Benutzerhandbuch/ User's Manual

PCI - 955 Board

User's Manual

Version 1.01

Kontron Embedded Computers GmbH

0-0096-3493

kontron

If it's Embedded, it's Kontron.

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Introduction

Kontron Embedded Computers would like to point out that the information contained in this manual may be subject to technical changes, particularly as a result of continuous upgrades.

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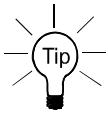
Symbols used in this Manual

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 refers to general information on the device and manual.
	This symbol comes before useful information and tips for routine operation.
SYSM	Program names are printed in *italics*.
`format a:`	Commands are printed in `Courier`.

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® IBM, PC-AT, OS/2 and PS/2 are registered trademarks of the International Business Machines Corporation.

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Other product names cited in this manual may also be trademarks and are used here solely for identification purposes.

Important Instructions

This chapter contains safety instructions which must be observed when using the PCI-955 board.

The manufacturer's instructions provide useful information on your PCI-955 board.

Note on the Warranty

Due to their limited service life, parts which by their nature are subject to a particularly high degree of wear (wearing parts) are excluded from the warranty beyond that provided by law. This applies to the batteries, for example.

Exclusion of Accident Liability Obligation

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

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 Embedded Computers shall not be required to honor the warranty even during the warranty period and shall be exempted from the statutory accident liability obligation.

Safety Instructions

Please read this section carefully and observe the instructions for your own safety and correct use of the board. Observe the warnings and instructions on the board and in the manual.

The PCI-955 board has been built and tested by Kontron Embedded Computers in accordance with IEC / EN 60950 and left the company in a perfectly safe condition.

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

Kontron Embedded Computers can only guarantee the safety, reliability and performance of the board if all of the following safety instructions are observed.

- ❑ The PCI-955 board must be used in accordance with the instructions for use.
- ❑ The PCI-955 board is designed to be built into a system. The integration into the system has to be done such that the system complies with the IEC / EN 60950 safety rules.
- ❑ 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 adhere to the specifications given in the “Electrical Specifications” section.
- ❑ Only devices and components which fulfill the requirements of a SELV circuit (security extra low voltage) in accordance with IEC / EN 60950 may be connected to the interfaces of the PCI-955 board.
- ❑ Please observe that all cables attached to the PCI-955 board must be duly connected and fixed.
- ❑ If extensions are made to the PCI-955 board, the legal stipulations and the board specifications must be observed.

- ❑ Repairs may only be carried out by a person authorized to do so by Kontron Embedded Computers.
- ❑ It must be assumed that safe operation is no longer possible,
  - if the device has visible damage or
  - if the device no longer functions.

  In these cases the device must be shut down and secured against unintentional operation.

Safety Instructions for the Lithium Battery

The PCI-955 board is equipped with a lithium battery. For the replacing of this battery please observe the instructions described in the chapter “Replacing the Lithium Battery”.

Warning
Danger of explosion if replaced with the wrong type of battery. Replace only with 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).

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-955 board, in order to ensure the product's 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 work stations. When safe work stations are not guaranteed, it is important for the user to be electrically discharged before touching the PCI-955 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.

Electromagnetic Compatibility

This device was developed for use in industrial applications and for business and commercial areas as well as small companies. The EMC guideline 89/336/EWG in the most recent version or the German EMC law shall apply. Insofar as the user makes alterations or extensions to the device (e.g. installation of extension cards) the preconditions for the CE conformity declaration (protection requirements) may no longer be fulfilled.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules (refer to the “Declaration of Conformity”). These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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-955 Board PICMG 1.0, full-size (depending on the ordered board configuration)
- ❑ 1x Safety Instructions
- ❑ 1x CD-ROM with the required Drivers and the PCI-955 Board User's Manual
- ❑ 1x Cable Set

Optional Parts

- ❑ DVI-D Adapter Card with Slot Bracket (has to be ordered separately)
- ❑ CompactFlash-Adapter (T069) (has to be ordered separately)

Labeling Information

The PCI-955 board is labeled in the following way (refer to fig. 1 and 1a):

- ❑ S/N (Serial Number) label, that includes the date of production and production tracking code
- ❑ QM label that includes the Kontron assembly identification with quality mark.
- ❑ Type label with part number for product identification
- ❑ 2x MAC Address label

Board Designation	**Integrated PCI Bridge**	
	PCIe to PCI Bridge 64-bit @ 66MHz	**PCI to ISA Bridge 32-bit @ 33MHz**
PCI-955/64	equipped	equipped
PCI-955/32	not equipped	equipped

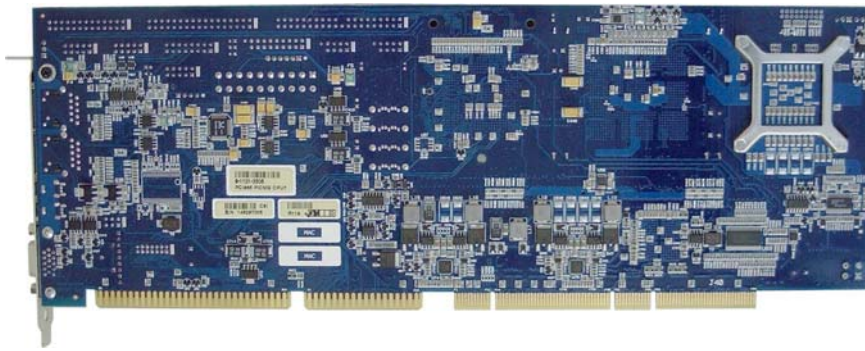


Fig. 1: Placement of Type, Serial Number, MAC Addresses and QM label

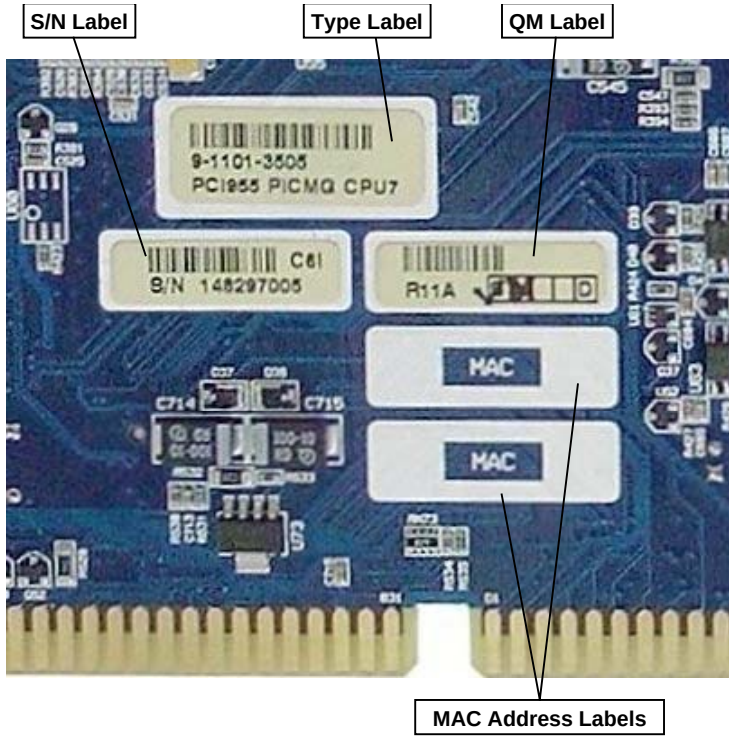


Fig. 1a: Detail with Type, Serial Number, MAC Addresses and QM label

Board Description

Fig. 2: PCI-955 Board

Fig. 3: PCI-955 Board slot bracket with interfaces

The PCI-955 is a multifunctional, full-size PICMG 1.0 Slot-CPU, designed for use in highly integrated platforms for a wide range of applications.
The board supports an Intel® Pentium® M / Intel® Celeron M processor. Adopting the Intel® 915GM in combination with Intel® ICH6 chipset, the board provides a PSB (Processor Side Bus) of 400MHz or 533MHz by a bandwidth of up to 4.3 Gbytes/s.

The implemented Intel® 915GM chipset allows up to 2x 1GB DDR2 SDRAM (Double DATA Rate, second generation) memory.

The Intel® 915GM includes the “GMA 900” (**G**raphics **M**edia **A**ccelerator) controller that offers 2D and 3D graphic acceleration and supports both analog (VGA) and digital (DVI-D) displays. LVDS and TV-out are also supported by the integrated graphics.

The Intel® ICH6 supports one onboard IDE channel (IDE 0) [up to two IDE-devices (1x “Master”, 1x “Slave”)] and four SATA channels. The optional CompactFlash shares an IDE channel.
Each of the four SATA connectors can be attached to a storage device such as a hard disk, DVD, CD-ROM, etc. The USB 2.0 ports, serial ports and intrusion alarm connector (Intruder) offer more flexibility for the configuration of your system. The ALC655 is an AC’97 compatible Audio Codec and supports audio from ICH6 chipset providing analog Line-in/out, Mic-in, and CD-In on-board connectors.

Other options include two Marvell Yukon 88E8053 Gigabit Ethernet Controllers for dual 10/100/1000 Base-TX Gigabit Ethernet LAN ports. Each Gigabit Ethernet Controller is connected to a dedicated PCI Express x1 interface of the ICH6 chipset.

A 32 bit expansion MiniPCI slot (that also provides USB2.0) is available to add more features such as wireless LAN, DES, modem or capture card.

Watchdog and power saving features are available.

The implemented SuperI/O supports: 2x serial interfaces (COM1,2), 1xIrDA, 1x LPT interface, 1x PS/2 keyboard, 1x PS/2 mouse, 1x floppy interface.

Features

Processor Socket: Intel® Socket 479.

Processor: Intel® Pentium® M or Celeron® M CPU.
The CPU temperature is monitored via a CPU internal sensor.

The Intel® Pentium® M / Celeron® M CPU uses a supply voltage (Vcore), which is generated from the 12V. It requires the extra 4-pin power header from the PSU in order to function. (See *fig. 5:* PCI-955 Jumper and connector locations)

Processor Side Bus Speed (FSB): 400 / 533 MHz

Chipset: Intel® 915GM with Intel® ICH6 Chipset

Memory:

- ❑ Two 200-pin non-ECC DDR2 SODIMMs, for single-sided and/ or double-sided DDR2 SDRAM modules up to 2GB as PC2 3200 and/or PC2 4300.

BIOS: AMI BIOS.

- ❑ The BIOS provides the “Plug &Play” feature, which detects PnP-compatible peripheral devices and expansion cards automatically.
- ❑ ACPI Power management

LPC I/O: Winbond W83627HF

- ❑ Temperature control: CPU temperature control (0°C to +100°C), monitored via a CPU internal temperature sensor.
- ❑ Voltage monitoring: +12V, +5V, +5VSB, +3.3V, VCC-Core, VBAT
- ❑ Power management: ACPI 2.0 compliant
- ❑ Supervisory: Fan control (Speed control)

Enhanced IDE:

- ❑ 1x IDE channel for up to two devices with Ultra ATA100/66/33 capabilities as Master and Slave. The IDE interface supports PIO IDE transfers up to 16 Mbytes/sec and Ultra ATA transfers up to100 Mbytes/sec.
- ❑ Support for CompactFlash Drive (can be configured as Master or Slave)

CompactFlash:

- ❑ One Compact Flash Socket (TO69) on-board. This interface is shared with the IDE channel
- ❑ Jumper (JP1) selectable as Master or Slave mode

SATA:

- ❑ 4x Serial ATA interfaces, up to 150 Mbytes/s are provided. Serial ATA supports all ATA and ATAPI devices. The SATA cables can be extended up to 1 meter.

PICMG Compliance: Fully compliant with PICMG 1.0 standards

PCI Bus Interface: The PCI-955 supports data transfers on a 64-bit high-bandwidth @ 66 MHz PCI bus interface via PEX8114 chipset on-board [only if implemented (PCI-955/64)]

PCI to ISA Bridge (single function device)**:** The PCI-955 supports data transfers on a 32-bit bandwidth @ 33 MHz PCI bus interface via the ITE IT8888F chip on-board (PCI-955/32); (No DMA support)

FDD Interface: supports 1x floppy drive (1.44MB ... 2.88MB)

Parallel Port: 1x high-speed parallel port, that supports SPP/EPP/ECP modes.

Serial Port:

- ❑ 2x 16550 UART compatible serial ports (COM1, COM2) configured RS232
- ❑ the COM2 interface (RS232) is configurable as RS422 or RS485; the corresponding termination resistors (120 ohm) can be connected or disconnected using the jumpers JP7 and JP8

USB Interface:

6x USB ports 1.1/2.0 (compliant with USB Specification Rev. 2.0) are supported:

- ❑ 2x external USB connectors, on the board slot bracket
- ❑ 4x onboard-pin-header connectors
- ❑ 1x integrated on the MiniPCI slot connector
- ❑ support of boot devices like: USB-FDD, USB-HDD, USB-CD, USB-Stick

No wake-up capability is supported on the USB ports (the USB devices are not supplied with standby power).

Graphics:

Intel® 915GM integrates the graphics memory controller hub (GMCH). Additional integrated features of the GMCH:

VGA: Analog CRT DAC interface support

- ❑ 24-bit RAMDAC support
- ❑ up to 2048x1536 mode support

LVDS (JILI): Digital LVDS interface support

- ❑ Integrated dual channel LVDS interface supported on Display Pipe B only
- ❑ Single channel LVDS interface support: 1 x18 bpp
- ❑ TFT panel type supported
- ❑ Maximum panel size supported up to UXGA (1600 x 1200 pixels)
- ❑ Maximum wide panel size supported up to WUXGA (1920 x 1200 pixels)

TV-Out: Analog TV-Out interface support

- ❑ NTSC/PAL encoder standard formats supported
- ❑ Resolution up to 1024 x 768 pixels supported for NTSC/PAL

SDVO: The Serial Digital Video Output interface supports DVI-D interface

- ❑ Dual independent display pipes

PCI Express Interface (Ethernet):

2x PCI Express x1 slots integrated, supporting the LAN communication (LAN controllers):

- ❑ The two Marvell Yukon 88E8053 Gigabit Ethernet controllers support 10/100/1000 Mbps data transfers and provide a standard IEEE 802.3, 802.3u, 802.3ab Ethernet interface for 10/100/1000 Base-TX applications.
- ❑ Boot on LAN and Wake On LAN (WOL) are supported

PS/2 Keyboard and Mouse Support:

- ❑ 1x onboard mouse signals (on J12 the multifunctional 16-pin header) that supports an external PS/2 mouse connector
- ❑ 1x onboard keyboard signals (on J12 the multifunctional 16-pin header) that supports an external PS/2 keyboard connector.

IrDA Interface:

- ❑ The standard IrDA interface with maximum baud rate up to 115.2Kb/s is supported via one planar header. This-pin-header connector allows you to connect an external IrDA module.

MiniPCI Slot Connector:

- ❑ The single MiniPCI interface (type IIIA) allows expansion with a corresponding MiniPCI card.
- ❑ Additional signals (USB2.0) on reserved-pins for bluetooth support are available.

