PL-8000A

PL-8000C

User's Manual

Version 1.0

PL-8000

Networking Appliance

1U Rack-mount Intel® EP80579 Network Appliance with 8 x GbE, SATA, CF, LCM

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Chapter 1. General Information

1.1 Introduction

The PL-8000 is a 1U rack-mounted hardware platform designed for network service applications. Built with Intel® Embedded IA components warranteed for longevity, the PL-8000 supports the Intel® EP80579 Integrated SoC with QuickAssist security accelerator. Compared against three chip solutions, Intel® EP80579 offers more application specific performance in less space with the PL-8000.

The platform supports SoC core speed that ranges from 600Mhz to 1.2 GHz, high bandwidth DDRII DIMM slot with memory up to 2GB and a full set of VPN functions such as encryption, hashing and public/private key generation. In order to provide the best network performance and best utilization, the powerful storage interfaces include one 3.5" SATA HDD and CompactFlash™. This platform affords five GbE Copper and max to 8 GbE Ethernet ports via PCI-E by 1 or by 4 on front-panel. To prevent network problems when the platform shuts down, PL-8000 supports one segment of LAN bypass function through WDT and GPIO pin definitions. The front panel also has one USB 2.0 port, one RJ-45 console port and LED indicators that monitor power and storage device activities for local system management, maintenance and diagnostics. In addition, the PL-8000 supports two PCI-E by4 slot, and is RoHS, FCC and CE compliant.

1.2 Specification

Processor System	CPU	Intel® EP80579 Integrated Processor (Tolapai) supports 600/1066/1200 MHz processors
	Chipset	Intel® EP80579 (Tolapai)
	Front Side Bus	1333/1066/800MHz FSB
	BIOS	AMI® BIOS
Memory	Technology	Un-buffered and Non-ECC DDR2 800/667/533/400 MHz memory
	Capacity	Up to 2GB with 1 SO-DIMM socket
Expansion	Expansion Slots	one PCI-E x4 slot for expansion module one PCI-E x4 golden finger for expansion module (via optional Riser Card,R143)
Ethernet	GbE Ethernet	Support max 8 GbE ports (4 GbE via optional expansion module)

	LAN bypass	two pairs bypass
Storage	HDD	one internal 3.5" SATA HDD bay
	Compact Flash Socket	one CompactFlash™ Type I/II
I/O	USB	one USB2.0 one internal 5x2 pin header
	Serial	one RJ45 Console port (COM1) one internal 5x2 pin header (COM2)
Power Supply	Watt	ATX power supply
Mechanical and Environment	Form Factor	1U rack-mount
	LCD Module	one 16x2 LCM
	Keypad	Four buttons keypad
	LED	one Power LED (Green) one HDD LED (Yellow) one Status LED (Green/Yellow via programmable GPIO)
	Dimension(W x D x H)	440mm (W) x 270mm (D) x 44mm (H) (17.3" W x 10.7" D x 1.7" H)
	Operating Temperature	Operating: 0 ~ 40°C (32 ~ 104°F)
	Humidity	10 ~ 85% relative humidity, non-operating, non-condensing
Weight	1pc/CTN, 5.2kgs, 59cm(W) x 43.2cm(D) x 15.9cm(H)	
Certification	CE/FCC	

1.3 Ordering Information

We offer the following accessories for the PL-8000 appliance.

PL-8000A	1U Rackmount Intel EP80579 network system, application Tolapai 600MHz onboard, 5 GbE, SATA, CF, support bypass (CB-7970A)
PL-8000C	1U Rackmount Intel EP80579 network system, application Tolapai 1.2GHz onboard, 8 GbE, SATA, CF, support bypass (CB-7970C + R137A)
PL-8000E	1U Rackmount Intel EP80579 network system, embedded Tolapai 1.2GHz onboard, 7 GbE, SATA, CF, PCI-Ex4 slot, support bypass (CB-7970E + R137A)
R119A	Expansion module with 2 RJ45 GbE ports and 2 SFP ports, Intel

	82571EB
R120A	Expansion module with 4 SFP GbE ports, Intel 82571EB
R121A	Expansion module with 2 SFP ports, Intel 82571EB
R121B	Expansion module with 2 RJ45 GbE ports, Intel 82571EB
R122A	Expansion module with 4 RJ45 ports, Intel 82571EB
R137A	Expansion module with 4 RJ45 ports, Intel 82573L
R143	Riser card for Expansion module (PCI-E x4)
R144	Riser card for PCI-E x4 add-on card (standard PCI-E x16 connector)
DK001	Cable development kit

1.4 Packaging

Check that the following items have been included in the package before installation.

1. PL-8000 Appliance
2. Quick Installation Guide (Optional)
3. Cables (Optional)
4. CD-ROM that contains the following folders:

(1) Manual
(2) System Driver
(3) Ethernet Driver
(4) Utility Tools

If any item of above is missing or damaged, please contact your dealer or retailer from whom you purchased the PL-8000. Keep the box and carton when you probably ship or store PL-8000 in near future. After you unpack the goods, inspect and make sure the packaging is intact. Do not plug the power adapter to the appliance of PL-8000 if you already find it appears damaged.

Note: Keep the PL-8000 in the original packaging until you start installation.

1.5 Precautions

Please make sure you properly ground yourself before handling the PL-8000 appliance or other system components. Electrostatic discharge can be easily damage the PL-8000 appliance.

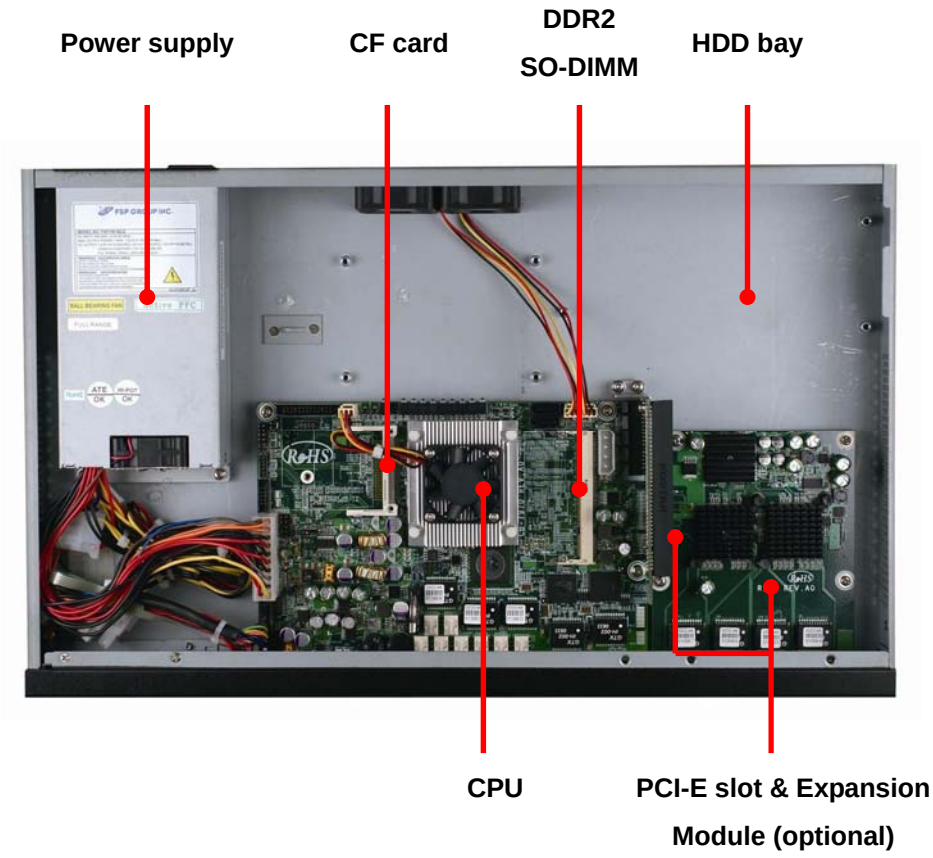
Do not remove the anti-static packing until you are ready to install the PL-8000 appliance.

Ground yourself before removing any system component from it protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

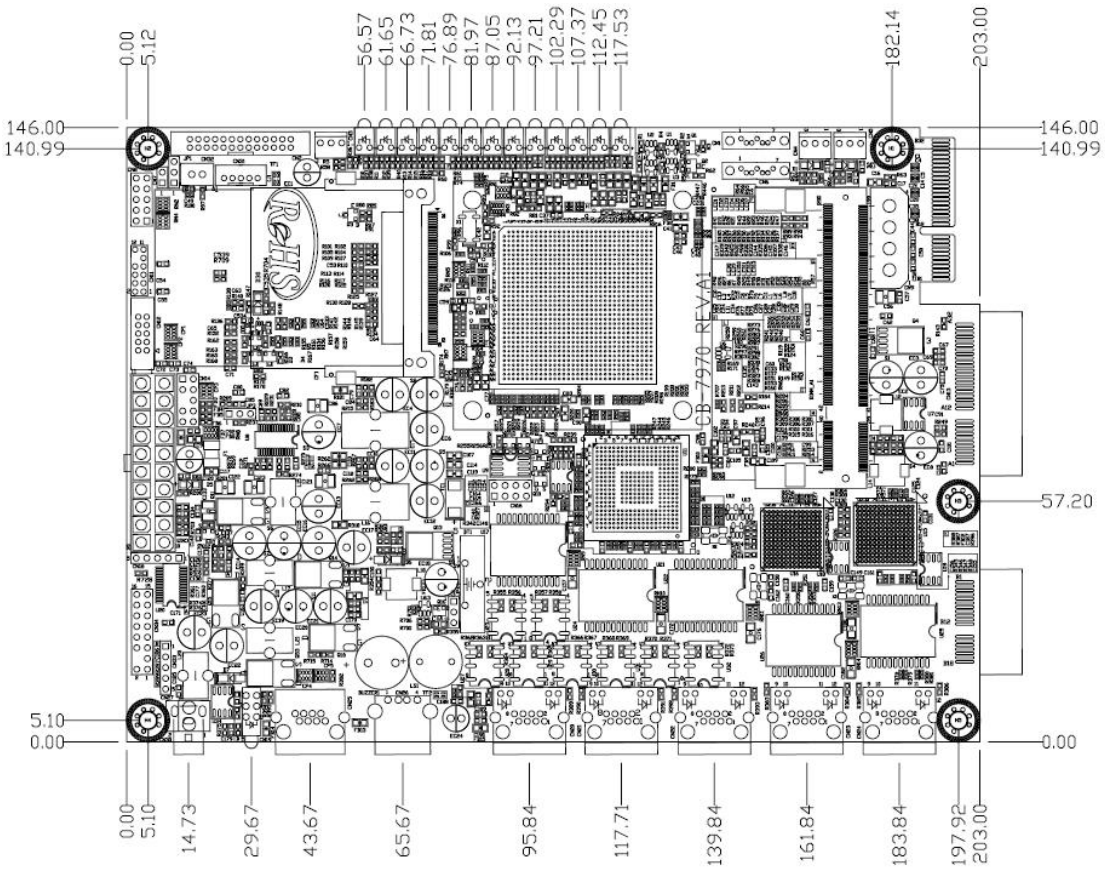
Handle the PL-8000 appliance by its edges and avoid touching its components.

1.6 System Layout

PL-8000 Front Side

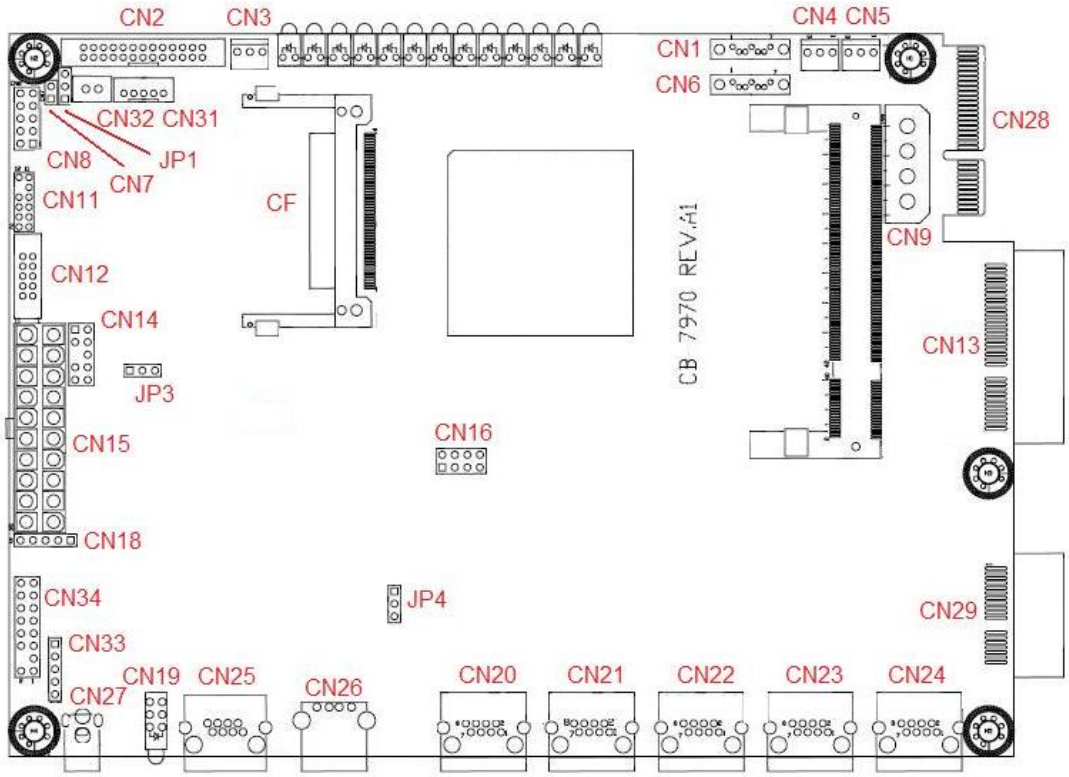


1.7 Board Dimensions



Chapter 2. Connector/Jumper Configuration

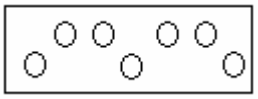
2.1 Connector/Jumper Location and Definition



Connector	Define	Connector	Define
CN1	SATA1 Connector	CN21	Giga LAN RJ45 Connector
CN2	LED Pin Header	CN22	Giga LAN RJ45 Connector
CN3	FAN Connector(+12V)	CN23	Giga LAN RJ45 Connector
CN4	FAN Connector(+12V)	CN24	Giga LAN RJ45 Connector
CN5	FAN Connector(+12V)	CN25	COM1 RJ45 Connector
CN6	SATA0 Connector (co-layout with CF)	CN26	USB0 Connector
CN7	RESET Pin Header	CN27	+12V Power jack
CN8	GPO Pin Header	CN28	PCI-Ex4 Gold Finger(WIN)
CN9	4P Power Connector (Output)	CN29	LAN-Switch SLOT
CN11	LPC Pin Header	CN31	USB Header
CN12	COM2 Box Header	CN32	ATX SWITCH
CN13	PCIEx4 SLOT(WIN)	CN33	LCM Keypad control
CN14	KB/MS Pin Header	CN34	LCM connector
CN15	ATX Connector	JP1	Reset or Lan Bypass with Watchdog
CN16	SPI Pin Header	JP3	CLEAR CMOS
CN18	GPI Pin Header	JP4	LAN Bypass
CN19	LED		
CN20	Giga LAN RJ45 Connector		

2.2 Connector and Jumper Setting

CN1/CN6:SATA Connector



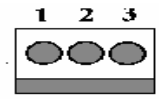
Pin	Signal
1	Ground
2	TXP
3	TXN
4	Ground
5	RXN
6	RXP
7	Ground

