

► Benutzerhandbuch/ User's Manual



PCI - 954 Board

User's Manual

Version 1.01

Kontron Embedded Computers GmbH

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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.

The attached documentation does not entail any guarantee on the part of Kontron Embedded Computers with respect to technical processes described in the manual or any product characteristics set out in the manual. Kontron Embedded Computers does not accept any liability for any printing errors or other inaccuracies in the manual unless it can be proven that Kontron Embedded Computers is aware of such errors or inaccuracies or that Kontron Embedded Computers is unaware of these as a result of gross negligence and Kontron Embedded Computers has failed to eliminate these errors or inaccuracies for this reason.

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Germany

Symbols used in this Manual

Symbol

Meaning



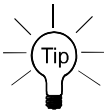
This symbol indicates the danger of injury to the user or the risk of damage to the product if the corresponding warning notices are not observed.



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*.

- ® Microsoft, MS-DOS, Windows and Windows NT are registered trademarks of the Microsoft Corporation.
- ® IBM, PC-AT, OS/2 and PS/2 are registered trademarks of the International Business Machines Corporation.
- ® Intel and Pentium are registered trademarks of Intel Corporation.
- ® AMI is a registered trademark of American Megatrends, Inc.

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-954 board.

The manufacturer's instructions provide useful information on your PCI-954 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 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-954 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-954 board must be used in accordance with the instructions for use.
- The PCI-954 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 adheres to the specification given in the "Electrical Specifications".
- 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-954 board.
- Please observe, that all cables attached to the PCI-954board must be duly connected and fixed.
- If extensions are made to the PCI-954 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 Instruction for the Lithium Battery

The PCI - 954 board is equipped with a lithium battery. The lithium battery should be replaced only in the factory.



Warning

There is a danger of explosion if the wrong type of battery is used for replacement.



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-954 board, in order to ensure the product integrity.

- Do not handle this product while it is outside its protective enclosure, while it is not used for operational purposes, unless it is otherwise anti-static protected.
- Unpack or install this product only at EOS/ESD safe work stations. When safe work station are not guaranteed, it is important for the user to be electrically discharged before touching the PCI-954 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. 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 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-954 Board PICMG (Full-Size)
- 1x Safety Instructions
- 1x CD-ROM with the required Drivers and the PCI-954 Board User's Manual
- 1x Cable Set

Optional Parts

- CPU Heatsink with Fan
- CPU Heatsink without Fan
- Adapter Card with 2x DVI and 3.3V AT PSU Support
- Adapter Card with 1x DVI and 3.3V AT PSU Support
- Adapter Card with 3.3V AT PSU support
- RS232 to RS232 Serial Interface Converter (galvanically isolated)
- RS232 to RS422 Serial Interface Converter (galvanically isolated)
- RS232 to RS485 Serial Interface Converter (galvanically isolated)

Product Identification

The board is labelled at the rear side with the corresponding Kontron product identification number.

Label	Product Identification
9-XXXX-9035	PCI-954 board

The "/XXXX/" group defines the ordered board configuration.

Labeling Information

The PCI-954 board is labeled in the following way (refer to fig. 1 and 2):

- ❑ 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

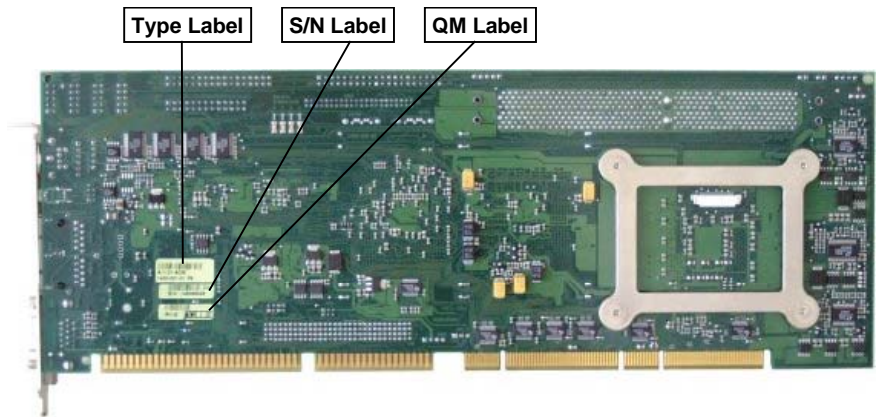


Fig. 1: Placement of Type, Serial Number and QM label on the rear side of the board

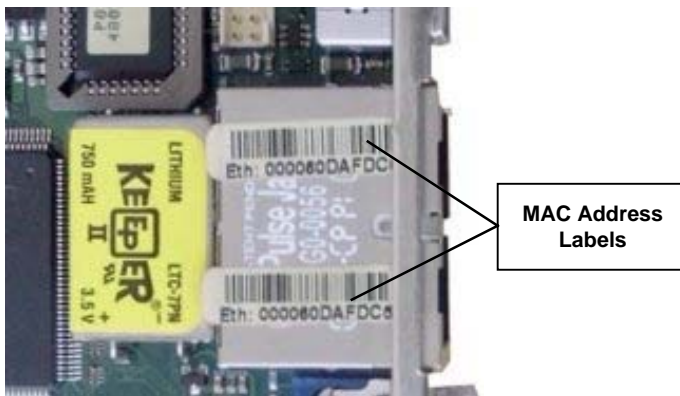


Fig. 2: Placement of the MAC Addresses label on the top side of the board

Board Description

The PCI-954 is a multifunctional full-size PICMG 1.0 Slot-CPU, designed for use in highly integrated platforms for a wide range of application.

The board integrates an Intel® Pentium® M processor. Adopting the Intel® 855GME in combination with Intel® 6300ESB (ICH), the board provides a PSB (processor side bus) of 400MHz by a bandwidth of 3.2 Gbytes/s.

The implemented Intel® 855GME chip set provides up to 2x 1 GB DDR SDRAM (double DATA rate) memory.

The Intel® 855GME includes the “Extreme Graphics 2” controller that offers 2D and 3D graphic acceleration and supports both analog (VGA) and digitally (DVO) displays.

The used Intel® 6300ESB (ICH) supports two onboard IDE channels (IDE 0 & 1) [up to four IDE-devices (two “Master”, two “Slave”)] and two SATA channels. To each of the two SATA connectors can be attached one storage device (as Master) such as: hard disk, DVD, CD-ROM, etc. The supported USB 2.0 port and serial ports offer more flexibility for the configuration of your system.

Other function consists of dual 10/100 Base-TX Ethernet LAN port (Intel® 82551LAN controller) (Option: Intel® 82541LAN controller for dual 10/100/1000 Base-TX Gigabit Ethernet LAN port). A 32-bit expansion MiniPCI slot (that provides USB 2.0 and AC'97) is available for more feature extension such as wireless LAN, DES, modem or capture card. Watchdog and power saving features are available.

The implemented SuperI/O supports: 2x serial interfaces (COM), 1x LPT interface, 2x combined keyboard & mouse, 1x floppy interface.

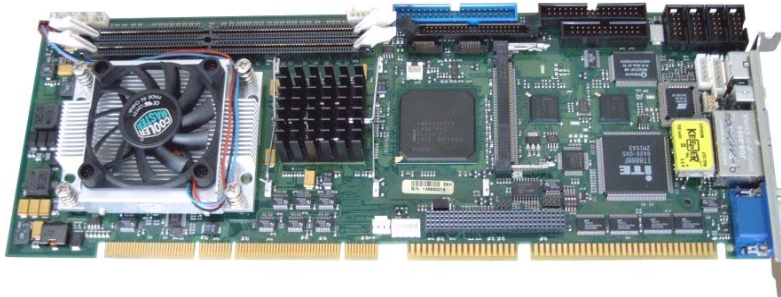


Fig. 3: PCI - 954 Board



Fig. 4: PCI - 954 Board slot bracket with interfaces

Features

Processor Socket: Intel® Socket 478.

Processor: Intel® Pentium® M and / or Celeron® M CPU.
The CPU temperature is monitored via an sensor.

Processor Side Bus Speed (FSB): 400 MHz

Chipset: Intel® 855GME with Intel® 6300ESB (ICH) Chipset

Memory:

- Two 184-pin ECC DDR DIMMs, single-sided and/ or double-sided up to 2GB as DDR266 or DDR333.

BIOS: AMI BIOS.

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

DMI BIOS Support:

- Desktop Management Interface (DMI) allows users to download system hardware-level information such as CPU type, CPU speed, frequencies and memory size.

LPC I/O: Winbond W83627HF

- Temperature control: CPU temperature control (0°C to +100°C), monitored via an sensor.
- Voltage monitoring: +12V, +5V, +5VSB, +3.3V, +2.5V, +1.35V, 1.05V, VBAT, VCC-Core
- Power management: ACPI 1.0 compliant
- Supervisory: CPU Fan control (Speed control)

Enhanced IDE: Supports two Bus Mastering IDE mode, up to 4 devices.

- 2x IDE interfaces for up to four devices, support PIO Modes (up to 5) or Ultra DMA 33/66/100 IDE Hard Disk and ATAPI CD-ROM.

SATA:

- ❑ 2x 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.

PCI to ISA Bridge: ITE IT8888F (No DMA support)

PICMG Compliance: Fully compliant to PICMG 1.0 standards

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

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

Serial Port: 4x 16550 UART compatible COM ports configured as RS-232.

USB Interface: 4x USB 2.0/1.1 ports compliant with USB Specification Rev. 2.0 are supported.

- ❑ 1x external USB connector, on the board slot bracket
- ❑ 1x on-board pin-header connector
- ❑ 1x integrated on the MiniPCI slot connector
- ❑ 1x integrated on the Special Feature Connector (J12)

SM-Bus: SMBus 2.0 compliance, Host and slave interface on the Special Feature Connector (J12).

Graphics: Intel® 855GME with integrated “Extreme Graphics 2” controller

- ❑ Multi Monitor: Dual independent pipe support
 - Simultaneous: Same images and native display timings on each display device
 - Concurrent: Different images and native display timings on each display device
- ❑ Up to 64 MB of dynamic video memory allocation (shared memory, allocated in system memory)
- ❑ RAMDAC speed: 350MHz
- ❑ CRT (VGA) analog resolution: Up to 2048x1536 @ 75 Hz
- ❑ LCD (DVO) digital resolution for: Up to 2048x1536 @ 75 Hz
- ❑ It support fast 2D and 3D graphics performance; enhance 3D feature set; Improves platforms for DVD and Video playback and Enhance Multimedia functionally

Ethernet: Intel® 82551ER/ 82541ER

- The Intel® 82551ER supports LAN functions for Fast Ethernet (10/100Mbps data transfer) and provides a standard IEEE 802.3 Ethernet interface for 10/100 Base-TX applications.
- The Intel® 82541ER (**option**) supports 10/100/1000Mbps data transfer and provides a standard IEEE 802.3, 802.3u, 802.3ab Ethernet interface for 10/100/1000 Base-TX applications.

Keyboard and Mouse Connectors:

- 1x Combined PS/2 keyboard and mouse connector on the board slot bracket.
- 1x On-board 7-pin header connector that supports an external keyboard and mouse connector.

IrDA Interface: Pin-header connector that allows to connect an external IrDA module.

MiniPCI Slot Connector: allows the expansion with a MiniPCI card.