Extended Functions

- ❑ Watchdog: via SuperI/O
- ❑ Watchdog Timer: programmable ca. 255 sec.
- ❑ TimeOut Event: NMI or Reset

Last Reset Event: provides a code to display the event responsible for the last system reset

Voltage Monitoring: +12V, +5V, +3.3V, 5VSB, VBAT, CPU core (8-bit resolution)

FAN Speed Control: of two fans [J1 and J2, maximum current: 400 mA each] (8-bit resolution)

Tachometer Outputs Monitoring: of three fans (J1, J2, J16)

Functional Diagram

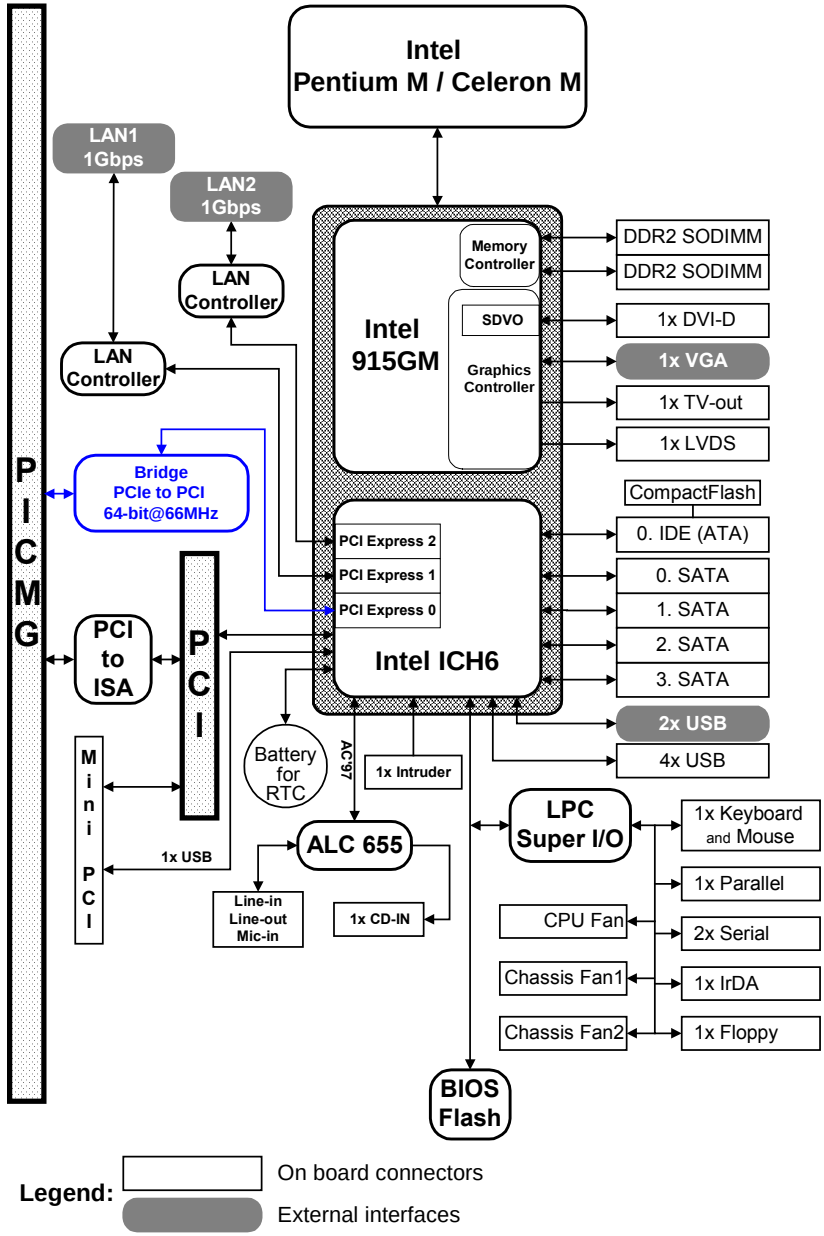


Fig. 4: PCI-955/64 (with PCIe to PCI bridge) - Functional diagram

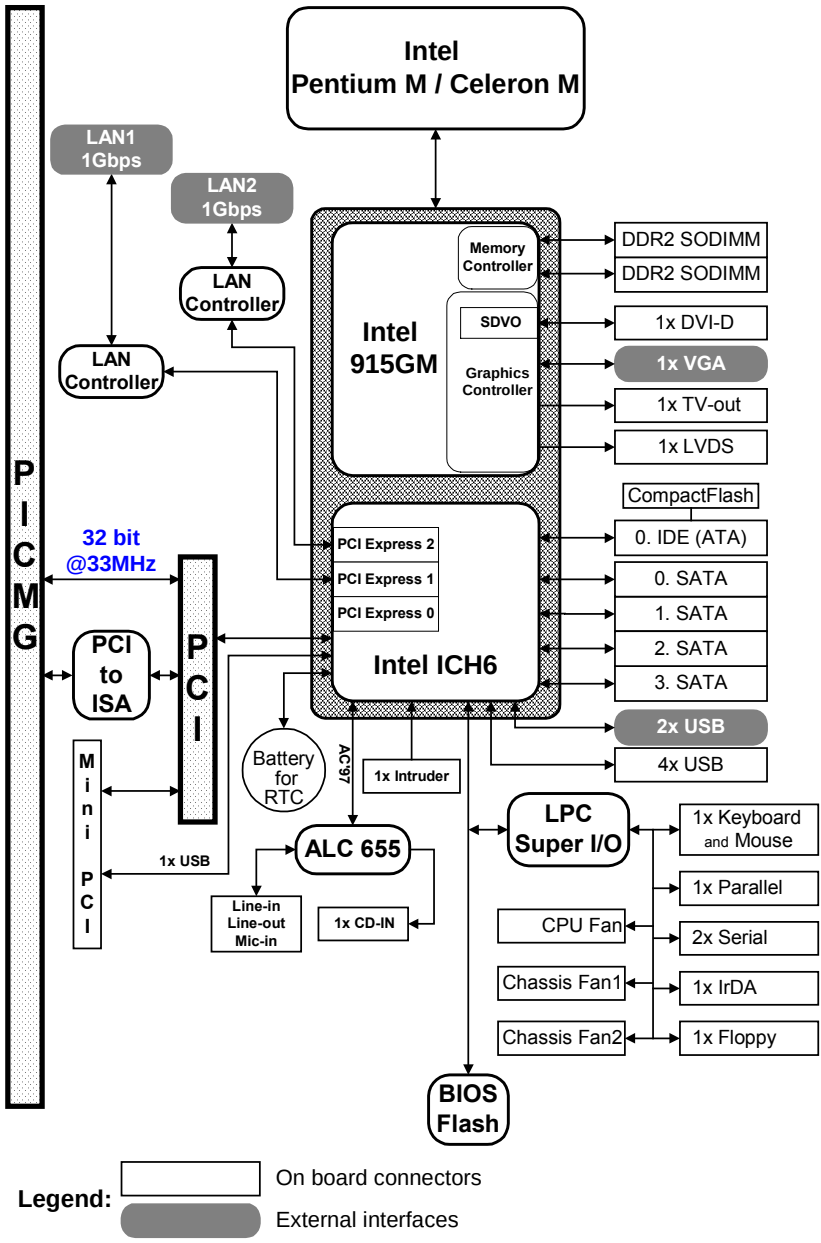


Fig. 4a PCI-955/32 (only with PCI to ISA bridge) -Functional diagram

Configurations

This chapter provides information on how to use the jumpers and connectors located on the PCI-955 in order to set up a workable system.

Memory Installation

The PCI-955 board supports two 200-pin DDR2 SODIMM sockets for a total memory of up to 2GB DDR2 SDRAM. Single/double-sided memory modules can be combined in sizes of 256MB, 512MB up to a maximum 1GB pro DDR2 SODIMM socket.
Each one of the two sockets can be populated first (individually also).

Refer to the table bellow to configure the memory (examples for configuration):

DDR2 DIMM1	DDR2 DIMM2	Total Memory
256MB	--------	256MB
512MB	--------	512MB
1GB	--------	1GB
256MB	256MB	512MB
256MB	512MB	768MB
256MB	1GB	1280MB
512MB	256MB	768MB
512MB	512MB	1GB
512MB	1GB	1536MB
1GB	1GB	2GB

Jumpers and Connectors on the PCI-955

The connectors on the PCI-955 allow you to connect external and internal devices such as keyboard, floppy disk drive, hard disk drives, printers, etc. The following table lists the jumpers and connectors on PCI-955 and their functions.

On-Board Jumpers	
JP1	CompactFlash Configuration (page 24)
JP2	Power Button Configuration (page 25)
JP5	RTC Reset (Clear CMOS) (page 25)
JP7	COM2 (RS485/422) Configuration with termination resistors (page 26)
JP8	COM2 (RS422) Configuration with termination resistors (page 26)
JP10	CPU Configuration (3-pin), (page 28)
JP11	CPU Configuration (3-pin), (page 28)
JP12	CPU Configuration (2-pin), (page 28)
External Interfaces	
J39	VGA Connector (page 31)
J28	LAN1 Connector (page 30)
J23	LAN2 Connector (page 30)
J32	USB0 Connector (page 31)
J33	USB1 Connector (page 31)
On-Board Connectors	
JP6	Chassis Intruder Connector (2-pin) (page 49)
JP9	Additional Power Button Connector (2-pin) (page 33)
J1	12V J1: CPU Fan Power Connector (3-pin) (page 35)
J2	12V J2: Chassis Fan1 Power Connector (3-pin) (page 35)
J3+J4	In-Target Probe (ITP) Connector (reserved)
J5	TV-out Connector (4-pin) (page 50)
J6	LVDS Connector (JILI) (40-pin) (page 47)
J7	2x USB (USB2, USB3) (9-pin+key) (page 46)
J8	IDE0 (40-pin) (page 36)
J9	2xUSB (USB4, USB5) (9-pin+key) (page 46)
J10	DVI-D Connector (page 48)
J11	Floppy Connector (34-pin) (page 39)

The table is continued on the next page.

J12	Multifunctional Connector (16-pin) (page 33)
J13	Serial Connector COM1(10-pin) (page 42)
J14	Parallel Connector LPT (26-pin) (page 45)
J15	Serial Connector COM2 (10-pin) (page 43)
J16	12V Fan2 Connector (3-pin) (page 35)
J17	CompactFlash Connector (IDE) (page 38)
J18	SATA0 Connector (page 37)
J19	ATX Control Connector (page 33)
J20	Main Power Connector (20-pin) (page 32)
J21	CD-IN Connector (4-pin) (page 49)
J22	Audio Connector (10-pin) (page 50)
J24	SATA1 Connector (page 37)
J25	SATA2 Connector (page 37)
J26	SATA3 Connector (page 37)
J27	MiniPCI Connector (126-pin) (page 40)
J29	DDR2 SODIMM0 Connector (200-pin)
J30	DDR2 SODIMM1 Connector (200-pin)
J31	IrDA Connector (6-pin) (page 49)
J34	12V ATX Power Connector (4-pin) (page 32)
J35	ISA Connector
J36	FWH Upgrade Mezzanine Interface (reserved)
J37	XILINX (reserved)
J38	Lithium Battery Socket

Jumper and Connector Locations

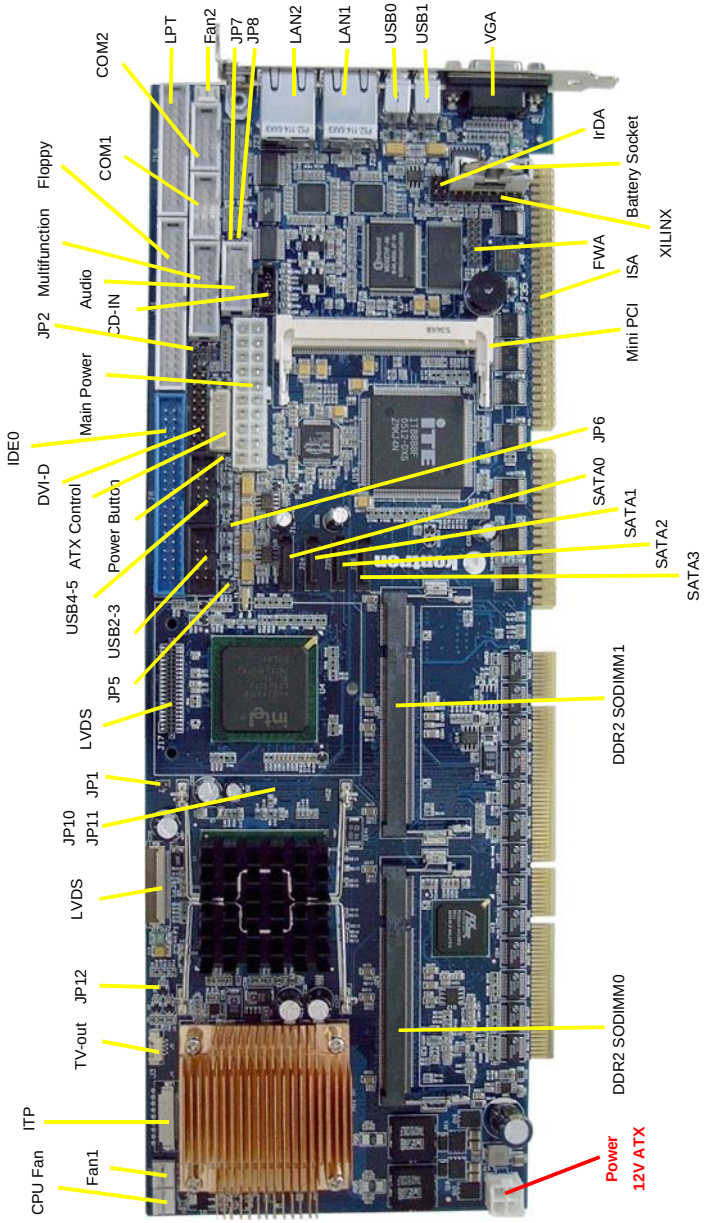


Fig. 5: PCI-955 - Jumper and Connector Locations

Jumpers on the PCI-955

The jumpers on the PCI-955 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 by use of the ATX-power supply switch. If your power supply has no On/Off switch, disconnect the main power source. Otherwise, the board could be damaged.

The following examples show the conventions used in this section.

	Jumper Open
	Jumper Closed

JP1: CompactFlash™ Card Selection as Master or Slave

This jumper is used to connect the CompactFlash™ as a master or slave device on the IDE.

JP1:-pin Header; DIP 2-pin	Setting	Function
	Pin 1-2 Closed	Master
	Pin 1-2 Open(Default)	Slave

When connecting a CompactFlash on J8 (IDE port), make sure that you configure one device as master and the other as slave. Two master devices (or two slave devices) must not be installed on the IDE channel at the same time.

JP2: Power Button Configuration

The power button is used to switch the system between the off and on state. If the JP2 jumper is set, the ON/OFF function of the power button is ignored, and the system is always ON.

JP2:-pin Header; DIP 2-pin	Setting	Function
	Pin 1-2 Open (Default)	The ON/OFF-button switches the system ON or OFF. (ATX Power Mode)
	Pin 1-2 Closed	The function of the ON/OFF-button is ignored. System behaviour: like an AT-system.

JP5: 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.

JP5:-pin Header; 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.

JP7 and JP8: COM2 Configuration with Termination Resistors

The serial port COM2 (RS232 default setting) can be configured in the BIOS setup RS422 or RS485.

The JP7 and LP8 jumpers allow you to connect or disconnect the termination resistors (120 ohm) on / from the serial port COM2, when the operation mode in the BIOS is set to RS422 or RS485.

When installing the board at one end of the network, JP7 and JP8 jumper caps must be installed to connect the 120 ohm termination resistors.

In RS422 mode, both jumper caps (JP7 and JP8) must be installed to connect the 120 ohm line termination resistors.

JP7:-pin Header; DIP 2-pin	Setting	Function COM2 (RS485 or RS422)
	Pin 1-2 Short/Closed	RS485 or RS422 with connected termination resistor
	Pin 1-2 Open (Default)	RS485 without connected termination resistor

JP8:-pin Header; DIP 2-pin	Setting	Function COM2 (RS422)
	Pin 1-2 Short/Closed	RS422 with connected termination resistor
	Pin 1-2 Open (Default)	RS422 without connected termination resistor

Refer to BIOS settings for COM2 configuration as RS422 and RS485.

Refer to COM2 on-board connector description for COM2 signals (RS232/RS422/485).

RS232 Protocol

When configured for RS232 operation mode, the Serial Port 2 is 100% compatible with IBM-AT serial port signals.

RS422 Protocol

The RS422 protocol (Full Duplex) uses both RX and TX lines simultaneously during a communication session.

RS485 Protocol

During a communication session, the RS485 protocol (Full Duplex) uses differential signals. It differs from the RS422 mode by offering the ability to transmit and receive over the same pair of wires and allows the sharing of the communication line by multiple stations. This configuration (also known as Party Line) allows only one system to take control of the communication line at a time.

In RS485 mode, the RX lines are used as the transceiver lines and the RTS signal controls the direction of the RS485 buffer.

When set for RS485 mode in the BIOS, upon power-up or reset, the transceiver is set by default to receiver mode to prevent unwanted disturbance on the line. The operation mode for party lines requires termination resistors to be installed at both ends of the network.

JP10, JP11 and JP12 for CPU Installation

Kontron recommends you install only the Intel® Pentium® M/ Intel® Celeron® M processors indicated in this manual. Please refer to the Intel® Datasheet of the CPU before you attempt to install the processor.

