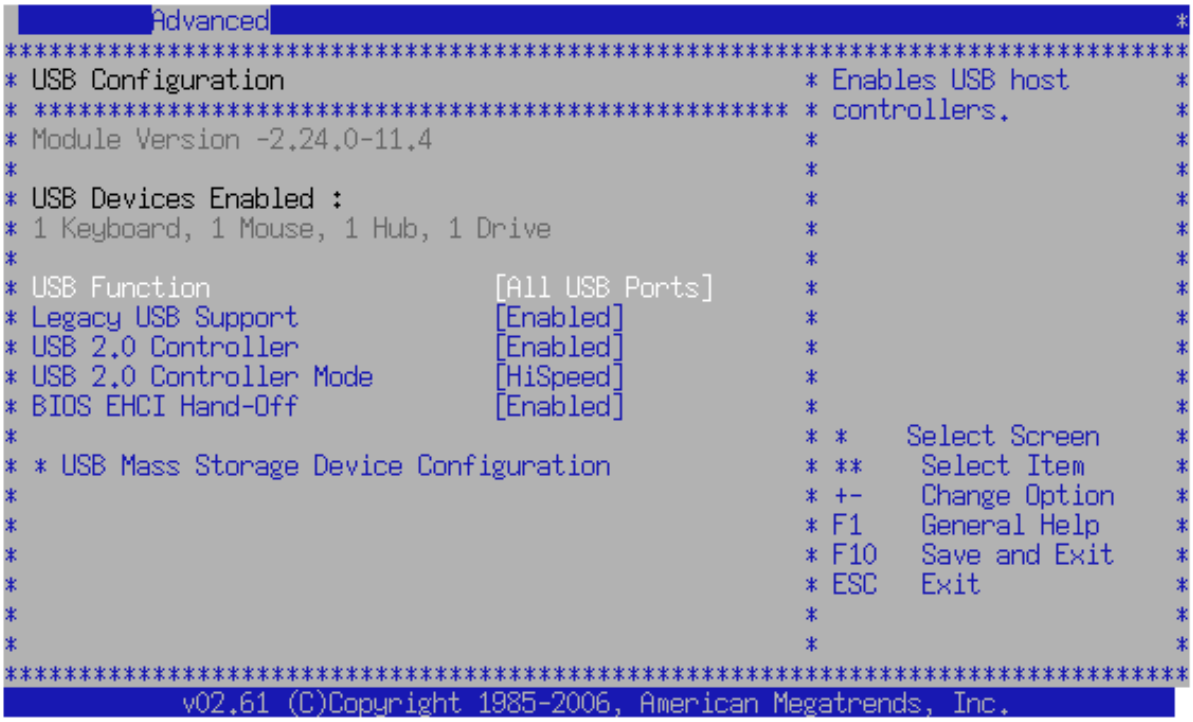
Note: This function is only available when the Remote Access function is set to Enabled.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the system from filling the SPCR table. No EMS will be available.
Enabled	Use this setting to fill the SPCR table if console redirection is enabled. EMS will be available.

Optimal and Fail-Safe default settings: Disabled

USB CONFIGURATION SCREEN

This screen provides information about support for USB devices as well as functions for specifying the USB 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 CP6012. If a USB device is connected, it is indicated with its own function below.

USB Function

This function is used to allow the system to enable or disable the onboard USB ports.

SETTING	DESCRIPTION
Disabled	Use this setting to make all onboard USB ports unavailable.
2 USB Ports	Use this setting to allow the use of two USB ports.
All USB Ports	Use this setting to allow the use of all USB ports.

Optimal and Fail-Safe default settings: All USB Ports

Legacy USB Support

This function is used to allow the system to enable legacy USB support.

SETTING	DESCRIPTION
Disabled	Use this setting to disable legacy USB support.
Enabled	Use this setting to enable legacy USB support.
Auto	Use this setting to disable legacy USB support if no USB devices are connected.

Optimal and Fail-Safe default settings: Enabled

USB 2.0 Controller

This function is used to allow the system to enable or disable the USB 2.0 controller.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the USB 2.0 controller.
Enabled	Use this setting to enable the USB 2.0 controller.

Optimal and Fail-Safe default settings: Enabled

USB 2.0 Controller Mode

This function is used to allow the system to configure the USB 2.0 controller.

SETTING	DESCRIPTION
Full Speed	Use this setting to configure the USB 2.0 controller in Full Speed (12 Mbit/s).
HiSpeed	Use this setting to configure the USB 2.0 controller in HiSpeed (480 Mbit/s).

Optimal and Fail-Safe default settings: HiSpeed

BIOS EHCI Hand-Off

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

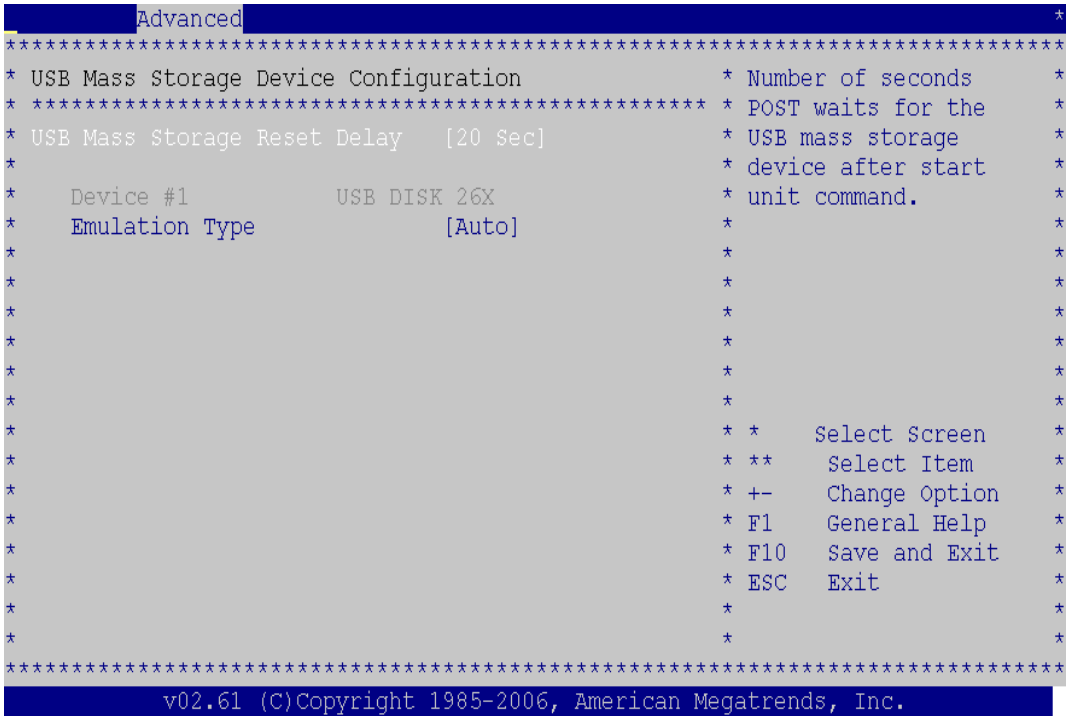
SETTING	DESCRIPTION
Disabled	Use this setting to disable EHCI hand-off support.
Enabled	Use this setting to enable EHCI hand-off support.

Optimal and Fail-Safe default settings: Enabled

USB Mass Storage Device Configuration Screen

This screen provides basic information concerning the USB mass storage device configuration and functions for specifying configuration settings.

Note: 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 will 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 CD-ROM	Use one of these settings to specify the type of device to emulate.

Optimal and Fail-Safe default settings: Auto

This page has been intentionally left blank.

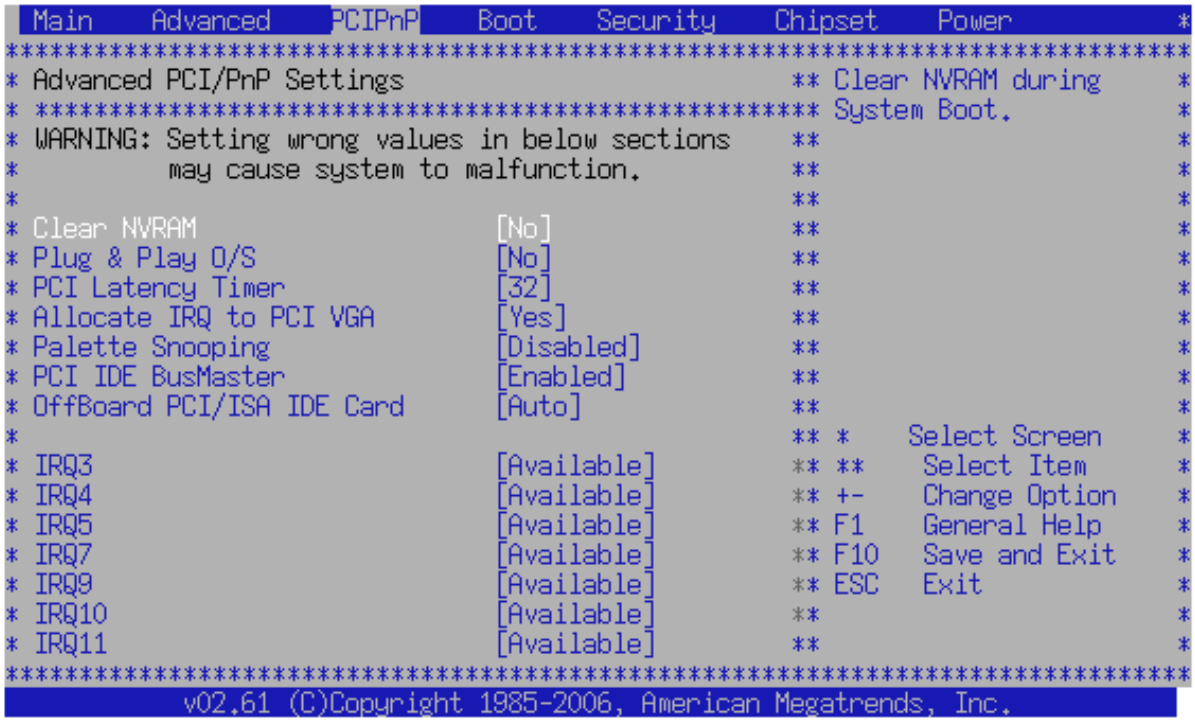
Chapter 4

PCI/PnP Setup

This page has been intentionally left blank.

4. PCI/PnP Setup

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



Clear NVRAM

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

SETTING	DESCRIPTION
No	Use this setting to prevent the BIOS from clearing the NVRAM.
Yes	Use this setting to allow the system to reset the NVRAM before the system is booted up. After booting, the system sets this function back to No automatically.

Optimal and Fail-Safe default settings: No

Plug and Play O/S

This function is used to modify the settings for Plug and Play operating system support.

SETTING	DESCRIPTION
No	Use this setting to allow the BIOS to configure all the devices in the system if the operating systems do not meet the Plug and Play specifications.
Yes	Use this setting to allow the operating system to change the interrupt, I/O, and DMA settings if the system is running Plug and Play-aware operating systems.

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

This page has been intentionally left blank.

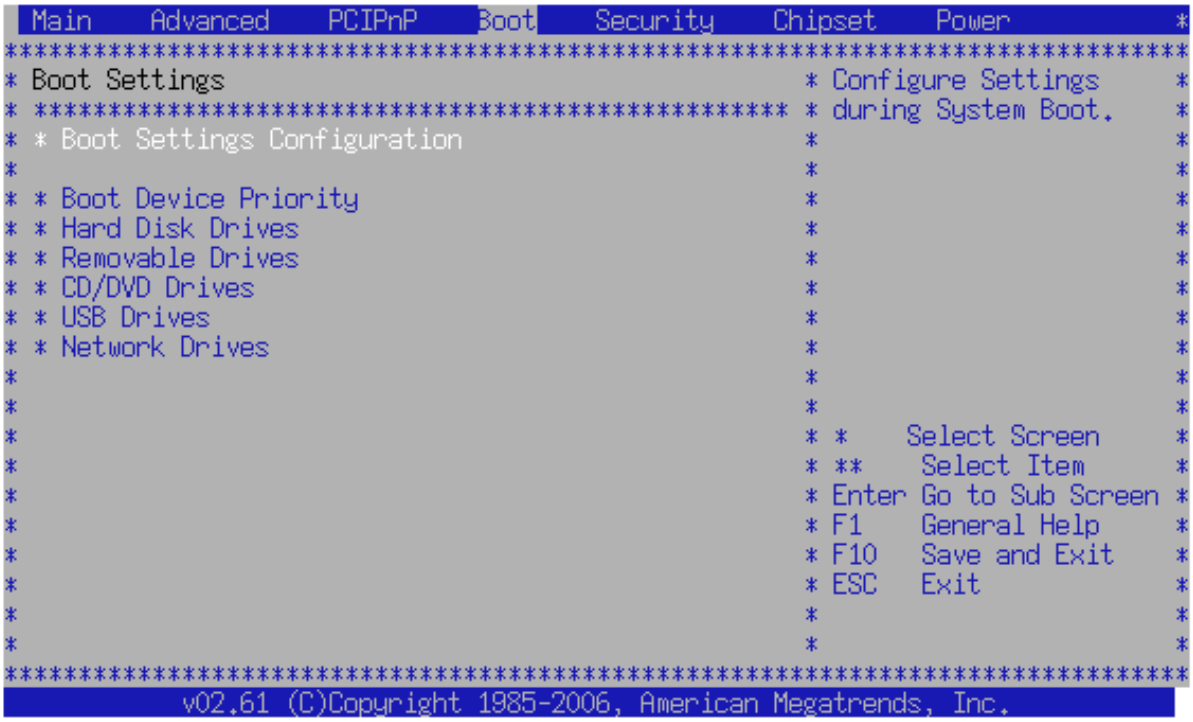
Chapter 5

Boot Setup

This page has been intentionally left blank.

