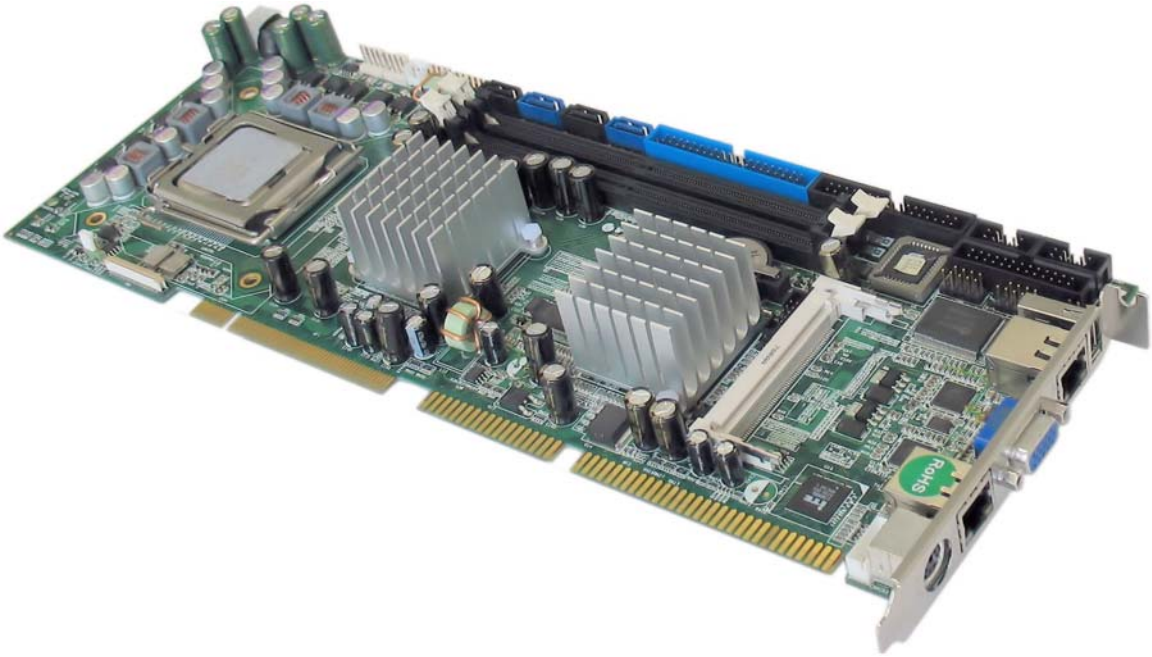
» Kontron User's Guide «



PCI-759 Board

User's Guide (Version V1.02)
0-0096-4281

If it's embedded, it's Kontron.

This page is intentionally left blank.

1. Table of Contents

1.1. Table of Figures

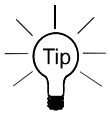
2. Introduction

Kontron Europe would like to point out that the information contained in this manual may be subject to technical alteration, particularly as a result of the constant upgrading of Kontron Europe products. The attached documentation does not entail any guarantee on the part of Kontron Europe with respect to technical processes described in the manual or any product characteristics set out in the manual. Kontron Europe does not accept any liability for any printing errors or other inaccuracies in the manual unless it can be proven that Kontron Europe is aware of such errors or inaccuracies or that Kontron Europe is unaware of these as a result of gross negligence and Kontron Europe has failed to eliminate these errors or inaccuracies for this reason. Kontron Europe expressly informs the user that this manual only contains a general description of technical processes and instructions which may not be applicable in every individual case. In cases of doubt, please contact Kontron Europe.

Kontron Europe GmbH
Oskar-von-Miller-Str. 1

85386 Eching near Munich
Germany

2.1. Symbols used in this Manual

Symbol	Meaning
	This symbol indicates the danger of injury to the user or the risk of damage to the product if the corresponding warning notices are not observed.
	This symbol indicates that the product or parts thereof may be damaged if the corresponding warning notices are not observed.
	This symbol indicates general information about the product and the user manual.
	This symbol indicates detail information about the specific product configuration.
	This symbol precedes helpful hints and tips for daily use.

3. Safety Instructions

3.1. Safety Instructions for the Lithium Battery

The PCI-759 board is equipped with a Lithium battery. For the replacing of this battery please observe the instructions described in the subsection 9.1.5 " Replacing the Lithium Battery".

	**Caution!** Danger of explosion when replaced with wrong type of battery. Replace the battery only with UL recognized Lithium battery that has the same or equivalent type recommended by Kontron.
	Do not dispose of lithium batteries in domestic waste. Dispose of the battery according to the local regulations dealing with the disposal of these special materials (e.g. to the collecting points for the disposal of batteries).

3.2. Basic Safety and EMC Compatibility

The PCI-759 board is a fixed component that shall be installed into a stationary system by applying good engineering practices and respecting the information on the intended use of the components with a view to meeting the protection requirements [refer to (a) and (b)].

The PCI-759 board was designed and manufactured, having regard to the state of the art, as to ensure that:

(a) the electromagnetic disturbance generated does not exceed the level above which radio and telecommunications equipment or other equipment cannot operate as intended;

(b) it has a level of immunity to the electromagnetic disturbance to be expected in its intended use which allows it to operate without unacceptable degradation of its intended use.

The PCI-759 board was designed, manufactured and checked according to the basic safety requirements in the scope of the low-voltage (LVD) directive.

4. Important Instructions

The manufacturer's instructions provide useful information on your PCI-759 board.

4.1. Electrostatic Discharge (ESD)

The components on the board are sensitive to static electricity. Care must therefore be exercised at all times during handling and inspection of the PCI-759 board, in order to ensure the product integrity.

- ❑ Do not handle this product while it is outside its protective enclosure, while it is not used for operational purposes, unless it is otherwise anti-static protected.
- ❑ Unpack or install this product only at EOS/ESD safe workstations. When safe work station are not guaranteed, it is important for the user to be electrically discharged before touching the PCI-759 board with his/her hands or tools. This is most easily done by touching a metal part of your system housing.
- ❑ Only hold the assemblies at the edge.
- ❑ Do not touch any connection pins or conductors on the assembly.

4.2. Note on the Warranty

Due to their limited service life, parts which, by their nature, are especially subject to wear (wearing parts) are not included in the guarantee beyond the legal stipulations. This applies to the batteries, for example.

4.3. Exclusion of Accident Liability Obligation

Kontron Europe shall be exempted from the statutory accident liability obligation if the user fails to observe the safety instructions.

4.4. Liability Limitation / Exemption from the Warranty Obligation

In the event of damage to the device caused by failure to observe the hints in this manual and eventually on the device (especially the safety instructions), Kontron Europe shall not be required to honor the warranty even during the warranty period and shall be exempted from the statutory accident liability obligation.

4.5. General Instruction on Usage

In order to ensure safe operation, the user must observe the instructions and warnings contained in this manual.

- ❑ The PCI-759 board must be used in accordance with the instructions for use.
- ❑ The PCI-759 board is designed to be built-in to a system, which fulfill all necessary technical and environmental requirements.
- ❑ When installing the board into a system, ensure that the system is switched off and the systems power cord is disconnected from the power source. Disconnect all cable connections of peripheral devices from the system.
- ❑ Ensure that the DC operating voltages adheres to the specification given in the section 11.1"Electrical Specifications".
- ❑ Only devices and components which fulfill the requirements of a SELV circuit (security extra low voltage) in accordance with IEC / EN 60950-1 may be connected to the interfaces of the PCI-759 board.
- ❑ If extensions are made to the PCI-759 board, the legal stipulations and the board specifications must be observed.

5. Scope of Delivery

Please check that your package is complete, and contains the items below (according to the ordered unit configuration). If you discover damaged or missing items, please contact your dealer.

- ❑ 1x PCI-759 Board PICMG 1.0 (full-size)
- ❑ 1x Safety Instructions

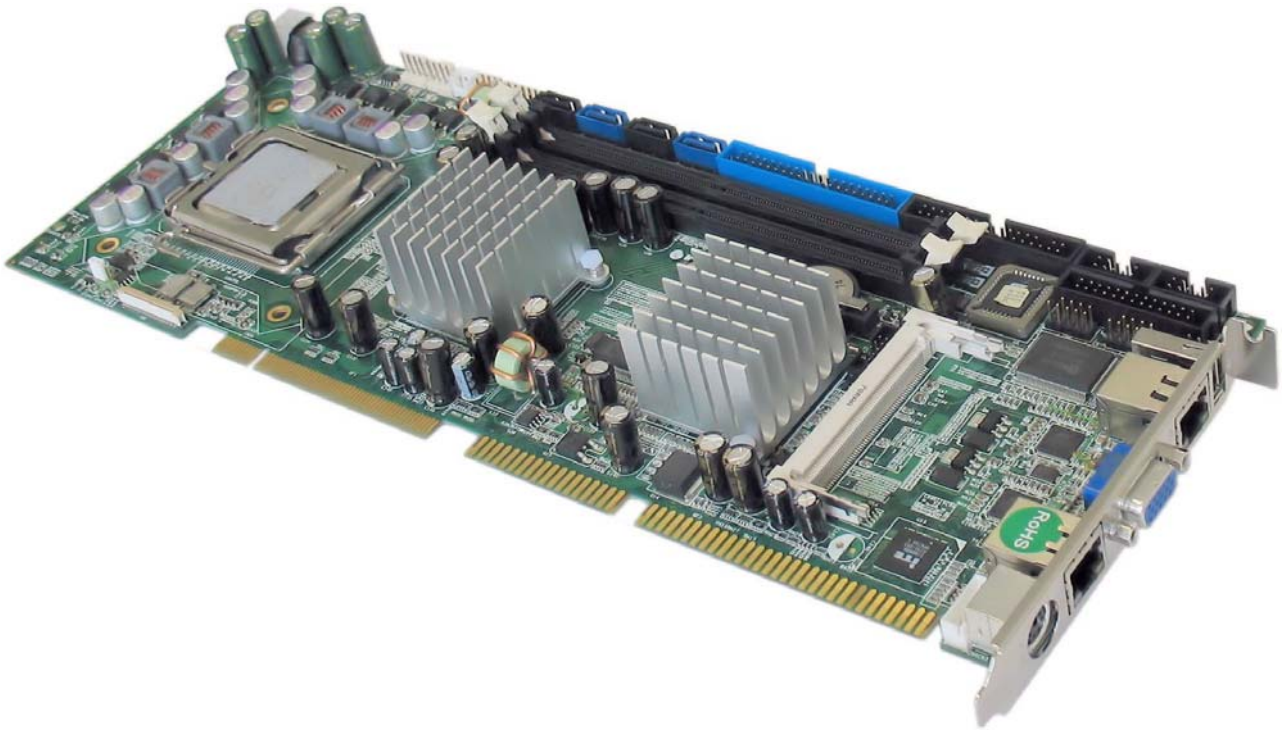


Fig. 1: PCI-759 board

Optional

- ❑ PCI-759 board with CompactFlash™ connector (rear side location)
- ❑ 1x Cable Set (Accessories)
- ❑ HD Audio daughter board

5.1. Labeling Information

Two types of printed labels on the PCI-759 board must show the following information:

1. Board identification label that has implemented: Board Designation/Serial Number/Part Number/Product Revision/QM-Field/Bar Code/Datamatrix Code
2. 2x MAC-Address Label

6. Features

The PCI-759 is a full-size PICMG 1.0 form factor single-processor system host board based on the Intel® 945G chipset with ICH7 I/O Controller Hub. It supports the Intel® Core™2 Duo or Celeron® S Processor on the LGA775 socket. Chipset features include 1066/800/533MHz Front Side Bus, 2 DIMMs Dual Channel DDR2 667/533/400 MHz up to 4 GB, Intel® Express Graphics Memory Controller Hub with VGA up to 2048x1536x8bit at 75Hz and 24-bit LVDS via DVO up to 1600x1200.

I/O features of the PCI-759 include onboard Gigabit Ethernet, one channel EIDE Ultra DMA, ATA/133 (optional CompactFlash™ shared for CompactFlash™ Type-II), 4x SATAII 3Gb/s, MiniPCI slot , 32-bit/33MHz PCI bus, two UART compatible serial ports, parallel port, floppy drive port, PS/2 Keyboard and Mouse. Only one floppy device can be connected to the FDD connector.

Only one floppy device can be connected to the FDD connector.

The PCI-759 board supports Intel High Definition Audio via the onboard Audio interface connector and an additional (not included) HD Audio daughter board).

Form Factor:

- Full size SHB PICMG 1.0 form factor (13.33 x 4.8 inch).

Processor (CPU):

Intel® Core™ 2 Duo

- 533/800/1066 MHz FSB (**F**ront **S**ide **B**US)
- FC-LGA6 package
- 4MB, L2 Cache
- Auto-selection of CPU frequency and core voltage

Processor Socket: LGA 775

Memory

- Dual-Channel DDR2 memory architecture, un-buffered, non-ECC
- 2x DDR2 DIMM 240-pin slots for up to 4GB 400/533/667 MHz DDR2 SDRAM
- Memory type: 512Mb, 1GB DDR2, 2GB DDR2-SDRAM technologies

Chipset: Intel® 945G GMCH and Intel® I/O Controller Hub 7 (ICH7)

The **Intel® 945G GMCH** provides:

- Support for Intel® Core™2 Duo and Intel® Celeron S Processor with Hyper-Threading Technology
- 1066/800/533 MHz system bus
- Support for Dual Channel DDR2 400/533/667 memory, up to 4 GB
- Intel® Graphics Media Accelerator 950 (Intel® GMA 950 graphics) provides stunning media, incredible visuals and new 3D capabilities
- Direct Media Interface (DMI) between GMCH and ICH7 delivers up to 2.0 GB/s concurrent bandwidth between the memory and I/O controller

The Intel® 945G GMCH also features the Graphics Media Accelerator 950 technology with VGA up to 2048x1536x8bit at 75Hz, 24-bit LVDS via DVO up to 1600x1200, and PCI Express.

- 256-bit graphics core, 8/16/32 bpp, up to 8.5 GB/sec memory bandwidth with DDR2 533 MHz, and 1.3 GP/sec and 1.3 GT/sec fill rate
- 128 MB maximum video memory
- 400 MHz DAC frequency for up to 2048x1526 at 75 Hz maximum resolution for both analog and digital displays
- Dynamic Display Modes for flat-panel and wide-screen support
- Two Serial Digital Video Out (SDVO) ports for flat-panel monitors
- Multiple display types for dual monitor capabilities

The **Intel® I/O Controller Hub 7 (ICH7)** provides:

- PCI Express Base Specification, Rev. 1.0a compliant
- PCI Local Bus Specification, Rev. 2.2 compliant with support for 33MHz PCI operations
- ACPI Revision 1.0 compatible Power Management
- Supports system states: S0, S1D, S4 and S5
- Enhanced DMA controller, Interrupt controller, and timer functions
- Integrated Serial ATA host controller with independent DMA operations on four ports
- Integrated IDE controller supporting Ultra ATA 100/66/33
- USB host interface with support for up to 8 USB ports; two UHCI host controllers; one EHCI high-speed USB 2.0 Host controller
- SMBus Specification, Ver. 2.0 with additional support for I2C devices
- Support for Intel High Definition Audio
- Low Pin Count (LPC) interface
- Firmware Hub (FWH) interface support

BIOS

- AMI Flash BIOS FWH (8Mb ROM)
- SMIBIOS (DMI) compliant
- Boot from LAN [PXE (Pre-Boot Execution Environment) Booting] support

Onboard Gigabit Ethernet Control

The PCI-759 provides two 10/100/1000BASE-T Ethernet interfaces via two Marvell 88E8053 Ethernet Controllers.

- Two Marvell 88E8053 10/100/1000BASE-T Ethernet Controllers (PCIe x1)
- Compliant with 802.3x flow control support
- IEEE 802.1p and 802.1q support
- 10/100/1000 IEEE 802.3 compliance
- Wake on LAN (WOL) power management support
- ACPI 2.0 specification compliance
- Serial Peripheral Interface (SPI) for remote boot (PXE)
- LAN disable implemented under software control

I/O Control

The Winbond W83627EHF Super I/O provides the following functionality.

- Two UART serial ports, parallel port, floppy drive port, PS/2 keyboard/mouse interface
- Watchdog Timer: 1 to 255 step, (sec/min), software programmable
- Hardware Monitor: The W83627EHF Super I/O provides temperature, fans, and voltage monitor.

7. Functional Diagram

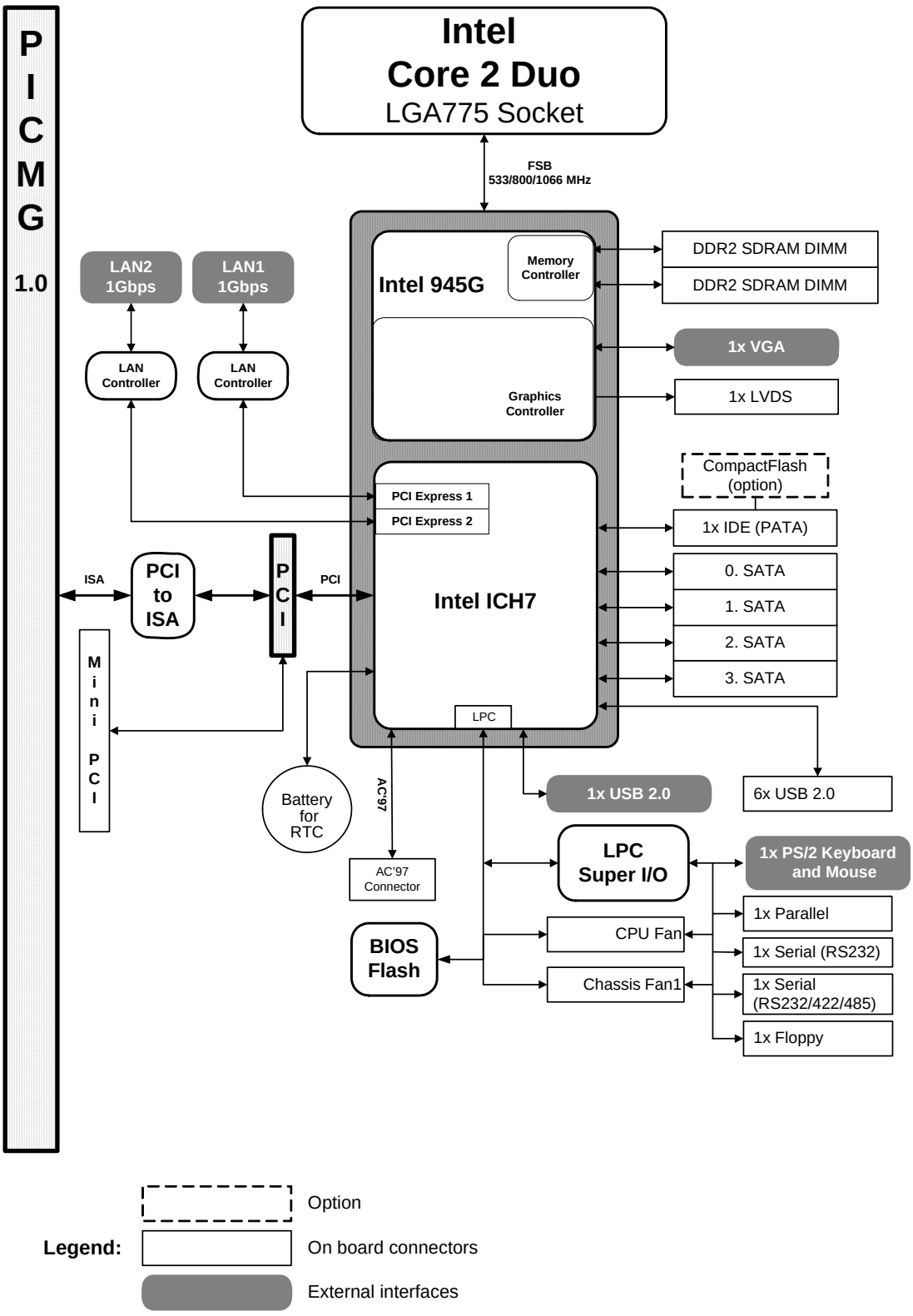


Fig. 2: PCI-759 - Functional diagram

8. Memory Installation

The PCI-759 board supports two 240 pin DDR2 DIMM sockets for up to a total memory of up to 4GB DDR2 SDRAM. The single/double sided memory modules can be user-defined combined in sizes of 256MB, 512MB up to maximum 2GB pro DDR2 DIMM socket.

The majority of systems supporting dual-channel memory can be configured in either single-channel or dual-channel memory mode.

The speed used in all channels is the speed of the slowest DIMM in the system.

Only around a memory of 3.5 GB is usable for most of 32 bit operating systems.

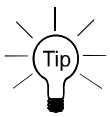
The DIMM0 (nearest positioned to the CPU) must be fitted first for AMT and QST feature.

For the best dual-channel memory performance on boards with the Intel dual-channel DDR2 chipsets must be used identically paired memory modules in channel A and B.

We recommend installing into the board DDR2 DIMM sockets a dual channel kit (identically manufacturer, capacity, speed, number of chips and modules).

Prerequisites for dual-channel memory configuration:

1. Both modules are the same capacity (e.g. both are 256MB or 512MB)
2. Both modules are the same speed (e.g. both are PC2700 or PC3200)
3. Both have the same number of chips and module sides (e.g. both have the same number of chips on the module, and both are either single-sided or double-sided).



If other memory configuration is used, the system will revert to the single-channel memory mode (lower-performing mode).

The speed of the bus clock and the timing of the memory access for the main memory (RAM) are given by the slowest DDR2 DIMM Module built-in the system.

9. Jumpers and Connectors Overview

The jumpers and connectors of the PCI-759 board will be described in detail below.

Signals suffixed by a pound (#) are active-low.

All headers will have a pitch of 0.100" (2.54mm), otherwise noted different.