Extended Functions

The PIC controller (PIC16F818) can be accessed via the SM-Bus (Addr. 50 / 51h). The PIC controller is used to implement additional Slot-CPU features:

Watchdog: PIC-Controller (via SM-Bus)

- Watchdog Timer: programmable ca. 1sec. to 17 min.
- TimeOut Event: NMI or Reset

Operating Time Counter: 24-bit Register

Power-on Counter: 16-bit Register

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

Voltage Monitoring: +12V, +5V, +3.3V (8-bit resolution)

FAN Control:Chassis FAN Speed (8-bit resolution)

Version Number: 8-bit Register

Functional Diagram

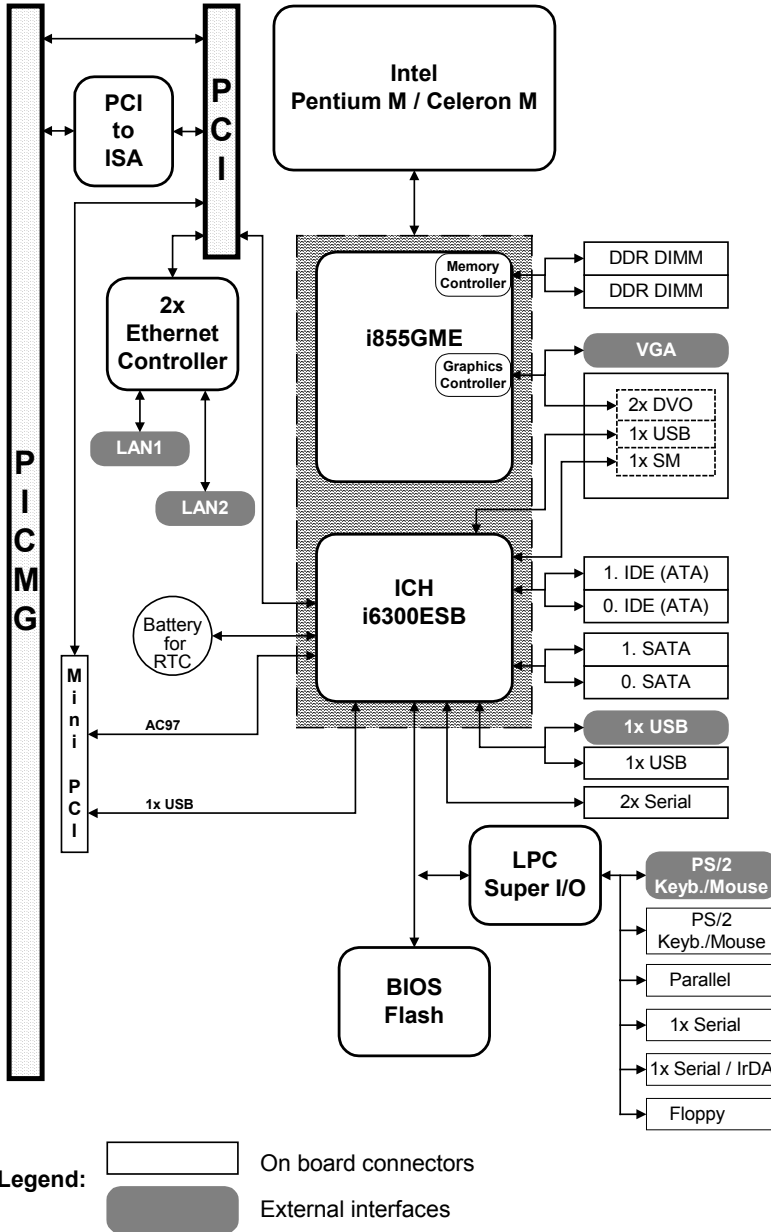


Fig. 5: PCI - 954 Functional diagram

Configuration

This chapter provides information on how to use the jumpers and connectors located on the PCI-954 in order to set up a workable system.

Memory Installation

The PCI-954 board supports two 184-pin DDR SDRAM sockets for up to a total memory of 2GB DDR SDRAMs. The memory modules can be user-defined combined in size of 128MB, 256MB, 512MB up to max. 1GB per DDR SDRAM socket.

Each one of the two sockets can be populated first. (individually also).



To populate the DDR-SDRAM socket, use SDRAM memory modules with the same specification: PC2100 or PC2700. Our suggest: you should not install the memory modules with PC1600 specification, for availability and cost reasons.

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

DDR DIMM1	DDR DIMM2	Total Memory
128MB	-----	128MB
256MB	-----	256MB
512MB	-----	512MB
1GB	-----	1GB
128MB	128MB	256MB
128MB	256MB	384MB
128MB	512MB	640MB
256MB	128MB	384MB
256MB	256MB	512MB
256MB	512MB	768MB
256MB	1GB	1280MB
512MB	128MB	640MB
512MB	256MB	768MB
512MB	512MB	1GB
512MB	1GB	1536MB
1GB	1GB	2GB

Jumper and Connectors on the PCI-954

The connectors on the PCI-954 allow you to connect external and internal devices such as keyboard, floppy disk drive, hard disk drives, printers, etc.

The following table lists the jumper and connectors on PCI-954 and their respective functions.

Jumpers	
(J6)	Clear CMOS
DIP Switch (S1)	
External interfaces	
VGA (J13)	VGA Connector
LAN1, LAN2 (J19)	Dual RJ45 Connector
USB 0 (J9)	USB Connector
PS/2 (J22)	Combined PS/2 Keyboard and Mouse Connector
On-board connectors	
SATA0 (J7), SATA1 (J8)	SATA connectors
Power-LED (J32)	Power and Standby LED, Power Button Connector
Reset Button (J31)	Reset Button Connector
IDE LED (J33)	Hard Disk LED
ATX Power Control, Standby Power (J34)	External ATX Power Control Connector (+5VSB, PS_ON)
Speaker (J35)	Speaker Connector
KBMS (J21)	Keyboard/ Mouse internal Connector (header)
USB (J11)	USB Header Connectors
CPU FAN Header (J36)	CPU Fan Connector
J12	Special Features Connector (DVO, USB, SM-Bus)
IDE0 (J4), IDE1 (J5)	Primary (3.5") and Secondary (2.5") IDE Connectors
FDC (J24)	Floppy Drive BOX Header Connector
IRDA (J20)	IrDA Connector
LPT (J23)	Parallel Port Connector
COM1, 2, 3, 4 (J27, J28, J29, J30)	Serial Ports
EFC (J25)	External (Chassis) Fan Connector
MiniPCI (J15)	MiniPCI Connector with USB and AC'97
DIMM1, 2 (J2, J3)	Memory DIMM Socket

Jumper and Connectors Location on the PCI-954

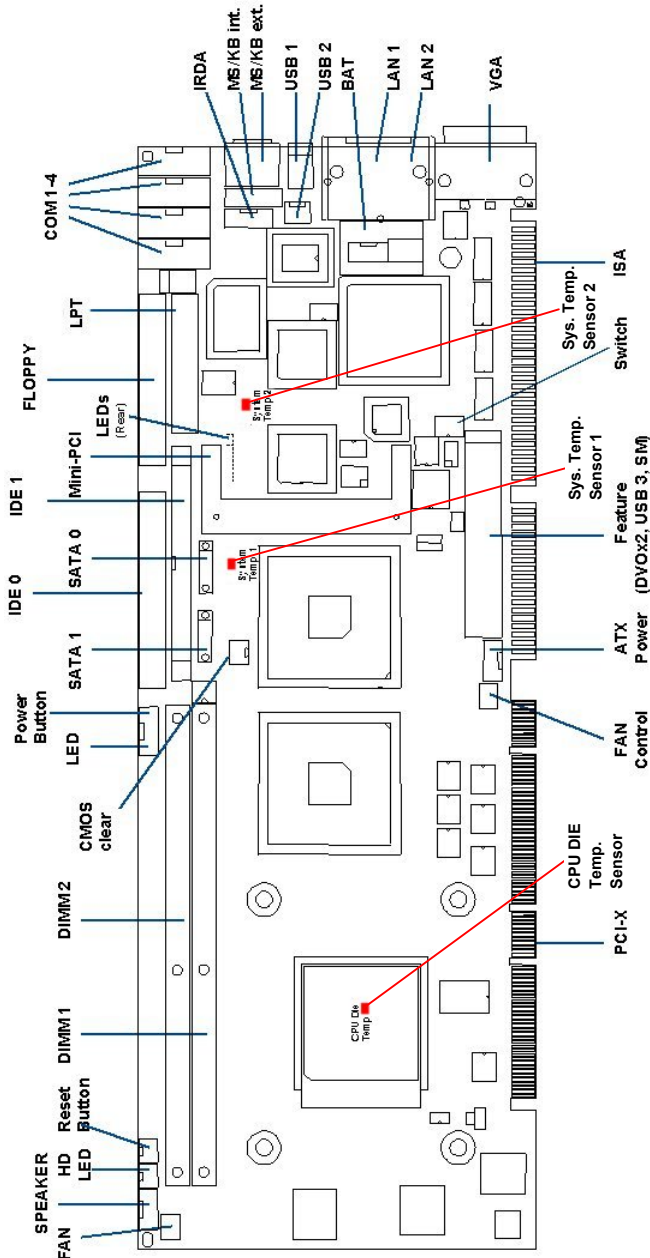


Fig. 6: PCI-954 - Jumpers, temperature sensors and connectors location



Jumper on PCI-954

J6: 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 system. Otherwise, the board could be damaged. The board might not start with this jumper in “closed” position.

J6: 2-Pin Connector	Setting	Function
	Pin 1-2 Short/Closed	Clear CMOS Content
	Pin 1-2 Open	Normal Operation (Default)



For clearing of content, please wait 10 sec.

S1: DIP Switch

The DIP Switch is to be used if the implemented ISA cards (in your system) generates timing problems on MEMCS16 or IOCS16 (decoding the MEMCS16 and/or IOCS16 with the Read/Write Signals instead of address-only decoding, which violates the ISA-Timing specification).

These switches can be used to force MEMCS16 and/or IOCS16 to low, allowing 16-bit transfers with these problematic cards.

Switch Pos.	Signal Name	Description
1	MEMCS16	ON = MEMCS16 always low OFF = MEMCS16 normal operation (default)
2	IOCS16	ON = IOCS16 always low OFF = IOCS16 normal operation (default)



Only 16-bit transfers are supported, if this switches are set to “ON”.

Default is “OFF”. Set only to “ON” if specially needed.

External Interfaces

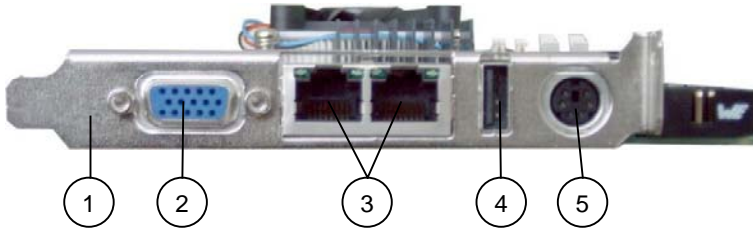


Fig. 7: PCI-954 – User interface

- | | | | |
|---|--|---|--|
| 1 | PCI-954 slot bracket | 4 | USB 2.0/1.1 connector |
| 2 | VGA connector | 5 | Combined PS/2 keyboard and mouse connector |
| 3 | LAN1 and LAN2 connector with integrated LEDs | | |

Dual LAN Ethernet Connector (LAN1 and LAN2)

The PCI954 is equipped with two LAN connectors. These interface connectors are provided as RJ45 sockets with integrated LEDs and support a data transfer rate of 10/100Mbps or 10/100/1000Mbps, depending on the equipped Ethernet controllers (Intel®82551EM or Intel®82541EM).

Fast Ethernet: The PCI-954 board equipped with 82551ER Ethernet controller and supports a data transfer rate of 10/100Mbps.

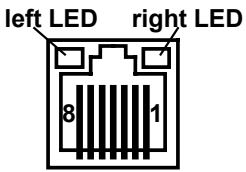
PIN#	Signal Name (LAN1 and LAN2)	RJ45 (female)
1	TX+	
2	TX-	
3	RX+	
4	N.C.	
5	N.C.	
6	RX-	
7	N.C.	
8	N.C.	

The left LED of each port signals the activity status. The right LED signals the speed of the Link.