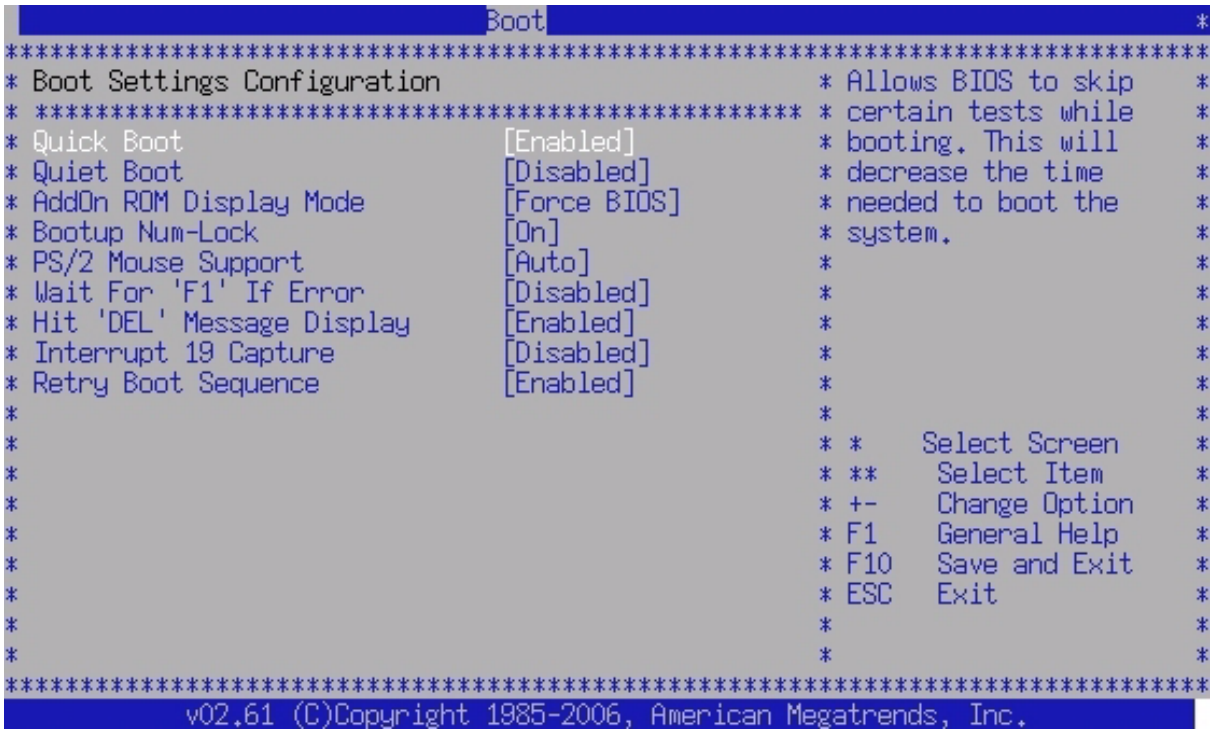
5. Boot Setup

Select the Boot tab to enter the Boot Setup screen. This screen lists the sub-screens for boot configuration and boot device priority.



BOOT SETTINGS CONFIGURATION SCREEN

This screen provides functions for specifying various boot 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 allow the BIOS to perform all POST tests.
Enabled	Use this setting to allow 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 allow the system to display the POST messages during boot-up.
Enabled	Use this setting to allow the system to display the OEM logo during boot-up.

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 CP6012-specific information.

SETTING	DESCRIPTION
Force BIOS	Use this setting to allow the system to display third party BIOS messages during boot-up as well.
Keep Current	Use this setting to allow the system to display only CP6012 information during system boot.

Optimal and Fail-Safe default settings: Force BIOS

Boot-Up Num-Lock

This function is used to allow the Number Lock setting to be modified during boot-up.

SETTING	DESCRIPTION
Off	Use this setting to prevent the system from automatically enabling the keyboard Number Lock during boot-up. To use the 10-key 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 allow the Number Lock on the keyboard to be enabled automatically during boot-up. This allows the immediate use of 10-key numeric keypad 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

This function is used to allow the Wait for ‘F1’ Error setting to be modified.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the CP6012 from waiting on an error for user intervention. If this setting is used, the system will continue to boot up the operating system. If ‘F1’ is enabled, the system will wait until the BIOS setup is entered. This setting should be used if there is a known reason for a BIOS error to occur. An example would be a system administrator must remote boot the system. The computer system does not have a keyboard currently attached.
Enabled	Use this setting to allow the BIOS to wait for any error. If an error is detected, pressing <F1> will enter Setup and the BIOS setting can be adjusted to fix the problem. This normally happens when upgrading the hardware and not setting the BIOS to recognize it.

Optimal and Fail-Safe default settings: Disabled

Hit ‘DEL’ Message Display

This function is used to allow the Hit ‘DEL’ to enter Setup Message Display to be modified.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the display of the message `Hit Del to enter Setup` during memory initialization. If Quiet Boot is enabled, the Hit ‘DEL’ message will not be displayed.
Enabled	Use this setting to allow the display 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 allow option ROMs such as network controllers to trap BIOS interrupt 19.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent option ROMs from trapping interrupt 19.
Enabled	Use this setting to allow option ROMs to trap interrupt 19.

Optimal and Fail-Safe default settings: Disabled

Retry Boot Sequence

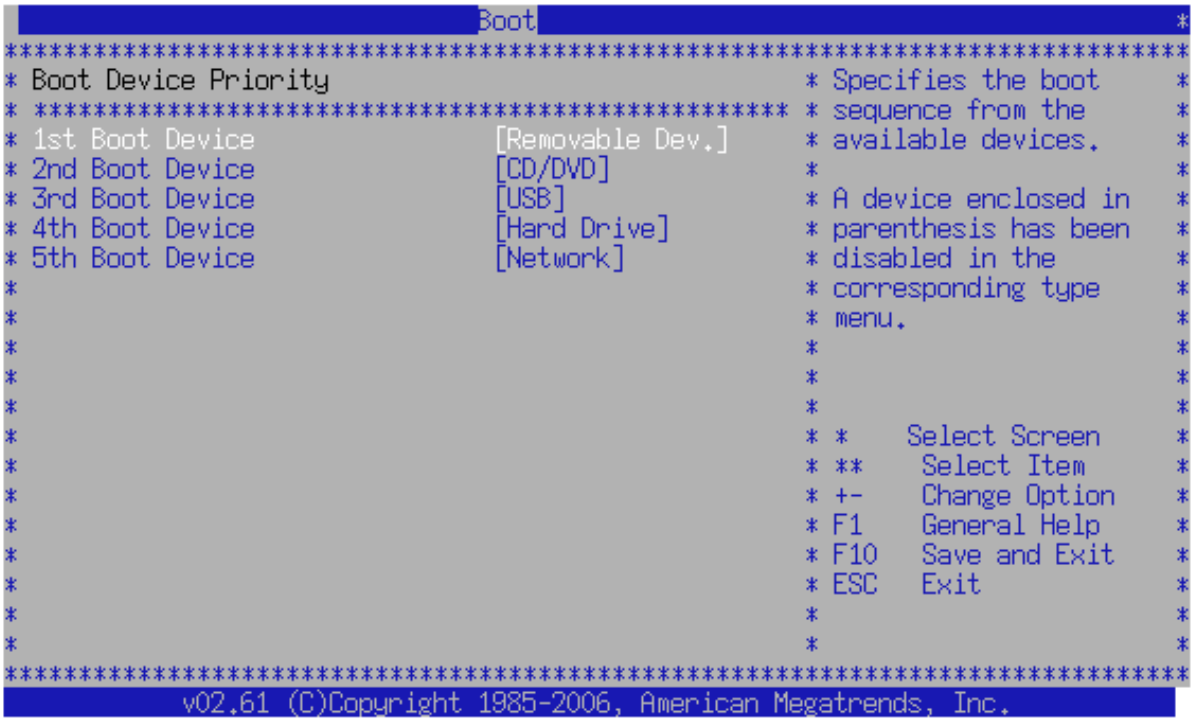
This function is used to specify how the system is to respond to a boot error.

SETTING	DESCRIPTION
Disabled	Use this setting to finish booting and show error message in case of boot failure.
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. Use this setting when booting from a network drive.

Optimal and Fail-Safe default settings: Enabled

BOOT DEVICE PRIORITY SCREEN

This screen provides functions for specifying the category of boot devices as well as the boot category sequence.



1st - 5th Boot Device

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

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

Optimal and Fail-Safe default settings:

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

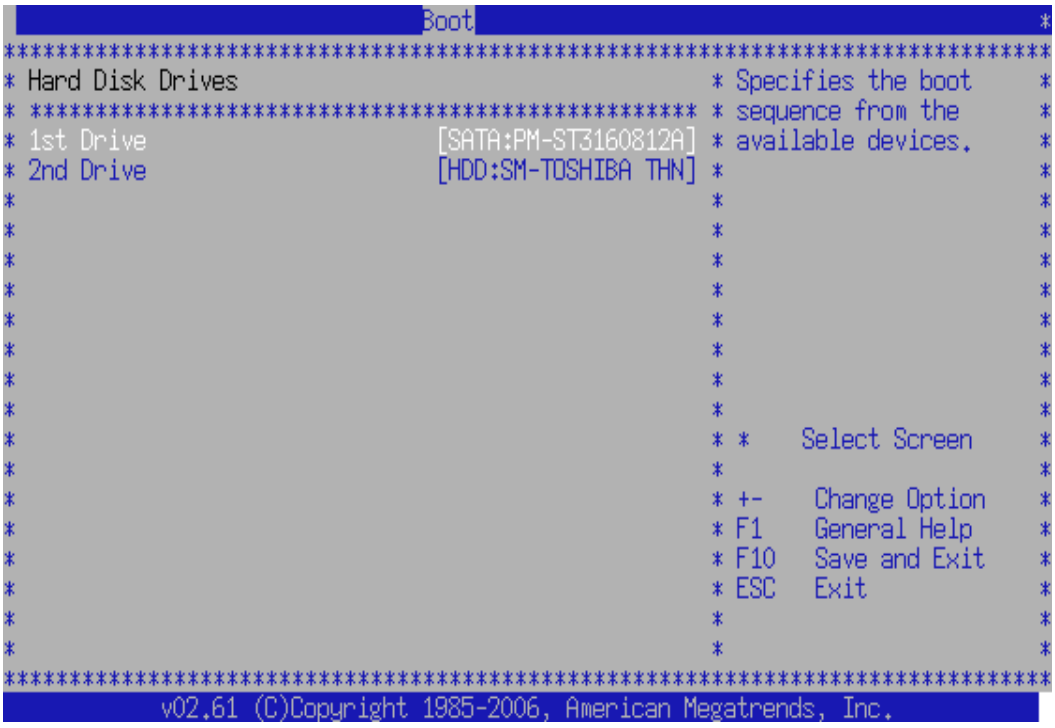
To establish the boot category sequence, select for each boot device (1st, 2nd, etc.) a boot category.

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 subscreen 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.