Connectors on the I/O Panel	
USB	USB6 Connector
LAN	Ethernet1 Connector
VGA	VGA Connector
LAN2	Ethernet2 Connector
PS/2Kb&Ms.	PS2 Keyboard/Mouse (CN3)
On-Board Jumpers	
JP1	Jumper for LCD (LVDS) power selection (+3.3V or +5.0V)
JP2	RTC Reset (Clear CMOS)
JP3	(Option) CompactFlash Configuration (Master or Slave)
pins 6 and 8 (FP1)	The pins 6 and 8 of the FP1 shorted: internal speaker is enabled (default).
On-Board Connectors	
FP1	Reset, HDD LED, internal & external speaker (2x4-pin)
FP2	Power Button, Power LED, KB.-Lock, I2CSMBUS (2x5-pin)
CN1	ATX Power Control Connector (2-pin)
CN2	Dual Channel LVDS Connector [JILI New] (40-pin)
CN5	Audio Connector (10-pin) (Line-in, Line-out, Mic.)
CN6	USB header (USB0+USB1) (9-pin+key)
CN7	USB header (USB2+USB3) (9-pin+key)
CN8	USB header (USB4+USB5) (9-pin+key)
CN9	ITP Connector (28-pin) (located on the bottom side)
IDE	IDE (40-pin)
CF	(IDE Option): CompactFlash Connector (50-pin) (located on the rear side)
SATA1	SATA1 Connector
SATA2	SATA2 Connector
SATA3	SATA3 Connector
SATA4	SATA4 Connector
FDD	Floppy Connector (34-pin)
COM1	Serial Connector COM1(10-pin)
COM2	Serial Connector COM2 (10-pin)
LPT	Parallel Connector LPT (26-pin)
FAN1	CPU-Fan Connector, 12V (4-pin)
FAN2	Fan Connectors, 12V (4-pin)

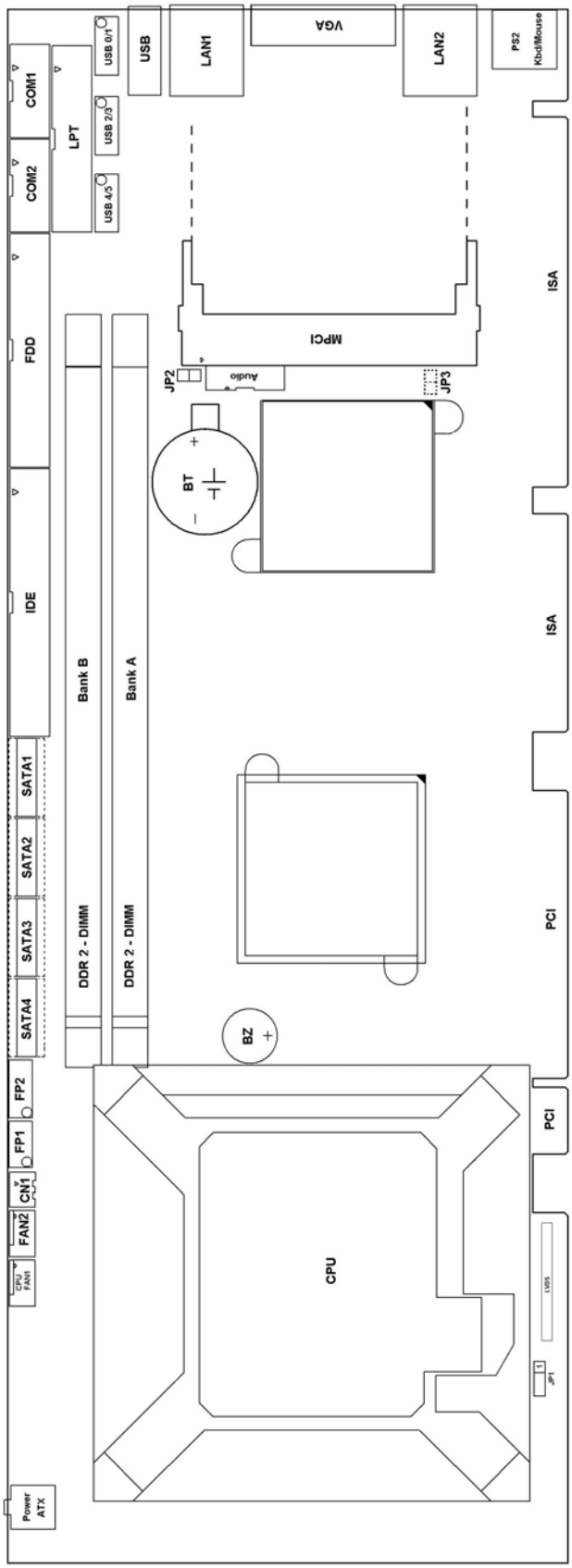


Fig. 3: PCI-759 - Jumpers and connectors location

9.1.1. Connectors located on Slot Bracket

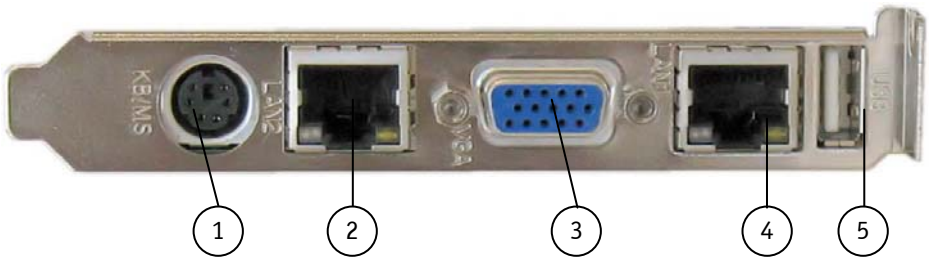


Fig. 4: PCI-759 - Slot Interfaces

1 PS/2 keyboard and mouse connector

2 LAN1 connector

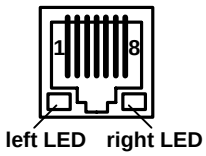
3 VGA connector

4 LAN2 connector

5 USB2.0 connector

9.1.1.1. LAN1 and LAN2: Gigabit Ethernet Connectors

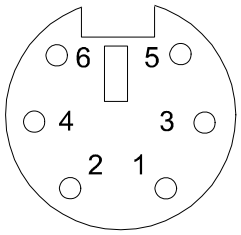
The slot bracket of the PCI-759 board is equipped with two LAN connectors. These interface connectors are provided as RJ45-sockets with integrated LEDs. The data transfer rate for the LAN communication is up to 10/100/1000Mbps.

Pin#		LAN1 and LAN2 Signal Name	RJ45 (female)
1		MDI0+	
2		MDI0-	
3		MDI1+	
4		MDI2+	
5		MDI2-	
6		MDI1-	
7		MDI3+	
8		MDI3-	
LED left	yellow	LINK / ACTIVE	
LED right	orange	Link1000	
	green	Link100	
	off	Link10	

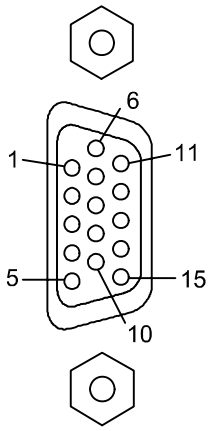
9.1.1.2. CN3: PS/2 Combined Keyboard and Mouse Connector

To this PS/2 connector you can connect:

- ❑ a PS/2 keyboard (without using the Y-adapter cable) or
- ❑ a PS/2 mouse (only by use of the Y adapter cable) or
- ❑ a PS/2 mouse and a PS/2 keyboard (only by use of the Y adapter cable)

Pin	Signal Name	6-pin MiniDIN socket
1	Keyboard data	
2	Mouse data	
3	GND	
4	+5 V	
5	Keyboard clock	
6	Mouse clock	

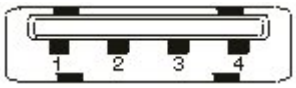
9.1.1.3. VGA Interface - Connector

Pin	Signal Name	15-pin D-SUB socket (female)
1	red	
2	green	
3	blue	
4	pulled to VCC	
5, 6, 7,8,10	GND	
9	+5 V fused *	
11	pulled to VCC	
12	DDC-SDA *	
13	HSYNC	
14	VSYNC	
15	DDC-SCL *	

*** used for DDC**

9.1.1.4. USB Interface - Connector

The slot bracket of the PCI-759 board provides an external USB 2.0/1.1 port (USB6 and USB7). This connector allows connection of USB devices to the board (slot bracket).

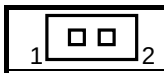
Pin	Signal Name	4-pin USB Socket Type A Version 2.0/1.1
1	VCC, fused	
2	Data-	
3	Data+	
4	GND	

9.1.2. Jumpers on the PCI-759

The jumpers on the PCI-759 allow you to configure your CPU card according to the needs of your applications.

In order to change a jumper setting, turn off the computer using the ATX-power supply switch. If your power supply has no On/Off switch, disconnect the main power source. The board otherwise could be damaged.

The following examples show the conventions used in this section.

	Jumper Open
	Jumper Closed

9.1.2.1. JP1: Jumper for the LCD (LVDS) Power Selection (+3.3V or +5.0V)

This jumper allows you to select the required power for the LCD (LVDS) to +3.3V or +5.0V.

JP1: 3-Pin Row DIP 3-pin	Setting	Function
	Pin 2-3 (Short/Closed)	Power for LCD is +3.3V (Default setting)
	Pin 1-2 (Short/Closed)	Power for LCD is +5.0V

9.1.2.2. JP2: Jumper for RTC Reset (Clear CMOS Content)

This jumper allows you to clear the data (such as system password, date, time, and system setup parameters) in CMOS.

In order to change a jumper setting, please turn off the computer and unplug the power source to the board. Otherwise, the board could be damaged.

The board might not start with this jumper in "closed" position.

JP2: Pin Row, DIP 2-pin	Setting	Function
	Pin 1-2 Open (Default)	Normal Operation
	Pin 1-2 Short/Closed	Clear CMOS Content

For clearing of content, please wait 10 sec.

9.1.2.3. JP3: CF Card Master/Slave Selecting (Option)

This jumper is used to select if the CompactFlash™ is master or slave device to the primary IDE.

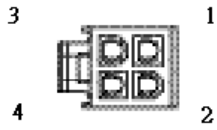
JP3: 2-pin Row	Pin	Function
	Pin 1-2 Open (Default)	The CF Card is Master
	Pin 1-2 Short/Closed	The CF Card is Slave

☞ While using CompactFlash™-cards, only one device can be used on primary IDE.

9.1.3. Connectors On-Board

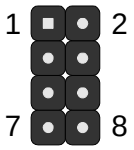
9.1.3.1. ATX: +12V ATX Power Connector

The ATX connector is used to connect the +12V ATX power supply to the board in order to provide power to the CPU.

J31: 4-pin Connector	Pin	Signal Name
	1	GND
	2	GND
	3	+12V
	4	+12V

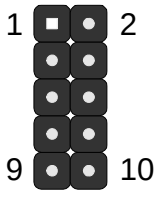
9.1.3.2. FP1 (8-Pin) and FP2 (10-Pin) Front Panel 1 and 2 Connector

A system chassis can be equipped with components, that provide acoustical or/and light indication of the computer activities, and switches to change the computer status. FP1 is an 8-pin box header that provides following connections:

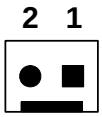
Signal Name	Pin	FP1: Pin Row, 2x4 (male)	Pin	Signal Name
Reset (+)	1	 FP1	2	External Speaker (+)
Reset (-)	3		4	NC
HDLED (+)	5		6	Internal Speaker
HDLED (-)	7		8	External Speaker (-)

The PCI-759 board is delivered with the pins 6-8 of the FP1 shorted: internal speaker is enabled (default).

In order to connect an external speaker, remove the jumper between pin 6 and 8 and connect the wires of the ext. speaker to pins 2 and 8.

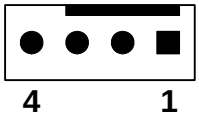
Signal Name	Pin	FP2: Pin Row, 2x10 (male)	Pin	Signal Name
Power LED (+)	1	 FP2	2	Power Button (+)
NC	3		4	Power Button (-)
Power LED (-)	5		6	NC
Keyboard Lock (+)	7		8	reserved
GND	9		10	reserved

9.1.3.3. CN1: ATX Power Control Connector

CN1: JST Connector B2B-XH-A	Pin	Signal Name
	1	PS_ON
	2	5VSB

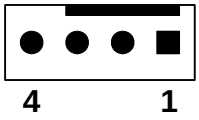
9.1.3.4. FAN1: CPU Fan Power Connector

It is a 4-pin header that allows the connection of the CPU fan. The CPU fan must be a 12V fan (max. 750 mA).

J1: 4-pin Molex Connector (friction lock)	Pin	Signal Name
	1	GND
	2	+12V
	3	Sence
	4	Control

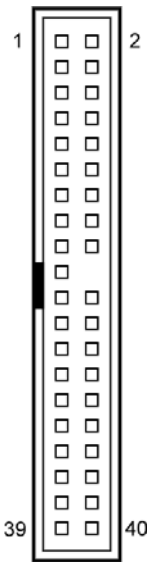
9.1.3.5. FAN2: Chassis Fan2 Power Connector

It is a 4-pin header that allows the connection of a chassis fan. The chassis fan must be a 12V fan (max. 750 mA).

J4:- 4-pin Molex Connector (friction lock)	Pin	Signal Name
	1	GND
	2	+12V
	3	Sence
	4	Control

Also a 3-pin FAN connector cable can be can be connected to each of FAN1 or FAN2. In this case the corresponding fan is operating with full speed.

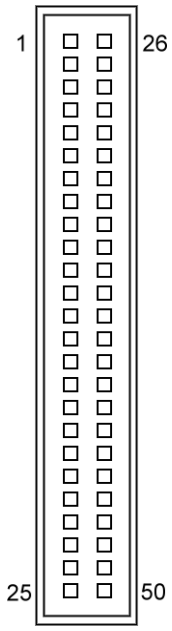
9.1.3.6. IDE: Primary IDE Connector

IDE: Boxed Header, (shrouded), DIP 40-pin	Signal Name	Pin	Pin	Signal Name
	IDE1_RST#	1	2	GND
	PDD7	3	4	PDD8
	PDD6	5	6	PDD9
	PDD5	7	8	PDD10
	PDD4	9	10	PDD11
	PDD3	11	12	PDD12
	PDD2	13	14	PDD13
	PDD1	15	16	PDD14
	PDD0	17	18	PDD15
	GND	19	20	+5V
	PDREQ0	21	22	GND
	PDIOW#	23	24	GND
	PDIOR#	25	26	GND
	PIORDY	27	28	GND permanent
	PDACK#	29	30	GND
	IDE_IRQ14	31	32	IOCS16_IDE#
	PDA1	33	34	80 pos. Cable detection
	PDA0	35	36	PDA2
	PDCS1#	37	38	HPDCS3
	IDEACTP	39	40	GND

9.1.3.7. CF: CompactFlash™ Connector (Option)

The optional CompactFlash™ connector is located on the rear side of the PCI-759 board.

While using CompactFlash™-cards, only one device can be used on primary IDE. In order to configure the IDE (PATA) device and CF card, set the JP3 jumper corresponding for your system configuration (refer to the chapter 9.1.2.3 "JP3: CF Card Master/Slave Selecting (Option)".

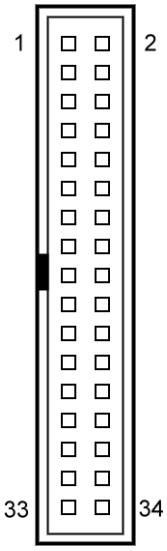
CompactFlash	Signal Name	Pin	Pin	Signal Name
 CF	GND	1	26	NC
	PDD3	2	27	PDD11
	PDD4	3	28	PDD12
	PDD5	4	29	PDD13
	PDD6	5	30	PDD14
	PDD7	6	31	PDD15
	PDCS1#	7	32	PDCS3#
	GND	8	33	NC
	GND	9	34	PDIOR#
	GND	10	35	PDIOW#
	GND	11	36	WE
	GND	12	37	IRQ14
	VCC5V+	13	38	VCC5V+
	GND	14	39	CFD_SEL
	GND	15	40	NC
	GND	16	41	IDE1_RST#
	GND	17	42	PIORDY
	PDA2	18	43	PDREQ_CF
	PDA1	19	44	PDACK_CF#
	PDA0	20	45	IDEACTP
	PDD0	21	46	P66DET
	PDD1	22	47	PDD8
	PDD2	23	48	PDD9
	IOCS16_IDE#	24	49	PDD10
	NC	25	50	GND

9.1.3.8. SATA 1/2/3/4: Serial ATA Connectors

The PCI-759 board supports up to four Serial ATA ports. These connectors allow you to connect Serial-ATA devices. (Each of the SATA interfaces supports one Serial-ATA device).

SATA1/2/3/4:Serial ATA: High Speed Headers Molex 67800-8001, Locking Latch)	Pin	Signal Name
 SATA1/2/3/4	1	GND
	2	TX+
	3	TX-
	4	GND
	5	RX-
	6	RX-
	7	GND

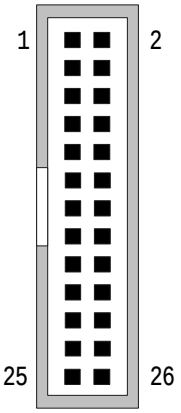
9.1.3.9. FDD: Floppy Drive Connector

FDC: Boxed Header, (shrouded), DIP 34-pin	Signal Name	Pin	Pin	Signal Name
 FDC	GND	1	2	RWC#
	GND	3	4	NC
	NC	5	6	NC
	GND	7	8	INDEX#
	GND	9	10	Motor enable 0#
	GND	11	12	Drive select 1
	GND	13	14	Drive select 0
	GND	15	16	Motor enable 1
	GND	17	18	Direction
	GND	19	20	Step
	GND	21	22	Write data
	GND	23	24	Write gate
	GND	25	26	Track 00
	GND	27	28	Write protect
	GND	29	30	Read data
	GND	31	32	Side 1 select
	GND	33	34	Diskette change

9.1.3.10. LPT: Parallel Port Connector

LPT is an IEEE1284 compatible interface and supports Normal/EPP/ECP mode.

This port is provided as a 26-pin boxed header.

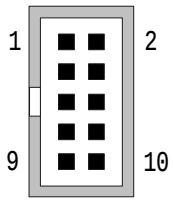
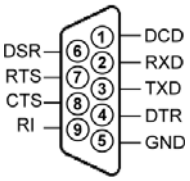
Signal Name	Pin	LPT: Boxed Header, DIP 26-pin	Pin	Signal Name
Strobe#	1		2	AutoFeed#
PD0, Data 0	3		4	Error#
PD1, Data 1	5		6	Initialize#
PD2, Data 2	7		8	SLIN
PD3, Data 3	9		10	GND
PD4, Data 4	11		12	GND
PD5, Data 5	13		14	GND
PD6, Data 6	15		16	GND
PD7, Data 7	17		18	GND
Acknowledge#	19		20	GND
Busy	21		22	GND
Paper empty	23		24	GND
SLCT	25		26	NC

LPT

9.1.3.11. COM1: Serial Port Connector COM1

The 10-**pin** boxed header is to be used with the supplied serial cable.

COM1 pin assignment RS232:

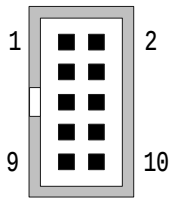
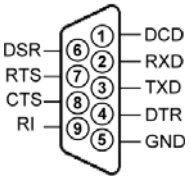
COM1: Boxed Header, DIP 10-pin	RS232 (Pinning on the on-board header)		D-SUB Connector
 COM1	**Pin**	**Signal Name**	Pining on the supplied cable connector: 
	1	DCD, Data carrier detect	
	2	DSR, Data set ready	
	3	RxD, Receive data	
	4	RTS, Request to send	
	5	TxD, Transmit data	
	6	CTS, Clear to send	
	7	DTR, Data terminal ready	
	8	RI, Ring indicator	
	9	GND, ground	
	10	NC	

9.1.3.12. COM2: Serial Port Connector COM2

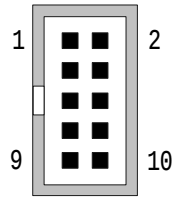
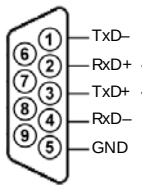
The 10-pin box header is to be used with the supplied serial cable. This interface is RS232 (default) and can be configured as RS422 or RS485 (BIOS Setup).

For RS422 and RS485 mode, please install external termination resistors (120ohm).

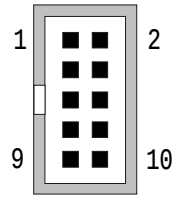
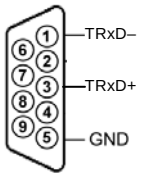
COM2-pin assignment as RS232 (default):

COM2: Boxed Header, DIP 10-pin	RS232 (Pinning on the on-board header)		D-SUB Connector
 COM2	**Pin**	**Signal Name**	Pining on the supplied cable connector: 
	1	DCD, Data carrier detect	
	2	DSR, Data set ready	
	3	RxD, Receive data	
	4	RTS, Request to send	
	5	TxD, Transmit data	
	6	CTS, Clear to send	
	7	DTR, Data terminal ready	
	8	RI, Ring indicator	
	9	GND, ground	
	10	NC	

COM2 pin assignment as RS422:

COM2: Boxed Header, DIP 10-pin	RS422 (Pinning on the on-board header)		D-SUB Connector
 COM2	**Pin**	**Signal Name**	Pining on the supplied cable connector: 
	1	TxD–	
	2	NC	
	3	RxD+	
	4	NC	
	5	TxD+	
	6	NC	
	7	RxD–	
	8	NC	
	9	GND, ground	
	10	NC	

COM2 pin assignment as RS485:

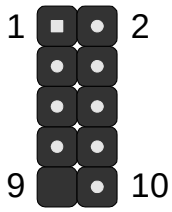
COM2: Boxed Header, DIP 10-pin	RS485 (Pinning on the on-board header)		D-SUB Connector
 COM2	**Pin**	**Signal Name**	Pining on the supplied cable connector: 
	1	TRxD–, Transmit/Receive data	
	2	NC	
	3	NC	
	4	NC	
	5	TRxD+, Transmit/Receive data	
	6	NC	
	7	NC	
	8	NC	
	9	GND, ground	
	10	NC	

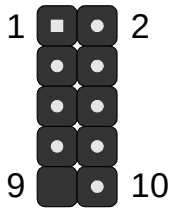
9.1.3.13. USB Extension (USB0/1, USB2/3, USB4/5)

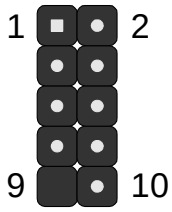
Each of the onboard boxed 10-pin-header for USB extension (J13, J19 and J10) supports two USB ports (Port 4 and Port 5 / Port 8 and Port 9 / Port 10 and Port 11). Pin 9 is removed for keying purposes. (A slot bracket with 2x USB type A connectors can be ordered separately.)