Left LED	Function	Right LED	Signal Name
off	LINK not active	off	10 Base-T
green	LINK active	green	100 Base-T

The speed-LEDs remain showing the last speed detected, even when the cable is unplugged. This is not a failure and based on the functionality of the used INTEL LAN Controller 82551 (10/100 Base-T).

Giga Ethernet: The PCI-954 board equipped with 82541ER Ethernet controller and supports a data transfer rate of 10/100/1000Mbps).

PIN#	Signal Name (LAN1 and LAN2)	RJ45 (female)
1	MDI0+	
2	MDI0-	
3	MDI1+	
4	MDI2+	
5	MDI2-	
6	MDI1-	
7	MDI3+	
8	MDI3-	

The left LED of each port signals the activity status. The right LED signals the speed of the Link.

Left LED	Function	Right LED	Signal Name
off	LINK not active	off	10 Base-T
green	LINK active	green	100 Base-T
		yellow	1000 Base-T

The Speed-LEDs are shut off when the cable is unplugged.

PS/2 Keyboard and Mouse – Connector

You can connect a PS/2 compatible mouse to the mini DIN connector (female).

Pin	Signal name	6 pin Mini-DIN socket (female)
1	Keyboard data	
2	Mouse data	
3	GND	
4	+5 V fused	
5	Keyboard clock	
6	Mouse clock	

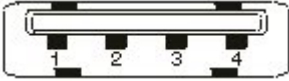
VGA-Interface – Connector

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

Pin	Signal name	15-pin SUB D-socket (female)
1	Analog red output	
2	Analog green output	
3	Analog blue output	
4	N.C.	
5–8	GND	
9	+5 V fused	
10	GND	
11	N.C.	
12	SDA (DDC)	
13	TTL HSync	
14	TTL VSync	
15	SCL (DDC)	

USB 2.0/1.1 Interface Connector (J9)

The USB 2.0/1.1 interface connectors allow you to connect USB-compatible devices to the PCI-954 slot CPU.

Pin	Signal name	4-pin USB socket Type A Version 2.0/1.1 
1	+5 V fused	
2	Data-	
3	Data+	
4	GND	

On-Board Connectors

J15: MiniPCI Socket

The pin assignments of the J15 MiniPCI Socket 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	X
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	10K Pulldown
9	X	59	CEB2#	109	10K Pulldown
10	X	60	AD16	110	AC97_RST#
11	X	61	IRDY#	111	X
12	X	62	GND	112	X
13	X	63	VCC3V3	113	X
14	X	64	FRAME#	114	GND
15	X	65	X	115	X
16	USBP	66	TRDY#	116	X
17	INTB#	67	SERR#	117	X
18	VCC5	68	STOP#	118	X
19	VCC3V3	69	GND	119	X
20	INTA#	70	VCC3V3	120	X
21	X	71	PERR#	121	X
22	USBN	72	DEVSEL#	122	X
23	GND	73	CBE1#	123	X
24	VCC3V3AUX	74	GND	124	VCC3V3AUX
25	CLK	75	AD14		
26	RST#	76	AD15		
27	GND	77	GND		

The table is continued on the next page.

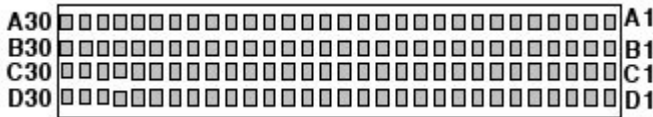
28	VCC3V3	78	AD13		
29	REQ#	79	AD12		
30	GNT#	80	AD11		
31	VCC3V3	81	AD10		
32	GND	82	GND		
33	AD31	83	GND		
34	PME#	84	AD9		
35	AD29	85	AD8		
36	X	86	CBE0#		
37	GND	87	AD7		
38	AD30	88	VCC3V3		
39	AD27	89	VCC3V3		
40	VCC3V3	90	AD6		
41	AD25	91	AD5		
42	AD28	92	AD4		
43	X	93	X		
44	AD26	94	AD2		
45	CBE3#	95	AD3		
46	AD24	96	AD0		
47	AD23	97	VCC5		
49	GND	99	AD1		
50	GND	100	X		

Special Feature Connector (J12)

This connector contains the signals of 2x DVO ports, 1x USB port and SM Bus. With an additional adapters you can use several additional Interfaces: DVI (Single and Dual), Long-Distance (depending on the ordered adapter).

The 855GME Chipset supports either AGP or DVO. This signals are shared. The additional signals needed for full AGP support are also located on the Special Feature Connector.

In conjunction with a special backplane (tbd) supporting the AGP-Slot, AGP graphics cards (1x, 2x, 4x) and ADD cards can be used.



PIN Row A	Signal Name	PIN Row B	Signal Name	PIN Row C	Signal Name	PIN Row D	Signal Name
1	VCC12	1	OVRCNT# / OC3X	1	VCC12	1	Typedet#
2	VCC12	2	USBP	2	USBN	2	GND
3	INTB	3	VCC1V5	3	VCC5	3	INTA
4	GND	4	CLK / ADD_RSVD_ A8	4	GNT# / CK_66M_AG P	4	Reset#
5	REQ# / ADD_RSVD_ B8	5	AGP_ST1	5	VCC3v3	5	SMB_DATA
6	ST0	6	AGP_ST2	6	PIPE# / DPMS_CLK	6	SMB_CLK
7	GND	7	RBF# / ADD_RSVD_ B12	7	VCC3v3	7	GND

The table is continued on the next page.

8	VCC5	8	GND	8	SBA1 / ADDID1	8	WBF# / ADD_RSVD_ A14
9	SBA0 / ADDID0	9	SBA2 / ADDID2	9	SB_STB# / ADD_RSVD_A 18	9	SBA3 / ADDID3
10	SBA4 / ADDID4	10	SB_STB /ADD_RSVD_ B18	10	SBA7 / ADDID7	10	SBA5 / ADDID5
11	SBA6 / ADDID6	11	GND	11	GND	11	GND
12	GND	12	AD31 / DVOCFLDST L	12	AD28 / DVOCDD11	12	AD30 / DVOCINTR X
13	AD29 / DVOCV10	13	AD25 / DVOCDD6	13	AD26 / DVOCDD9	13	AD24 / DVOCDD7
14	AD27 / DVOCV8	14	GND	14	GND	14	GND
15	VCC3V3	15	AD_STB1 / DVOCCLK	15	C/BE3# / DVOCDD5	15	AD_STB1# / DVOCCLKX
16	AD23 / DVOCDD4	16	VCC1v5	16	AD22 / DVOCDD3	16	VCC3v3
17	AD21 / DVOCDD2	17	AD19 / DVOCDD0	17	GND	17	AD20 / DVOCDD1
18	GND	18	AD17 / DVOCCHSYNC	18	AD16 / DVOCVSYNC	18	AD18 / DVOCBLANK X
19	C/BE2# / ADD_RSVD_B 39	19	GND	19	FRAME# / MDVIDATA	19	VCC1v5

The table is continued on the next page.

20	IRDY# / MI2CCLK	20	DEVSEL# / MI2CDATA	20	STOP# / MDDCCLK	20	TRDY# / MDVICLK
21	VCC1v5	21	PERR#	21	VCC3V3	21	PME#
22	C/BE1# / DVOBBLANK X	22	SERR#	22	AD15 / MDDCDATA	22	PAR / DVODETECT
23	AD14 / DVOBFLDST L	23	VCC1v5	23	AD13 / DVOBCCLKI NT	23	VCC1v5
24	VCC5	24	AD12 / DVOBD10	24	VCC5	24	AD11 / DVOBD11
25	AD8 / DVOBD6	25	AD10 / DVOBD8	25	C/BE0# / DVOBD7	25	AD9 / DVOBD9
26	AD_STB0 / DVOBCLK	26	GND	26	AD_STB0# / DVOBCCLKX	26	GND
27	GND	27	AD7 / DVOBD4	27	GND	27	AD6 / DVOBD5
28	AD3 / DVOBD0	28	AD5 / DVOBD2	28	AD2 / DVOBD1	28	AD4 / DVOBD3
29	AD1/ DVOBVSUNC	29	GND	29	AD0 / DVOBHSYNC	29	GND
30	GND	30	Vrefcg / DVO_VREF	30	GND	30	N.C.

IDE0: Primary IDE Connector

Signal Name	Pin #	IDE0: 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
PDRQ0	21		22	GND
IOW#	23		24	GND
IOR#	25		26	GND
IOCHRDY	27		28	P_ALE
PDAACK#	29		30	GND
IRQ14	31		32	Reserved (IOCS16#)
ADDR1	33		34	Reserved
ADDR0	35		36	ADDR2 2
CSO#	37		38	CS1
Active#	39		40	GND

IDE1: Secondary IDE Connector

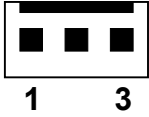
Signal Name	Pin #	IDE1: Box header, (shrouded), DIP 44-pin	Pin #	Signal Name
RESET#	1	<p style="text-align: center;">IDE 1</p>	2	GND
Data 7	3		4	Data 8
Data 6	5		6	Data 9
Data 5	7		8	Data 10
Data 4	9		10	Data 11
Data 3	11		12	Data 12
Data 2	13		14	Data 13
Data 1	15		16	Data 14
Data 0	17		18	Data 15
GND	19		20	N.C.
PDRQ#	21		22	GND
IOW#	23		24	GND
IOR#	25		26	GND
IOCHRDY	27		28	P_ALE
PDAACK#	29		30	GND
IRQ14	31		32	Reserved (IOCS16#)
ADDR1	33		34	Reserved
ADDR0	35		36	ADDR2
CS0#	37		38	CS1#
Active#	39		40	GND
VCC	41		42	VCC
GND	43		44	N.C.

FDC: Floppy Drive Connector

Signal Name	Pin #	FDC: Box header, (shrouded), DIP 34-pin	Pin #	Signal Name
GND	1		2	Densel#
GND	3		4	N.C.
N.C.	5		6	DRATEO
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	Motor Direction
GND	19		20	Step Pulse
GND	21		22	Write Data
GND	23		24	Write Enable
GND	25		26	Track 0
GND	27		28	Write Protect
Floppy Drive Detect	29		30	Read Data
GND	31		32	Side 1 Select
N.C.	33		34	Floppy Disk Change

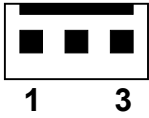
CPU Fan: CPU Fan Connector (J36)

It is a 3-pin header that allows the connection of the CPU fan. The CPU fan must be a 12V fan.

CPU Fan: Pin Header, 3-pin	Pin #	Signal Name
	1	GND
	2	+12V
	3	Tacho


External Fan: Chassis Fan Power Connector (J25)

It is a 3-pin header that allows the connection of the System fan. The System fan must be a 12V fan.

CHS Fan: Pin Header, 3-pin	Pin #	Signal Name
	1	GND
	2	+12V
	3	Tacho

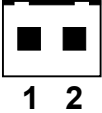
Speaker Connector (J35)

This connector provides an interface to a speaker for audio tone generation.

Speaker: Pin Header, 4-pin	Pin #	Signal Name
	1	Speaker
	2	GND
	3	+5 V
	4	+5 V

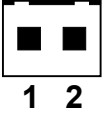
IDE Activity LED Connector (J33)

This connector allows to connect a hard drive activity LED. This LED will flash when the HDD is being accessed.

IDE LED: Pin Header, 2-pin	Pin #	Signal Name
	1	GND (LED-)
	2	VCC (LED+)

Reset Button Connector (J31)

This connector allows you to connect the reset button. The reset switch allows to restart the system without turning the main power switch off and then on again.

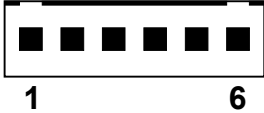
Reset: Pin Header, 2-pin	Pin #	Signal Name
	1	Reset
	2	GND



Depending on the software and operating system, some data may be lost.

