Networking Appliance

PL-80140

1U Rackmount Intel® Core™ 2 Quad Processor-based Network Appliance with 6x GbE, SATA, CF, LCM, and Bypass Function

User's Manual

Version 1.0

Manual Edition 1.0, Aug., 2009

The content of this document is intended to be accurate and reliable. The original manufacturer assumes no responsibility for any inaccuracies that may be contained in this manual. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without prior notice.

Trademarks

IBM, EGA, VGA, XT/AT, OS/2 and PS/2 are registered trademarks of International business Machine Corporation

Award is a trademark of Award Software International, Inc

Intel is a trademark of Intel

RTL is a trademark of Realtek

VIA is a trademark of VIA Technologies, Inc

Microsoft, Windows, Windows NT and MS-DOS are either trademarks or registered trademarks of Microsoft Corporation

All other product names mentioned herein are used for identification purpose only and may be trademarks and/or registered trademarks of their respective companies

Limitation of Liability

While reasonable efforts have been made to ensure the accuracy of this document, the manufacturer and distributor assume no liability resulting from errors or omissions in this document or from the use of the information contained herein.

For more information on PL-80140 or other WIN Enterprises products visit our website at:

http://www.win-ent.com.

For technical support send inquiries to:

consultants@win-ent.com

Table of Contents

Chapter 1. General Information 4
1.1 Introduction..... 4
1.2 Specifications 4
1.3 Ordering Information 5
1.4 Packaging..... 5
1.5 Precautions..... 6
1.6 System Layout 7
1.7 Board Dimensions 8

Chapter 2. Connector/Jumper Configuration..... 9
2.1 Connector/Jumper Location and Definition..... 9
2.2 Connector and Jumper Settings…… 11
2.3 CompactFlashTM Card Socket Pin Definition…….. 21

Chapter3. BIOS Setup…… 22
3.1 Quick Setup…… 22
3.2 Entering the CMOS Setup Program…….. 23
3.3 Menu Options……. 24
3.4 Advanced Menu……. 25
3.5 Boot Menu……. 39
3.6 Security Menu……. 41
3.7 Chipset Menu…… 42
3.8 Exit Menu……. 45

Chapter 4. Utility & Driver Installation…… 47
4.1 Operating System Support……. 47
4.2 System Driver Installation…… 47
4.3 LAN Driver Installation……. 48
Appendix A: Programming the Watchdog Timer…….. 49
Appendix B: LAN Bypass Function…… 52
Appendix C: Programming the GPIO…….. 54
Appendix D: System Resources…….. 56
Appendix E: Cable Development Kit……. 60

Chapter 1. General Information

1.1 Introduction

The PL-80140 is a 1U rack-mounted hardware platform designed for network service applications. Built with Intel Embedded IA components with warranty for longevity. The PL-80140 supports Intel® CoreTM2 Duo and CoreTM2 Quad processors with 1333 MHz Front Side Bus.

The platform supports high bandwidth dual-channel DDR2 DIMM sockets with memory up to 4GB. In order to provide the best network performance and best utilization, powerful storage interfaces are included: i.e., one 3.5" SATA HDD and CompactFlashTM. The optional onboard Cavium Nitrox PX cn16xx security co-processor supports multi-security protocol commands which can offload the CPU, thus increasing overall system throughput performance.

This platform affords max 6 GbE Ethernet ports from the front-panel. The front panel also features one FE management port, 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-80140 is RoHS, FCC and CE compliant.

1.2 Specifications

Processor System	CPU	Intel® CoreTM2 Quad* , CoreTM2 Duo, Pentium dual-core LGA775 processors
	Chipset	Intel® Q35 chipset
	Front Side Bus	1333/1066/800MHz FSB
	BIOS	AMI 1MB Flash BIOS
Memory	Technology	Dual-channel DDR2 800/667 MHz memory
	Capacity	Up to 4GB with 2 DIMM sockets
Ethernet	GbE Ethernet	six GbE, Intel 82574L PCI-E x1 with bypass function (optional)
Storage	HDD	one internal 3.5" SATA HDD bay
	Compact Flash Socket	one CompactFlash™ Type I/II
I/O	USB	two USB2.0
	Serial	one RJ45 Console port one internal header for second console
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)
	Dimensions WxDxH	440mm (W) x 320mm (D) x 44mm (H) (17.3" W x 12.6" D x 1.7" H)
	Operating Temperature	Operating Temp: 0 - 40°C (32 - 104°F)
	Humidity	10 - 85% relative humidity, non-operating, non-condensing
Weight	1pc/CTN, 6kgs, 59.0cm(W) x 43.2cm(D) x 15.9cm(H)	
Certifications	CE/FCC	

1.3 Ordering Information

Product Designations and Accessories for PL-80140

PL-80140A-A	1U Rack-Mount, Support LGA775 Intel Core 2 Quad, Core 2 Duo CPU, 6 x RJ45 GbE ports, bypass
PL-80140A-B	1U Rack-Mount, Support LGA775 Intel Core 2 Quad, Core 2 Duo CPU, 6 x RJ45 GbE ports
PL-80140A-C	1U Rack-Mount, Support LGA775 Intel Core 2 Quad, Core 2 Duo CPU, 6 x RJ45 GbE ports, Cavium® cn1605
DK002	Cable development kit

1.4 Packaging

Make sure the following items have been included in the package before installation.

1. PL-80140 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 of the above items is missing or damaged, please contact your dealer or 80140 retailer. Retain the box and carton for shipping and/or storing PL-80140. After you unpack thegoods, inspect and make sure the packaging is intact. Do not plug the poweradapter to the appliance of PL-80140 if you find that it appears damaged.

Note: Keep the PL-80140 in the original packaging until you begin installation.

1.5 Precautions

Make sure you properly ground yourself before handling the PL-80140 appliance or other system components. Electrostatic discharge can be damage the PL-80140 appliance.

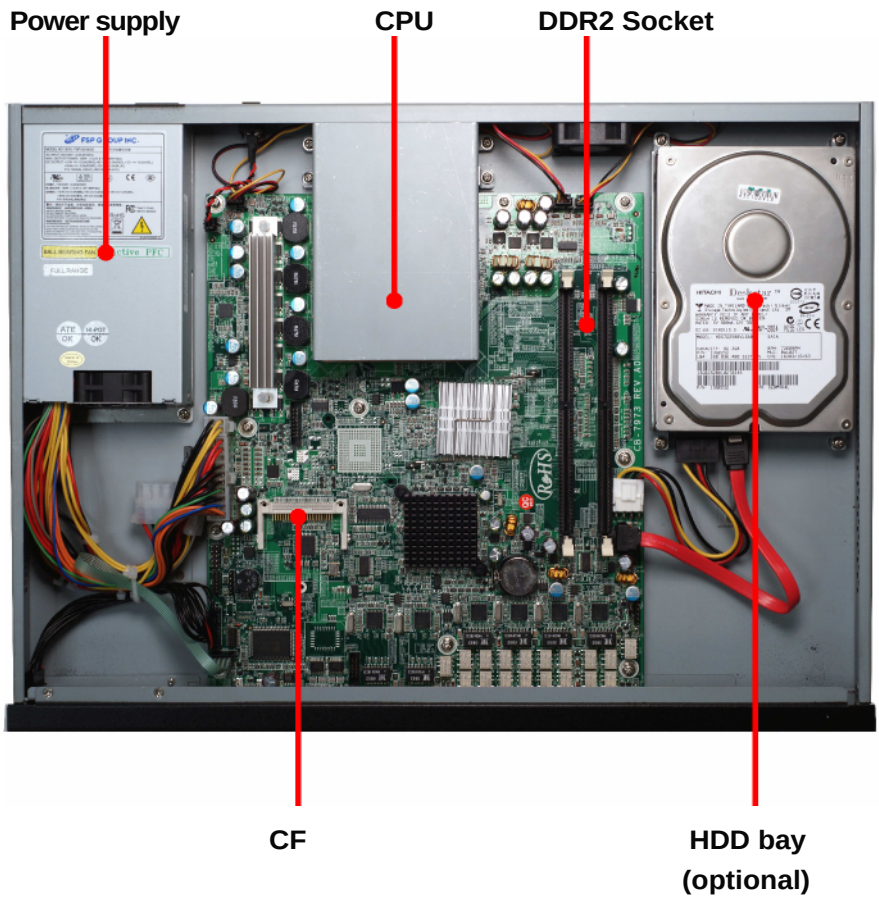
Do not remove the anti-static packing until you are ready to install the PL-80140 appliance.

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.

