AM4010/AM4011/AM5010

AMC Modules

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BIOS Guide

kontron

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1.0	Initial issue	May 20, 2008
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Applicability

This BIOS Guide applies to the following AMC modules: AM4010, AM4011 and AM5010, hereafter referred to as AMC module. Information related to a specific AMC module is identified accordingly. The screens presented are representative for all AMC modules referred to in this manual except where explicitly otherwise indicated.

Imprint

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Chapter **1**

Starting BIOS Setup

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1. Starting BIOS Setup

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

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

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

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

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

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

Main Setup Menu

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

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

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

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

```
 Main     Advanced     PCIPnP     Boot     Security     Chipset     OEM FEATURE     *
**********************************************************************************
* System Overview                                      * Use [ENTER], [TAB]       *
* ***************************************************** * or [SHIFT-TAB] to        *
* AMIBIOS                                              * select a field.          *
* Version   :08.00.14                                  *                          *
* Build Date:02/28/07                                  * Use [+] or [-] to        *
* ID        :4010I100                                  * configure system Time.   *
*                                                      *                          *
* Processor                                            *                          *
* Intel(R) Core(TM) Duo CPU      L2400  @ 1.66GHz      *                          *
* Speed      :1666MHz                                  *                          *
* Count      :1                                        *                          *
*                                                      *                          *
* System Memory                                        * *     Select Screen      *
* Size       :1024MB                                   * **    Select Item        *
*                                                      * +-    Change Field       *
* System Time                    [15:08:10]            * Tab   Select Field       *
* System Date                    [Thu 05/03/2007]      * F1    General Help       *
*                                                      * F10   Save and Exit      *
*                                                      * ESC   Exit               *
*                                                      *                          *
**********************************************************************************
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```

Setup Default Override

BIOS normally has two types of default settings: Optimal and Fail-Safe, which can be loaded as required.

The BIOS provides functionality which permits overriding of the default settings for Optimal and Fail-Safe defaults for certain functions to be specified. This functionality is known as "Setup Default Override" and its usage is documented under the OEM Feature: Setup Default Configuration (SDO).

Functions for which the Optimal and Fail-Safe defaults can be overridden are indicated by the superscripted letters SDO after the function title: e.g. **Remote Access** [SDO]

Navigation

The BIOS setup program uses a hot key-based navigation system. Most of these hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.
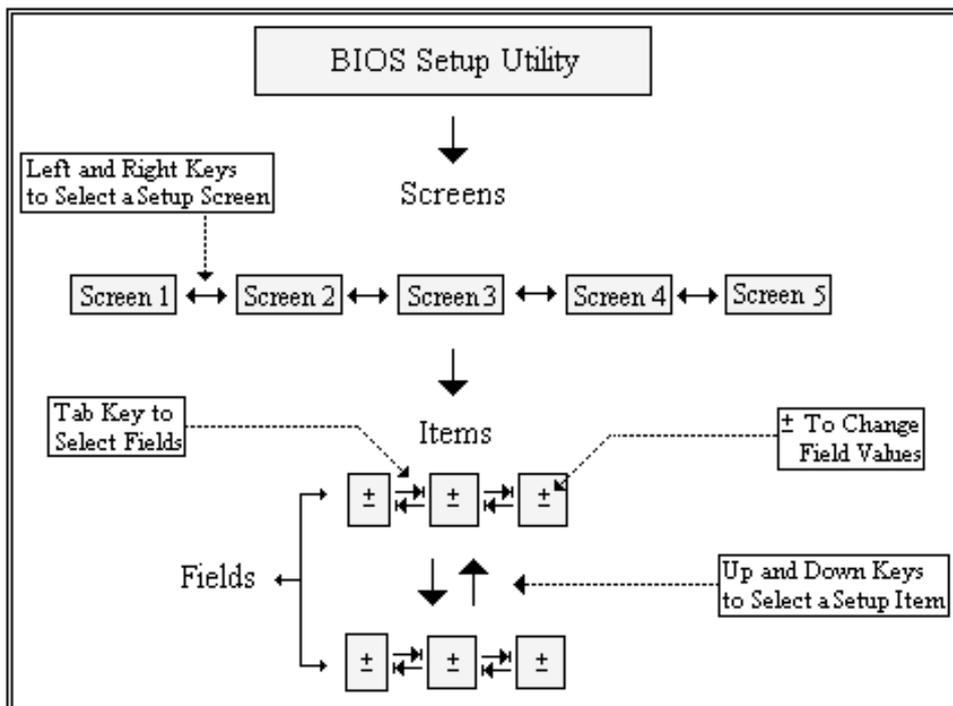
Note: There is a hot key legend located in the right frame on most setup screens.

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

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

HOT KEY	DESCRIPTION
F1	The <F1> key is used to display the General Help screen. Press the <F1> key to open the General Help screen. **General Help** ↔ Select Screen ↓↑ Select Item + – Change Screen Enter Go to Sub Screen PGDN Next Page PGUP Previous Page Home Go to Top of the Screen End Go to Bottom of Screen F2/F3 Change Colors F7 Discard Changes F8 Load Failsafe Defaults F9 Load Optimal Defaults F10 Save and Exit ESC Exit [Ok]
F10	The <F10> key is used to save any changes that have been made and exit the Setup. Press the <F10> key to save the changes. The following screen will appear: Save configuration changes and exit now? [Ok] [Cancel] Press the <Enter> key to save the configuration and exit. To abort this function and return to the previous screen, use the <Arrow> key to select Cancel and then press the <Enter> key.
ESC	The <Esc> key is used to discard any changes that have been made and exit the Setup. Press the <Esc> key to exit the Setup without saving the changes. The following screen will appear: Discard changes and exit setup now? [Ok] [Cancel] Press the <Enter> key to discard changes and exit. To abort this function and return to the previous screen, use the <Arrow> key to select Cancel and then press the <Enter> key.
Enter	The <Enter> key is used to display or change the function setting listed for a particular setup item. The <Enter> key can also be used to display the setup sub-screens.

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

Chapter **2**

Main Setup

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2.   Main Setup

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

```
 Main    Advanced    PCIPnP    Boot    Security    Chipset    OEM FEATURE    *
********************************************************************************
* System Overview                               * Use [ENTER], [TAB]       *
* *********************************************  * or [SHIFT-TAB] to        *
* AMIBIOS                                        * select a field.          *
* Version   :08.00.14                            *                          *
* Build Date:02/28/07                            * Use [+] or [-] to        *
* ID        :4010I100                            * configure system Time.   *
*                                                *                          *
* Processor                                      *                          *
* Intel(R) Core(TM) Duo CPU    L2400  @ 1.66GHz  *                          *
* Speed     :1666MHz                             *                          *
* Count     :1                                   *                          *
*                                                *                          *
* System Memory                                  * *     Select Screen      *
* Size      :1024MB                              * **    Select Item        *
*                                                * +-    Change Field       *
* System Time                  [15:08:10]        * Tab   Select Field       *
* System Date                  [Thu 05/03/2007]  * F1    General Help       *
*                                                * F10   Save and Exit      *
*                                                * ESC   Exit               *
*                                                *                          *
********************************************************************************
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```

System Time

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

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

System Date

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

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Chapter **3**

Advanced Setup

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3.   Advanced Setup

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

```
   Main   Advanced   PCIPnP    Boot    Security   Chipset    OEM FEATURE
*****************************************************************************
* Advanced Settings                               * Configure CPU         *
* *************************************************** *                     *
* WARNING: Setting wrong values in below sections  *                       *
*          may cause system to malfunction.        *                       *
*                                                  *                       *
* * CPU Configuration                              *                       *
* * IDE Configuration                              *                       *
* * ACPI Configuration                             *                       *
* * AHCI Configuration                             *                       *
* * Event Log Configuration                        *                       *
* * IPMI 1.5 Configuration                         *                       *
* * MPS Configuration                              *                       *
* * PCI Express Configuration                      * *     Select Screen   *
* * Smbios Configuration                           * **    Select Item     *
* * Remote Access Configuration                    * Enter Go to Sub Screen *
* * Trusted Computing                              * F1    General Help     *
* * USB Configuration                              * F10   Save and Exit    *
*                                                  * ESC   Exit             *
*                                                  *                       *
*                                                  *                       *
*****************************************************************************
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```

CPU CONFIGURATION SCREEN

The following screens provide basic information concerning the CPU and functions for speci-
fying CPU configuration settings.

```
 Advanced                                                              *
 *****************************************************************************
 * Configure advanced CPU settings          ** This should be enabled *
 * Module Version:3E.02                      ** in order to enable or  *
 * ***************************************************** disable the Hardware *
 * Manufacturer:Intel                        ** Prefetcher Disable     *
 * Intel(R) Core(TM)2 CPU      L7400  @ 1.50GHz ** Feature.             *
 * Frequency    :1.50GHz                     **                        *
 * FSB Speed     :666MHz                      **                        *
 * Cache L1     :64 KB                        **                        *
 * Cache L2     :4096 KB                      **                        *
 *                                           **                        *
 * Hardware Prefetcher           [Enabled]   **                        *
 * Adjacent Cache Line Prefetch  [Enabled]   **                        *
 * Max CPUID Value Limit         [Disabled]  ** *    Select Screen     *
 * Vanderpool Technology         [Enabled]   ** **   Select Item       *
 * CPU Thermal Monitor (TM1/TM2): [Enabled]  ** +-   Change Option     *
 * Execute Disable Bit           [Enabled]   ** F1   General Help      *
 * Intel(R) SpeedStep(tm) tech.  [Disabled]  ** F10  Save and Exit     *
 * Intel(R) C-State tech.                     ** ESC  Exit             *
 *     C1 Config.                [Standard]  **                        *
 *     C2 Config.                [Standard]  **                        *
 *****************************************************************************
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```

Hardware Prefetcher (AM4011 and AM5010)

This function allows the processor's hardware prefetcher to prefetch streams of data and in-
struction from the memory into the L2 cache.