The PCI-759 board supports up to seven USB ports :

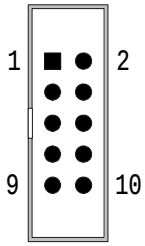
- USB (USB6) is available on the slot bracket.
- USB0 up to USB5) are available on board.

USB Port 0		USB0/1: 2x5 Pin Row	USB Port 1	
Pin	Signal Name		Pin	Signal Name
1	VCC fused		2	VCC fused
3	D0-		4	D1-
5	D0+		6	D1+
7	GND		8	GND
9	Key		10	NC

USB Port 2		USB2/3: 2x5 Pin Row	USB Port 3	
Pin	Signal Name		Pin	Signal Name
1	VCC fused		2	VCC fused
3	D2-		4	D3-
5	D2+		6	D3+
7	GND		8	GND
9	Key		10	NC

USB Port 4		USB4/5: 2x5 Pin Row	USB Port 5	
Pin	Signal Name		Pin	Signal Name
1	VCC fused		2	VCC fused
3	D4-		4	D5-
5	D4+		6	D5+
7	GND		8	GND
9	Key		10	NC

9.1.3.14. Audio: AC'97 Connector

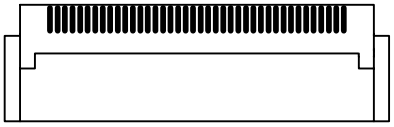
Pin	Signal Name	YIMTEX ELECTRONIC 10-pin Boxed Header 2.0 mm	Pin	Signal Name
1	AC_RST-		2	AC_SYNC
3	GND		4	AC_DAOUT
5	**AC_DAIN2**		6	GND
7	**GND**		8	AC_BCLK
9	**+5V**		10	+3.3V

9.1.3.15. MiniPCI Connector

MiniPCI Slot, 124-pin, Pin Assignments					
Pin	**Signal**	**Pin**	**Signal**	**Pin**	**Signal**
1	NC	51	AD21	101	GND
2	NC	52	AD22	102	GND
3	NC	53	AD19	103	AC97_SYNC
4	NC	54	AD20	104	GND (M66EN)
5	NC	55	GND	105	AC97_SDATAIN
6	NC	56	PAR	106	AC97_SDATAOUT
7	NC	57	AD17	107	AC97_BITCLK
8	NC	58	AD18	108	GND (ACCID0)
9	NC	59	-CEB2	109	PU (ACCID1)
10	NC	60	AD16	110	AC97_RESET
11	NC	61	-IRDY	111	MPCI_AUDMON
12	NC	62	GND	112	NC
13	NC	63	VCC3	113	GND
14	NC	64	-FRAME	114	GND
15	GND	65	-CLKRUN	115	MPCI_AUDOUT
16	NC	66	-TRDY	116	MPCI_AUDIN
17	-INTB	67	-SERR	117	GND
18	VCC	68	-STOP	118	GND
19	VCC3	69	GND	119	GND
20	-INTA	70	VCC3	120	GND
21	NC	71	-PERR	121	NC
22	NC	72	-DEVSEL	122	-MPCIACT
23	GND	73	-CBE1	123	VCC
24	V3.3Aux	74	GND	124	3.3VAUX
25	CLK	75	AD14		
26	-RST	76	AD15		
27	GND	77	GND		
28	VCC3	78	AD13		
29	-REQ	79	AD12		
30	-GNT	80	AD11		
31	VCC3	81	AD10		
32	GND	82	GND		
33	AD31	83	GND		
34	-PME	84	AD9		
35	AD29	85	AD8		
36	NC	86	-CBE0		
37	GND	87	AD7		
38	AD30	88	VCC3		
39	AD27	89	VCC3		
40	VCC3	90	AD6		
41	AD25	91	AD5		
42	AD28	92	AD4		
43	RESV	93	NC		
44	AD26	94	AD2		
45	-CBE3	95	AD3		
46	AD24	96	AD0		
47	AD23	97	VCC		
48	IDSEL	98	NC		
49	GND	99	AD1		
50	GND	100	NC		

9.1.3.16. LVDS (JILI) Connector

The LVDS (JILI) complies with the JILI Specification 2.0. This connector allows you to connect LVDS-compatible receivers. For the different required cable kits, please contact our GSS support.

LVDS (JILI) Connector	Pin	Signal Name
 LVDS (JILI)	1	NC
	2	ODD_LVD0-
	3	ODD_LVD0+
	4	ENAVDD
	5	ODD_LVD1-
	6	ODD_LVD1+
	7	NC
	8	ODD_LVD2-
	9	ODD_LVD2+
	10	GND
	11	ODD_LVDC-
	12	ODD_LVDC+
	13	GND
	14	GND (odd LVD3-)
	15	GND (odd LVD3+)
	16	JILI_DAT
	17	EVEN_LVD0-
	18	EVEN_LVD0+
	19	JILI_CLK
	20	EVEN_LVD1-
	21	EVEN_LVD1+
	22	NC
	23	EVEN_LVD2-
	24	EVEN_LVD2+
	25	GND
	26	EVEN_LVDC-
	27	EVEN_LVDC+
	28	GND
	29	GND (even LVD3-)
	30	GND (even LVD3+)
	31	VCC_5V0
	32	VCC_5V0
	33	VCC_5V0
	34	VCC_5V0
	35	ENABKL#
	36	BKLGND
	37	BKLGND
	38	VCC_12V0
	39	VCC_12V0
	40	VCC_12V0

9.1.4. Lithium Battery

PCI-759 is provided with a 3.0 V "coin cell" lithium battery for the RTC operation and CMOS Setup RAM.

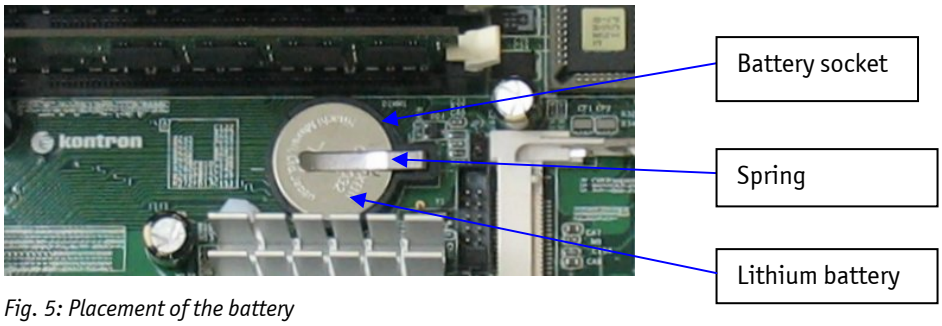


Fig. 5: Placement of the battery

9.1.5. Replacing the Lithium Battery

To replace the battery please proceed as follows:

1. Turn the power off.
2. If your system is equipped with expansion cards, remove them first, if necessary.
3. Remove the battery by pressing outwards the ejector spring.
4. Insert the new battery into the socket.
5. Make sure that you insert the battery correctly. The minus pole must be as marked (with a white line on the battery) in the Fig. 5!

	**Caution!** Danger of explosion when replaced with wrong type of battery. Replace the battery only with UL recognized Lithium battery that has the same or equivalent type recommended by Kontron.
	Do not dispose of lithium batteries in domestic waste. Dispose of the battery according to the local regulations dealing with the disposal of these special materials (e.g. to the collecting points for the disposal of batteries).

10. AMI BIOS Configuration

This chapter describes the settings available in the optional AMI-BIOS for the PCI-759 board. The AMI-BIOS (Basic Input/Output System) pre- installed in your computer system's ROM supports Intel® Core™2 Duo, Intel® Celeron S processors in a standard IBM-AT compatible I/O system.

10.1. BIOS Setup

The AMI BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the AMI BIOS is activated.
Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press <DEL> to Enter Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various Setup functions and exit choices.

The BIOS Setup screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options cannot be configured. Blue options can be select and configured.

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

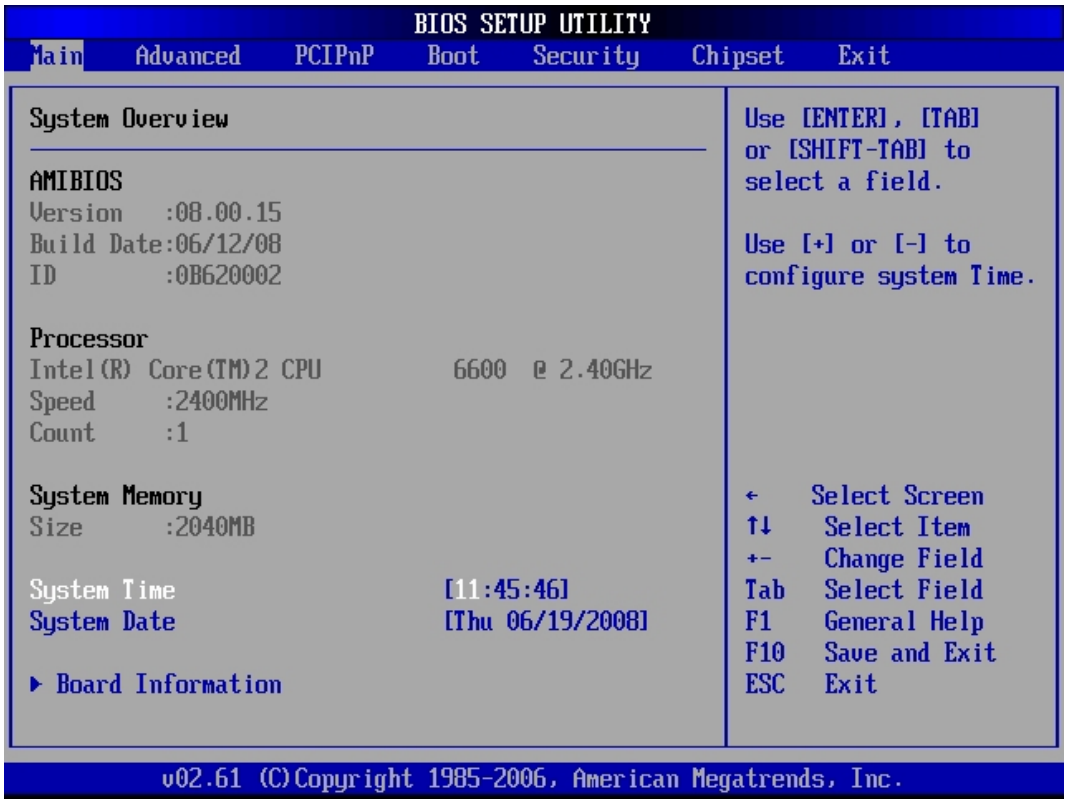
10.1.1. Navigation

Hot Key	Description
→← Left/Right	The *Left and Right* <Arrow> keys allow you to select a BIOS Setup screen. For example: Main screen, Advanced screen, Chipset screen, and so on.
↑↓ Up/Down	The *Up and Down* <Arrow> keys allow you to select a BIOS Setup item or sub-screen.
+ / - Plus/Minus	The *Plus and Minus* <Keys> keys allow you to change the field value of a particular BIOS Setup item. For example: Date and Time.
Tab	The <Tab> key allows you to select BIOS Setup fields.

The <F8> key on your keyboard is the Fail-Safe key. It is not displayed on the key legend by default. To set the Fail-Safe settings of the BIOS, press the <F8> key on your keyboard. The Fail-Safe settings allow the motherboard to boot up with the least amount of options enabled. This can lessen the probability of conflicting settings.

The <F9> key on your keyboard is the Optimal-Default key. To set the Optimal-Default settings of the BIOS, press the <F9> key on your keyboard.

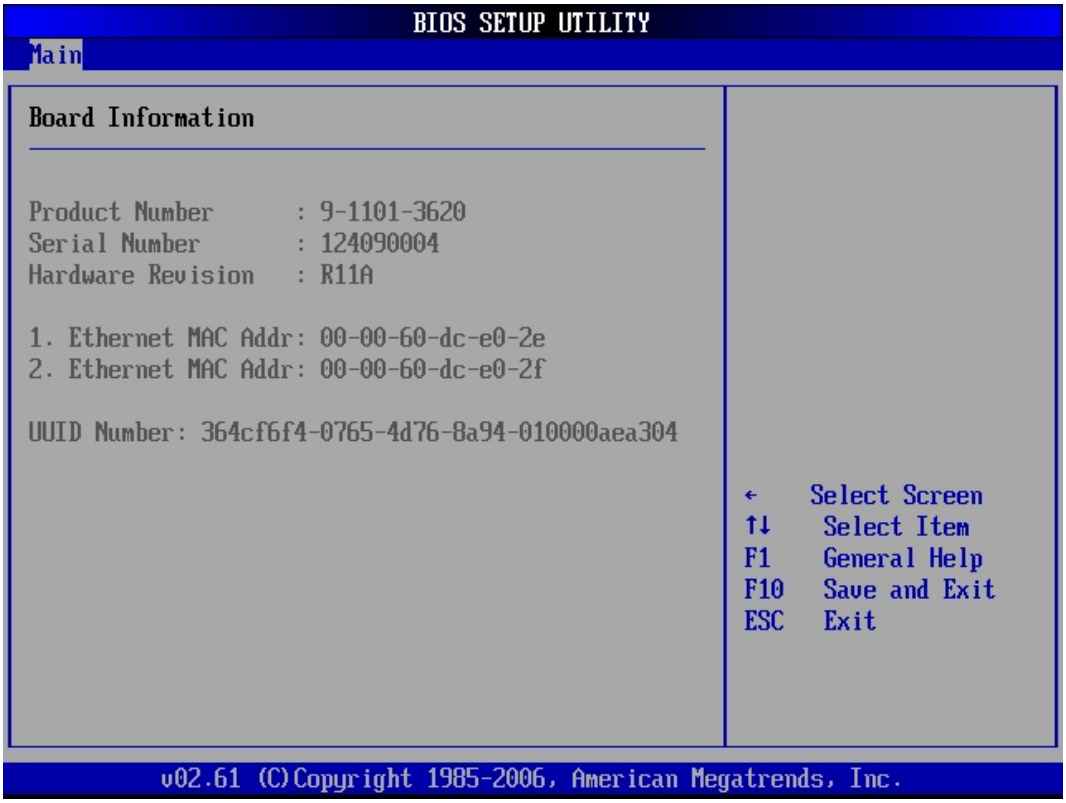
10.2. Main



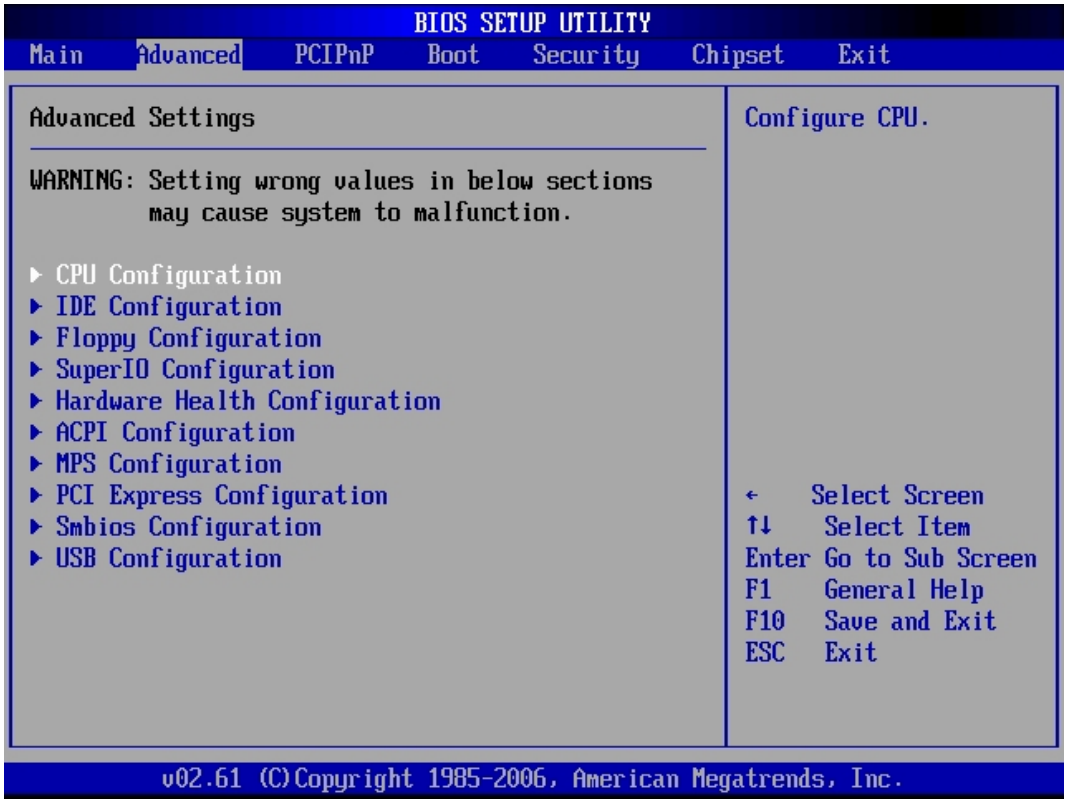
10.2.1. System Time / System Date

System Time	This field indicates the time of the device. If you change the time setting, enter the time in the format *HH:MM:SS* HH=Hours MM=Minutes SS=Seconds
System Date	This field indicates the date of the device. If you change the date setting, enter the date in the format *MM.DD.YYYY*. MM=Month DD=Day YYYY=Year The "System Date" format can be arbitrary configured.

➢ **Board Information**



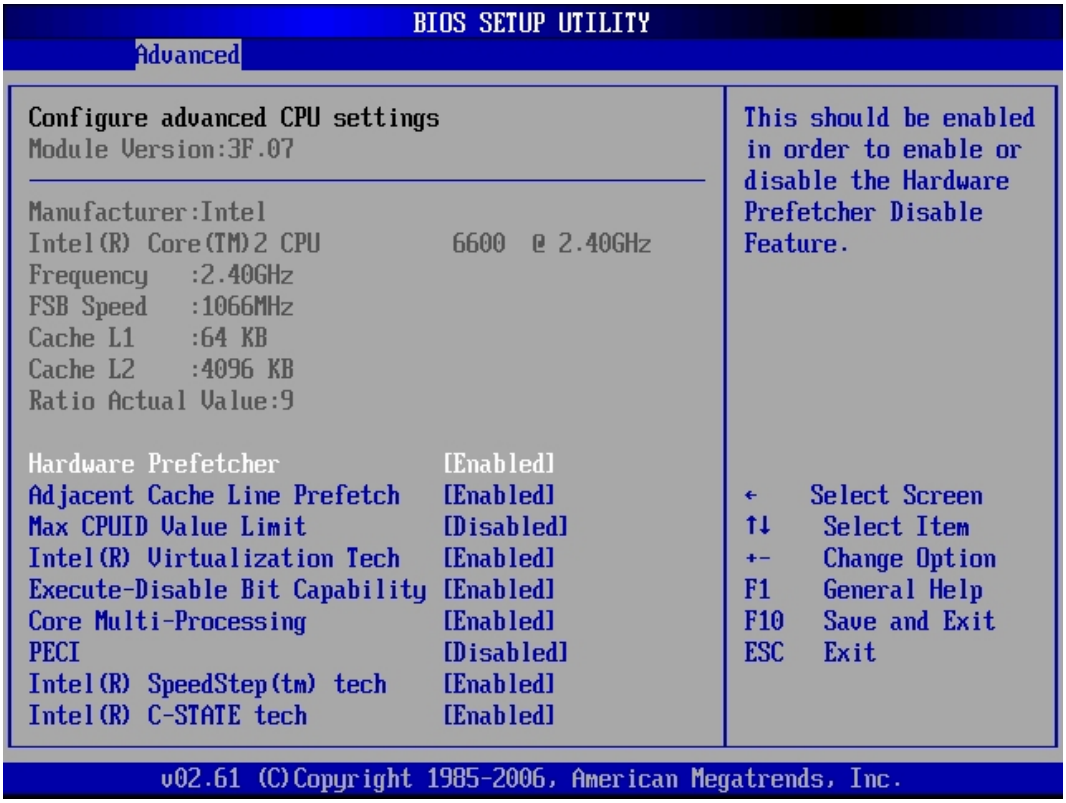
10.3. Advanced



You can select the sub menus of the *Advanced* BIOS Setup:

- CPU Configuration
- IDE Configuration
- Floppy Configuration
- SuperIO Configuration
- Hardware Health Configuration
- ACPI Configuration
- MPS Configuration
- PCI Express Configuration
- Smbios Configuration
- USB Configuration

10.3.1. CPU Configuration (Configure advanced CPU settings)



10.3.1.1. Hardware Prefetcher:

This should be enabled in order to enable or disable the Hardware Prefetcher Disable Feature.

Available settings are: ***Enabled*** and *Disabled*.

10.3.1.2. Adjacent Cache Line Prefetch

This should be enabled in order to enable or disable the Hardware Prefetcher Disable Feature.

Available settings are: ***Enabled*** and *Disabled*.

10.3.1.3. Max CPUID Value Limit

Disabled for Windows XP

Available settings are: ***Disabled*** and *Enabled*.

10.3.1.4. Intel® Virtualization Tech

When enabled, a VMM can utilize the additional HW Caps provided by Intel® Virtualization Tech.
Note: A full reset is required to change the setting.

Available settings are: ***Enabled*** and *Disabled*.

10.3.1.5. Execute Disable Bit Capability

A Available settings are: ***Enabled*** and *Disabled*.

10.3.1.6. Core Multi-Processing

Available settings are: ***Enabled*** and *Disabled*.

10.3.1.7. PECI

Available settings are: ***Disabled*** and *Enabled*.

10.3.1.8. Intel ® SpeedStep ™ tech

If *Disabled*: disable GV3

If *Enabled*: enable GV3

Available settings are: ***Enabled*** and *Disabled*.