CN2 :LED Pin Header

Pin	Define(C1)	Define(C2)	Define(C3)
1	NC	NC	+3.3V
2	NC	NC	BYPASS#
3	NC	NC	+3.3V
4	NC	NC	GND
5	+3.3V	+3.3V	+3.3V
6	GND	GND	SATA#
7	NC	NC	SIO-GPO7
8	NC	NC	SIO-GPO6
9	+3.3V	+3.3V	SIO-GPO5
10	SATA#	SATA#	SIO-GPO4
11	LAN1_100#	GPO19	GPO19
12	LAN1_1G#	GPO18	GPO18
13	+3.3V	GPO25	GPO25
14	LAN1_ACT#	GPO24	GPO24
15	LAN2_100#	GPO28	GPO28
16	LAN2_1G#	GPO27	GPO27
17	+3.3V	LAN1_LNK	LAN1_LNK
18	LAN2_ACT#	LAN1_ACT	LAN1_ACT
19	LAN3_100#	LAN2_LNK	LAN2_LNK
20	LAN3_1G#	LAN2_ACT	LAN2_ACT
21	+3.3V	LAN3_LNK	LAN3_LNK

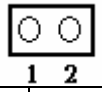
22	LAN3_ACT#	LAN3_ACT	LAN3_ACT
23	LAN4_100#	LAN4_LNK	LAN4_LNK
24	LAN4_1G#	LAN4_ACT	LAN4_ACT
25	+3.3V	LAN5_LNK	LAN5_LNK
26	LAN4_ACT#	LAN5_ACT	LAN5_ACT

CN 3 /4 /5 :FAN Connector



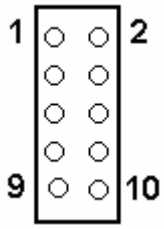
Pin	Define
1	Ground
2	+12V
3	Speed Detect

CN7: Reset Pin Header



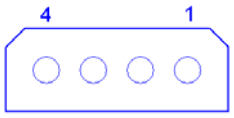
Pin	Define
1	Reset #
2	GND

CN8: GPO Pin Header



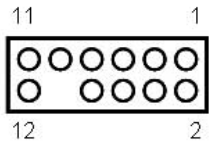
Pin	Define	Pin	Define
1	GPO4-	2	GPO4+
3	GPO5-	4	GPO5+
5	GPO6-	6	GPO6+
7	GPO7-	8	GPO7+
9	Ground	10	VCC

CN9: Auxiliary HDD Power Connector



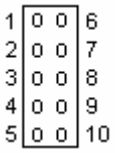
Pin	Assignment
1	+12V
2	Ground
3	Ground
4	+5V

CN11: LPC Connector



Pin	Define	Pin	Define
1	+3.3V	2	AD 0
3	AD 1	4	AD 2
5	AD 3	6	Frame#
7	PCIRST#	8	+5V
9	CLOCK	10	NC
11	Ground	12	Ground

CN12 :COM2 Box Header

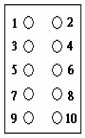


Pin	Define	Pin	Define
1	DCD#	6	DSR#
2	RXD#	7	RTS#
3	TXD#	8	CTS#
4	DTR#	9	RI#2
5	Ground	10	NC

CN13: PCI-Ex4 SLOT(WIN)

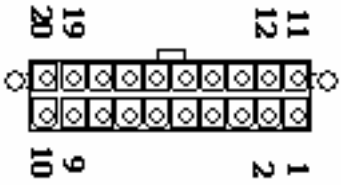
Pin	Define	Pin	Define
B1	+12V	A1	GND
B2	+12V	A2	+12V
B3	+12V	A3	+12V
B4	GND	A4	GND
B5	SMCLK	A5	+3.3V
B6	SMDAT	A6	+3.3V
B7	GND	A7	Pull down
B8	+3.3V	A8	+3.3V
B9	NC	A9	+3.3V
B10	+3.3V_Stand by	A10	+3.3V
B11	WAKE#	A11	PE_RESET#
B12	Power good	A12	GND
B13	Gnd	A13	CLK
B14	TXP0	A14	CLK#
B15	TXN0	A15	GND
B16	GND	A16	RXP0
B17	+5V	A17	RXN0
B18	GND	A18	GND
B19	TXP1	A19	+5V
B20	TXN1	A20	GND
B21	GND	A21	RXP1
B22	GND	A22	RXN1
B23	TXP2	A23	GND
B24	TXN2	A24	GND
B25	GND	A25	RXP2
B26	GND	A26	RXN2
B27	TXP3	A27	GND
B28	TXN3	A28	GND
B29	GND	A29	RXP3
B30	GPIO23	A30	RXN3
B31	GPIO27	A31	GND
B32	GND	A32	GPIO28

CN14:KB/MS Pin Header



Pin	Define	Pin	Define
1	KCLK	2	MCLK
3	KDAT	4	MDAT
5	NC	6	NC
7	PS2_GND	8	PS2_GND
9	PS2_VCC	10	PS2_VCC

CN15:ATX Power Connector

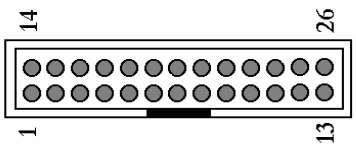


Pin	Define	Pin	Define
11	+3.3VSB	1	+3.3VSB
12	NC	2	+3.3VSB
13	Ground	3	Ground
14	Ground	4	+5VSB
15	Ground	5	Ground
16	Ground	6	+5VSB
17	Ground	7	Ground
18	NC	8	NC
19	+5VSB	9	NC
20	+5VSB	10	+12VSB

CN16 :SPI Pin Header

Pin	Define	Pin	Define
1	+3.3V	2	GND
3	CS#	4	SCLK
5	MISO	6	MOSI
7	NC	8	FLASH_IO

CN17 :Parallel Box Header



Pin	Define	Pin	Define
1	STROBE	14	AUTOFD
2	PD0	15	ERR
3	PD1	16	INT
4	PD2	17	SLCTIN
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK*	23	Ground
11	BUSY	24	Ground
12	PE	25	Ground
13	SLCT	26	Ground

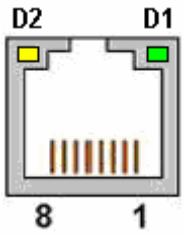
CN18: GPI Pin Header

Pin	Define
1	GPI0
2	GPI1
3	GPI2
4	GPI3
5	Ground

CN19 :LED (1U)

Pin	Define	Pin	Define
1	Power_LED+	2	Power_LED-
3	SATA_LED+	4	SATA_LED-
4	State_LED+	6	State_LED-

CN20~CN24:Gigabit LAN connector



Pin	Define
1	MDI0+
2	MDI0-
3	MDI1+
4	MDI2+
5	MDI2-
6	MDI-
7	MDI3+
8	MDI3-

LED:

D2 : Link/Activity LED	
Link	Green
Activity	Blinking
D1 : Bi-Color Speed LED	
10 Mbps	Off
100 Mbps	Yellow
1000Mbps	Green

CN25:COM1 RJ45 Connector

Pin	Define
1	CTS#
2	DTR#
3	TXD#
4	GPIO56
5	Ground
6	RXD#
7	DSR#
8	RTS#

CN26 : USB0 Connector

Pin	Define
1	+5V
2	Data0-
3	Data1+
4	Ground

CN27 : +12V Power jack

Pin	Define
1	+12V
2	GND
3	GND

CN28 : PCI-Ex4 Gold Finger (WIN)

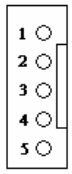
Pin	Define	Pin	Define
B1	+12V	A1	GND
B2	+12V	A2	+12V
B3	+12V	A3	+12V
B4	GND	A4	GND
B5	SMCLK	A5	+3.3V
B6	SMDAT	A6	+3.3V
B7	GND	A7	Pull hi to 3.3V
B8	+3.3V	A8	+3.3V
B9	NC	A9	+3.3V
B10	+3.3V_Standby	A10	+3.3V
B11	WAKE#	A11	PE_RESET#
B12	Power good	A12	GND
B13	Gnd	A13	CLK
B14	TXP0	A14	CLK#
B15	TXN0	A15	GND
B16	GND	A16	RXP0
B17	+5V	A17	RXN0
B18	GND	A18	GND

B19	TXP1	A19	+5V
B20	TXN1	A20	GND
B21	GND	A21	RXP1
B22	GND	A22	RXN1
B23	TXP2	A23	GND
B24	TXN2	A24	GND
B25	GND	A25	RXP2
B26	GND	A26	RXN2
B27	TXP3	A27	GND
B28	TXN3	A28	GND
B29	GND	A29	RXP3
B30	USBP0	A30	RXN3
B31	USBN0	A31	GND
B32	GND	A32	GPIO21

CN29: LAN-Switch SLOT

Pin	Define	Pin	Define
B1	+5V	A1	GND
B2	+5V	A2	+5V
B3	+5V	A3	+5V
B4	GND	A4	GND
B5	GND	A5	GND
B6	GND	A6	GND
B7	GND	A7	GND
B8	+3.3V	A8	+3.3V
B9	+3.3V	A9	+3.3V
B10	+3.3V	A10	+3.3V
B11	GND	A11	GND
B12	LAN2+	A12	NC
B13	LAN2-	A13	NC
B14	NC	A14	LAN0+
B15	NC	A15	LAN0-
B16	LAN3+	A16	NC
B17	LAN3-	A17	LAN1+
B18	NC	A18	LAN1-

CN31: USB Pin Header



Pin	Define
1	USBVCC
2	USBP1N
3	USBP1P
4	Ground
5	Ground

CN32: ATX SWITCH

Pin	Define
1	5VSB
2	SIGNAL

CN33: LCM Keypad Control

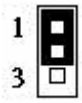
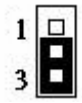
Pin	Define
1	ACK#
2	BUSY
3	PE
4	SLCT
5	Ground

CN34: LCM Connector

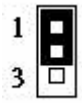
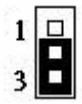
Pin	Define	Pin	Define
1	Ground	2	+5V
3	NONE	4	AFD#
5	SLIN#	6	INIT#
7	PD0	8	PD1
9	PD2	10	PD3
11	PD4	12	PD5
13	PD6	14	PD7
15	BLP	16	BLN

Jumper Setting

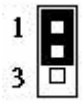
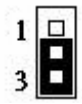
JP1: Reset or LAN Bypass with Watchdog

Pin		Setting
	1-2	Reset (Default)
	2-3	Lan Bypass

JP3: Clear CMOS

Pin		Setting
	1-2	Hold Data (Default)
	2-3	Clear CMOS

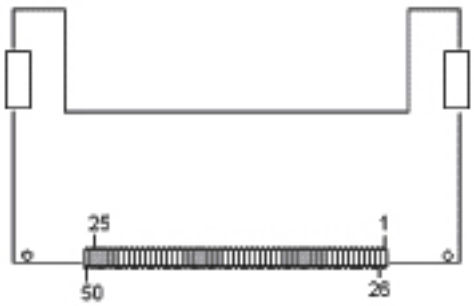
JP4: LAN Bypass

Pin		Setting
	1-2	Normal (Default)
	2-3	Bypass Always Disable

2.3 CompactFlash™ Card Socket Pin Define

CompactFlash™ card is a small removable mass storage device. It can provide complete PCMCIA-ATA functionality and compatibility plus True IDE functionality compatible with ATA/ATAPI-4.
CompactFlash™ storage products are solid state form factor, it means they contain no moving parts. Thus, it provides users with much greater protection of the data than conventional magnetic disk device.

Pin	Assignment	Pin	Assignment	Pin	Assignment	Pin	Assignment	Pin	Assignment
1	Ground	11	Ground	21	D00	31	D15	41	RESET
2	D03	12	Ground	22	D01	32	CS	42	ORDY
3	D04	13	VCC	23	D02	33	NC	43	DREG
4	D05	14	Ground	24	WP	34	IOR	44	DACK
5	D06	15	Ground	25	NC	35	IOW	45	LED
6	D07	16	Ground	26	NC	36	WE	46	BVD
7	CS	17	Ground	27	D11	37	RDY/BSY	47	D08
8	Ground	18	A02	28	D12	38	VCC	48	D09
9	Ground	19	A01	29	D13	39	SCSE	49	D10
10	Ground	20	A00	30	D14	40	NC	50	Ground



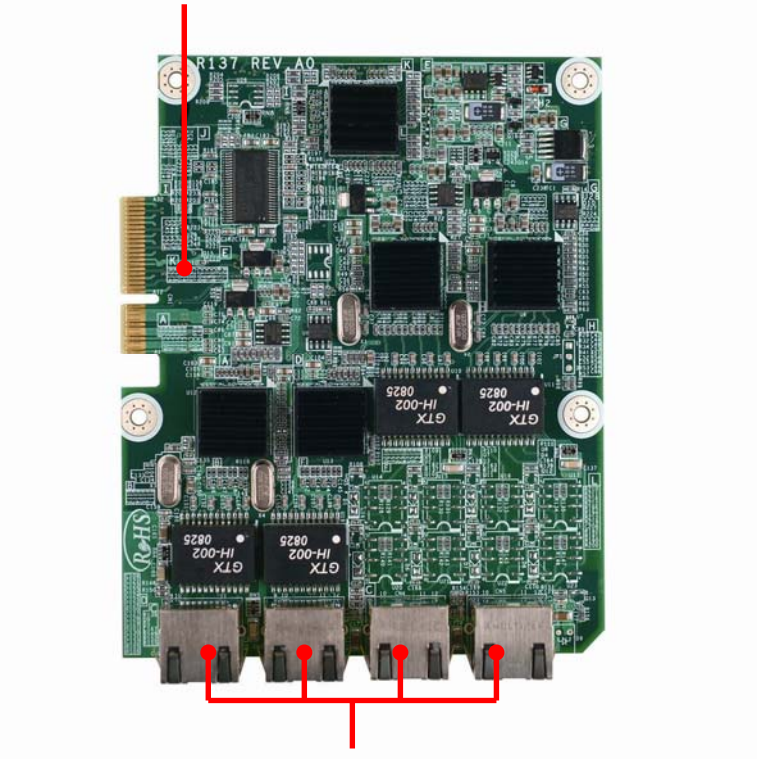
Chapter 3. Optional GbE Module & Riser Card Setting

The PL-8000 can offer various GbE module combinations to match various applications and market demand.

3.1 R137: Ethernet module with four GbE Copper

R137A is a four GbE Copper module. The golden edge fingers must be connected with CN13 proprietary connector of the PL-8000 board.

Golden Edge Fingers to be connected with CN13
of CB-7970. (or PCI-E x4 slot of R143)

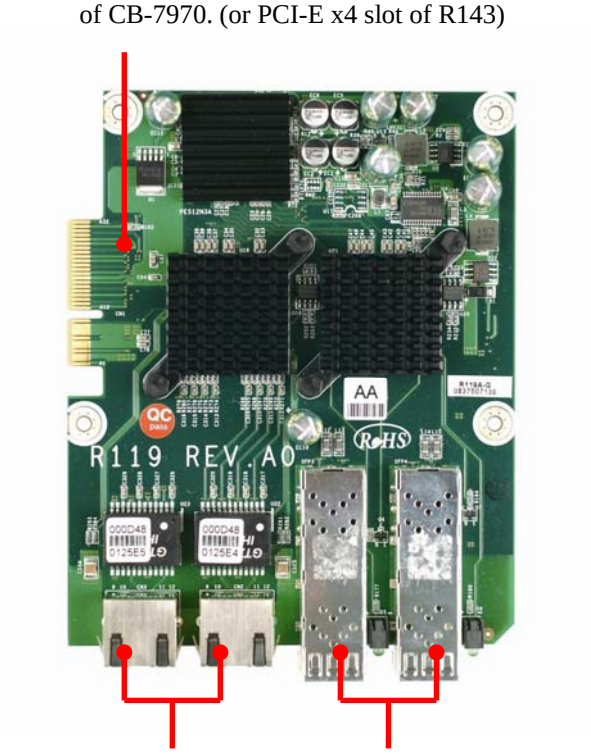


4 x GbE Copper ports

3.2 R119: Ethernet module with two GbE Copper and two GbE SFP

R119A is a two GbE Copper and two GbE SFP Ethernet module. The golden edge fingers are to be connected with CN13 proprietary connector of PL-8000 board.