SETTING	DESCRIPTION
Disabled	Use this setting to disable hardware prefetching.
Enabled	Use this setting to enable hardware prefetching.

Optimal and Fail-Safe default settings: Enabled

Adjacent Cache Line Prefetch (AM4011 and AM5010)

This function allows the processor to fetch the currently requested cache line as well as the ad-
jacent cache line.

SETTING	DESCRIPTION
Disabled	Use this setting to disable adjacent cache line prefetching.
	If Disabled is selected, the processor fetches only the currently selected cache line.
Enabled	Use this setting to enable adjacent cache line prefetching.
	If Enabled is selected, the processor automatically fetches the currently requested line as well as the adjacent cache line.

Optimal and Fail-Safe default settings: Enabled

Max CPUID Value Limit

The Maximum CPUID Value Limit determines 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 this function.
Enabled	Use this setting to enable this function.

Optimal and Fail-Safe default settings: Disabled

Execute Disable Bit

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

SETTING	DESCRIPTION
Disabled	Use this setting to disable this function.
	If Disabled is selected, the BIOS forces the XD feature flag to always return to 0.
Enabled	Use this setting to enable this function.

Optimal and Fail-Safe default settings: Enabled

Core Multi-Processing (AM4011)

This function and the screen associated with it are not supported. Leave this function at the setting *Enabled*.

CPU Thermal Monitor (TM1/TM2) ᴿᴰᴼ

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 AMC module will shut off automatically.

SETTING	DESCRIPTION
Disabled	Use this setting to disable this function.
Enabled	Use this setting to enable this function.

Optimal and Fail-Safe default 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 is a display only function which indicates that Vanderpool Technology is available and is set by the BIOS to Enabled.

Intel® SpeedStep™ tech. SDO

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

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

Optimal and Fail-Safe default settings: Automatic

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

IDE CONFIGURATION SCREEN

This screen provides functions for specifying IDE configuration settings.

```
            Advanced                                                          *
*******************************************************************************
* IDE Configuration                          * Select whether the           *
* ***************************************** * IDE channels should          *
* ATA/IDE Configuration        [Enhanced]    * be initialized in            *
* Configure SATA as            [IDE]         * Compatible or                *
*                                            * Enhanced mode of             *
* * Primary IDE Master      : [Hard Disk]    * operation.                   *
* * Primary IDE Slave       : [Not Detected] *                              *
* * Secondary IDE Master    : [Not Detected] *                              *
* * Secondary IDE Slave     : [Not Detected] *                              *
*                                            *                              *
* Hard Disk Write Protect      [Disabled]    *                              *
* IDE Detect Time Out (Sec)    [35]          *                              *
*                                            * *     Select Screen          *
*                                            * **     Select Item           *
*                                            * +-     Change Option         *
*                                            * F1     General Help          *
*                                            * F10    Save and Exit         *
*                                            * ESC    Exit                  *
*                                            *                              *
*                                            *                              *
*******************************************************************************
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```

ATA/IDE Configuration

SETTING	DESCRIPTION
Disabled	Use this setting to disable all SATA devices. This prevents the OS from detecting the controller devices.
Compatible	This setting is not relevant to the AMC module and should not be used.
Enhanced	Use this setting to specify that SATA devices are to appear as one PCI controller device.

Optimal and Fail-Safe default settings: Enhanced

Configure SATA as

This function controls the SATA controller device's operating mode and is only available if the ATA/IDE Configuration is set to Enhanced.

SETTING	DESCRIPTION
IDE	Use this setting to specify that the SATA controller is to operate as a legacy IDE controller. In this case, old IDE drivers may be used.
AHCI	Use this setting to specify that the SATA controller is to operate as an AHCI controller. In this case, AHCI drivers must be used.

Optimal and Fail-Safe default settings when ATA/IDE Configuration is set to Enhanced: IDE

Primary IDE Master

This function provides access to the Primary IDE Master sub-screen. To access the Primary IDE Master screen, select this function and press <Enter>.

Refer to the Primary IDE Master screen below for further details concerning device configuration functions.

Primary IDE Slave

This function provides access to the Primary IDE Slave sub-screen. To access the Primary IDE Slave screen, select this function and press <Enter>.

Refer to the Primary IDE Master screen below for further details concerning device configuration functions.

Secondary IDE Master

This function provides access to the Secondary IDE Master sub-screen. To access the Secondary IDE Master screen, select this function and press <Enter>.

Refer to the Primary IDE Master screen below for further details concerning device configuration functions.

Secondary IDE Slave

This function provides access to the Secondary IDE Slave sub-screen. To access the Secondary IDE Slave screen, select this function and press <Enter>.

Refer to the Primary IDE Master screen below for further details concerning device configuration functions.

Third IDE Master

This function provides access to the Third IDE Master sub-screen. To access the Third IDE Master screen, select this function and press <Enter>.

Refer to the Primary IDE Master screen below for further details concerning device configuration functions.

Third IDE Slave

This function provides access to the Third IDE Slave sub-screen. To access the Third IDE Slave screen, select this function and press <Enter>.

Refer to the Primary IDE Master screen below for further details concerning device configuration functions.

Fourth IDE Master

This function provides access to the Fourth IDE Master sub-screen. To access the Fourth IDE Master screen, select this function and press <Enter>.

Refer to the Primary IDE Master screen below for further details concerning device configuration functions.

Fourth IDE Slave

This function provides access to the Fourth IDE Slave sub-screen. To access the Fourth IDE Slave screen, select this function and press <Enter>.

Refer to the Primary IDE Master screen below for further details concerning device configuration functions.

Hard Disk Drive Write Protect

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

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

Optimal and Fail-Safe default settings: Disabled

IDE Detect Time Out (Sec)

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

Optimal and Fail-Safe default settings: 35

Primary IDE Master Screen

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

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

```
     Advanced                                                          *
*******************************************************************************
* Primary IDE Master                              * Select the type        *
* ************************************************ * of device connected    *
* Device    :Hard Disk                            * to the system.         *
* Vendor    :HDS722512VLSA80                       *                        *
* Size      :123.5GB                               *                        *
* LBA Mode  :Supported                             *                        *
* Block Mode:16Sectors                             *                        *
* PIO Mode  :4                                     *                        *
* Async DMA :MultiWord DMA-2                        *                        *
* Ultra DMA :Ultra DMA-5                            *                        *
* S.M.A.R.T.:Supported                             *                        *
* ************************************************ *                        *
* Type                          [Auto]            * *     Select Screen    *
* LBA/Large Mode                [Auto]            * **    Select Item       *
* Block (Multi-Sector Transfer) [Auto]            * +-    Change Option     *
* PIO Mode                      [Auto]            * F1    General Help       *
* DMA Mode                      [Auto]            * F10   Save and Exit      *
* S.M.A.R.T.                    [Auto]            * ESC   Exit               *
* 32Bit Data Transfer           [Enabled]         *                        *
*                                                 *                        *
*******************************************************************************
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```

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

Type

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

Optimal and Fail-Safe default settings: Auto

LBA/Large Mode

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

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

Optimal and Fail-Safe default settings: Auto

Block (Multi-Sector Transfer)

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

Optimal and Fail-Safe default settings: Auto

PIO Mode

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

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

Optimal and Fail-Safe default settings: Auto

DMA Mode

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

Optimal and Fail-Safe default settings: Auto

S.M.A.R.T.

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

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

Optimal and Fail-Safe default settings: Auto

32Bit Data Transfer

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

Optimal and Fail-Safe default settings: Disabled

ARMD Emulation Type

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

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

Optimal and Fail-Safe default settings: Auto

ACPI CONFIGURATION SCREEN

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

```
        Advanced                                                        *
*************************************************************************
* ACPI Settings                          * Advanced ACPI               *
* ************************************** * Configuration settings      *
* * Advanced ACPI Configuration         *                             *
* * Chipset ACPI Configuration          * Use this section to         *
*                                        * configure additional       *
*                                        * ACPI options.               *
*                                        *                             *
*                                        *                             *
*                                        *                             *
*                                        *                             *
*                                        *                             *
*                                        * *    Select Screen          *
*                                        * **   Select Item            *
*                                        * Enter Go to Sub Screen      *
*                                        * F1   General Help           *
*                                        * F10  Save and Exit          *
*                                        * ESC  Exit                   *
*                                        *                             *
*                                        *                             *
*************************************************************************
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```

Advanced ACPI Configuration Screen

This screen provides functions for specifying configuration settings.