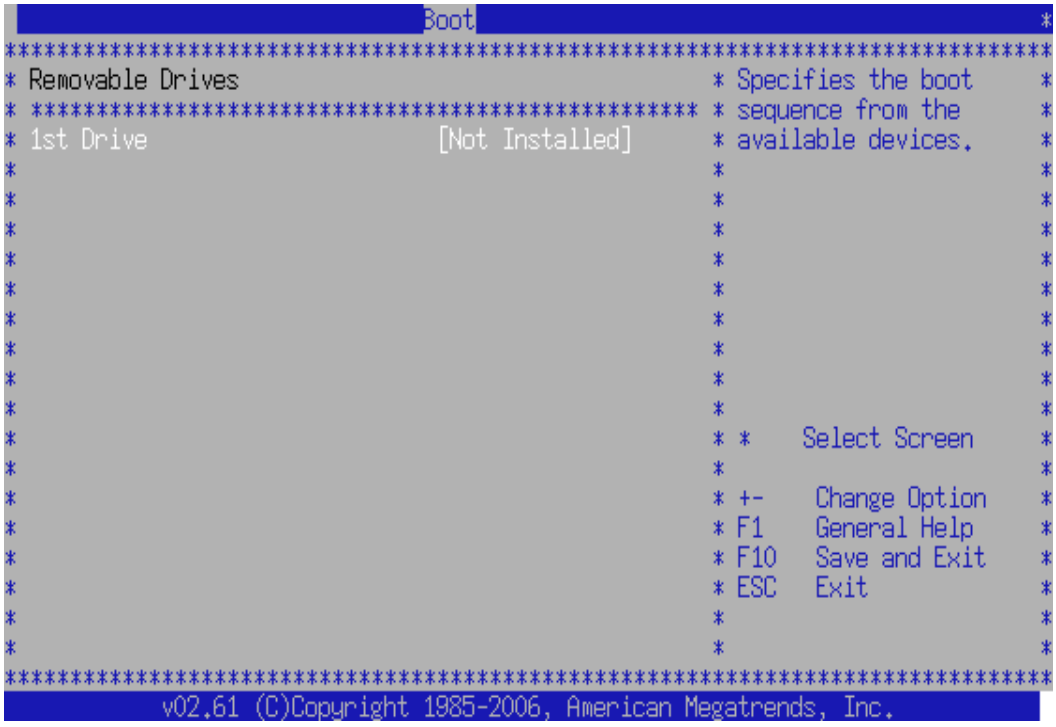
The function 1st Drive is used to provide generic information about the currently selected drive if a drive is installed. If more than one drive is installed, a list of the installed drives is provided, which allows the selection of one of the listed drives as the 1st Drive.

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 generic drive information of the 1st Drive.
<generic_drive_info_1> ⋮ <generic_drive_info_n>	When displayed, indicates the drives installed and their current boot order. Use this setting 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.

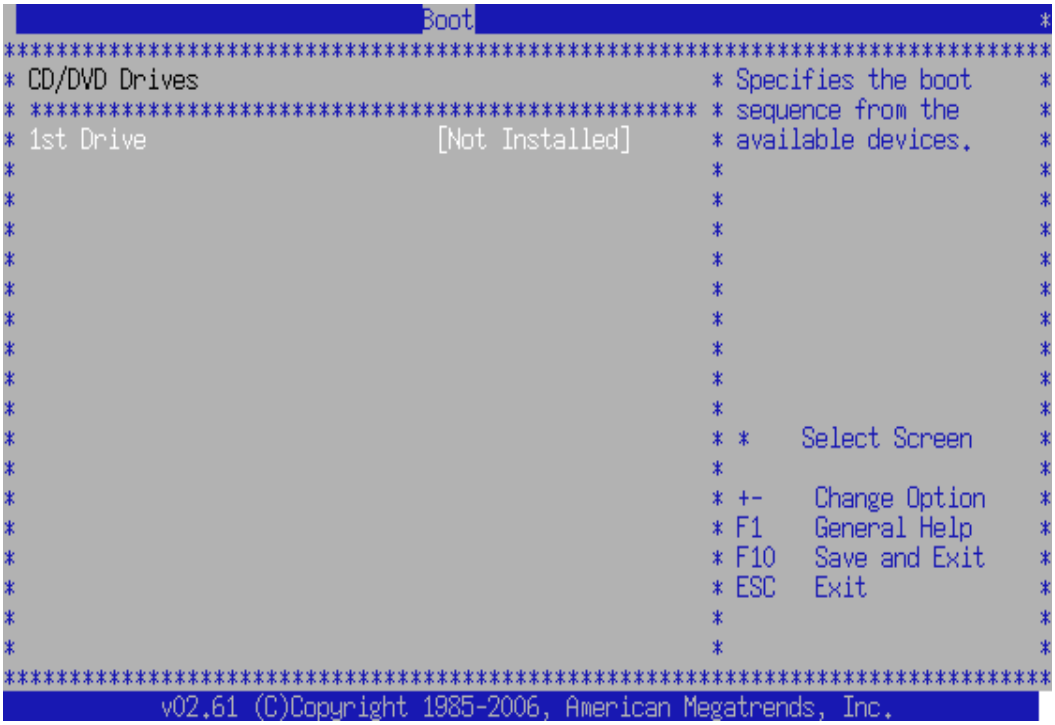
The function 1st Drive is used to provide generic information about the currently selected drive if a drive is installed. If more than one drive is installed, a list of the installed drives is provided, which allows the selection of one of the listed drives as the 1st Drive.

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

SETTING	DESCRIPTION
Not installed	When displayed, indicates that there are no drives installed.
<generic_drive_info>	When displayed, indicates generic drive information of the 1st Drive.
<generic_drive_info_1> ⋮ <generic_drive_info_n>	When displayed, indicates the drives installed and their current boot order. Use this setting 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.

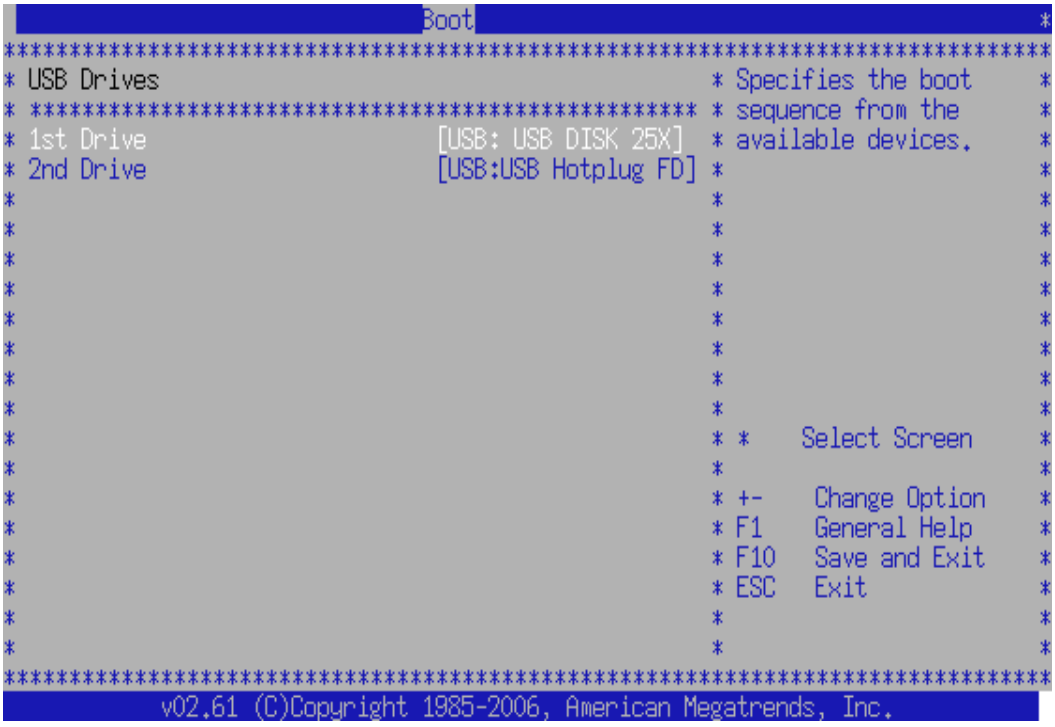
The function 1st Drive is used to provide generic information about the currently selected drive if a drive is installed. If more than one drive is installed, a list of the installed drives is provided, which allows the selection of one of the listed drives as the 1st Drive.

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 generic drive information of the 1st Drive.
<generic_drive_info_1> ⋮ <generic_drive_info_n>	When displayed, indicates the drives installed and their current boot order. Use this setting 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.

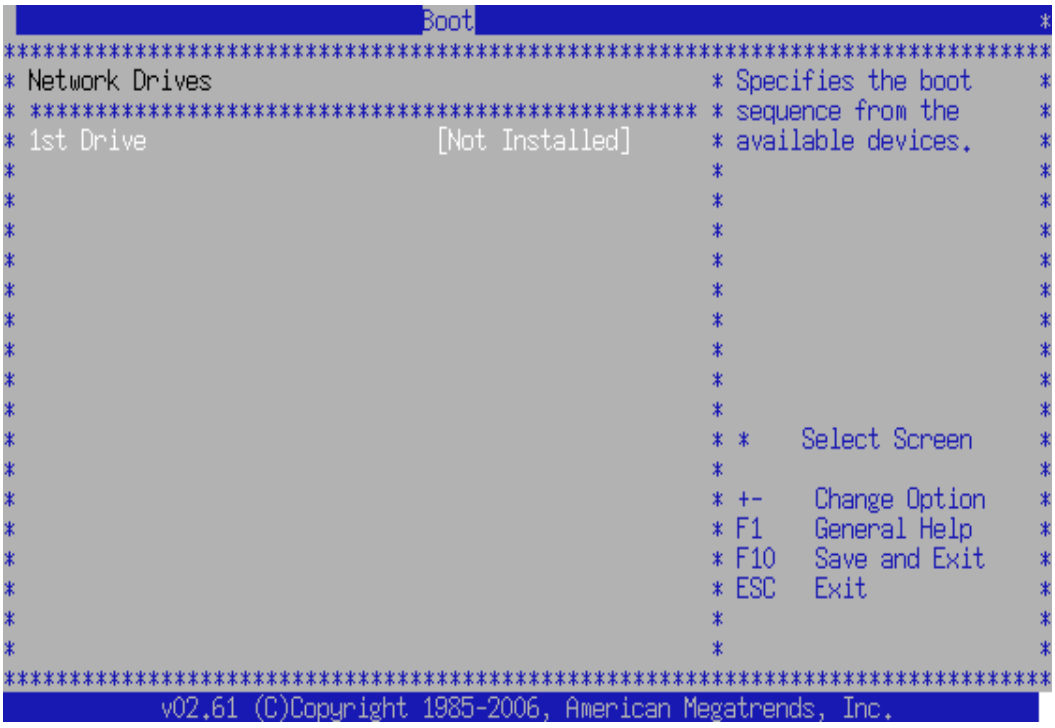
The function 1st Drive is used to provide generic information about the currently selected drive if a drive is installed. If more than one drive is installed, a list of the installed drives is provided, which allows the selection of one of the listed drives as the 1st Drive.

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 generic drive information of the 1st Drive.
<generic_drive_info_1> ⋮ <generic_drive_info_n>	When displayed, indicates the drives installed and their current boot order. Use this setting to select a new 1st Drive.

NETWORK DRIVES SCREEN

This screen will provide a list of network devices detected by BIOS which may provide the possibility of booting from a network drive via PXE. If more than one device is available, this screen also shows the boot sequence of the devices. 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 device if available. If more than one device is available, 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 network devices are installed.

SETTING	DESCRIPTION
Not installed	When displayed, indicates that there are no drives installed.
<generic_drive_info>	When displayed, indicates generic drive information of the 1st Drive.
<generic_drive_info_1> ⋮ <generic_drive_info_n>	When displayed, indicates the drives installed and their current boot order. Use this setting to select a new 1st Drive.

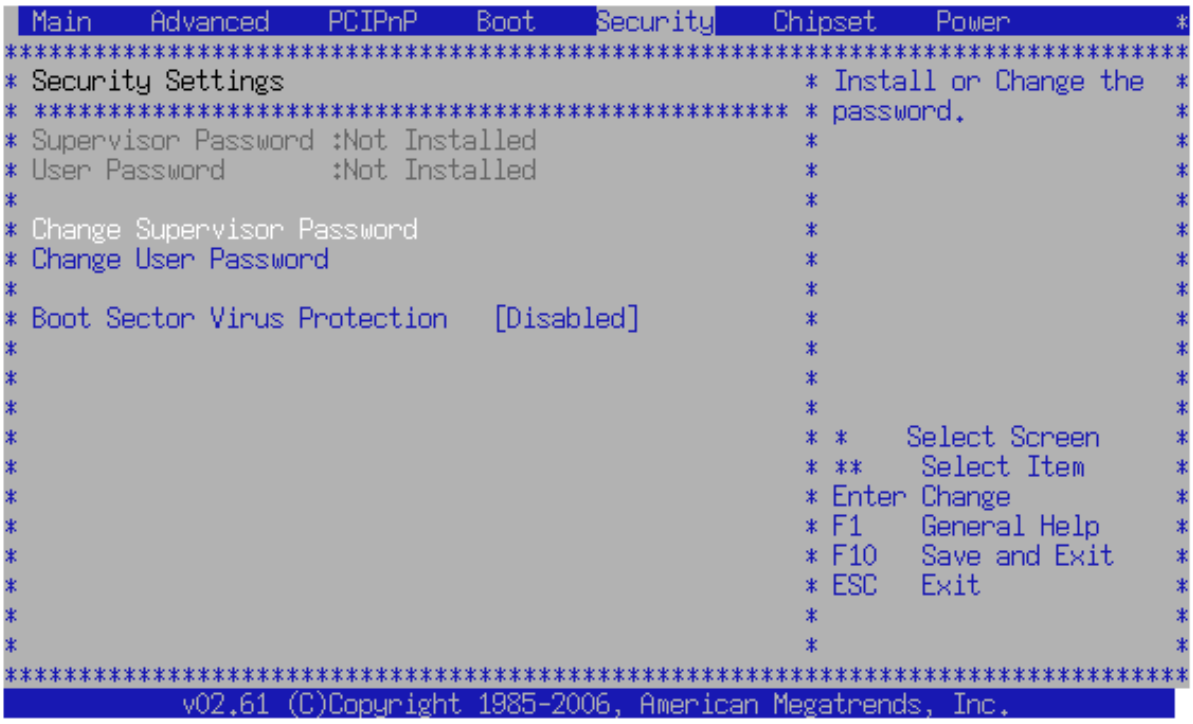
Chapter 6

Security Setup

This page has been intentionally left blank.