Golden Edge Fingers to be connected with CN13 of CB-7970. (or PCI-E x4 slot of R143)

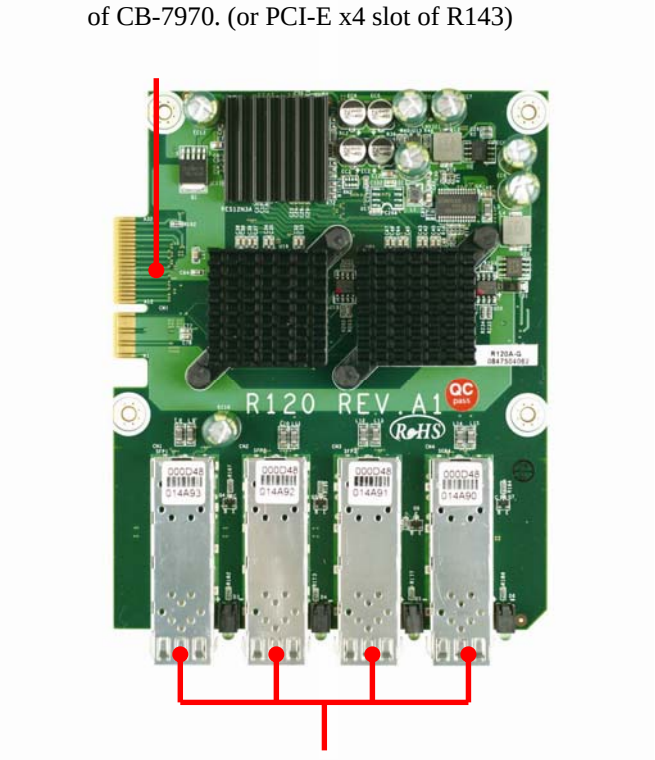


2 x GbE Copper ports 2 x GbE SFP ports

3.3 R120: Ethernet module with four GbE SFP

R120A is a four GbE SFP Ethernet module. The golden edge fingers to be connected with CN13 proprietary connector of PL-8000 board.

Golden Edge Fingers to be connected with CN13
of CB-7970. (or PCI-E x4 slot of R143)

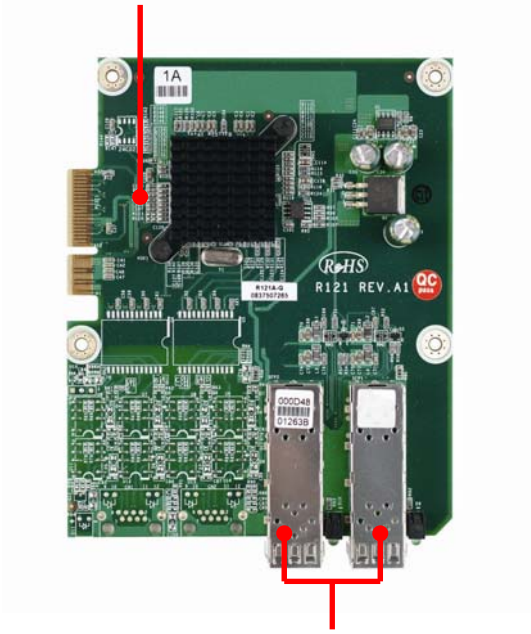


4 x GbE SFP ports

3.4 R121: Ethernet module with two GbE Copper or SFP

R121B is a two GbE Copper Ethernet module and designed reserved one pair bypass function for optional (ODM project). The golden edge fingers must be connected with CN13 proprietary connector of CB-7970 board. The alternative R121A is a two GbE SFP Ethernet module.

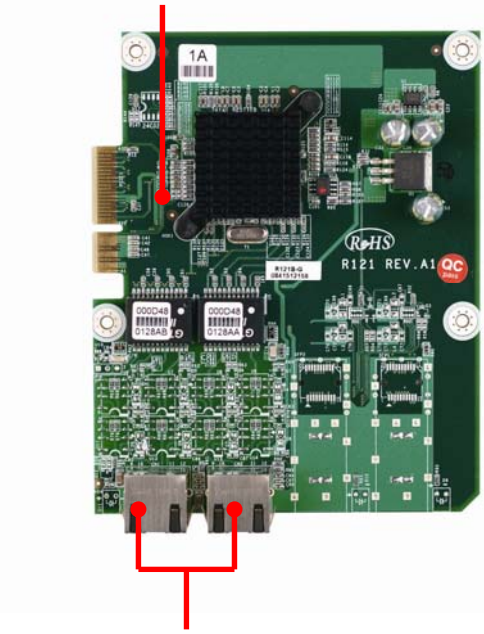
Golden Edge Fingers to be connected with CN13 of CB-7970. (or PCI-E x4 slot of R143)



2 x GbE SFP ports

Picture-1: R121A

Golden Edge Fingers to be connected with CN13 of CB-7970. (or PCI-E x4 slot of R143)



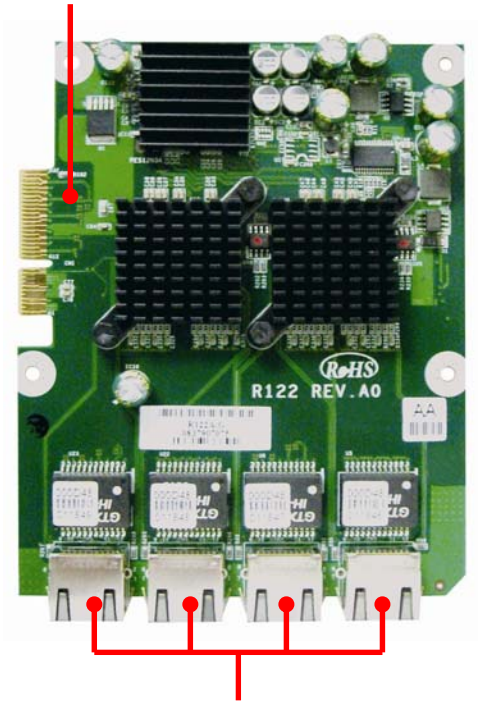
2 x GbE Copper ports

Picture-2: R121B

3.5 R122: Ethernet module with four GbE Copper

R122A is a four GbE Copper Ethernet module. The golden edge fingers to be connected with CN13 proprietary connector of PL-8000 board.

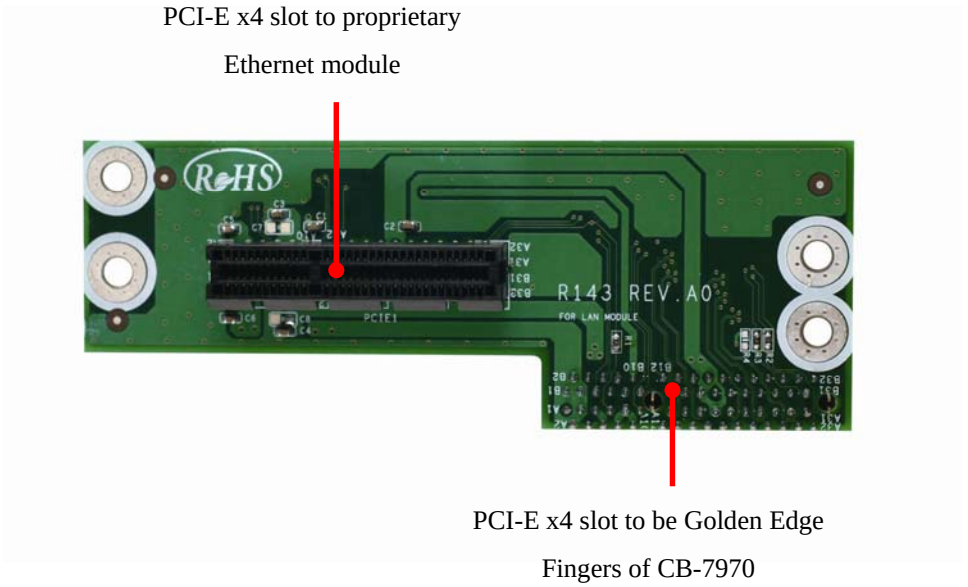
Golden Edge Fingers to be connected with CN13 of CB-7970. (or PCI-E x4 slot of R143)



4 x GbE Copper ports

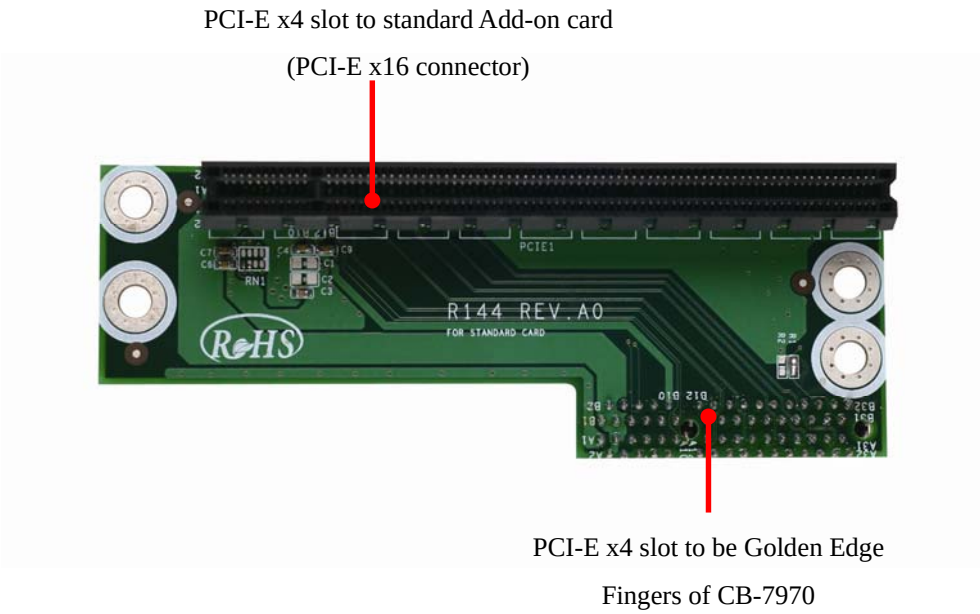
3.6 R143: Riser card for expansion module PCI-E x4

R143 is one PCI-E x4 to PCI-E x4(proprietary) riser card for expansion Ethernet module. It must be connected to CN28 (PCI-E x4 Golden Finger) of PL-8000 appliance.



3.7 R144: Riser card for PCI-E x4 add-on card (standard PCI-E x16 connector)

R144 is one PCI-E x4 to PCI-E x4 riser card for standard PCI-E x4/x1 add-on card. It must be connected to CN28(PCI-E x4 Golden Finger) of PL-8000 appliance.



Chapter 4. BIOS Setup

The ROM chip of your PL-8000 board is configured with a customized Basic Input/Output System (BIOS) from AMI BIOS. The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines called POST (Power-On Self Test) that checks out the system when you turn it on. The BIOS also includes CMOS Setup program, so no disk-based setup program is required CMOS RAM stores information for:

- Date and time
- Memory capacity of the appliance
- Type of display adapter installed
- Number and type of disk drives

The CMOS memory is maintained by battery installed on the PL-8000 board. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS also supports easy way to reload the CMOS data when you replace the battery of the battery power lose.

4.1 Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options:

1. Choose "Exit" ➔ "Load Optimal Defaults" from the main menu. This loads the setup default values from the BIOS Features Setup and Chipset Features Setup screens.
2. Choose "Main" & "Advanced" from the main menu. This option lets you configure the date and time, hard disk type, floppy disk drive type, primary display and more.
3. In the main menu, press F10 ("Save Changes and Exit") to save your changes and reboot the system.

4.2 Entering the CMOS Setup Program

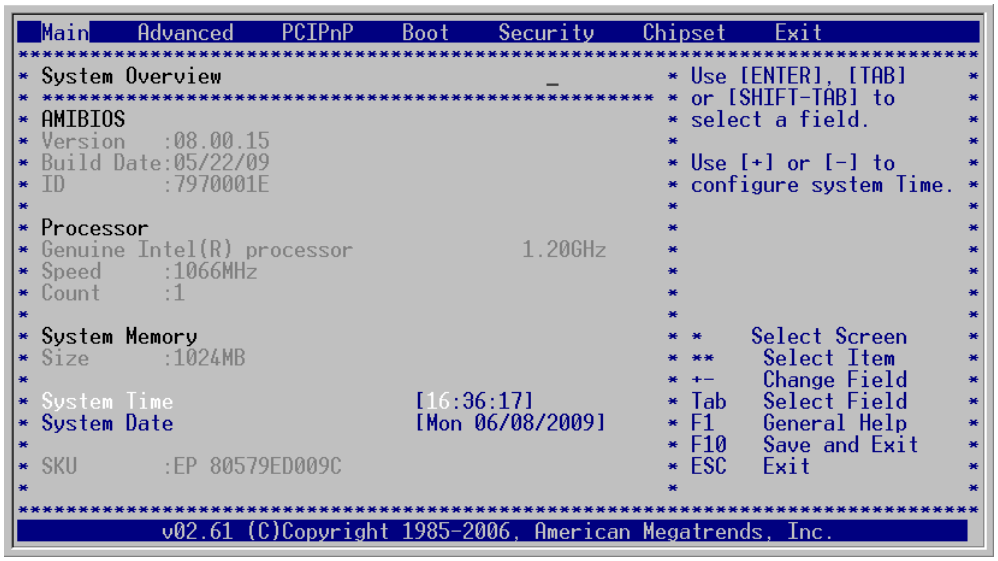
Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after you:

- Received an error code at startup
- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the AMI Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

⇩ **Enter the CMOS Setup program's main menu as follows:**

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears:
   "Press DEL to enter SETUP"
2. Press the <DEL> key to enter CMOS Setup program. The main menu appears:



3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

AMIBIOS: Displays the auto-detected BIOS information.

Processor: Displays the auto-detected CPU specification.

System Memory: Displays the auto-detected system memory.

SystemTime: [hour:min:sec]:
This item allows you to set the system time.

System Date [Day mm/dd/yyyy]:
This item allows you to set the system date.

In the main menu, press F10 ("Save Changes and Exit") to save your changes and reboot the system. Choosing "Discard Changes and Exit" ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

4.3 Menu Options

The main menu options of the CMOS Setup program are described in the following and the following sections of this chapter.

Main: For changing the basic system configurations.

Advanced: For changing the advanced system settings.

PCIPnP: For changing the advanced PCI/PnP Settings.

Boot: For changing the system boot configurations.

Security: Use this menu to set User and Supervisor Passwords.

Chipset: For changing the chipset settings.

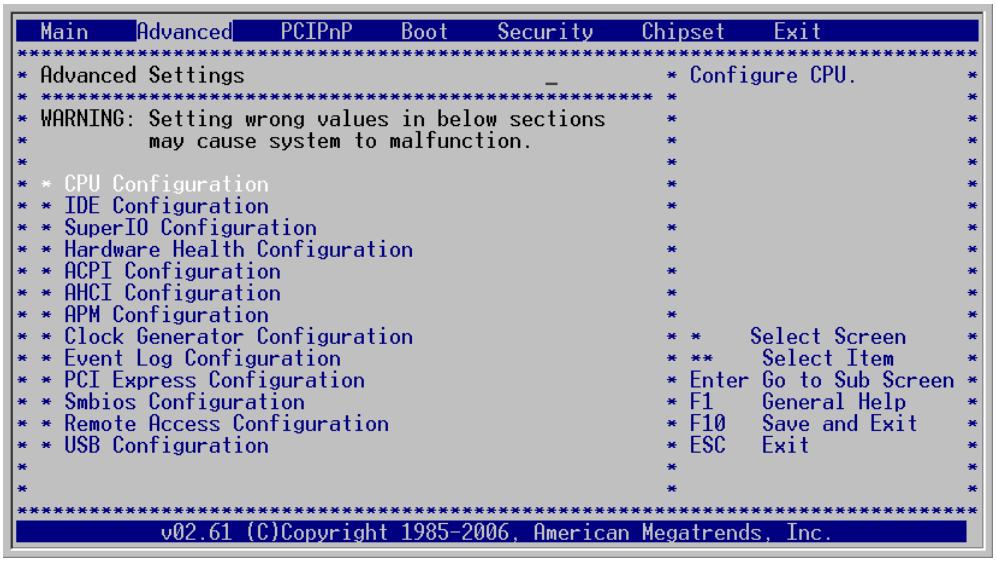
Exit: For selecting the exit options and loading default settings.