```
    Advanced                                                              *
**********************************************************************************
* Advanced ACPI Configuration                    * Enable RSDP pointers   *
* ********************************************** * to 64-bit Fixed System *
* ACPI Version Features        [ACPI v1.0]       * Description Tables. Di *
* ACPI APIC support            [Enabled]         * ACPI version has some  *
* AMI OEMB table               [Enabled]         *                        *
* Headless mode                [Enabled]         *                        *
*                                                *                        *
*                                                *                        *
*                                                *                        *
*                                                *                        *
*                                                *                        *
*                                                *                        *
*                                                * *    Select Screen      *
*                                                * **   Select Item        *
*                                                * +-   Change Option      *
*                                                * F1   General Help       *
*                                                * F10  Save and Exit      *
*                                                * ESC  Exit               *
*                                                *                        *
*                                                *                        *
**********************************************************************************
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```

ACPI Version Features

This function is used to specify 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. 3.0

ACPI APIC Support

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 operation.

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

Optimal and Fail-Safe default settings: Enabled

Chipset ACPI Configuration Screen

This screen provides one function for specifying a configuration setting.

```
      Advanced                                                        *
*********************************************************************
* South Bridge ACPI Configuration          * Enable/Disable        *
* **************************************** * APIC ACPI SCI IRQ.     *
* APIC ACPI SCI IRQ           [Disabled]    *                       *
*                                           *                       *
*                                           *                       *
*                                           *                       *
*                                           *                       *
*                                           *                       *
*                                           *                       *
*                                           *                       *
*                                           *                       *
*                                           *                       *
*                                           *  *    Select Screen   *
*                                           *  **   Select Item     *
*                                           *  +-   Change Option    *
*                                           *  F1   General Help     *
*                                           *  F10  Save and Exit    *
*                                           *  ESC  Exit             *
*                                           *                       *
*                                           *                       *
*********************************************************************
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```

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

AHCI CONFIGURATION SCREEN

This screen provides one function for specifying a configuration setting. In addition, there are display only functions on this screen which indicate if a drive is detected or not on the AHCI port specified.

```
         Advanced                                                        *
*************************************************************************
* AHCI Settings                              * Some SATA CD/DVD in    *
* ***************************************** * AHCI mode need to      *
* AHCI CD/DVD Boot Time out      [15]        * wait ready longer.     *
* ***************************************** *                        *
* * AHCI Port0 [Not Detected]               *                        *
* * AHCI Port1 [Not Detected]               *                        *
* * AHCI Port2 [Not Detected]               *                        *
* * AHCI Port3 [Not Detected]               *                        *
* * AHCI Port4 [Not Detected]               *                        *
* * AHCI Port5 [Not Detected]               *                        *
*                                            *                        *
*                                            *                        *
*                                            * *    Select Screen     *
*                                            * **   Select Item       *
*                                            * +-   Change Option      *
*                                            * F1   General Help      *
*                                            * F10  Save and Exit     *
*                                            * ESC  Exit              *
*                                            *                        *
*                                            *                        *
*                                            *                        *
*************************************************************************
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```

AHCI CD/DVD Boot Timeout

SETTING	DESCRIPTION
0, 5, 10, 15, 20, 25, 30, 35 (in seconds)	Use one of these settings to specify how long the BIOS is to wait for SATA CD/DVD devices operating in the AHCI mode to be detected before continuing with booting.

Optimal and Fail-Safe default settings: 15

AHCI Ports 0-5

These are display only functions which indicate the manufacturer's generic drive identity information if there is a drive connected to the port indicated and it is detected. These functions are only available if the function Configure SATA *as* is available in the IDE Configuration setup screen and it is set to *AHCI.*

SETTING	DESCRIPTION
Not Detected	When displayed, indicates that there is no drive installed
<generic_drive_info_n>	When displayed, indicates the generic drive information of the drive connected to the port indicated.

There are no Optimal or Fail-Safe default settings for this function.

EVENT LOG CONFIGURATION SCREEN

This screen provides the ability to view the event log, mark events as read, and to clear the event log. In addition it provides functions for specifying the logging of various types of events.

```
        Advanced                                                    *
****************************************************************************
* Event Logging details                    * View all unread events *
* *************************************      * on the Event Log.       *
* View Event Log                            *                         *
* Mark all events as read                   *                         *
* Clear Event Log                           *                         *
*                                           *                         *
* ECC Event Logging           [Disabled]    *                         *
* Hub Interface Event Logging [Disabled]    *                         *
* System Bus Event Logging    [Disabled]    *                         *
* Memory Buffer Event Logging [Disabled]    *                         *
* PCI Error Logging           [Disabled]    *                         *
*                                           *                         *
*                                           * *     Select Screen     *
*                                           * **      Select Item     *
*                                           * Enter Go to Sub Screen  *
*                                           * F1     General Help     *
*                                           * F10    Save and Exit    *
*                                           * ESC    Exit             *
*                                           *                         *
*                                           *                         *
*                                           *                         *
****************************************************************************
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```

View Event Log

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

01/01/02 13:12:56

CMOS time not set

Mark all events as read

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

Clear Event Log

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

ECC Event Logging

SETTING	DESCRIPTION
Disabled	Use this setting to disable 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

IPMI 1.5 CONFIGURATION SCREEN

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

```
                Advanced                                                      *
*****************************************************************************
* IPMI 1.5 Configuration                              * View all events in the *
* ********************************************* * MMC Event Log.         *
* Status of MMC                    Working            * It will take a max. of *
* * View MMC System Event Log                         * 15 seconds to read all *
* Clear MMC System Event Log                          * MMC SEL records.       *
* * Set LAN Configuration                             *                        *
* OS Load Watchdog Timer Action  [Disabled]           *                        *
* * IPMI Device and Firmware Information               *                        *
* * System Management                                 *                        *
* KCS-SMS IRQ                     [Disabled]           *                        *
*                                                     *                        *
* PCIe Clock                  : Local Clock           *                        *
* PCIe Root Port B Config     : 4x1                   * *    Select Screen     *
*                                                     * **     Select Item     *
*                                                     * Enter Go to Sub Screen *
*                                                     * F1    General Help     *
*                                                     * F10   Save and Exit    *
*                                                     * ESC   Exit             *
*                                                     *                        *
*                                                     *                        *
*****************************************************************************
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```

Status of MMC

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

View MMC System Event Log

This function is used to view the events recorded in the MMC System Event Log. When selected, a pop-up window is displayed with the log entries.

Clear MMC System Event Log

This function is used to delete all events recorded in the MMC System Event Log.

Set LAN Configuration Screen

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

```
       Advanced                                                          *
***********************************************************************
* LAN Configuration                           * Enter Channel Number   *
* *****************************************    * for SET LAN Config     *
* Channel Number              [01]            * Command.               *
* Channel Number Status:      Invalid Number  * Proper value below 16. *
*                                             *                        *
* * IP Address                                *                        *
* * MAC Address                               *                        *
* * Subnet Mask                               *                        *
* * Gateway Address                           *                        *
*                                             *                        *
*                                             *                        *
*                                             * *     Select Screen     *
*                                             * **    Select Item       *
*                                             * Enter Update            *
*                                             * F1    General Help      *
*                                             * F10   Save and Exit     *
*                                             * ESC   Exit              *
*                                             *                        *
*                                             *                        *
***********************************************************************
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```

Channel Number

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

Channel Number Status

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

IP Address

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

Current IP Address

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

MAC Address

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

Current MAC Address

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

Subnet Mask

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

Current Subnet Mask

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

Gateway Address

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

Current Gateway Address

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

Set PEF Configuration (AM4011)

This function and the screen associated with it are not supported.

OS Load Watchdog Timer Action ᔆᴰᴼ

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

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

Optimal and Fail-Safe default settings: Disabled

MMC Watchdog Timeout ᔆᴰᴼ

This function is used to specify how long the MMC is to wait before assuming the system is no longer operating properly and requires remedial action. This function is only available if the OS Load Watchdog Timer Action function has been set to other than Disabled.

SETTING	DESCRIPTION
10 Sec, 30 Sec, 1 Min, 5 Min	Use one of these settings to specify how long the MMC is to wait before performing the action specified by the MMC Watchdog function.

Optimal and Fail-Safe default settings: 5 Min

IPMI Device and Firmware Information Screen

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

```
              Advanced                                                        *
*******************************************************************************
* IPMI Device and Firmware Information            *                           *
* ***************************************************  *                       *
* Product ID:                 [00004010]          *                           *
* IPMI Version:               [1.5]               *                           *
* Device ID:                  [04]                *                           *
* Device Revision:            [00]                *                           *
* Firmware Revision:          [04.88]             *                           *
* SDR Revision:               [01]                *                           *
*                                                 *                           *
*                                                 *                           *
*                                                 *                           *
*                                                 *                           *
*                                                 *  *     Select Screen      *
*                                                 *  **    Select Item        *
*                                                 *  F1    General Help        *
*                                                 *  F10   Save and Exit       *
*                                                 *  ESC   Exit                *
*                                                 *                           *
*                                                 *                           *
*                                                 *                           *
*******************************************************************************
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```