Internal Combined Keyboard and Mouse Connector (J21)

This connector provides an interface for a additional PS/2 keyboard and Mouse.

KBMS: Pin Header, 6-pin	Pin #	Signal Name
	1	Keyboard data
	2	Mouse data
	3	GND
	4	+5 V fused
	5	Keyboard clock
	6	Mouse clock

IrDA Connector (J20)

This connector supports the IrDA interface for wireless communication.



If wireless communication by IrDA is used, please set in BIOS, Super IO Configuration, Serial Port 4 Mode to *IrDA*.

IrDA: Pin Header, 5-pin	Pin #	Signal Name
	1	+5 V fused
	2	N.C.
	3	IRRX
	4	GND
	5	IRTX

Power Button Connector (J32)

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

ATX Power: Pin Header, 5-pin	Pin #	Signal Name
	1	+5 V (via 330 Ohm)
	2	+5 V Standby (via 330 Ohm)
	3	GND
	4	Power Button
	5	GND


ATX Power (J34)

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

ATX Power: Pin Header, 4-pin	Pin #	Signal Name
	1	ATX-Power good
	2	+5 V Standby
	3	PS_ON
	4	GND

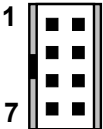
Serial ATA: SATA0 and SATA1 (J7 and J8)

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

Serial ATA: Molex	Pin #	Signal Name
 <p>SATA</p>	1	GND
	2	TXP
	3	TXN
	4	GND
	5	RXN
	6	RXP
	7	GND

USB Connector (J11)

USB Header (Port 1): the onboard USB1 pin-header supports one port (Port 1).

Signal Name	Pin #	USB1: Pin Header; 8-pin (FCI - 90309-108)	Pin #	Signal Name
+5 V fused	1		2	USB_N
USB_P	2		4	USB_GND
N.C.	5		6	N.C.
N.C.	7		8	N.C.



For USB cable connection use connector and pins type:

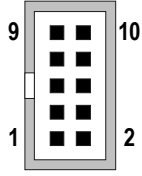
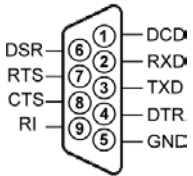
FCI 90311-008 (for connector header)

FCI 77138-001 (for pins)

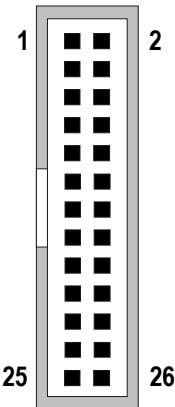
COM1, COM2, COM3, COM4 Serial Connectors (J27, J28, J29, J30)

COM1-4: the 10-pin box header is to be used with the supplied serial cable.

Pin assignment RS232:

COM1: Box header, (shrouded), DIP 10-pin		RS232	
 <p>COM1-4</p>	Pin #	Signal Name	Pining on the supplied cable connector: 
	1	DCD, Data carrier detect	
	2	DSR, Data set ready	
	3	RXD, Receive data	
	4	RTS, Request to send	
	5	TXD, Transmit data	
	6	CTS, Clear to send	
	7	DTR, Data terminal ready	
	8	RI, Ring indicator	
	9	GND, ground	
10	+12 V fused		

LPT: Parallel Port Connector (J23)

Signal Name	Pin #	LPT: Box header, (shrouded), DIP 26-pin	Pin #	Signal Name
-Strobe	1	 <p>LPT</p>	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	VCC5V

LEDs on PCI-954

Four green LEDs are located on the rear side (solder side) of the board.

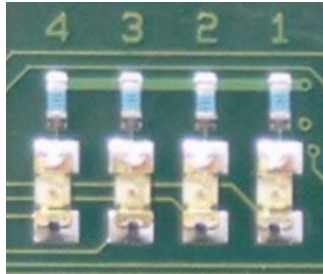


Fig. 8: LEDs location on the rear board side



The indication of these LEDs (“Pre-Post Code”) are used for service purposes only.

These LEDs show the “Pre-Post Code”:

LED4	LED3	LED2	LED1	Step	Description
				0	Board not powered, except standby power
			X	1	Signal “ATX-Power Good” active or power button pressed
		X		2	+5V, +3.3V power O.K.
		X	X	3	+1.35V, +1.05V power O.K.
	X			4	Processor Core power O.K.
	X		X	5	+1.5V, +2.5V power O.K.
	X	X		6	+1.8V Power ok
	X	X	X	7	Working Clock Generator
X				8	300ms Time Delay
X			X	9	System Reset deactivated
X		X		10	Reserved
X		X	X	11	Reserved
X	X			12	Processor hot (blinking)
X	X		X	13	Reserved
X	X	X		14	Reserved
X	X	X	X	15	System working

Peripherals

Temperature Sensors

The **CPU DIE temperature sensor** is an internal thermal diode integrated in the CPU. It provides accurate CPU temperature readings and allows monitoring of the CPU temperature to insure that the system is operating at a safe temperature level. If the temperature becomes too high, the CPU speed (throttle mode) is automatically reduced depending on the temperature value chosen in the BIOS Setup.

The **system temperature sensors** [system temp. 1 (T20) and system temp. 2 (T21)] are on-board thermal diodes which measure the on-board ambient temperatures.

The on-board temperature sensors are located as shown in the fig. 6 (PCI - 954 Jumpers, Temperature Sensors, and Connectors Location).



A support package is required to access the hardware temperature reporting.

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, a 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 programmed watchdog time can range from 1 second to 17 minutes.

Interrupt and I/O Maps

Interrupt Map

IRQ	System Resource
0	Interval timer
1	Keyboard buffer full
2	Cascade interrupt from slave PIC
3	COM2 (can be changed)
4	COM1 (can be changed)
5	Reserved
6	Diskette drive
7	LPT (can be changed)
8	RTC
9	Reserved
10	COM4 (can be changed)
11	COM3 (can be changed)
12	PS/2 mouse
13	Math coprocessor
14	Primary IDE (if present, else user available)
15	Secondary IDE (if present, else user available)
16	PIRQA#
17	PIRQB#
18	PIRQC#
19	PIRQD#
20	PIRQE#
21	PIRQF#
22	PIRQG#
23	PIRQH#

Memory Map

The table below shows, from the CPU perspective, the memory ranges that the Intel® 6300ESB ICH will decode. Cycles that arrive from the Hub Interface that are not directed to any of the internal memory targets that decode directly from Hub Interface will be driven out on PCI. The Intel® 6300ESB ICH may then claim the cycle for it to be forwarded to LPC or claimed by the internal I/O APIC or subtractive decode the cycle. When subtractive decode is enabled, the subtractive decoded cycle may be forwarded to the LPC I/F or to the FWH.

PCI cycles generated by an external PCI master will be positively decoded unless it falls in the PCI-PCI bridge forwarding range (those addresses are reserved for PCI peer-to-peer traffic). When the cycle is not in the I/O APIC or FWH/LPC ranges, it will be forwarded up the Hub Interface to the Host Controller. PCI masters cannot access the memory ranges for functions that decode directly from Hub Interface.

Memory Range	Target	Dependency/Comments
0000 0000 - 000D FFFF 0010 0000 – TOM (Top of Memory)	Main Memory	TOM registers in Host Controller
000E 0000 - 000F FFFF	FWH	Bit 7 in FWH Decode Enable Register is set
FEC0 0000 - FEC0 0043	I/O APIC inside the Intel® 6300ESB ICH	Downstream memory writes to FEC0 0020 are also decoded by D29:F5 APIC to support EOI.
FEC1 0000 - FEC1 0043	I/O APIC (D29:F5)	D29:F5 APIC also supports FEC00000-FEC00043 range of message signaled interrupts from the PCI-X interface (See Note 1)
FFC0 0000 - FFC7 FFFF FF80 0000 - FF87 FFFF	FWH	Bit 0 in FWH Decode Enable Register
FFC8 0000 - FFCF FFFF FF88 0000 - FF8F FFFF	FWH	Bit 1 in FWH Decode Enable Register
FFD0 0000 - FFD7 FFFF FF90 0000 - FF97 FFFF	FWH	Bit 2 in FWH Decode Enable Register is set

The table is continued on the next page.

FFD8 0000 - FFDF FFFF FF98 0000 - FF9F FFFF	FWH	Bit 3 in FWH Decode Enable Register is set
FFE0 0000 - FFE7 FFFF FFA0 0000 - FFA7 FFFF	FWH	Bit 4 in FWH Decode Enable Register is set
FFE8 0000 - FFEF FFFF FFA8 0000 - FFAF FFFF	FWH	Bit 5 in FWH Decode Enable Register is set
FFF0 0000 - FFF7 FFFF FFB0 0000 - FFB7 FFFF	FWH	Bit 6 in FWH Decode Enable Register is set.
FFF8 0000 - FFFF FFFF FFB8 0000 - FFBF FFFF	FWH	Always enabled. The top two 64K-byte blocks of this range may be
swapped, as described in Section 6.4.1, "Boot-Block Update Scheme".		
FF70 0000 - FF7F FFFF FF30 0000 - FF3F FFFF	FWH	Bit 3 in FWH Decode Enable 2 Register is set
FF60 0000 - FF6F FFFF		
FF20 0000 - FF2F FFFF	FWH	Bit 2 in FWH Decode Enable 2 Register is set
FF50 0000 - FF5F FFFF		
FF10 0000 - FF1F FFFF	FWH	Bit 1 in FWH Decode Enable 2 Register is set
FF40 0000 - FF4F FFFF		
FF00 0000 - FF0F FFFF	FWH	Bit 0 in FWH Decode Enable 2 Register is set
1 Kbyte anywhere in 4 Gbyte range	IDE Expansion ²	Enable through standard PCI mechanism and bits in IDE I/O Configuration Register (Device 31, Function 1)
512B anywhere in 4 Gbyte range	AC'97 Host Controller (Mixer) ¹	Enable via standard PCI mechanism (Device 31, Function 5)
256B anywhere in 4 Gbyte range	AC'97 Host Controller (Bus Master) ¹	Enable via standard PCI mechanism (Device 31, Function 5)

The table is continued on the next page.

1 Kbyte anywhere in 4 Gbyte range	USB EHCI Controller ^{1, 2}	Enable through standard PCI mechanism (Device 29, Function 7).
FED0 X000 - FED0 X3FF	Multimedia Timers ^{1, 2}	BIOS determines the "fixed" location which is one of four, 1-Kbyte ranges where X (in the first column) is 0h, 1h, 2h, or 3h.
1 Kbyte anywhere in 4 Gbyte range	SATA ₁	Enable via standard PCI mechanism (Device 31, Function 2)
1 Kbyte anywhere in 4 Gbyte range	WDT	Enable via standard PCI mechanism (Device 29, Function 4)
1 Mbyte to 4 Gbyte anywhere in 4 Gbyte range	PCI-X ₁	Enable via standard PCI mechanism (Device 28, Function 0)
All other	PCI	None/ If the address is below 16M, is not in one of the above BIOS ranges, and positive decode is disabled; then the cycle will be forwarded to LPC as a standard LPC memory cycle. If the address is above 16M, if the cycle is not claimed by a device on PCI and neither by the Intel® 6300ESB ICH, then the cycle will Master-Abort on PCI

NOTES:

1. These ranges are decoded directly from Hub Interface. The memory cycles will not be seen on PCI.
2. Software must not attempt locks to memory mapped I/O ranges for USB EHCI, High Performance Event Timers, and IDE Expansion. when attempted, the lock is not honored, which means potential deadlock conditions may occur.

DMA Map

DMA Channel Number	Data Width	System Resource
0	8 or 16 bits	Extern available
1	8 or 16 bits	Parallel port
2	8 or 16 bits	Diskette drive
3	8 or 16 bits	Parallel port
4		Reserved (cascade)
5	16 bits	Open
6	16 bits	Open
7	16 bits	Open



DMA is not supported on the ISA Bus !