4.4 Advanced Menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

⇩ Use the Advanced Setup option as follows:

1. Choose "Advanced" from the main menu. The following screen appears:

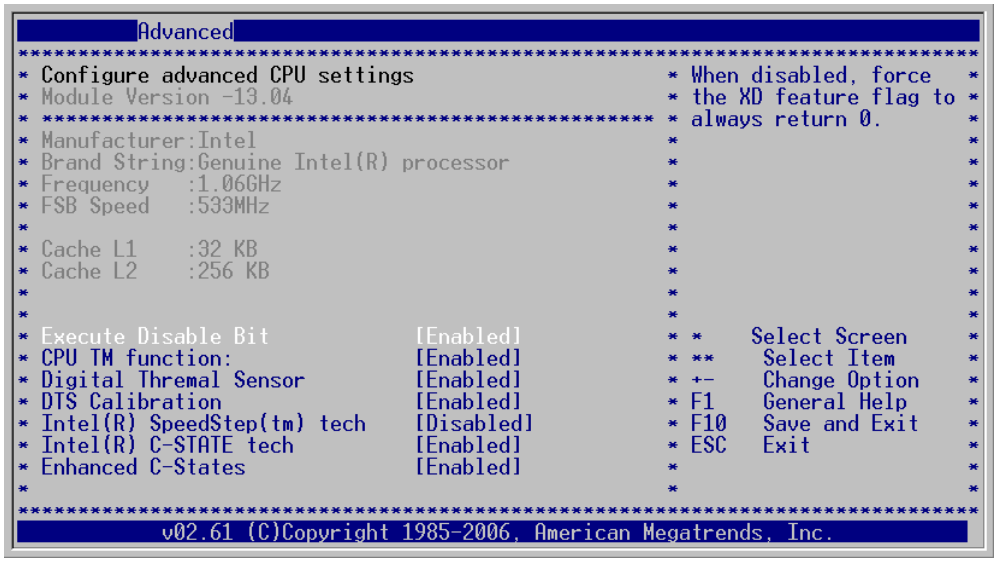


2. Use the arrow keys to move between fields. Modify the selected field using the PgUP/PgDN/+/- keys. Some fields let you enter numeric values directly.

3. After you have finished with the Advanced setup, press the <ESC> key to return to the main menu.

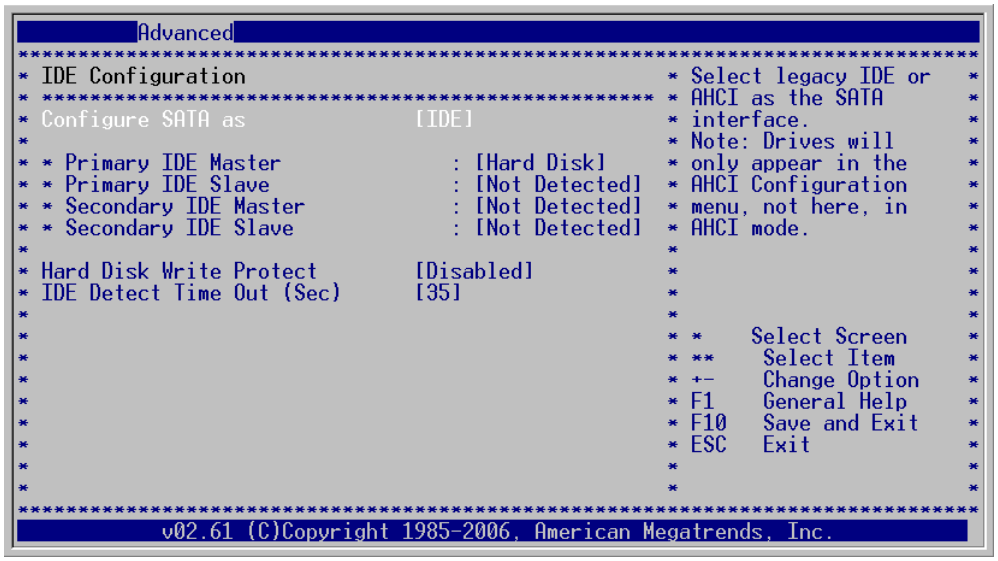
4.4.1 CPU Configuration

This sub menu shows the CPU-related information which is automatically detected by BIOS.



4.4.2 IDE Configuration

This sub menu allow you to set or change the configurations for the IDE devices installed in the system.



Configure SATA as: [IDE]

This item allows you to configure the SATA as IDE.

*** Primary IDE Master: [Hard Disk]**

*** Primary IDE Slave: [Not Detected]**

*** Secondary IDE Master: [Not Detected]**

*** Secondary IDE Slave: [Not Detected]**

This information is auto-detected by BIOS and is not user-configurable. It will show "Not Detected" if no IDE device is installed in the system.

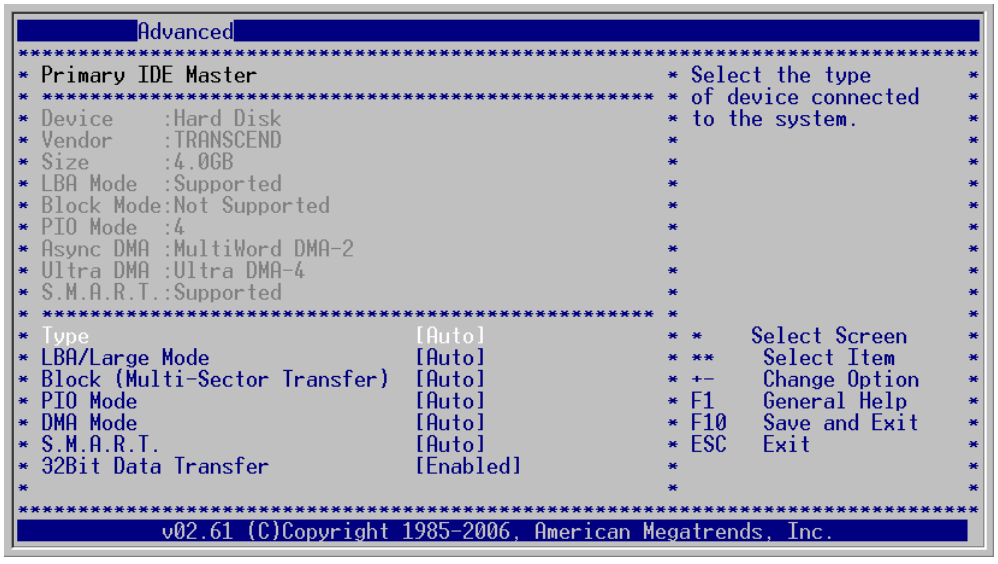
Hard Disk Write protect: [Disabled]

This menu allows you to enable or disable the hard disk write protect.

IDE Detect Time Out (Sec): [35]

Selects the time out value for detecting IDE devices.

*** Primary IDE Master**



Type: [Auto]

Selects the type of IDE device. Setting to Auto allows automatic selection of the appropriate IDE device type.

LBA/Large Mode: [Auto]

Enables or disables the LBA/Large mode. Setting to Auto enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled.

Block (Multi-Sector Transfer): [Auto]

Enables or disables the Block(Multi-Sectors Transfer). When set to Auto, the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to Disabled, the data transfer from and to the device occurs one sector at a time.

PIO Mode: [Auto]

Selects the PIO mode for the device.

DMA Mode: [Auto]

Selects the DMA mode for the device.

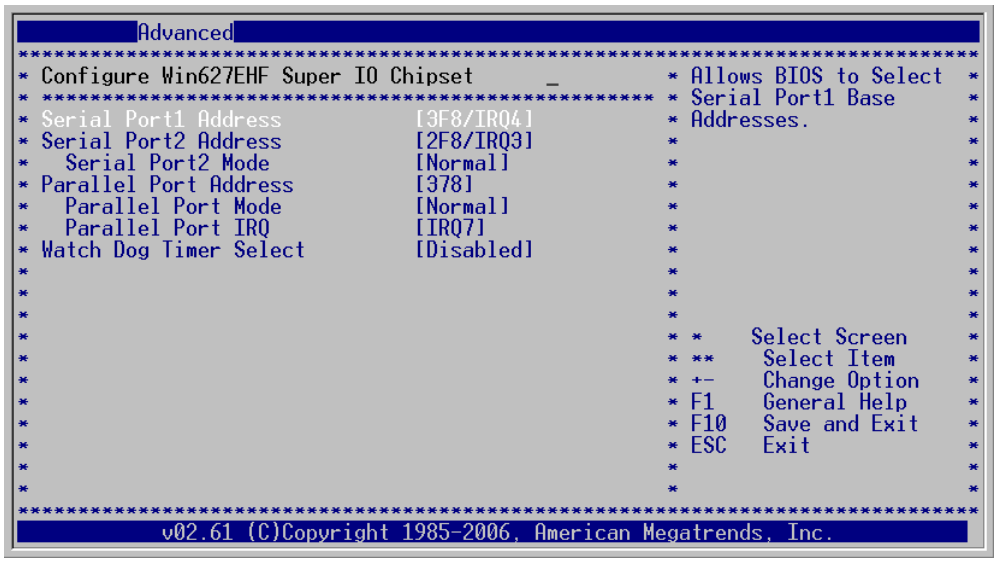
S.M.A.R.T.: [Auto]

S.M.A.R.T.(Self-Monitoring, Analysis, and Reporting Technology) . It allows system to use the SMART protocol to monitor your hard disk status.

32Bit Data Transfer: [Enabled]

Enables or disables 32-bit data transfer. If the host controller does not support 32-bit data transfer, this menu must be set to [Disabled].

4.4.3 Super IO Configuration



Serial Port1 Address: [3F8/IRQ4]

Selects the Serial Port1 base address and IRQ.

Serial Port2 Address: [2F8/IRQ3]

Selects the Serial Port2 base address and IRQ.

Serial Port2 Mode: [Normal]

Selects the Serial Port mode.

Parallel Port Address: [378]

Selects the Parallel Port base addresses.

Parallel Port Mode: [Normal]

Selects the Parallel Port mode.

Parallel Port IRQ: [IRQ7]

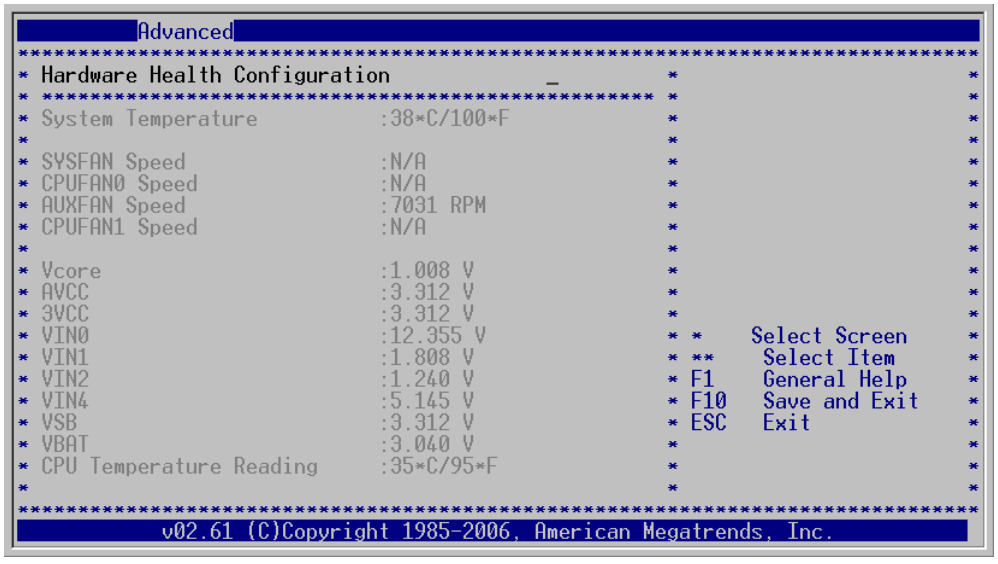
Selects the Parallel Port IRQ.

WatchDog Time-out: [Disabled]

Enables or disables the WatchDog Time-out.

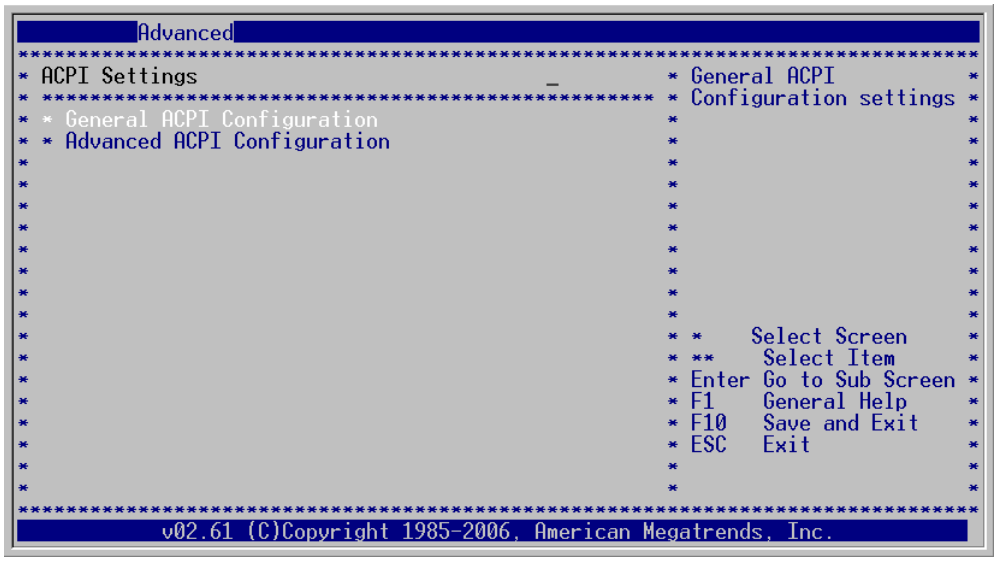
4.4.4 Hardware Health Configuration

This screen shows you the CPU core voltage, System voltage, System temperature and CPU temperature.