System Management Screen

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

```
      Advanced                                                          *
*********************************************************************************
* FRU Board Information                              *                          *
* ************************************************** *                          *
* FRU Board Information Area:                        *                          *
*                                                    *                          *
* Board Product Name:          [AM4010]             *                          *
* Board Serial Number:         [1234567890]         *                          *
* Board Part Number:           [00000]              *                          *
*                                                    *                          *
* FRU Product Information Area:                      *                          *
*                                                    *                          *
* Product Name:                [AM4010]             *                          *
* Product Part/Model:          [0000]               *                          *
* Product Version Number:      [0000000000000000000 * *    Select Screen       *
* Product Serial Number:       [0000000000000000000 * **    Select Item        *
*                                                    * F1    General Help       *
*                                                    * F10   Save and Exit      *
*                                                    * ESC   Exit               *
*                                                    *                          *
*                                                    *                          *
*                                                    *                          *
*********************************************************************************
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```

KCS-SMS IRQ

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

SETTING	DESCRIPTION
Disabled	Use this setting to disable IRQ reservation for the system management software.
IRQ10/IRQ11	Use this setting to reserve an IRQ for the system management software.

Optimal and Fail-Safe default settings: Disabled

PCIe Clock

This is a display only function that indicates which clock is active on the AMC module.

PCIe Root Port B Config (AM5010)

This is a display only function that indicates the root port strapping by the IPMI or the DIP switch.

PARAMETER	DESCRIPTION
4x1	PCI Express root port B is configured as 4x1 lane.
1x4	PCI Express root port B is configured as 1x4 lanes.

MPS CONFIGURATION SCREEN

This screen provides one function for specifying the revision compliance setting for the Multi-Processor Specification (MPS) table.

```
       Advanced                                                            *
*****************************************************************************
* MPS Configuration                                   * Select MPS         *
* *************************************************** * Revision.           *
* MPS Revision                    [1.4]               *                     *
*                                                     *                     *
*                                                     *                     *
*                                                     *                     *
*                                                     *                     *
*                                                     *                     *
*                                                     *                     *
*                                                     *                     *
*                                                     *                     *
*                                                     *                     *
*                                                     * *     Select Screen *
*                                                     * **    Select Item   *
*                                                     * +-    Change Option  *
*                                                     * F1    General Help   *
*                                                     * F10   Save and Exit  *
*                                                     * ESC   Exit           *
*                                                     *                     *
*                                                     *                     *
*****************************************************************************
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```

MPS Revision

This function is used to specify the revision of the MP Specification to be used for generation of the MP table.

SETTING	DESCRIPTION
1.1	Use this setting to specify generation of the MP table in compliance with MPS Revision 1.1.
1.4	Use this setting to specify generation of the MP table in compliance with MPS Revision 1.4.

Optimal default setting: 1.4

Fail-Safe default setting: 1.1

PCI EXPRESS CONFIGURATION SCREEN

This screen provides functions for specifying configuration settings.

```
              Advanced                                                    *
**********************************************************************************
* PCI Express Configuration                    * Enable/Disable           *
* ******************************************** * PCI Express L0s and       *
* Active State Power-Management  [Disabled]    * L1 link power             *
* PCI Express Port A0            [Enabled]     * states.                   *
* PCIe Jitter Tolerance          [Enabled]     *                           *
*                                              *                           *
* SB PCI Express Port 0          [Auto]        *                           *
*                                              *                           *
*                                              *                           *
*                                              *                           *
*                                              *                           *
*                                              *                           *
*                                              *    Select Screen          *
*                                              * **    Select Item         *
*                                              * +-    Change Option        *
*                                              * F1    General Help         *
*                                              * F10   Save and Exit        *
*                                              * ESC   Exit                 *
*                                              *                           *
*                                              *                           *
*                                              *                           *
**********************************************************************************
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```

Active State Power Management

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 permit the PCI Express Active State Power Management on the A0, A1 and B0 links.

Optimal and Fail-Safe default settings: Disabled

PCI Express Port A0

This function is used to enable or disable the PCI Express Port A0 to the AMC Card-edge connector.

SETTING	DESCRIPTION
Disabled	Use this setting to disable Port A0.
Enabled	Use this setting to enable the PCI Express devices on the AMC card-edge connector.

Optimal and Fail-Safe default settings: Enabled

PCIe Jitter Tolerance

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

Optimal and Fail-Safe default settings: Enabled

SB PCI Express Port 0 (AM4010 and AM4011)

This function is used to permit the system to configure the SouthBridge PCIe port 0 to the 82572EI Ethernet controller on AM4010 and the 82571EB (Cu PHY) Ethernet controller on AM4011.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the 82572EI / 82571EB Ethernet controller.
Auto	Use this setting to specify automatic PCIe port configuration.

Optimal and Fail-Safe default settings: Auto

Note: The SouthBridge PCI Express port 0 is automatically configured on the AM5010.

SMBIOS CONFIGURATION SCREEN

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

```
     Advanced                                                     *
*********************************************************************
* Smbios Configuration                    * SMBIOS SMI Wrapper    *
*                                         * support for PnP Func  *
* Smbios Smi Support        [Enabled]     * 50h-54h               *
*                                         *                       *
*                                         *                       *
*                                         *                       *
*                                         *                       *
*                                         *                       *
*                                         *                       *
*                                         *                       *
*                                         *                       *
*                                         *                       *
*                                         * *     Select Screen   *
*                                         * **    Select Item     *
*                                         * +-    Change Option    *
*                                         * F1    General Help     *
*                                         * F10   Save and Exit    *
*                                         * ESC   Exit             *
*                                         *                       *
*                                         *                       *
*********************************************************************
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```

SMBIOS SMI Support

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

Optimal and Fail-Safe default settings: Enabled

REMOTE ACCESS CONFIGURATION SCREEN

This screen provides functions for specifying configuration settings.

```
         Advanced                                                        *
***************************************************************************
* Configure Remote Access type and parameters     * Select Remote Access *
* ***********************************************   * type.                *
* Remote Access                    [Enabled]       *                      *
*                                                  *                      *
* Serial port number              [COM1]           *                      *
*     Base Address, IRQ           [3F8h, 4]         *                      *
* Serial Port Mode                [115200 8,n,1]    *                      *
* Flow Control                    [None]            *                      *
* Redirection After BIOS POST     [Always]          *                      *
* Terminal Type                   [ANSI]            *                      *
* VT-UTF8 Combo Key Support        [Enabled]         *                      *
* Sredir Memory Display Delay      [Delay 4 Sec]     *                      *
*                                                  *  *    Select Screen   *
* EMS support(SPCR)                [Enabled]         * **   Select Item     *
*                                                  * +-   Change Option   *
*                                                  * F1   General Help    *
*                                                  * F10  Save and Exit   *
*                                                  * ESC  Exit            *
*                                                  *                      *
*                                                  *                      *
*                                                  *                      *
***************************************************************************
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```

Remote Access [SDO]

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

Optimal and Fail-Safe default settings: Enabled

Serial Port Number [SDO]

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

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

Optimal and Fail-Safe default settings: COM1

Base Address, IRQ

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

Serial Port Mode ^{SDO}

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

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

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

Flow Control ^{SDO}

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

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

Optimal and Fail-Safe default settings: None

Redirection After BIOS POST ^{SDO}

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

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

Optimal and Fail-Safe default settings: Always

Terminal Type ᔛᴰᴼ

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

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

Optimal and Fail-Safe default settings: ANSI

VT-UTF8 Combo Key Support

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

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

Optimal and Fail-Safe default settings: Enabled

Sredir Memory Display Delay

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

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

Optimal and Fail-Safe default settings: Delay 4 sec.

EMS Support (SPCR)

This function is used to enable or disable the EMS (Emergency Management Services) support via the ACPI SPCR (Serial Port Console Redirection) table. It is not available if Remote Access is set to Disabled.

SETTING	DESCRIPTION
Disabled	Use this setting to disable initialization the SPCR table. This disables EMS support.
Enabled	Use this setting to initialize the SPCR table. This enables EMS support.

Optimal and Fail-Safe default settings for AM4010 and AM4011: Enabled

Optimal and Fail-Safe default settings for AM5010: Disabled

TRUSTED COMPUTING SCREEN (AM4011)

This screen provides functions for specifying the trusted computing configuration settings as well as TPM owner status information. The functions indicated on this screen are only available when a TPM module is installed.

```
     Advanced                                                                 *
 ************************************************************************************
 * Trusted Computing                          * Enable/Disable TPM       *
 * ***************************************** * TCG (TPM 1.1/1.2) supp *
 * TCG/TPM SUPPORT              [Yes]         * in BIOS                  *
 *                                            *                          *
 * Execute TPM Command         [Don't change] *                         *
 * Clearing the TPM            [Press Enter]  *                          *
 *   TPM Enable/Disable Status  [Enabled]     *                          *
 *   TPM Owner Status           [UnOwned]     *                          *
 *                                            *                          *
 *                                            *                          *
 *                                            *                          *
 *                                            *                          *
 *                                            *                          *
 *                                            * *     Select Screen      *
 *                                            * **    Select Item        *
 *                                            * +-    Change Option       *
 *                                            * F1    General Help        *
 *                                            * F10   Save and Exit       *
 *                                            * ESC   Exit                *
 *                                            *                          *
 *                                            *                          *
 *                                            *                          *
 ************************************************************************************
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```

TCG/TPM SUPPORT [SDO]

This function is used to specify the initialization of the on board trusted computing module.