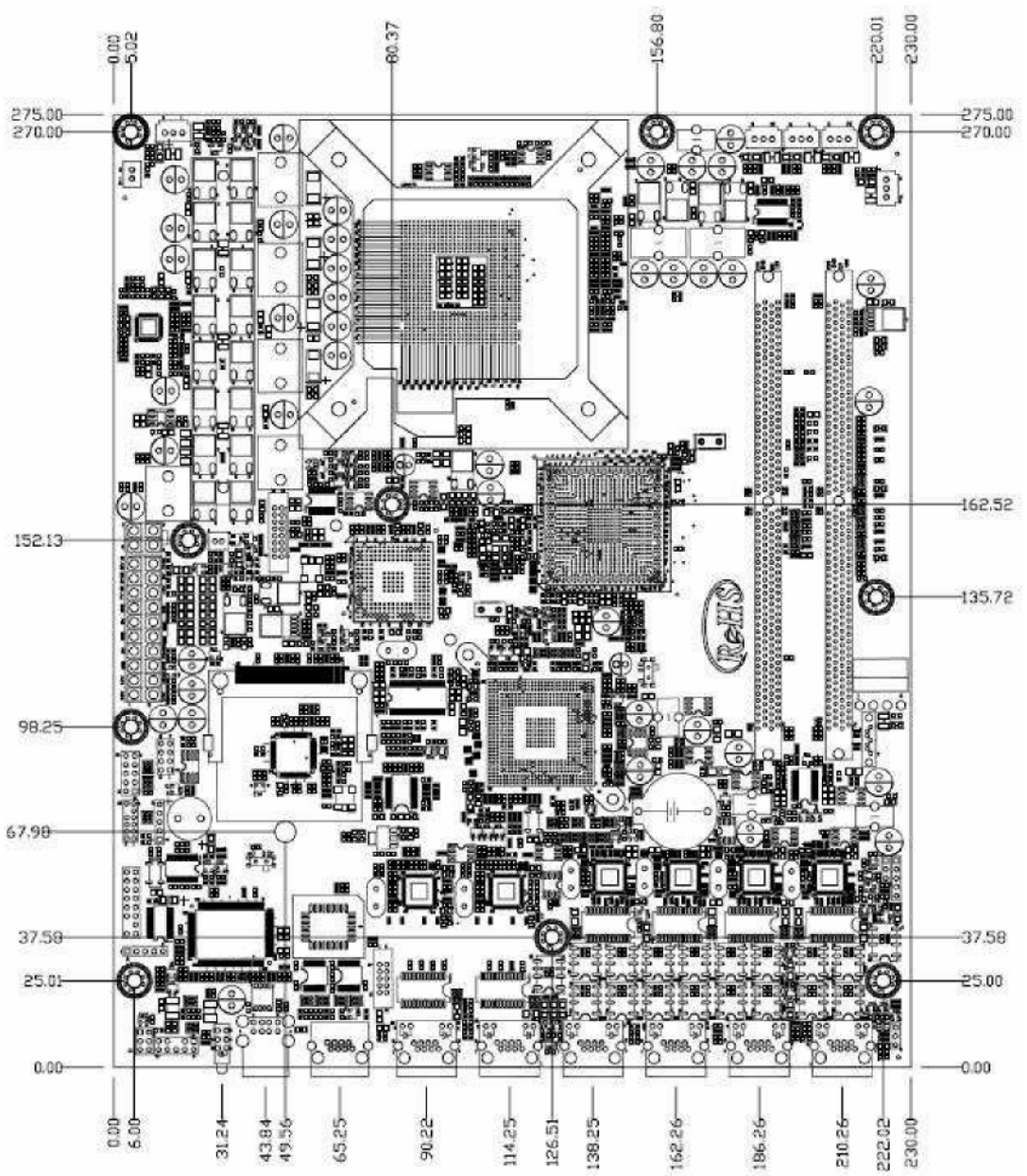
Handle the PL-80140 appliance by its edges and avoid touching the internal components on it.

1.6 System Layout

PL-80140 Front Side

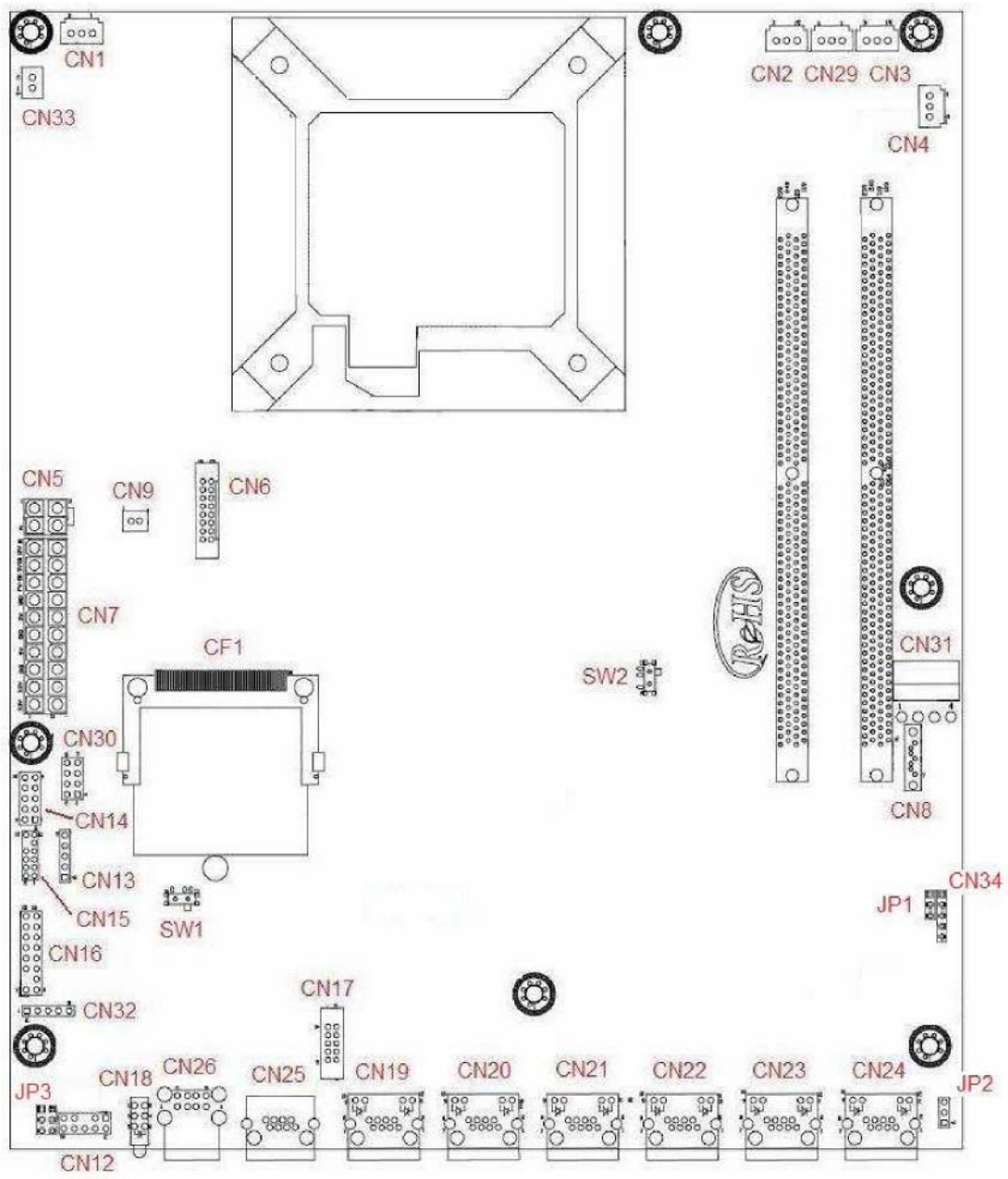


1.7 Board Dimensions



Chapter 2. Connector/Jumper Configuration

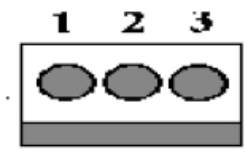
2.1 Connector/Jumper Locations and Definitions



2.2 Connector and Jumper Setting

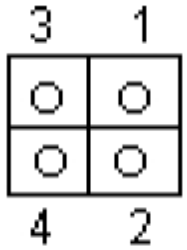
Connector	Define	Connector	Define
CN1	FAN Connector(+12V)	CN21	Giga LAN RJ45 Connector
CN2	FAN Connector(+12V)	CN22	Giga LAN RJ45 Connector
CN3	FAN Connector(+12V)	CN23	Giga LAN RJ45 Connector
CN4	FAN Connector(+12V)	CN24	Giga LAN RJ45 Connector
CN5	+12V Power Connector	CN25	COM1 RJ45 Connector
CN6	VGA Pin Header	CN26	USB0/1 Connector
CN7	ATX Power Connector	CN29	FAN Connector(+12V)
CN8	SATA Connector	CN30	SPI Header *(optional)*
CN9	Reset Pin Header	CN31	HD Power Connector
CN12	KB/MS Pin Header	CN32	LCM Keypad Header
CN13	GPI Pin Header	CN33	ATX Switch
CN14	GPO Pin Header	CN34	LAN Bypass LED Header
CN15	LPC Pin Header	SW1	Reset or LAN Bypass with WDT
CN16	LCM Pin Header	SW2	CLEAR CMOS SWITCH
CN17	COM2 Box Header	JP1	LAN5-6 Bypass (CN23-CN24)
CN18	LED	JP2	LAN3-4 Bypass (CN21-CN22)
CN19	Giga LAN RJ45 Connector	JP3	Status LED(CN18) Selection
CN20	Giga LAN RJ45 Connector		

CN1/CN2/CN3/CN4/CN29: CPU/system fan



Pin	Define
1	Ground
2	+12V
3	Speed Detect

CN5: +12V Power Connector

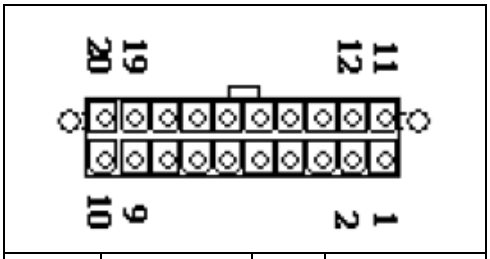


Pin	Define
1	Ground
2	Ground
3	+12V
4	+12V

CN6:VGA Pin Header

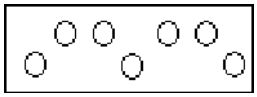
Pin	Define	Pin	Define
1	RED	2	GREEN
3	BLUE	4	+5V
5	Ground	6	Ground
7	Ground	8	Ground
9	+5V	10	Ground
11	+5V	12	SDA
13	HSYNC	14	VSYNC
15	SCL	16	NC

CN7: ATX Power Connector



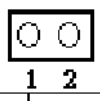
Pin	Define	Pin	Define
11	+3.3V	1	+3.3V
12	-12V	2	+3.3V
13	Ground	3	Ground
14	PS_ON*	4	+5V
15	Ground	5	Ground
16	Ground	6	+5V
17	Ground	7	Ground
18	-5V	8	POWER GOOD
19	+5V	9	5VSB
20	+5V	10	+12V

CN8:SATA Connector



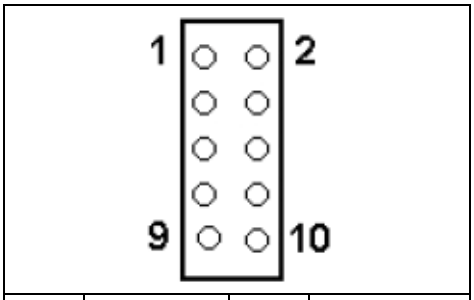
Pin	Signal
1	Ground
2	TXP
3	TXN
4	Ground
5	RXN
6	RXP
7	Ground

CN9: Reset Pin Header



Pin	Define
1	Reset #
2	GND

CN12:KB/MS Pin Header

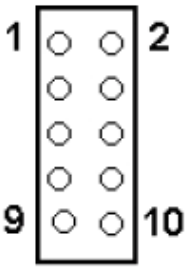


Pin	Define	Pin	Define
1	KCLK	2	MCLK
3	KDAT	4	MDAT
5	NC	6	NC
7	PS2_GND	8	PS2_GND
9	PS2_VCC	10	PS2_VCC