6. Security Setup

Select the Security tab to enter the Security Setup screen. This screen provides information about the passwords and functions for specifying the security settings. To access a submenu, select the respective function and press <Enter>.



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 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 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 function appears on the screen:

   - 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.
4. Record the Supervisor 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 again requesting password confirmation.
3. Press <Enter> again without making any entries
   A popup display appears confirming the deinstallation of the password.
   The password has now been cleared.

User Access Level

This function is used to specify the type of usage restrictions) 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 as date and time.
Full Access	Use this setting to allow the user to have full access to the BIOS Setup program except for changing the Supervisor password.

Optimal and Fail-Safe default settings: 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 user or the system supervisor to enter the appropriate password when accessing the BIOS Setup program.
Always	Use this setting to require the user or the system supervisor to enter the appropriate password when accessing the BIOS Setup program or booting the system.

Optimal and Fail-Safe default settings: Setup

Boot Sector Virus Protection

This function is used to enable or disable the boot sector virus protection.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent Boot Sector Virus Protection.
Enabled	Use this setting to enable boot sector protection. CP6012 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 default settings: Disabled

Primary Master HDD User Password

This function is only available if a hard disk is detected.

Warning! Before using this function, contact Kontron's Technical Support for assistance. Failure to comply with the instruction above may result in an irreparable hard disk lockout.

CP6012 Password Support

Two Levels of Password Protection

CP6012 provides 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 may lead to being completely locked out of the system. Booting may not be possible, and in 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.

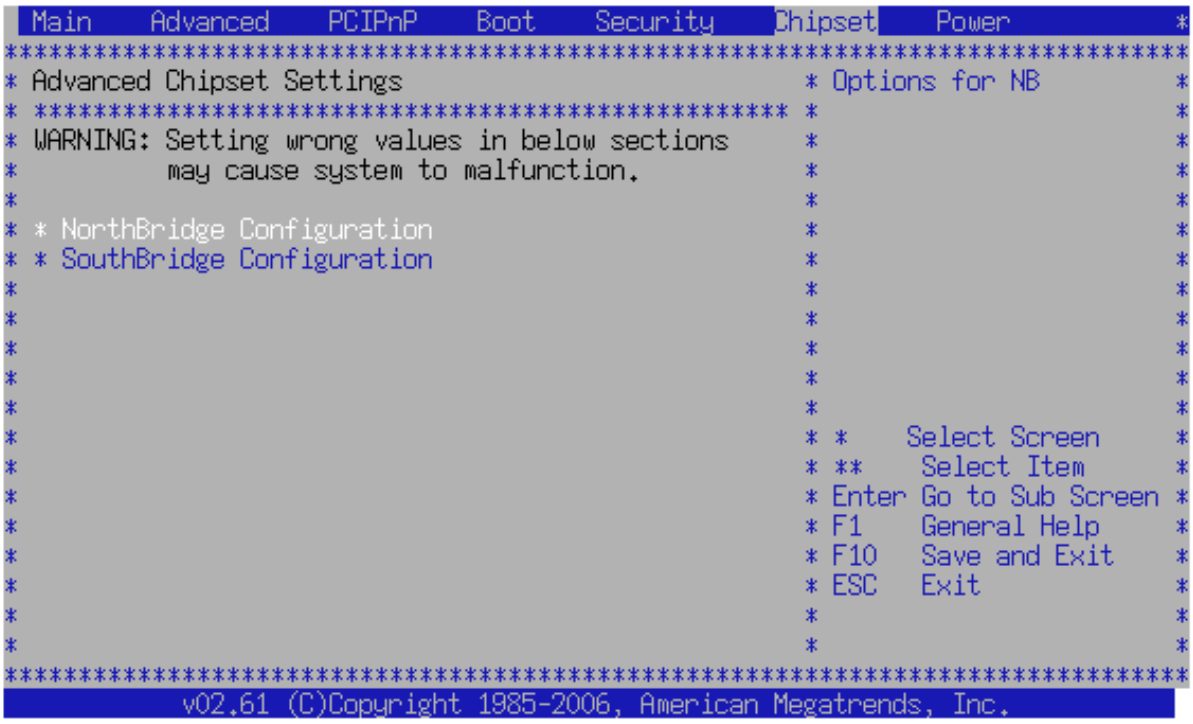
Chapter 7

Chipset Setup

This page has been intentionally left blank.

7. Chipset Setup

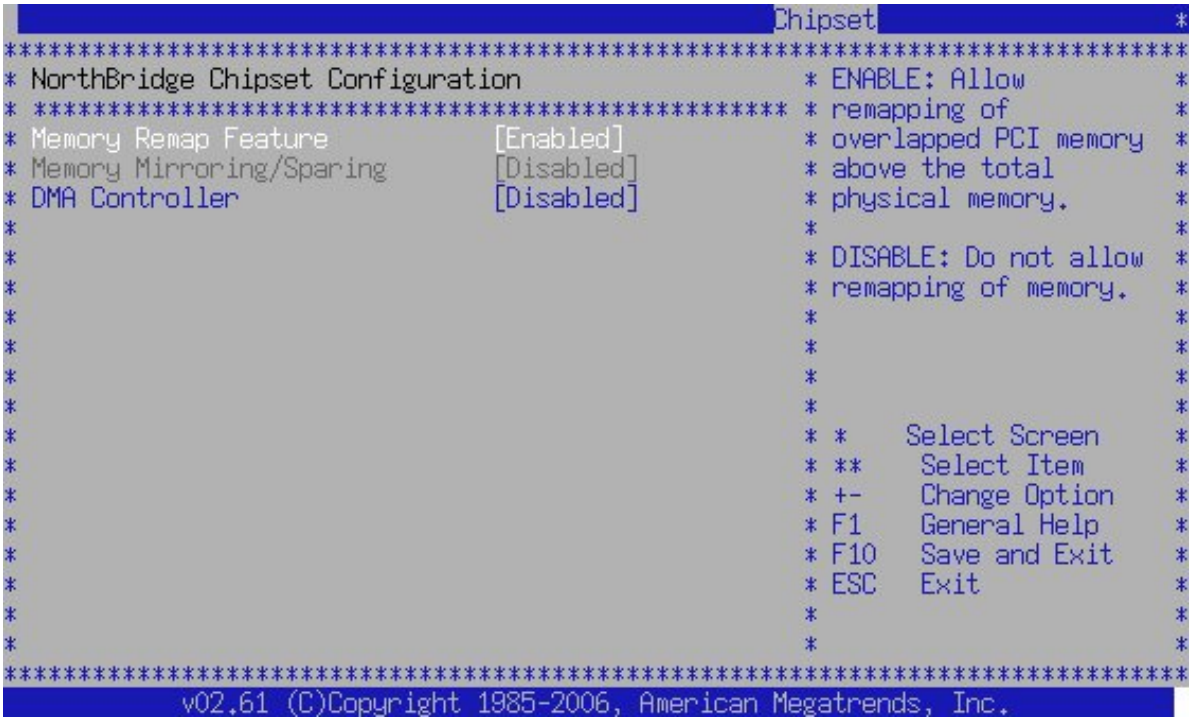
Select the Chipset tab to enter the Chipset Setup screen. This screen lists the chipset configuration sub-screens. To display a sub-screen, select it using the <Arrow> keys and press <Enter>.



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

This function is used to remap the main memory above the 4 GB barrier and is only present if it is supported by the current system configuration.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the BIOS from remapping the memory even if it is overlapped by PCI space.
Enabled	Use this setting to allow the system to remap the memory if it is overlapped by PCI space.

Optimal and Fail-Safe default settings: Enabled

Memory Mirroring/Sparing

This function is used to control the memory RAS feature and is only present if it is supported by the current memory configuration.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the system from enabling the RAS feature.
Enabled	Use this setting to enable memory mirroring.
Sparing	Use this setting to enable memory sparing.

Optimal and Fail-Safe default settings: Disabled

DMA Controller

This function is used to control the presence of the DMA controller.

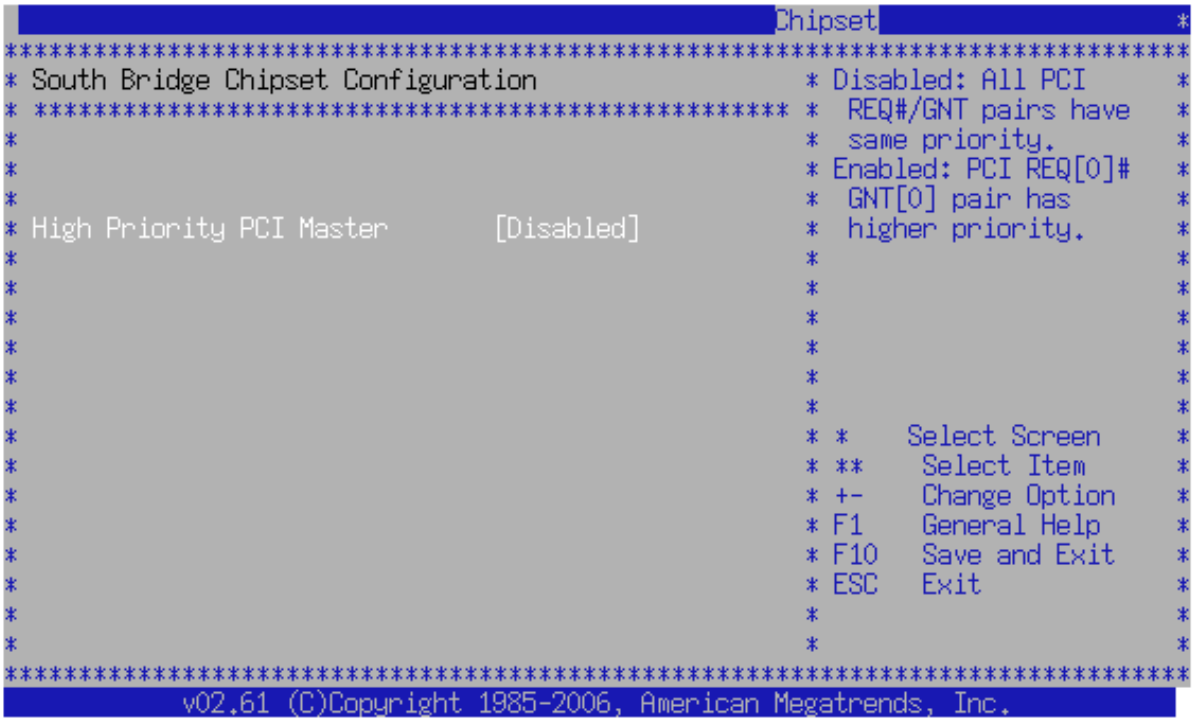
SETTING	DESCRIPTION
Disabled	Use this setting to hide the DMA controller.
Enabled	Use this setting to enable the DMA controller. The DMA controller is present and can be used if supported by the software.

Optimal and Fail-Safe default settings: Disabled

SOUTHBRIDGE CONFIGURATION SCREEN

This screen provides functions for specifying the SouthBridge configuration settings.

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



High Priority PCI Master

This function is used to select the PCI REQ#/GNT# Pair 0 as high priority PCI port.

SETTING	DESCRIPTION
Disabled	Use this setting to specify that all PCI REQ#/GNT# pairs have the same priority.
Enabled	Use this setting to specify that PCI REQ#/GNT# pair 0 has high priority.

