User's Manual

User's Manual

Version 1.0

PL-80160 Networking Appliance

2U Rack-Mount Intel® 3450 LGA1156 Network System, 32 x GbE, SATA, CF, LCM, PCI, PCI-Ex8, Redundant PS

sales@win-ent.com

User's Manual

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User's Manual

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Chapter 1. General Information

1.1 Introduction

The PL-80160 is a 1U rack-mounted hardware platform designed with a redundant power supply for network service applications. Built with Intel® Embedded IA components with warranty of longevity, the PL-80160 supports Intel® quad-core processors with Intel® Hyper-Threading Technology.

The platform supports four un-buffered ECC or non-ECC DDR3 1066/1333MHz DIMM sockets with memory up to 16GB. In order to provide the best network performance and best utilization, the powerful storage interfaces include one 3.5" SATA HDD and CompactFlash™. 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 8 GbE and max to 32 GbE Ethernet ports via PCI-E by8 on the front-panel. To prevent network problems when the platform shuts down, PL-80160 supports two segments of LAN bypass function through WDT and GPIO pin definitions. The front panel also has dual USB 2.0 ports, 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-80160 supports one PCI-E by8 slot, one PCI-E by8 Golden Finger, one PCI slot, and is RoHS, FCC and CE compliant.

1.2 Specifications

Processor System	CPU	Intel® Xeon®, Core™ i7, Core™ i5, Core™ i3 & Pentium® Dual Core™ processors, LGA1156 Socket
	Chipset	Intel® 3450
	BIOS	AMI® SPI BIOS
Memory	Technology	Dual-channel Un-buffered ECC / Non-ECC DDR3 800/1066/1333MHz memory
	Capacity	Up to 16GB with four DIMM sockets
Expansion	Expansion Slots	One PCI-E x8 slot for expansion module One PCI-E x8 golden finger for

		expansion module (optional Riser card) one PCI slot
Ethernet	GbE Ethernet	Six RJ45 GbE ports, Intel® 82574L PCI-E x1
		Two SFP ports, Intel 82576EB PCI-E x4
		2~8 GbE ports (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 external USB2.0 Dual Port
		One internal 5x2 pin header (2x USB 2.0)
	Serial	One RJ45 Console port (COM1)
		One internal 5x2 header for second console (COM2)
Power Supply	Watt	2U ATX 350W Redundant Power Supply
Mechanical and Environment	Form Factor	2U rack-mount
	LCD Module	One 16x2 LCM
	Keypad	Four buttons keypad
	LED	One Power LED (Green)
		One HDD LED(Yellow)
		Two Bypass LED (Green)
	Dimension (W x D x H)	435mm (W) x 450mm (D) x 88mm (H) (17.1"W x 17.7"D x 3.5"H)
	Operating Temperature	Operating: 0 ~ 40°C (32 ~ 104°F)
	Storage Temperature	-20 ~ 75°C (-4 ~ 167°F)
	Humidity	10 ~ 85% relative humidity, non-operating, non-condensing
Weight		1pc/box, 16kgs, 74.5cm(W) x 64.5cm(D) x 33.5cm(H)
Certifications		CE/FCC

1.3 Ordering Information

We offer some accessories for PL-80160 appliance for customer need.

PL-80160A	2U Rackmount Intel® 3450, LGA1156 Network System, 10 RJ45 GbE, 2 SFP, LCM, PCI, PCI-E x8, Redundant PS, Bypass (PL-8016A SBCA + R122A)
PL-80160B	2U Rackmount Intel® 3450, LGA1156 Network System, 6 RJ45 GbE, 6 SFP, LCM, PCI, PCI-E x8, Redundant PS, Bypass (PL-8016A SBC+ IP-9061A)
PL-80160C	2U Rackmount Intel® 3450, LGA1156 Network System, 6 RJ45 GbE, 2 SFP, LCM, PCI, PCI-E x8, Redundant PS, bypass
DK001	Cable development kit

1.4 Packaging

Please make sure that the following items have been included in the package before installation.