Beep Codes

The following table describes the beep codes that are used by AMIBIOS:

Number of Beeps	Description
1	Memory refresh timer error
2	Parity error
3	Main memory read / write test error.
4	Motherboard timer not operational
5	Processor error
6	Keyboard controller BAT test error.
7	General exception error
8	Display memory error
9	ROM checksum error
10	CMOS shutdown register read/write error
11	Cache memory bad

Troubleshooting BIOS Beep Codes

Number of Beeps	Troubleshooting Action
1, 2 or 3	Reset the memory, or replace with known good modules.
4-7, 9-11	<p>Fatal error indicating a serious problem with the system. Consult your system manufacturer.</p> <p>Before declaring the motherboard beyond all hope, eliminate the possibility of interference by a malfunctioning add-in card. Remove all expansion cards except the video adapter.</p> <ul style="list-style-type: none"> • If the beep codes are generated even when all other expansion cards are absent, the Slot CPU has a serious problem. Consult your system manufacturer. • If the beep codes are not generated when all other expansion cards are absent, one of the add-in cards is causing the malfunction. Insert the cards back into the system one at a time until the problem happens again. This will reveal the malfunctioning add-in card.
8	If the system video adapter is an add-in card, replace or reset the video adapter. If the video adapter is an integrated part of the Slot CPU, the board may be faulty.

SMBus Device Address Assignments

The following table represents the SMBus device assignments.

The addresses are conform to the „System Management Bus Specification, Rev 1.1, 11-December-1998“.

Addr.	Addr.	Device	Description
10h	0001 000X	FWE6300ESB (ICH-S)	Reserved
18h	0001 100X	SMBus Alert response	Reserved
50h	0101 000X	PIC Controller	Watchdog, Supervision
52h	0101 001X	Reserved for future use	Reserved for future use
58h	0101 100X	Reserved for future use	Reserved for future use
ACh	0101 110X	EEPROM for saving CMOS settings	Reserved
A Eh	0101 111X	EEPROM for saving non- volatile Data	Can be used by customer
A0h	1010 000X	DDR DIMM	DDR DIMM 1
A2h	1010 000X	DDR DIMM	DDR DIMM 2
AAh	1010 101X	Keyboard controller	Soft keys
C2h	1100 001X	SMBus Device	SMBus Device Default Address
D2h	1101 001X	Clock generator	SDRAM Clock Generator

BIOS Configuration

This chapter describes the settings available in the optional AMI-BIOS for the PCI-954 board. The AMI-BIOS (Basic Input/Output System) pre-installed in your computer system's ROM supports Intel® Pentium® M 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 key immediately allows you to enter the Setup utility. If you are a little bit late pressing the 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 keys. You can also restart by turning the system Off and back On again. The following messages will appear on the screen:

Press to Enter Setup

Press <F12> if you want to boot from the network.

Press <F11> : BBS POPUP (**B**IOS **B**oot **S**pecification) for boot device selection.

For further boot options refer to BOOT menu options!!

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 is 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.



The changes will be adopted only, if „Save Changes and Exit“ is selected for quitting.

Press the <F9> key to load the factory BIOS default configuration.

Navigation

Hot Key	Description
→← Left/Right	The <i>Left and Right</i> <Arrow> keys allow you to select a BIOS Setup screen. For example: Main screen, Advanced screen, Chipset screen, and so on.
↑↓ Up/Down	The <i>Up and Down</i> <Arrow> keys allow you to select a BIOS Setup item or sub-screen.
+ - Plus/Minus	The <i>Plus and Minus</i> <+/-> 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.

In *BIOS-Setup* you can set the system functions and the hardware configuration of your system.



The following BIOS screen figures are examples and may be different on your system.

You must save the changes before they take effect!

The *BIOS-Setup* program contains the following menus:

<i>Main:</i>	For system settings as time, date, ports
<i>Advanced:</i>	For extended functions
<i>PCIPnP:</i>	For the onboard PCI slots settings
<i>Boot:</i>	For boot settings configuration and boot device priority
<i>Security:</i>	For security functions
<i>Chipset:</i>	For the chipset configuration
<i>Power</i>	For power management configuration
<i>Exit:</i>	Exiting <i>BIOS-Setup</i>

Main

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
System Overview						Item Specific Help	
AMIBIOS							
Version: 08.00.10							
Build Date: 04/19/05							
ID: P8KECxxx							
Processor							
Type: Intel® Pentium® M processor 1400MH							
System Memory						←→ Select Menu	
Size: 2040MB						↑↓ Select Item	
System Time [19:58:28]						+- Change Field	
System Date [Fri 03/04/2005]						Tab Select Field	
						F1 General Help	
						F10 Save and Exit	
						ESC Exit	
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System Time / System Date

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

Advanced

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Advanced Settings					Item Specific Help		
Warning: Setting wrong values in below sections may cause system to malfunction.							
> CPU Configuration > IDE Configuration > Floppy Configuration > SuperIO Configuration > Hardware Health Configuration > ACPI Configuration > Event Log Configuration > PCI-954 FEATURE > USB Configuration					←→ Select Menu ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit		
Version, (C) Copyright, American Megatrends, Inc.							

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

- CPU Configuration
- IDE Configuration
- Floppy Configuration
- SuperIO Configuration
- Hardware Health Configuration
- ACPI Configuration
- Event Log Configuration
- PCI-954 FEATURE
- USB Configuration

CPU Configuration

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Configure advanced CPU settings						Item Specific Help	
Manufacturer: Intel Brand String: Intel® Pentium® M processor 1400MH FSB Speed: 400MHz						←→ Select Screen ↑↓ Select Item +- Change Field F1 General Help F10 Save and Exit ESC Exit	
Cache L1: 32 KB Cache L2: 1024 KB							
Ratio Status: Locked Ratio Actual value: 14							
Version, (C) Copyright, American Megatrends, Inc.							

IDE Configuration

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

P-ATA Only

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
IDE Configuration						Item Specific Help	
IDE Configuration			[P-ATA Only]				
S-ATA Running Enhanced Mode			[Yes]				
P-ATA Channel Selection			[Both]				
S-ATA Ports Definition			[P0-1st./P1-2nd.]				
> Primary IDE Master			[HDS722580VLSA]				
> Primary IDE Slave			[Not Detected]			←→ Select Screen	
> Secondary IDE Master			[HDS722580VLSA]			↑↓ Select Item	
> Secondary IDE Slave			[Not Detected]			+- Change Option	
> Third IDE Master			[Maxtor 2F040L]			F1 General Help	
> Third IDE Slave			[Not Detected]			F10 Save and Exit	
> Fourth IDE Master			[GCR-8523B]			ESC Exit	
> Fourth IDE Slave			[Not Detected]				
Hard Disk Write Protect			[Disabled]				
IDE Detect Time Out (Sec)			[5]				
ATA(PI) 80Pin Cable Detection			[Host]				
Version, (C) Copyright, American Megatrends, Inc.							

IDE Configuration

This option allow you to configure the IDE drive mode (for Parallel ATA or Serial ATA).

Available settings: *Disabled*, **P-ATA Only**, *S-ATA Only*, *P-ATA & S-ATA*

P-ATA Only	Allows you to configure up to 4 P-ATA & 2 S-ATA
<i>S-ATA Only</i>	Allows you to configure up to 2 S-ATA
<i>P-ATA & S-ATA</i>	Allows you to configure up to 2 P-ATA & 2 S-ATA
<i>Disabled</i>	If this setting is set the IDE drive mode configuration is not possible.

S-ATA Running Enhanced Mode

This option allows you to choose whether the S-ATA devices run in Enhanced Mode or not.

Available settings: **Yes** and *No*.

P-ATA Channel Selection

This option allows you to configure the P-ATA devices and specifies the IDE channels used by the onboard PCI IDE controller.

Available settings: *Primary*, *Secondary* or **Both**.

<i>Primary</i>	Set this value to allow the computer system to enable only the primary IDE-channel (primary master and primary slave).
<i>Secondary</i>	Set this value to allow the computer system to enable only the secondary IDE-channel (secondary master and secondary slave).
Both	Set this value to allow the computer system to enable the primary and the secondary IDE-channel (primary master, primary slave, secondary master and secondary slave).

S-ATA Ports Definition

This option allows you to configure the S-ATA Ports.

Available settings: **P0-1st./P1-2nd.** and *P0-2nd./P1-1st.*

S-ATA Only

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
IDE Configuration						Item Specific Help	
IDE Configuration				[S-ATA Only]			
S-ATA Ports Definition				[P0-1st./P1-2 nd .]			
> Primary IDE Master				[HDS722580VLSA]			
> Primary IDE Slave				[Not Detected]			
> Secondary IDE Master				[HDS722580VLSA]			
> Secondary IDE Slave				[Not Detected]		←→ Select Screen	
> Third IDE Master				[Maxtor 2F040L]		↑↓ Select Item	
> Third IDE Slave				[GCR-8523B]		+- Change Option	
> Fourth IDE Master				[Not Detected]		F1 General Help	
> Fourth IDE Slave				[Not Detected]		F10 Save and Exit	
Hard Disk Write Protect				[Disabled]		ESC Exit	
IDE Detect Time Out (Sec)				[5]			
ATA(PI) 80Pin Cable Detection				[Host]			
Version, (C) Copyright, American Megatrends, Inc.							

S-ATA Ports Definition

This option allows you to configure the S-ATA Ports.

Available settings: **P0-1st./P1-2nd.** and **P0-2nd./P1-1st.**

P-ATA & S-ATA

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
IDE Configuration						Item Specific Help	
IDE Configuration		[S-ATA Only]					
Combined Mode Option		[P-ATA 1st Channel]					
S-ATA Ports Definition		[P0-Master/P1-Slave]					
> Primary IDE Master		[HDS722580VLSA]					
> Primary IDE Slave		[Not Detected]					
> Secondary IDE Master		[HDS722580VLSA]				←→ Select Screen	
> Secondary IDE Slave		[Not Detected]				↑↓ Select Item	
> Third IDE Master		[Maxtor 2F040L]				+- Change Option	
> Third IDE Slave		[GCR-8523B]				F1 General Help	
> Fourth IDE Master		[Not Detected]				F10 Save and Exit	
> Fourth IDE Slave		[Not Detected]				ESC Exit	
Hard Disk Write Protect		[Disabled]					
IDE Detect Time Out (Sec)		[5]					
ATA(PI) 80Pin Cable Detection		[Host]					
Version, (C) Copyright, American Megatrends, Inc.							

Combined Mode Option

This option allows you to set the Mode on 1st Channel.

Available settings: **P-ATA is 1st Channel** and **S-ATA is 1st Channel**.

S-ATA Ports Definition

This option allows you to configure the S-ATA Ports.

Available settings: **P0-Master/P1-Slave** and **P0-Slave/P1-Master**.

Hard Disk Write Protect

This option allows you to enable or disable the device write protection. This will be effective only if the device is accessed through BIOS (e. g. MS-DOS).

Possible settings are: *Disabled, Enabled.*

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! Increase the value of this setting for a proper 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(P) 80Pin Cable Detection

Set this option to define the method used to detect a ATA (PI) 80-pin cable.

Possible settings are: *Host & Device*, ***Host*** and *Device*.

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

➤ **Primary, Secondary, Third, Fourth IDE Master / Primary, Secondary, Third, Fourth IDE Slave**

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



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

The description of the setting options for *Primary Master* also applies to *Primary Slave* (*Secondary Master/Secondary Slave, Third Master/Third Slave, Fourth Master/Fource Slave*). **The default settings strongly depend on the installed drive.** The pictured screen is only an example for which entries should be available.