CN13: GPI Pin Header

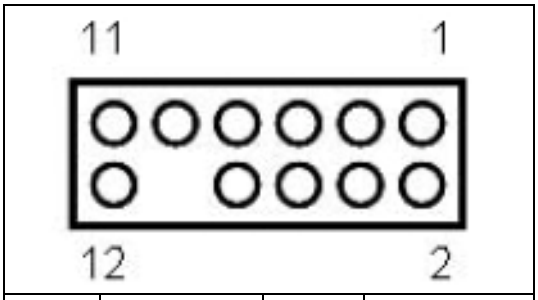
Pin	Define
1	GPI0
2	GPI1
3	GPI2
4	GPI3
5	Ground

CN14 : 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

CN15: LPC Connector

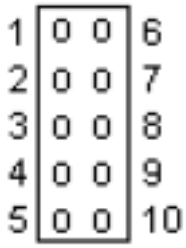


Pin	Define	Pin	Define
1	+3.3V	2	AD 0
3	AD 1	4	AD 2
5	AD 3	6	Frame#
7	PCIRST#	8	+5V
9	CLOCK	10	NC
11	Ground	12	Ground

CN16 :LCM Header

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

CN17 :COM2 Box Header

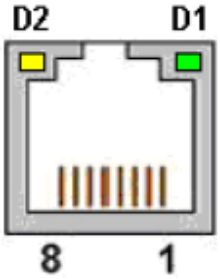


Pin	Define	Pin	Define
1	DCD#	6	DSR#
2	RXD#	7	RTS#
3	TXD#	8	CTS#
4	DTR#	9	RI#2
5	Ground	10	NC

CN18 :LED

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

CN19-CN24:Gigabit LAN connector



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

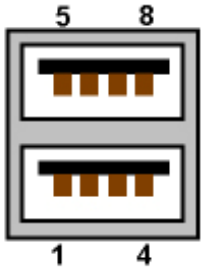
LED:

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

CN25:COM1 RJ45 Connector

Pin	Define(STD)	option(ODM)
1	CT S#	NC
2	DTR#	RTS#
3	TXD#	TXD#
4	GPIO5 6	DTR#
5	Ground	Ground
6	RXD#	RXD#
7	DSR#	DSR#
8	RTS#	CT S#

CN26: USB0/1 Connector



Pin	Define
1	5VUSBO
2	USBDTO-
3	USBDTO+
4	Ground
5	5VUSBO
6	USBDT 1 -
7	USBDT 1 +
8	Ground

CN30 :SPI Header

Pin	Define	Pin	Define
1	VCC 3	2	Ground
3	C S#	4	SCLK
5	MISO	6	MOSI
7	NONE	8	IO

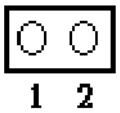
CN31:SATA Power Connector

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

CN32:LCM KEYPAD Header

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

CN33: ATX SWITCH



Pin	Define
1	5VSB
2	SIGNAL

CN34: LAN BYPASS LED Header

Pin	Define
1	VCC 3 SB
2	LAN5 -6 BYPASS
3	VCC3 SB
4	LAN3 -4 BYPASS
5	Ground

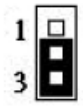
SW1: Reset or LAN Bypass with WDT

Pin		Setting
	MOVE TO PIN.A	RESET (Default)
	MOVE TO PIN.C	LAN Bypass

SW2:Clear CMOS

Pin		Setting
	MOVE TO PIN.A	Hold Data (Default)
	MOVE TO PIN.C	Clear CMOS

JP1: LAN5-6 Bypass (CN23-CN24)

Pin		Setting
	1-2	By GPIO or Watchdog
	2-3	Always Disable

JP2: LAN3-4 Bypass (CN21-CN22)

Pin		Setting
	1-2	By GPIO or Watchdog
	2-3	Always Disable

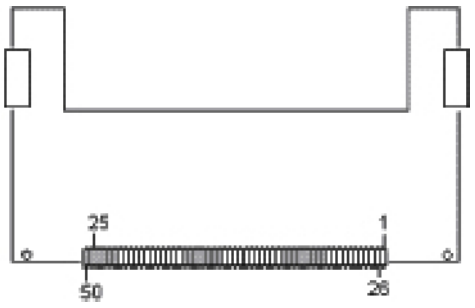
JP3 : StatusLED(CN18) Selection

Pin	Setting
1-3,2-4	LED via GPIO control
3-5,4-6	LED via LAN Bypass

2.3 CompactFlash™ Card Socket Pin Define

The 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, i.e., no moving parts. Thus, they provide users with greater data protection than conventional magnetic disk devices.

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/B SY	47	D08
8	Ground	18	A02	28	D12	38	VCC	48	D09
9	Ground	19	A01	29	D13	39	SC SE	49	D10
10	Ground	20	A00	30	D14	40	NC	50	Ground



Chapter 3. BIOS Setup

The ROM chip of the PL-80140's motherboard is configured with a customized BasicInput/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, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes a 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 a battery installed on the PL-80140 board. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS also provides an easy way to reload the CMOS data when you replace the battery.

3.1 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.

3.2 Entering the CMOS Setup Program

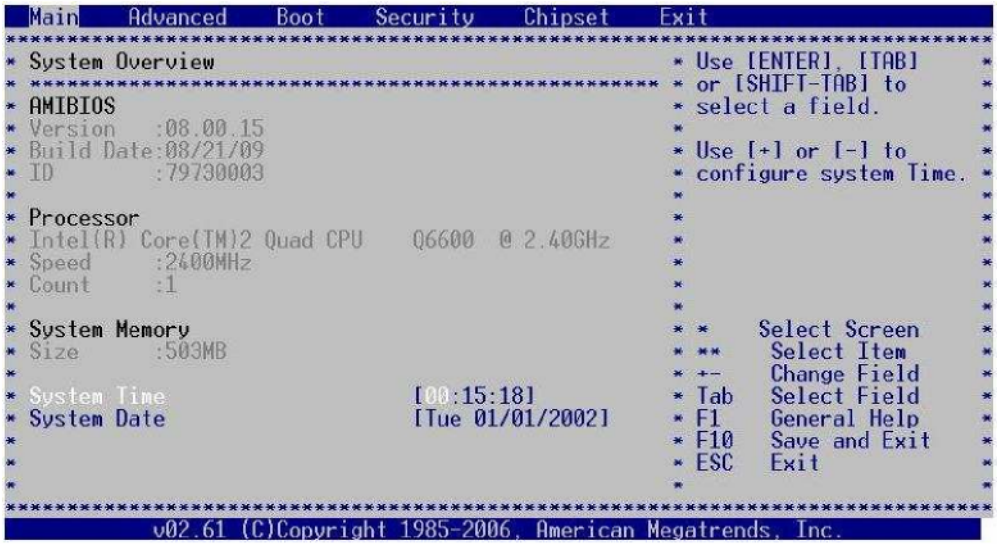
Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after you:

- 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.

3.3 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.

Boot: For changing the system boot configurations.

Security: Use this menu to set User and Supervisor Passwords

Chipset: For changing the chipset settings .

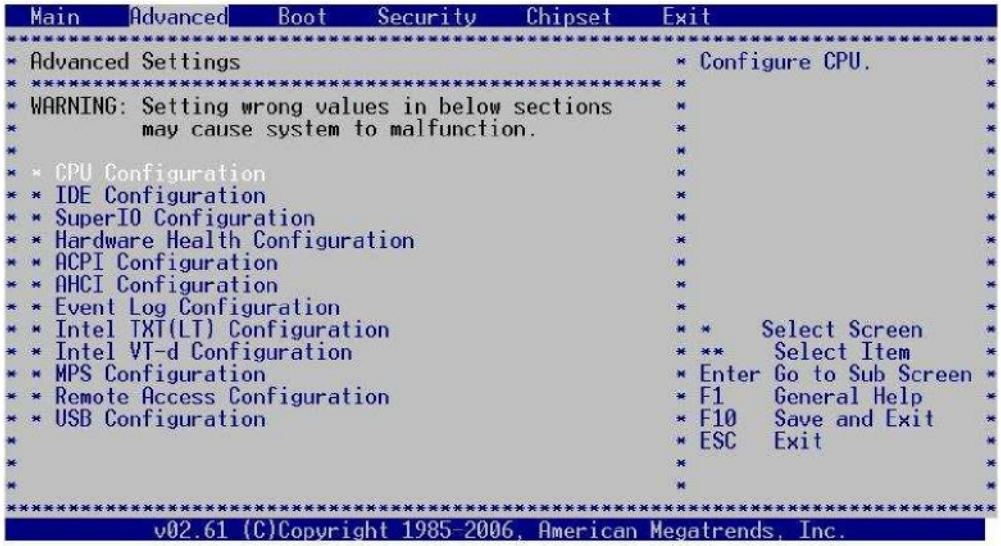
Exit: For selecting the exit options and loading default settings.

3.4 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:

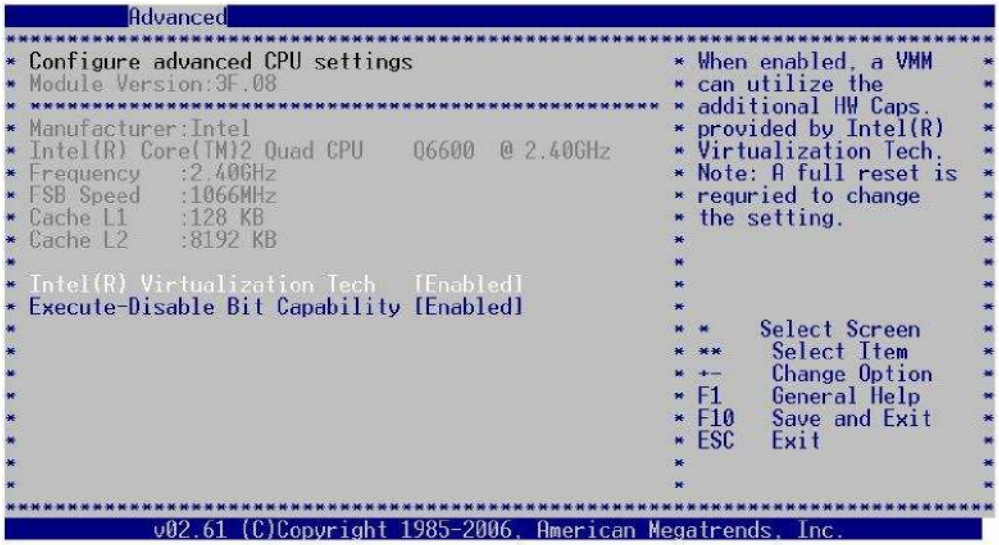


2. Use the arrow keys to move between fields. Modify the selected field using the PgUP/PgDN/+/- keys. Some fields let you enter numeric values directly.