The jumper settings are necessary only if the PCI-955 board is delivered without CPU and you install an Intel® Pentium® M / Intel® Celeron® M CPU. For technical support, please contact our Technical Support department:

E-mail: techsup@kontron.com

Pin Header; DIP 2-pin JP12:-	Setting	Function
	Pin 1-2 Open	If you install an Intel® CPU with 1V5 V_CCA
	Pin 1-2 Short/Closed	If you install an Intel® CPU with 1V8 V_CCA **delivery setting**

Pin Headers; DIP 3-pin		Setting	Function
JP10	JP11		
		Pin 1-3 Open	For jumper settings refer to the table below.
		Pin 1-2 Short/Closed	
		Pin 2-3 Short/Closed	**delivery setting**

CPU	Stepping	JP10	JP11
FSB400 (Banias)	A#	opened	closed 1-2
FSB400 (Dothan A)	A#	opened	closed 1-2
FSB533 (Dothan A)	A#	closed 1-2	closed 1-2
FSB400/533 Auto	B# or higher	closed 2-3	closed 2-3

Intel® Pentium® M Number	**Stepping**	**FSB**	**V_CCA**	
745 (Dothan)	B1	400 MHz	1V8	
770 (Dothan)	C0	533 MHz	1V5	
780 (Dothan)	C0	533 MHz	1V5	
Intel® Celeron® M Number	**Stepping**	**FSB**	**V_CCA**	
350 (Dothan)	B1	400 MHz	1V5 and 1V8	
350J (Dothan)	C0	400 MHz	1V5 and 1V8	
370 (Dothan)	C0	400 MHz	1V5 and 1V8	

CPU's with a stepping code that includes "A#" operate only with 400 MHz or only with 533 MHz FSB.

CPU's with a stepping code that includes "B#" or higher support auto-detection of the FSB.

External Interfaces

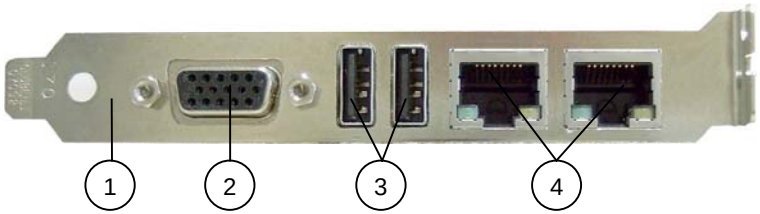


Fig. 6: PCI-955 – User interfaces

1 PCI-955 slot bracket

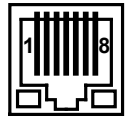
2 VGA connector

3 2x USB1.1/2.0 connector

4 LAN1 and LAN2 connectors with integrated LEDs

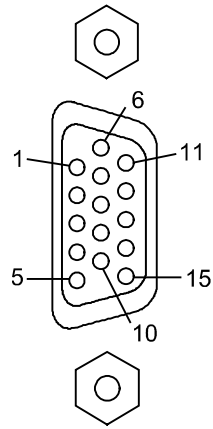
Dual LAN Ethernet Connector (J23 and J28)

The PCI955 is equipped with two LAN connectors. These interface connectors are provided as RJ45-sockets with integrated LEDs and support a data transfer rate of 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 (green)	LINK / ACTIVE	
LED (yellow)	10/100 10/100/1000	

VGA-Interface – Connector (J39)

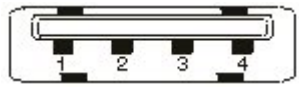
An external (analog) monitor can be plugged into this interface which is provided as a 15-pin D-SUB socket.

Pin	Signal Name	15-pin D-SUB Socket (female)
1	Analog red output	
2	Analog green output	
3	Analog blue output	
4	NC	
5–8	GND	
9	VCC *	
10	GND	
11	NC	
12	SDA (DDC)	
13	TTL HSync	
14	TTL VSync	
15	SCL (DDC)	

*** used for DDC**

USB 2.0/1.1 Interface Connectors (J32 and J33)

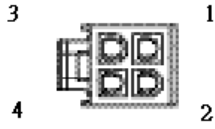
The PCI 955 board provides two external USB 2.0/1.1 interfaces. These connectors allow you to connect USB-compatible devices to the PCI-955 Slot-CPU.

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

On-Board Connectors

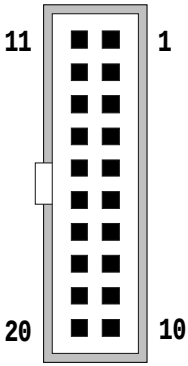
J34: ATX +12V Power Connector

J34 is used to connect the 12V ATX power supply to the board in order to provide power to the CPU.

J34,: 4-pin Connector	Pin #	Signal Name
	**1**	GND
	2	GND
	3	+12V
	4	+12V

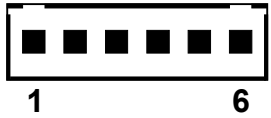
J20: Main Power Connector

This connector is the ATX main power connector and allows you to connect the ATX power supply cable to the PCI-955 board.

Signal Name	Pin #	J20:-pin Header; DIP 20-pin	Pin #	Signal Name
+3.3V	**11**		**1**	+3.3V
-12V	**12**		**2**	+3.3V
GND	**13**		**3**	GND
PS_ON#	**14**		**4**	+5V
GND	**15**		**5**	GND
GND	**16**		**6**	+5V
GND	**17**		**7**	GND
-5V	**18**		**8**	PWR_OK
+5V	**19**		**9**	+5VSB
+5V	**20**		**10**	+12V

J19: ATX Control Connector

This connection allows you to attach the external ATX power button.

J19: Box Header (shrouded), DIP 6-pin	Pin #	Signal Name
	1	PWRBTN
	2	GND
	3	PWRBTN
	4	GND
	5	PSON#
	6	VCC5_Stby

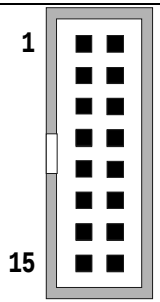
JP9: Additional Power Button Connector

This connection allows you to attach the external ATX power button.

JP9: 2-pin Connector	Pin #	Signal Name
	1	PWRBTN
	2	GND

J12: Multifunctional Connector

A system chassis can be equipped with components that provide acoustical or/and light indications of the computer's activities, and switches to change the computer status. J12 is a 16-pin box header that provides following connections:

Signal Name	Pin #	J12: Box Header, (shrouded), DIP 16-pin	Pin #	Signal Name
KBCKL	1		2	GND
KBDATA	3		4	GND
VCC5V	5		6	VCC5V
Speaker	7		8	VCC5V
MCKL	9		10	GND
MDATA	11		12	GND
PBRES#	13		14	GND
HD_Active	15		16	VCC5V
		Multifunctional		

The multfuctional connector (J12) provides an interface:

- ❑ for a PS/2 keyboard and a PS/2 mouse connector
- ❑ to a speaker for audio tone generation
- ❑ to connect the Power LED
- ❑ to connect the hard drive activity LED
- ❑ to connect the reset button

Power LED:-pins 4 and 6

These pins allow you to connect the power LED.

Reset Button:-pins 13 and 14

These pins can be connected to a reset button. The reset button allows you to restart the system without turning the main power switch off and on again.

Depending on the software and operating system, some data may be lost if the reset button is activated.

Hard Disk Drive LED Connector:-pins 15 and 16

These pins allow you to connect a hard drive activity LED. This LED will flash when the HDD is being accessed.

Speaker:-pins 7 and 8

These pins provide an interface to connect a speaker for audio tone generation. An 8-ohm speaker is recommended.

Keyboard:-pins 1, 2, 3, and 5

These pins can be used to connect the cable for an external PS/2 keyboard connector.

Mouse:-pins 9, 10, 11, and 5

These pins can be used to connect the cable for an external PS/2 mouse connector.

J1: CPU Fan Power Connector

This is a 3-pin header that allows the connection of the CPU fan. The CPU fan must be a 12V fan (max. 400 mA).

J1:-pin Header, 3-pin	Pin #	Signal Name
	1	Rotation
	2	+12V controlled
	3	GND

J2: Chassis Fan1 Power Connector

This is a 3-pin header that allows the connection of a chassis fan. The chassis fan must be a 12V fan (max. 400 mA).

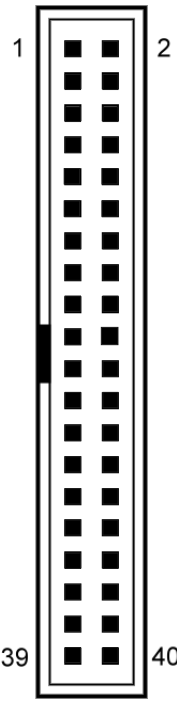
J2:-pin Header, 3-pin	Pin #	Signal Name
	1	Rotation
	2	+12V
	3	GND

J16: Chassis Fan2 Power Connector

This is a 3-pin header that allows the connection of a chassis fan. The chassis fan must be a 12V fan (max. 750 mA).

J16:-pin Header, 3-pin	Pin #	Signal Name
	1	Rotation
	2	+12V controlled
	3	GND

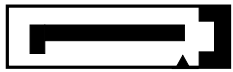
J8: Primary IDE Connector

Signal Name	Pin #	J8: Box Header, (shrouded), DIP 40-pin	Pin #	Signal Name
Reset #	**1**		**2**	GND
Data 7	**3**		**4**	Data 8
Data 6	**5**		**6**	Data 9
Data 5	**7**		**8**	Data 10
Data 4	**9**		**10**	Data 11
Data 3	**11**		**12**	Data 12
Data 2	**13**		**14**	Data 13
Data 1	**15**		**16**	Data 14
Data 0	**17**		**18**	Data 15
GND	**19**		**20**	Key
DREQ	**21**		**22**	GND
IOWR#	**23**		**24**	GND
IORD#	**25**		**26**	GND
IORDY	**27**		**28**	P_ALE
DACK#	**29**		**30**	GND
IRQ	**31**		**32**	IOCS16#
ADDR1 A[1]	**33**		**34**	ATADET
ADDR0 A[0]	**35**		**36**	ADDR2 2 A[2]
CSO#	**37**		**38**	CS1
Active LED#	**39**		**40**	GND

IDE0

J18, J24, J25, J26: SATA0, SATA1, SATA2 and SATA3

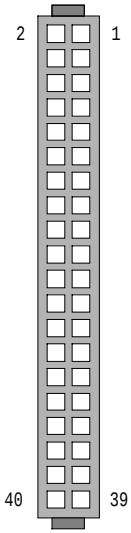
These connectors allow you to connect Serial-ATA devices. (Each of the SATA interfaces supports one Serial-ATA device).

Serial ATA: Molex	Pin #	Signal Name
 SATA	**1**	GND
	2	TX+
	3	TX-
	4	GND
	5	RX-
	6	RX-
	7	GND

J17: CompactFlash™ Adapter Connector

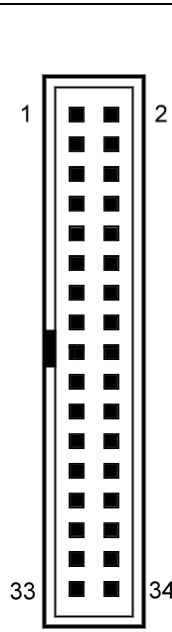
The CompactFlash™ connector is located on the top side of the PCI-955 board.

Signal Name	Pin #	J17: CF Adapter	Pin #	Signal Name
GND	**2**		**1**	D11
DO3	**4**		**3**	D12
DO4	**6**		**5**	D13
DO5	**8**		**7**	D14
DO6	**10**		**9**	D15
DO7	**12**		**11**	CS3#
CS1#	**14**		**13**	DACK#
IOR#	**16**		**15**	DREQ
IOW#	**18**		**17**	ATA66DET
VCC1	**20**		**19**	IRQ
VCC3	**22**		**21**	VCC2
GND	**24**		**23**	GND
GND	**26**		**25**	RESET#
A2	**28**		**27**	CSELECT
Active LED#	**30**		**29**	A1
IORDY	**32**		**31**	A0
D8	**34**		**33**	D0
D9	**36**		**35**	D1
D10	**38**		**37**	D2
GND	**40**		**39**	ICS16#



CF

J11: Floppy Drive Connector

Signal Name	Pin #	J11: Box Header, (shrouded), DIP 34-pin	Pin #	Signal Name
GND	1		2	Densel#
GND	3		4	NC
GND	5		6	NC
GND	7		8	Index
GND	9		10	Motor enable A
GND	11		12	Drive select B
GND	13		14	Drive select A
GND	15		16	Motor enable B
GND	17		18	Direction
GND	19		20	Step Pulse
GND	21		22	Write Data
GND	23		24	WGATE#
GND	25		26	Track 0
GND	27		28	Write Protect
GND	29		30	Read Data
GND	31		32	Head Select
GND	33		34	Floppy Disk Change

FDC

J27: MiniPCI Socket

The-pin assignments of the MiniPCI Socket (J27) are as follows:

SMD PCI Slot, 124-pin, **-pin Assignments**					
Pin	**Signal Name**	**Pin**	**Signal Name**	**Pin**	**Signal Name**
1	*X*	51	*AD21*	101	*GND*
2	*X*	52	*AD22*	102	*GND*
3	*X*	53	*AD19*	103	*AC97_SYNC*
4	*X*	54	*AD20*	104	*GND*
5	*X*	55	*GND*	105	*AC97_SDIN*
6	*X*	56	*PAR*	106	*AC97_SDOUT*
7	*X*	57	*AD17*	107	*AC97_Bit_CLK*
8	*X*	58	*AD18*	108	8K2 Pulldown
9	*X*	59	*CEB2#*	109	8K2 Pulldown
10	*X*	60	*AD16*	110	*AC97_RST#*
11	*X*	61	*IRDY#*	111	*MPCI_AUDMON*
12	*X*	62	*GND*	112	*X*
13	*X*	63	*VCC3V3*	113	*GND_Audio*
14	*X*	64	*FRAME#*	114	*GND*
15	*CHSGND*	65	*CKLRUN#*	115	*MPCI_AUDOUT*
16	*USBP*	66	*TRDY#*	116	*MPCI_AUDIN*
17	*INTB#*	67	*SERR#*	117	*GND*
18	*VCC5V0*	68	*STOP#*	118	*GND*
19	*VCC3V3*	69	*GND*	119	*GND_Audio*
20	*INTA#*	70	*VCC3V3*	120	*GND_Audio*
21	*X*	71	*PERR#*	121	*X*
22	*USBN*	72	*DEVSEL#*	122	*MiniPCI_ACT#*
23	*GND*	73	*CBE1#*	123	*VCC5V0*
24	*VCC3V3AUX*	74	*GND*	124	*VCC3V3AUX*
25	*CLK*	75	*AD14*	125	*GND_Shield*
26	*RST#*	76	*AD15*	126	*GND_Shield*
27	*GND*	77	*GND*		
28	*VCC3V3*	78	*AD13*		
29	*REQ#*	79	*AD12*		
30	*GNT#*	80	*AD11*		

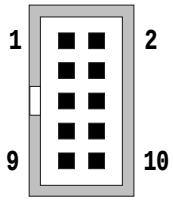
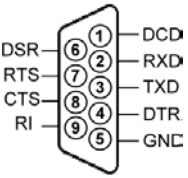
The table is continued on the next page.

31	*VCC3V3*	81	*AD10*		
32	*GND*	82	*GND*		
33	*AD31*	83	*GND*		
34	*PME#*	84	*AD9*		
35	*AD29*	85	*AD8*		
36	*X*	86	*CBE0#*		
37	*GND*	87	*AD7*		
38	*AD30*	88	*VCC3V3*		
39	*AD27*	89	*VCC3V3*		
40	*VCC3V3*	90	*AD6*		
41	*AD25*	91	*AD5*		
42	*AD28*	92	*AD4*		
43	*X*	93	X		
44	*AD26*	94	*AD2*		
45	*CBE3#*	95	*AD3*		
46	*AD24*	96	*AD0*		
47	*AD23*	97	*VCC5V0*		
48	*IDISEL*	98	*X*		
49	*GND*	99	*AD1*		
50	*GND*	100	*X*		

J13: Serial Port Connector COM1

This 10-**pin** box header should be used with the supplied serial cable.

COM1-pin assignment RS232:

COM1: Box Header, (shrouded), **DIP 10-pin**	**RS232** (Pins on the on-board header)		**D-SUB Connector**
 **COM1**	**Pin #**	**Signal Name**	Pins 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	

J15: Serial Port COM2

This 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).

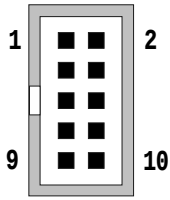
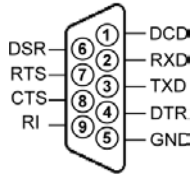
For RS422 and RS485 mode, please install the jumper caps (JP7 and JP8) to use the onboard termination resistors (120ohm).