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Primary IDE Master/Primary IDE Slave or Secondary IDE Master/Secondary IDE Slave or Third IDE Master/Third IDE Slave or Fourth IDE Master/Fourth IDE Slave						Item Specific Help	
Device: Vendor: Size: LBA Mode: Block Mode: PIO Mode: Async DMA : Ultra DMA: S.M.A.R.T.						<div style="border: 1px solid black; padding: 5px; width: fit-content;"> These entries are specific for each installed device as: <ul style="list-style-type: none"> • Primary IDE Master/Primary IDE Slave • Secondary IDE Master/Secondary IDE Slave • Third IDE Master/Third IDE Slave • Fourth IDE Master/Fourth IDE Slave </div>	
Type [Auto] DMA Mode [Auto] 32Bit Data Transfer [Disabled]						←→ Select Menu ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
Version, (C) Copyright, American Megatrends, Inc.							

Type

Select the type of device connected to the system.

Not Installed, Auto, CDROM and ARMD (ATAPI Removable Media Device).

DMA Mode

This option allows you to select the DMA mode option (**depending on the installed device**). Available settings are:

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

32Bit Data Transfer

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

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

Floppy Configuration

Floppy A

This option selects the type of the floppy drive. Possible settings are: *Disabled*, *360KB 5¼"*, *1.2MB 5¼"*, *720KB 3½"*, *1.44MB 3½"* and *2.88 MB 3½"*.

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Floppy Configuration						Item Specific Help	
Floppy A [1.44MB 3½"]						←→ Select Menu ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
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<i>Disabled</i>	Set this value to prevent the use of the selected floppy disk drive channel. This option should be set if no floppy disk drive is installed on the specified channel.
<i>360 KB 5¼"</i>	Set this value if the floppy disk drive attached to the corresponding channel is a 360 KB 5¼" floppy disk drive.
<i>1.2 MB 5¼"</i>	Set this value if the floppy disk drive attached to the corresponding channel is a 1.2 MB 5¼" floppy disk drive.
<i>720 KB 3½"</i>	Set this value if the floppy disk drive attached to the corresponding channel is a 720 KB 3½" floppy disk drive.
<i>1.44 MB 3½"</i>	Set this value if the floppy disk drive attached to the corresponding channel is a 1.44 MB 3½" floppy disk drive.
<i>2.88 MB 3½"</i>	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.

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Configure Win627 Super IO Chipset						Item Specific Help	
OnBoard Floppy Controller [Enabled]							
Serial Port3 Address [3E8/IRQ11]							
Serial Port4 Address [2E8/IRQ10]						←→ Select Menu	
Serial Port4 Mode [Normal]						↑↓ Select Item	
Parallel Port Address [378]						+- Change Option	
Parallel Port Mode [Normal]						F1 General Help	
Parallel Port IRQ [IRQ7]						F10 Save and Exit	
ICH SIO Serial Port1 Address [3F8/IRQ4]						ESC Exit	
ICH SIO Serial Port2 Address [2F8/IRQ3]							
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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 Port3&4 Address

These fields allow you to select the onboard serial ports and their addresses.

Available settings are:

	Available settings
Serial Port 3	3E8/IRQ11 / 3F8/IRQ4 / 2F8/IRQ3 / Disabled
Serial Port 4	2E8/IRQ10 / 3F8/IRQ4 / 2F8/IRQ3 / Disabled

Serial Port 4 Mode

This field is used to specify whether the force serial port is to be used as a serial port or as an infrared port. The signals at the D-SUB connector of serial port 4 will be unused if a mode other than *Normal* is set.

Normal	The COM4 port is used as a standard serial port.
ASKIR	The COM4 port is used as an infrared port in ASKIR standard.
IrDA	The COM4 port is used as an infrared port.

If your “Serial Port 4 Mode” option is set to *IrDA*, there is available a supplementary option:

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

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Configure Win627 Super IO Chipset						Item Specific Help	
OnBoard Floppy Controller [Disabled]							
Serial Port3 Address [3E8/IRQ11]							
Serial Port4 Address [2E8/IRQ10]							
Serial Port4 Mode [IrDA]						←→ Select Menu	
IR Duplex Mode [Half Duplex]						↑↓ Select Item	
Parallel Port Address [378]						+- Change Option	
Parallel Port Mode [Normal]						F1 Help	
Parallel Port IRQ [IRQ7]						F10 Save and Exit	
ICH SIO Serial Port1 Address [3F8/IRQ4]						ESC Exit	
ICH SIO Serial Port2 Address [2F8/IRQ3]							
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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.
<i>Bi-Directional</i>	Data can be transferred in both directions across the port.
<i>EPP</i>	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.
<i>ECP & EPP</i>	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***.

<i>IRQ7</i>	This setting allows the parallel port to use the interrupt IRQ7.
<i>IRQ5</i>	This setting allows the parallel port to use the interrupt IRQ5.

ICH SIO Serial Port1&2 Address

These fields allow you to select the onboard serial ports and their addresses.

Available settings are:

	Available settings
Serial Port 1	<i>3F8/IRQ4</i> / <i>3E8/IRQ4</i> / <i>2E8/IRQ3</i> / <i>2F8/IRQ3</i> / <i>Disabled</i>
Serial Port 2	<i>2F8/IRQ3</i> / <i>2E8/IRQ3</i> / <i>3E8/IRQ4</i> / <i>3F8/IRQ4</i> / <i>Disabled</i>

Hardware Health Configuration

This section shows the states of the CPU, fan/s (depending on the system configuration), and the parameters of the hardware monitoring function feature of the system.

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Hardware Health Event Monitoring						Item Specific Help	
System Temperature 1						: 44°C/111°F	
CPU Die Temperature						: 36°C/96°F	
System Temperature 2						: 44°C/111°F	
Fan1 Speed						: 6308 RPM	
VccCore						: 1.516 V	
+1.05V						: 1.064	
+3.3Vin						: 3.435 V	
+5Vin						: 5.148 V	
+12Vin						: 12.451 V	
+ 2.5V						: 2.548 V	
+ 1.35V						: 1.354 V	
+5VSB						: 5.058 V	
VBAT						: 3.532 V	
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Hardware Health Event Monitoring

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

ACPI Settings

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
ACPI Settings						Item Specific Help	
ACPI Aware O/S [Yes]							
> General ACPI Configuration						←→ Select Menu	
> Advanced ACPI Configuration						↑↓ Select Item	
						+- Change Option	
						F1 General Help	
						F10 Save and Exit	
						ESC Exit	
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ACPI Aware O/S

This option allows you to set that the used operating system supports the ACPI (Advanced Configuration and power interface) standard or not.

It is possible to choose between: **Yes** and *No*.

Yes	Set this setting if the used operating system supports the ACPI standard.
<i>No</i>	Set this setting if the used operating system does not support the ACPI standard.



For Windows® OS (Operating System) user:

If you have changed the setting of this option to „*No*“ before the OS installation, the installed OS will not support the ACPI standard. A reinstallation of the OS is required.

Select the required setting before the OS installation.

> General ACPI Configuration

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
General ACPI Configuration						Item Specific Help	
Suspend mode [S1 & S3 (STR)]						←→ Select Screen	
Repost Video on S3 Resume [Yes]						↑↓ Select Item	
						+- Change Option	
						F1 General Help	
						F10 Save and Exit	
						ESC Exit	
Version, (C) Copyright, American Megatrends, Inc.							

Suspend Mode

This option allows you to select the ACPI state used for System Suspend.

Available settings: *S1 (POS) only* and **S1 & S3 (STR)**.

Repost Video on S3 Resume

The settings of this option allows or prevents the video BIOS to be initialized coming out of the S3 state.

Available settings: **Yes** and *No*.

➤ **Advanced ACPI Configuration**

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Advanced ACPI Configuration						Item Specific Help	
ACPI 2.0 Features		[No]					
ACPI APIC support		[Enabled]					
ACPI APIC SCI IRQ		[Disabled]		←→ Select Menu			
AMI OEMB table		[Enabled]		↑↓ Select Item			
Headless mode		[Disabled]		+- Change Option			
				F1 General Help			
				F10 Save and Exit			
				ESC Exit			
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ACPI 2.0 Features

Set this value to allow or to prevent the system to be compliant with the ACPI 2.0 specification.

It is possible to choose between: Yes and **No**.

Yes	This setting allows the BIOS to support the ACPI 2.0 specification.
No	This setting prevents the BIOS from supporting the ACPI 2.0 specification.

ACPI APIC support

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

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

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

ACPI APIC SCI IRQ

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

Available settings: *Enabled* and *Disabled*.

AMI OEMB table

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

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

<i>Enabled</i>	This setting enables adding an OEMB table.
<i>Disabled</i>	This setting disables adding an OEMB table.



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

Headless mode

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

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

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

Event Log Configuration

AMI BIOS logs certain events to be event log, which can be configured using this options.

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Event Logging details					Item Specific Help		
View Event Log					←→ Select Menu		
Mark all events as read					↑↓ Select Item		
Clear Event Log					Enter Go to Sub Screen		
Event Log Statistics					F1 General Help		
PCI Error Logging [Disabled]					F10 Save and Exit		
					ESC Exit		
Version, (C) Copyright, American Megatrends, Inc.							

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.

Event Log Statistics

This selection displays the total size, free size and unread 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***.

<i>Enabled</i>	This setting disables the PCI Error Logging function.
<i>Disabled</i>	This setting enables the PCI Error Logging function.

PCI-954 Feature

This section shows the states of the CPU and Watchdog. Also contains information about the operation status of the system.

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
PCI-954 FEATURE						Item Specific Help	
> Temperature Monitor > Watchdog						←→ Select Menu ↑↓ Select Item + Change Option F1 General Help F10 Save and Exit ESC Exit	
Version, (C) Copyright, American Megatrends, Inc.							

> Temperature Monitor

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Temperature Monitor						Item Specific Help	
Pentium-M Term Trip 125°C/257F Automatic Thermal Monitor [Enabled] Auto Thermal Throttling: [Enabled] CPU Temperature :36°C/96°F CPU Warning Temperature [°C] [70] CPU Throttling state :OFF CPU Performance [50%]						←→ Select Menu ↑↓ Select Item + Change Option F1 General Help F10 Save and Exit ESC Exit	
Version, (C) Copyright, American Megatrends, Inc.							

Pentium-M Term Trip 125°C/257F

This temperature value shows the Pentium-M max. temperature.

Automatic Thermal Monitor

If this option is “*Enabled*” and the die temperature is very near to the temperature limits of the processor, the clocks will be modulated by alternately turning the clock on and off.

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

Auto Thermal Throttling

This option allows you to reduce the CPU speed to avoid overheating.

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

CPU Warning Temperature [°C]

You can set a temperature limit value (30°C up to 120°C) for the temperature of the CPU. The CPU clock throttling starts when select temperature is reached.

The set default setting [70] may be changed by use of the + and – keys.

CPU Performance



This option is only available if the option “Auto Thermal Throttling” is set to “*Enabled*”.

This option allows you to reduce the CPU internal working frequency. The CPU performance will be reduced to the selected value when reaching the temperature threshold (Temperature value set in the option “CPU Warning Temperature”).

Available settings are: 12,5 %, 25%, 50%, 75%.

(e.g.: for a set value of 12%, the CPU working frequency will be stopped to 12%.)

> **Watchdog Configuration**

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Watchdog Configuration						Item Specific Help	
Watchdog State				[Disabled]		←→ Select Menu	
WD Active Time [sec]				[1023]		↑↓ Select Item	
Watchdog reset occurred				NO		+ Change Option	
PIC Revision				:3		F1 General Help	
Operation Time Counter [hour]				:60		F10 Save and Exit	
Operating Time Counter [year]				:0		ESC Exit	
Power On Counter				:285			
Version, (C) Copyright, American Megatrends, Inc.							

Watchdog State

This option allows you to enable or disable the watchdog action.