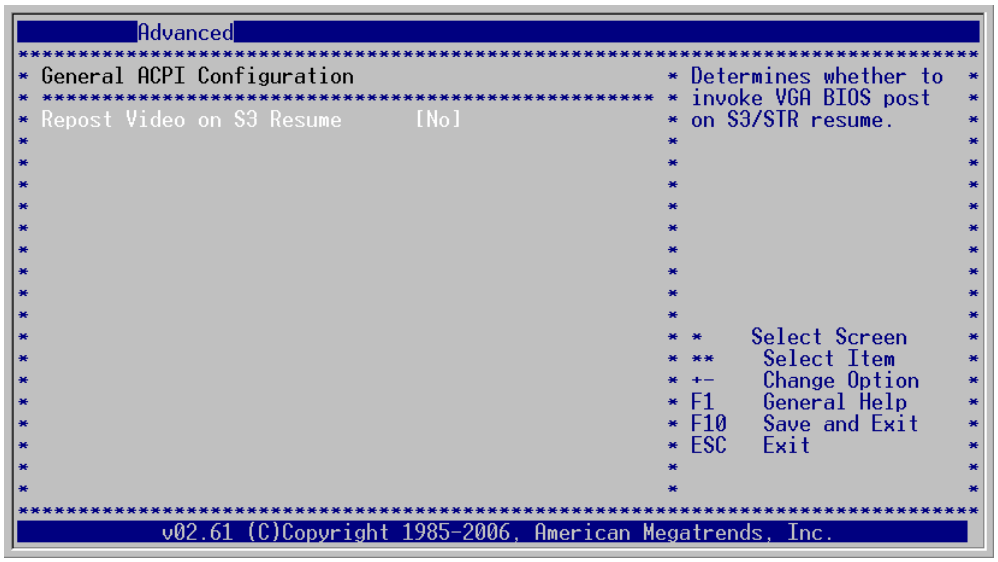
4.4.5 ACPI Configuration

This sub menu is used to change the settings for the ACPI.



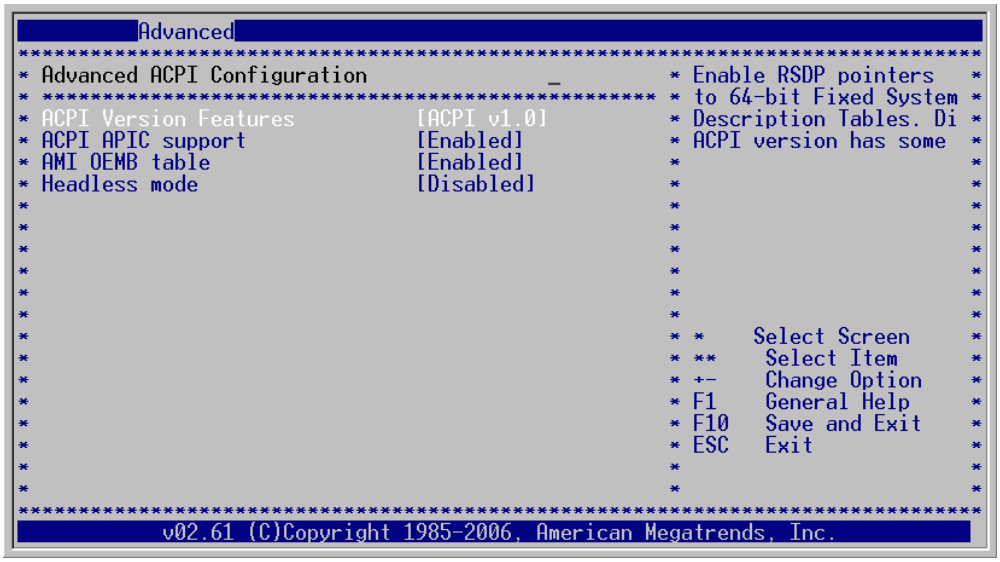
General ACPI Configuration:

This sub menu configures the general ACPI setting.



Advanced ACPI Configuration:

This sub menu configures additional ACPI options. It contains below sub-menus:



ACPI Version Features: [ACPI v1.0]

This item allows you to enable or disable RSPD pointers to 64-bit Fixed System Description Tables.

ACPI APIC support: [Enabled]

This item allows you to enable or disable APIC features.

AMI OEMB table: [Enabled]

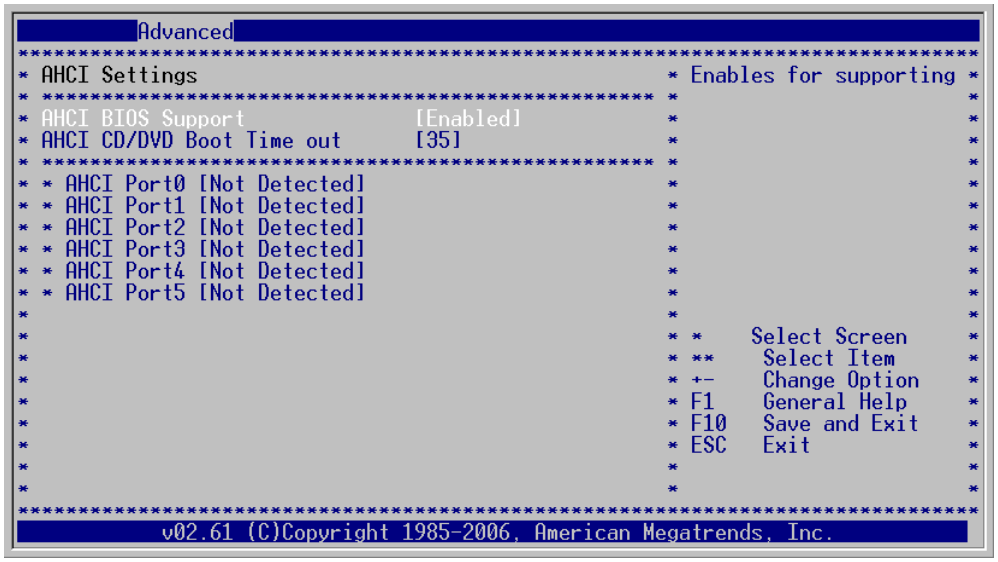
Enables or disables the ACPI BIOS to add a pointer to an OEMB table in the Root System.

Headless mode: [Disabled]

Enables or disables headless operation mode through ACPI.

4.4.6 AHCI Configuration

This sub menu is used to change the settings for the AHCI.



AHCI BIOS Support: [Enabled]

Enables or disables the AHCI BIOS Support.

AHCI CD/DVD Boot Time out: [35]

This item allows you to select the value for Boot Time out.

AHCI Port0/Port1/Port2/Port3/Port4/Port5 Sub-Menu: [Not Detected]

SATA Port0: [Auto]

Select the type of device connected to the system.

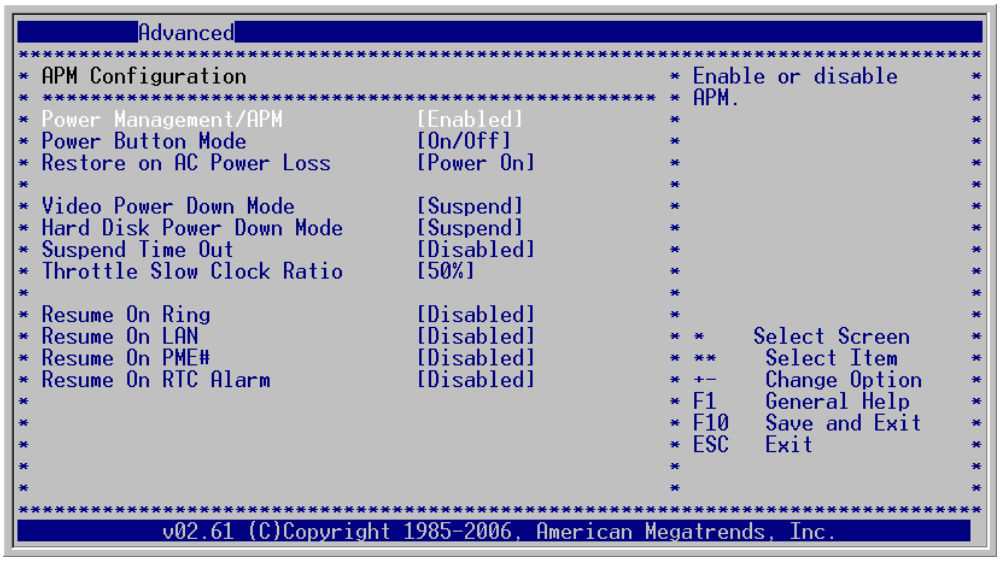
S.M.A.R.T.: [Enabled]

This item allows you to enable or disable S.M.A.R.T..

S.M.A.R.T.(Self-Monitoring, Analysis, and Reporting Technology) . It allows system to use the SMART protocol to monitor your hard disk status.

4.4.7 APM Configuration

This sub menu is used to change the settings for the APM.



Power Management/APM: [Enabled]

This item allows you to enable or disable APM features.

Power Button Mode: [On/Off]

Go into On/Off, or Suspend when Power Button is pressed.

Restore on AC Power Loss: [Power On]

Configure how the system board responds to a power failure.

Video Power Down Mode: [Suspend]

This item allows you to select the Video power down mode. [Suspend/Standby]

Hard Disk Power Down Mode: [Suspend]

This item allows you to select the HDD power down mode. [Suspend/Standby]

Suspend Time Out: [Disabled]

This item allows you to select the Suspend time out.

Throttle Slow Clock Ratio: [50%]

This item allows you to select the duty cycle in throttle mode.

Resume On Ring: [Disabled]

This item allows you to enable or disable the RI to generate a wake event.

Resume On LAN: [Disabled]

This item allows you to enable or disable the Wake on LAN feature.

Resume On PME#: [Disabled]

This item allows you to enable or disable the PME# to generate a wake event.

Resume On RTC Alarm: [Disabled]

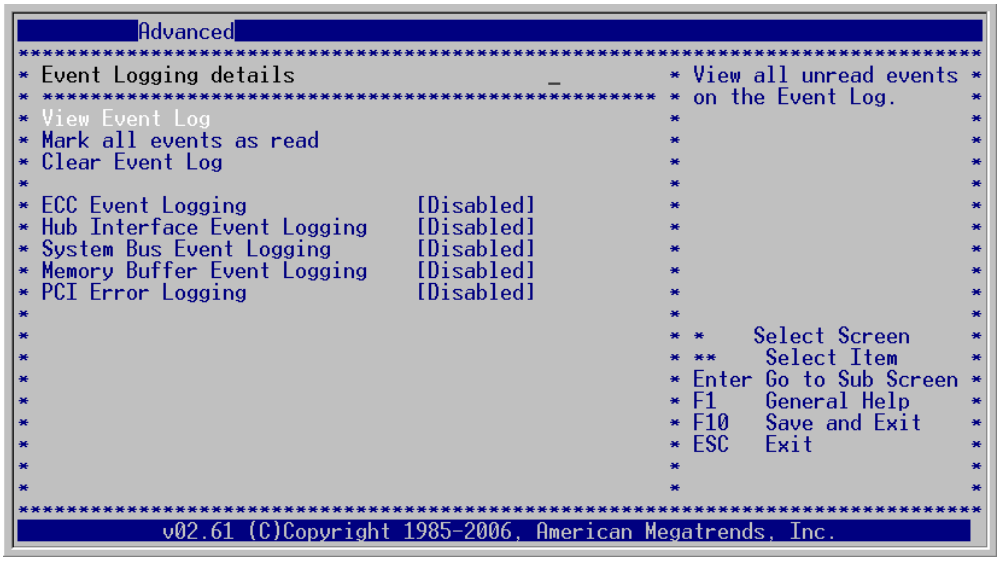
This item allows you to enable or disable the RTC to generate a wake event.

4.4.8 Clock Generator Configuration

This item allows you to change the settings for the Clock generator.

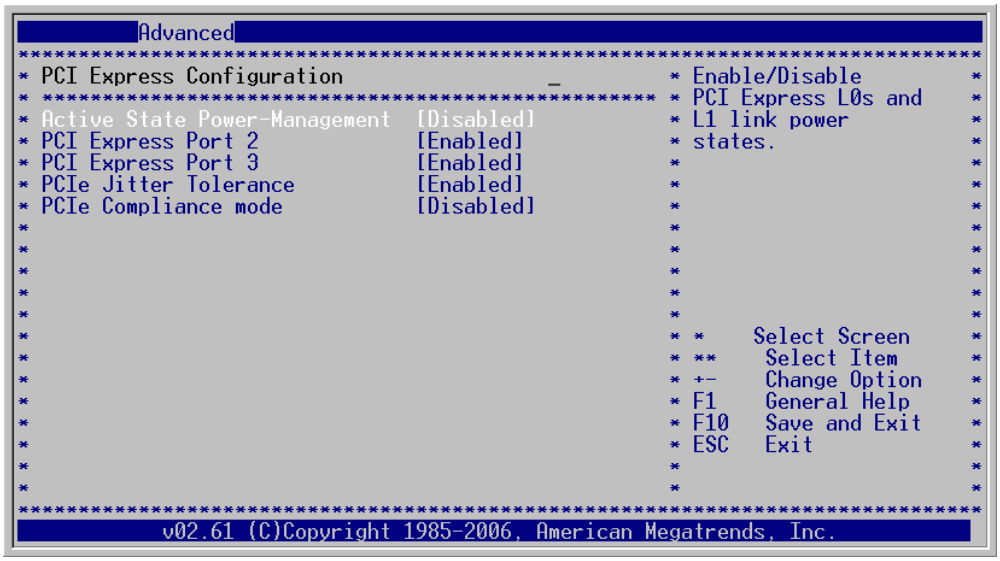
4.4.9 Event Log Configuration

This sub menu allows you to view the event logging details.



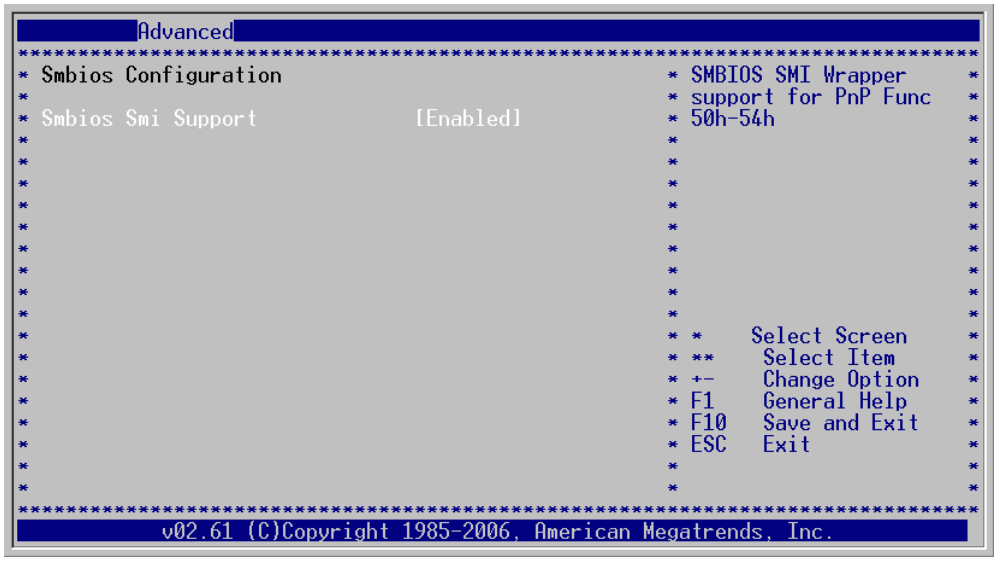
4.4.10 PCI Express Configuration

This sub menu allows you to enable or disable the PCI Express link power state.



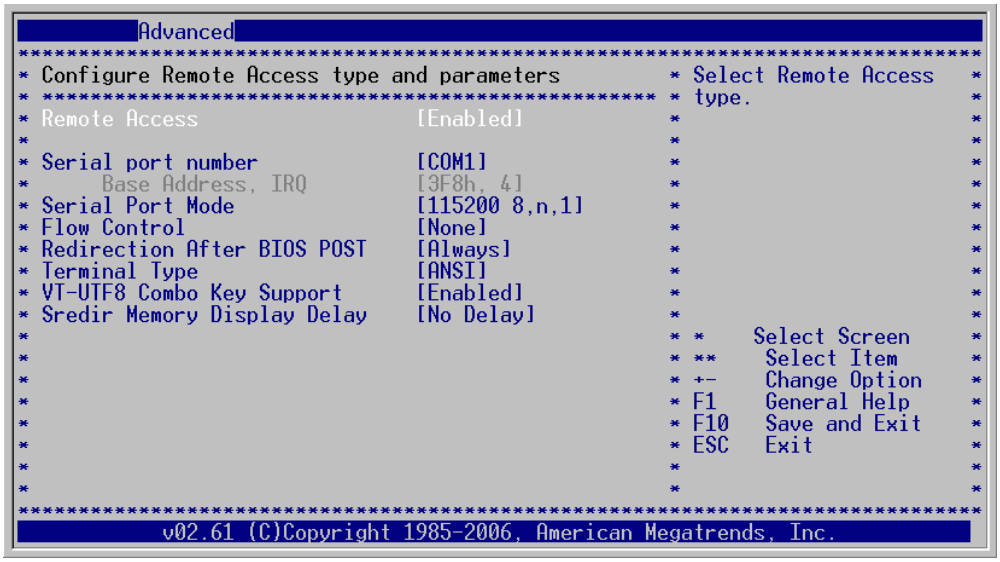
4.4.11 Smbios Configuration

This sub menu allows you to enable or disable the Smbios smi support.