RS232 mode (default)

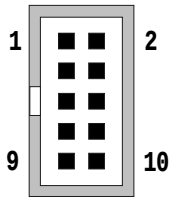
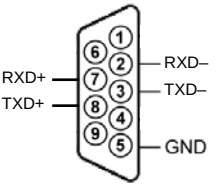
RS422 point-to-point mode:
The RX signal is always enabled via application software.

RS485 party line mode:
The RX signal is enabled when COM2 RTS is de-asserted via application software.
The TX signal is enabled when COM2 RTS is asserted via application software.

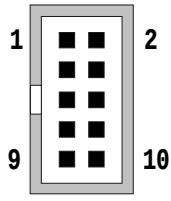
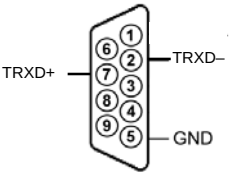
COM2-pin assignment as RS232:

COM2: Box Header, (shrouded), **DIP 10-pin**	**RS232** (Pins on the on-board header)		**D-SUB Connector**
 **COM2**	**Pin #**	**Signal Name**	Pins 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	

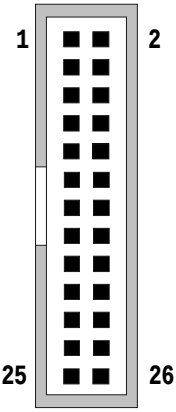
COM2-pin assignment as RS422:

COM2: Box Header, (shrouded), DIP 10-pin	**RS422** (Pins on the on-board header)		**D-SUB Connector**
 **COM2**	**Pin #**	**Signal Name**	Pins on the supplied cable connector: 
	1	NC	
	2	NC	
	3	RXD–, Receive data	
	4	RXD+, Receive data	
	5	TXD–, Transmit data	
	6	TXD+, Transmit data	
	7	NC	
	8	NC	
	9	GND, ground	

COM2-pin assignment as RS485:

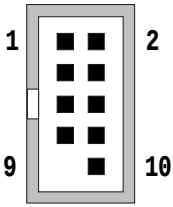
COM2: Box Header, (shrouded), **DIP 10-pin**	**RS485** (Pins on the on-board header)		**D-SUB Connector**
 **COM2**	**Pin #**	**Signal Name**	Pins on the supplied cable connector: 
	1	NC	
	2	NC	
	3	TRXD–, Transmit/Receive data	
	4	TRXD+, Transmit/Receive data	
	5	NC	
	6	NC	
	7	NC	
	8	NC	
	9	GND, ground	

J14: Parallel Port Connector (LPT)

Signal Name	Pin #	J14: Box header, (shrouded), 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

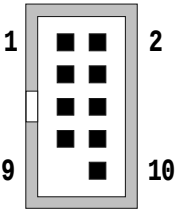
J7: USB Extension

The onboard J7-pin-header supports two ports (Port 2 and Port 3). Pin 9 is removed for keying purposes. (A slot bracket with 2x USB type A connectors can be ordered separately.)

USB Port 2		J7:-pin Header; DIP 10-pin	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

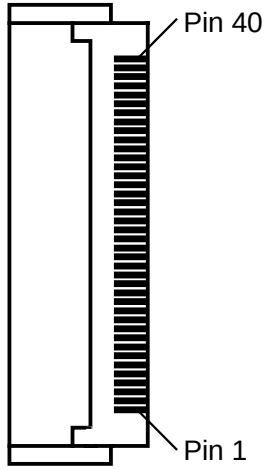
J9: USB Extension

The onboard J9-pin-header supports two ports (Port 4 and Port 5). Pin 9 is removed for keying purposes. (A slot bracket with 2x USB type A connectors can be ordered separately.)

USB Port 4		J9:-pin Header; DIP 10-pin	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

J6: LVDS (JILI) Connector

The LVDS (JILI) complies 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.

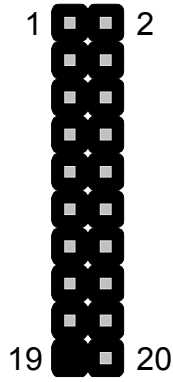
J6: LVDS (JILI) Connector	Pin #	Signal Name
 **LVDS (JILI)**	1	NC
	2	ODD_LVD0-
	3	ODD_LVD0+
	4	ENAVDD
	5	ODD_LVD1-
	6	ODD_LVD1+
	7	NC
	8	ODD_LVD2-
	9	ODD_LVD2+
	10	GND
	11	ODD_LVDC-
	12	ODD_LVDC+
	13	GND
	14	NC
	15	NC
	16	JILI_DAT
	17	EVEN_LVD0-
	18	EVEN_LVD0+
	19	JILI_CLK
	20	EVEN_LVD1-
	21	EVEN_LVD1+
	22	NC
	23	EVEN_LVD2-
	24	EVEN_LVD2+
	25	GND
	26	EVEN_LVDC-
	27	EVEN_LVDC+

The table is continued on the next page.

	28	GND
	29	NC
	30	NC
	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

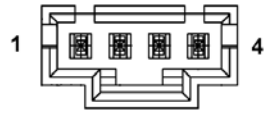
J10: Connector for DVI-D Extension

Signal Name	Pin #	J10:-pin Row: 20-pin	Pin #	Signal Name
T.M.D.S Data 1+	1		2	T.M.D.S Data 2+
T.M.D.S Data 1-	3		4	T.M.D.S Data 2-
GND	5		6	GND
GND	7		8	GND
T.M.D.S CLK+	9		10	T.M.D.S Data 0+
T.M.D.S CLK–	11		12	T.M.D.S Data 0-
GND	13		14	GND
Power (fused)	15		16	Hot Plug Detect
GND	17		18	DDC DATA
KEY	19		20	DDC CLK



J21: CD-IN Connector

This connector (4-pin, male) allows you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card.

Signal Name	Pin #	J21: Mini Base: 4-pin shrouded (male)
LEFT CD IN	1	
CD GND	2	
CD GND	3	
RIGHT CD IN	4	

JP6: Chassis Intruder Connector

JP6: 2-pin	Pin #	Signal Name
	1	GND
	2	Intruder

J31: IrDA Connector

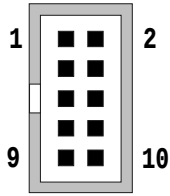
This connector supports the IrDA interface for wireless communication.

If wireless communication by IrDA is used, please set in BIOS, `Serial Port 2 Mode` to *IrDA*.

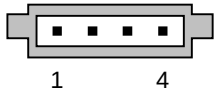
Signal Name	Pin #	Pin Row: 6-pin	Pin #	Signal Name
CIRRX#	1		2	VCC5V0
5V (opt. 3.3V)	3		4	GND
IrTX	5		6	IrRX

J22:Audio Connector

This is an interface for the I/O bracket audio cable that allows connection of audio devices (Line-In, Line-Out, Mic-In).

Signal Name	Pin #	J22:Pin Header: 10-pin	Pin #	Signal Name
LINEOUT_R	1		2	LINEOUT_L
AUDIO_GND	3		4	AUDIO_GND
LINEIN_R	5		6	LINEIN_L
AUDIO_GND	7		8	AUDIO_GND
MIC_IN	9		10	MIC_BIAS

J5: TV-out Connector

J5: Right Angle Header; 4-pin	Pin #	Signal Name
	1	CVBS
	2	LUMA (Y)
	3	CHROMA (C)
	4	GND

Peripherals

Temperature Sensors

The CPU temperature sensor is integrated in the CPU as a processor internal thermal diode. It provides the most relevant CPU temperature readings and monitors the CPU temperature to make sure that the system is operating at a safe temperature level. If the temperature gets too high, the sensor automatically reduces the CPU speed (throttle mode) depending on the temperature value chosen in the BIOS Setup.

The chassis temperature sensors (T1, T2) are also available on-board as thermal diodes to measure the on-board environmental temperatures. If the temperature increases above a certain temperature level that may be adjusted in the BIOS Setup, the system will be hold in reset.

A support package is required to read the motherboard hardware reporting of CPU temperature and on-board environmental temperatures, obtained from the corresponding thermal diode implemented on-board.

Real Time Clock

The real-time clock performs time-keeping functions and includes 256 bytes of general purpose battery-backed CMOS RAM. Features include an alarm function, programmable periodic interrupt and a 100-year calendar. **All battery-backed CMOS RAM data remains stored in an additional EEPROM.** This prevents loss of data.

Watchdog Timer

A watchdog timer is provided which forces either an IRQ, SMI, or Reset condition (configurable in the watchdog register). The watchdog time can be programmed ranging from 1 second up to 255 seconds.

Lithium Battery

PCI-955 is provided with a 3.0V “coin cell” lithium battery for RTC operation and CMOS Setup RAM.

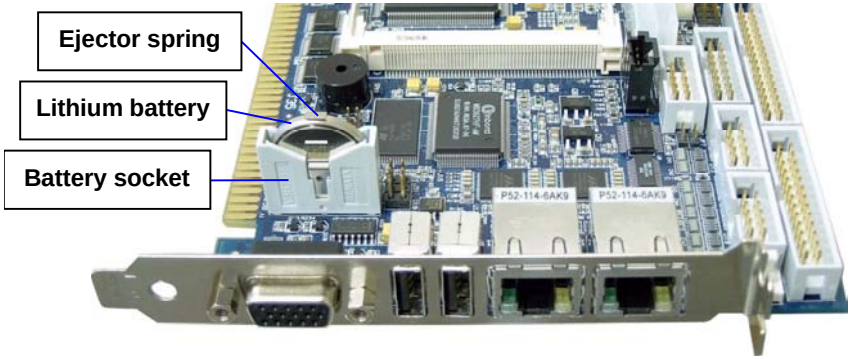


Fig. 7: Placement of the battery

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 on 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 *fig. 7*!

The lithium battery must be replaced with an identical battery or a battery type recommended by Kontron Embedded Computers (Lithium battery 3.0 V for RTC, type: CR2032).

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).

Interrupt and I/O Maps

Interrupt Device Map

Interrupt	System Resource
IRQ0	System timer
IRQ1	Keyboard buffer full
IRQ2	Unusable (IRQ8-15)
IRQ3	COM2
IRQ4	COM1
IRQ5	LPT2 Parallel Port #2
IRQ6	Floppy Diskette Controller
IRQ7	LPT1
IRQ8	RTC (Real Time Clock)
IRQ9	Reserved for ACPI handler
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 mouse port
IRQ13	Math Coprocessor
IRQ14	IDE Primary Disk Controller
IRQ15	IDE Secondary Disk Controller
IRQ16	PIRQA#, USB1.1A
IRQ17	PIRQB#, AC'97
IRQ18	PIRQC#, USB1.1C
IRQ19	PIRQD#, USB1.1B
IRQ20	PIRQE#,LAN
IRQ21	PIRQF#
IRQ22	PIRQG#
IRQ23	PIRQH#,USB2.0

Memory Map

Memory Range	Size	Usage
00000000 - 0009FFFF	640 kB	DOS Region
000A0000 – 000BFFFF	128 kB	Video Buffer in Normal Mode SMM space in SMM Mode
00C0000 – 000CBfff	48 kB	Video BIOS

Fixed I/O Address Ranges

Hex Ranges	Device
01F0 – 01F7	Fixed Disk Controller#1 (IDE0)
03C0 – 03CF	VGA EGA

Further addresses can be occupied by onboard configurable devices.

DMA Map

DMA Channel Number	System Resource
DRQ1	reserved
DRQ 2	Floppy Disk Drive
DRQ 3	Parallel port (ECP)

DMA is not supported on the ISA Bus !!!!!

Troubleshooting BIOS Beep Codes

If an irregular Post is received (your system does not boot and a continuously beep code is generated), please check your power supply and/or the main memory.

AMI BIOS Configuration

This chapter describes the settings available in the optional AMI-BIOS for the PCI-955 board. The AMI-BIOS (Basic Input/Output System) pre- installed in your computer system's ROM supports Intel® Pentium® 4 and Celeron® processors in a standard IBM-AT compatible I/O system.

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 Main BIOS Setup menu screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options cannot be configured. Options in blue can be.

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.

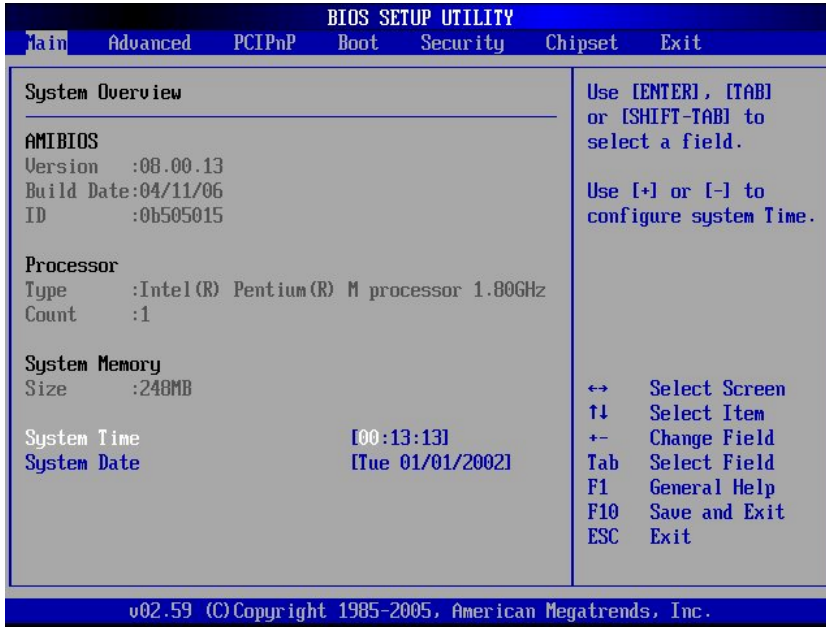
Navigation

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.

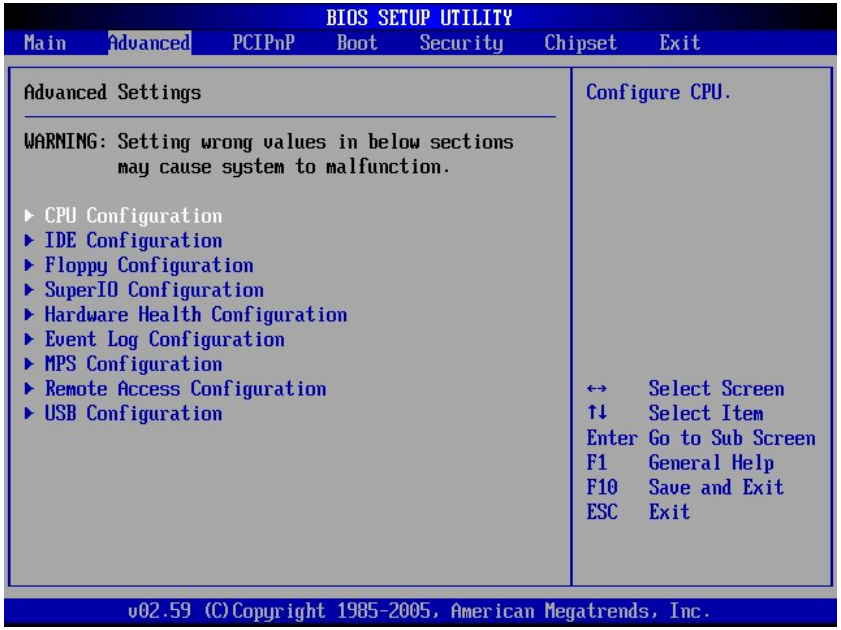
Main



System Time / System Date

System Time	Indicates the time of the device. If you change the time setting, enter the time in the format *HH:MM:SS* (hours: minutes: seconds).
System Date	Indicates the date of the device. If you change the date setting, enter the date in the format *MM.DD.YYYY* (month/day/year). The “System Date” format can be arbitrarily configured.