Optimal and Fail-Safe default settings: Disabled

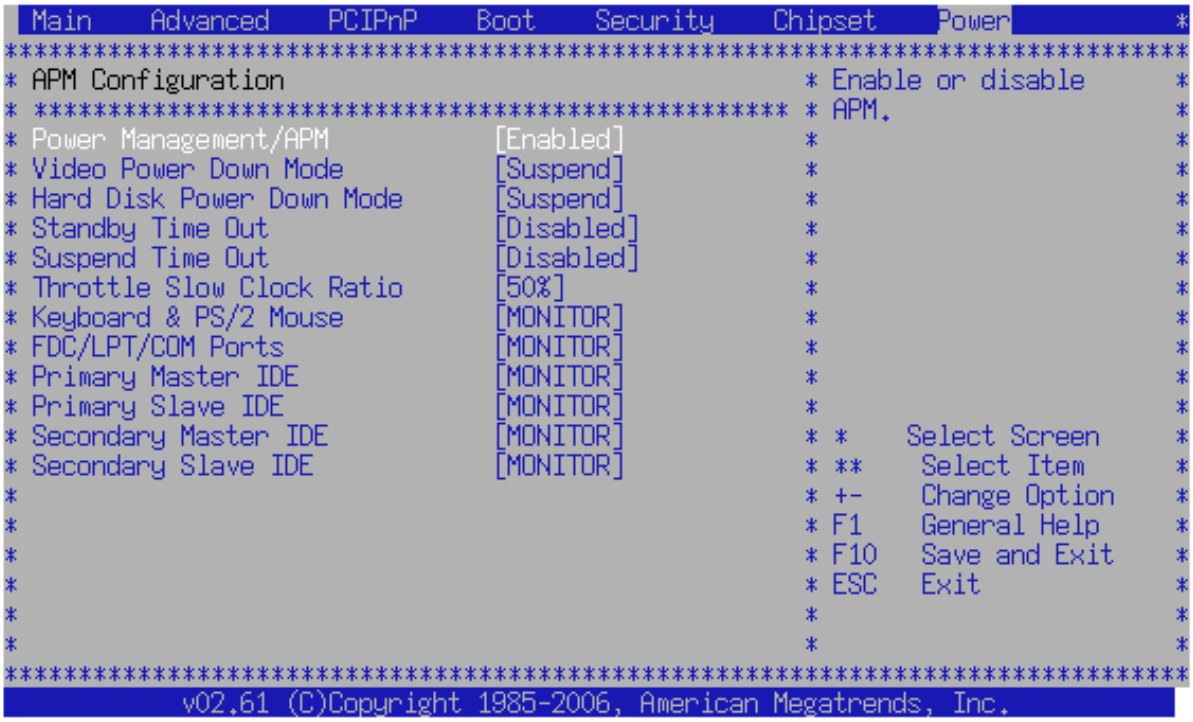
Chapter 8

Power Setup

This page has been intentionally left blank.

8. Power Setup

Select the Power tab to enter the APM configuration screen. This screen provides functions for specifying Advanced Power Management (APM) configuration settings.



Power Management/APM

This function is used to allow Power Management/APM support.

SETTING	DESCRIPTION
Disabled	Use this setting to inhibit the chipset power management and APM features.
Enabled	Use this setting to allow the chipset power management and APM features.

Optimal and Fail-Safe default settings: Enabled

Video Power Down Mode

This function is used to allow the system to power down the video controller if APM power save is requested by the OS.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the system from powering down the video controller.
Standby	Use this setting to allow the system to power down the video controller when entering standby mode.
Suspend	Use this setting to allow the system to power down the video controller when entering suspend mode.

Optimal default setting: Suspend
Fail-Safe default setting: Disabled

Hard Disk Power Down Mode

This function is used to allow the system to power down the hard drives if APM power save is requested by the OS.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the system from powering down the hard drives.
Standby	Use this setting to allow the system to power down the hard drives when entering standby mode.
Suspend	Use this setting to allow the system to power down the hard drives when entering suspend mode.

Optimal default setting: Suspend
Fail-Safe default setting: Disabled

Standby Time Out (Minute)

This function specifies the length of time the system waits before it enters standby mode.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the system from entering standby mode.
1 Min 5 Min 10 Min	Use one of these settings to specify the computer system's standby timeout.

Optimal and Fail-Safe default settings: Disabled

Suspend Time Out (Minute)

This function specifies the length of time the system waits before it enters suspend mode.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the system from entering suspend mode.
1 Min 5 Min 10 Min	Use one of these settings to specify the computer system's supspend timeout.

Optimal and Fail-Safe default settings: Disabled

Throttle Slow Clock Ratio

This function is used to select the CPU duty cycle if the system is put into throttling mode via APM.

SETTING	DESCRIPTION
87.5 % *75.0 %* *62.5 %* *50.0 %* *37.5 %* *25.0 %* *12.5 %*	Use one of these setting to specify the CPU duty cycle if the system is put into throttling mode via APM

Optimal and Fail-Safe default settings: 50.0 %

Keyboard and PS/2 Mouse

This function is used to enable the BIOS to monitor any events on the keyboard or the mouse, and to reset the suspend and standby timers.

SETTING	DESCRIPTION
MONITOR	Use this setting to monitor the keyboard and PS/2 actions.
IGNORE	Use this setting ignore the keyboard and PS/2 actions.

Optimal and Fail-Safe default settings: MONITOR

FDC/LPT/COM Ports

This function is used to enable the BIOS to monitor any events on the COM, LPT, and FDC ports.

SETTING	DESCRIPTION
MONITOR	Use this setting to monitor the COM, LPT, and FDC actions.
IGNORE	Use this setting ignore the COM, LPT, and FDC actions.

Optimal and Fail-Safe default settings: MONITOR

Primary and Secondary IDE Master and Slave Settings

These functions are used to select if the BIOS should monitor any events on the respective IDE device and to reset the suspend and standby timers.

SETTING	DESCRIPTION
MONITOR	Use this setting to monitor the actions on the respective IDE.
IGNORE	Use this setting ignore the actions on the respective IDE.

Optimal and Fail-Safe default settings: MONITOR

This page has been intentionally left blank.

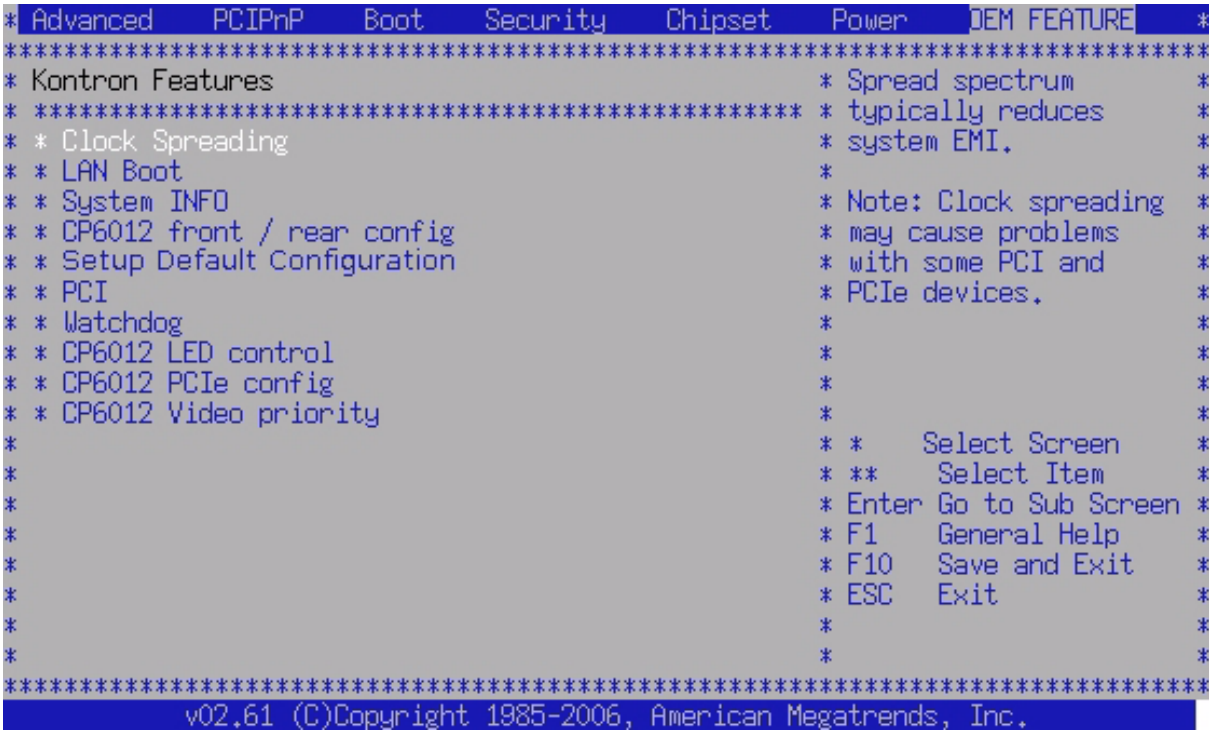
Chapter 9

OEM Feature

This page has been intentionally left blank.

9. OEM Feature

Select the OEM Feature tab to enter the OEM Feature Setup screen. This screen lists the OEM Feature configuration sub-screens. To display a sub-screen, select it using the <Arrow> keys and press <Enter>.



CLOCK SPREADING SCREEN

This screen provides one function for specifying the clock spreading configuration settings.

Spread Spectrum Modulation

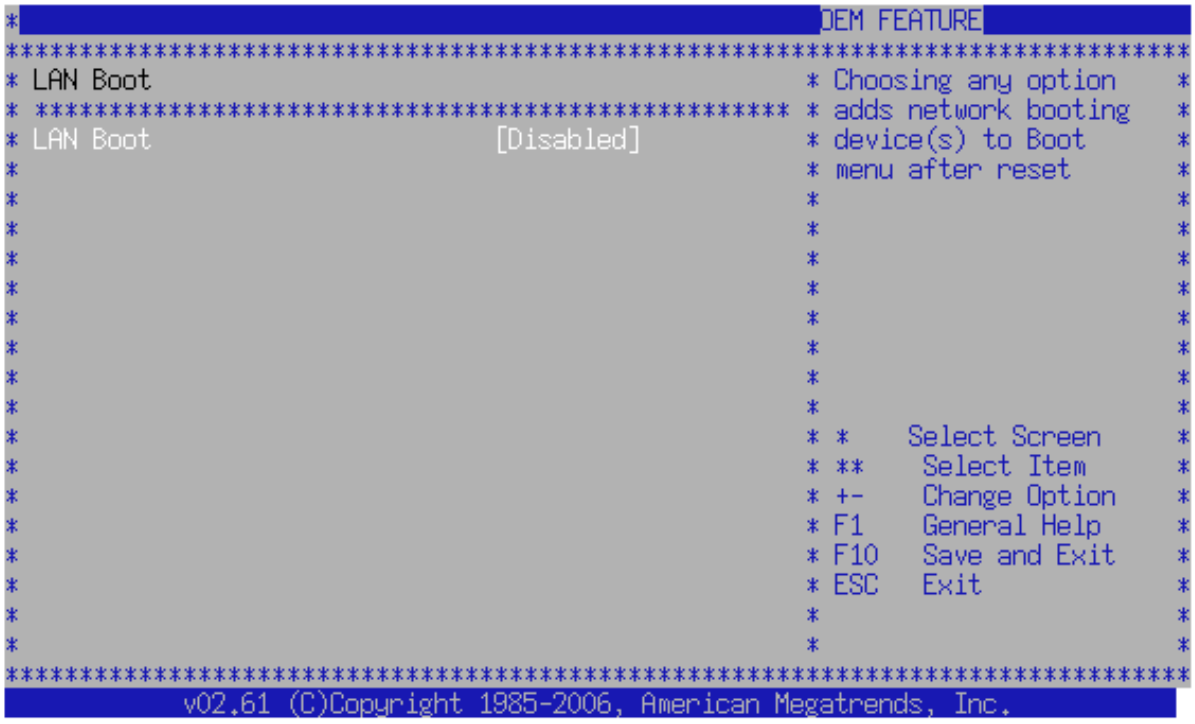
This function is used to enable or disable the spread spectrum modulation of the CPU clock.

SETTING	DESCRIPTION
Disabled	Use this setting to disable spread spectrum modulation of the CPU clock.
Enabled	Use this setting to enable spread spectrum modulation of the CPU clock. Spread spectrum modulation typically reduces system EMI.

Optimal and Fail-Safe default settings: Disabled

LAN BOOT SCREEN

This screen provides one function for specifying the LAN boot configuration settings.



LAN Boot

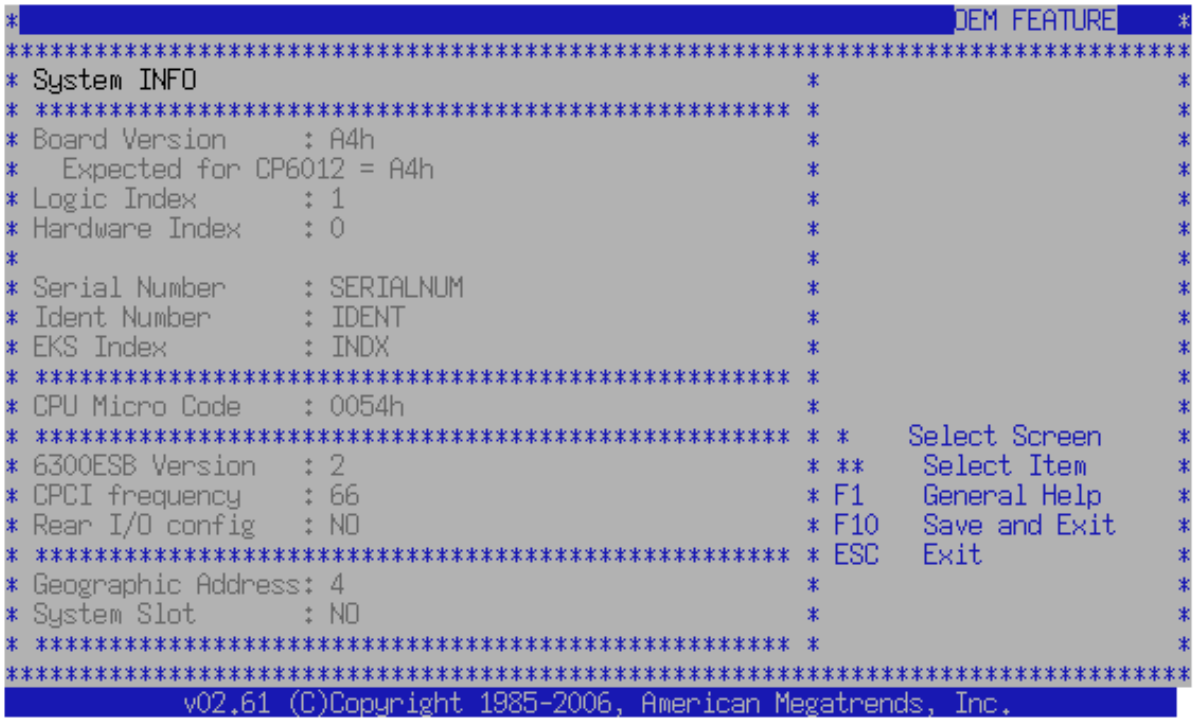
This function is used to load the Ethernet expansion ROM.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the loading of the Ethernet expansion ROM.
PXE ROM	Use this setting to load the Ethernet expansion ROM to allow PXE booting.