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

3.4.1 CPU Configuration

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



Intel® Virtualization Tech: [Enabled]

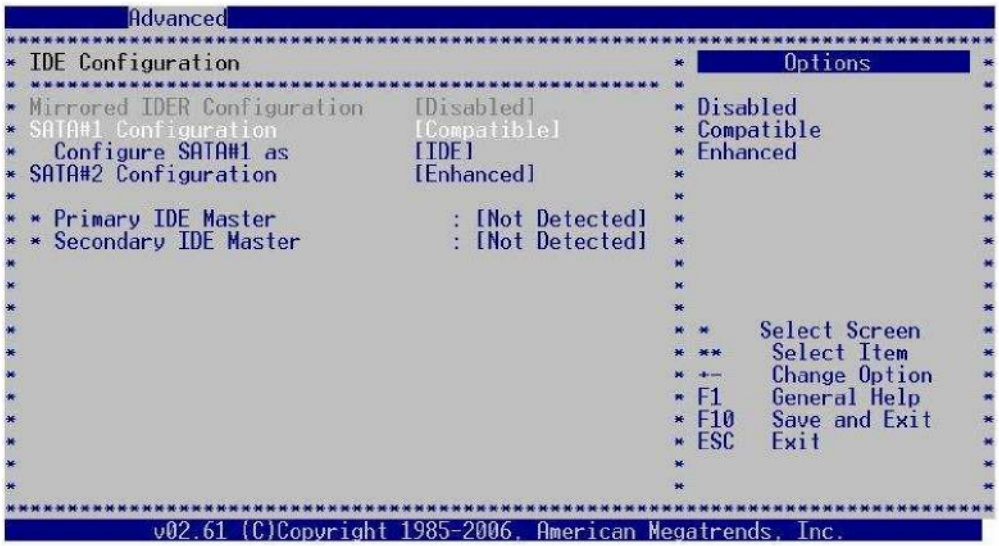
This item allows you to enable or disable the Intel® Virtualization Tech

Execute-Disable Bit capability: [Enabled]

Intel's Execute-Disable Bit is a hardware-based security feature that can reduce exposure to viruses and malicious-code attacks and prevent harmful software from executing and propagating on the server or network.

3.4.2 IDE Configuration

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



SATA#1 Configuration: [Compatible]

This item allows you to configure the SATA#1

Configure SATA#1 as: [IDE]

SATA#2 Configuration: [Enhanced]

This item allows you to configure the SATA#2

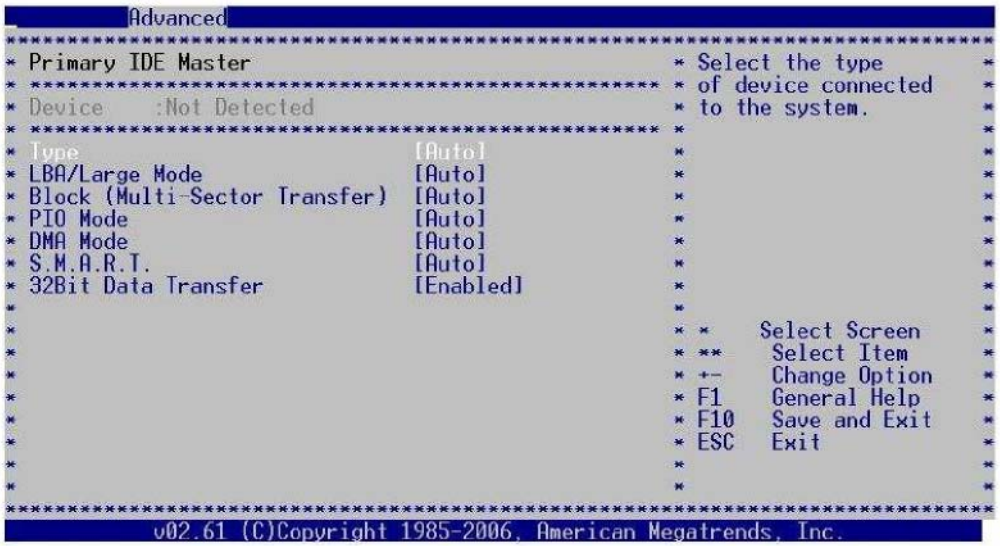
*** Primary IDE Master**

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.

*** Secondary IDE Master**

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.

*** 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

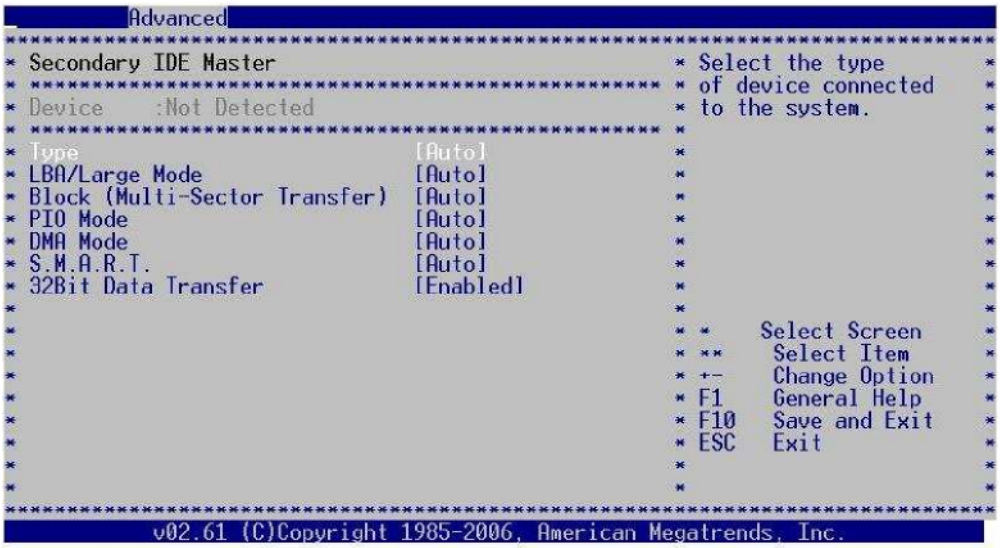
S.M.A.R.T.: [Auto]

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].

*** Secondary 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

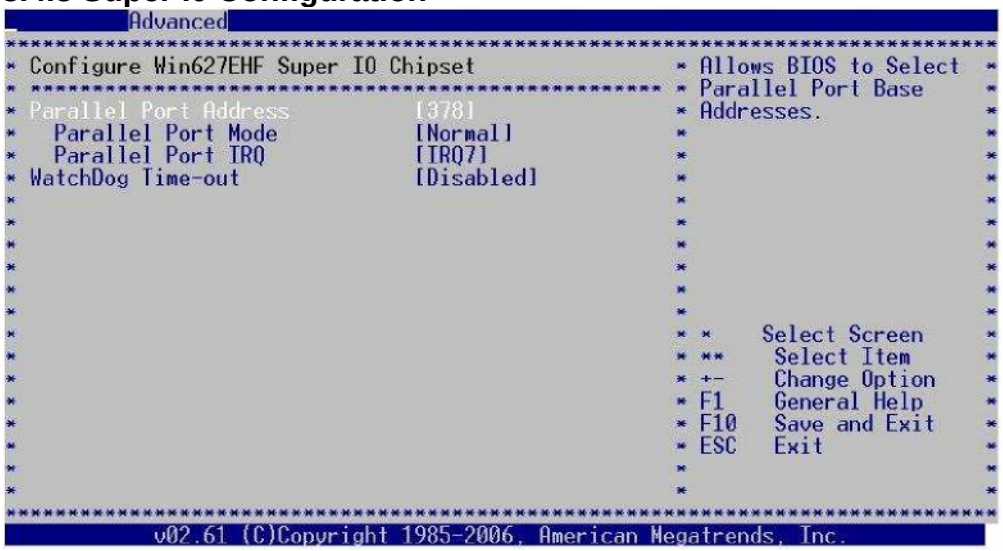
S.M.A.R.T.: [Auto]

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].

3.4.3 Super I0 Configuration



Parallel Port Address: [378]

Selects the Parallel Port base addresses

Parallel Port Mode: [Normal]

Selects the Parallel Port mode.

Parallel Port IRQ: [IRQ7]

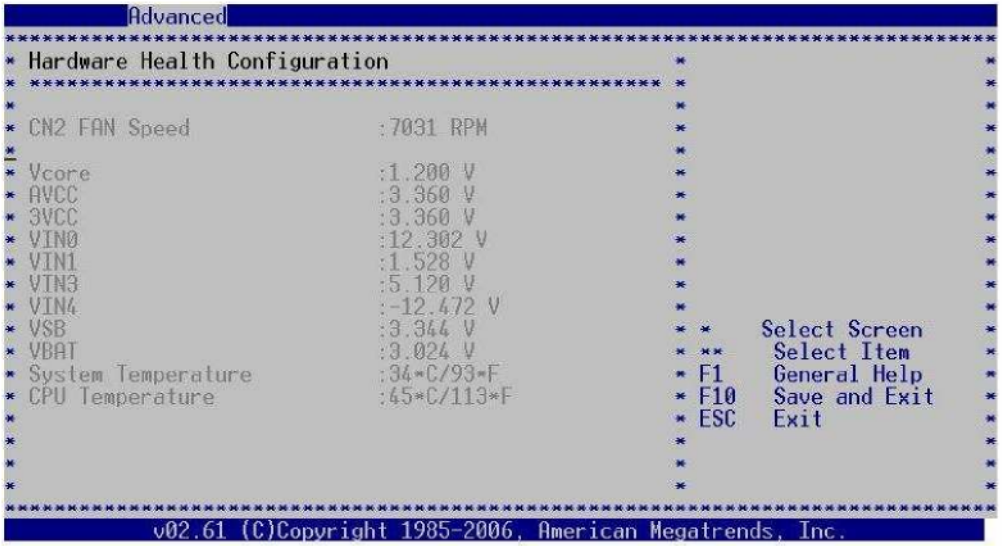
Selects the Parallel Port IRQ.