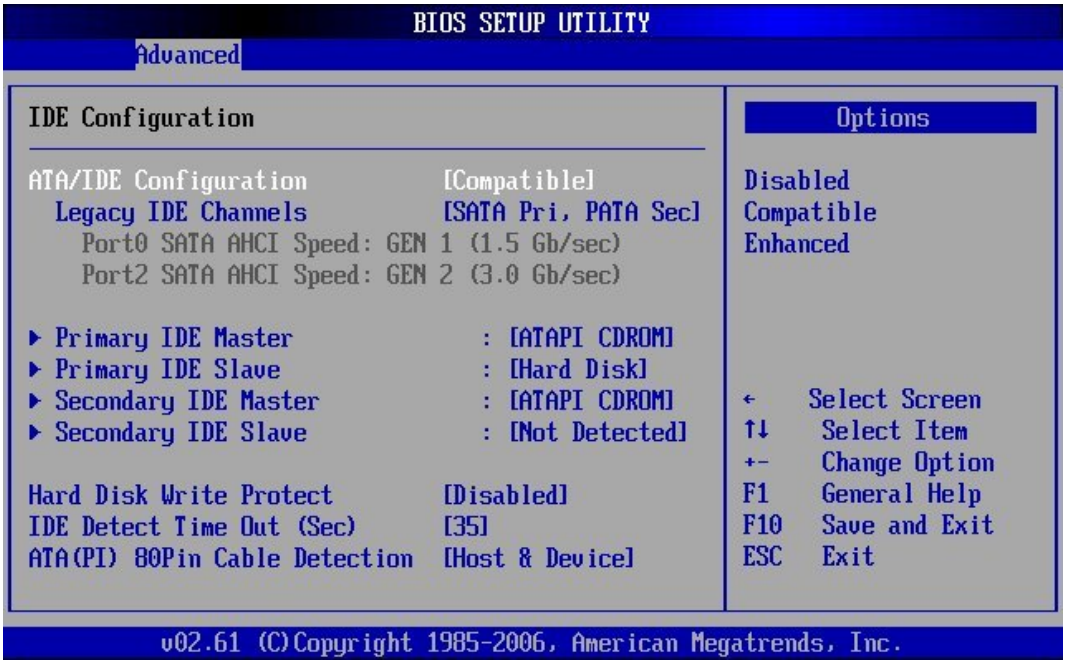
10.3.1.9. Intel® C-STATE tech

C-State: CPU idle is set to C2 C3 C4 State.

Available settings are: ***Enabled*** and *Disabled*.

10.3.2. IDE Configuration

This field can be use to select options for the IDE Configuration settings.



10.3.2.1. ATA/IDE Configuration

Available settings are: *Enhanced*, ***Compatible*** and *Disabled*.

If this option is set to *Enhanced* is available an additional option:

[Configure SATA Channels]

Available settings are: ***Before PATA*** and *Behind PATA*.

10.3.2.2. Legacy IDE Channels

Available settings are: ***SATA Pri, PATA*** **Sec,** *PATA Pri, SATA* Sec*, PATA Only* and *SATA-Only*.

10.3.2.3. Hard Disk Write Protect

This option allows you to enable or disable the device write protection. This will be effective only if the device is accessed through BIOS.

Available settings: *Enabled* and ***Disabled***.

10.3.2.4. IDE Detect Time Out (Sec)

Set this option to stop the AMI BIOS from searching for IDE devices within the specified number of seconds. Basically, this allows you to fine-tune the settings to allow for faster boot times.

Low settings can cause unreliable detection!

Possible settings are: 0, 5, 10, 15, 20, 25, 30 and **35**.

0	This is the optimal setting for systems whose onboard controllers point to a specific IDE device in the AMI BIOS.
5	Set this option to stop the BIOS from searching the IDE Bus for IDE devices in five seconds.
10	Set this option to stop the BIOS from searching the IDE Bus for IDE devices in ten seconds.
15	Set this option to stop the BIOS from searching the IDE Bus for IDE devices in 15 seconds.
20	Set this option to stop the BIOS from searching the IDE Bus for IDE devices in 20 seconds.
25	Set this option to stop the BIOS from searching the IDE Bus for IDE devices in 25 seconds.
30	Set this option to stop the BIOS from searching the IDE Bus for IDE devices in 30 seconds.
35	This setting is recommended for all IDE devices that are set to AUTO in the BIOS setting (because a Master waits 30 sec. max. for a slave device).

10.3.2.5. ATA(PI) 80Pin Cable Detection

Set this option to define the method used to detect an ATA (PI) 80-pin cable. Possible settings are: ***Host & Device***, *Host* and *Device*.

Host & Device	Set this value to use both the motherboard IDE controller and the IDE device to detect the type of IDE cable present.
Host	Set this value to use motherboard onboard IDE controller to detect the type of IDE cable present.
Device	Set this value to use IDE disk drive to detect the type of IDE cable present.

➢ **Primary IDE Master / Primary IDE Slave**

These fields call the submenu to make corresponding settings of the IDE devices.

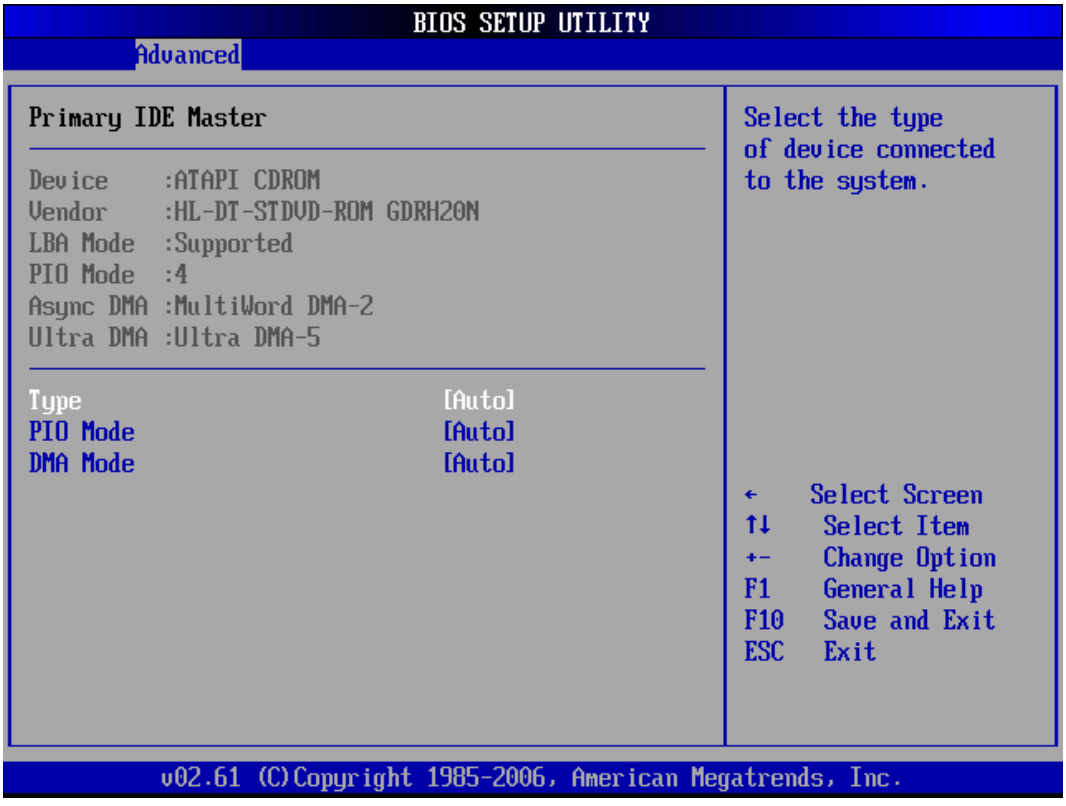
You should change the default settings only if you are connecting an additional IDE drive (e.g. Hard disk drive).

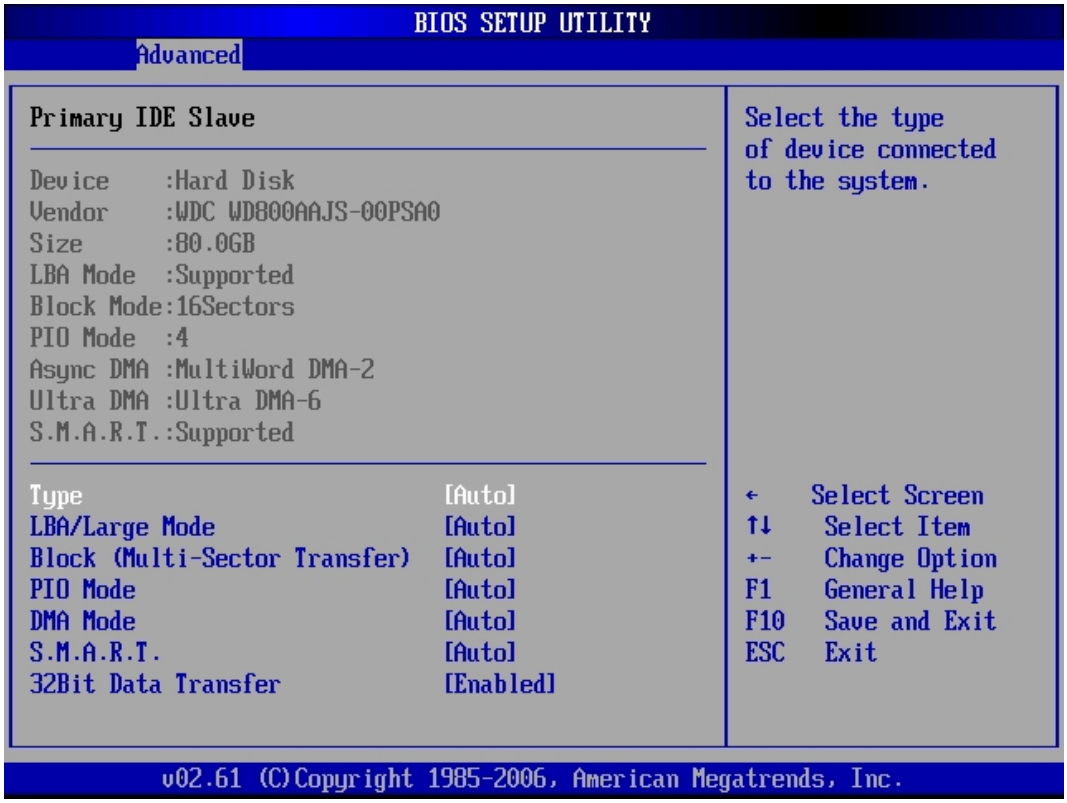
The description of the setting options for *Primary IDE Master* also applies to *Primary IDE Slave*

The default settings strongly depend on the installed drive.
These entries are specific for each installed device as:

- Primary IDE Master/Primary IDE Slave
- Secondary IDE Master/Secondary IDE Slave
- Third IDE Master/Third IDE Slave
- Fourth IDE Master/Fourth IDE Slave

The screens below are only an example for which entries could be available.





10.3.2.6. Type

Select the type of device connected to the system.
Not Installed, ***Auto***, *CD/DVD* and *ARMD (**A**TAPI **R**emovable **M**edia **D**evice)*.

10.3.2.7. LBA/Large Mode

The LBA (**L**ogical **B**lock **A**ddressing)/Large Mode option allows you to enable or disable support for IDE devices with capacities greater than 528MB. The maximum drive capacity in the LBA mode is 137GB.

Disabled	Disables the LBA Mode and prevent the BIOS from using LBA mode control on the specified channel.
Auto	This setting allows the BIOS to auto-detect LBA mode control on the specified channel (if the device supports it and the device is not already formatted with LBA Mode disabled).

10.3.2.8. Block (Multi-Sector Transfer)

If your hard disk supports the block mode, select *Auto* for the automatic determination of the number of the blocks per request. Several sectors can be at the same time read/written. The data transfer rate will be increased.
Available settings are: ***Auto*** and *Disabled*.

Auto	The data transfer from and to the device occurs multiple sectors at a time if the device supports it. Block mode allows transfers of up to 64Kb per interrupt.
Disabled	The data transfer from and to the device occurs one sector at a time. Only 512 byte of data can be transferred per interrupt if block mode is not used. This setting should be used only if read and write failures occur with "Auto".

10.3.2.9. PIO Mode

These fields allow your system IDE controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the IDE drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.
The system supports five modes, numbered from 0 to 4, which primarily differ in timing. Available settings are: *0, 1, 2, 3, 4* and *Auto*. When *Auto* is selected, the BIOS will select the best available mode.

Available settings are: ***Auto***, *0, 1, 2, 3* and *4*.

Auto	This setting allows the BIOS to auto-detect the PIO mode. This setting is to be used if the IDE disk drive cannot be determined.
0	This setting allows the BIOS to use the PIO mode 0. It has a data transfer rate of 3.3MBs.
1	This setting allows the BIOS to use the PIO mode 1. It has a data transfer rate of 5.2MBs.
2	This setting allows the BIOS to use the PIO mode 2. It has a data transfer rate of 8.3MBs.
3	This setting allows the BIOS to use the PIO mode 3. It has a data transfer rate of 11.1MBs.
4	This setting allows the BIOS to use the PIO mode 4. It has a data transfer rate of 16.6MBs. This setting generally works with all hard disk drives manufactured after 1999. For other disk drive, such as IDE CD-ROM drives, check the specifications of the drive.

Do not change the default setting "***Auto***".
If some read and write failures occur, check the length and quality of the integrated device cable first or set this option to a setting with a lower data transfer rate as specified for your device.

10.3.2.10. DMA Mode

This option allows you to select the DMA mode option (depending on the integrated device). Available settings are: ***Auto***, SWDMA0, SWDMA1, SWDMA2, MWDMA0, MWDMA1, MWDMA2, UDMA0, UDMA1, UDMA2, UDMA3, UDMA4, UDMA5 and UDMA6.

Auto	If "*Auto*" is set, the BIOS auto-detects the DMA mode. This is the default setting.
SWDMA0	If "*SWDMA0*" is set the BIOS uses the Single Word DMA mode 0. It has a data transfer rate of 2.1MBs.
SWDMA1	If "*SWDMA1*" is set the BIOS uses the Single Word DMA mode 1. It has a data transfer rate of 4.2MBs.
SWDMA2	If "*SWDMA2*" is set the BIOS uses the Single Word DMA mode 2. It has a data transfer rate of 8.3MBs.
MWDMA0	If "*MWDMA0*" is set the BIOS uses the Multi Word DMA mode 0. It has a data transfer rate of 4.2MBs.
MWDMA1	If "*MWDMA1*" is set the BIOS uses the Multi Word DMA mode 1. It has a data transfer rate of 13.3MBs.
MWDMA2	If "*MWDMA2*" is set the BIOS uses the Multi Word DMA mode 2. It has a data transfer rate of 16.6MBs.
UDMA0	If "*UDMA0*" is set the BIOS uses the Ultra DMA mode 0. It has a data transfer rate of 16.6MBs (the same data transfer rate as PIO mode 4, and Multi Word DMA mode 2).
UDMA1	If "*UDMA1*" is set the BIOS uses the Ultra DMA mode 1. It has a data transfer rate of 25MBs.
UDMA2	If "*UDMA2*" is set the BIOS uses the Ultra DMA mode 2. It has a data transfer rate of 33.3MBs.
UDMA3	If "*UDMA3*" is set the BIOS uses the Ultra DMA mode 3. It has a data transfer rate of 44.4MBs. It is required to be used the 80-conductor ATA cable for this data transfer rate.
UDMA4	If "*UDMA4*" is set the BIOS uses the Ultra DMA mode 4. It has a data transfer rate of 66.6MBs. It is required to be used the 80-conductor ATA cable for this data transfer rate.
UDMA5	If "*UDMA5*" is set the BIOS uses the Ultra DMA mode 5. It has a data transfer rate of 99.9MBs. It is required to be used the 80-conductor ATA cable for this data transfer rate.
UDMA6	If "*UDMA6*" is set the BIOS uses the Ultra DMA mode 6. It has a data transfer rate of 133.2MBs. It is required to be used an 80-conductor ATA cable for this data transfer rate.

10.3.2.11. S.M.A.R.T.

S. M. A. R. T. (Self-Monitoring, Analysis and Reporting Technology) is used to predict drive failures. (The integrated drive has to support this feature).

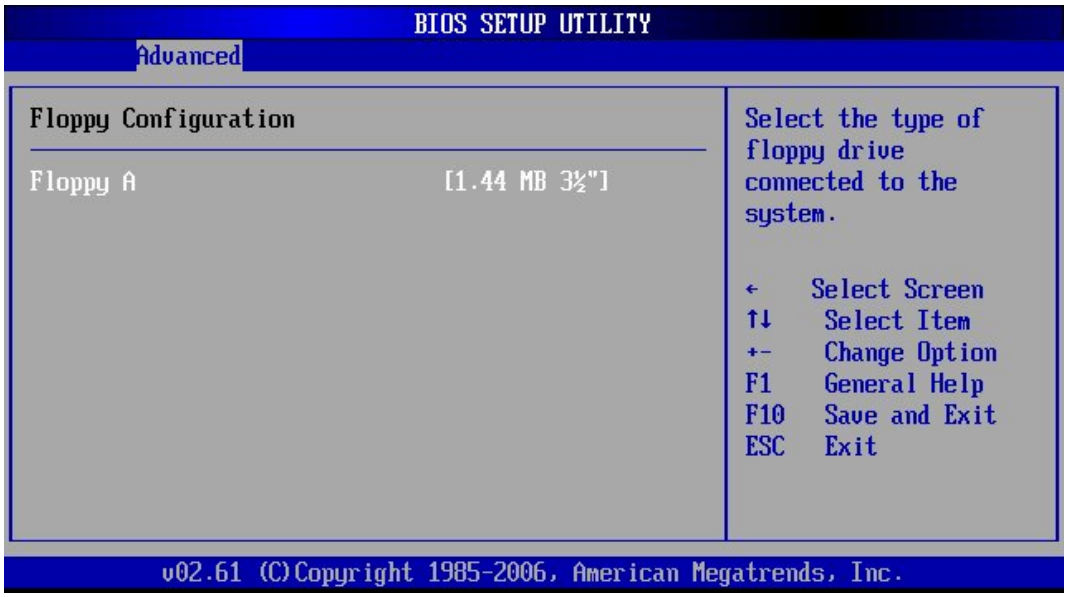
Available Settings are: ***Auto***, *Disabled* and *Enabled*.

10.3.2.12. 32Bit Data Transfer

This option allows you to enable or disable the 32bit data transfer rate for the IDE devices. If this option is *"Enabled"* the date transfer is accelerated and the CPU (PCI Bus) is relieved.

Available settings are: ***Enabled*** and *Disabled*.

10.3.3. Floppy Configuration



10.3.3.1. Floppy A

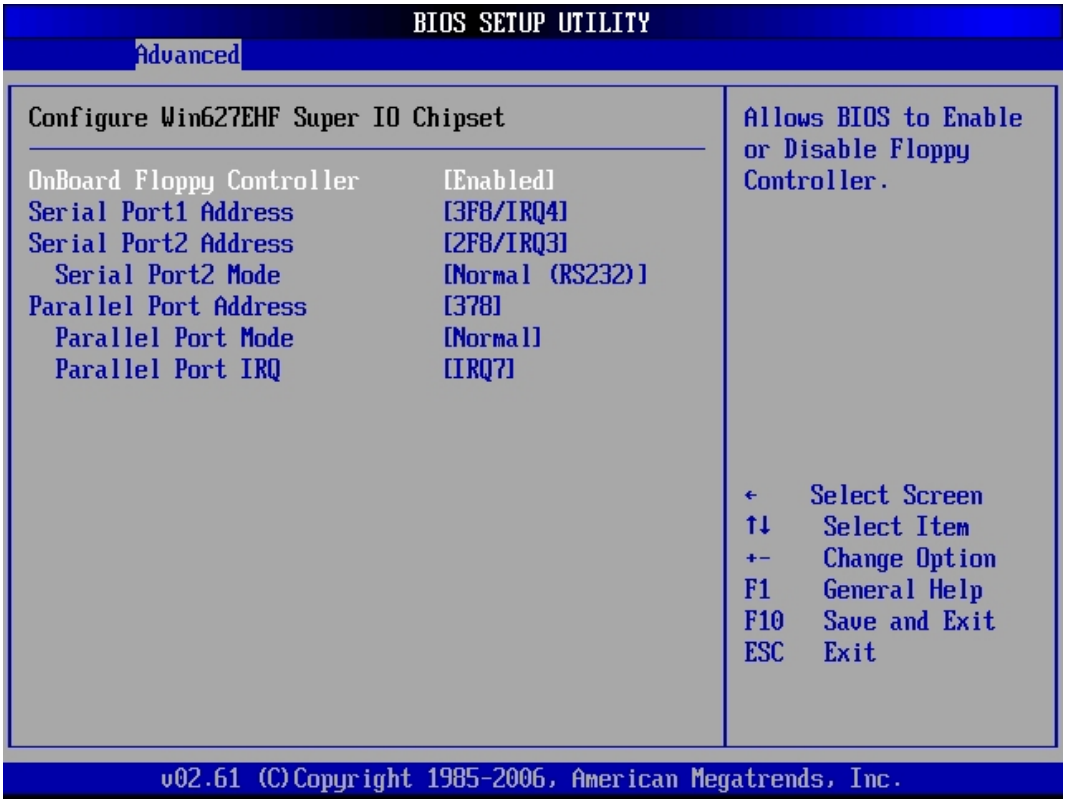
This option selects the type of the floppy drive. Only one floppy device can be connected to the FDD connector.

Possible settings are: *Disabled, 360KB* 5¼", *1.2MB* 5¼", *720 KB* 3½", *1.44 MB* 3½" and *2.88 MB* 3½".

Disabled	Set this value to prevent the use of the selected floppy disk drive channel. This option should be set if no floppy disk drive is installed on the specified channel.
360KB 5¼"	Set this value if the floppy disk drive attached to the corresponding channel is a 360 KB 5¼" floppy disk drive.
1.2MB 5¼"	Set this value if the floppy disk drive attached to the corresponding channel is a 1.2 MB 5¼" floppy disk drive.
720KB 3½"	Set this value if the floppy disk drive attached to the corresponding channel is a 720 KB 3½" floppy disk drive.
1.44MB 3½"	Set this value if the floppy disk drive attached to the corresponding channel is a 1.44 MB 3½" floppy disk drive.
2.88 MB 3½"	Set this value if the floppy disk drive attached to the corresponding channel is a 2.88 MB 3½" floppy disk drive.