4.4.12 Remote Access Configuration

This sub menu allows you to enable or disable Remote access. If you select [Enabled], below items will show up:



Serial port number: [COM1]

Base Address. IRQ: [3F8h. 4]

This item allows you to select the serial port for console redirection. Make sure the selected port is enabled.

Serial Port Mode: [115200 8,n,1]

This item allows you to select serial port settings.

Flow Control: [None]

This item allows you to select flow control for console redirection.

Redirection After BIOS POST: [Always]

This item allows you to set Redirection configuration after BIOS POST.

[Always]: The console redirection is always active.

[Boot Loader]: The console redirection is active during POST and Boot Loader.

[Disabled]: Turns off the console redirection after POST.

Terminal Type: [ANSI]

This item allows you to select the target terminal type.

VT-UTF8 Combo Key Support: [Enabled]

This item allows you to enable or disable VT-UTF8 combination key support for

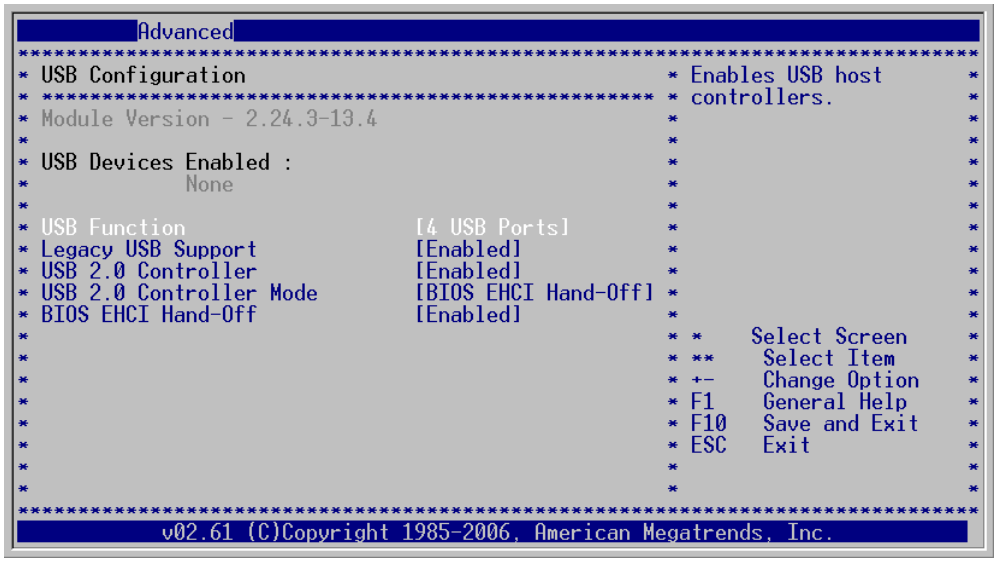
ANSI/VT100 terminals.

Sredir Memory Display Delay: [No Delay]

This item allows you to set the delay in seconds to display memory information.

4.4.13 USB Configuration

This sub menu allows you to change the USB-related features.



USB Function: [4 USB Ports]

This item allows you to setup the USB ports.

Legacy USB Support: [Enabled]

Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected.

USB 2.0 Controller: [Enabled]

This item allows you to enable or disable the USB 2.0 controller.

USB 2.0 Controller Mode: [BIOS EHCI Hand-Off]

This item allows you to setup the USB 2.0 Controller Mode.

BIOS EHCI Hand-Off: [Enabled]

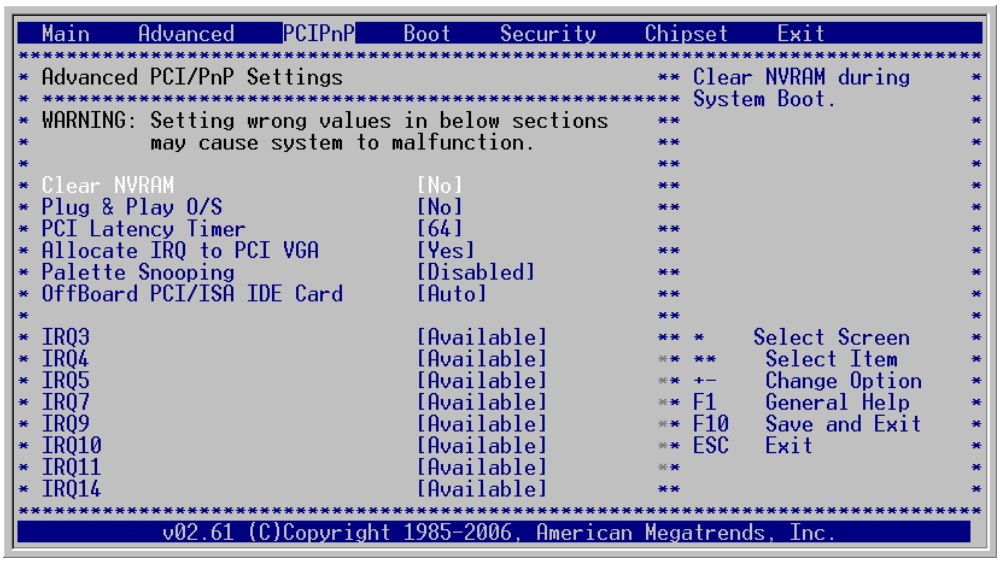
This is a work around for OSes without EHCI hand-off support. The EHCI ownership change should claim by EHCI driver.

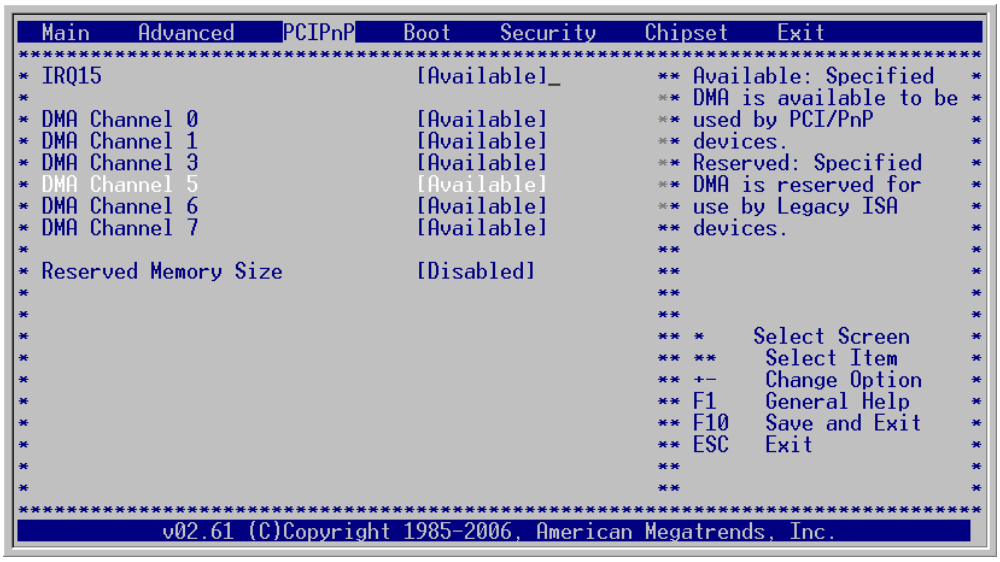
4.5 PCIPnP Menu

The PCIPnP menu items allow you to change the settings for the advanced PCI/PnP.

⇩ **Use the PCIPnP Setup option as follows:**

1. Choose "PCIPnP" from the main menu. The following screen appears:





2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUP/PgDN keys. Press the <F1> "Help" key for information on the available options:

Clear NVRAM: [No]

This item allows you to clears NVRAM during system Boot.

Plug & Play O/S: [No]
No: lets the BIOS configure all the devices in the system.
Yes: lets the OS configure Plug & Play devices not required for boot if your system has a Plug & Play operating system.

PCI Latency Timer: [64]
This item allows you to select the value in units of PCI clocks for the PCI device latency timer register. This setting controls how many PCI clocks each PCI device can hold the bus before another PCI device takes over.

Allocate IRQ to PCI VGA: [Yes]
BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ.

Palette Snooping: [Disabled]
This item allows you to enable or disable the feature. When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the device can function correctly.

OffBoard PCI/ISA IDE Card: [Auto]
Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card.

IRQ 3/4/5/7/9/10/11/14/15: [Available]
Available: the specified IRQ is available for use by PCI/PnP devices.
Reserved: the specified IRQ is reserved for use by legacy ISA devices.

DMA Channel 0/1/3/5/6/7: [Available]
Available: the specified DMA is available for use by PCI/PnP devices.
Reserved: the specified DMA is reserved for use by legacy ISA devices.

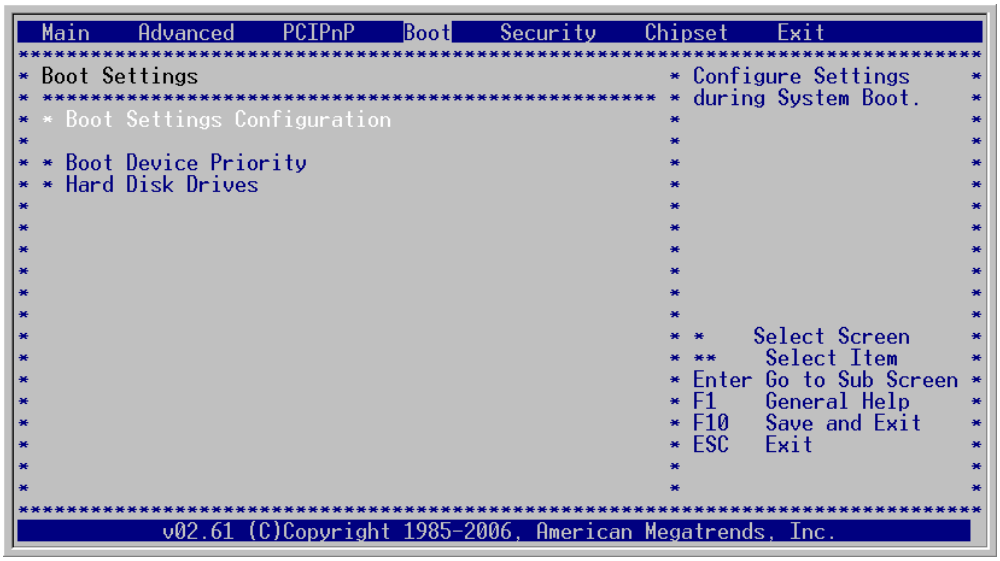
Reserved Memory Size: [Disabled]
This item allows you to select the reserved memory for legacy ISA devices.

3. After you have finished with the PCIPnP Setup, press the <ESC> key to return to the main menu.

4.6 Boot Menu

⇩Use the Boot Setup option as follows:

1. Choose "Boot" from the main menu. The following screen appears:

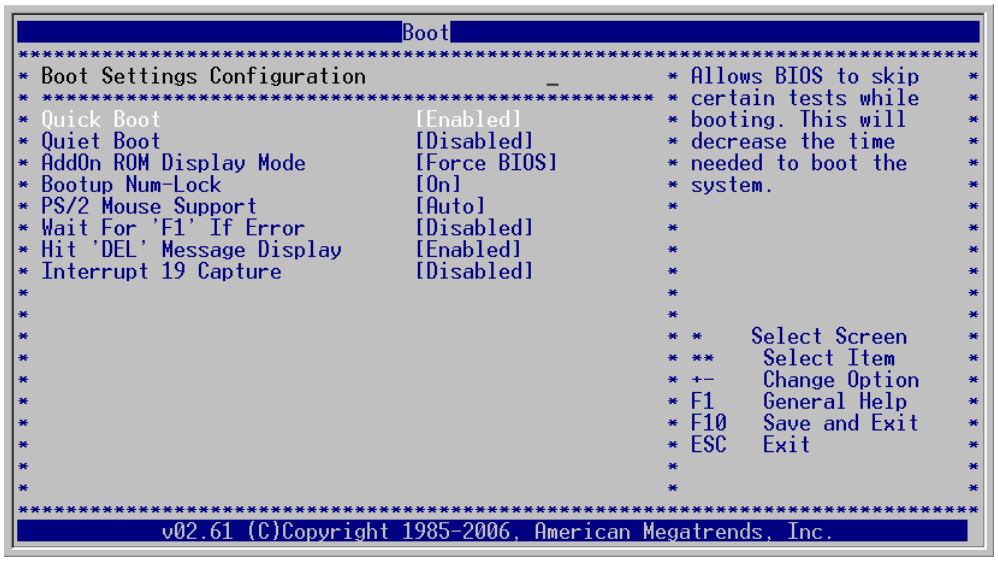


2. Move between items and select values by using the arrow keys. Modify the selected fields using the PnUP/PgDN Keys. For information on the various options, press <F1> key .

3. After you have finished with the Boot setup, press the <ESC> key to return to the main menu.

4.6.1 Boot Settings Configuration

This item is used to configure system boot setting with below sub menus:



Quick Boot: [Enabled]

This item allows BIOS to skip certain tests (POST, Power On Self Tests) while booting. This will decrease the time needed to boot the system.

Quiet Boot: [Disabled]

This item allows you to enable or disable the full screen logo display feature.
Disabed: displays normal POST messages.

AddOn ROM Display Mode: [Force BIOS]

Allows you to set the display mode for option ROM.

Bootup Num-Lock: [On]

Allows you to select the Power-on state for the Num-Lock.

PS/2 Mouse Support: [Auto]

Allows you to select support for PS/2 mouse.

Wait For 'F1' If Error: [Disabled]

Waits for F1 key to be pressed if error occurs.

Hit 'DEL' Message Display: [Enabled]

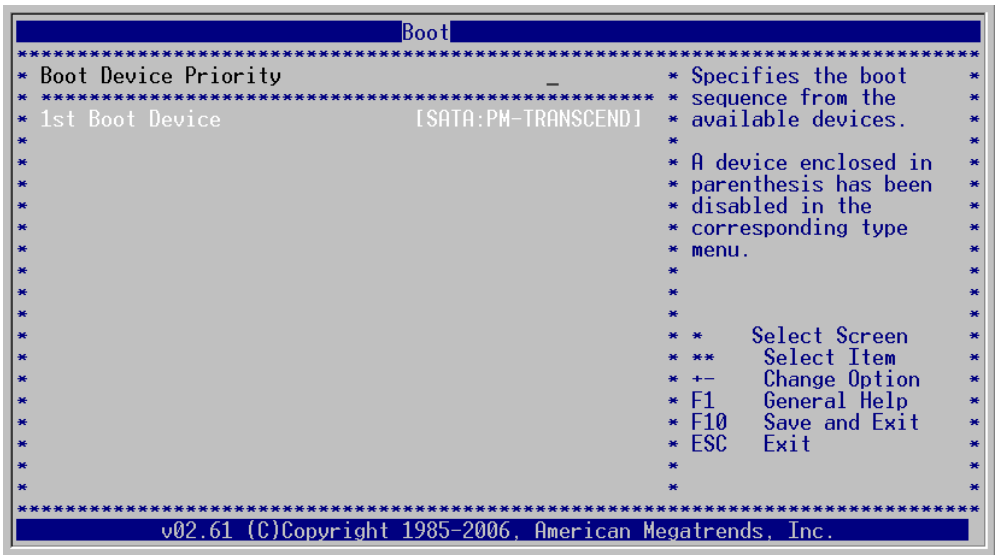
Displays "Press DEL to run Setup" in POST.