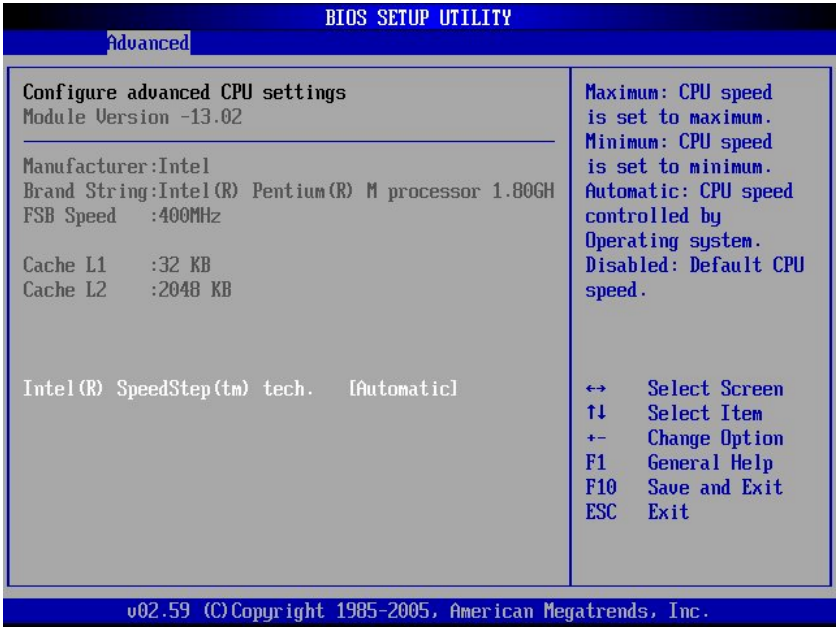
Advanced



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

- CPU Configuration
- IDE Configuration
- Floppy Configuration
- SuperIO Configuration
- Hardware Health Configuration
- Event Log Configuration
- MPS Configuration
- Remote Access Configuration
- USB Configuration

CPU Configuration

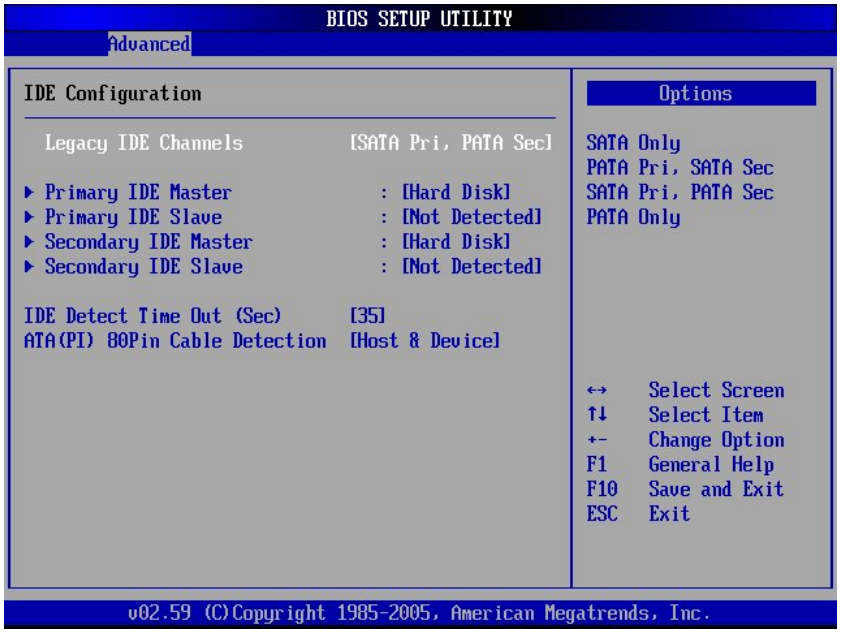


Intel ® SpeedStep ™ tech. [Automatic]

Settings: Maximum Speed, Minimum Speed, ***Automatic***, Disabled

IDE Configuration

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



Legacy IDE Channels

This option allows you to configure the status of the installed drives (for Parallel ATA or Serial ATA).

Available settings: *SATA Only; PATA Pri, SATA Sec;* ***SATA Pri, PATA Sec****; PATA Only****.***

SATA Only	Allows you to configure up to 4 SATA
PATA Pri, SATA Sec	Allows you to configure up to 2 PATA & 2 SATA
SATA Pri, PATA Sec	Allows you to configure up to 2 PATA & 2 SATA
PATA Only	Allows you to configure up to 2 PATA

IDE Detect Time Out (Sec)

Set this option to stop the AMIBIOS 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).

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 / Secondary IDE Master / Secondary IDE Slave**

These fields call the corresponding submenus to make changes to the 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).

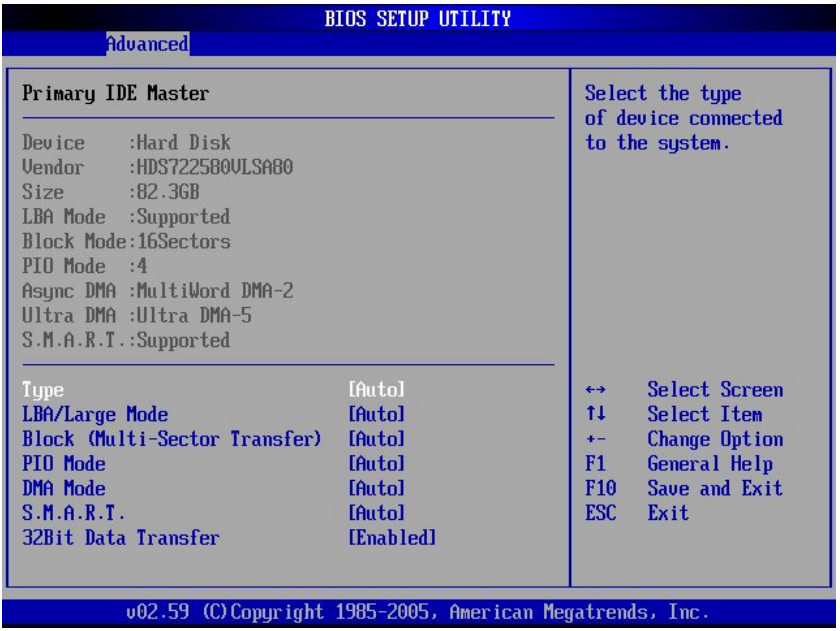
The description of the setting options for *Primary IDE Master* also applies to *Primary IDE Slave* and to *Secondary IDE Master/Secondary IDE Slave.*

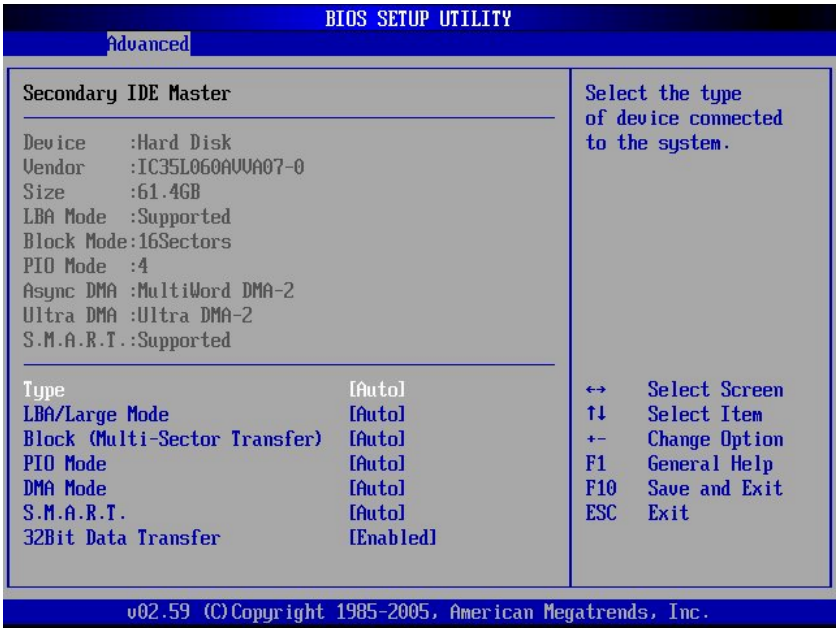
The default settings strongly depend on the installed drive.

These entries are specific for each installed device as:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave

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





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)*.

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 prevents 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).

Block (Multi-Sector Transfer)

If your hard disk supports the block mode, select *Auto* for the automatic determination of the number of blocks per request. Several sectors can be read/ written at the same time. 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 bytes of data can be transferred per interrupt if block mode is not used. Use this setting only if read and write failures occur with “Auto”.

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, 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 drives, 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.

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. You must use 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. You must use 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. You must use 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. You must use the 80-conductor ATA cable for this data transfer rate.

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).

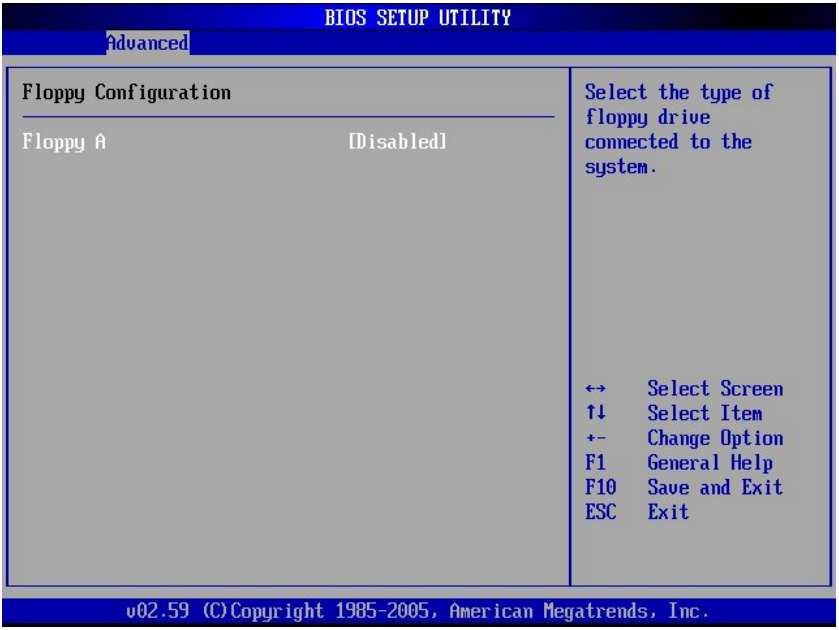
Available Settings are: ***Auto***, *Disabled* and *Enabled*.

32Bit Data Transfer

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

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

Floppy Configuration



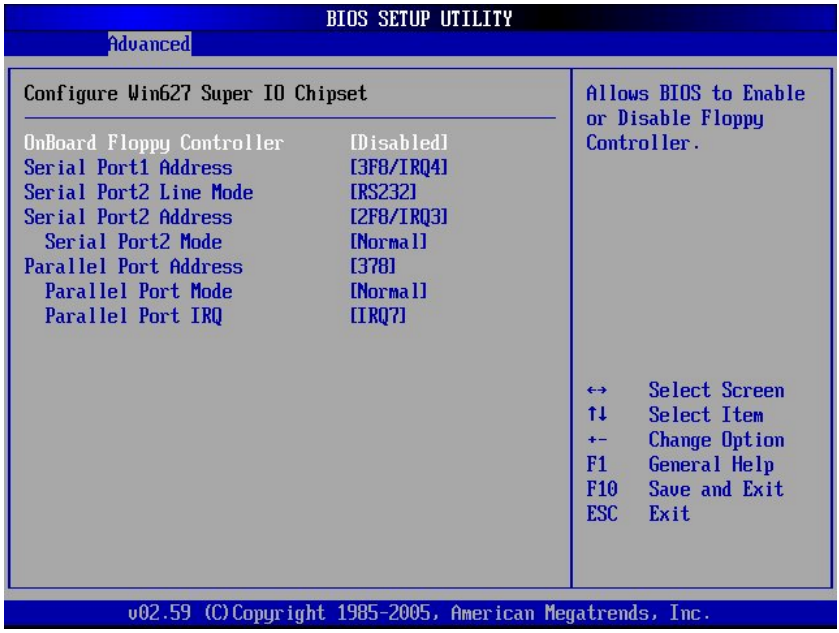
Floppy A

This option selects the type of the floppy drive. Possible settings are: ***Disabled***, *720KB* 3½", *1.44MB* 3½" and *2.88 MB* 3½".

Disabled	This option should be set if no floppy disk drive is installed on the specified channel.
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 an 1.44 MB 3½" floppy disk drive. This is the default setting for *Floppy Drive A*.
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.

Super IO Configuration

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



Onboard Floppy Controller

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

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

Serial Port1&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	***3F8/IRQ4***	*3E8/IRQ4 / 2E8/IRQ3 / Disabled*
Serial Port 2	***2F8/IRQ3***	*3E8/IRQ4 / 2E8/IRQ3 / Disabled*

Serial Port2 Line Mode

This field allows you to select the line mode for serial communication.

Available settings are: ***RS232***, *RS485/422 point to point* and *RS485 party line mode.*

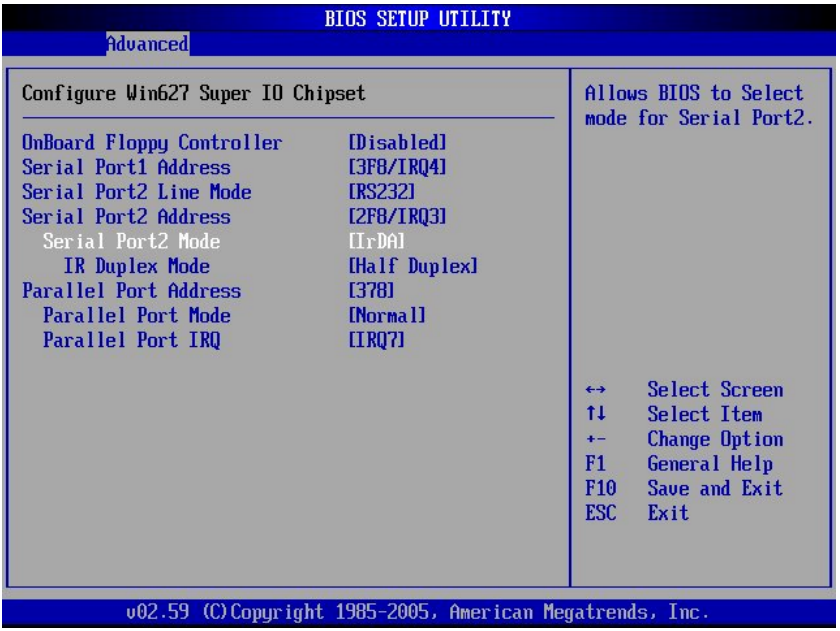
Serial Port 2 Mode

This field is used to specify whether the second serial port is to be used as a serial port or as an infrared port. The signals at the SUBD connector of serial port 2 will be unused if a mode other than *Normal* is set.

Normal	The COM2 port is used as a standard serial port.
ASKIR	The COM2 port is used as an infrared port in ASKIR standard.
IrDA	The COM2 port is used as an infrared port.

If your “Serial Port 2 Mode” option is set to IrDA, there is a supplementary option available:

IR Duplex Mode selectable between: **[Half Duplex]** and [Full Duplex]



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 8 consecutive addresses.

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.

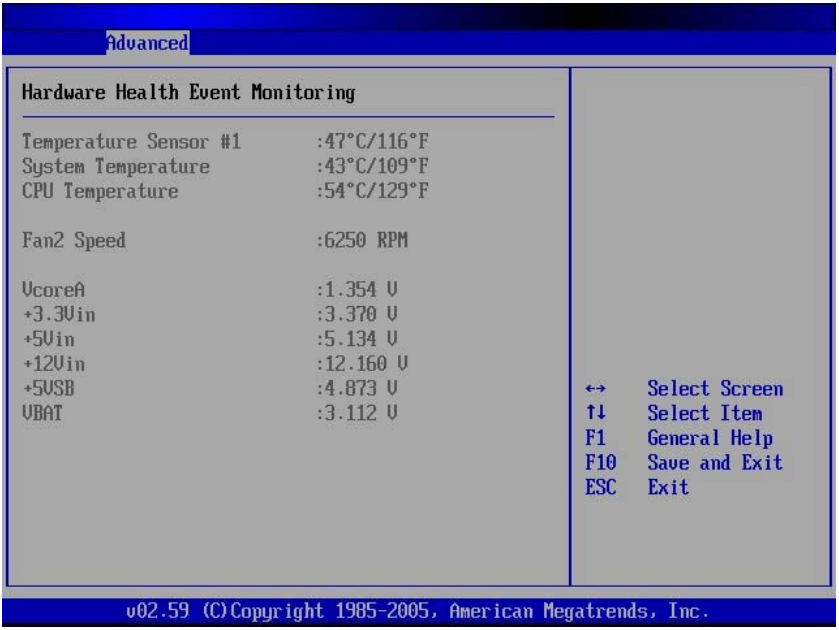
Parallel Port IRQ

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.