WatchDog Time-out: [Disabled]

Enables or disables the WatchDog Time-out

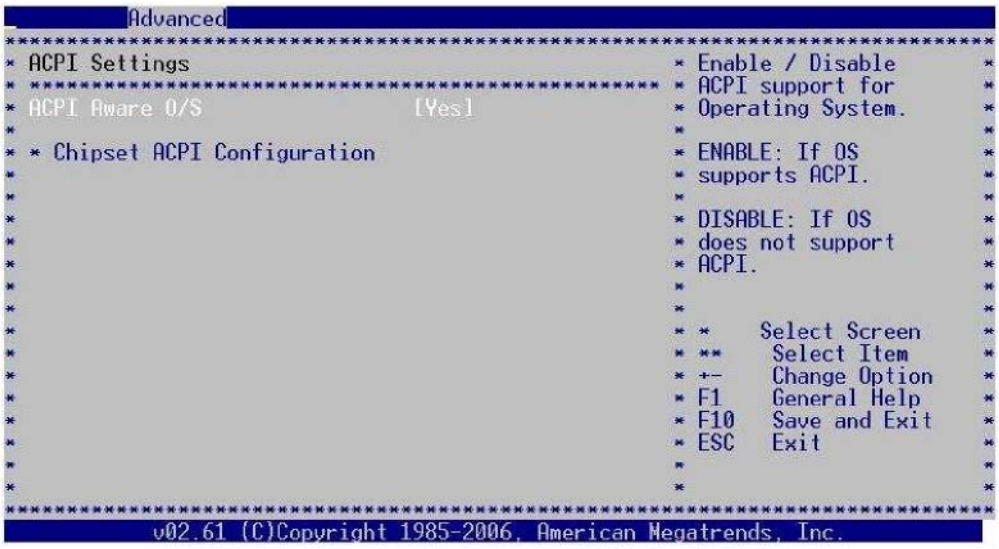
3.4.4 Hardware Health Configuration

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



3.4.5 ACPI Configuration

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

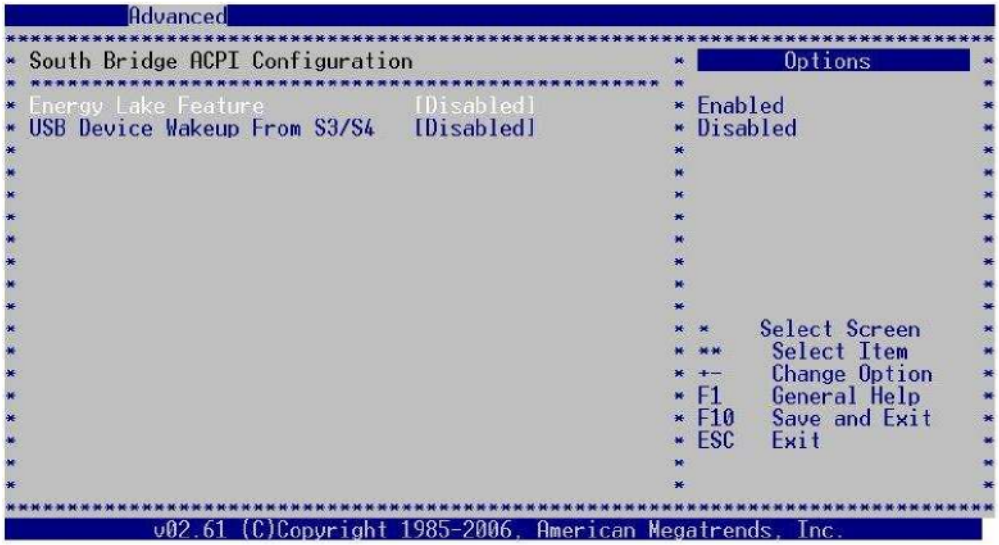


ACPI Aware 0/S:

Enables or disables ACPI support for Operating System

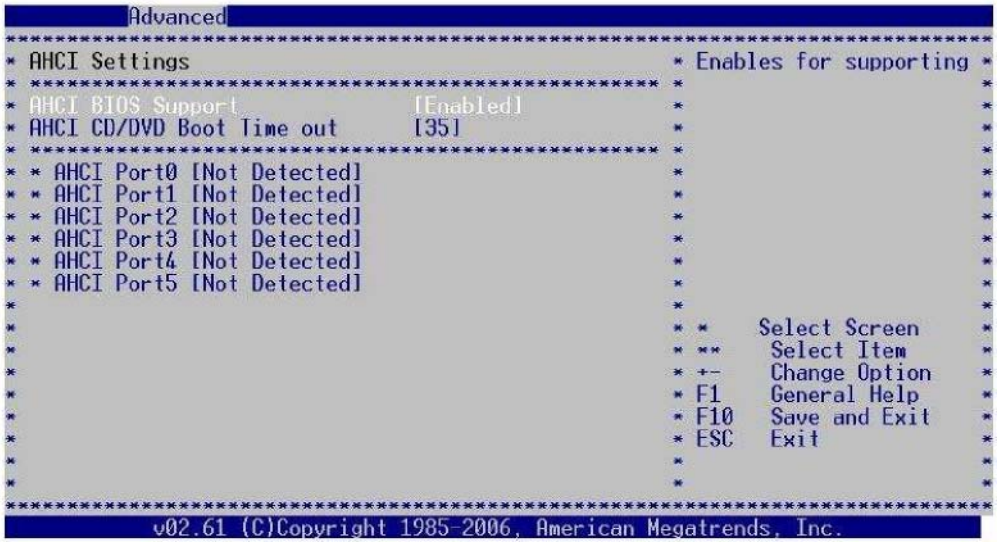
Chipset ACPI Configuration:

This sub menu configures the south bridge ACPI configuration. It contains below sub-menus:



3.4.6 AHCI Configuration

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



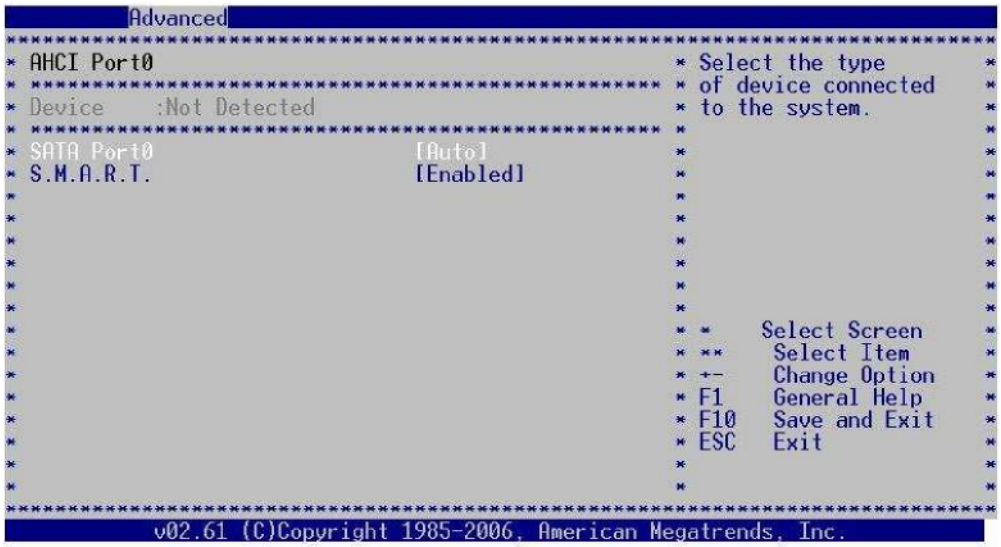
AHCI BIOS Support: [Enabled]

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 PortO/Portl/Port2/Port3/Port4/Port5 Sub-Menu: [Not Detected]



SATA PortO: [Auto]

Select the type of device connected to the system

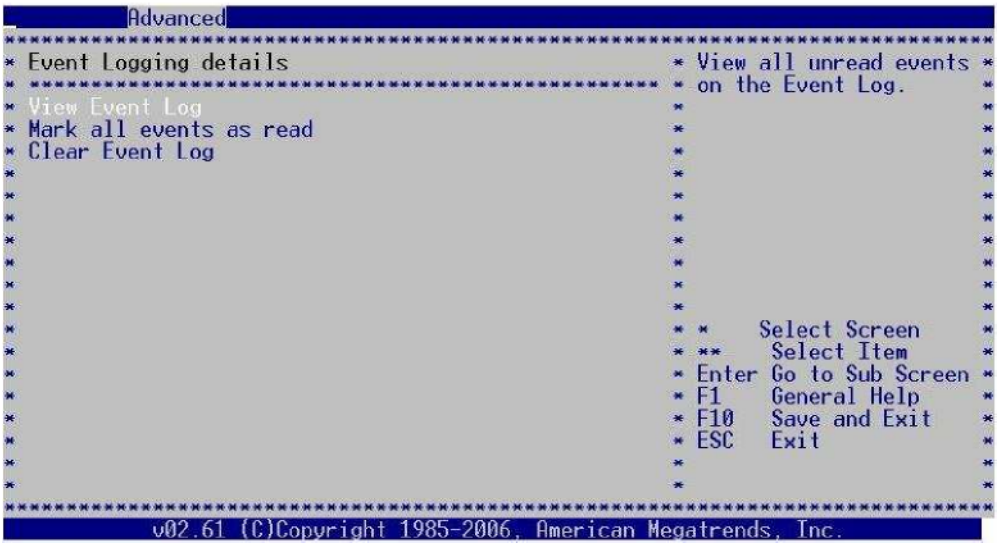
S.M.A.R.T.: [Enabled]

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.