Interrupt 19 Capture: [Disabled]

This item allows the option ROMs to trap Interrupt 19.

4.6.2 Boot Device Priority

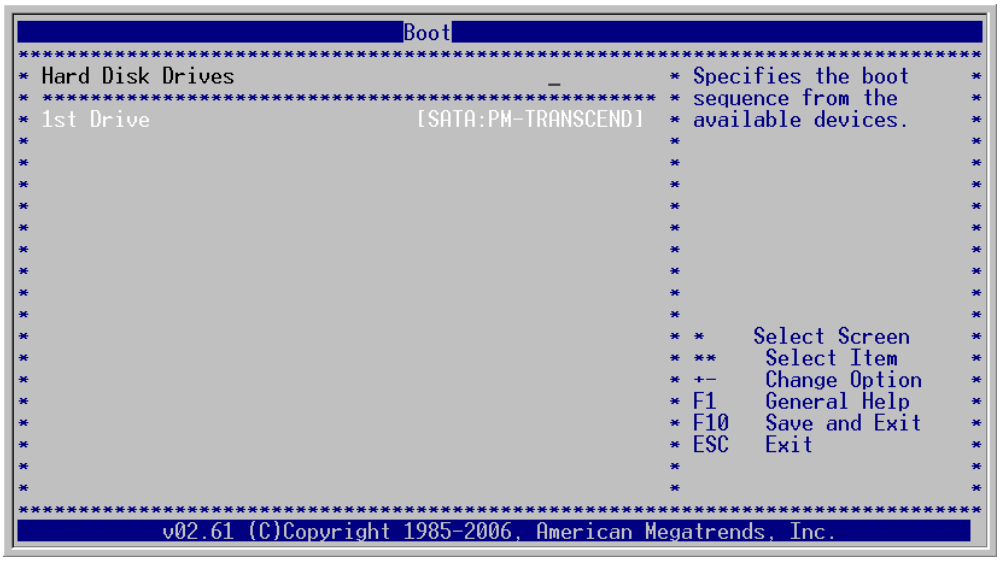
This item is used to boot device priority setting with below sub menus:



1st Boot Device: [SATA: PM-TRANSCEND]

This item allows you to set the boot priority. Specifies the boot sequence from the available devices. A device enclosed in parenthesis has been disabled in the corresponding type menu.

4.6.3 Hard Disk Drives



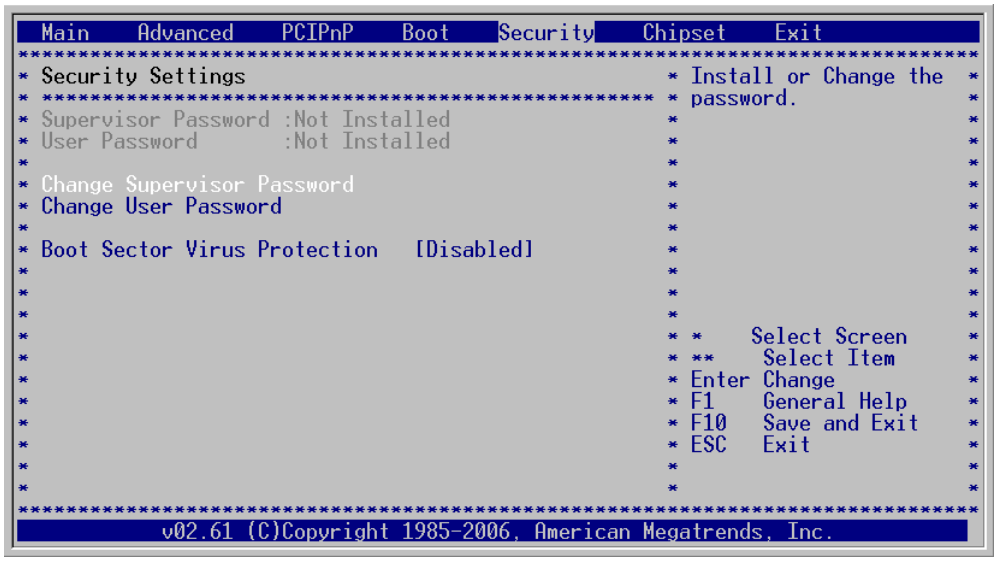
1st Drive: [SATA: PM-TRANSCEND]

This item is used to specify the boot sequence from available devices.

4.7 Security Menu

⇩**Use the Security Setup option as follows:**

1. Choose "Security" from the main menu. The following screen appears:



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. Please press the <F1> key for information on the various options.

3. After you have finished with the Security setup, press the <ESC> key to return to the main menu.

Change Supervisor Password:

This item allows you to set or change the supervisor password. The Supervisor Password item on top of the screen shows the default Not Installed. After you have set a password, this item shows Installed.

Change User Password:

This item allows you to set or change the user password. The User Password item on top of the screen shows the default Not Installed. After you have set a password, this item shows Installed.

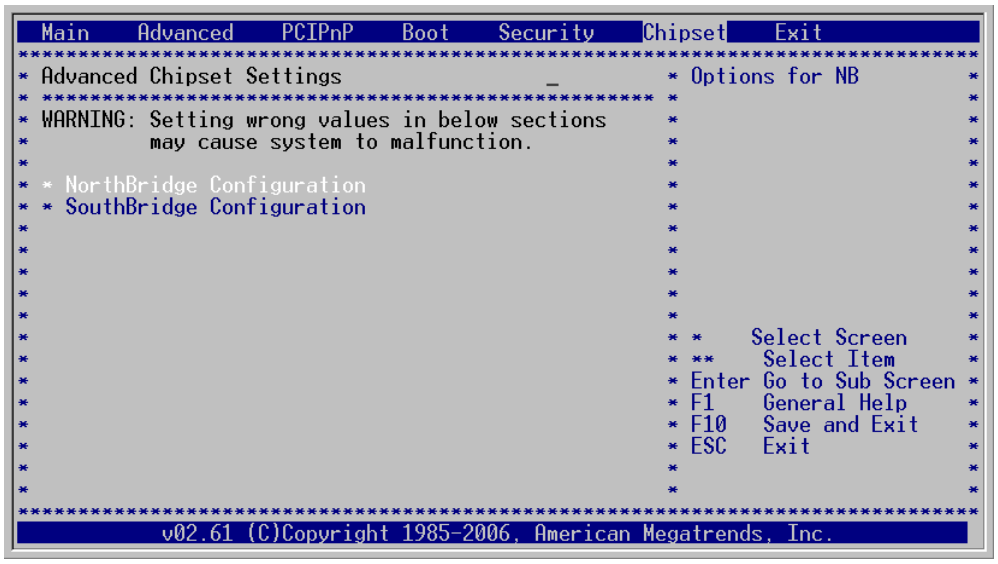
Boot Sector Virus Protection: [Disabled]

This item allows you to enable or disable the boot sector virus protection. If enabled, AMI BIOS will issue a warning when a virus or program attempts to write to the hard disk's boot sector or attempts to execute disk format command.

4.8 Chipset Menu

⇩**Use the Chipset Setup option as follows:**

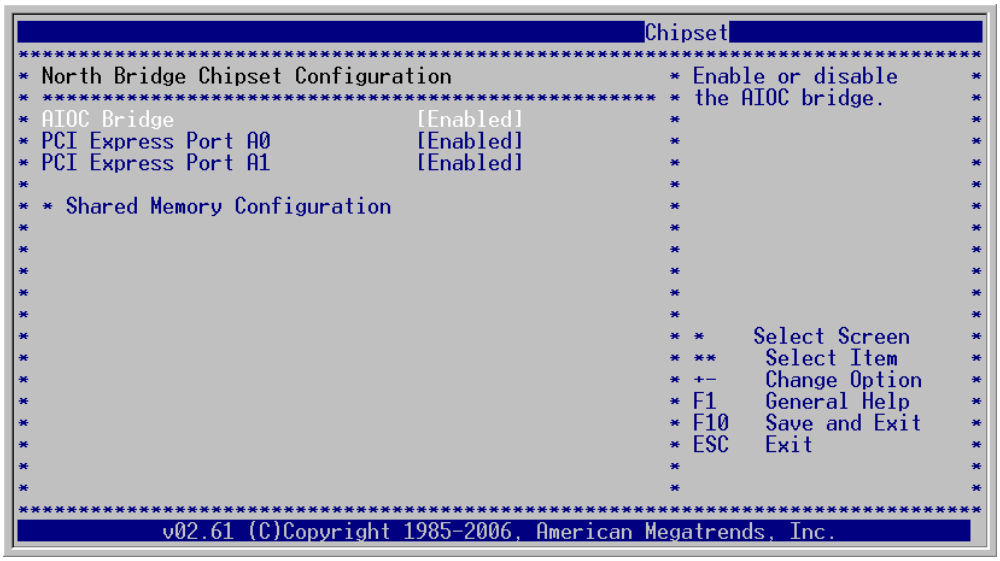
1. Choose "Chipset" from the main menu. The following screen appears.



2. Move between items and select values by using the arrow keys. Modify the selected field the PgUP/PgDN keys. For information on the various options, press <F1> key.

3. After you have finished with the Chipset Setup, press the <ESC> key to return to the main menu.

4.8.1 North Bridge Configuration



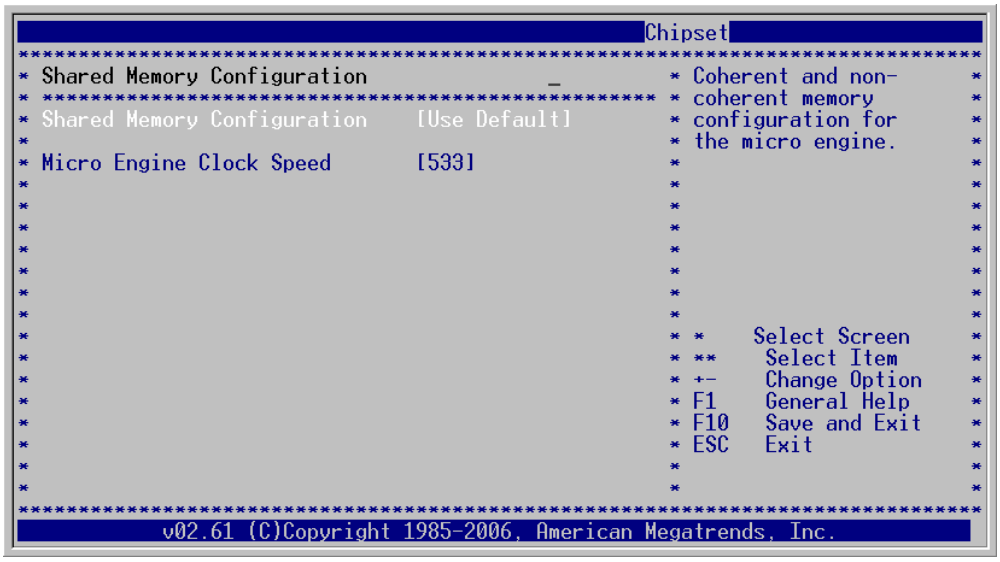
AIOC Bridge: [Enabled]

This item allows you to enable or disable the AIOC bridge.

PCI Express Port A0/A1: [Enabled]

This item allows you to enable or disable the PCI Express Port A0/A1.

*** Shared Memory Configuration**



Shared Memory Configuration: [Use Default]

This item allows you to setup the Shared Memory Configuration. Coherent and non-coherent memory configuration for the micro engine.

Configure for Intel QA (QuickAssist) feature:

Coherent Mem Size = 00002000

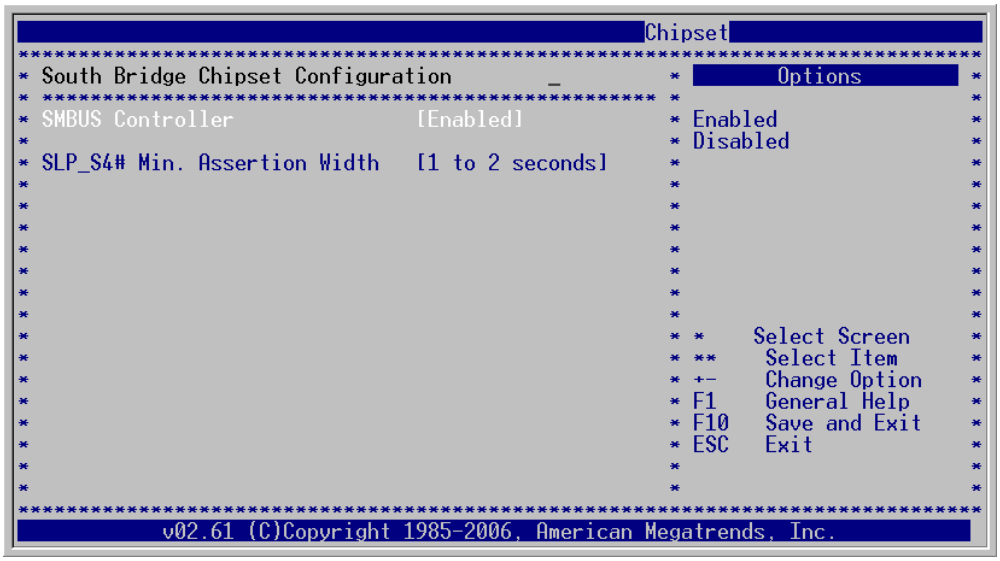
Non-Coherent Mem Size = 00002000

Micro Engine Clock Speed = 800

Micro Engine Clock Speed: [533]

This item allows you to setup the Micro Engine Clock Speed.

4.8.2 South Bridge Configuration



SMBUS Controller: [Enabled]

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

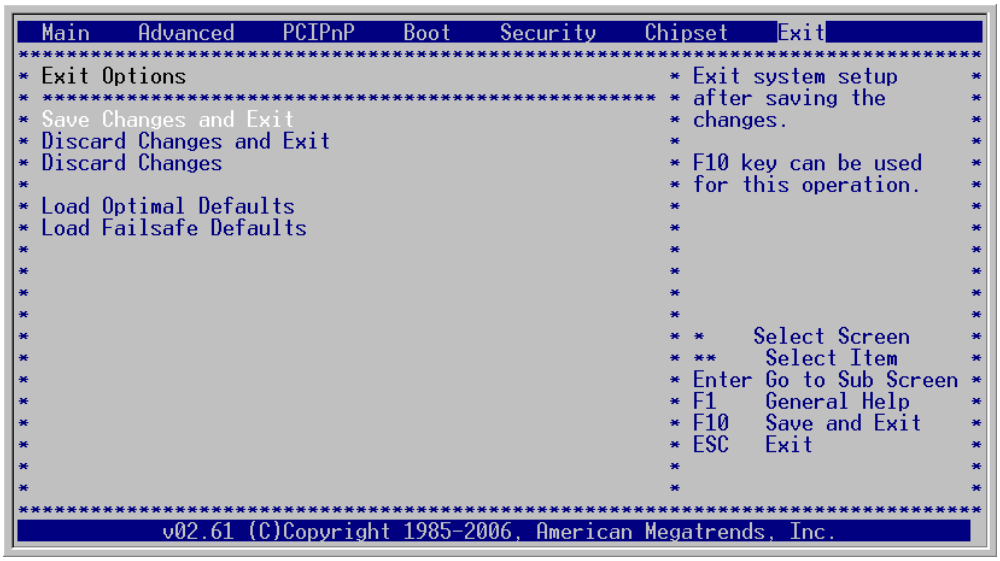
SLP_S4# Min. Assertion Width: [1 to 2 seconds]

4.9 Exit

The item allows you to save or discard your changes to the BIOS items, and load the optimal defaults or failsafe defaults for the BIOS items.