10.3.4. Super IO Configuration

This field can be used to select the Super I/O settings.



10.3.4.1. Onboard Floppy Controller

This function enables or disables the floppy drive controller.
Possible settings are: ***Enabled*** and *Disabled*.

Enabled	The floppy disk controller of the board is used.
Disabled	If a supplementary floppy disk controller is used or the system is not equipped with a floppy disk drive.

10.3.4.2. Serial Port 1 & 2 Address

These fields allow you to select the onboard serial ports and their addresses.
Available settings are:

	Default	Available settings (without default setting)
Serial Port 1 Address	***3F8/IRQ4***	*3E8/IRQ4 / 2E8/IRQ3 / Disabled*
Serial Port 2 Address	***2F8/IRQ3***	*3E8/IRQ4 / 2E8/IRQ3 / Disabled*

10.3.4.3. Serial Port2 Mode

This field allows you to select the line mode for serial communication.
Available settings are: ***Normal (RS232)***, *RS422* and *RS485*.

10.3.4.4. Parallel Port Address

This field selects the I/O address used to access the parallel interface.

The possible values are: *Disabled*, ***378***, *278*, *3BC*.

The use of address space *3BC* may be restricted for some modes because it doesn't allow for eight consecutive addresses.

10.3.4.5. Parallel Port Mode

This field is used to specify whether the parallel port is to be used as a bi-directional input/output port or just as an output port. *ECP* and *EPP* transfer modes allow faster transfer rates of 2 and 2.4 Mbytes/s. These modes will only work with peripheral devices which support them. In addition, the field *Parallel Port Address* must be set to *378* or *278* when using one of these two modes.

Normal	The port functions as an output port only.
Bi-Directional	Data can be transferred in both directions across the port.
EPP	Fast transfer mode (up to 2 Mbytes/s), can output and receive data. The mode requires a peripheral device which supports the EPP (Enhanced Parallel Port) transfer mode.
ECP	Fast transfer mode (up to 2.4 Mbytes/s), can output and receive data. The mode requires a peripheral device which supports the ECP (Enhanced Capability Port) transfer mode.
ECP & EPP	Fast transfer mode (up to 2.4 Mbytes/s), can output and receive data. The mode requires a peripheral device which supports both EPP (Enhanced Parallel Port) and ECP (Enhanced Capability Port) transfer mode.

10.3.4.6. Parallel Port IRQ

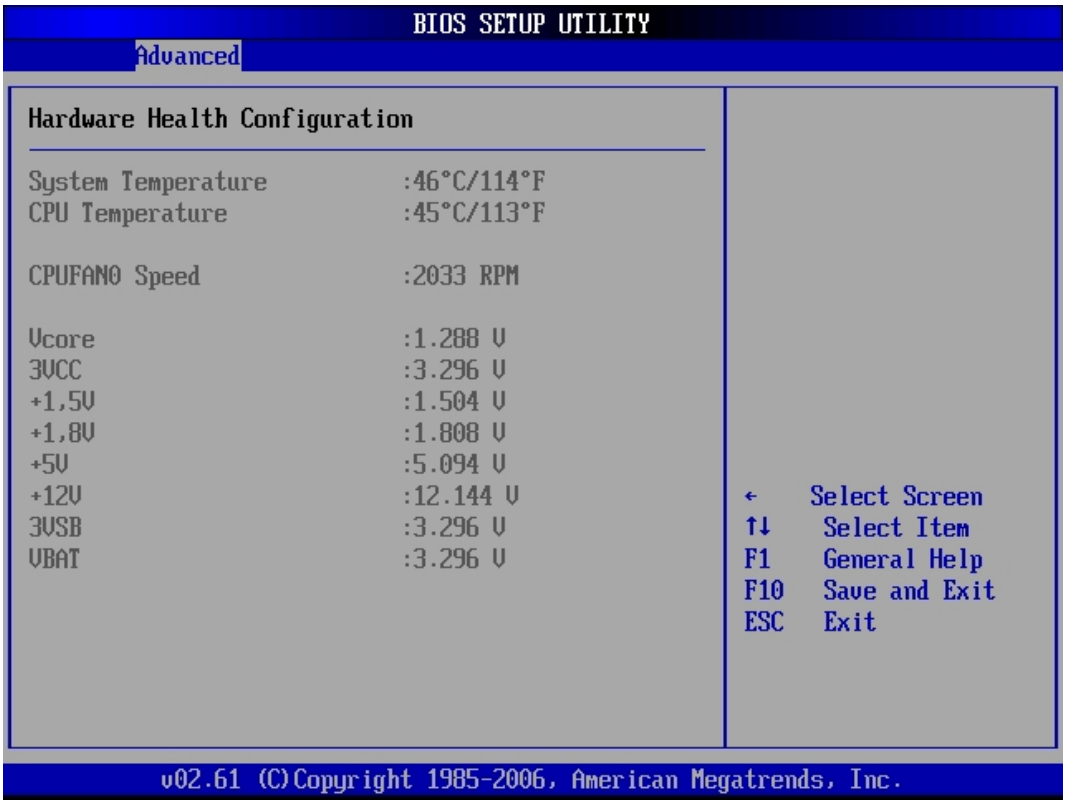
This field selects the interrupt used for the parallel interface.

It is possible to choose between: ***IRQ7*** and *IRQ5*.

IRQ7	This setting allows the parallel port to use the interrupt IRQ7.
IRQ5	This setting allows the parallel port to use the interrupt IRQ5.

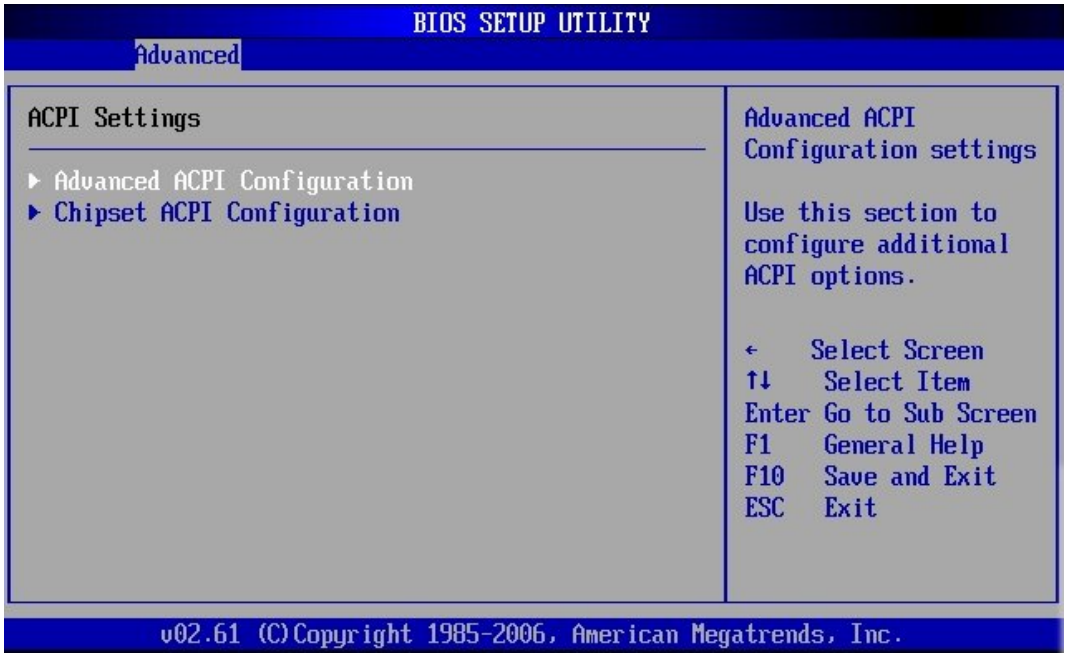
10.3.5. Hardware Health Configuration

These fields allow you to observe the parameters of the hardware monitoring function feature of the system. These values are read-only values for the monitoring of the system and show the PC health status.

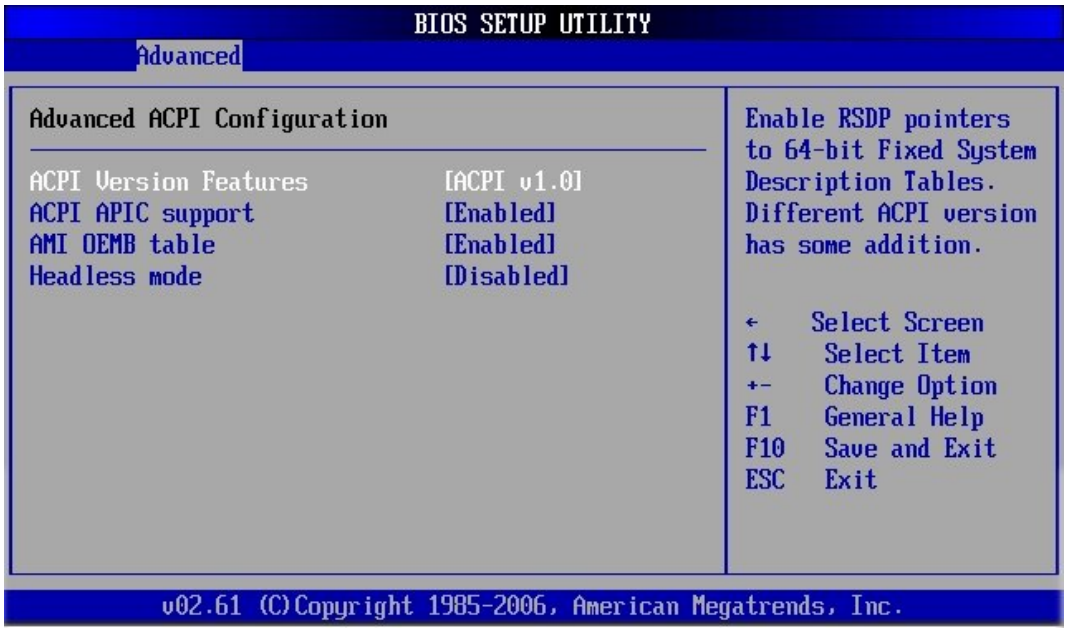


10.3.6. ACPI Configuration

ACPI Configuration settings allow you to select the Advanced Power Management (APM) options.



➢ **Advanced ACPI Configuration**



10.3.6.1. ACPI Versions Features

This option allows you to set the corresponding ACPI version.
It is possible to choose between: ***ACPI v1.0,*** *ACPI v2.0* and *ACPI v3.0*.

10.3.6.2. ACPI APIC support

This option determines whether or not to include the ACPI APIC table pointer to the RSDT pointer list.
It is possible to choose between: ***Enabled*** and *Disabled*.

Enabled	This setting will initiate ACPI APIC support.
Disabled	This setting disables ACPI APIC support.

10.3.6.3. AMI OEMB table

This option allows you to include the OEMB table pointer to R(X)SDT pointer list.

It is possible to choose between***: Enabled*** and *Disabled*.

Enabled	This setting enables adding an OEMB table.
Disabled	This setting disables adding an OEMB table.

OEMB table is used to pass POST data to the AML code during ACPI O/S operation. It is required for proper functionality.

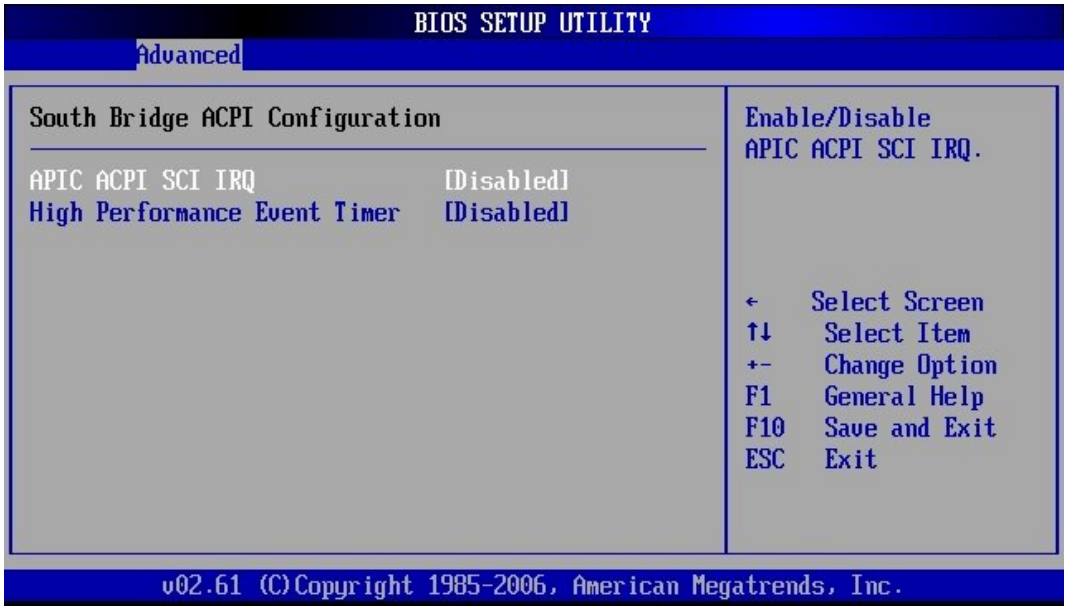
10.3.6.4. Headless mode

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

It is possible to choose between: *Enabled* and ***Disabled***.

Enabled	This option enables updating the ACPI FACP table to indicate headless operation.
Disabled	This option disables updating the ACPI FACP table to indicate headless operation.

➢ **Chipset ACPI Configuration**



10.3.6.5. APIC ACPI SCI IRQ

This option allows you to enable or disable the APIC ACPI IRQ function.

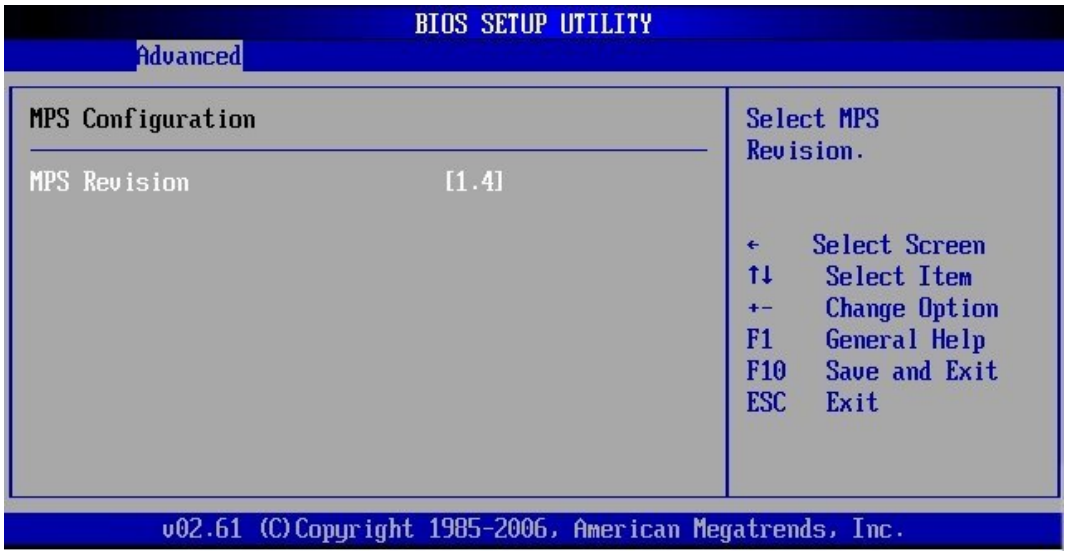
Available settings: *Enabled* and ***Disabled***.

10.3.6.6. High Performance Event Timer

This option allows you to enable or disable the HPET (High Performance Event Timer).

Available settings: *Enabled* and ***Disabled***.

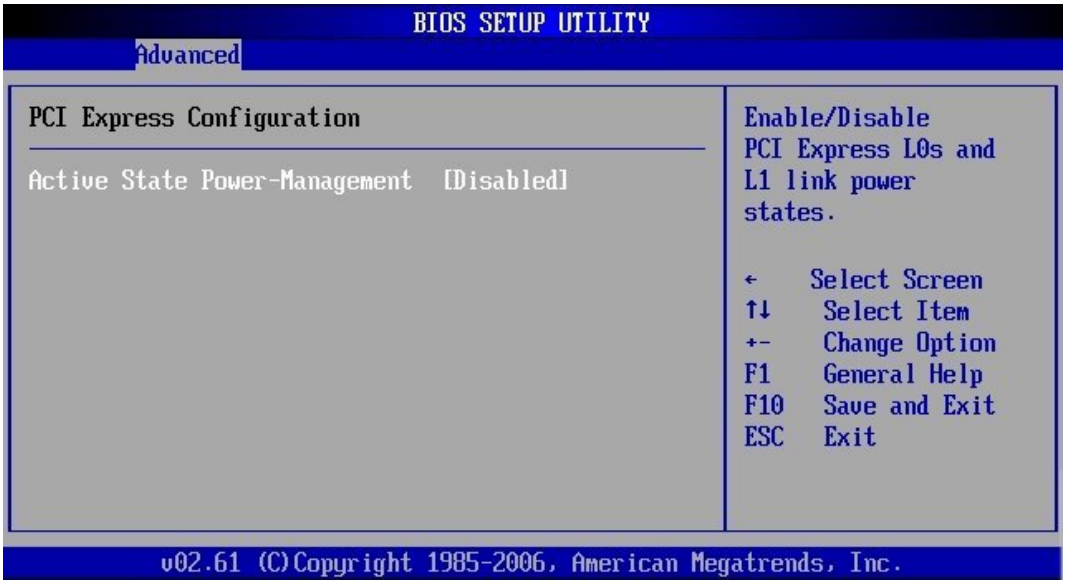
10.3.7. MPS Configuration



This field allows you to select which MPS (Multi-Processor Specification) version is used. You have to select the MPS version supported by your operating system.

Available settings are: ***1.4*** and *1.1*.

10.3.8. PCI Express Configuration

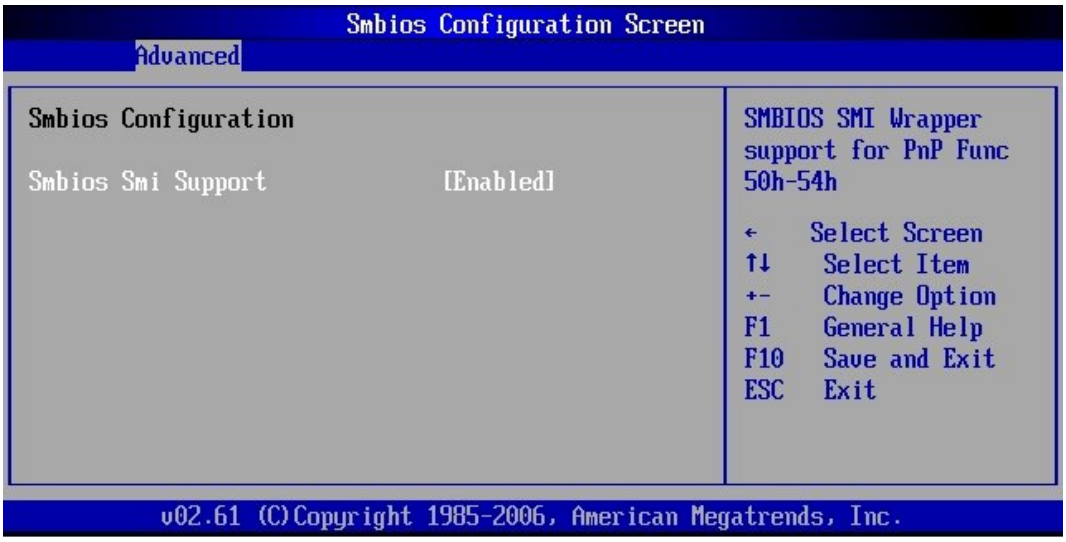


10.3.8.1. Active State Power Management

This option allows you to enable or disable the L0s and L1 link power states.

Available settings are: *Enabled* and ***Disabled***.

10.3.9. Smbios Configuration



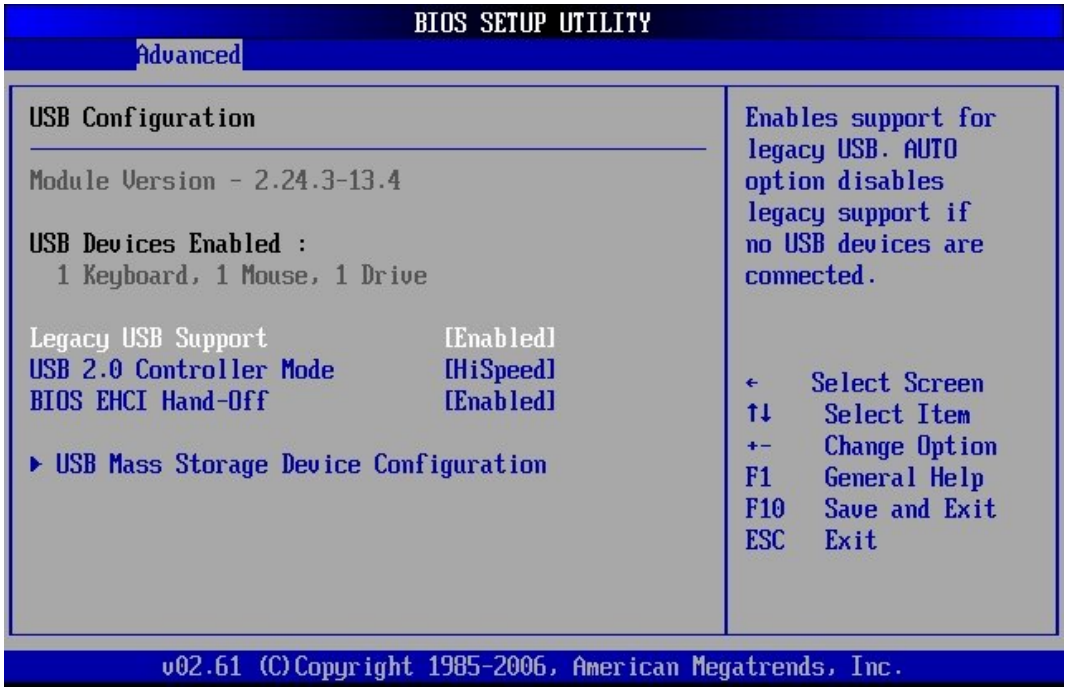
10.3.9.1. Smbios Smi Support

SMBIOS SMI Wrapper support for PnP Func 50h-54h

Available settings are: ***Enabled*** and *Disabled*.