SETTING	DESCRIPTION
No	Use this setting to disable TCG/TPM support.
Yes	Use this setting to enable TCG/TPM support.

Optimal and Fail-Safe default settings: No (if there is no TPM module installed, leave set to No)

Execute TPM command

This function is used to specify the execution of the TPM enable or disable command during POST. When "Disable" or "Enable" is selected, BIOS executes the selected command during the POST and then changes the setting back to "Don't Change".

SETTING	DESCRIPTION
Don't Change	This is the BIOS default setting and is automatically set after each Enable or Disable command is executed.
Disabled	Use this setting to execute the TPM disable command during POST.
Enabled	Use this setting to execute the TPM enable command during POST.

Optimal and Fail-Safe default settings: Don't Change

Clearing the TPM

This function is used to clear all settings and keys stored inside the TPM device. After pressing ENTER and confirming the clear request, the CP6001 will be immediately reset. Prior to executing this function, save any changes made to the BIOS settings or they will be lost.

WARNING! Clearing the TPM results in the loss of all data (keys and other information) stored within the TPM. The user must ensure that all **PRECAUTIONS** necessary to protect against data loss **ARE TAKEN PRIOR** to issuing this command!

For example, disable Microsoft BitLocker prior to executing this function. If BitLocker is not disabled or the user does not have a record of the encryption keys, all data protected by BitLocker will not be accessible after clearing.

Kontron disclaims any and all liability for damage or improper operation resulting from failure of the user to comply with the above warning.

TPM Enable/Disable Status

This is a display-only function which indicates the operational status of the TPM: enabled or disabled. Enabled indicates that the TPM is in operation. Disabled indicates that the TPM is not in operation.

TPM Owner Status

This is a display-only function which indicates the current TPM owner status. "UnOwned" indicates that no user has assumed ownership of the TPM. "Owned" indicates that a user has taken over ownership of the TPM.

USB CONFIGURATION SCREEN

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

```
 ▌         Advanced                                                      *
************************************************************************
* USB Configuration                         * Enables USB host         *
* **************************************** * controllers.              *
* Module Version - 2.24.0-11.4               *                          *
*                                            *                          *
* USB Devices Enabled :                      *                          *
*   1 Keyboard, 1 Hub, 2 Drives              *                          *
*                                            *                          *
* USB Function                 [4 USB Ports] *                          *
* Legacy USB Support           [Enabled]     *                          *
* USB 2.0 Controller           [Enabled]     *                          *
* USB 2.0 Controller Mode      [HiSpeed]     *                          *
* BIOS EHCI Hand-Off           [Enabled]     *                          *
* Hotplug USB FDD Support      [Auto]        * *    Select Screen       *
*                                            * **   Select Item         *
* * USB Mass Storage Device Configuration    * +-   Change Option       *
*                                            * F1   General Help        *
*                                            * F10  Save and Exit       *
*                                            * ESC  Exit                *
*                                            *                          *
*                                            *                          *
************************************************************************
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```

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 AMC module.

USB Function

SETTING	DESCRIPTION
Disabled	Use this setting to disable initialization of the onboard USB ports.
2 USB Ports	Use this setting to specify the allocation of 2 USB ports.
4 USB Ports	Use this setting to specify the allocation of 4 USB ports.

Optimal and Fail-Safe default settings: 4 USB Ports

Legacy USB Support

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

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

Optimal and Fail-Safe default settings: Enabled

USB 2.0 Controller SDO

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

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

Optimal and Fail-Safe default settings: Enabled

USB 2.0 Controller Mode SDO

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

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

Optimal and Fail-Safe default settings: HiSpeed

BIOS EHCI Hand-Off SDO

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

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

Optimal and Fail-Safe default settings: Enabled

Hotplug USB FDD Support (AM4011 and AM5010)

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

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

Optimal and Fail-Safe default settings: Auto

USB Mass Storage Device Configuration Screen

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

This function is only available when a USB mass storage device is detected..

```
             Advanced                                                    *
*************************************************************************
* USB Mass Storage Device Configuration          * Number of seconds    *
* ********************************************** * POST waits for the    *
* USB Mass Storage Reset Delay   [20 Sec]        * USB mass storage      *
*                                                * device after start    *
*    Device #1            USB DISK 26X           * unit command.         *
*    Emulation Type              [Auto]          *                       *
*                                                *                       *
*                                                *                       *
*                                                *                       *
*                                                *                       *
*                                                *                       *
*                                                * *    Select Screen    *
*                                                * **    Select Item      *
*                                                * +-    Change Option    *
*                                                * F1    General Help     *
*                                                * F10   Save and Exit    *
*                                                * ESC   Exit             *
*                                                *                       *
*                                                *                       *
*************************************************************************
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```

USB Mass Storage Reset Delay

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

Optimal and Fail-Safe default settings: 20 Sec

Emulation Type

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

Optimal and Fail-Safe default settings: Auto

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Chapter **4**

PCI/PnP Setup

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4. PCI/PnP Setup

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

```
Main     Advanced    PCIPnP    Boot    Security    Chipset    OEM FEATURE    *
***************************************************************************
* Advanced PCI/PnP Settings                      * Clear NVRAM during    *
* ********************************************** * System Boot.          *
* WARNING: Setting wrong values in below sections  *                     *
*          may cause system to malfunction.        *                     *
*                                                  *                     *
* Clear NVRAM                      [No]            *                     *
* Plug & Play O/S                  [No]            *                     *
*                                                  *                     *
*                                                  *                     *
*                                                  *                     *
*                                                  *                     *
*                                                  *                     *
*                                                * *   Select Screen     *
*                                                * **   Select Item      *
*                                                * +-   Change Option     *
*                                                * F1   General Help      *
*                                                * F10  Save and Exit     *
*                                                * ESC  Exit              *
*                                                *                        *
*                                                *                        *
***************************************************************************
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```

Clear NVRAM

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

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

Optimal and Fail-Safe default settings: No

Plug and Play O/S

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

Optimal and Fail-Safe default settings: No

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Chapter **5**

Boot Setup

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5. Boot Setup

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

```
 Main    Advanced    PCIPnP    Boot    Security    Chipset    Power           *
********************************************************************************
* Boot Settings                                    * Configure Settings      *
* ************************************************* * during System Boot.     *
* * Boot Settings Configuration                    *                         *
*                                                  *                         *
* * Boot Device Priority                           *                         *
* * Hard Disk Drives                               *                         *
* * Removable Drives                               *                         *
* * CD/DVD Drives                                  *                         *
* * USB Drives                                     *                         *
* * Network Drives                                 *                         *
*                                                  *                         *
*                                                  *                         *
*                                                  * *     Select Screen     *
*                                                  * **     Select Item      *
*                                                  * Enter Go to Sub Screen  *
*                                                  * F1    General Help      *
*                                                  * F10   Save and Exit     *
*                                                  * ESC   Exit              *
*                                                  *                         *
*                                                  *                         *
********************************************************************************
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```

BOOT SETTINGS CONFIGURATION SCREEN

This screen provides functions for specifying particular boot configuration settings.

```
                              Boot                                          *
*****************************************************************************
* Boot Settings Configuration                    * Allows BIOS to skip     *
* ********************************************    * certain tests while     *
* Quick Boot                   [Enabled]         * booting. This will      *
* Quiet Boot                   [Disabled]        * decrease the time       *
* AddOn ROM Display Mode       [Force BIOS]      * needed to boot the      *
* Bootup Num-Lock              [On]              * system.                 *
* Wait For 'F1' If Error       [Disabled]        *                         *
* Hit 'DEL' Message Display    [Enabled]         *                         *
* Interrupt 19 Capture         [Disabled]        *                         *
* Retry Boot Sequence          [Enabled]         *                         *
*                                                *                         *
*                                                *                         *
*                                                *    Select Screen        *
*                                                * **   Select Item        *
*                                                * +-   Change Option       *
*                                                * F1   General Help        *
*                                                * F10  Save and Exit       *
*                                                * ESC  Exit                *
*                                                *                         *
*                                                *                         *
*                                                *                         *
*****************************************************************************
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```

Quick Boot SDO

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

Optimal and Fail-Safe default settings: Enabled

Quiet Boot SDO

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

Optimal and Fail-Safe default settings: Disabled

Add-On ROM Display Mode

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

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

Optimal and Fail-Safe default settings: Force BIOS

Boot-Up Num-Lock

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

Optimal and Fail-Safe default settings: On

Wait for 'F1' If Error ^{SDO}

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

Optimal and Fail-Safe default settings: Disabled

Hit 'DEL' Message Display

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

Optimal and Fail-Safe default settings: Enabled

Interrupt 19 Capture

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

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

Optimal and Fail-Safe default settings: Disabled

Retry Boot Sequence SDO

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

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

```
                              Boot                                            *
*********************************************************************************
* Boot Device Priority                          * Specifies the boot          *
* ********************************************** * sequence from the           *
* 1st Boot Device           [Removable Dev.]    * available devices.          *
* 2nd Boot Device           [CD/DVD]            *                             *
* 3rd Boot Device           [USB]              * A device enclosed in         *
* 4th Boot Device           [Hard Drive]        * parenthesis has been        *
* 5th Boot Device           [Network]           * disabled in the             *
*                                               * corresponding type          *
*                                               * menu.                       *
*                                               *                             *
*                                               *                             *
*                                               * *      Select Screen         *
*                                               * **     Select Item           *
*                                               * +-     Change Option         *
*                                               * F1     General Help          *
*                                               * F10    Save and Exit         *
*                                               * ESC    Exit                  *
*                                               *                             *
*                                               *                             *
*********************************************************************************
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```

1st - 5th Boot Device SDO

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

SETTING	DESCRIPTION
Removable Device, Hard Drive, USB, CD/DVD, 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 type from this menu.