⇩Use the Exit option as follows:

1. Choose "Exit" from the main menu, the following screen appears.



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. For information on the various options, please press <F1> key.

3. Please press the <ESC> key to return the main menu after finishing with the Exit Options.

Save Changes and Exit:

Save changes of values to CMOS and exit the CMOS setup program. F10 key can be used for this operation.

Discard Changes and Exit:

Discard all CMOS changes and exit the CMOS setup program. ESC key can be used for this operation.

Discard Changes:

Discard all CMOS changes and load the previously saved values. F7 key can

be used for this operation.

Load Optimal Defaults:

This item allows you to load optimal defaults for each of the parameters on the Setup menus, which will provide the best performance settings for your system. F9 key can be used for this operation.

Load Failsafe Defaults:

This item allows you to load failsafe defaults for each of the parameters on the Setup menus, which will provide the most stable performance settings. F8 key can be used for this operation.

Chapter 5. Utility & Driver Installation

Please install the GbE modules properly before you install the OS, driver or other software.

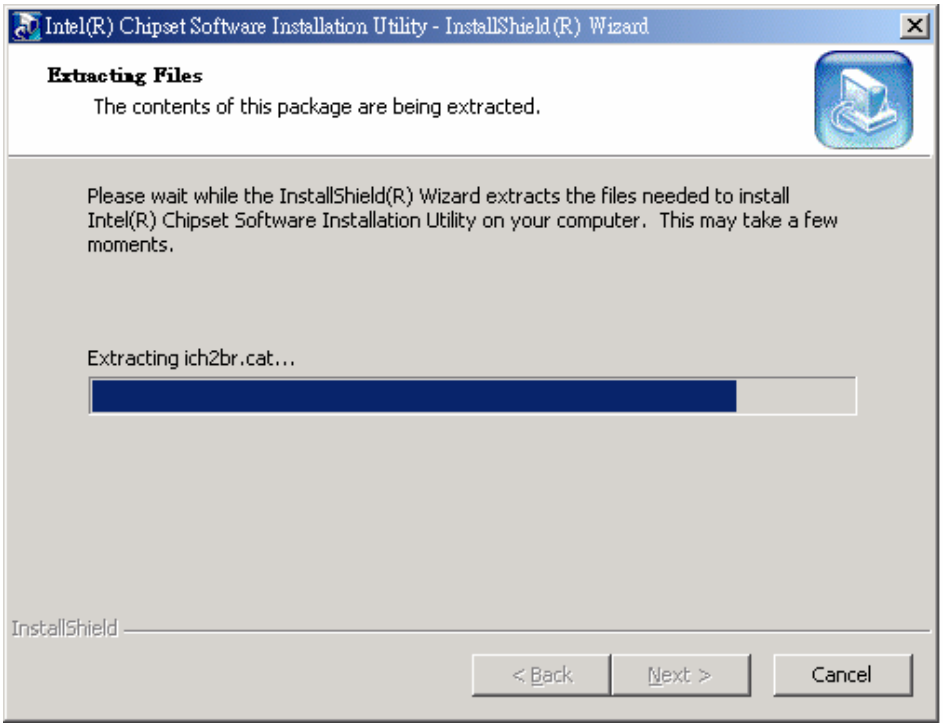
5.1 Operation System Supporting

PL-8000 can support Windows® and Linux® operation system as follows. Before installation, please check your OS version. If your OS is not in the following list, please upgrade your OS version.

OS	Version
DOS	DOS 6.22
Windows®	Windows® XP SP3/SP2, Window® Embedded
Linux®	RedHat Enterprise 5.0 (Kernel 2.6.28)

5.2 System Driver Installation

PL-8000 offers the system driver in the setup CD. Please install the driver following the procedures.



5.3 LAN Driver Installation

PL-8000 offers the LAN driver in the setup CD. Please click the Autorun file and install the driver following the procedures.

1. Insert the setup CD of PL-8000 into your CD-ROM drive.
2. Choose the Drivers file to click the Autorun icon.
3. Follow the procedures to finish the installation.

Appendix A: Programming the Watchdog Timer

The PL-8000 provides a Watchdog Timer that resets the CPU or enable LAN by-pass mode. This function ensures greater system reliability in industrial stand-alone and unmanned environments.

In order to enable the Watchdog Timer, you have to output the value of the Watchdog Timer interval to the controller. The value range is from 01H to FFH, and the related time Watchdog Timer interval is 1 sec to 255 sec.

Data	Timer interval
00	Disabled
01	1 sec
02	2 sec
*	*
*	*
FF	255 sec

If you want to disable the Watchdog Timer, just set the timer interval value to 00H.

After setting the timer interval value, the Watchdog Timer begins to count down. You have to refresh the Watchdog Timer, so that the Watchdog Timer will return to its initial value; otherwise, your system will reset after a time-out. The following program shows how to set the Watchdog Timer:

ASSEMBLY LANGUAGE	DOS DEBUG

Program 1: Initializing the Watchdog Timer controller

MOV DX,2EH	O 2E 87
MOV AL,87H	O 2E 87
OUT DX,AL	
OUT DX,AL	
MOV DX,2EH	O 2E 07
MOV AL,07H	O 2F 08
OUT DX,AL	
MOV DX,2FH	
MOV AL,08H	
OUT DX,AL	
MOV DX,2EH	O 2E 30
MOV AL,30H	O 2F 01
OUT DX,AL	
MOV DX,2FH	
MOV AL,01H	
OUT DX,AL	

Program 2: Writing a Watchdog Timer interval value

MOV DX,2EH ;Set timer interval value to xx seconds	O 2E F6
MOV AL,F6H	O 2F XX
OUT DX,AL	O 2E AA
MOV DX,2FH	
MOV AL,XXH ; Timer interval *** *see note* ***	
OUT DX,AL	
MOV DX,2EH	
MOV AL,AAH	
OUT DX,AL	

Program 3: Disable the Watchdog Timer

MOV DX,2EH	O 2E 87
MOV AL,87H	O 2E 87
OUT DX,AL	
OUT DX,AL	
MOV DX,2EH ;Set timer interval value to 0 seconds	O 2E F6
MOV AL,F6H	O 2F 00
OUT DX,AL	O 2E AA
MOV DX,2FH	
MOV AL,00H ; Timer interval 00H,(= disable)	
OUT DX,AL	
MOV DX,2EH	
MOV AL,AAH	
OUT DX,AL	

Note: This XX value range is from 01H to FFH, and the related Watchdog Timer interval is 1 sec. to 255 sec. (as in the previous description).

Using the Demo Program

Update the System BIOS as follows:

1. Run Program 1
2. Run Program 2 (load the timer interval of 1EH, 30 seconds)
3. Run your Application Program #1 (**Be sure your Application Program will finish within 30 seconds)**
4. Run Program 3 (Load the timer interval of 00H, and disable the Watchdog Timer function)

Appendix B: LAN Bypass Function *(optional)*

The power on default for CN20 & CN21 LAN ports is set to normal state.

How to control LAN bypass function by Watchdog Timer

Please follow below steps to set the LAN bypass function control by Watchdog Timer:

1. Setup jumper JP4 to 1-2 shorted [default] to enable bypass function.
2. Setup jumper JP1 to 2-3 shorted to enable bypass function by Watchdog Timer.
3. Refer to Appendix A to set timer interval value and enable Watchdog Timer.

After setting the timer interval value, the Watchdog Timer begins to count down. You have to refresh the Watchdog Timer, so that the Watchdog Timer will return to its initial value; otherwise, your system will set CN20 & CN21 LAN ports to bypass state after a time-out.

Note: Once the Watchdog Timer time-out you need to restart the system to reset the timer.

How to control LAN bypass function by GIPO

Please follow below steps to set the LAN bypass function control by GPIO:

1. Setup jumper JP4 to 1-2 shorted [default] to enable bypass mode.
2. Setup jumper JP1 to 1-2 shorted [default] to enable bypass function by GPIO.
3. Refer to the program code and set CN20 & CN21 LAN ports to Bypass state or Normal state.

LAN bypass by GPIO

Bypass state:	**Normal state:**
MOV DX, 050EH IN AX, DX AND AH, NOT 00010000b OUT DX, AX	MOV DX, 050EH IN AX, DX OR AH, 00010000b OUT DX, AX

DOS DEBUG

Bypass state:	**Normal state:**
- O50E 20 // bypass, 001**0** 0000	-O50E 30 // no bypass, 001**1** 0000

Appendix C: Programming the GPIO

bit	7	6	5	4	3	2	1	0
GPIO	GPO 7	GPO 6	GPO 5	GPO 4	GPI 3	GPI 2	GPI 1	GPI 0

Programming of the GPI

0: LOW; 1: HIGH

GPI 3	GPI 2	GPI 1	GPI 0	Data
Bit 3	Bit 2	Bit 1	Bit 0	
0	0	0	0	x0
0	0	0	1	x1
0	0	1	0	x2
0	0	1	1	x3
0	1	0	0	x4
0	1	0	1	x5
0	1	1	0	x6
0	1	1	1	x7
1	0	0	0	x8
1	0	0	1	x9
1	0	1	0	xA
1	0	1	1	xB
1	1	0	0	xC
1	1	0	1	xD
1	1	1	0	xE
1	1	1	1	xF

Note: x is the reserved data.

Programming of the GPO

0: LOW; 1: HIGH

GPO 7	GPO 6	GPO 5	GPO 4	Data
Bit 7	Bit 6	Bit 5	Bit 4	
0	0	0	0	0x
0	0	0	1	1x
0	0	1	0	2x
0	0	1	1	3x

0	1	0	0	4x
0	1	0	1	5x
0	1	1	0	6x
0	1	1	1	7x
1	0	0	0	8x
1	0	0	1	9x
1	0	1	0	Ax
1	0	1	1	Bx
1	1	0	0	Cx
1	1	0	1	Dx
1	1	1	0	Ex
1	1	1	1	Fx

Note: x is the reserved data.

DOS DEBUG

Program 1: Initializing the GPIO

```
-O 2E 87
-O 2E 87
-O 2E 29    //configuration register(CR29)
-O 2F 01    //set GPIO ,not GAME PORT
-O 2E 07    //point to logical device number reg.
-O 2F 07    //select logical device 7
-O 2E 30    //configuration register(CR30)
-O 2F 01    //open logical device control
-O 2E F0    //configuration register(CRf0)
-O 2F 0F    // 00001111: 0=ouput; 1=input
```

Program 2: Programming of the GPI

```
-O 2E F1
-I 2F        // read value (00 ~ FF)
```

Program 3: Programming of the GPO

```
-O 2E F1
-O 2F Xx // X= (0 ~ F) output value; x=(0 ~ F) don't care
```

Appendix D: System Resources

Interrupt Controller:

The PL-8000 is a fully PC compatible appliance. If you would like to use extra add-on cards, please make sure that the IRQs do not conflict.

Any remaining IRQs then may be assigned to this PCI Bus. You are able to use Microsoft's Diagnostic (MDS.EXE) utility included in Windows directory to see their map.

IRQ	Assignment
IRQ0	Timer
IRQ1	Keyboard
IRQ2	Interrupt rerouting from IRQ8 through IRQ15
IRQ3	COM2
IRQ4	COM1
IRQ5	PCI device/free
IRQ6	PCI device/free
IRQ7	PPT1
IRQ8	RTC
IRQ9	USB Controller
IRQ10	PCI device/free
IRQ11	PCI device/free
IRQ12	PS/2
IRQ13	Coprocessor
IRQ14	IDE Controller
IRQ15	IDE Controller

DMA Channel Assignment:

Channel 4 is by default used to cascade to two controllers

Channel	Assignment
DMA0	Free
DMA1	Sound Card
DMA2	FDD Controller
DMA3	Free
DMA4	Cascade
DMA5	Free
DMA6	Free
DMA7	Free

Memory Map:

The following table indicates memory of PL-8000. The address ranges specify the runtime code length.

Memory below 1MB (1MB ~ 640KB)

Address Range	Type	Owner
A0000 ~ AFFFF	ISA	VGA Adapter
B0000 ~ BFFFF	ISA	VGA Adapter
C0000 ~ C79FF	ISA	Adapter ROM
F0000 ~ FFFFF	ISA	System BIOS

Memory above 1MB (1MB ~ 128960KB)

Address Range	Type	Owner
D0000000~D3FFFFF7	PCI	Host Bridge
D4000000~D5EFFFFF	PCI	PCI-PCI Bridge
D6000000~D6FFFFFF	PCI	PCI-PCI Bridge

System Memory Map

Start High	Start Low	Size High	Size	Type
00000000	00000000	00000000	0009FC00	Available
00000000	0009FC00	00000000	00000400	Reserved
00000000	000F0000	00000000	00010000	Reserved
00000000	FEC00000	00000000	01400000	Reserved
00000000	00100000	00000000	07EF0000	Available
00000000	07FF3000	00000000	0000D000	ACPI Space
00000000	07FF0000	00000000	00003000	NVS Space

I/O Map:

The addresses shown in the table are typical locations

I/O Port	Assignment
0 ~ F	AT DMA controller
20 ~ 21	AT interrupt controller
40 ~ 43	8254 Compatible Programmable Timer
60	IBM Enhanced keyboard controller
61	AT Style Speaker
64	IBM Enhanced keyboard controller
70 ~ 71	Real Time Clock
81 ~ 83	AT DMA controller
87	AT DMA controller
89 ~ 8B	AT DMA controller
8F ~ 91	AT DMA controller
A0 ~ A1	AT interrupt controller
C0 ~ DF	AT DMA controller
F0 ~ FF	Math Coprocessor
170 ~ 177	IDE Controller
1F0 ~ 1F7	IDE Controller
200 ~ 207	Game port
220 ~ 22E	Sound Card
2F8 ~ 2FF	COM2
376	IDE Controller
378 ~ 37A	LPT1
3B0 ~ 3BB	VGA Adapter
3C0 ~ 3DF	VGA Adapter
3F0 ~ 3F5	FDD Controller
3F6	IDE Controller
3F7	FDD Controller
3F8 ~ 3FF	COM1
480 ~ 48F	PCI Bus
4D0 ~ 4D1	PCI Bus
CF8 ~ CFF	PCI Bus
4000 ~ 407F	PCI Bus
4080 ~ 40FF	PCI Bus
5000 ~ 501F	PCI Bus

6000 ~ 607F	PCI Bus
D000 ~ D00E	IDE Controller
D400 ~ D41E	USB Controller
D800 ~ D81E	USB Controller
DC00~ DCFE	Multimedia Audio
E000 ~ E002	Multimedia Audio
E400 ~ E402	Multimedia Audio

Appendix E: Cable Development Kit

The PL-8000 offers some cables for development use.

DK001

Item & Description	Part No.	Qty
Ethernet Cat.5 Cable 2M/ RoHS	CB-EC5200-00	1
Cross Over 2M Color/ RoHS	CB -CO5202/4-00	1
RJ45 to DB9 2M Cable/ RoHS	CB -RJDB91-00	1
2m null modem cable/ RoHS	CB-DB9200-01	1
VGA CABLE (2mm) 15CM/ RoHS	CB-IVGA01-00	1
KB/MS CABLE 15CM/ RoHS	CB-IPS200-00	1
USB CABLE w/ Bracket/ RoHS	CB-IUSB01-00	1

CB-EC5200-00

CB-CO5202/4-00

CB-RJDB91-00

CB-DB9200-00

CB-IVGA01-00

CB-IPS200-00

CB-IUSB01-00