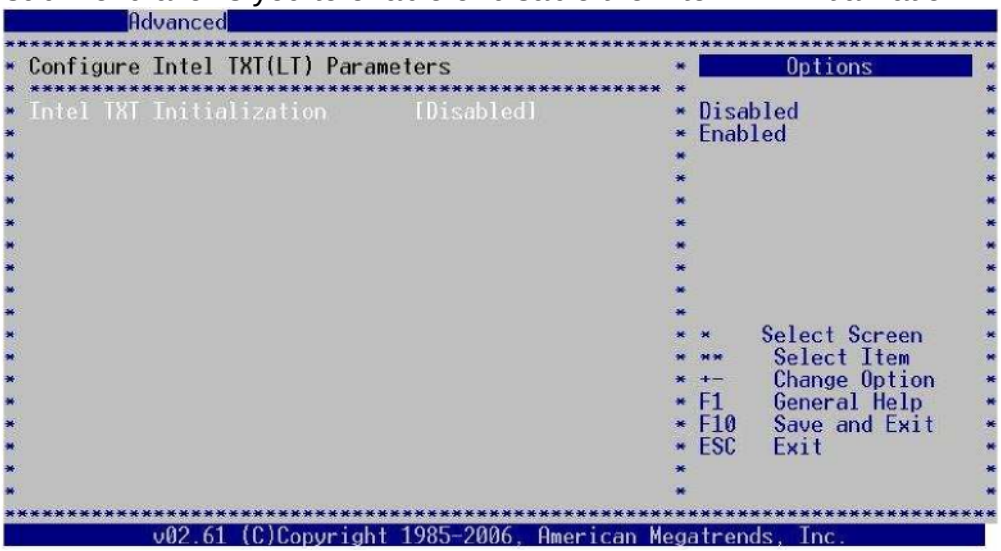
3.4.7 Event Log Configuration

This sub menu allows you to view the event logging details


Advanced
Event Logging details
View Event Log
Mark all events as read
Clear Event Log
View all unread events on the Event Log.
* Select Screen
** Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

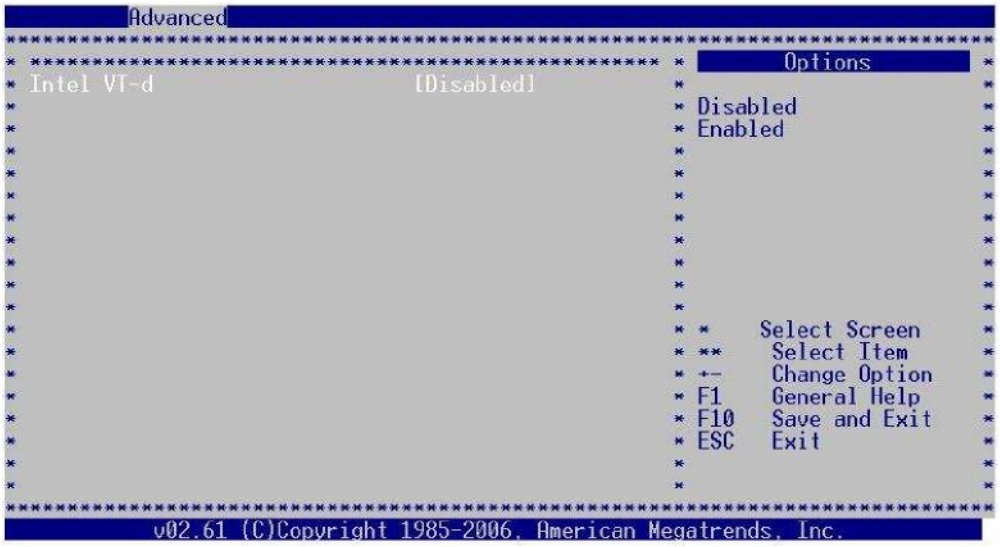
3.4.8 Intel TXT(LT) Configuration

This sub menu allows you to enable or disable the Intel TXT Initialization



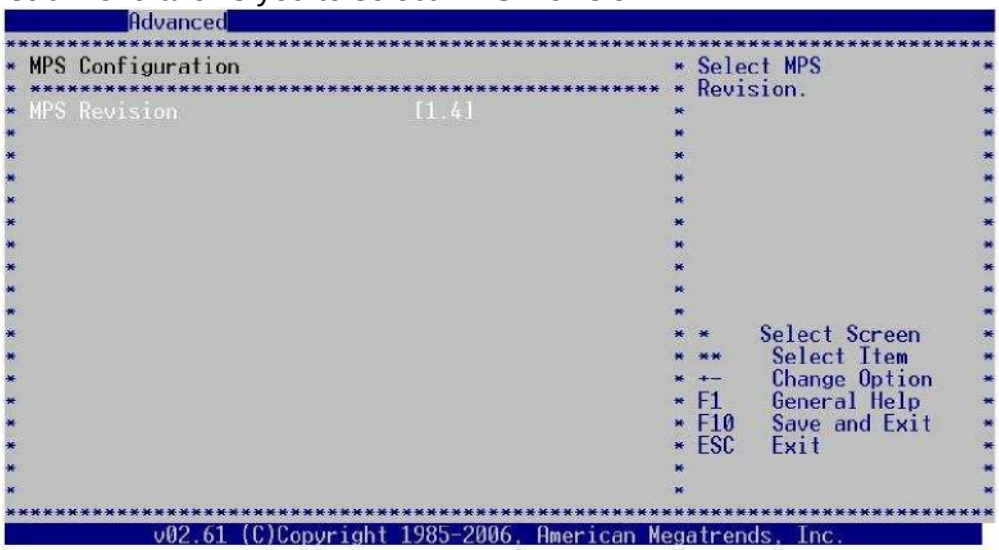
3.4.9 Intel VT-d Configuration

This sub menu allows you to enable or disable the Intel VT-d



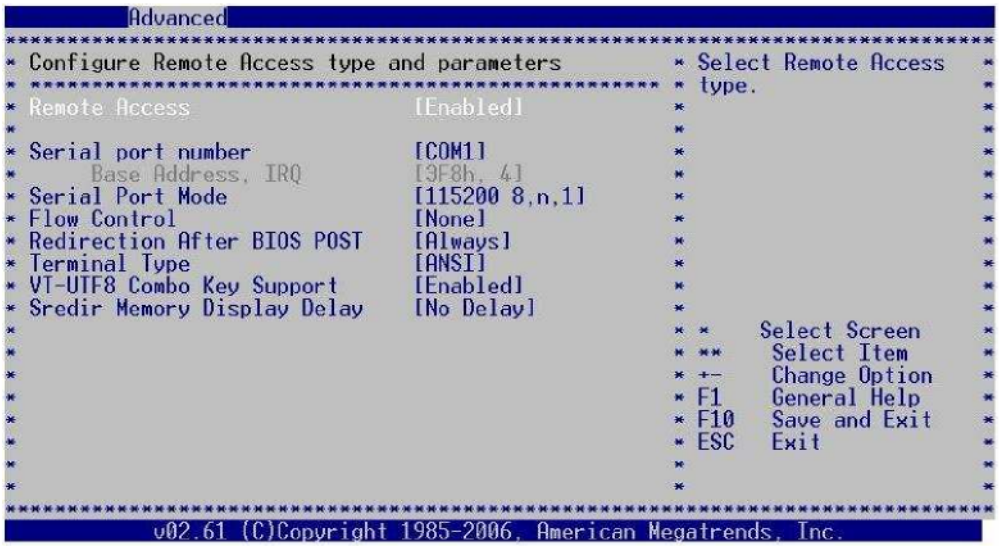
3.4.10 MPS Configuration

This sub menu allows you to select MPS Revision



3.4.11 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]

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

Base Address. IRQ : [3F8h. 4]

Serial Port Mode: [115200 8n1]

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]

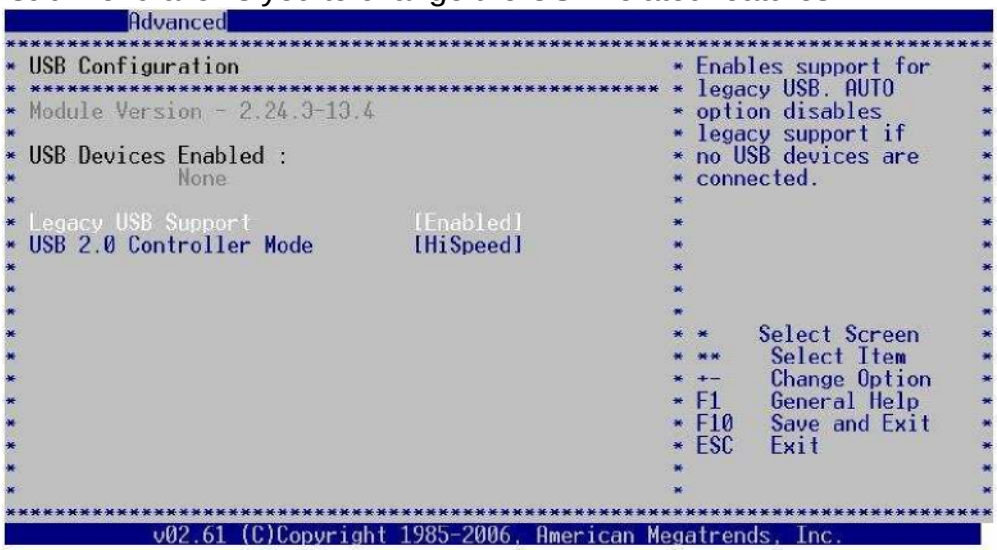
This item allows you to enable or disable VT-UTF8 combination key support for ANSI/VT100 terminals.

Sredir Memory Display Delay: [No Delay]

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

3.4.12 USB Configuration

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



Legacy USB Support: [Enabled]

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

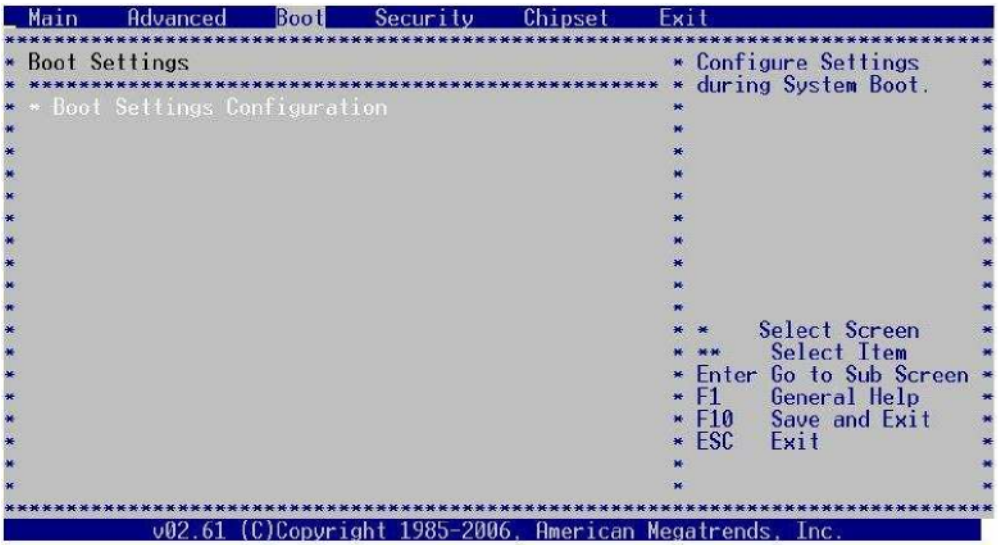
USB 2.0 Controller Mode: [HiSpeed]

This item allows you to configure the USB 2.0 controller in HiSpeed(480Mbps) or FullSpeed (1 2Mbps) .