Hardware Health Configuration

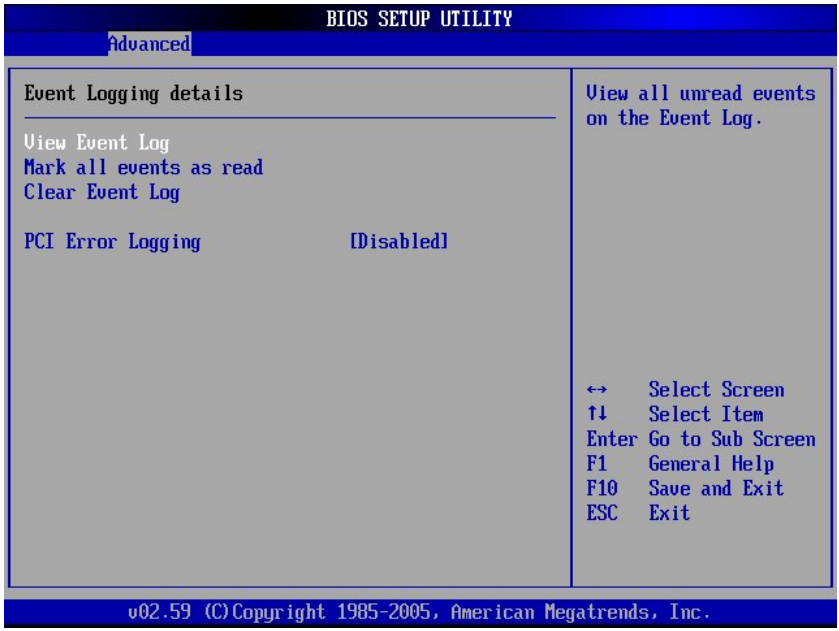


Hardware Health Event Monitoring

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.

Event Log Configuration

AMI BIOS logs certain events in an event log, which can be configured using these options.



View Event Log

This selection allows you to view the event log.

Mark all events as read

This selection allows you to set the events as already read.

Clear Event Log

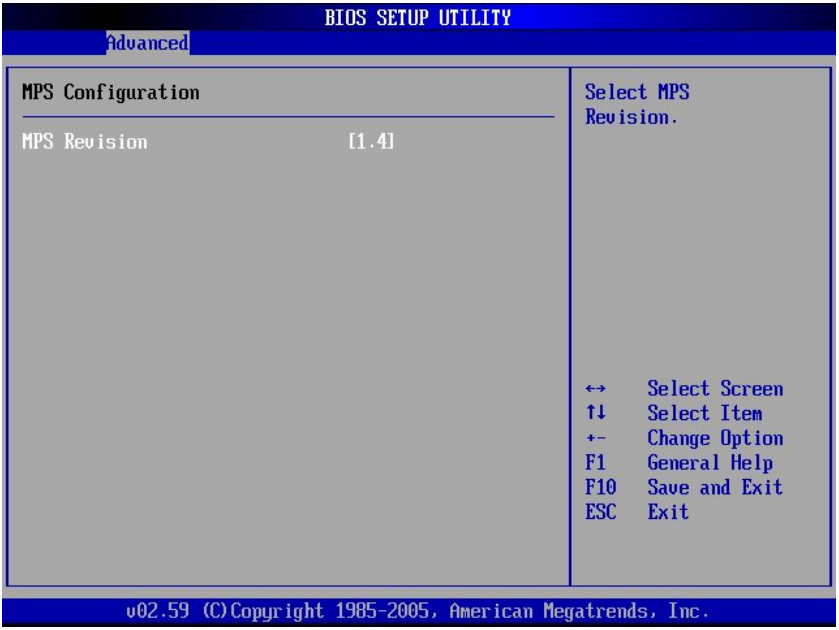
This selection allows you to clear all events in the event log.

PCI Error Logging

This selection enables the event log to log all PCI errors that occur.
It is possible to choose between: *Enabled* and ***Disabled***.

Enabled	This setting enables the PCI Error Logging function.
Disabled	This setting disables the PCI Error Logging function.

MPS Configuration

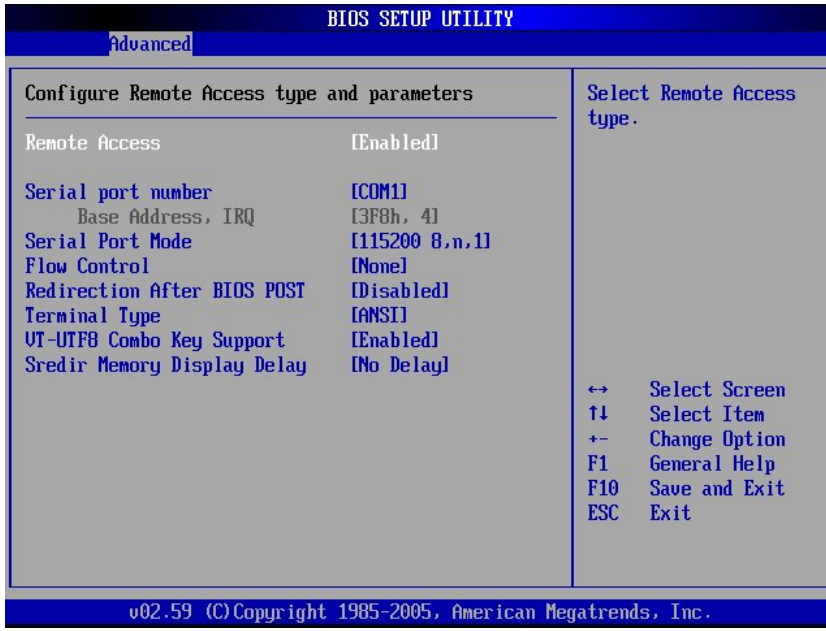


MPS Revision

This setting allows you to configure the MPS (**M**ulti **P**rocessor **S**ystem) Revision. Options for configuration: *1.1* and ***1.4***.

Remote Access Configuration

This settings allow you to manage this system from a client system by redirecting keyboard input and text output through a serial port. You cannot redirect graphic output. Console redirection is used for configuring BIOS settings with a remote Terminal (emulation). Use a null-modem serial cable to connect the client to the target system.



Remote Access

This option allows you to enable or disable the console redirection features.

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

Serial port number

This option allows you to select the serial port for console redirection.

The available settings are: ***COM1*** and *COM2*.

Serial Port Mode

This option allows you to select the serial port features (Speed, Data Bits, Parity, StopBits) for a proper data transfer with the client system.

The available settings are: **115200 8,n,1** / 57600 8,n, 1 / 38400 8,n,1 / 19200 8,n,1 / 09600 8,n,1.

Flow Control

Flow Control lets computers (host and client) tell each other when they can accept more data for transmission and when to wait. This handshaking prevents data from being lost because one computer was busy.

The available settings are: ***None****, Hardware* and *Software*.

Redirection After BIOS POST

This option allows you to select when the console redirection will be used.

Always	Redirection is always active. (some OSs may not work if this setting is chosen).
Boot Loader	Redirection is active during POST and during Boot Loader.
Disabled	Turns off the redirection after POST.

Terminal Type

This option allows you to select the target terminal type.

The available settings (industry standard terminal protocols) are: ***ANSI*****,** *VT 100* and *VT-UTF8*.

VT-VTF8 Combo Key Support

This option allows you to enable or disable the VT-UTF8 Combo Key Support for ANSI/VT 100 terminals.

The possible choices are: ***Enabled*** and *Disabled*.

Client and target systems must have the same settings to enable communication.

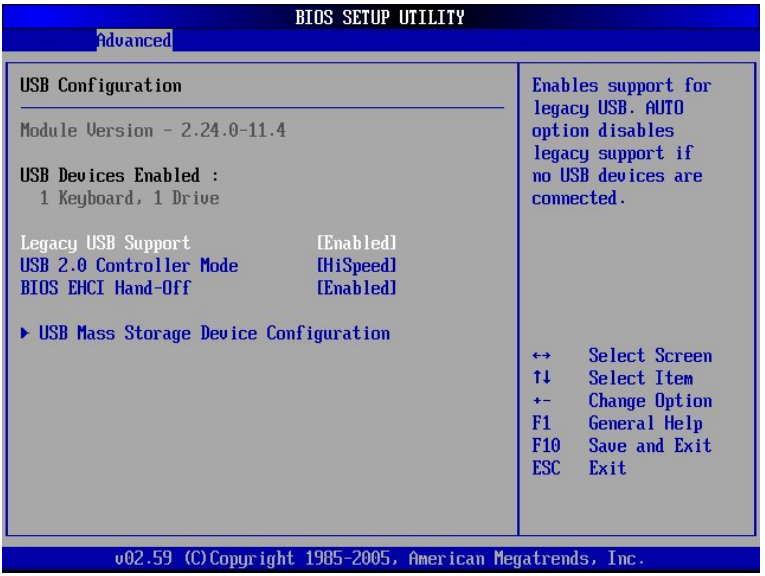
Sredir Memory Display Delay

This option allows you to pause the memory display during redirection for the set value.

Available settings are: ***No Delay,*** *Delay 1 Sec, Delay 2 Sec* and *Delay 4 Sec*.

USB Configuration

This field allows you to select options for USB configuration.



Legacy USB Support

This function enables or disables support for legacy USB. Enabling legacy USB support allows you to use 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. When no device is detected, the BIOS disables this option in background.

USB 2.0 Controller Mode

The "USB 2.0 Controller Mode" option is available only if the "`Legacy USB Support`" option is set to *Enabled* or *Auto* and the option "`USB 2.0 Controller`" (SouthBridge Configuration) is set to "*Enabled*".

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

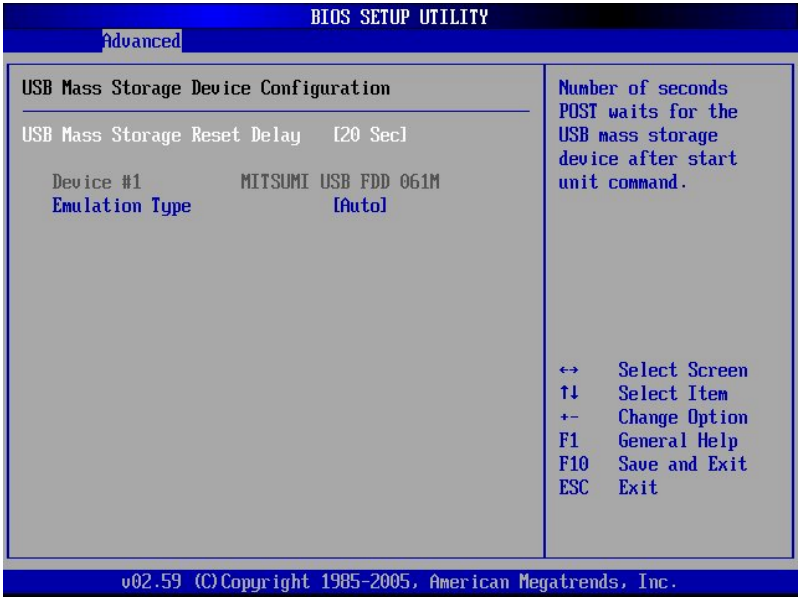
BIOS EHCI Hand-Off

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 fully available if USB storage devices are connected to the board.



USB Mass Storage Reset Delay

This option specifies the amount of time the BIOS USB code should wait after iissuing a reset to the USB mass storage devices.

The possible choices are: *10 Sec, **20 Sec**, 30 Sec,* and *40 Sec.*

Emulation Type

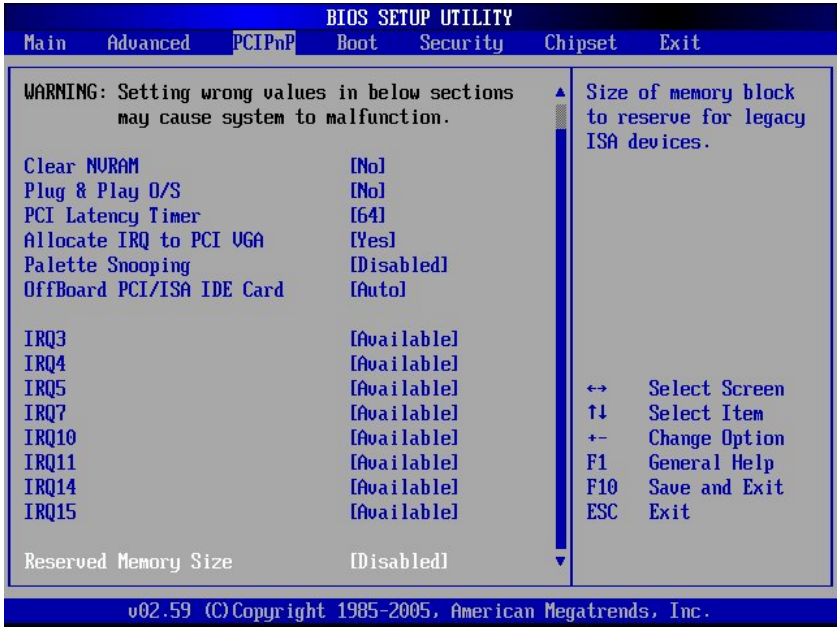
This option specifies the type of emulation provided by the BIOS for the device.

The possible choices are: ***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.

PCIPnP

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



Clear NVRAM

This Option allows you to clear the NVRAM during the system boot.
The available settings are: ***No*** and *Yes*.

Plug & Play O/S

This field determines the Plug&Play function. Plug&Play means that added components are automatically recognised and installed if they support automatic recognition.
The available settings are: ***No*** and *Yes*.

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).
No	The system BIOS assumes the recognition of the components and assigns the resources.

PCI Latency Timer

This option allows you to set the latency timing (PCI clock) of all PCI devices on the PCI bus.

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

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: *No* and ***Yes***.

Palette Snooping

This option allows the compliance of older higher resolution video cards to the VGA standard. Since 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***.

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. This option allows you to specify the PCI expansion slot on the motherboard where the offboard PCI/ISA controller is installed.

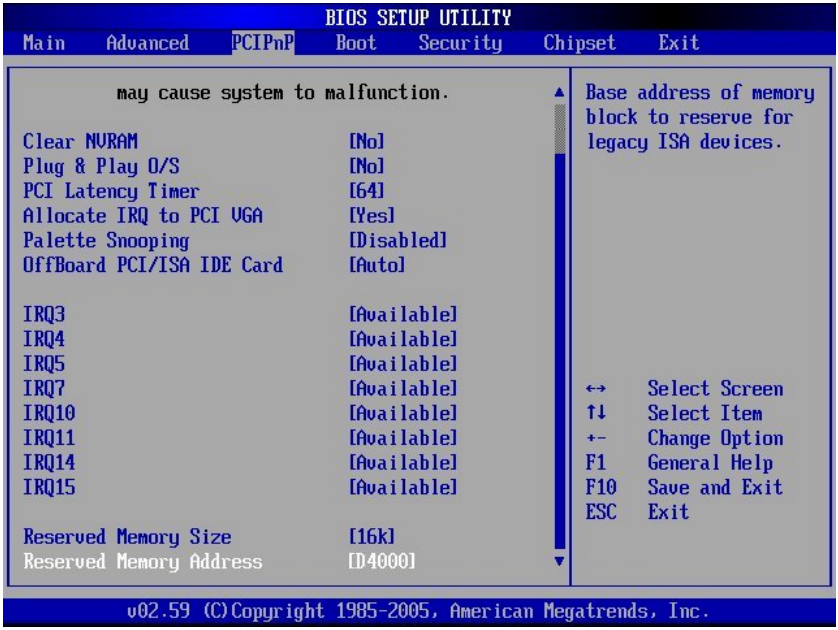
The available settings are: *PCI Slot1, PCI Slot2, PCI Slot3, PCI Slot4, PCI Slot5, PCI Slot6,* and ***Auto***.

Reserved Memory Size

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

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`**".



Reserved Memory Address

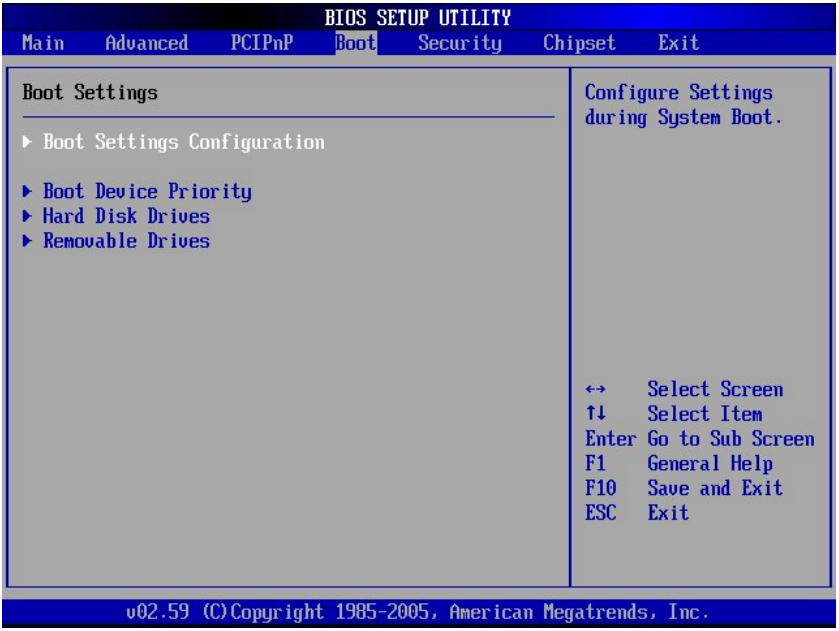
This option allows you to specify the memory size for the ISA extension cards in the reserved memory address.