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

If this option is set to “**Enabled**” a supplementary option is available:

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Watchdog Configuration						Item Specific Help	
Watchdog State				[Enabled]		←→ Select Menu	
Watchdog Mode				[Reset]		↑↓ Select Item	
WD Active Time [sec]				[1023]		+ Change Option	
Watchdog reset occurred				NO		F1 General Help	
PIC Revision				:3		F10 Save and Exit	
Operation Time Counter [hour]				:60		ESC Exit	
Operating Time Counter [year]				:0			
Power On Counter				:287			
Version, (C) Copyright, American Megatrends, Inc.							

Watchdog Mode

Available settings are: **Reset** and **NMI (Non-Maskable Interrupt)**.

WD Active Time [sec]

The set default setting may be changed between 1 - **1023** sec. by use of the + and – keys.

USB Configuration

This field allows you to select options for USB configuration.

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
USB Configuration						Item Specific Help	
Module Version - 2.23.2-7.4							
USB Devices Enabled: 1 Drive							
USB Function				[All USB Ports]		←→ Select Menu	
Legacy USB Support				[Disabled]		↑↓ Select Item	
USB 2.0 Controller				[Enabled]		+- Change Option	
➤ USB Mass Storage Device Configuration						F1 General Help	
						F10 Save and Exit	
						ESC Exit	
Version, (C) Copyright, American Megatrends, Inc.							

USB Function

Enable the host controllers

Possible settings are: *Disabled*, *2 USB Ports* and **All USB Ports**.

Legacy USB Support

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

USB 2.0 Controller

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

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

Emulation Type

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

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

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

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Advanced PCI/PnP Settings						Item Specific Help	
Warning: Setting wrong values in below sections may cause system to malfunction.							
Plug & Play O/S			[No]			←→ Select Menu	
PCI Latency Timer			[64]			↑↓ Select Item	
Allocate IRQ to PCI VGA			[Yes]			+- Change Field	
Palette Snooping			[Disabled]			Tab Select Field	
PCI IDE BusMaster			[Disabled]			F1 Help	
OffBoard PCI/ISA IDE Card			[Auto]			F10 Save and Exit	
IRQ3			[Available]			ESC Exit	
IRQ4			[Available]				
IRQ5			[Available]				
IRQ7			[Available]				
IRQ9			[Available]				
IRQ10			[Available]				
IRQ11			[Available]				
IRQ14			[Available]				
IRQ15			[Available]				
Reserved Memory Size			[Disabled]				
Version, (C) Copyright, American Megatrends, Inc.							

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. As presently all video boards are compliant to this standard, this option must stay **Disabled**. This default setting should not be changed unless the VGA card manufacturer requires Palette Snooping to be *Enabled*.

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

PCI IDE BusMaster

This option allows you to specify if the IDE controller on the PCI bus should include a bus mastering capability or not.

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

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

If this option is enabled to a *PCI Slot#*, two supplementary options are available: "OffBoard PCI IDE Primary IRQ" and "OffBoard PCI IDE Secondary".

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Advanced PCI/PnP Settings						Item Specific Help	
Warning: Setting wrong values in below sections may cause system to malfunction.							
Plug & Play O/S			[No]			←→ Select Menu	
PCI Latency Timer			[64]			↑↓ Select Item	
Allocate IRQ to PCI VGA			[Yes]			+- Change Field	
Palette Snooping			[Disabled]			Tab Select Field	
PCI IDE BusMaster			[Disabled]			F1 Help	
OffBoard PCI/ISA IDE Card			[Slot#]			F10 Save and Exit	
OffBoard PCI IDE Primary IRQ			[Disabled]			ESC Exit	
OffBoard PCI IDE Secondary			[Disabled]				
IRQ3			[Available]				
IRQ4			[Available]				
IRQ5			[Available]				
IRQ7			[Available]				
IRQ9			[Available]				
IRQ10			[Available]				
IRQ11			[Available]				
IRQ14			[Available]				
IRQ15			[Available]				
Reserved Memory Size			[Disabled]				
Version, (C) Copyright, American Megatrends, Inc.							

OffBoard PCI IDE Primary IRQ / OffBoard PCI IDE Secondary

Available setting are: **Disabled**, **INTA**, **INTB**, **INTC**, **INTD** and **Hardwired**.

Disabled	This setting may be used if the channel on card does not need an IRQ.
INTA, INTB, INTC, INTD	Use these settings to assign an IRQ to the INT Pin used by this channel.
Hardwired	This setting may be used for most of PCI IDE cards.

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

This options allow you to configure the IRQ Resources.

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

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

Reserved Memory Size

This option is required for legacy ISA devices which needs reserved memory in the first MB of System Memory.

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”**.

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Advanced PCI/PnP Settings						Item Specific Help	
Warning: Setting wrong values in below sections may cause system to malfunction.							
Plug & Play O/S [No]						←→ Select Menu	
PCI Latency Timer [64]						↑↓ Select Item	
Allocate IRQ to PCI VGA [Yes]						+- Change Field	
Palette Snooping [Disabled]						Tab Select Field	
PCI IDE BusMaster [Disabled]						F1 Help	
OffBoard PCI/ISA IDE Card [Auto]						F10 Save and Exit	
IRQ3 [Available]						ESC Exit	
IRQ4 [Available]							
IRQ5 [Available]							
IRQ7 [Available]							
IRQ9 [Available]							
IRQ10 [Available]							
IRQ11 [Available]							
IRQ14 [Available]							
IRQ15 [Available]							
Reserved Memory Size [16k]							
Reserved Memory Address [C8000]							
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Reserved Memory Address

These settings can be used to establish whether the BIOS-ROM in the cited area is to be copied in the main memory.

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

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.

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Boot Settings					Item Specific Help		
> Boot Settings Configuration					←→ Select Menu		
1st Boot Device		[1st FLOPPY DRIVE]			↑↓ Select Item		
2nd Boot Device		[4M-GCR-8523B]			+- Change Field		
3rd Boot Device		[PM HDS722580VLSA80]			Enter Go to Sub Screen		
> Hard Disk Drives					F1 General Help		
> Removable Drives					F10 Save and Exit		
> CD/DVD Drives					ESC Exit		
Version, (C) Copyright, American Megatrends, Inc.							

Boot Settings Configuration

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Boot Settings Configuration						Item Specific Help	
Quick Boot			[Enabled]				
Quiet Boot			[Disabled]				
AddOn ROM Display Mode			[Force BIOS]				
Bootup Num-Lock			[Off]				
PS/2 Mouse Support			[Enabled]	←→ Select Menu			
Wait For 'F1' If Error			[Enabled]	↑↓ Select Item			
Hit 'DEL' Message Display			[Enabled]	+ Change Option			
Boot on LAN OptionROM			[Enabled]	F1 General Help			
Interrupt 19 Capture			[Disabled]	F10 Save and Exit			
				ESC Exit			
Version, (C) Copyright, American Megatrends, Inc.							

Quick Boot

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

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

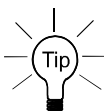
Enabled	This setting allows the BIOS to skip certain POST tests to boot faster.
Disabled	This setting allows the BIOS to perform all POST tests.

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

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 the boot time, determine the interruption of the boot procedure.

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

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

1st Boot Device / 2nd Boot Device / / # Boot Device /

These options list the devices available for use as boot devices (**possible selection depending on system configuration**):

1st FLOPPY DRIVE, 4M-GCR-8523B, PM-HDS722580VLSA80, IBA FE Slot 0178 v4110, IBA FE Slot 0160 v4110 and Disabled.

Boot Devices (examples)	Description
<i>1st. FLOPPY DRIVE</i>	Floppy Drive (not included)
<i>4M-GCR-8523B</i>	CD-ROM Drive (not included)
<i>PM-HDS722580VLSA80</i>	Primary Master IDE device (SATA HDD) (not included)
<i>IBA FE Slot 0178 v4110</i>	LAN
<i>IBA FE Slot 0160 v4110</i>	LAN

Hard Disk Drives

1st Drive / 2nd Drive / 3rd Drive / / # Drive

This option allows you to choose the hard drive used as the boot device
(**possible selection depending on system configuration**).

Available settings: 1st Drive / / # Drive and *Disabled*.

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Hard Disk Drives						Item Specific Help	
1 st Drive		[PM-HDS722580VLSA80]					
2 nd Drive		[SM-HDS722580VLSA80]		←→ Select Menu			
3 rd Drive		[3M-Maxtor 2F040L0]		↑↓ Select Item			
						+- Change Option	
						F1 General Help	
						F10 Save and Exit	
						ESC Exit	
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Removable Drives

1st Drive / / # Drive

This option allows you to choose the removable drive used as the boot device
(**possible selection depending on system configuration**).

Available settings: 1st Drive # Drive and *Disabled*.

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Removable Drives						Item Specific Help	
1st Drive		[1 st FLOPPY DRIVE]					
2nd Drive		[SanDisk Cruzer Min]		←→ Select Menu			
						↑↓ Select Item	
						+- Change Option	
						F1 General Help	
						F10 Save and Exit	
						ESC Exit	
Version, (C) Copyright, American Megatrends, Inc.							

CD/DVD Drives

1st Drive

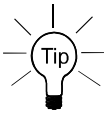
This option allows you to choose the CD/DVD drive used as the boot device (**only if the board is installed into a system that is configured with a CD/DVD drive**).

Available settings: *1st Drive / / # Drive and Disabled.*

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
CD/DVD Drives						Item Specific Help	
1st Drive [4M-GCR-8523B]						←→ Select Menu ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
Version, (C) Copyright, American Megatrends, Inc.							

Security

PCI-954 supports Supervisor, User and HDD Security password.



Valid password (Supervisor and User) can be an 1 to 6 alphanumeric character combination. The Primary / Secondary / Third / Fourth (Master / Slave) HDD User password can be an 1 to 32 alphanumeric character combination.

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 (CMOS).

The system can be configured so that all users must enter a password every time the system boots or when PCI-954 Setup is executed, using either the Supervisor password or the 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 clear the NVRAM (Jumper J6) and reconfigure the BIOS.

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Security Settings						Item Specific Help	
Supervisor Password:				Not Installed			
User Password:				Not Installed			
Change Supervisor Password							
Change User Password							
Clear User Password							
Boot Sector Virus Protection				[Disabled]		←→ Select Menu	
						↑↓ Select Item	
						Enter Change	
						F1 General Help	
						F10 Save and Exit	
						ESC Exit	
Hard Disk Security							
Primary Master HDD User Password							
Secondary Master HDD User Password							
Third Master HDD User Password							
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Supervisor Password

Indicates whether a supervisor password has been set.

If the password has been set, *Installed* is displayed. If not, then *Not Installed* is displayed.

User Password

Indicates whether a user password has been set. If the password has been set, *Installed* is displayed. If not, then *Not Installed* is displayed.

Change Supervisor Password

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

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

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

If a Supervisor Password is installed two options are available:

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

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

Change User Password

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

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

“Enter New Password:” input field appears. Valid password can be a 1 to 6 alphanumeric character combination. Type the password and press <Enter>. The screen does not display the character 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 is available following option:

“**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>.

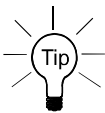
“Clear User Password” → [Ok] [Cancel] Choose your selection.

Boot Sector Virus Protection

With this field you can protect the boot sector against virus.

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

<i>Enabled</i>	<p>The boot sector cannot be changed. A virus that attacks the boot sector cannot infect the system.</p> <p>Select "<i>Enabled</i>" 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.</p> <p>If "<i>Enabled</i>", 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.</p> <p>Boot Sector Write!</p> <p>Possible VIRUS: Continue (Y/N)? _</p> <p>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:</p> <p>Format!!!</p> <p>Possible VIRUS: Continue (Y/N)? _</p>
<i>Disabled</i>	<p>The boot sector could be changed. The protection is disabled.</p>



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

Hard Disk Security



Hard Disk Security uses the Security Mode Feature commands defined in the ATA specification.