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

The selection of the physical device boot order within a category is done via the Drives sub-screens 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.

```
                              Boot                                    *
*******************************************************************************
* Hard Disk Drives                         * Specifies the boot       *
*****************************************************   * sequence from the        *
* 1st Drive                 [Not Installed]   * available devices.       *
*                                             *                          *
*                                             *                          *
*                                             *                          *
*                                             *                          *
*                                             *                          *
*                                             *                          *
*                                             *                          *
*                                             *                          *
*                                             *                          *
*                                             * *    Select Screen       *
*                                             * **   Select Item         *
*                                             * +-   Change Option        *
*                                             * F1   General Help         *
*                                             * F10  Save and Exit        *
*                                             * ESC  Exit                 *
*                                             *                          *
*                                             *                          *
*******************************************************************************
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```

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

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

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

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

REMOVABLE DRIVES SCREEN

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

```
┌──────────────────────Boot──────────────────────────────────────────*┐
│**********************************************************************│
│* Removable Drives                          * Specifies the boot     *│
│* ***************************************** * sequence from the       *│
│* 1st Drive                 [Not Installed] * available devices.      *│
│*                                           *                         *│
│*                                           *                         *│
│*                                           *                         *│
│*                                           *                         *│
│*                                           *                         *│
│*                                           *                         *│
│*                                           *                         *│
│*                                           *                         *│
│*                                           * *    Select Screen      *│
│*                                           * **   Select Item        *│
│*                                           * +-   Change Option       *│
│*                                           * F1   General Help       *│
│*                                           * F10  Save and Exit      *│
│*                                           * ESC  Exit               *│
│*                                           *                         *│
│*                                           *                         *│
│**********************************************************************│
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└──────────────────────────────────────────────────────────────────────┘
```

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

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

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

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

CD/DVD DRIVES SCREEN

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

```
                             Boot                                      *
***********************************************************************
* CD/DVD Drives                               * Specifies the boot    *
* ****************************************** * sequence from the     *
* 1st Drive            [Not Installed]        * available devices.    *
*                                             *                       *
*                                             *                       *
*                                             *                       *
*                                             *                       *
*                                             *                       *
*                                             *                       *
*                                             *                       *
*                                             *                       *
*                                             * *    Select Screen    *
*                                             * **   Select Item      *
*                                             * +-   Change Option     *
*                                             * F1   General Help      *
*                                             * F10  Save and Exit     *
*                                             * ESC  Exit              *
*                                             *                       *
*                                             *                       *
***********************************************************************
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```

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

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

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

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

USB DRIVES SCREEN

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

```
                                    Boot                                        *
*********************************************************************************
* USB Drives                                      * Specifies the boot         *
* *********************************************** * sequence from the          *
* 1st Drive                   [USB: USB DISK 25X] * available devices.         *
*                                                 *                            *
*                                                 *                            *
*                                                 *                            *
*                                                 *                            *
*                                                 *                            *
*                                                 *                            *
*                                                 *                            *
*                                                 *                            *
*                                                 *                            *
*                                                 * *    Select Screen         *
*                                                 * **   Select Item           *
*                                                 * +-   Change Option         *
*                                                 * F1   General Help          *
*                                                 * F10  Save and Exit         *
*                                                 * ESC  Exit                  *
*                                                 *                            *
*                                                 *                            *
*********************************************************************************
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```

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

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

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

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

NETWORK DRIVES SCREEN

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

```
                              Boot                                            *
*********************************************************************************
* Network Drives                          * Specifies the boot               *
* *************************************** * sequence from the               *
* 1st Drive            [Network:IBA GE Slo] * available devices.            *
* 2nd Drive           [Network:IBA GE Slo] *                                *
* 3rd Drive           [Network:IBA GE Slo] *                                *
* 4th Drive           [Network:IBA GE Slo] *                                *
*                                          *                                *
*                                          *                                *
*                                          *                                *
*                                          *                                *
*                                          *                                *
*                                          * *    Select Screen            *
*                                          * **   Select Item              *
*                                          * +-   Change Option            *
*                                          * F1   General Help             *
*                                          * F10  Save and Exit            *
*                                          * ESC  Exit                     *
*                                          *                                *
*                                          *                                *
*                                          *                                *
*********************************************************************************
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```

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

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

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

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

Chapter *6*

Security Setup

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6.   Security Setup

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

```
 Main    Advanced   PCIPnP    Boot   Security  Chipset   Power          *
*********************************************************************************
* Security Settings                              * Install or Change the  *
* ********************************************** * password.               *
* Supervisor Password :Not Installed             *                         *
* User Password       :Not Installed             *                         *
*                                                *                         *
* Change Supervisor Password                     *                         *
* Change User Password                           *                         *
*                                                *                         *
* Boot Sector Virus Protection    [Disabled]     *                         *
*                                                *                         *
*                                                *                         *
*                                                *                         *
*                                                * *     Select Screen      *
*                                                * **     Select Item       *
*                                                * Enter Change             *
*                                                * F1    General Help       *
*                                                * F10   Save and Exit      *
*                                                * ESC   Exit               *
*                                                *                         *
*                                                *                         *
*********************************************************************************
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```

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 per-form the following:

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

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

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

   A popup display appears again requesting password confirmation.

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

   A popup display appears confirming the installation of the password.

   The following two new functions appear on the screen:
   • User Access Level
   • Password Check

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

4. Record the Supervisor password for future reference.

Change User Password

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

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

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

2. Type the password and press <Enter>

   A popup display appears again requesting password confirmation.

3. Type the password again and press <Enter>

   A popup display appears confirming the installation of the password.

   The following new functions appear on the screen:
   • Password Check
   • Clear User Password

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

4. Record the User password for future reference.

Clearing a Supervisor/User Password

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

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

   A popup display appears requesting entry the new password.

2. Press <Enter> again without making any entries

   A popup display appears confirming the deinstallation of the password.

3. Press <Enter>.

User Access Level

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

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

Optimal and Fail-Safe default setting: Full Access

Password Check

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

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

Optimal and Fail-Safe default setting: Setup

Boot Sector Virus Protection

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

Optimal and Fail-Safe setting: Disabled

AMC Module Password Support

Two Levels of Password Protection

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

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

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

Remember the Password

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

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

Chapter **7**

Chipset Setup

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7.   Chipset Setup

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

```
  Main     Advanced    PCIPnP     Boot     Security    Chipset    OEM FEATURE    *
*************************************************************************************
* Advanced Chipset Settings                         * Configure South Bridge *
* ************************************************** * features.               *
* WARNING: Setting wrong values in below sections   *                         *
*          may cause system to malfunction.         *                         *
*                                                   *                         *
* * SouthBridge Configuration                       *                         *
*                                                   *                         *
*                                                   *                         *
*                                                   *                         *
*                                                   *                         *
*                                                   *                         *
*                                                   *                         *
*                                                   * *    Select Screen      *
*                                                   * **     Select Item      *
*                                                   * Enter Go to Sub Screen  *
*                                                   * F1     General Help     *
*                                                   * F10    Save and Exit    *
*                                                   * ESC    Exit             *
*                                                   *                         *
*                                                   *                         *
*************************************************************************************
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```

SOUTHBRIDGE CONFIGURATION SCREEN

This screen provides functions for specifying configuration settings.

```
                                        Chipset                              *
********************************************************************************
* South Bridge Chipset Configuration        * Allows BIOS to Select  *
* ***************************************** * ICH Serial I/O Unit     *
*                                           * Serial Port1 Base       *
*                                           * Addresses.              *
* ICH SIO Serial Port1 Address  [3F8/IRQ4]  *                         *
* ICH SIO Serial Port2 Address  [2F8/IRQ3]  *                         *
*                                           *                         *
*                                           *                         *
*                                           *                         *
*                                           *                         *
*                                           *                         *
*                                           *                         *
*                                           * *    Select Screen      *
*                                           * **    Select Item       *
*                                           * +-    Change Option      *
*                                           * F1    General Help       *
*                                           * F10   Save and Exit      *
*                                           * ESC   Exit               *
*                                           *                         *
*                                           *                         *
********************************************************************************
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```

ICH SIO Serial Port1 Address

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

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

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

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

ICH SIO Serial Port2 Address

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

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

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

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

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Chapter　**8**

OEM Feature

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8.   OEM Feature

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