10.3.10. USB Configuration

This field allows you to select options for USB configuration.



10.3.10.1. Legacy USB Support

This function enables or disables support for legacy USB. Enabling legacy USB support allows using USB devices under DOS and other non-Plug & Play operating systems.

Possible settings are: ***Enabled***, *Disabled* and *Auto*.

If "*Auto*" is set, the system searches for USB devices. Whether no device is detected, the BIOS disable this option in background.

10.3.10.2. USB 2.0 Controller Mode

The `[USB 2.0 Controller Mode]` option is available only if the option `[Legacy USB Support]` is set to ***Enabled*** or ***Auto.***

This option allows you to set the data signaling rate for the USB 2.0 controller.
Possible settings are: *FullSpeed* and ***HiSpeed***.

HiSpeed	This setting allows data signaling rate of 480 Mbps.
FullSpeed	This setting allows data signaling rate of 12 Mbps.

10.3.10.3. BIOS EHCI Hand-Off

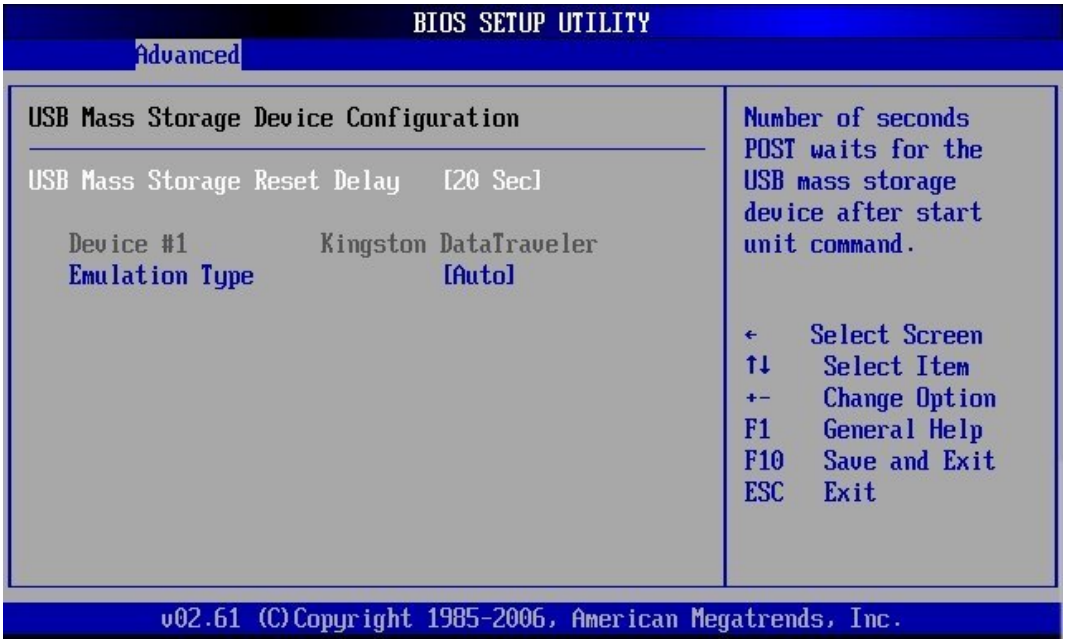
The `[BIOS EHCI Hand-Off)]` option is available only if the option `[Legacy USB Support]` is set to ***Enabled*** or ***Auto.***

This option allows you to enable support for operating systems without "**EHCI Hand-Off**" features.

Possible settings are: ***Enabled*** and *Disabled*.

➢ **USB Mass Storage Device Configuration**

This option is only available if USB storage devices are connected to the board.



10.3.10.4. USB Mass Storage Reset Delay

This option specifies amount of time the BIOS USB code should wait after issuing a reset to the USB mass storage devices (only needed for slow starting devices).

It is possible to choose between: *10 Sec*, ***20 Sec***, *30 Sec,* and *40 Sec*.

10.3.10.5. Emulation Type

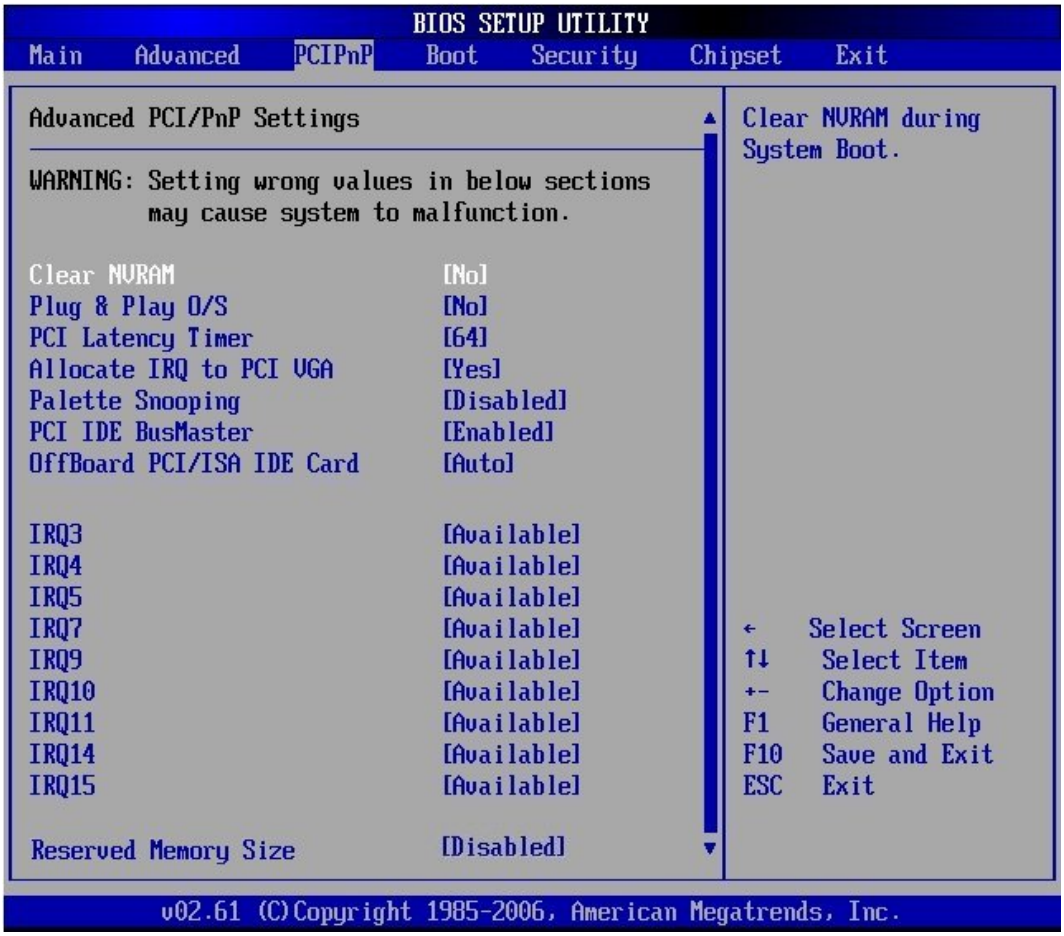
This option specifies the type of emulation provided by the BIOS for the device.

It is possible to choose between: ***Auto***, *Hard Disk, CD-ROM, Floppy* and *Forced FDD*.

Auto	When this option is selected the BIOS detects the current formatted media.
Hard Disk	This option allows the device to be emulated as hard disk.
CD-ROM	This option allows the device to be emulated as a CD-ROM (if the block size of the media is greater than 512 bytes).
Floppy	This option allows the device to be emulated as floppy drive.
Forced FDD	This option allows a hard disk image to be connected as a floppy image.

10.4. PCIPnP

The "PCI PnP Configuration" section of the BIOS controls the settings for the onboard PCI slots.



10.4.1.1. Clear NVRAM

This option allows you to clear the NVRAM during the system boot.

The available settings are: ***No*** and *Yes*.

10.4.1.2. Plug & Play O/S

This field determines the Plug&Play function. Plug&Play means that added components are automatically recognized and installed if they support automatic recognition.

The available settings are: ***No*** and *Yes*.

No	The system BIOS assumes the recognition of the components and assigns the resources (e.g. DOS, WIN3.1).
Yes	The operating system assumes part of the Plug&Play functions. This setting should only be selected if the operating system supports Plug&Play (e. g. Windows 95 or higher) (e.g. Windows 2000, XP, Modem, LINUX).

10.4.1.3. PCI Latency Timer

This choice specifies, how long (PCI clock) a PCI card can still use the PCI Bus as master, if another PCI card requests the access to the PCI Bus.

The available settings are: *32*, ***64***, *96, 128, 160, 192, 224* and *248*.

10.4.1.4. Allocate IRQ to PCI VGA

This option allows or restricts the system to allocate an IRQ to a VGA adapter card that uses the PCI Bus.

The available settings are: ***Yes*** and *No*.

Yes	Assigns an IRQ to PCI VGA card if the card requests an IRQ.
No	Does not assign an IRQ to a PCI VGA card even if the card requests an IRQ.

10.4.1.5. Palette Snooping

This option allows the compliance of older higher resolution video cards to the VGA standard. As presently all video boards are compliant to this standard, this option must stay ***Disabled***.

This default setting should not be changed unless the VGA card manufacturer requires Palette Snooping to be "*Enabled*".

The available settings are: *Enabled* and ***Disabled***.

10.4.1.6. PCI IDE BusMaster

If this option is „Enabled", the BIOS uses busmastering for reading/writing to IDE drives.

The available settings are: ***Enabled*** and *Disabled*.

10.4.1.7. OffBoard PCI/ISA IDE Card

This option is to be used if an offboard PCI/ISA IDE controller adapter card is installed in the system.

The settings of this option allow you to specify the PCI expansion slot on the motherboard where the offboard PCI/ISA controller is installed.

The available settings are: *PCI Slot1, PCI Slot2, PCI Slot3, PCI Slot4, PCI Slot5, PCI Slot6,* and ***Auto***.

10.4.1.8. IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, IRQ14, IRQ15

These options allow you to configure the IRQ Resources.

Available settings are: ***Available*** and *Reserved*.

Available	This setting allows the specified IRQ to be used by PCI/PnP device.
Reserved	This setting allows the specified IRQ to be used by a legacy ISA device.

10.4.1.9. Reserved Memory Size

This option allows you to specify the memory size for the ISA extension cards (only to be used if the ISA-Bridge is equipped on the backplane).

Available settings are: *16k, 32k, 64k* and ***Disabled***.

If this option is enabled to *16k, 32k* or *64k* a supplementary option is available: "**`Reserved Memory Address`**".

10.4.1.10. Reserved Memory Address

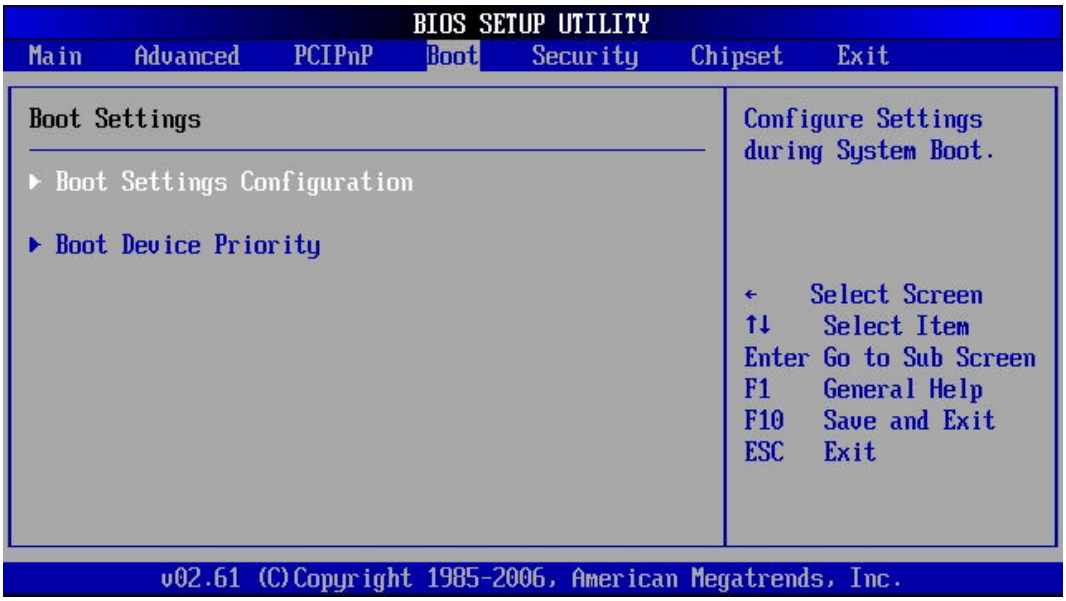
This option allows you to specify the memory size for the ISA extension cards in the reserved memory address.

Available settings are: C0000, C4000, **C8000**, CC000, *D0000, D4000, D8000* and *DC000*.

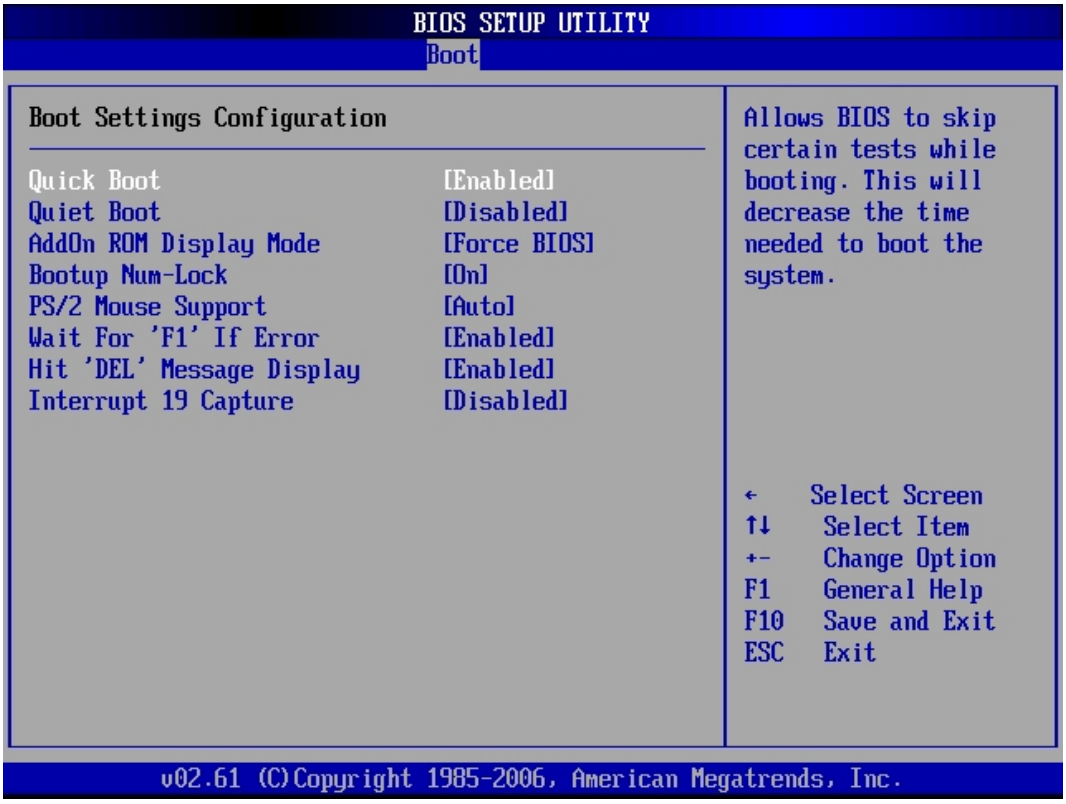
For a proper ISA card installation, set the same values of the BIOS options "Reserved Memory Size" and "Reserved Memory Address" like on the OS level and/or driver level (depending on the installed ISA card).

10.5. Boot

In the Boot menu you define the sequence in which the system BIOS searches the drives for system files to start the operating system.



- **Boot Settings Configuration**



10.5.1.1. Quick Boot

This option allows or restricts the BIOS to perform all POST tests.

It is possible to choose between: ***Enabled*** and *Disabled*.

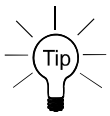
Enabled	This setting allows the BIOS to skip certain POST tests to boot faster.
Disabled	This setting allows the BIOS to perform all POST tests.

10.5.1.2. Quiet Boot

This option allows you to modify the boot up screen settings between POST messages or OEM logo.

It is possible to choose between: *Enabled* and ***Disabled***.

Enabled	This setting allows the computer system to display the OEM logo instead of POST messages.
Disabled	This setting allows the computer system to display the POST messages.



If this option is *Enabled* the installed AMI-Logo (or a customized Company-Logo, if ordered) will be displayed during POST.

10.5.1.3. AddOn ROM Display Mode

This option can be used to display add-on ROM (read-only memory) messages (e.g. the SCSI BIOS or VGA BIOS).

It is possible to choose between: ***Force BIOS*** and *Keep Current*.

Keep Current	A third party BIOS messages are not displayed during system boot.
Force BIOS	This setting allows the computer system to force a third party BIOS to display its messages during system boot.

10.5.1.4. Bootup Num-Lock

Set this value to allow the Number Lock setting to be modified during boot up.
It is possible to choose between: ***On*** and *Off*.

On	Set this value to allow the Number Lock on the keyboard to be enabled automatically when the computer system is boot up. This allows the immediate use of 10-keys numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard will be lit. This is the default setting.
Off	This option does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard will light up when the Number Lock is engaged.

10.5.1.5. PS/2 Mouse Support

This option allows you to activate or to restrict the PS/2 mouse support.

It is possible to choose between: ***Auto***, *Enabled* and *Disabled*.

Enabled	Set this value to force the system to reserve an IRQ for PS/2 devices.
Disabled	This option will prevent the PS/2 mouse port from using system resources and will prevent the port from being active. Use this setting if you want to install an external serial mouse.
Auto	Set this value to allow the BIOS to auto-detect a PS/2 mouse and to reserve the resources for it.

10.5.1.6. Wait For 'F1' If Error

This option specifies if errors detected during the boot time, determine the interruption of the boot procedure.

It is possible to choose between: ***Enabled*** and *Disabled*.

Enabled	The boot procedure is stopped, whenever the BIOS detect an error. The system waits for a user input.
Disabled	The boot procedure will be not halted for any error that may be detected.

10.5.1.7. Hit 'DEL' Message Display

This option allows you to modify the setting for "Hit 'DEL' Message Display".

It is possible to choose between: ***Enabled*** and *Disabled*.

Enabled	This setting allows the system to display: `Hit Del to enter Setup` during memory initialization. If "Quiet Boot" option is enabled, the Hit 'DEL' message will not display.
Disabled	This setting prevents the system to display: `Hit Del to enter Setup` during memory initialization. If "Quiet Boot" option is enabled, the Hit 'DEL' message will not display.

10.5.1.8. Interrupt 19 Capture

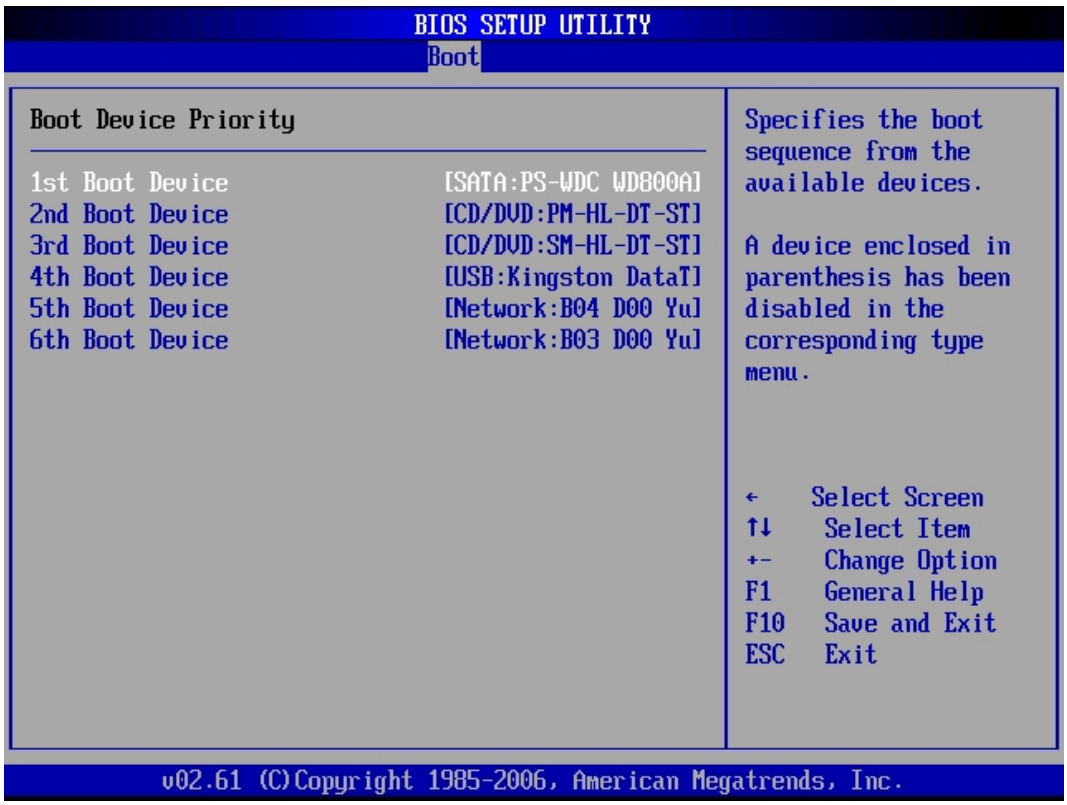
Set this value to allow option ROMs such as network controllers to trap BIOS interrupt 19.