Optimal and Fail-Safe default settings: Disabled

SYSTEM INFO SCREEN

This screen provides basic information about various system elements. All functions listed on this screen are display-only functions and are not user-configurable.



Board Version

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

Serial Number

This function provides information which shows 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 information which shows Kontron internal information about the board.

EKS Index

This function provides Kontron internal information about the board.

CPU Micro Code

This function provides the current CPU microcode revision.

Rear I/O Config

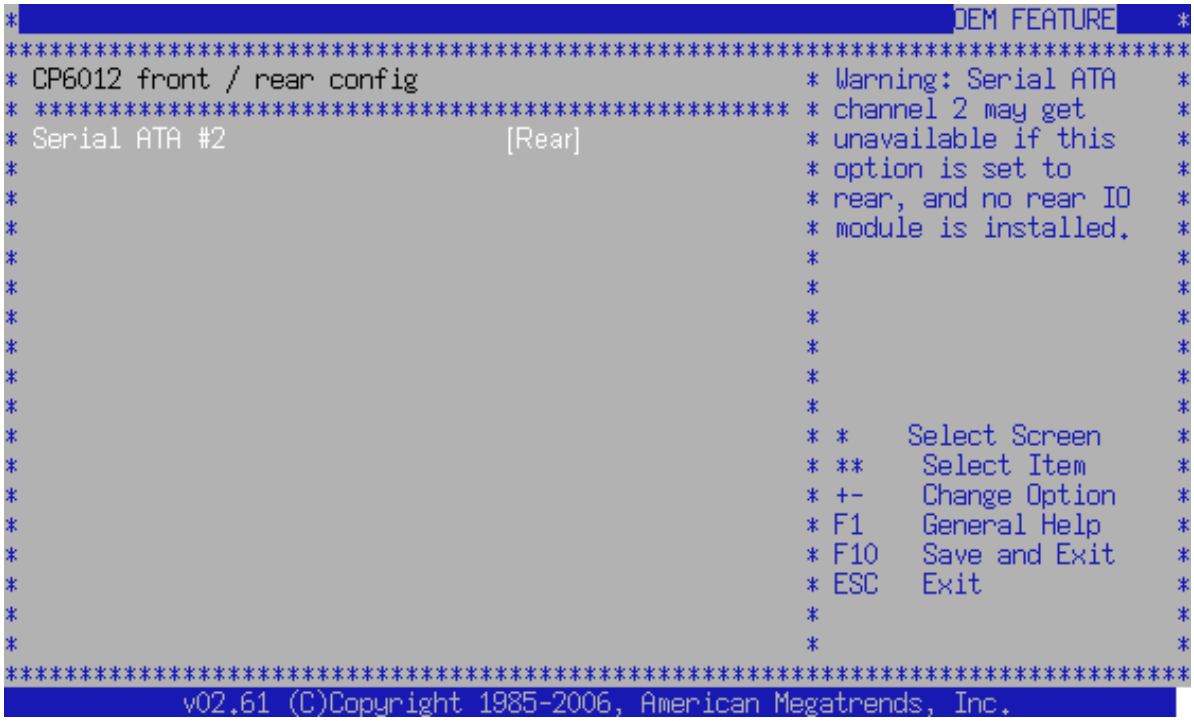
This function provides information which shows which Rear I/O board is installed.

System Slot

This function provides information which shows whether the board is in a system slot or not.

CP6012 FRONT / REAR CONFIG SCREEN

This screen provides the function for specifying the CP6012 Front/Rear configuration settings.



Serial ATA #2

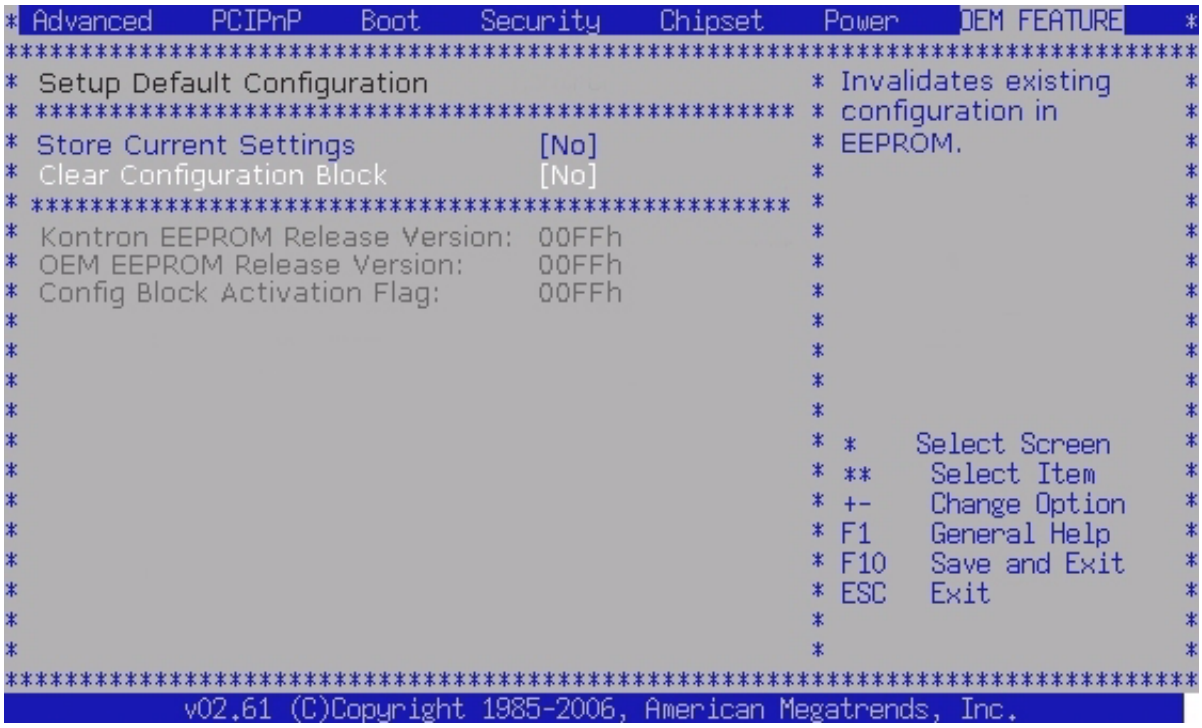
This function is used to select the routing of the Serial ATA channel.

SETTING	DESCRIPTION
Onboard	Use this setting to specify that the Serial ATA channel 2 is available via the onboard SATA connector.
Rear	Use this setting to specify that the Serial ATA channel 2 is available for Rear I/O.

Optimal and Fail-Safe default settings: Rear

SETUP DEFAULT CONFIGURATION SCREEN

This screen provides the functions for specifying the setup default configuration settings. It serves for creating a customized BIOS by individually changing certain default settings and storing them in the EEPROM configuration block even if the battery on the board is discharged. Furthermore, it serves for transferring the default settings from a preconfigured board (Golden Master) to further boards of the same type. For information on specific tools required to perform this, please contact Kontron's Technical Support.



Store Current Settings

SETTING	DESCRIPTION
Yes	Use this setting to store the current settings specified in the EEPROM configuration block. For information on these specific settings, refer to the section "Functions Whose Settings Are Specified in the EEPROM Configuration Block" on the next page.
No	Use this setting if it is not required to store the current settings specified in the EEPROM configuration block.

Optimal and Fail-Safe default settings: No

Clear Configuration Block

SETTING	DESCRIPTION
Yes	Use this setting to invalidate the existing configuration in EEPROM.
No	Use this setting to preserve the existing configuration in EEPROM.

Optimal and Fail-Safe default settings: No

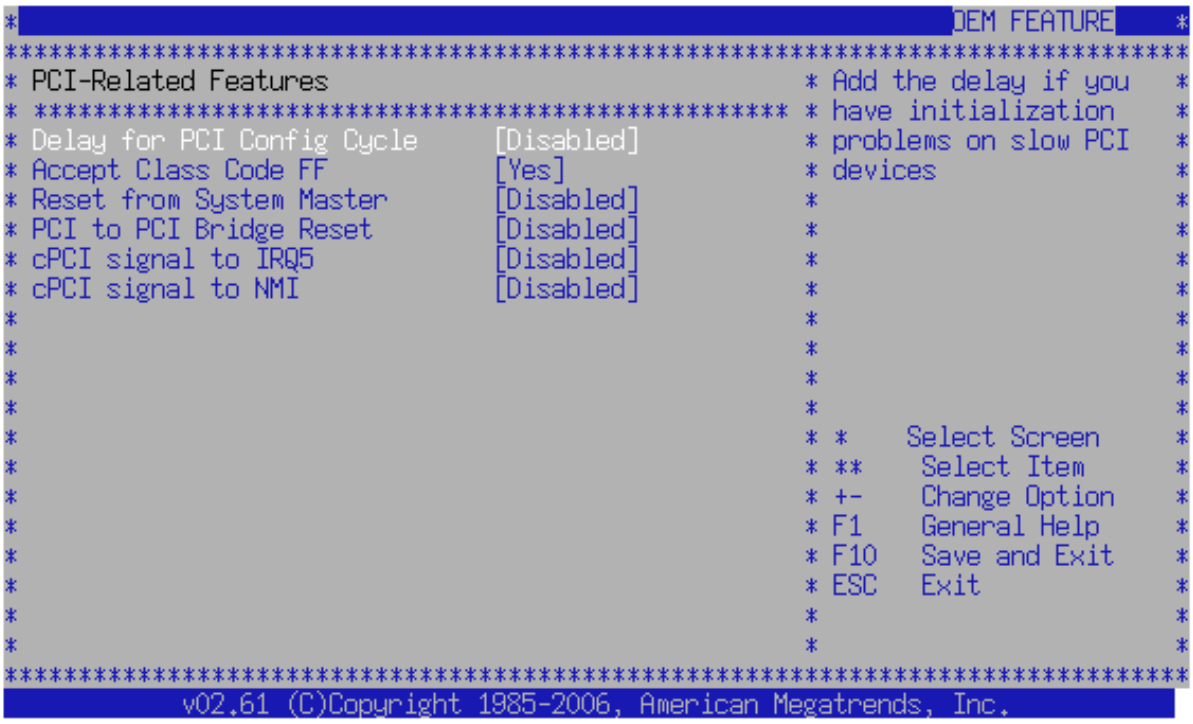
Functions Whose Settings Are Specified in the EEPROM Configuration Block

CHAPTER	SCREEN	FUNCTION
Chapter 3, Advanced Setup	CPU Configuration Screen	Core Multi-Processing
		CPU Thermal Monitor Function
		Intel® SpeedStep™ Tech.
	IDE Configuration Screen	IDE Configuration
	IPMI 1.5 Configuration Screen	Management Controller Config.
		OS Load Watchdog Timer Action
		IPMC Watchdog Time Out
		KCS-SMS
	Remote Access Configuration Screen	Remote Access
		Serial Port Number
		Flow Control
		Serial Port Mode
		Redirection After Post
		Terminal Type
	USB Configuration Screen	USB 2.0 Controller
		USB 2.0 Controller Mode
		BIOS EHCI Hand-Off
	Floppy Configuration Screen	Floppy A
Chapter 5, Boot Setup	Boot Settings Configuration Screen	Quick Boot
		Quiet Boot
		Wait for ‘F1’ If Error
		Retry Boot Sequence
	Boot Device Priority Screen	1st Boot Device
		2nd Boot Device
		3rd Boot Device
		4th Boot Device
		5th Boot Device
		6th Boot Device

CHAPTER	SCREEN	FUNCTION
Chapter 9, OEM Feature	Clock Spreading Screen	Spread Spectrum Modulation
	LAN Boot Screen	LAN Boot
	CP6012 Front / Rear Config Screen	Serial ATA #2
	PCI Screen	Delay for PCI Config Cycle
		PCI to PCI Bridge
		Accept Class Code FF
		Delay a. P2P Bridge Reset (only available if the function 'PCI-to PCI Bridge Reset' is set to 'Enabled')
		cPCI signal to IRQ5
		cPCI signal to NMI
	Watchdog Screen	Watchdog Configuration
		Active for Boot (only available if the function 'Watchdog Configuration' is set to 'Enabled')
		Watchdog Mode
		WD Active Time
		Interrupt Config (only available if the function 'Watchdog Mode' is set to 'Interrupt')
	Video Priority Screen	Video Priority

PCI SCREEN

This screen provides functions for specifying the PCI screen configuration settings.