```
 Main    Advanced    PCIPnP    Boot    Security    Chipset   OEM FEATURE       *
********************************************************************************
* Kontron Features                                * Spread spectrum           *
* ************************************************ * typically reduces         *
* * Clock Spreading                               * system EMI.               *
* * LAN Boot                                      *                           *
* * System INFO                                   * Note: Clock spreading     *
* * Setup Default Configuration                   * may cause problems        *
* * Write protection                              * with some PCI and         *
* * PCIe Config                                   * PCIe devices.             *
* * Watchdog                                      *                           *
* * AM4010 LED control                            *                           *
*                                                 *                           *
*                                                 *                           *
*                                                 * *    Select Screen        *
*                                                 * **     Select Item        *
*                                                 * Enter Go to Sub Screen    *
*                                                 * F1    General Help        *
*                                                 * F10   Save and Exit       *
*                                                 * ESC   Exit                *
*                                                 *                           *
*                                                 *                           *
********************************************************************************
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```

CLOCK SPREADING SCREEN

This screen provides one function for specifying a configuration setting.

```
*                                                OEM FEATURE    *
*********************************************************************
* Enable clock spreading.                    * Enable clock spreading *
* ***************************************** * Spread spectrum         *
* Spread Spectrum Modulation    [Disabled]  * typically reduces       *
*                                            * system EMI.             *
*                                            *                         *
*                                            * Note: When Clock        *
*                                            * Spreading enabled,      *
*                                            * than the AMC PCIe       *
*                                            * Port does not work!     *
*                                            *                         *
*                                            *                         *
*                                            *                         *
*                                            * *     Select Screen     *
*                                            * **    Select Item       *
*                                            * +-    Change Option      *
*                                            * F1    General Help      *
*                                            * F10   Save and Exit     *
*                                            * ESC   Exit              *
*                                            *                         *
*                                            *                         *
*********************************************************************
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```

Spread Spectrum Modulation SDO

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

Optimal and Fail-Safe default setting: Disabled

LAN BOOT SCREEN

This screen provides two functions for specifying configuration settings.

```
   Main     Advanced    PCIPnP    Boot    Security    Chipset    OEM FEATURE
*******************************************************************************
* LAN Boot                                          * Choosing any option    *
* ****************************************************** * adds network booting  *
* LAN Boot                        [Disabled]        * device(s) to Boot      *
* Interface for LAN Boot          [All]             * menu after reset       *
*                                                   *                        *
*                                                   *                        *
*                                                   *                        *
*                                                   *                        *
*                                                   *                        *
*                                                   *                        *
*                                                   *                        *
*                                                   * →←   Select Screen      *
*                                                   * ↓↑   Select Item        *
*                                                   * +-   Change Option      *
*                                                   * Enter Go to Sub Screen  *
*                                                   * F1   General Help       *
*                                                   * F10  Save and Exit      *
*                                                   * ESC  Exit               *
*                                                   *                        *
*                                                   *                        *
*******************************************************************************
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```

LAN Boot ᔆᴰᴼ (AM5010)

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

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

Optimal and Fail-Safe default setting: Disabled

Interface for LAN Boot (AM4010 / AM4011)

This function is used to select the Ethernet interface to be used for PXE booting.

SETTING	DESCRIPTION
All	Use this setting to specify that all available Ethernet ports are to be considered for PXE booting.
GbE A	Use this setting to specify PXE booting only from this Ethernet port.
GbE B	Use this setting to specify PXE booting only from this Ethernet port.
GbE C	Use this setting to specify PXE booting only from this Ethernet port.
GbE D	Use this setting to specify PXE booting only from this Ethernet port.

Optimal and Fail-Safe default setting: All

SYSTEM INFO SCREEN

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

```
                                                          OEM FEATURE        *
**********************************************************************************
* System INFO                              * Onboard DIP Switch       *
* ***************************************** * configuration            *
* Board Version    : A2h                   *                          *
*   Expected for AM4010 = A2h              *                          *
* Logic Index      : 0                     *                          *
* Hardware Index   : 0                     *                          *
*                                          *                          *
* Serial Number    :                       *                          *
* Material Number  :                       *                          *
* Index            :                       *                          *
* ***************************************** *                          *
* CPU Micro Code   : 0050h                 *                          *
* CPU ID           : 06ECh                 * *    Select Screen        *
* ***************************************** * **    Select Item         *
* Geographic Address: 0                    * Enter Go to Sub Screen *
* AMC Ext. Options Region: Enabled         * F1    General Help       *
* BIOS boot from: FWH1                     * F10   Save and Exit      *
* ***************************************** * ESC   Exit               *
* * Onboard DIP Switch configuration       *                          *
*                                          *                          *
**********************************************************************************
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```

Board Version

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

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

Material Number

This function provides Kontron internal information about the board.

Index

This function provides Kontron internal information about the board.

CPU Micro Code

This function provides the current CPU microcode revision.

CPU ID

This function provides the ID of the current installed CPU.

Geographic Address

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

AMC Ext. Options Region

This function indicates whether the AMC Extended Options Region is enabled or disabled.

BIOS Boot from

This function indicates which Firmware Hub (FWH) is to be used by the BIOS for booting. BIOS can either boot from FWH1 or FWH2.

Onboard DIP Switch Configuration

This function is used to display the onboard DIP switch settings. To display the settings, select this function and press <Enter>. See the screen below for example settings.

```
                                                        OEM FEATURE        *
*****************************************************************************
* Switch      Function          on/off        *                           *
*   1    POST Code during bootup   OFF         *                           *
*   2    BIOS FWH configuration    OFF         *                           *
*   3    Boot order configuration  OFF         *                           *
*   4    Clear BIOS CMOS           OFF         *                           *
*                                              *                           *
*                                              *                           *
*                                              *                           *
*                                              *                           *
*                                              *                           *
*                                              *                           *
*                                              *  *    Select Screen       *
*                                              *  **    Select Item        *
*                                              *  F1    General Help        *
*                                              *  F10   Save and Exit       *
*                                              *  ESC   Exit                *
*                                              *                           *
*                                              *                           *
*                                              *                           *
*****************************************************************************
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```

SETUP DEFAULT CONFIGURATION SCREEN

This screen provides functions for specifying BIOS setup Optimal and Fail-Safe default override settings.

```
                                                    OEM FEATURE         *
*******************************************************************************
* Setup Default Configuration                  * Write current settings *
* *******************************************   * to EEPROM              *
* Store current settings         [No]          * configuration Block.   *
* Clear Configuration Block       [No]          *                        *
* *******************************************   *                        *
* Override Structure present    : YES          *                        *
* Kontron EEPROM Release Version: 00FFh         *                        *
* OEM EEPROM Release Version     : 00FFh        *                        *
* Config Block Activation Flag   : 00FFh        *                        *
*                                              *                        *
*                                              *                        *
*                                              *                        *
*                                              * *     Select Screen    *
*                                              * **    Select Item      *
*                                              * +-    Change Option     *
*                                              * F1    General Help      *
*                                              * F10   Save and Exit     *
*                                              * ESC   Exit              *
*                                              *                        *
*                                              *                        *
*******************************************************************************
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```

Note: Function settings that are included in the setup default override are indicated by the letters SDO after the function: e.g. **Remote Access** ᔆᴰᴼ

Store current settings

This function is used to specify that the current BIOS settings which are included in the setup default override are to be stored as override settings for Optimal and Fail-Safe defaults.

SETTING	DESCRIPTION
No	This is the BIOS default setting and is automatically set to "No" during the next boot operation.
Yes	Use this setting to enable storing of current settings during the next boot operation

Optimal and Fail-Safe default settings: No

Clear Configuration Block

This function is used to clear the previously stored settings in the setup default override configuration block. When cleared, the Optimal and Fail-Safe default settings are no longer overridden when used for booting. Clearing the configuration block does not affect the current settings in use.

SETTING	DESCRIPTION
No	This is the BIOS default setting and is automatically set to "No" after the configuration block is cleared.
Yes	Use this setting to enable clearing of the configuration block during the next boot operation.

Optimal and Fail-Safe default settings: No

Override Structure present

This is a display only function which indicates whether an override structure is available or not.

Kontron EEPROM Release Version

This is a display only function which indicates the Kontron release version of the current override structure. The setting of this function is only valid if the override structure was provided by Kontron.

OEM EEPROM Release Version

This is a display only function which indicates the OEM release version of the current override structure.

Config. Block Activation Flag

This is a display only function and is reserved for Kontron internal use.

WRITE PROTECTION SCREEN

This screen provides functions for specifying the BIOS Flash write protection configuration settings.

```
                                                   OEM FEATURE         *
********************************************************************************
* Write protection                            * Write protection for  *
* ******************************************** * BIOS Flash device      *
* Firmware flash      :        [No]           *                        *
* One shot WR enable:          [No]           *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             * *    Select Screen      *
*                                             * **   Select Item        *
*                                             * +-   Change Option      *
*                                             * F1   General Help       *
*                                             * F10  Save and Exit      *
*                                             * ESC  Exit               *
*                                             *                        *
*                                             *                        *
********************************************************************************
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```

Firmware Flash [SDO]

This function is used to provide write protection for the BIOS Flash under all circumstances.

SETTING	DESCRIPTION
No	Use this setting to disable the BIOS Flash write protection. If No is selected, writing to the BIOS Flash device is possible.
Yes	Use this setting to enable BIOS Flash write protection. If Yes is selected, it is not possible to write to the BIOS Flash.

Optimal and Fail-Safe default setting: No

One Shot WR Enable [SDO]

This function is used to enable writing to the BIOS Flash for the current session until the next boot operation. If the Firmware Flash is set to *Yes*, this function can be used to override the BIOS Flash write protection.