It is possible to choose between: *Enabled* and ***Disabled***.

Enabled	The BIOS allows option ROMs to trap interrupt 19.
Disabled	The BIOS prevents option ROMs from trapping interrupt 19.

➢ **Boot Device Priority**

In the *Boot Device Priority* menu you define the sequence in which the system BIOS searches the drives for system files to start the operating system.



List of devices available for use as boot devices: (**the possible selection is depending on the system configuration**).

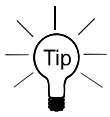
10.5.1.9. 1st / 2nd, / 3rd, ... / nth Boot Device

Available settings: *[SATA: PS-WDC WD800AAJS-00PSA0]; [CD/DVD: PM-HL-DT-STDVD-ROM GDRH2]; [CD/DVD: PM-HL-DT-STDVD-ROM GDRH2]; [USB: Kingston DataTraveler]; [Network: B04 D00 Yukon PXE]; [Network: B03 D00 Yukon PXE]* and *Disabled* .

Boot Devices (examples)		**Description**
1st Boot Device	*SATA: PS-WDC WD800AAJS-00PSA0*	Primary Slave (not included)
2nd Boot Device	*CD/DVD: PM-HL-DT-STDVD-ROM GDRH2*	Primary Master (not included)
3rd Boot Device	*CD/DVD: PM-HL-DT-STDVD-ROM GDRH2*	Secondary Master (not included)
4th Boot Device	*USB: Kingston DataTraveler*	(not included)
5th Boot Device	*Network: B04 D00 Yukon PXE*	(not included)
6th Boot Device	*Network: B03 D00 Yukon PXE*	(not included)

10.6. Security

PCI-759 supports Supervisor and User password.



Valid password (Supervisor and User) can be a 1 to 6 alphanumeric characters combination.

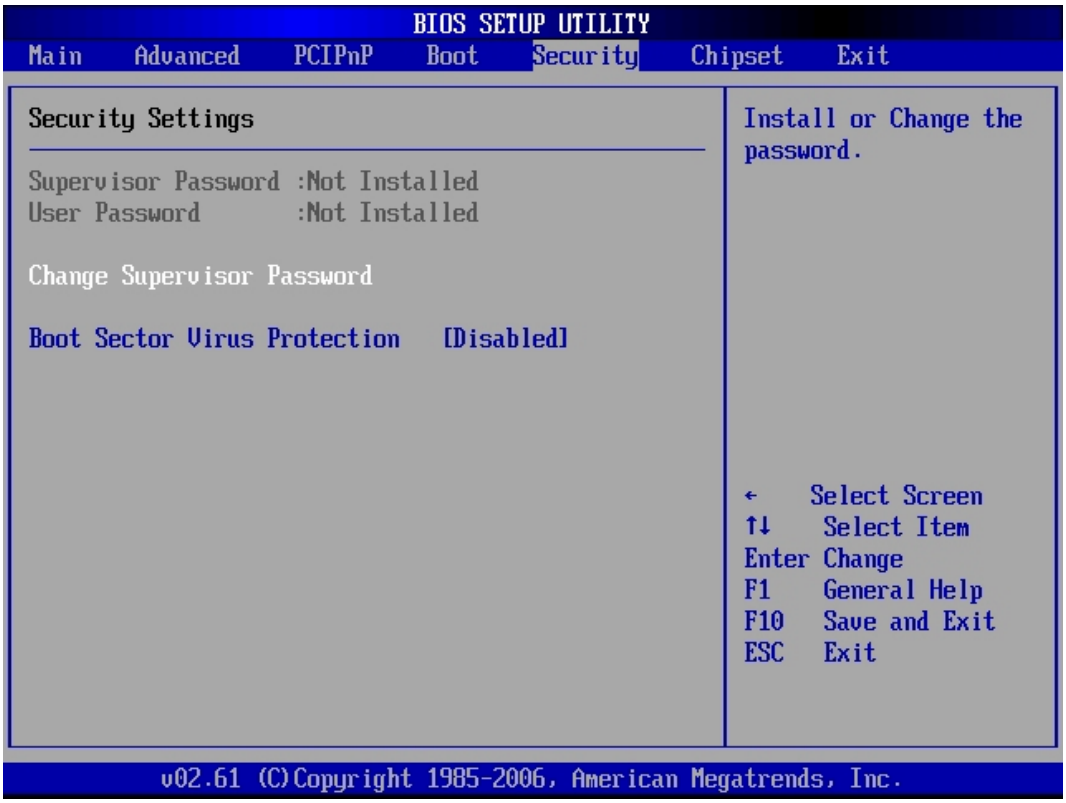
If you are using both passwords the Supervisor password must be set first.

Keep a record of the new password when the password is changed. If you forget the password, you must erase the system configuration information in NVRAM.

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

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

If you select password support, you are prompted for a one to six character password. Type the password on the keyboard. The password does not appear on the screen when typed. Make sure you write it down. If you forget it, you must drain NVRAM and reconfigure.



10.6.1. Supervisor Password

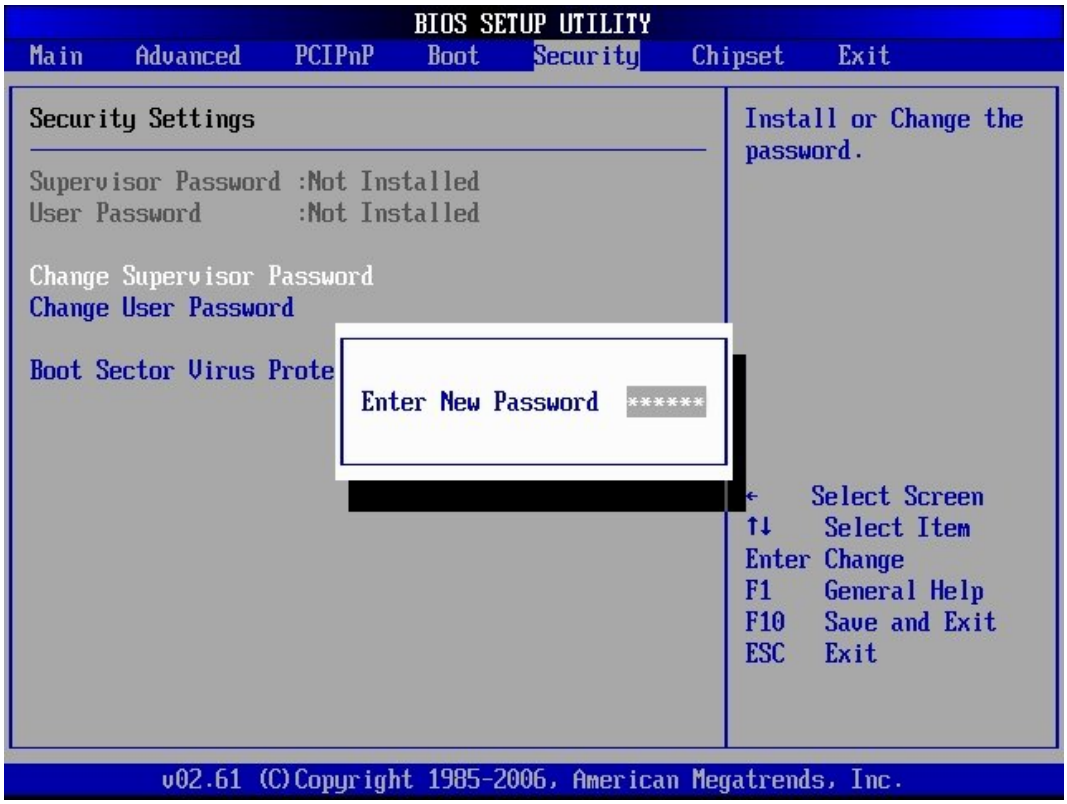
This field indicates whether a supervisor password has been set.

If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

10.6.2. User Password

This field indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

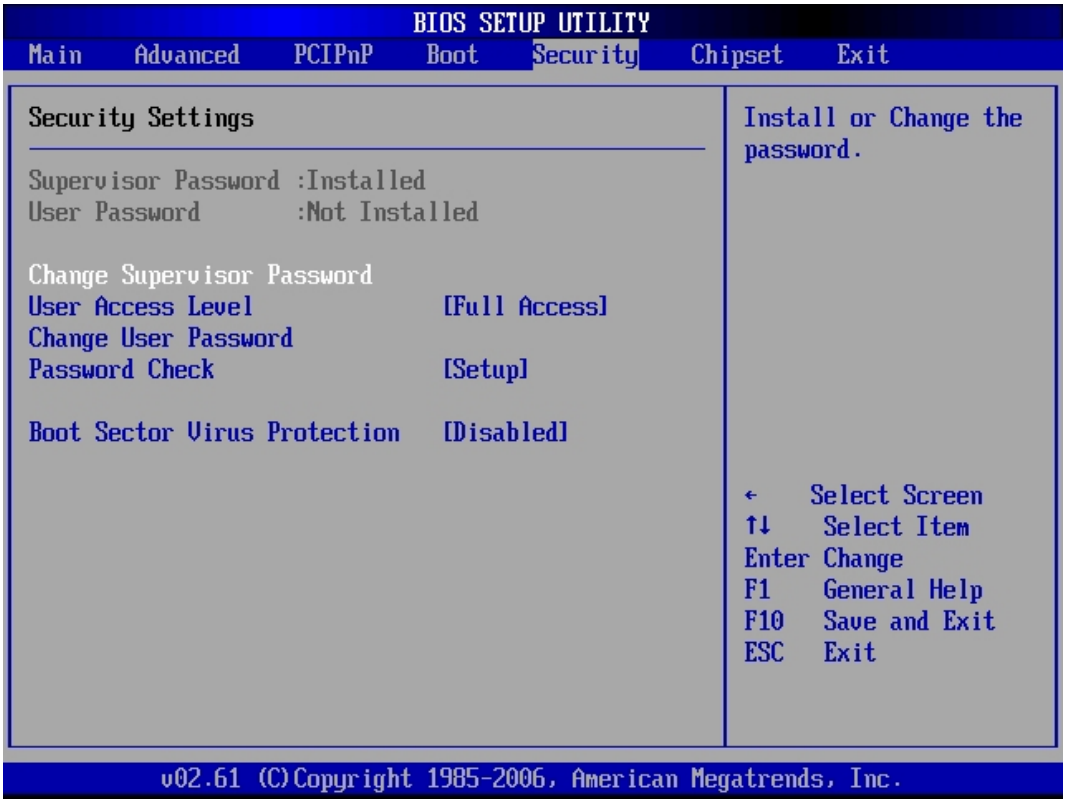
10.6.2.1. Change Supervisor Password



Select this option and press <Enter> to access the sub menu.

You can use the sub menu to change the supervisor password. Select the "Change Supervisor Password" option from the Security Setup menu and press <Enter>.

"Enter New Password:" input field appears. Valid password can be a 1 to 6 alphanumeric characters combination. Type the password and press <Enter>. The screen does not display the characters entered. "Confirm New Password:" input field appears. Retype the password as prompted and press <Enter>. If the password confirmation is incorrect, an error message appears. The password is stored in NVRAM.



If a Supervisor Password is installed two options are available:

"User Access Level" with following settings: ***Full Access***, *Limited, View Only,* and *No Access*.

"Password Check" with following settings: ***Setup*** and *Always*.

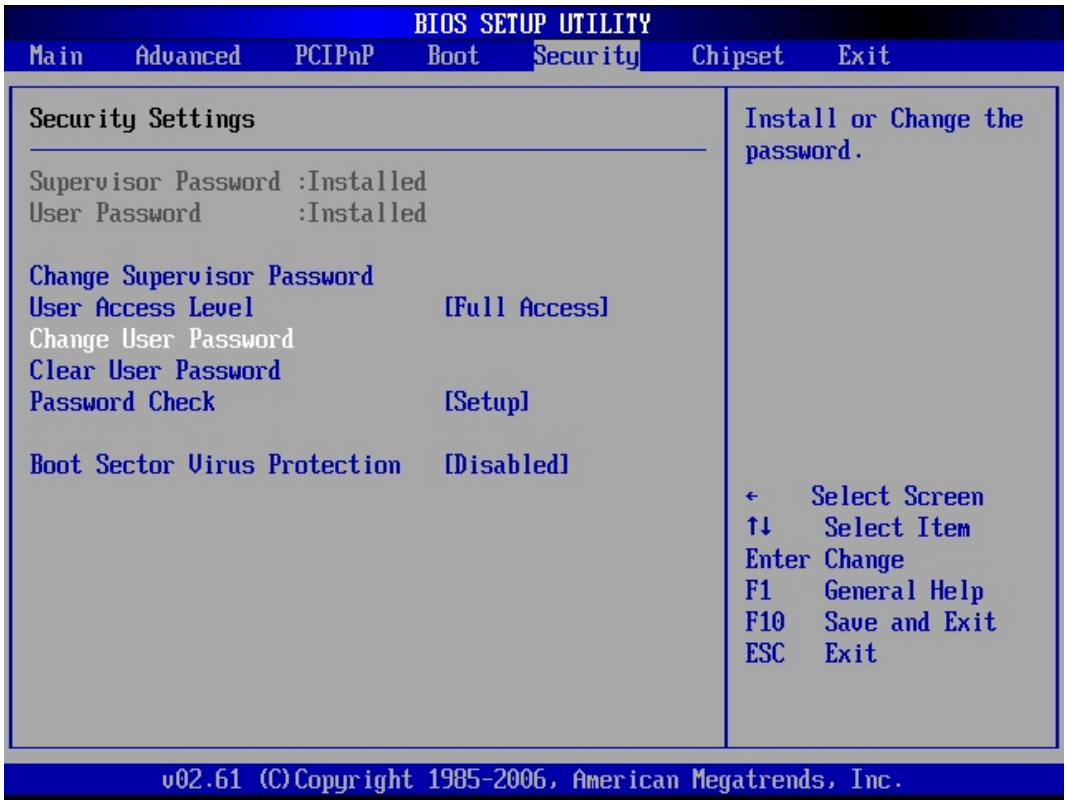
10.6.2.2. Change User Password

Select this option and press <Enter> to access the sub menu.

You can use the sub menu to change the user password. Select Change User Password from the Security Setup menu and press <Enter>.

"Enter New Password:" input field appears. Valid password can be a 1 to 6 alphanumeric characters combination. Type the password and press <Enter>. The screen does not display the characters entered. "Confirm New Password:" input field appears. Retype the password as prompted and press <Enter>. If the password confirmation is incorrect, an error message appears. The password is stored in NVRAM.

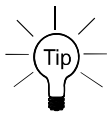
If a User Password is installed are available the **"Clear User Password"** option:



10.6.3. Boot Sector Virus Protection

With this field you can protect the boot sector against virus.
It is possible to choose between: *Enabled* and ***Disabled***.

Enabled	The boot sector cannot be changed. A virus that attacks the boot sector cannot infect the system. Select "*Enabled*" to enable boot sector protection. The system 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. You may have 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**)? _
Disabled	The boot sector could be changed. The protection is disabled.

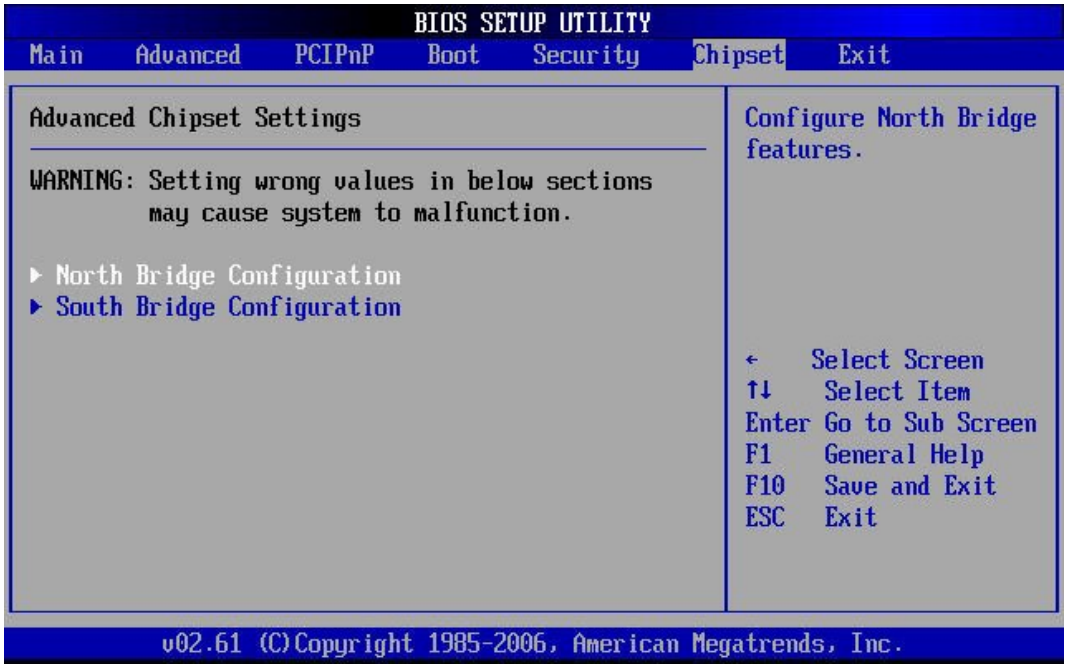


Before installing an operating system you have to change this selection to "*Disabled*". During installation the first sector is written by the operating system. After the installation you can enable the boot virus protection by set *"Enabled"*.

Boot Sector Virus is not very common today. Set this do not replace the anti-virus software.

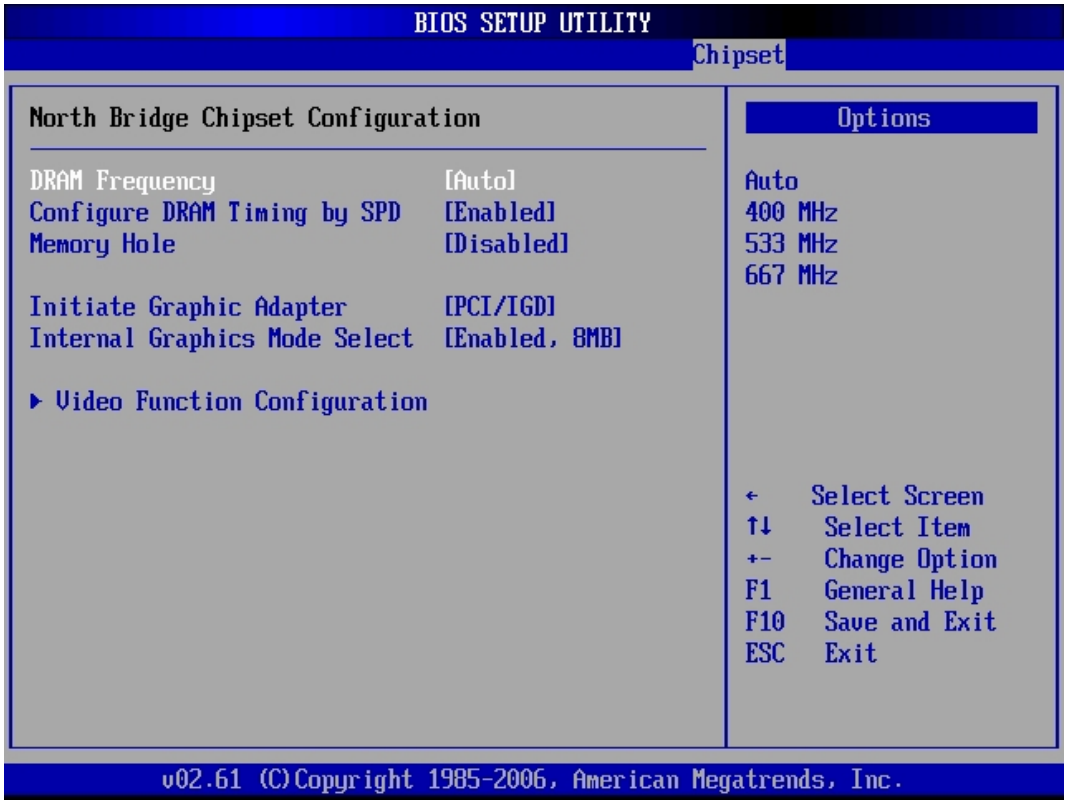
10.7. Chipset

All "Chipset" BIOS Setup options are described in this section. The "Chipset" BIOS Setup screen is shown below.



10.7.1. North Bridge Chipset Configuration

You can use this field to select options for the NorthBridge chipset configuration.



10.7.1.1. DRAM Frequency

The available settings are: ***Auto***, *400 MHz*, *533MHz* and *667 MHz*.

10.7.1.2. Configure DRAM Timing by SPD

The available settings are: ***Enabled*** and *Disabled*.

10.7.1.3. Memory Hole

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space 15MB-16MB.

The available settings are: *15MB-16MB* and ***Disabled***.

10.7.1.4. Initiate Graphic Adapter

These settings allow you to select the graphics controller used as primary boot device.

The available settings are: *IGD*, ***PCI/IGD***.