3.5 Boot Menu

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

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

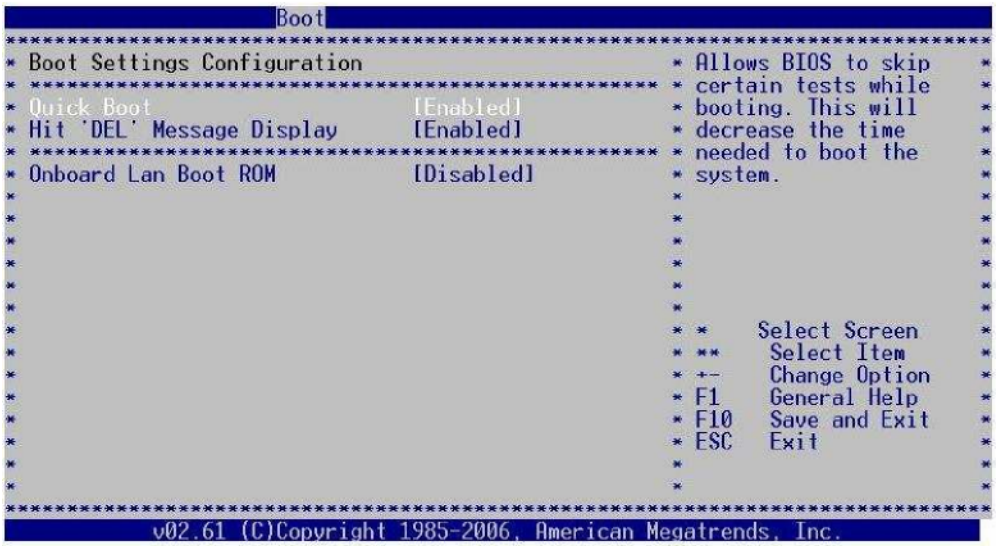


2. Move between items and select values by using the arrow keys. Modify the selected fields using the PnUP/PgDN Keys. For information on the various options, press <F1> key.

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

3.5.1 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.

Hit 'DEL' Message Display: [Enabled]

Displays "Press DEL to run Setup" in POST

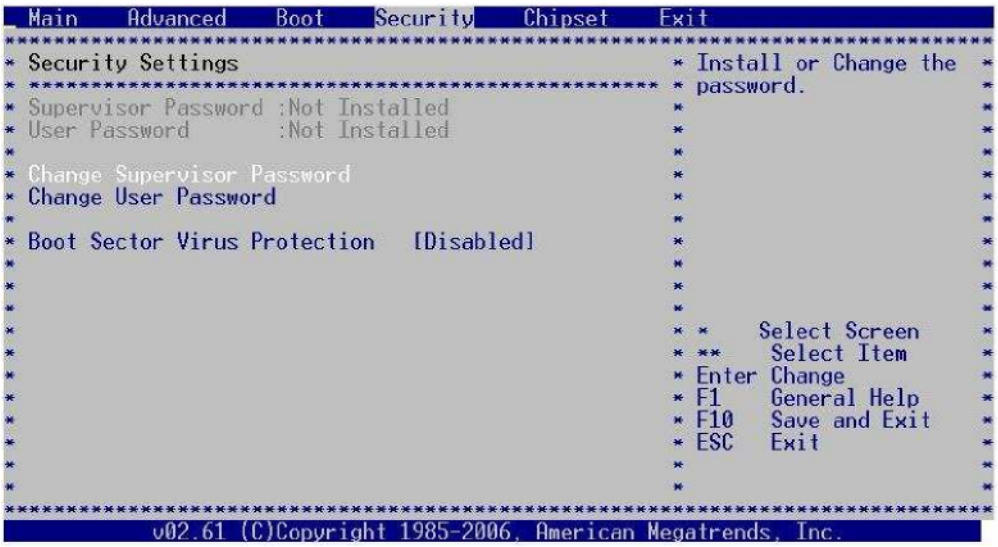
Onboard LAN Boot ROM: [Disabled]

This item allows you to enable or disable the Onboard LAN Boot function

3.6 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.

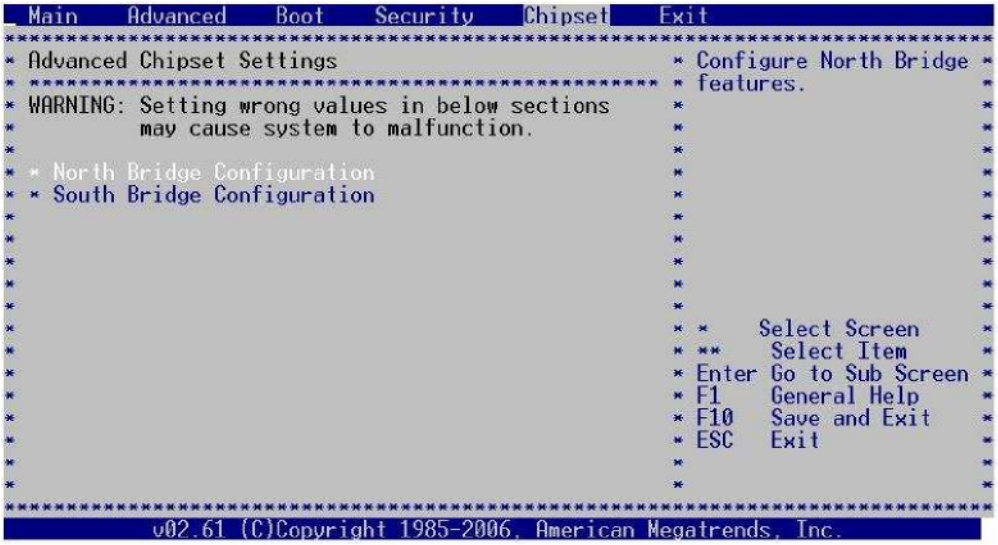
Boot Sector Virus Protection: [Disabled]

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.

3.7 Chipset Menu

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

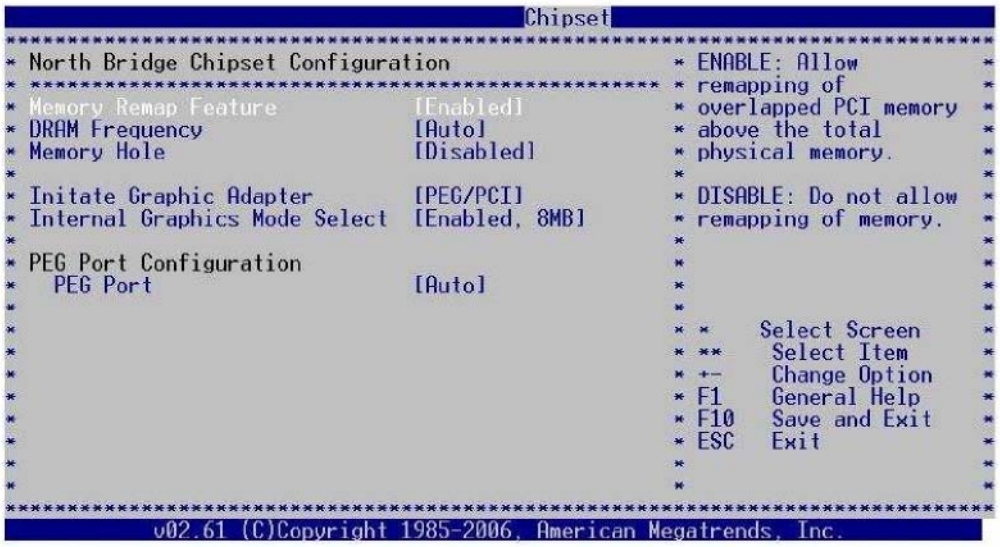
1. Choose "Chipset" from the main menu. The following screen appears



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.

3.7.1 North Bridge Configuration



Memory Remap Feature: [Enabled]

This item allows you to enable or disable the memory remap feature.

[Enabled]: Allow remapping of overlapped PCI memory above the total physical memory.

[Disabled]: Do not allow remapping of memory.

DRAM Frequency: [Auto]

This item allows you to configure the clock frequency of the installed DRAM. If [Auto] is selected, the BIOS will detect the memory modules installed and assign appropriate frequency automatically.

Memory Hole: [Disabled]

This item allows you to enable or disable the memory hole

Initiate Graphic Adapter: [PEG/PCI]

This item shows the primary graphic adapter

Internal Graphics Mode Select : [Enabled, 8MB]

Select the amount of system memory used by the internal graphics device

PEG Port Configuration:

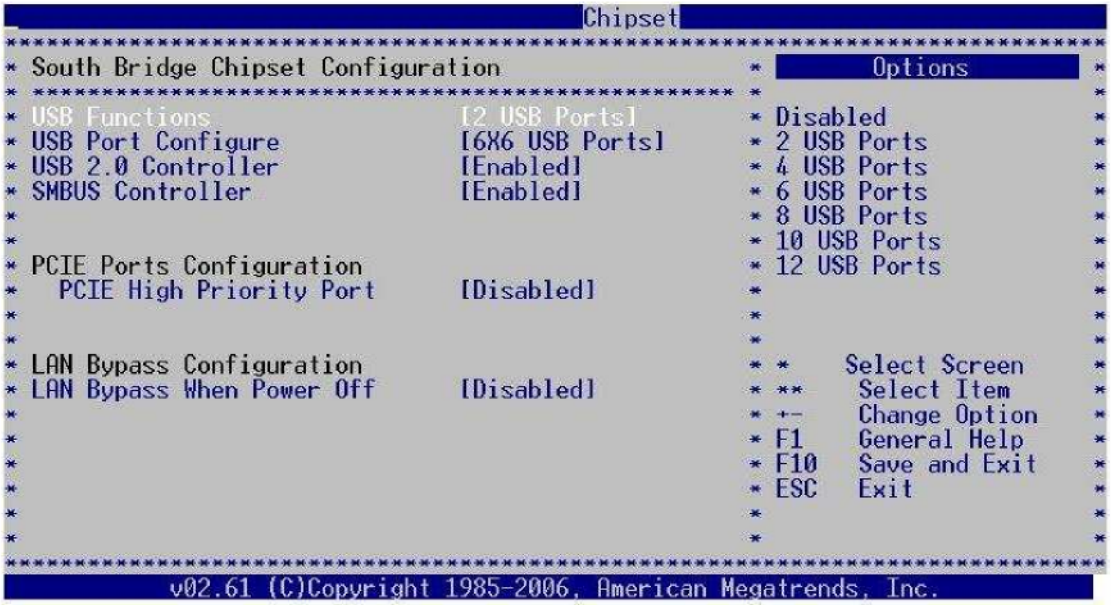
PEG Port: [Auto]

This item allows you to configure the PEG Port.