Delay for PCI Config Cycle

This function is used to specify a delay time if required for slower PCI devices.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Delay for PCI Config Cycle function.
250 ms 500 ms 1 s	Use one of these settings to specify a delay time for slower PCI devices.

Optimal and Fail-Safe default settings: Disabled

Accept Class Code FF

This function is used to initialize all PCI devices with class code FF.

SETTING	DESCRIPTION
Yes	Use this setting to initialize all of the PCI devices with class code FF.
No	Use this setting to prevent the PCI devices with class code FF from being initialized.

Optimal and Fail-Safe default settings: Yes

Reset from System Master

This function is used to perform a board reset using from the system master.

Note: This function is only available when the board is connected to a peripheral slot.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the reset from system master.
Enabled	Use this setting to enable the reset from system master.

Optimal and Fail-Safe default settings: Disabled

PCI-to-PCI Bridge Reset

This function is used to perform a PCI-to-PCI bridge reset using a software reset mechanism prior to configuring the PCI devices on the bus behind the PCI-to-PCI bridge.

SETTING	DESCRIPTION
Disabled	Use this setting to disable a PCI-to-PCI bridge reset.
Enabled	Use this setting to enable a PCI-to-PCI bridge reset.

Optimal and Fail-Safe default settings: Disabled

cPCI Signal to IRQ5

This function allows the system to select which cPCI signal should be routed to IRQ5.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the cPCI signals from being routed to IRQ5.
cPCI DERATE	Use this setting to select the cPCI DERATE derate signal to be routed to IRQ5.
cPCI ENUM	Use this setting to select the cPCI ENUM derate signal to be routed to IRQ5.
cPCI FAIL	Use this setting to select the cPCI FAIL derate signal to be routed to IRQ5.

Optimal and Fail-Safe default settings: Disabled

cPCI Signal to NMI

This function allows the system to select which cPCI signal should be routed to NMI.

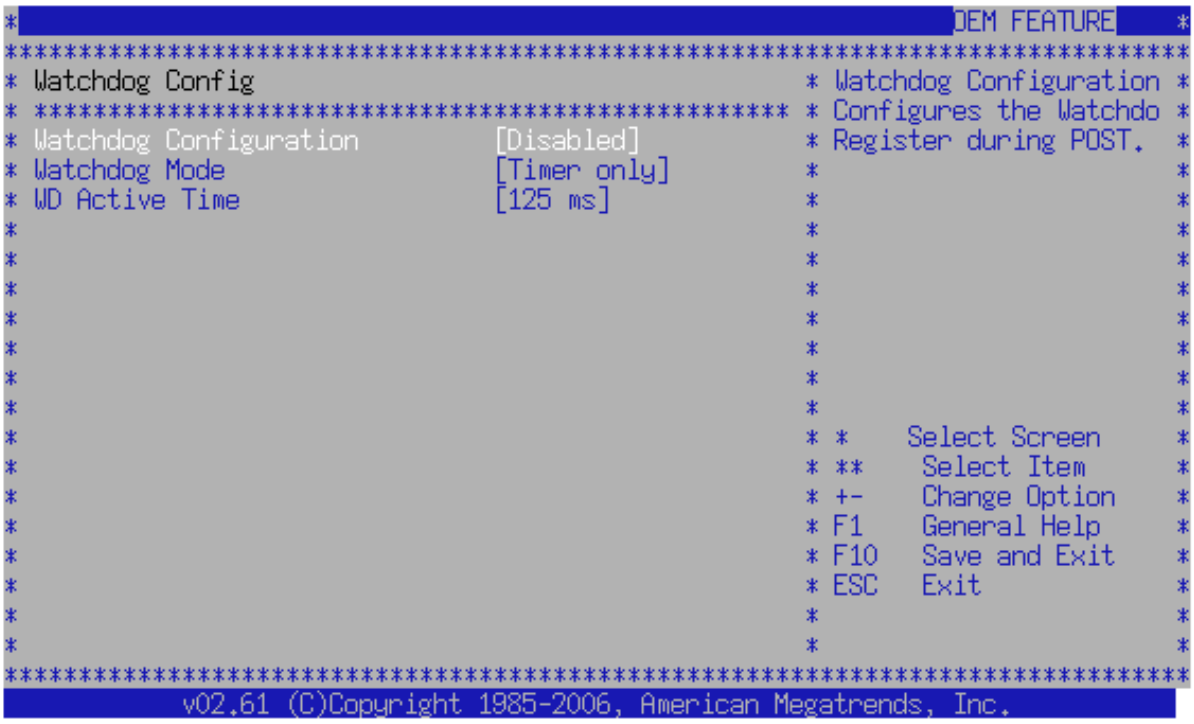
Note: The cPCI Fail signal cannot be routed to IRQ5 and NMI at the same time. No cPCI signal can be routed to NMI if the Watchdog is selected to NMI.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the cPCI signals from being routed to NMI.
cPCI FAIL	Use this setting to select the cPCI FAIL derate signal to be routed to NMI.

Optimal and Fail-Safe default settings: Disabled

WATCHDOG SCREEN

This screen provides functions for specifying the Watchdog configuration settings.



Watchdog Configuration

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the Watchdog from being configured at end of POST.
Enabled	Use this setting to configure Watchdog at end of POST.

Optimal and Fail-Safe default settings: Disabled

Watchdog Mode

SETTING	DESCRIPTION
Timer Only	Use this setting to operate the Watchdog in Timer Only mode.
Reset	Use this setting to enable the Watchdog to reset the system if it is not retriggered within the selected time.
Interrupt	Use this setting to enable the Watchdog to generate an interrupt if it is not retriggered within the selected time.
Cascade (INT+Reset)	When this setting is used, the following applies: If the Watchdog is not retriggered within the selected time, then 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 was retriggered normally after the interrupt, the next timeout will result in the generation of an interrrupt and the automatic retriggering of the Watchdog.

Optimal and Fail-Safe default settings: Timer Only

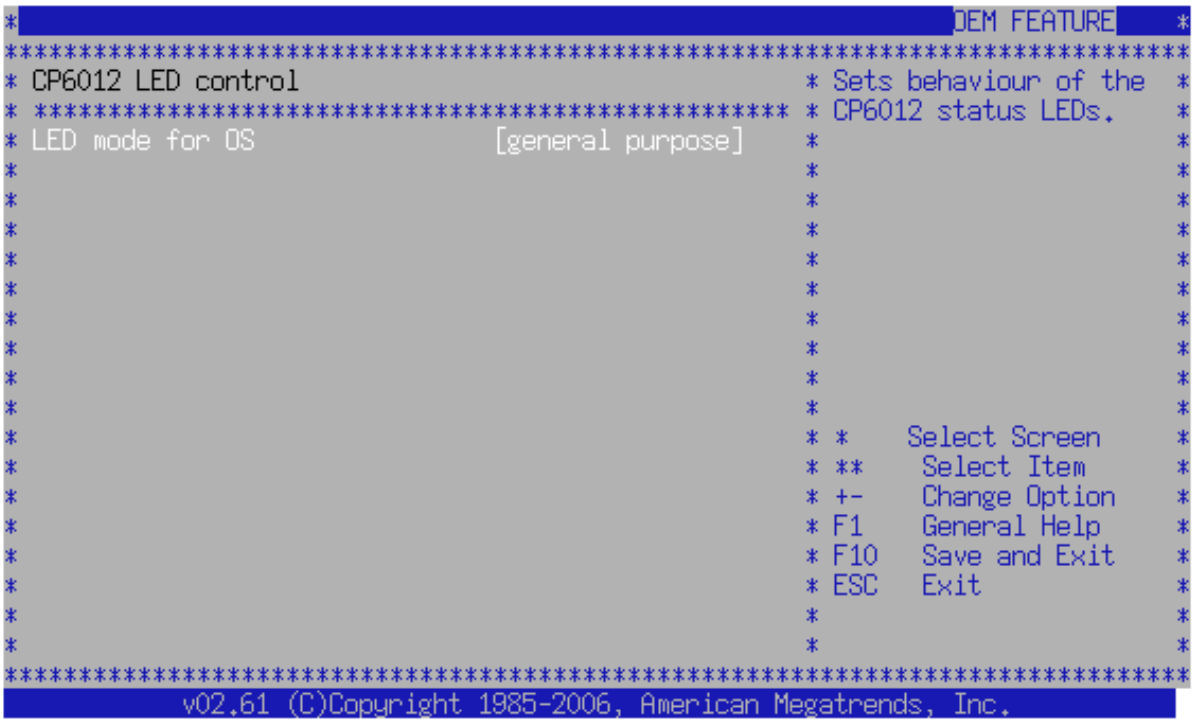
WD Active Time

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 of these setting to select the time after which the action selected occurs if Watchdog timer is not retriggered.

Optimal and Fail-Safe default settings: 125 ms

CP6012 LED CONTROL SCREEN

This screen provides functions for specifying the CP6012 LED control settings.



LED Mode for OS

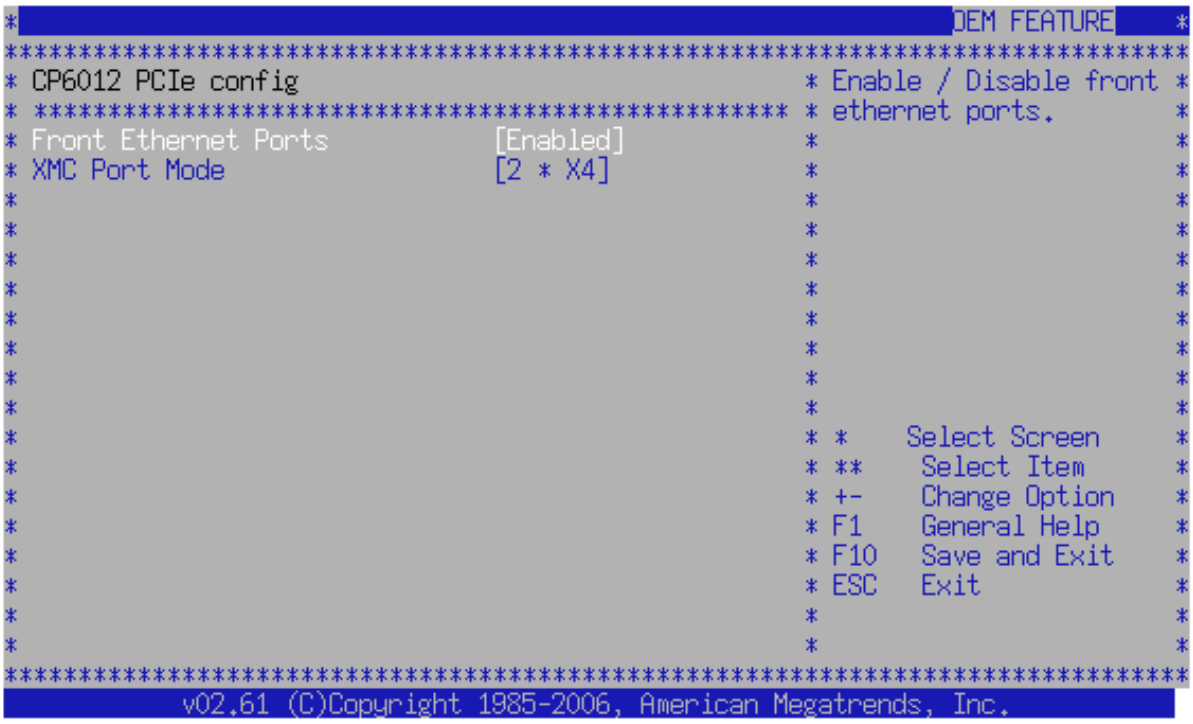
This function is used to select the operational mode of the POST code LEDs.

SETTING	DESCRIPTION
General Purpuse	Use this setting to switch to LEDs to be user-controllable after POST.
I/O 80	Use this setting to specify that the LEDs are in POST display mode. When this setting is used, the LEDs reflect the contents of the I/O 80 register.
Board Specific	Use this setting to specify that the LEDs are in board-specific mode. When this setting is used, the LEDs indicate the board status and control.

Optimal and Fail-Safe default settings: General Purpose

CP6012 PCIe CONFIG SCREEN

This screen provides functions for specifying the CP6012 PCIe configuration settings.



Front Ethernet Ports

This function is used to enable or disable the front Ethernet ports.

SETTING	DESCRIPTION
Enabled	Use this setting to enable the Ethernet ports.
Disabled	Use this setting to disable the Ethernet ports.

Optimal and Fail-Safe default settings: Enabled

XMC Port Mode

This function is used to select the PCI Express routing to XMC connector.