PEG: PCI Express Graphics

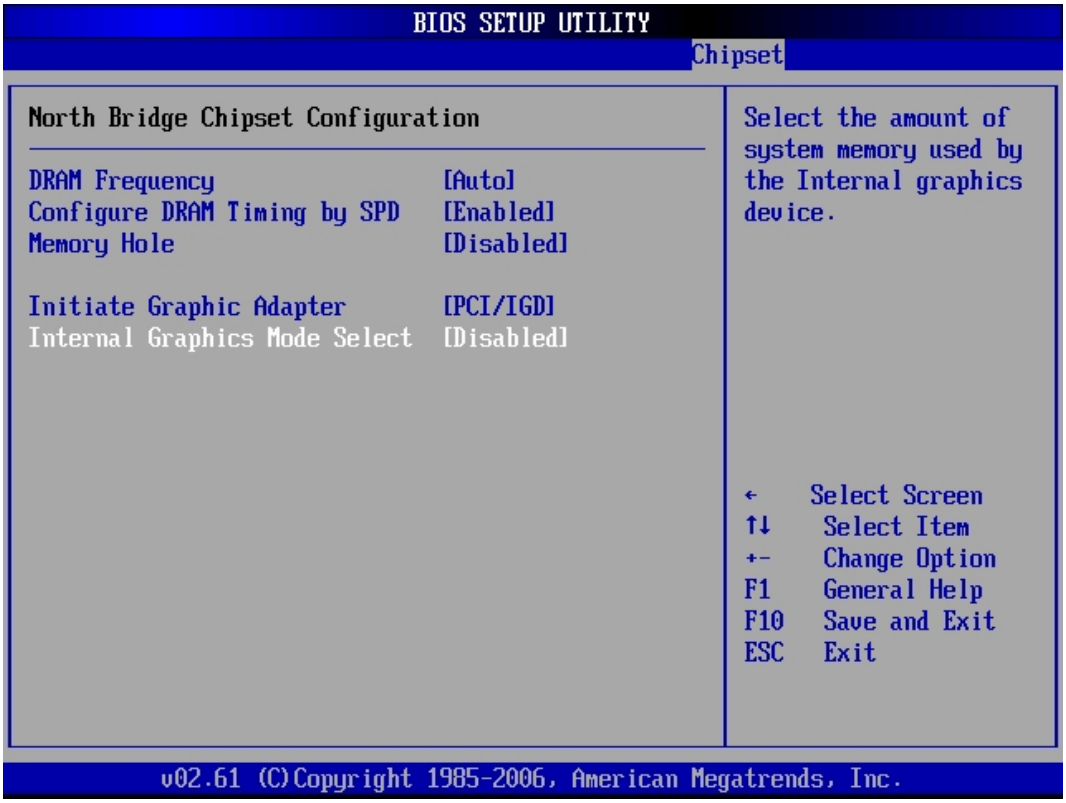
PCI: PCI Device

10.7.1.5. Internal Graphics Mode Select

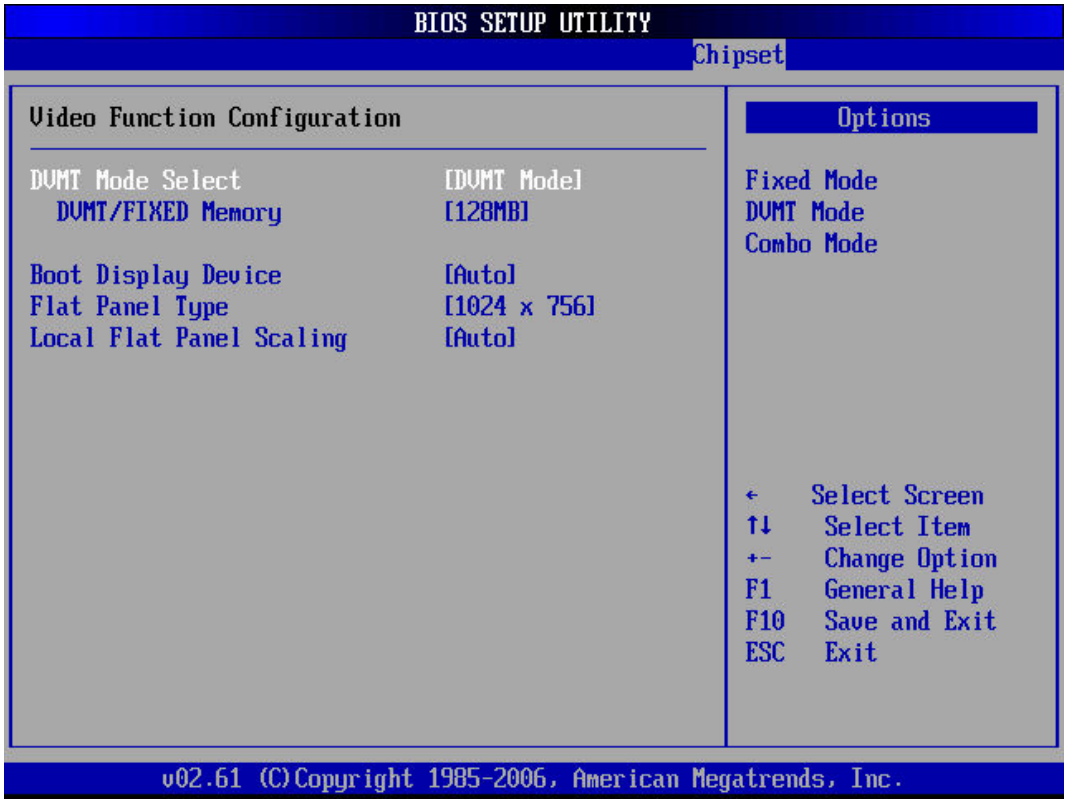
This option allows you to select the amount of system memory used by the internal graphics device.

Available settings are: *Enabled, 1MB*, / ***Enabled, 8MB***, / *Disabled*.

If the [`Internal Graphics Mode Select`] option is set to "*disabled*" the submenu [`Video Function Configuration`] is not available (refer to the picture below).



➢ **Video Function Configuration**



10.7.1.6. DVMT Mode Select

This option allows you to select the DVMT operating mode.

Available settings are: *Fixed Mode*, ***DVMT Mode*** and *Combo Mode*.

10.7.1.7. DVMT/Fixed Memory

Available settings are: *Maximum DVTM*, *64MB* and ***128MB***.

The option [DVMT/Fixed Memory] is not accessible when the option [DVMT Mode Select] is set to ***Combo Mode***.

10.7.1.8. Boot Display Device

This option allows you to select the boot display device.

Available settings are: ***Auto***, *CRT, LFP and CRT & LFP*

10.7.1.9. Flat Panel Type

This option allows you to select the flat panel type.

Available settings are: *1024 x 756, 1280 x 1024, 1400 x 1050* and *1600 x 1200*.

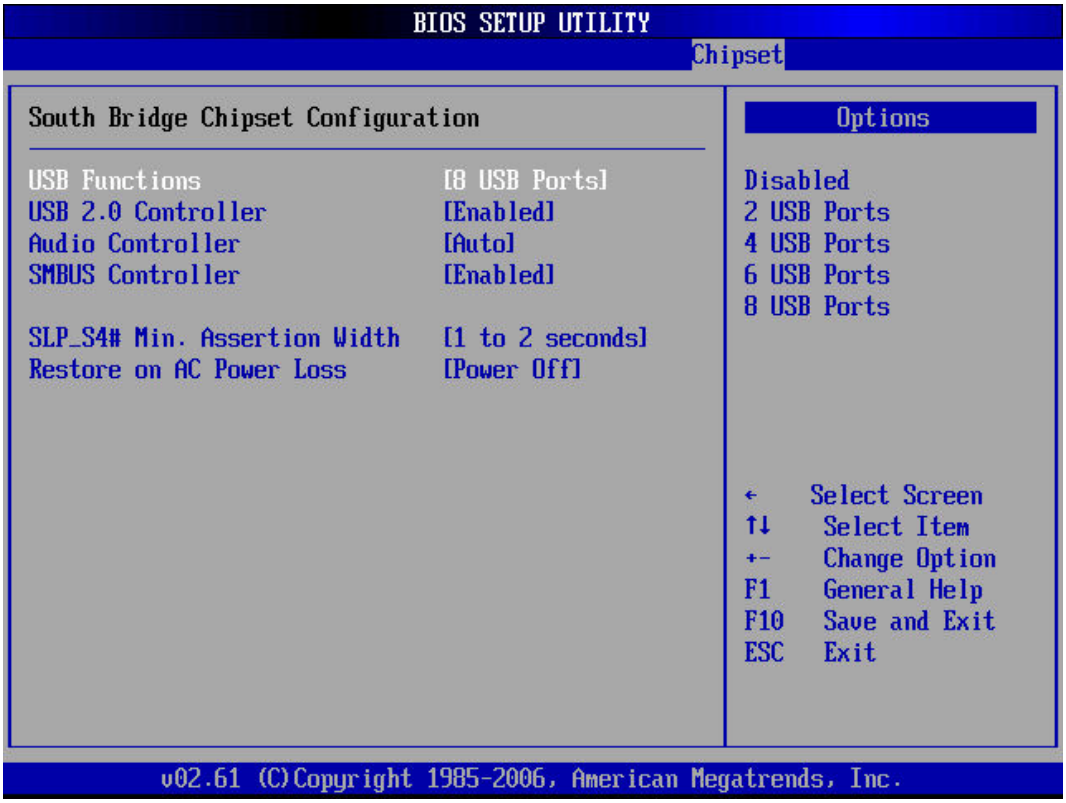
10.7.1.10. Local Flat Panel Scaling

This option allows you select the setting for flat panel scaling.

Available settings are: ***Auto***, *Force Scaling* and *Disabled*.

10.7.2. South Bridge Chipset Configuration

You can use this field to select options for the SouthBridge chipset configuration.



10.7.2.1. USB Function

This option allows you to enable or disable the host controllers.

Possible settings are: *Disabled, 2 USB Ports, 4 USB Ports, 6 USB Ports* and ***8 USB Ports***.

10.7.2.2. USB 2.0 Controller

This option allows you to enable or disable the EHCI USB controller function.

Possible settings are: ***Enabled*** and *Disabled*.

If this option "`USB 2.0 Controller`" is set to "*Disabled*", the option "`USB 2.0 Controller Mode`" (Advanced/USB Configuration) is not available.

10.7.2.3. Audio Controller

This option allows you to enable or disable the onboard audio.

The available settings are: ***Auto,*** *AC'97 Audio and Modem*, *Azalia* and *All Disabled*.

10.7.2.4. SMBUS Controller

This option allows you to enable or to disable the SMBUS controller.

Possible settings are: ***Enabled*** and *Disabled*.

10.7.2.5. SLP_S4# Min Assertion Width

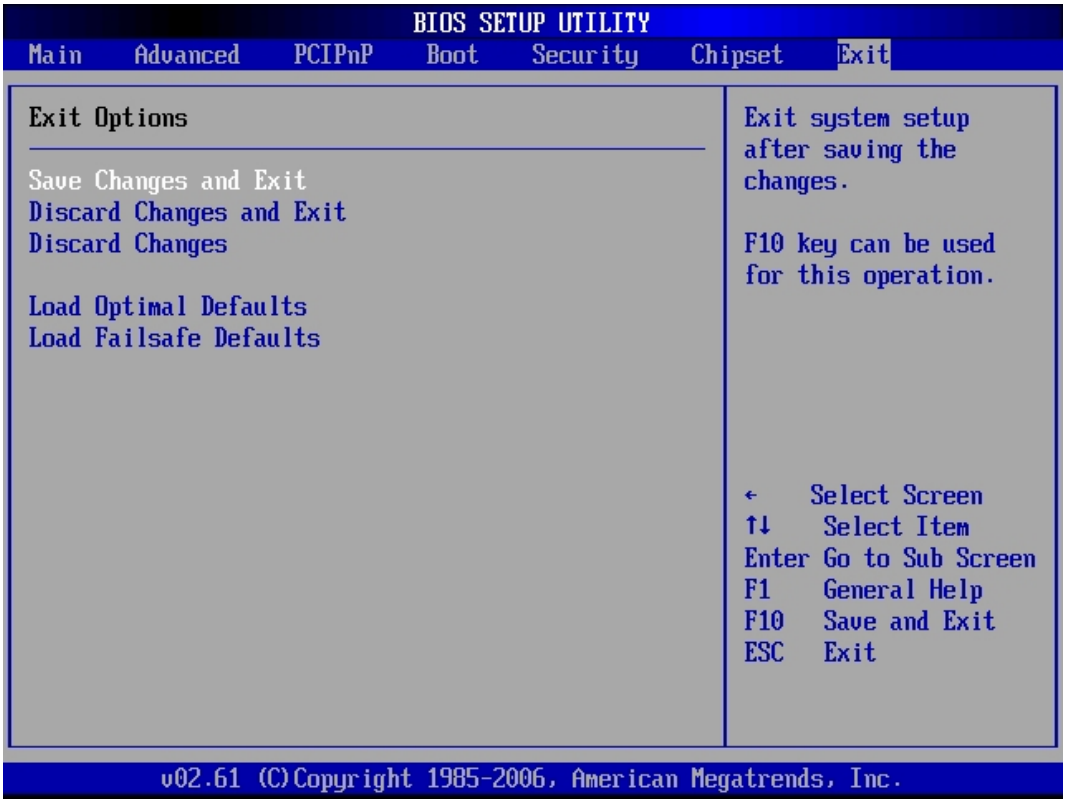
The available settings are: ***1 to 2 seconds***, *2 to 3 seconds*, *3 to 4 seconds* and *4 to 5 seconds*.

10.7.2.6. Restore on AC Power Loss

This option allows you to specify the state the system should return to when power is restored after AC power loss.

The available settings are: ***Power Off*** *and Power On*.

10.8. Exit



10.8.1. Save Changes and Exit

This field saves the settings you have made and exits BIOS Setup.

10.8.2. Discard Changes and Exit

This field exits BIOS Setup without saving the new settings.

10.8.3. Discard Changes

This field resets all values to those that were active when the computer was turned on without exiting BIOS Setup.

10.8.4. Load Optimal Defaults

This option allows you to load the default values of your system configuration. These default settings (manufacturing settings) are optimal and enable all high performance features.

10.8.5. Load Failsafe Defaults

By this option the system can reload all default settings, which are permanently stored in the BIOS-ROM.
These settings are not the optimized default settings (manufacturing defaults) for your system, but can be used, if after changes, the system does not run reliably. The Fail-Safe settings are designed for maximum stability, but not maximum performance.

11. Technical Data

PCI-759 Board	Main Specification
Processor	Intel® Core™ 2 Duo or Celeron® S (45nm process technology) Socket 775 For CPU frequency, please refer to the actually data sheet on the web page: www.kontron.com
Board Type	PICMG 1.0 standard, full size
Memory Socket	2x 240-pin DDR2 DIMMs
Memory	Up to maximum 4GB of 400/533/667 MHz DDR2 SDRAM (dual channel), unbuffered, non-ECC; DIMM Memory Type: (256 MB, 512MB), 1GB, 2GB.
Cache	Up to 4 MB Level 2 depending on the installed processor
Chipset	Intel® 945G Express Chipset Graphics and Memory Controller Hub (GMCH) with integrated Graphics Media Accelerator 950 and Intel® ICH7
Gigabit Ethernet Controllers	2x onboard Marvell LAN Controller
ISA Interface	PCI to ISA Bridge ITE8888G
LPC Super I/O	Winbond W83627EHF
BIOS	AMI BIOS PnP; ACPI 3.0; 4MB (32Mbits) Flash BIOS ROM
Watchdog	Time-out occurs after 255 seconds/minutes
Operating Systems	Information about the applicable operating systems refer to the web page: www.kontron.com or: support@kontron.com
External Connectors (on the slot bracket)	2x Ethernet (LAN1, LAN2) (10/100/1000 Mbps, 1x USB (2.0) 1x VGA 1x combined PS/2 keyboard and Mouse
Onboard Connectors	1x EIDE Ultra DMA, ATA/133 (CompactFlash shared for CompactFlash Type-II) 1x Floppy (FDD) 4x SATA II, 3Gbps 1x Mini PCI slot, 32-bit/33MHz PCI bus 2x Serial Port 1x COM1 (RS232) 1x COM2 (RS232) configurable RS422, RS485 1x Parallel Port 6x USB (2.0) 1x Audio interface connector (optional Audio daughter board) 1x Connector with support for: 1x Reset Button 1x HDD LED 1x External or internal Speaker 1x Connector with support for: 1x Power LED 1x Keyboard Lock 1x Power Button 1x I2C Bus SMB Data and Clock 1x Connector for ATX Power Control 2x 12V Fan Power Connector (4-pin) 1x 12V ATX Power Connector 1x LVDS 1x Lithium Battery Socket

The table is continued on the next page.

Onboard Jumpers	1x Jumper for LCD (LVDS) power selection (+3.3V or +5.0V) 1x [CompactFlash Configuration (Master or Slave) as option] 1x RTC Reset (Clear CMOS)
Power Supply	Lithium battery 3.0 V for RTC, Type: CR2032 External ATX PSU and additional 12V ATX Power via backplane and PICMG 1.0 edge connector: +12.0 V, +5.0 V

11.1. Electrical Specifications

Board Version	**Type of the external PSU**	**Inputs via**	
PCI-759	ATX PSU	Backplane	+5.0 V, +12.0 V
		On-board 12 V ATX power connector: Power ATX	+12V

11.2. Mechanical Specifications

Dimensions	338.3 mm x 122 mm x 22.7 mm (13.33" x 4.8" x 0.89") (height without CPU heatsink)
Weight	0.450 kg (0.992 lbs.) (without CPU fan)

11.3. Environmental Specifications

Operating Temperature	0 °C to 60 °C (32 °F to 140 °F)
Storage/Transport Temperature	-40 °C to +70 °C (-40 °F to 158 °F)
Relative Humidity	5 % to 95 % (non-condensing)
Vibration	Frequency: 10 - 300 Hz Acceleration: 2 g Cycle Count: 10/axis, 3 axis
Bump	Peak Acceleration: 15 g Duration: 11 ms half sine Shock Counts: 500 /direction
Shock	Peak Acceleration: 30 g Shock Duration: 9 ms half sine Shock Count: 3/direction, 6 directions

11.4. CE Directives, Standards

CE Directives	
Electrical Safety	General Product Safety Directive (GPSD) 2001/95/EC Low Voltage Directive (LVD) 2006/95/EC
ElectroMagnetic Compatibility (EMC)	EMC Directive 2004/108/EC
CE Marking	Council Directive 93/68/EEC

Electrical Safety	Harmonized Standards
EUROPE	Information technology equipment - Safety - Part 1: General requirements EN 60950-1: 2006
U.S.A. / CANADA	UL Listing/Classification Mark File E147705

EMC	Harmonized Standards
EUROPE	Generic emission standard for industrial environments (Emission): EN 61000-6-4:2006 Generic standards - Immunity for industrial environments (Immunity): EN 61000-6-2:2005
U.S.A.	FCC 47 CFR Part 15, Class A
CANADA	ICES-003, Class A

12. Declaration of Conformity

Declaration of Conformity

The product/device described below

Type of Equipment: **CPU Board**
Model: **PCI-759**
Article-Number: **9-1101-3620**

complies to the European Council Directive on the approximation of the laws of the member states relating to electromagnetic compatibility (2004/108/EC), General Product Safety Directive (2001/95/EC) and Low Voltage Directive (2006/95/EC) or the last status thereof.

Following standards are constitute part of the declaration:

EN 60950-1:2006	Safety for Information Technology Equipment including electrical business equipment
EN 61000-6-3:2006	(EMC) Generic emission standard Part 6-3: Emission standard for residential, commercial and light-industrial environments
EN 55022:1998 + A1:2000 + A2:2003	(EMC) Emission of Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement
EN 61000-6-2:2005	(EMC) – Generic standard – Immunity for industrial environmental Includes following tests accordingly
	IEC 61000 PT4-2, (EN 61000-4-2) Electrostatic discharge immunity ESD IEC 61000 PT4-3, (EN 61000-4-3 and ENV 50204) Radiated Field IEC 61000 PT4-4, (EN 61000-4-4) Electrical fast transient/burst (EFT) BURST IEC 61000 PT4-5, (EN 61000-4-5) Surge immunity test IEC 61000 PT4-6, (EN 61000-4-6) Immunity to conducted disturbances IEC 61000 PT4-8, (EN 61000-4-8) Immunity to magnetic fields (LOW) IEC 61000 PT4-11, (EN 61000-4-11) Testing and measuring techniques-voltage dips, short interruption, and voltage variations immunity tests

The responsible party declares in the name of the producer that the equipment specified above conforms to the referenced rules, regulations and standards.

Signature: _____ (Managing Director)

Date: 24.06.2008

Kontron Embedded Computers GmbH
Oskar-von-Miller-Straße 1, 85386 Eching, Germany
Tel +49 81 65 77 0 • Fax +49 81 65 77 385 • www.kontron.com
Geschäftsführung: Carlos Queiroz, Amtsgericht München HRB 5778, VAT DE 8 111 63 036, Steuer-Nr. 115/116/00105
Dresdner Bank AG Freising, BLZ 700 800 00, Kto.-Nr. 929 954 300, HypoVereinsbank AG München, BLZ 700 202 70, Kto.-Nr. 328 035

13. Technical Support

For technical support, please contact our Technical Support department.
German headquarter Hotline:
TEL: (+49) 8165-77 112
FAX: (+49) 8165-77 110
E-mail: support-keu@kontron.com

Make sure you have the following on hand when you call:

- the unit part id number (P/No #),
- and the serial number (S/No #) of the unit (provide the serial number found on the label, placed on the rear side of the board).

Be ready to explain the nature of your problem to the service technician.

If you have any questions about Kontron Europe or our products and services, you may reach us at the aforementioned numbers, or at: www.kontron.com or by writing to:

Kontron Europe GmbH
Oskar von Miller-Str. 1

85386 Eching
Germany

13.1. Returning Defective Merchandise

Before returning any merchandise please:

1. Download the form for returning a device with an RMA No. [RMA (**R**eturn of **M**aterial **A**uthorization)] from our website www.kontron.com / Support /RMA Information; contact our Customer Service department to obtain an RMA No.:
   Fax: (+49) 8165-77 412
   e-Mail: service@kontron.com
2. Ensure that you have received an RMA No. from Kontron Customer Services before returning any device. Write this number clearly on the outside of the package that you are sending to us.
3. Describe the fault that has occurred.
4. Please provide the name and telephone number of a person we can contact to obtain more information, where necessary. Where possible, please enclose all the necessary customs documents and invoices.
5. When returning a device:
   - Pack it securely in its original box.
   - Enclose a copy of the RMA form with the consignment.

Corporate Offices

Europe, Middle East & Africa

Oskar-von-Miller-Str. 1
85386 Eching/Munich
Germany
Tel.: +49 (0)8165/ 77 777
Fax: +49 (0)8165/ 77 219
info@kontron.com

North America

14118 Stowe Drive
Poway, CA 92064-7147
USA
Tel.: +1 888 294 4558
Fax: +1 858 677 0898
info@us.kontron.com

Asia Pacific

17 Building,Block #1,ABP.
188 Southern West 4th Ring
Beijing 100070, P.R.China
Tel.: + 86 10 63751188
Fax: + 86 10 83682438
info@kontron.cn