Available settings are: *D0000*, ***D4000***, *D8000* and *DC000*.

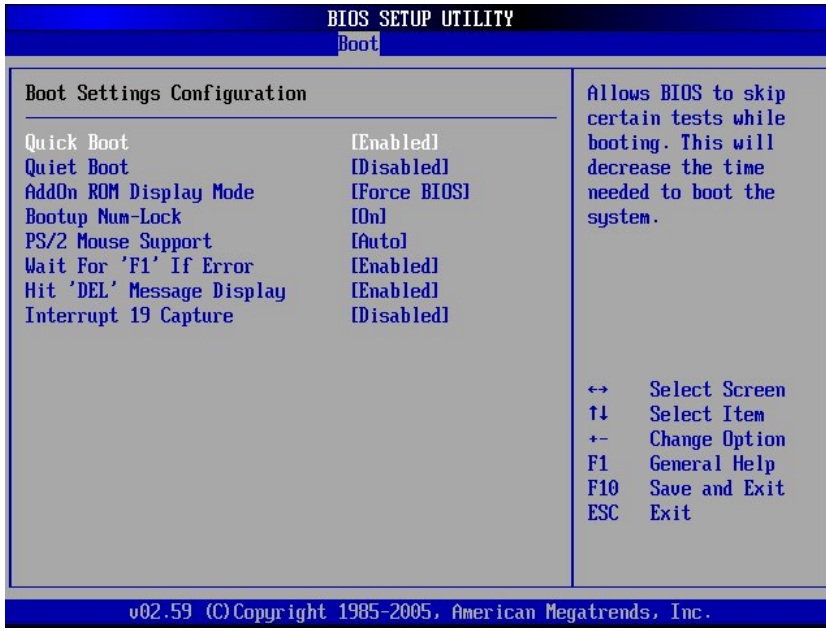
For proper ISA card installation, set the same values of the BIOS options "Reserved Memory Size" and "Reserved Memory Address" as on the OS level and/or driver level (depending on the installed ISA card).

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**



Quick Boot

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

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

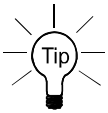
Enabled	This setting allows the BIOS to skip certain POST tests to boot faster.
Disabled	This setting allows the BIOS to perform all POST tests.

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* and a company logo is available the logo will be displayed during POST.

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.*

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

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 booted up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard will be lit. This is the default setting.
Off	This option does not enable the keyboard Number Lock automatically. To use the 10-key numeric keypad, 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.

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 allow the system to use a PS/2 mouse.
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.

Wait For 'F1' If Error

This option specifies if errors detected during boot time will cause the interruption of the boot procedure.

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

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

Hit 'DEL' Message Display

This option allows you to modify the setting for the "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 from displaying: `Hit Del to enter Setup` during memory initialization. If "Quiet Boot" option is enabled, the Hit 'DEL' message will not display.

Interrupt 19 Capture

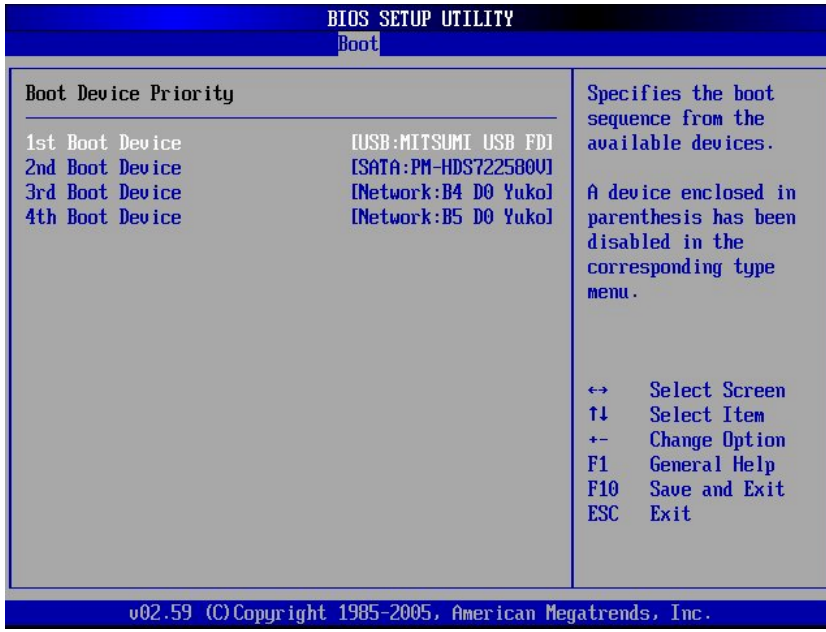
Set this value to allow option ROMs such as network controllers to trap BIOS interrupt 19.

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.



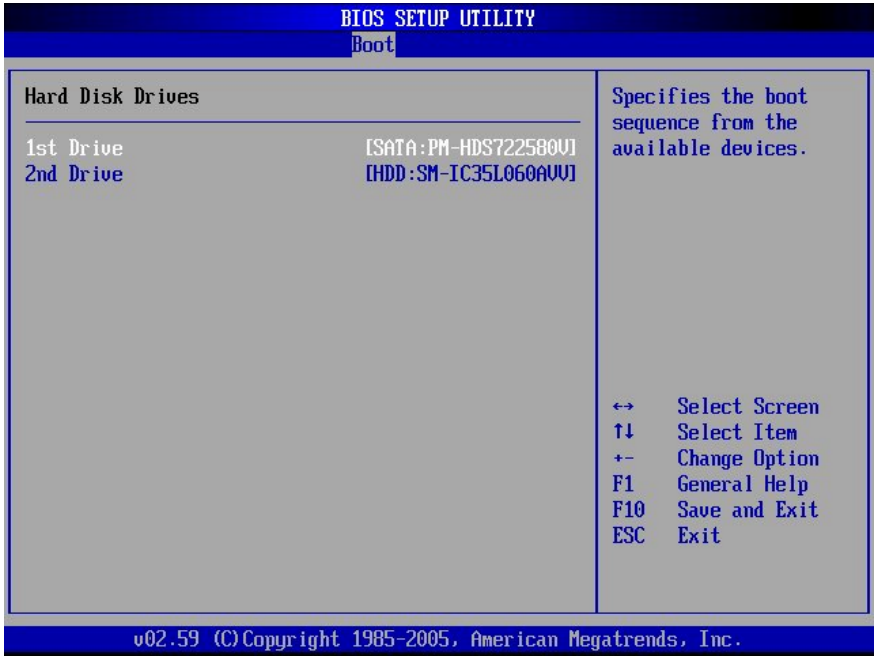
List of devices available for use as boot devices (**possible selections depend on system configuration**).

[USB: MITSUMI USB FD]; *[Network: B4 D0 Yukon PXE]; [Network: B5 D0 Yukon PXE]; [SATA: PM-HDS722580VLSA80]* and *Disabled*.

Boot Devices (examples)	**Description**
[USB: MITSUMI USB FD]	USB Floppy Device ((not supplied))
[SATA: PM-HDS722580VLSA80]	**P**rimary **M**aster device (internal SATA HDD) (not supplied)
[Network: B4 D0 Yukon PXE]	
[Network: B5 D0 Yukon PXE]	

- **Hard Disk Drivers**

List of hard drives available for use as the boot device (**possible selections depend on system configuration**).
Available settings*:*
SATA: PM-HDS722580VLSA80, HDD: SM-IC35L060AVVA07-0 and *Disabled*.

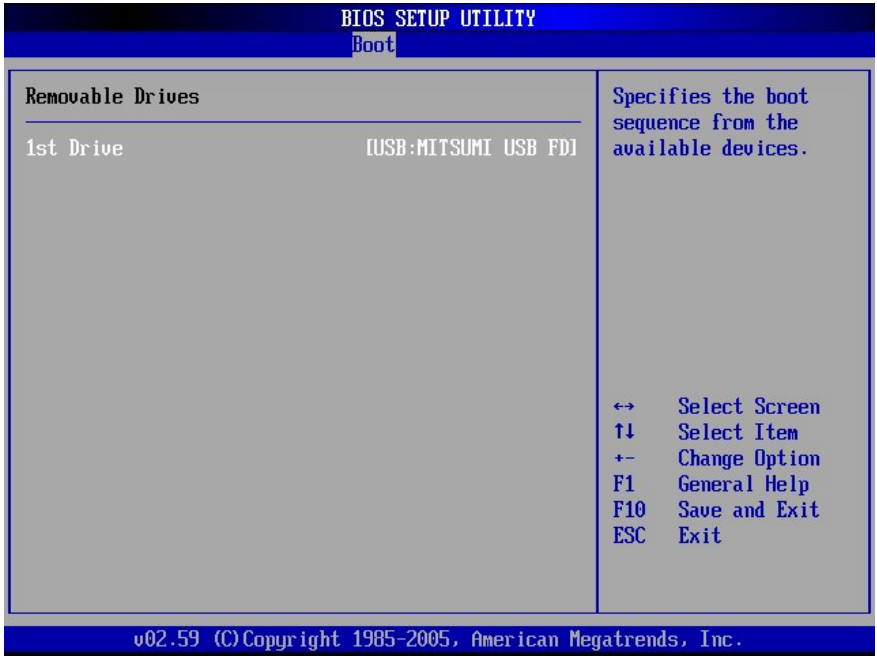


- **Removable Drives**

This option is available only if a removable boot device is connected!

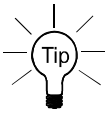
1st Drive / ..... / # Drive

This option allows you to choose the removable drive used as the boot device (**possible selections depend on system configuration**).
Available settings: MITSUMI USB FD and *Disabled*.



Security

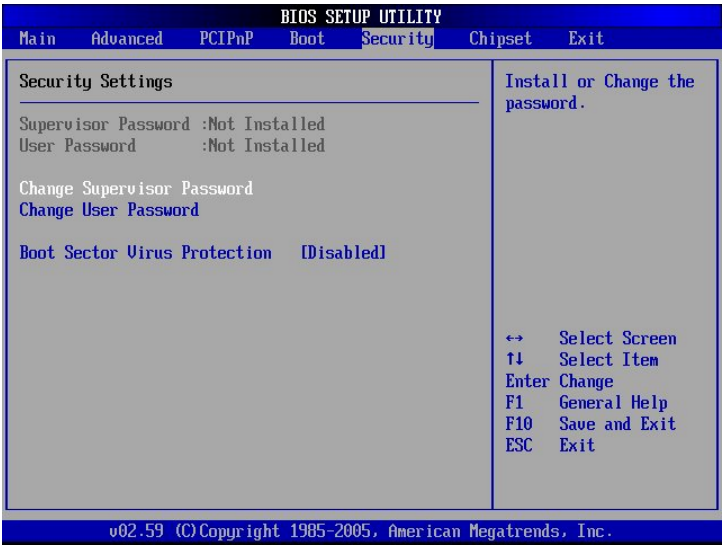
PCI-955 supports Supervisor, User and HDD Security passwords.



Valid passwords (Supervisor and User) can be a combination of 1 to 6 alphanumeric characters. The Primary / Secondary Master / Slave HDD User password can be a combination of 1 to 32 alphanumeric characters.
If you use both passwords (Supervisor and User), 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 PCI-955 Setup is executed, using either or both the Supervisor password and 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.



Supervisor Password

Indicates whether a supervisor password has been set.
If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

User Password

Indicates whether an user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

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 combination of 1 to 6 alphanumeric characters. 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 the following settings: ***Full Access***, *Limited, View Only,* and *No Access.*

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

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 combination of 1 to 6 alphanumeric characters. 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 the following option is available:

“Password Check” with following settings: ***Setup*** and *Always*.

Clear User Password

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

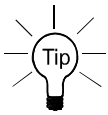
You can use the sub menu to clear the user password. Select “Clear User Password” from the Security Setup menu and press <Enter>.

“Clear User Password” → [Ok] [Cancel] Choose your selection.

Boot Sector Virus Protection

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

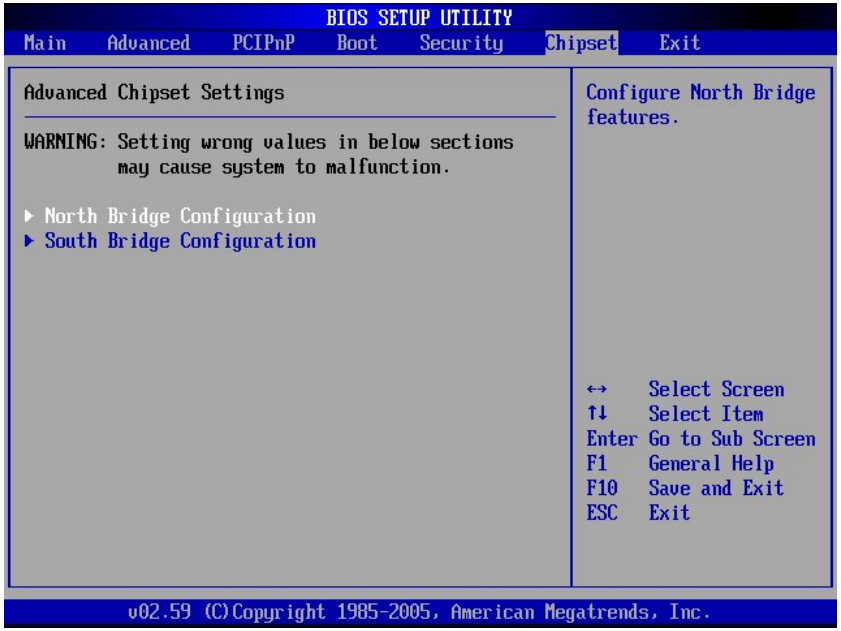
Enabled	The boot sector cannot be changed. A virus that attacks the boot sector cannot infect the system. Select "*Enabled*" to enable boot sector protection. The system displays a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk 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 selecting *"Enabled".*

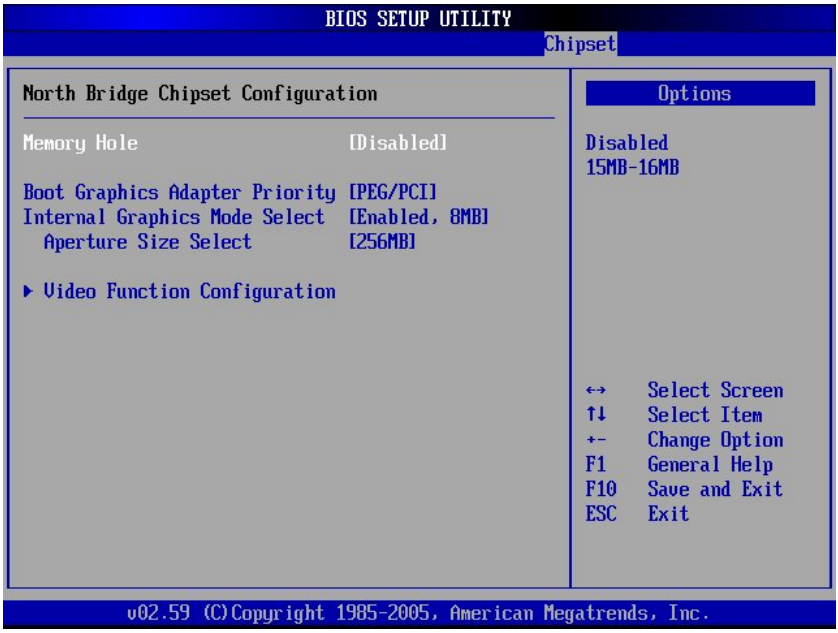
Chipset

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



North Bridge Chipset Configuration

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



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***.