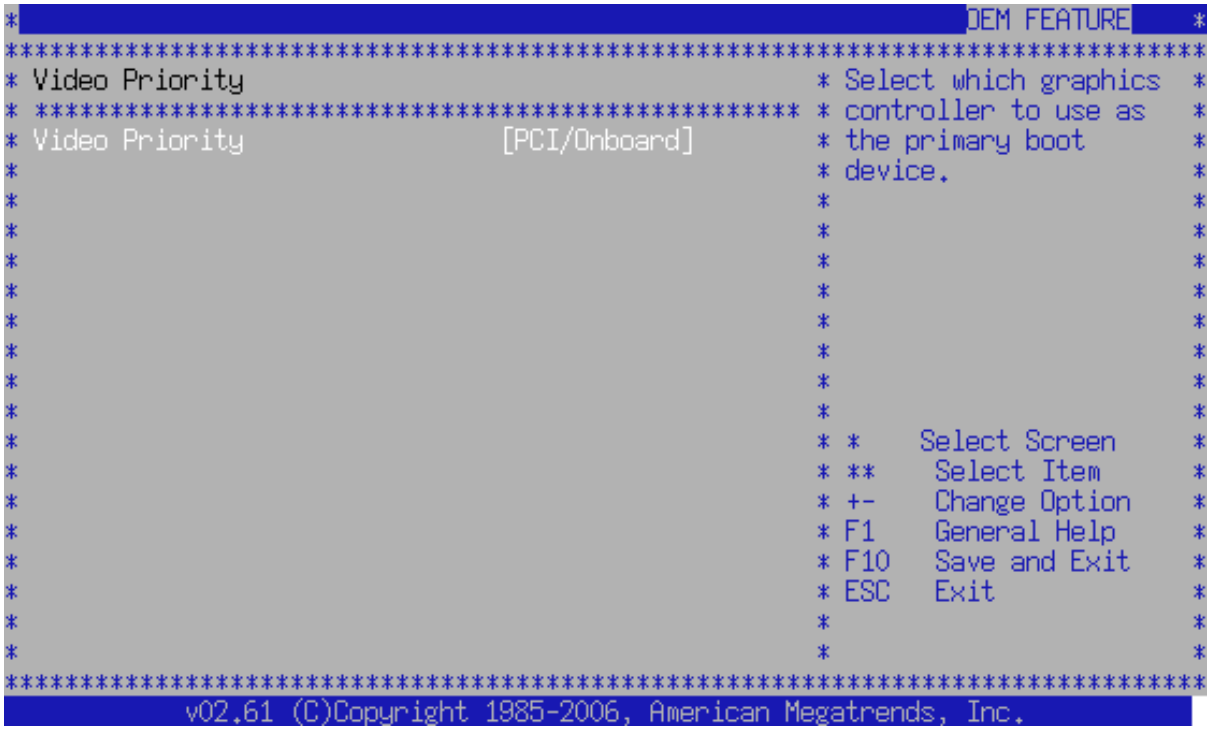
SETTING	DESCRIPTION
2 * X4	Use this setting to route two x4 PCI Express lanes to the XMC connector.
1 * X4	Use this setting to route one x4 PCI Express lanes to the XMC connector.

Optimal and Fail-Safe default settings: 2 * X4

Note: The selected setting must comply with the requirements of the XMC module used.

VIDEO PRIORITY SCREEN

This screen provides functions for specifying the video priority settings.



Video Priority

This function is used to select which graphics card will be used as primary boot device.

SETTING	DESCRIPTION
PCI/Onboard	Use this setting to specify that, if an external VGA is present, it will be used as primary boot device.
Onboard	Use this setting to specify that the onboard VGA will always be used as primary boot device.

Optimal and Fail-Safe default settings: PCI/Onboard

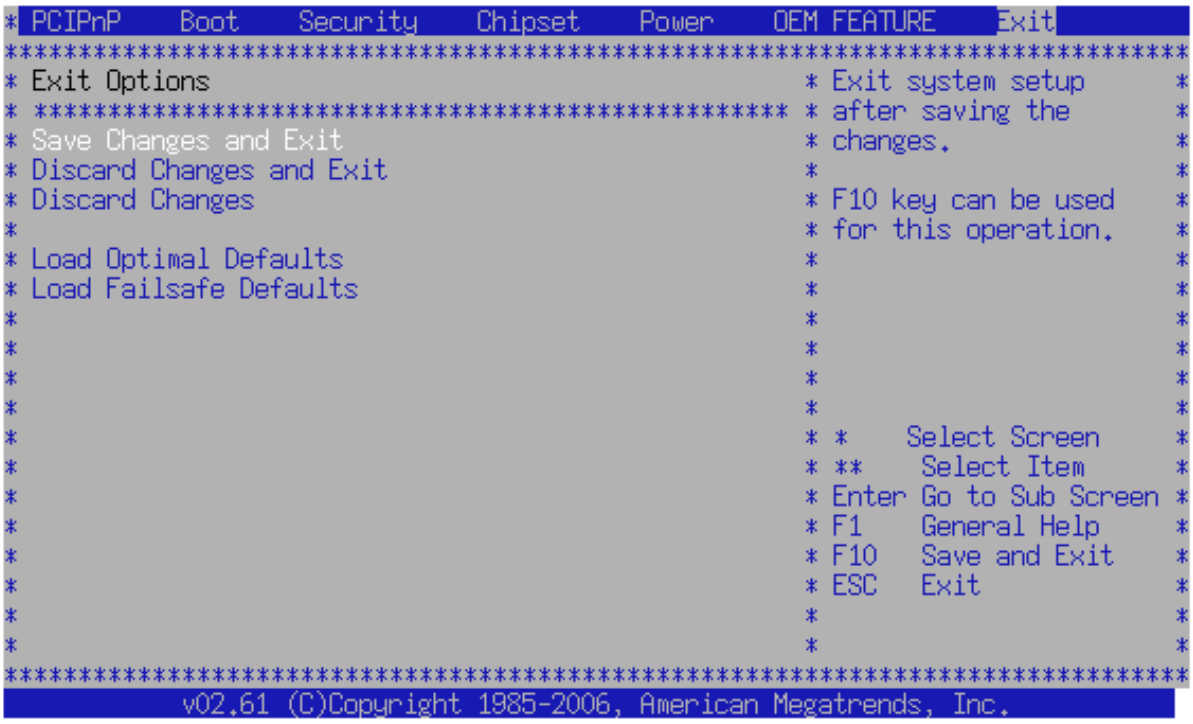
Chapter 10

Exit Menu

This page has been intentionally left blank.

10. 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 of 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 cant take effect.

To accomplish this, select this function from the Exit menu 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.

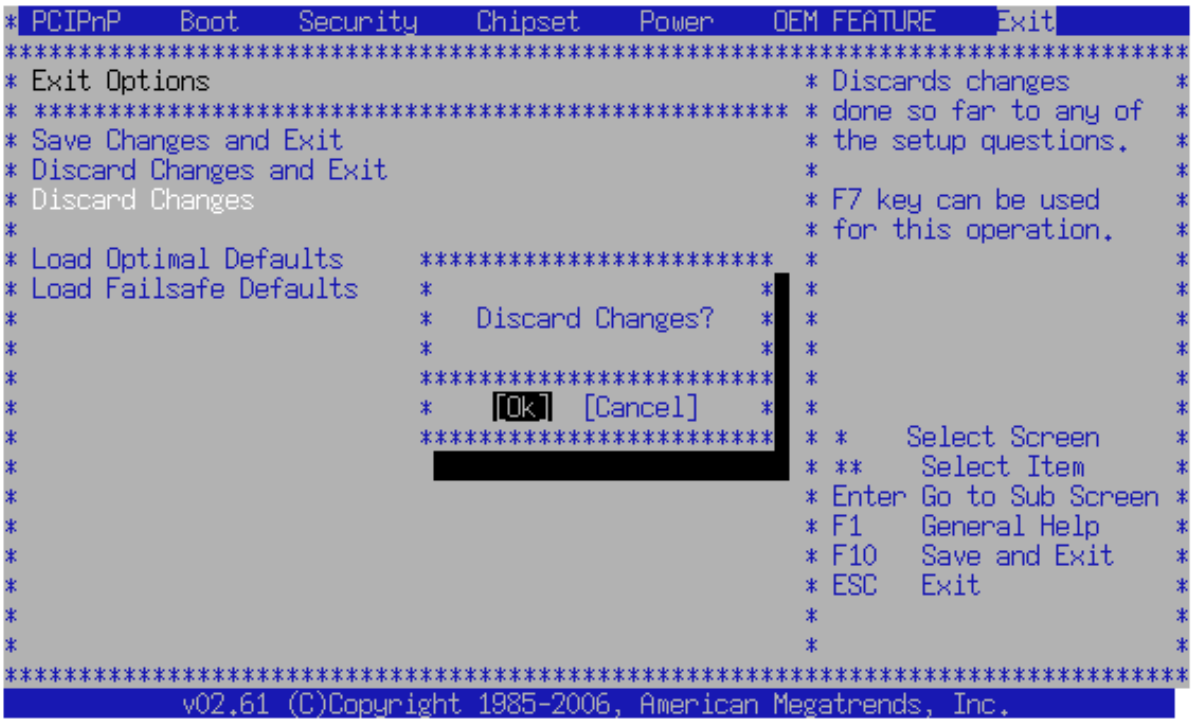
To accomplish this, select this function from the Exit menu and press <Enter>. A popup display appears requesting confirmation of the discarding of changes and setup exit. To confirm, select [OK] and then press <Enter>. To return to the BIOS setup program without discarding the changes made, select [Cancel] 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 configuration to the last stored setup configuration so that new changes may be made.

To accomplish this, select this function from the Exit menu 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

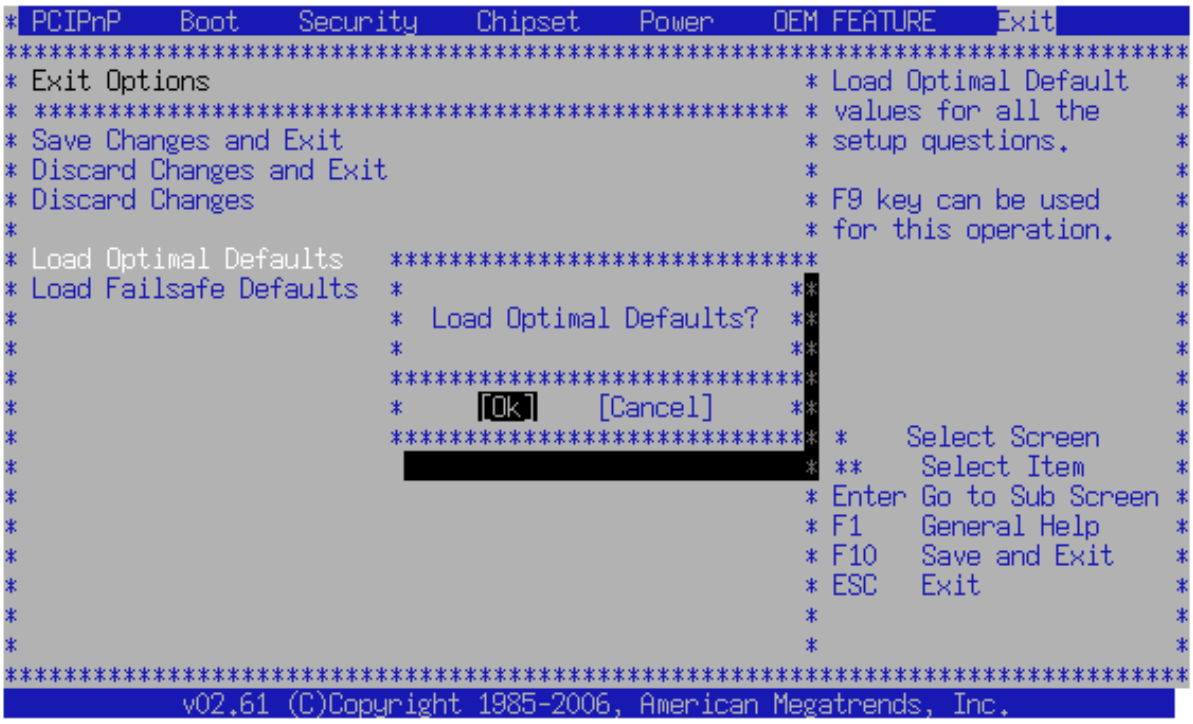


Load Optimal Defaults

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

To load the Optimal default settings, select this function from the Exit menu 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 Optimal Defaults Screen



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 system 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 from the Exit menu 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>.

This page has been intentionally left blank.

Chapter 11

POST Codes

This page has been intentionally left blank.

11. POST Codes

The POST code is visible on the front panel LEDs. For information about the LEDs, refer to the CP6012 User Guide, Doc. ID 34274.

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 512KB memory. Adjust policies and cache first 8MB. 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 is 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 1MB Read-Write including E000 and F000 shadow areas but closing SMRAM.
DA	Restore CPUID value back into register. Give control to BIOS POST (ExecutePOSTKernel). 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 CMOS with Fail-Safe default 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 Key Board 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.

CHECKPOINT	DESCRIPTION
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.
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.

CHECKPOINT	DESCRIPTION
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.