This option is available only if the installed HDD supports Security Mode Feature commands defined in the specification ATA.

The option “Primary / Secondary Master / Slave HDD User Password” allows you to protect the data stored on the installed HDD/s (depending on the system configuration).

Primary/Secondary/Third/Fourth (Master and/or Slave) HDD User Password

These options allow you to set drive-level password/s to protect your data stored on the installed HDD/s (depending on the system configuration).

This password is kept within the drive and the data is protected even if the drive is moved to another computer system.

This password can be an 1 to 32 alphanumeric character combination.

Chipset

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

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Advanced Chipset Settings						Item Specific Help	
Warning: Setting wrong values in below sections may cause system to malfunction.						←→ Select Menu	
> Intel Montara-GM+ NorthBridge Configuration						↑↓ Select Item	
> Intel SouthBridge (HR) Configuration						Enter Go to Sub Screen	
						F1 General Help	
						F10 Save and Exit	
						ESC Exit	
Version, (C) Copyright, American Megatrends, Inc.							

Intel Montara-GM+ NorthBridge Configuration

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

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Configure advanced settings for NorthBridge						Item Specific Help	
Primary Video Device [Auto]						←→ Select Menu	
Graphics Mode Select [Enabled, 8MB]						↑↓ Select Item	
IGD - Device 2, Function 1: [Enabled]						+- Change Option	
Boot Type: [VBIOS Default]						F1 General Help	
Flat Panel Type: [1600x1200LVDS]						F10 Save and Exit	
TV Standard: [Automatic]						ESC Exit	
NTSC Minor Standard [NTSC M]							
PAL Minor Standard [PAL B]							
SECAM Minor Standard [SECAM L]							
Flat Panel Scaling [Auto]							
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The blue marked options (Flat Panel Type, TV Standard and Flat Panel Scaling) are currently not supported. They are reserved for future expansions.

Primary Video Device

This option allows you to select which graphics controller to use as the primary boot device.

Available settings are: *Internal*, *External PCI*, *External AGP* and **Auto**.

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, 4MB*, / **Enabled, 8MB**, / *Enabled, 16MB*, / *Enabled, 32MB*, and *Disabled*.

IGD – Device 2, Function 1

This option allows you to enable or disable the internal graphics device.

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

Boot Type

This option allows you to select the type of boot screen.

The available settings are: **VBIOS Default**, *CRT*, *LFP*, *CRT+LFP*, *EFP*, *TV*, *CRT+EFP*, *CRT+TV*, *EFP+EFP2* and *EFP+TV*.



The options described below (Flat Panel Type, TV Standard and Flat Panel Scaling) are currently not supported. They are reserved for future expansions.

Flat Panel Type

This option allows you to select the flat panel type.

The available settings are: 640x480LVDS, 800x600LVDS, 1024x768LVDS, 1280x1024LVDS, 1400x1050LVDS, **1600x1200LVDS**, 640x480CMOS, 800x600CMOS, 1024x768CMOS, 1280x1024CMOS, 1400x1050CMOS, 1600x1200CMOS.

TV Standard

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

The available settings are: **Automatic**, *NTSC*, *PAL* and *SECAM*.

NTSC Minor Standard

The available settings are: **NTSC M**, *NTSC M J*, *NTSC 433*, *NTSC N*.

PAL Minor Standard

The available settings are: **PAL B**, *PAL G*, *PAL D*, *PAL H*, *PAL I*, *PAL M*, *PAL N*, *PAL 60*.

SECAM Minor Standard

The available settings are: **SECAM L**, *SECAM L1*, *SECAM B*, *SECAM D*, *SECAM G*, *SECAM H*.

Flat Panel Scaling

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

The available settings are: **Auto**, *Force Scaling* and *Disabled*.

Intel SouthBridge (HR) Configuration

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

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Configure advanced settings for SouthBridge						Item Specific Help	
IOAPIC [Enabled] Extended IOAPIC [Enabled] OnBoard AC'97 Audio [Disabled] OnBoard AC'97 Modem [Disabled] Restore on AC Power Loss [Last State]						←→ Select Menu ↑↓ Select Item + Change Option F1 General Help F10 Save and Exit ESC Exit	
Version, (C) Copyright, American Megatrends, Inc.							

IOAPIC

This option allows you to enable or disable the ICH IOAPIC (Advanced Programmable Interrupt Controller) function.

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

Extended IOAPIC

This option allows you to enable or disable the extended mode of ICH IOAPIC. If enabled the APIC mode will expand available IRQ resources for the system.

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



For Windows® XP OS (Operating System) user:

Select the required setting before the OS installation.

OnBoard AC'97 Audio

This option allows you to activate the onboard audio.

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

OnBoard AC'97 Modem

This option allows you to activate the onboard modem.

The available settings are: *Auto* 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***.

Power

BIOS Setup Utility							
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Power	Exit
Advanced SMI Enable Controls Power Management/APM [Enabled] Power Savings Under AC [Disabled] Power Savings Level [Disabled] Power Button Mode [Suspend]						Item Specific Help ←→ Select Menu ↑↓ Select Item + Change Option F1 General Help F10 Save and Exit ESC Exit	
Advanced Resume Event Controls USB Controller Resume [Enabled] PME Resume [Disabled] RI Resume [Disabled]							
Version, (C) Copyright, American Megatrends, Inc.							

Advanced SMI Enable Controls

Power Management/APM

This option allows you to enable or disable SMI (**S**ystem **M**anagement **I**nterrupt) based power management and APM (**A**dvanced **P**ower **M**anagement) support.

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

Power Savings Under AC



This option is only available if the option “**Power management/APM**” is set to “*Enabled*”.

This option allows you to enable or disable the PM when the system is AC powered.

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

Power Savings Level



This option is only available if the option “**Power management/APM**” is set to “*Enabled*”.

This option allows you to select the power saving level.

Available settings are: **Disabled**, *Minimum*, *Medium*, *Maximum* and *Customized*.

If this option is set to “*Customized*” and the option “**Power Management/APM**” is “*Enabled*” a supplementary option is available: “**Suspend Time Out**”.

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Advanced SMI Enable Controls						Item Specific Help	
Power Management/APM				[Enabled]			
Power Savings Under AC				[Disabled]			
Power Savings Level				[Customised]		←→ Select Menu	
Suspend Time Out				[Disabled]		↑↓ Select Item	
Power Button Mode				[Suspend]		+ Change Option	
Advanced Resume Event Controls						F1 General Help	
USB Controller Resume				[Enabled]		F10 Save and Exit	
PME Resume				[Disabled]		ESC Exit	
RI Resume				[Disabled]			
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Suspend Time Out

If no activity is detected during the set time period, the BIOS will place the system into suspend low power state.

The available settings are: *1 minute*, *2 minutes*, *3 minutes*, *4 minutes*, *5 minutes*, *10 minutes*, *15 minutes*, *32 minutes*, *64 minutes* and **Disabled**.

Power Button Mode



This option is only available if the option “**Power management/APM**” is set to “*Enabled*”.

This option allows you to select the power button functionality.

The available settings are: *On/Off* and **Suspend**.

Advanced Resume Event Controls



The options: “**USB Controller Resume**”, “**PME Resume**” and “**RI Resume**” are only available if the option “**Power management/APM**” is set to “*Enabled*”.

USB Controller Resume

This option allows you to specify whether the system will be waked up from power saving modes, when activity is detected on one of the USB interfaces (USB-compatible devices).

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

PME Resume

This option allows you to enable or to disable the PME (**P**ower **M**anagement **E**vent) resumption of the system operation.

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

RI Resume

This option allows you to specify whether the system will be waked up from power saving modes, when activity is detected on one of the serial interfaces (modem or other serial peripherals).

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

Exit

BIOS Setup Utility							
Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit
Save Changes and Exit Discard Changes and Exit Discard Changes Load Optimal Defaults Load Failsafe Defaults						Item Specific Help ←→ Select Menu ↑↓ Select Item +- Change Field Tab Select Field F1 Help F10 Save and Exit ESC Exit	
Version, (C) Copyright, American Megatrends, Inc.							

Save Changes and Exit

This field saves the settings 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 optimized default settings (manufacturing defaults) for your system, but can be used, if after changes, the system does not run reliably. The Fail-Safe settings are designed for maximum stability, but not maximum performance.

Technical Data

PCI-954 Board	Main Specifications
Processor	Intel® Pentium® M or Intel® Celeron® M For CPU frequency, please refer to the actually data sheet on the web site: www.kontron.com Socket 478
Memory	2x 184-pin ECC DDR DIMMs for up to 2GB of 266MHz or 333MHz DDR SDRAM (PC1600/PC2100/PC2700)
Cache	8-KB Level 1 512-KB or 256-KB Level 2
Chipset	Intel® 855GME with integrated graphic controller “Intel® Extreme Graphics 2” Intel® 6300ESB I/O Controller Hub (ICH)
LPC I/O	Winbond W83627HF
PCI to ISA Bridge	ITE IT8888F
Ethernet	82551ER (supports 10/100Mbps data transfer) or as option: 82541ER (supports 10/100/1000Mbps data transfer)
BIOS	AMI BIOS PnP 1MB (8Mbits) Flash BIOS ROM (PLCC32 FWH) PC 2001 compliant
LED Indicators	4x “Pre-POSTcode” LEDs (green)
Watchdog	Watchdog Timer: programmable ca. 1sec. to 17 min. TimeOut event: NMI or Reset
Board Type	PICMG 1.0 standards
Interfaces Connectors Expansion Sockets	External Connectors (on the board bracket) 1x VGA 2x LAN 1x USB (2.0/1.1) 1x combined PS/2 (keyboard and mouse)

The table is continued on the next page.

	<p>On-board Connectors:</p> <ul style="list-style-type: none"> 1x FDD 2x IDE (PATA) 2x SATA 4x COM 1x IrDA 1x LPT 1x USB (2.0/1.1) 1x MiniPCI slot (with AC'97 and 1x USB) 1x DVI with optional adapter card 1x keyboard and mouse connector 1x CPU fan power connector 1x Chassis fan power connector 1x Feature connector with: <ul style="list-style-type: none"> 2x DVO 1x USB 1x SM 1x Power LED connector 1x ATX Power ON button connector 1x Reset button connector 1x Speaker connector 1x ATX Power connector 1x HDD/CF activity LED
Power Supply	Lithium battery LTC-7PN 3.5V, 750mAh for RTC External ATX Power Source for :3.3V, 5V,+12V, 5VSB
Operating Systems	Information about the applicable operating systems refer to the website: www.kontron.com or: techsupport@kontron.com
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

Electrical Specifications

Board Version	Type of the external PSU	Inputs
PCI-954 Board	ATX PSU	+3.3V
		+5V
		+5VSB
		+12V

Typical Currents

The typical currents have been calculated with the PCI-954 board equipped with a Pentium M 1.6GHz processor, 256MB RAM (one slot used), and without any external devices (PCI and ISA cards, hard disk drives, expansion cards, etc.).

The nominal voltages and typical currents are given in the table below:

ATX Power	+12V	+5V	+5VSB	+3.3V
Typical Current	0.1A	3.5A	0.4A	2A

CE Directives, Standards

CE Directives	
Low Voltage Directive (Electrical Safety)	73/23/EEC
EMC Directive	89/336/EEC

Electrical Safety	Standards
EUROPE	EN 60950-1 :2001
U.S.A.	meet to: UL 60950-1 :2003

EMC	Standards
EUROPE	EN 61000-6-4:2001 (emission) EN 50082-1/ EN 61000-6-2 :2001 (immunity) EN 55011: 1991 (CISPR11)
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 - 954
Article-Number: 9-xxxx-9035

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: 
(Managing Director)

Date: 11/10/2005

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) 8165-77 311
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.