SETTING	DESCRIPTION
No	This setting is automatically selected by the BIOS.
Yes	Use this setting to disable BIOS Flash write protection when the Firmware Flash is set to *Yes*. The system sets this function back to *No* automatically after booting.

Optimal and Fail-Safe default setting: No

PCIe CONFIGURATION SCREEN

This screen provides one function for specifying a configuration setting.

```
                                                      OEM FEATURE      *
**********************************************************************
* Additional PCIE Configuration           * Enable or Disable     *
* ***************************************** * the Expansion ROM of  *
* SAS Expansion ROM            [Disabled]  * the SAS Controller on *
*                                          * the AT8400 Carrier    *
*                                          * Board.                *
*                                          *                       *
*                                          *                       *
*                                          *                       *
*                                          *                       *
*                                          *                       *
*                                          *                       *
*                                          *  *    Select Screen   *
*                                          * **    Select Item     *
*                                          * +-    Change Option    *
*                                          * F1    General Help     *
*                                          * F10   Save and Exit    *
*                                          * ESC   Exit             *
*                                          *                       *
*                                          *                       *
**********************************************************************
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```

SAS Expansion ROM

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

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

Optimal and Fail-Safe default setting: Disabled

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

WATCHDOG SCREEN

This screen provides functions for specifying configuration settings.

```
*                                                    OEM FEATURE    *
************************************************************************
* Watchdog Config                          * Watchdog Configuration *
* *******************************************  * Configures the Watchdo *
* Watchdog Configuration      [Disabled]     * Register during POST.  *
* Watchdog Mode               [Timer only]   *                        *
* WD Active Time              [125 ms]        *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             *                        *
*                                             * *     Select Screen    *
*                                             * **    Select Item      *
*                                             * +-    Change Option     *
*                                             * F1    General Help      *
*                                             * F10   Save and Exit     *
*                                             * ESC   Exit              *
*                                             *                        *
*                                             *                        *
************************************************************************
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```

Watchdog Configuration SDO

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

Optimal and Fail-Safe default setting: Disabled

Active for Boot SDO

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

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

Optimal and Fail-Safe default setting: Disabled

Watchdog Mode ^{SDO}

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

Optimal and Fail-Safe default setting: Timer Only

Interrupt Config ^{SDO}

Use this function to specify the type of interrupt used when the Watchdog is operated in Interrupt or Cascade mode.

SETTING	DESCRIPTION
Disabled	Use this setting to disable this function.
IRQ5	Use this setting to specify that the Watchdog is to generate an IRQ5 interrupt when operated in Interrupt or Cascade mode.
NMI	Use this setting to specify that the Watchdog is to generate a Non-Maskable Interrupt (NMI) when operated in Interrupt or Cascade mode.

Optimal and Fail-Safe default setting: Disabled

WD Active Time ^{SDO}

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

Optimal and Fail-Safe default setting: 125 ms

AM4010 LED CONTROL SCREEN (AM4010)

This screen provides one function for specifying a configuration setting.

```
                                                      OEM FEATURE      *
********************************************************************************
* AM4010 LED control                         * Sets behaviour of the *
* ***************************************** * AM4010 LEDs.           *
* LED Configuration            [DIAG]       *                        *
* ***************************************** *                        *
*         POST          |        MODE A      *                        *
* U-LED0  |   green      |   cont. by HOST    *                        *
* U-LED1  |   green      |   cont. by HOST    *                        *
* U-LED2  |   green      | LNK AMC Ch.B (green) *                      *
* U-LED3  |   green      | LNK AMC Ch.A (green) *                      *
* ***************************************** *                        *
*         MODE B        |        MODE C      *                        *
* U-LED0  | cont. by MMC | LNK AMC Ch.D (green) *                      *
* U-LED1  | cont. by MMC | LNK AMC Ch.C (green) * *     Select Screen  *
* U-LED2  | LNK AMC Ch.B | LNK AMC Ch.B (green) * **    Select Item    *
* U-LED3  | LNK AMC Ch.A | LNK AMC Ch.A (green) * +-    Change Option  *
* ***************************************** * F1    General Help   *
*         DIAG                               * F10   Save and Exit  *
* U-LED0  | WTD running (green) / timeout (amber) * ESC   Exit         *
* U-LED1  | SATA Channels active (green)    *                        *
* U-LED2  | LNK AMC Ch.B (green)            *                        *
********************************************************************************
          v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
```

LED Configuration

This function is used to specify the configuration of the User-Specific LEDs upon completion of booting. For further information, refer to the AMC module's user guide.

SETTING	DESCRIPTION
POST	Use this setting to specify that the LEDs are to remain in the POST display mode.
	In this case, the LEDs reflect the contents of the I/O 80h register.
MODE A	Use this setting to specify mapping of the LEDs to MODE A.
MODE B	Use this setting to specify mapping of the LEDs to MODE B.
MODE C	Use this setting to specify mapping of the LEDs to MODE C.
DIAG	Use this setting to specify mapping of the LEDs to DIAG mode.

Optimal and Fail-Safe default setting: DIAG

Chapter **9**

Exit Menu

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9.   Exit Menu

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

```
* PCIPnP    Boot    Security    Chipset    Power    OEM FEATURE    Exit
*********************************************************************************
* Exit Options                                    * Exit system setup        *
* ***********************************************  * after saving the         *
* Save Changes and Exit                           * changes.                 *
* Discard Changes and Exit                        *                          *
* Discard Changes                                 * F10 key can be used       *
*                                                 * for this operation.       *
* Load Optimal Defaults                           *                          *
* Load Failsafe Defaults                          *                          *
*                                                 *                          *
*                                                 *                          *
*                                                 *                          *
*                                                 *                          *
*                                                 * *     Select Screen       *
*                                                 * **      Select Item        *
*                                                 * Enter Go to Sub Screen    *
*                                                 * F1    General Help        *
*                                                 * F10   Save and Exit       *
*                                                 * ESC   Exit                *
*                                                 *                          *
*                                                 *                          *
*********************************************************************************
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```

Save Changes and Exit

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

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

Discard Changes and Exit

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

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

Discard Changes

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

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

Load Optimal Defaults

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

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

Load Fail-Safe Defaults

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

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

Chapter **10**

POST Codes

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10. POST Codes

For information about the POST code display LEDS, refer to the AMC module's user guide.

Bootblock Initialization Code Checkpoints

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

CHECKPOINT	DESCRIPTION
Before D1	Early chipset initialization is done. Early super I/O initialization is done including RTC and keyboard controller. NMI is disabled.
D1	Perform keyboard controller BAT test. Check if waking up from power management is in suspend state. Save power-on CPUID value in scratch CMOS.
D0	Go to flat mode with 4GB limit and GA20 enabled. Verify the bootblock checksum.
D2	Disable CACHE before memory detection. Execute full memory sizing module. Verify that flat mode is enabled.
D3	If memory sizing module not executed, start memory refresh and do memory sizing in Bootblock code. Do additional chipset initialization. Re-enable CACHE. Verify that flat mode is enabled.
D4	Test base 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 the CMOS with the Fail-Safe values and clear passwords. Initialize status register A. Initializes data variables that are based on CMOS setup questions. Initializes both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
C0	Early CPU Init Start -- Disable Cache - Init Local APIC
C1	Set up boot strap processor Information
C2	Set up boot strap processor for POST
C5	Enumerate and set up application processors
C6	Re-enable cache for boot strap processor
C7	Early CPU Init Exit
0A	Initializes the 8042 compatible Keyboard Controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.
24	Uncompress and initialize any platform specific BIOS modules.
30	Initialize System Management Interrupt.
2A	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that has optional ROMs.
2E	Initializes all the output devices.

CHECKPOINT	DESCRIPTION
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
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 CPU's before boot, which includes the programming of the MTRRs.

CHECKPOINT	DESCRIPTION
A8	Prepare CPU for OS boot including final MTRR values.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module.
AB	Prepare BBS for Int 19 boot.
AC	End of POST initialization of chipset registers.
B1	Save system context for ACPI.
00	Passes control to OS Loader (typically INT19h).

DIM Code Checkpoints

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

CHECKPOINT	DESCRIPTION
2A	Initialize different buses and perform the following functions: Reset, Detect, and Disable (function 0); Static Device Initialization (function 1); Boot Output Device Initialization (function 2). Function 0 disables all device nodes, PCI devices, and PnP ISA cards. It also assigns PCI bus numbers. Function 1 initializes all static devices that include manual configured onboard peripherals, memory and I/O decode windows in PCI-PCI bridges, and non-compliant 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.

Chapter **11**

BIOS Update

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11. BIOS Update

The AMC module provides two redundant 1 MB Firmware hubs (FWH0 and FWH1), which can be updated as newer versions of the BIOS become available. For online downloads, visit the Kontron web site or contact Kontron's Technical Support.

For updating the second Firmware hub, there are different ways to switch over between the two Firmware hubs:

- by using the DIP switch
- by sending a command to the MMC controller via the Shelf Manager
- automatically by using the MMC controller if the Flash image is corrupted

To support the user in updating the Firmware, Kontron provides a Firmware Update CD-ROM, which contains all required software to perform a board BIOS update and an IPMI Firmware update. For further information, contact Kontron's Technical Support.

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