When set to [Auto], If BIOS detects that a PCI Express graphics card is present, the

system boots up using that graphics card. Otherwise, it defaults to the onboard graphics controller.

3.7.2 South Bridge Configuration



USB Functions: [2 USB Ports]

This item allows you to setup the USB ports

USB Port Configure: [6X6 USB Ports]

This item allows you to configure the USB ports

USB 2.0 Controller: [Enabled]

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

SMBUS Controller: [Enabled]

This item allows you to enable or disable the SMBUS controller

PCIE Ports Configuration:

PCIE High Priority Port : [Disabled]

LAN Bypass Configuration:

LAN Bypass When Power Off: [Disabled]

3.8 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 4. Utility & Driver Installation

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

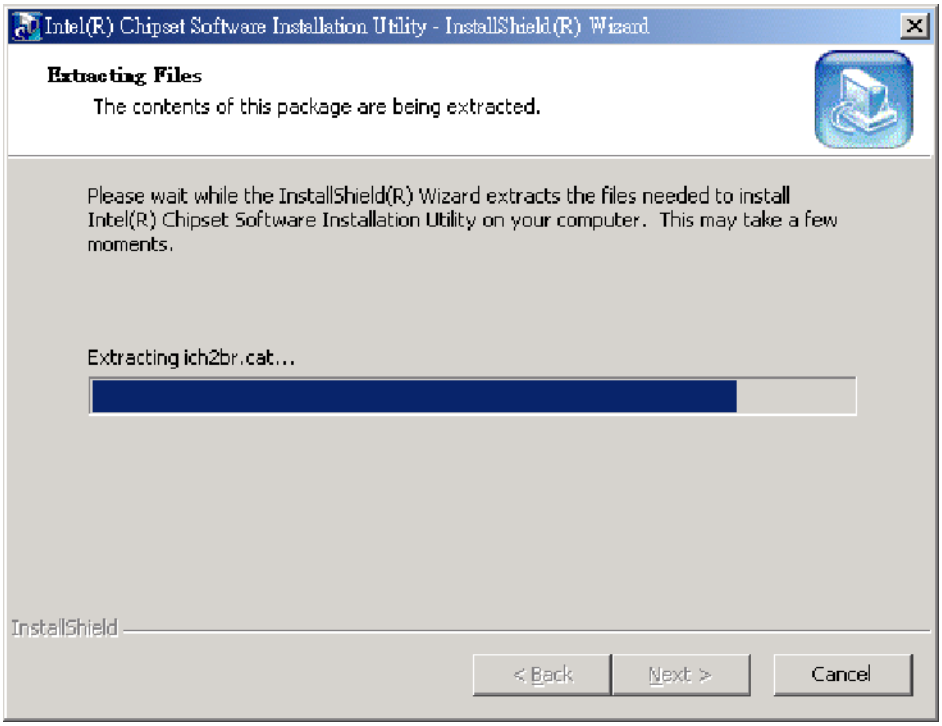
4.1 Operation System Supporting

PL-80140 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@ 2000 SP3/Windows@ XP SP2
Linux@	Fedora Core 6, 7, 8, 9, RedHat 9

4.2 System Driver Installation

PL-80140 offers the system driver in the setup CD. Please install the driver following the procedures.



4.3 LAN Driver Installation

PL-80140 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-80140 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-80140 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 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,01 H	
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 CN21 & CN22 LAN ports is set to normal state and the CN23 & CN24 LAN ports is set to normal state.

How to control LAN 3&4 *[or LAN 5&61* bypass function by watchdog timer

Follow below steps to set the LAN bypass function control by watchdog timer:

1. Setup jumper JP2 *[or JP11* to 1-2 shorted [default] to enable bypass function.
2. Setup SW1 to PIN.C 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 CN21 & CN22 *[or CN23 & CN24J* 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 3&4 *[or LAN 5&61* bypass function by GPIO

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

1. Setup jumper JP2 *[or JP11* to 1-2 shorted [default] to enable bypass mode.
2. Setup SW1 to PIN.A [default] to enable bypass function by GPIO.
3. Refer to the program code and set CN21 & CN22 *[or CN23 & CN24J* LAN ports to Bypass state or Normal state.

LAN 3 & 4: GPIO28

Bypass state:	**Normal state:**
MOV DX, 048FH IN AX, DX OR AH, 00010000b OUT DX, AX	MOV DX, 048FH IN AX, DX AND AH, NOT 00010000b OUT DX, AX

LAN 5 & 6: GPIO27

Bypass state:	**Normal state:**
MOV DX, 048FH IN AX, DX OR AH, 00001000b OUT DX, AX	MOV DX, 048FH IN AX, DX AND AH, NOT 00001000b OUT DX, AX

How to setup the bypass state after shutdown by GPIO

Please refer to the program code and set the LAN ports to Bypass state or Normal state after the system shutdown (Power off).

Bypass state:	**Normal state:**
o 2e,87 o 2e,87 o 2e,07 o 2f,07 o 2e,f1 o 2f,af //Bypass after shutdown o 2f,0f	o 2e,87 o 2e,87 o 2e,07 o 2f,07 o 2e,f1 o 2f,5f //No bypass after shutdown o 2f,0f

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	GPI0	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-80140 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
IRQO	Timer
IRQ1	Keyboard
IRQ2	Interrupt rerouting from IRQ8 through IRQ15
IRQ3	COM2
I RQ4	COM 1
IRQ5	PCI device/free
IRQ6	PCI device/free
IRQ7	LPT1
IRQ8	RTC
IRQ9	ISA/free
IRQ10	PCI device/free
IRQ11	PCI device/free
I RQ1 2	ISA/free
IRQ13	Coprocessor
IRQ14	IDE Controller
IRQ15	IDE Controller

DMA Channel Assignment:

Channel 4 is by default used to cascade to two controllers

Channel	Assignment
D MAO	Free
DMA1	Free
DMA2	FDD Controller
DMA3	Free
DMA4	Cascade
DMA5	Free

DMA6	Free
DMA7	Free

Memory Map:

The following table indicates memory of PL-80140. 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 - CB3FF	ISA	Adapter ROM
E0000 - EFFFF	ISA	Mapped RAM
F0000 - FFFFF	ISA	System BIOS

Memory above 1MB (1MB - 65535KB)

Address Range	Type	Owner
D0000000-DFFFFFF7	PCI	VGA Adapter
FE500000-FE5FFFFF	PCI	VGA Adapter
FE600000-FE67FFFF	PCI	VGA Adapter
FE780000-FE7BFFFF	PCI	Ethernet Controller
FE7DC000-FE7DFFFF	PCI	Ethernet Controller
FE7E0000-FE7FFFFF	PCI	Ethernet Controller
FE800000-FE8FFFFF	PCI	PCI-PCI Bridge
FE900000-FE9FFFFF	PCI	PCI-PCI Bridge
FEA00000-FEAFFFFF	PCI	PCI-PCI Bridge
FEB00000-FEBFFFFF	PCI	PCI-PCI Bridge

System Memory Map

Start High	Start Low	Size High	Size	Type
00000000	00000000	00000000	0009DC00	Available
00000000	0009DC00	00000000	00002400	Reserved
00000000	000E0000	00000000	00020000	Reserved

00000000	00100000	00000000	1 F5A0000	Available
00000000	1F6A0000	00000000	0000E000	ACPI Space
00000000	1 F6AE000	00000000	00032000	NVS Space
00000000	1F6E0000	00000000	00010000	Reserved
00000000	1F6F0000	00000000	00010000	Reserved
00000000	FEE00000	00000000	00001000	Reserved

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
72 - 75	Motherboard Resource
80 - 90	AT DMA controller
94 - 9F	AT DMA controller
A0 -A1	AT interrupt controller
C0 - DE	AT DMA controller
F0 - FF	Math Coprocessor
170 - 177	IDE Controller
1 F0 - 1 F7	IDE Controller
2F8 - 2FF	COM2
376	IDE Controller
378 - 37A	LPT1
3B0 - 3BB	VGAAdapter
3C0 - 3DF	VGAAdapter
3F0 - 3F5	FDD Controller
3F6	IDE Controller
3F8 - 3FF	COM1
480 - 4BF	Motherboard Resource
4D0 - 4D1	Motherboard Resource

800 - 87F	Motherboard Resource
A00 - A0F	Motherboard Resource
CF8 - CFF	Motherboard Resource
8880 - 8886	VGA Adapter
8C00 - 8C1E	USB Controller
AC00 - AC1 E	Ethernet Controller
B000 - BFFF	PCI-PCI Bridge
C000 - CFFF	PCI-PCI Bridge
D000 - DFFF	PCI-PCI Bridge
E000 - EFFF	PCI-PCI Bridge

Appendix E: Cable Development Kit

The PL-80140 offers some cables for development use

DK002

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 -IVGA0 1 -00	1
KB/MS CABLE 15CM/ RoHS	CB -IPS200-00	1
USB CABLE w/ Bracket/ RoHS	CB -IUSB2B-00	1

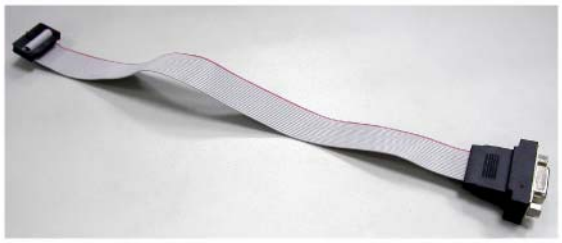
CB-EC5200-00

CB-CO5202/4-00

CB-RJDB91-00

CB-DB9200-00

CB-IVGA01 -00



CB-IPS200-00

CB-IUSB2B-00