Boot Graphics Adapter Priority

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

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

IGD: Integrated Graphics Display

PEG: PCI Express Graphics

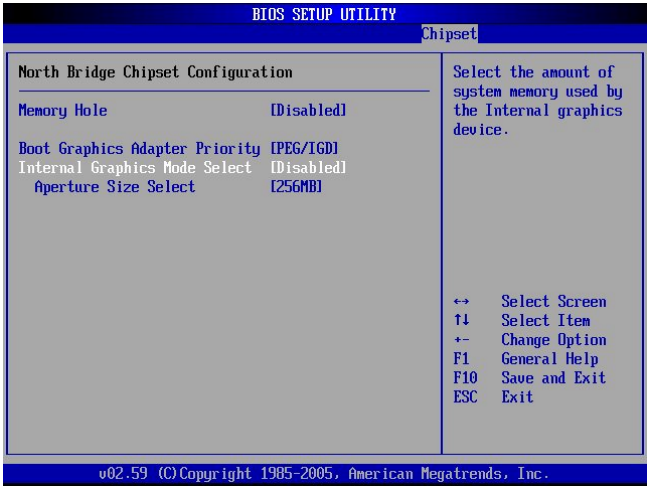
PCI: PCI Device

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

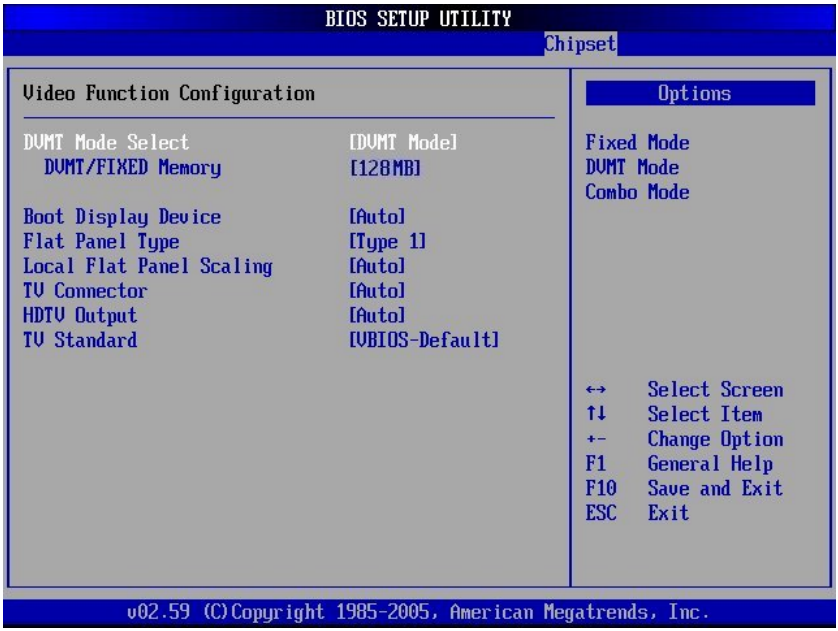


Aperture Size Select

The option allows you to set the aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

Available settings are: *128MB* and ***256MB***.

- **Video Function Configuration**



DVMT Mode Select

This option allows you to select the DVMT operating mode.

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

DVMT/Fixed Memory

Available settings are: *64MB* and ***128MB***.

The option "`DVMT/Fixed Memory`" is not available when the option "`DVMT Mode Select`" is set to ***Combo Mode***.

Boot Display Device

This option allows you to select the boot display device.

Available settings are: ***Auto***, *CRT on Port 0, LFP on Port 2, LFP on Port 3, DFP on Port 2, DFP on Port 3, TV on Port 2, TV on Port 3, CRT-Port 0 &CRT-Port 2, CRT-Port 0 &CRT-Port 3, CRT-Port 0 &LFP-Port 2, CRT-Port 0 &LFP-Port 3, CRT-Port 0 &DFP-Port 2, CRT-Port 0 &DFP-Port 3* and *DFP-Port 2 &DFP-Port 3.*

Flat Panel Type

This option allows you to select the flat panel type.

Available settings are: ***Type 1****, Type 2, Type 3, Type 4, Type 5, Type 6, Type 7, Type 8, Type 9, Type 10, Type 11, Type 12, Type 13, Type 14, Type 15* and *Type 16.*

Local Flat Panel Scaling

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

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

TV Connector

This option allows you to select the type of TV output connector used.

Available settings are: ***Auto****, Composite, Component Composite & RGB, S-Video, SCART Composite Scart Compos. & RGB, Scart Compos &s-Vdo* and *SMPTE253 Compon. RGB.*

HDTV Output

This option allows you to select the type of HDTV output connector used.

Available settings are: ***Auto***, *480i60, 480p60, 576i50, 576p50, 720p60, 1080i50, 1080i60, 1080p24, 1080p25, 1080p30, 1080p50* and *1080p60*.

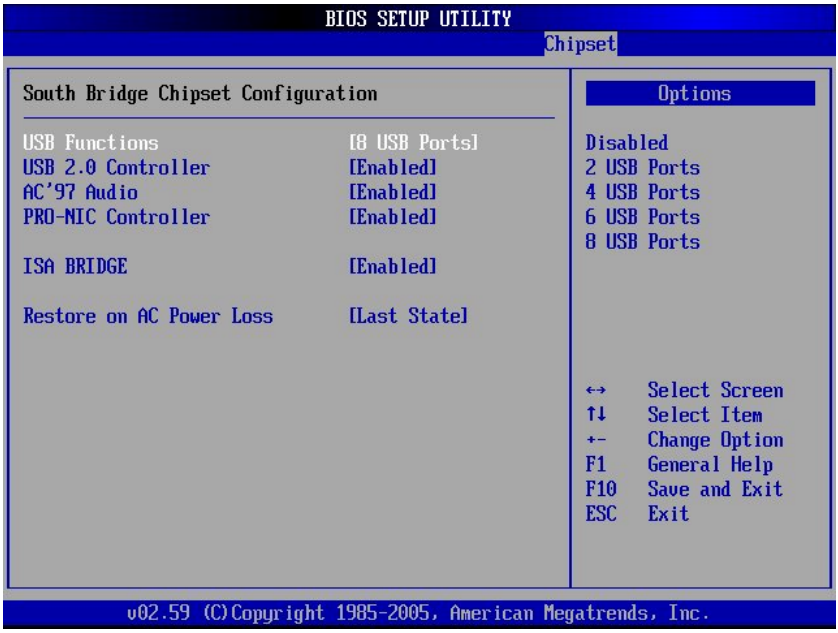
TV Standard

This option allows you to select the TV standard used as output.

Available settings are: ***VBIOS-Default***, *NTSC, PAL, SECAM, SMPET240M, ITU-R television, SMPET295M, SMPET296M, EIA-770.2,* and *EIA770.3*.

South Bridge chipset Configuration

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



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***.

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 "D*isabled*", the option "`USB 2.0 Controller Mode `" (Advanced/USB Configuration) is not available.

AC'97 Audio

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

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

PRO-NIC Controller

This option allows you to enable or disable the onboard PRO-NIC LAN controller for 10/100 Mbps data transfers. The PRO-NIC controller is equipped only on the PCI 956 Board (value line version of the PCI-955).

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

ISA Bridge

This option allows you to enable or disable the PCI to ISA Bridge.

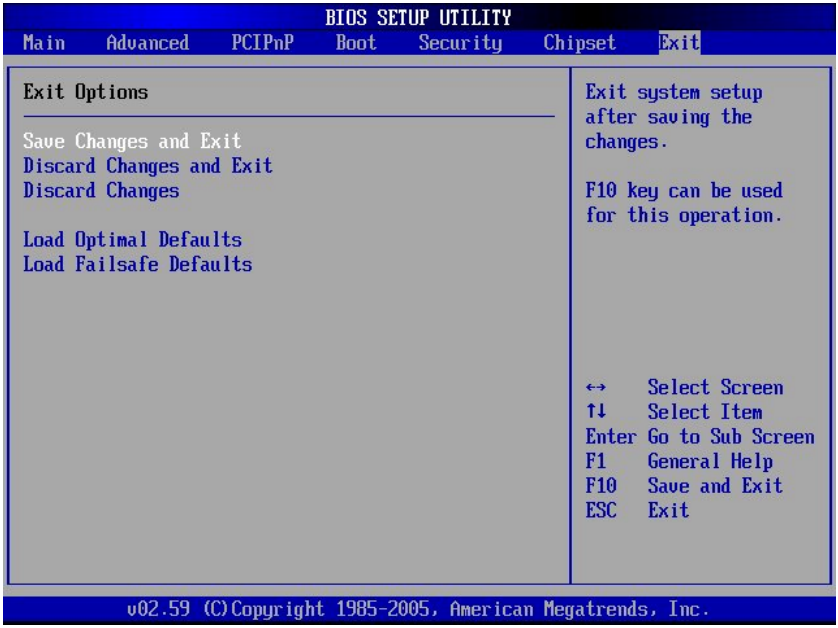
The available settings are: ***Enabled*** and *Disabled.*

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, Power On* and ***Last State***.

Exit



Save Changes and Exit

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

Discard Changes and Exit

This field exits BIOS Setup without saving the new settings.

Discard Changes

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

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.

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 optimised 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.

Technical Data

PCI-955/64 Board PCI-955/32 Board	Main Specification
Processor	Intel® Pentium® M or Intel® Celeron® M For CPU frequency, please refer to the actual data sheet on the website: www.kontron.com Socket 479
Board Type	PICMG 1.0 standards
Memory	2x 200-pin non-ECC DDR2 DIMMs for up to 2GB of 266MHz or 333MHz DDR2 SDRAM
Cache	8-KB Level 1 Level 2 (depending on the installed CPU)
Chipset	Intel® 915GM with Intel® ICH6 chipset (integrated graphic controller “Graphics Media Accelerator 900“)
LPC I/O	Winbond W83627HF
For PCI-955/64 only: **PCIe to PCI Bridge 64-bit@66MHz**	PEX 8114 PLX Technology Inc.
PCI to ISA Bridge	ITE IT8888F
Ethernet Controller	2x Marvell Yukon 88E8053 (support 10/100/1000 Mbps data transfer)
AC’97 compatible Audio Codec	ALC655
BIOS	AMI BIOS PnP 1MB (8Mbits) Flash BIOS ROM (TSOP40)
Watchdog	Watchdog Timer: programmable ca. 1sec. to 17 min. TimeOut event: NMI or Reset

The table is continued on the next page.

Interfaces **Connectors** **Expansion Sockets**	**External Connectors (on the board bracket)** 1x VGA 2x LAN 1x USB (2.0/1.1) **Onboard Connectors:** 1x FDD 2x IDE (PATA) 4x SATA 2x COM (default RS232) 1x COM1 (RS232) 1x COM2 (RS232/RS422/RS485) 1x IrDA 1x LPT 4x USB (1.1/2.0) 1x MiniPCI slot (with AC'97 and 1x USB) 1x DVI-D 1x LVDS (JILI) 1x TV-out 1x Line-in, Line-out, Mic 1x CD-IN 1x CPU Fan Power Connector 2x Chassis Fan Power Connector 1x additional Power Button Connector 1x ATX Control Connector 1x ATX +12V Power Connector 1x Main Power Connector 1x Multifunctional Connector with support for: 1x Keyboard 1x Mouse 1x Power LED 1x Reset Button 1x Speaker 1x HDD/CF Activity LED
Power Supply	Lithium battery 3.0 V for RTC, Type: CR2032 External ATX 12V
Operating Systems	Information about the applicable operating systems refer to the website: www.kontron.com or: techsupport@kontron.com

Electrical Specifications

Board Version	Type of the external PSU	Inputs	
PCI-955/64 Board PCI-955/32 Board	ATX 12V PSU by use of the supplied ATX adapter cable	J20	+5V, +5VSB, +12V
		J34	+12V

Mechanical Specifications

Dimensions	338.58 x 121.92 x 22.7 mm (13,33” x 4.80” x 0.89”) (Height without CPU heatsink)
Weight	0.306 kg (0.675 lbs.) (without CPU fan)

Environmental Specifications

Operating Temperature	0°C to 60°C (32°F to 140°F)
Storage Temperature.	-20°C to +70°C (-4°F to 158°F)
Relative Humidity	0% to 95% (non-condensing)
Operating Altitude	4571.777 m (15,000 ft.)
Storage Altitude	10667.479 m (35,000 ft.)
Vibration (operating)	2.2G with CPU-heatsink, 15G without CPU-heatsink Mil-Std 810F Method 514.4 & 514.2
Shock (operating)	Mil-Std 810F Method 514.4 Procedure I (15G) 30G, 5ms, half sine waveform

CE Directives, Standards

CE Directives	
Low Voltage Directive (Electrical Safety)	73/23/EEC
EMC Directive	89/336/EWG + 92/31/EWG (Modification)
CE - Marking	93/68/EWG

Electrical Safety	**Standards**
EUROPE	Information technology equipment - Safety - Part 1: General requirements EN 60950-1: 2001
U.S.A.	UL 60950-1 :2003 / UR Marking

EMC	**Standards**
EUROPE	EN 55022:1998 + A1:2000 + A2 2003 (emission) EN 55024:1998 + A1:2001 + A2 2003 (immunity) EN 61000-6-2:2001
U.S.A.	FCC 47 CFR Part 15, Class A

Declaration of Conformity

Kontron Embedded Computers GmbH • 85386 Eching

Declaration of Conformity

The product/device described below

Type of Equipment: **CPU Board**
Model: **PCI - 955**
Article-Number: **9-1xxx-3505**

complies to the European Council Directive on the approximation of the laws of the member states relating to electromagnetic compatibility (89/336/EEC + 92/31/EEC) and low voltage (product safety 73/23/EEC, altered by 93/68/EEC) or the last status thereof.

Following standards are constitute part of the declaration:

EN 60950-1:2001	Safety for information technology equipment including electrical business equipment
EN 61010-1:2001	Safety requirements for electrical equipment for measurement, control and laboratory use
EN 61000-6-4:2001	(EMC) Generic emission standard Part 6-4: Emission standard for industrial environments
EN 61000-6-2:2001	(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: _____ Date: 23/07/2005
(Managing Director)

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 5776, VAT DE 8 111 63 036, Steuer-Nr. 132/116/00173
Dresdner Bank AG Freising, BLZ 700 800 00, Kto.-Nr. 929 954 300, Hypovereinsbank AG München, BLZ 700 202 70, Kto.-Nr. 328 035

UL - Certificate of Compliance

Certificate of Compliance

Certificate Number 20060605 - E147705
Report Reference E147705, June 28th, 2006
Issue Date 2006 June 28

Page 1 of 1

Underwriters Laboratories Inc.®

Issued to: KONTRON EMBEDDED COMPUTERS GMBH

OSKAR-VON-MILLER STR 1
D-85386 ECHING GERMANY

This is to certify that representative samples of CPU- Board
Model: PCI-955

Have been investigated by Underwriters Laboratories Inc.® in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 60950-1 Information Technology Equipment Safety - Part 1: General Requirements
CSA C22.2 No. 60950-1 Information Technology Equipment

Additional Information: Electrical Ratings:
+3,3V, 0.8A; +5.0V, 4.0A; +12.0V, 1.3A

Only those products bearing the UL Recognized Component Marks for the U.S. and Canada should be considered as being covered by UL's Recognition and Follow-Up Service and meeting the appropriate U.S. and Canadian requirements.

The UL Recognized Component Mark for the U.S. generally consists of the manufacturer's identification, catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory pursuant to the requirements under "Marking" for the particular recognition. The UL Recognized Component Mark for Canada consists of the UL Recognized Mark for Canada and the manufacturer's identification of catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory.

Look for the UL Recognized Component Mark on the product

Issued by: Stefan Hochwart
Stefan Hochwart, Project Engineer
UL International Germany GmbH

Reviewed by: Manfred Mueller
Manfred Mueller, Senior Project Engineer
UL International Germany GmbH

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: techsup@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 Embedded Computers or our products and services, you may reach us at the aforementioned numbers, or at : www.kontron.com or by writing to:

Kontron Embedded Computers GmbH
Oskar von Miller-Str. 1

85386 Eching
Germany

Returning Defective Merchandise

Before returning any merchandise please:

1. Contact our Service and request an
   RMA number (Return Material Authorization) by :
   Fax: (+49) 8165-77 412
   E-mail: service@kontron.com

2. Make sure to receive an RMA number from Kontron Embedded Computers-Service before returning any merchandise. Clearly write or mark this number on the outside of the package you are returning.

3. Describe the device failure behavior as precisely as possible.

4. When returning goods, include the name and telephone number of a person whom we can contact for further explanations if necessary. Where applicable, always include all duty papers and invoice(s) associated with the item(s) in question.

5. When returning a unit:
   - Ensure that the unit is properly packed in the original box.
   - Include a copy of the RMA form.