1. PL-80160 Appliance
2. Quick Installation Guide (Optional)
3. Cables (Optional)
4. CD-ROM that contains the following folders:

(1) Manual
(2) Quick Installation Guide
(3) System Driver
(4) Ethernet Driver
(5) Utility Tools

If any item of above is missing or damaged, please contact your dealer or retailer from whom you purchased the PL-80160. Keep the box and carton when you probably ship or store PL-80160 in near future. After you unpack the goods, inspect and make sure the packaging is intact. Do not plug the power cord to the PL-80160 appliance if you already find it appears damaged.

Note: Keep the PL-80160 in the original packaging until you start installation.

1.5 Precautions

Please make sure you properly ground yourself before handling the PL-80160 appliance or other system components. Electrostatic discharge can easily damage the PL-80160 appliance.

Do not remove the anti-static packing until you are ready to install the PL-80160 appliance.

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

Handle the PL-80160 appliance by its edges and avoid touching the components on it.

1.6 System Layout

PL-80160 Front Side

PL-80160 Rear Side

Power Supply **CPU**

HDD Bay
(optional)

DDR3 DIMM
Socket

CF
Socket

PCIe slot for
Ethernet module

PCI slot
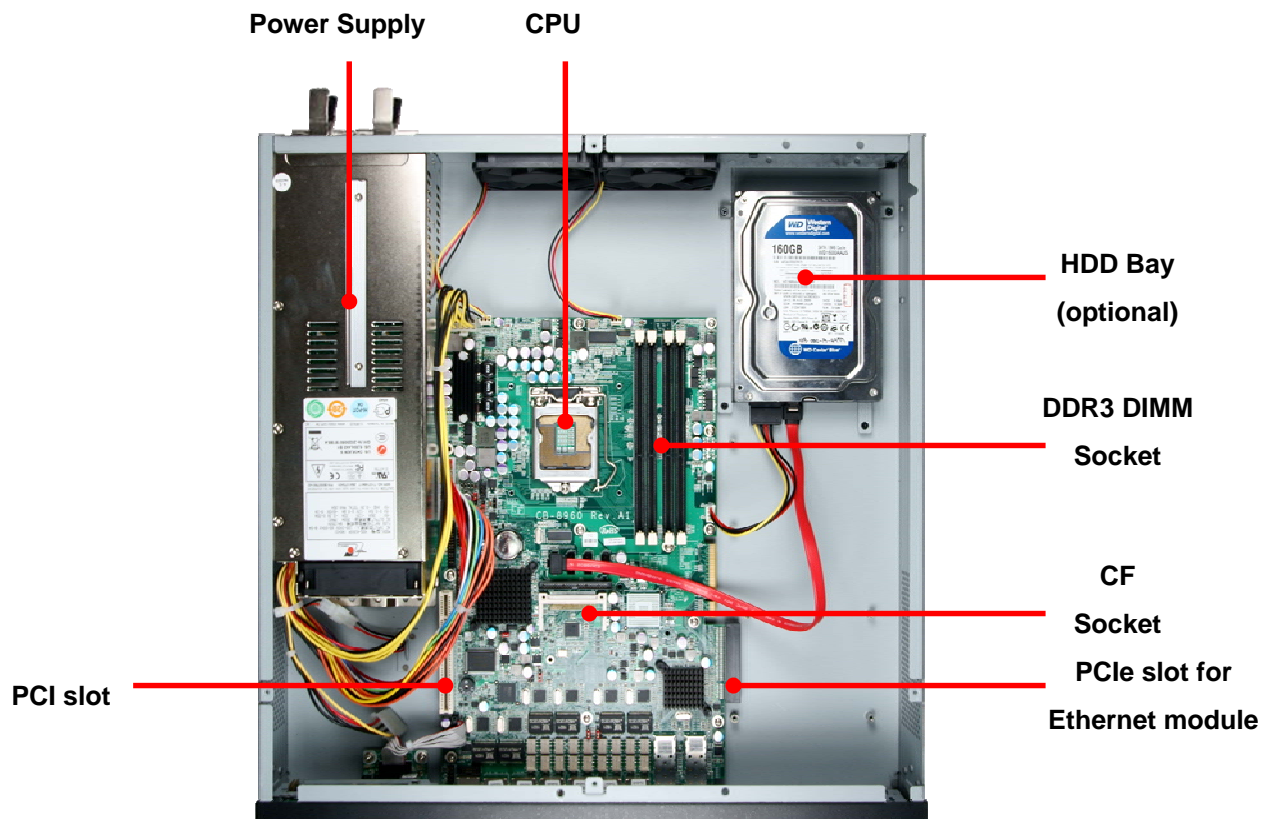
1.7 Board Dimensions
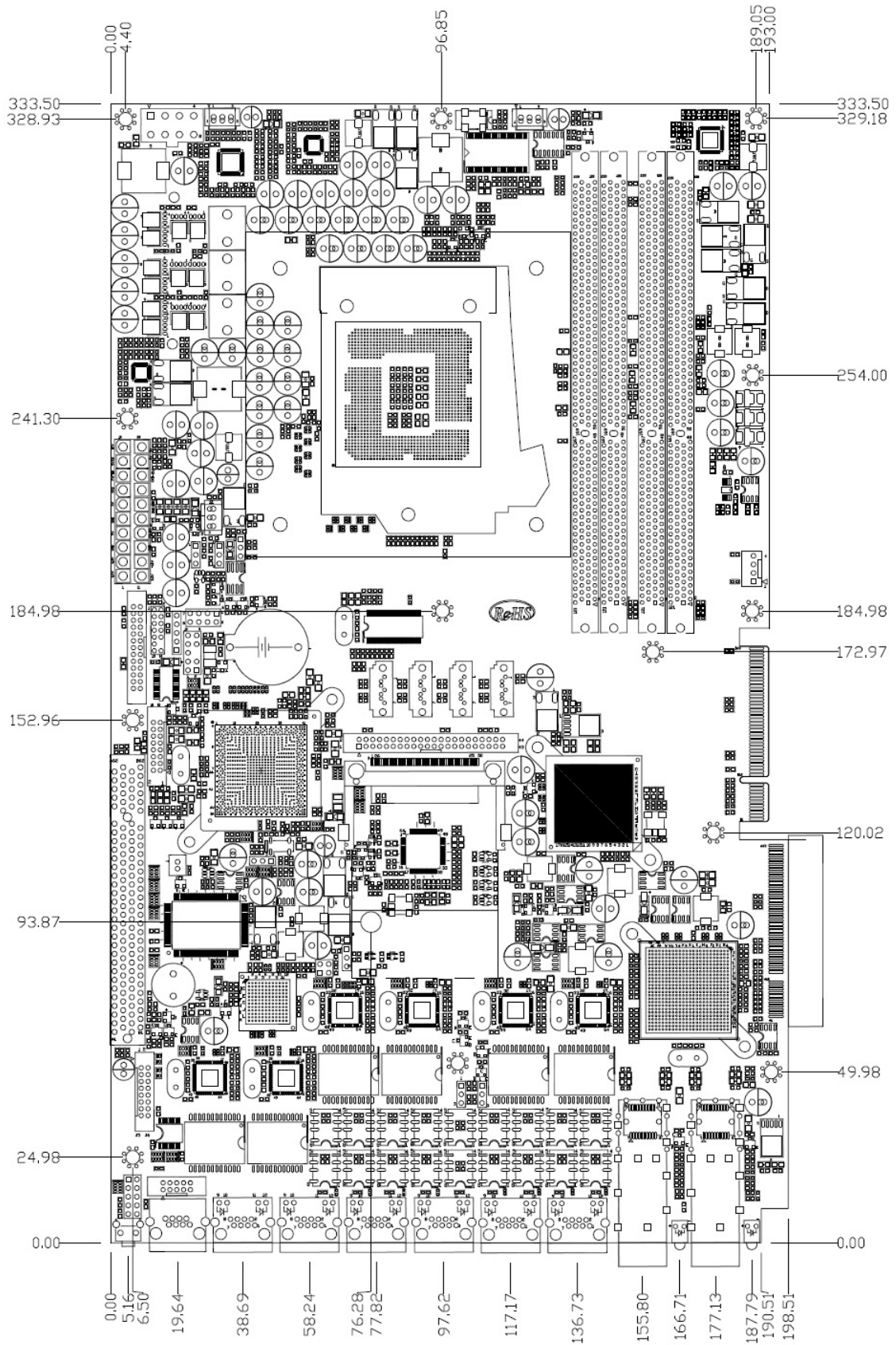
Chapter 2. Connector/Jumper Configuration

2.1 Connector/Jumper Location and Definition
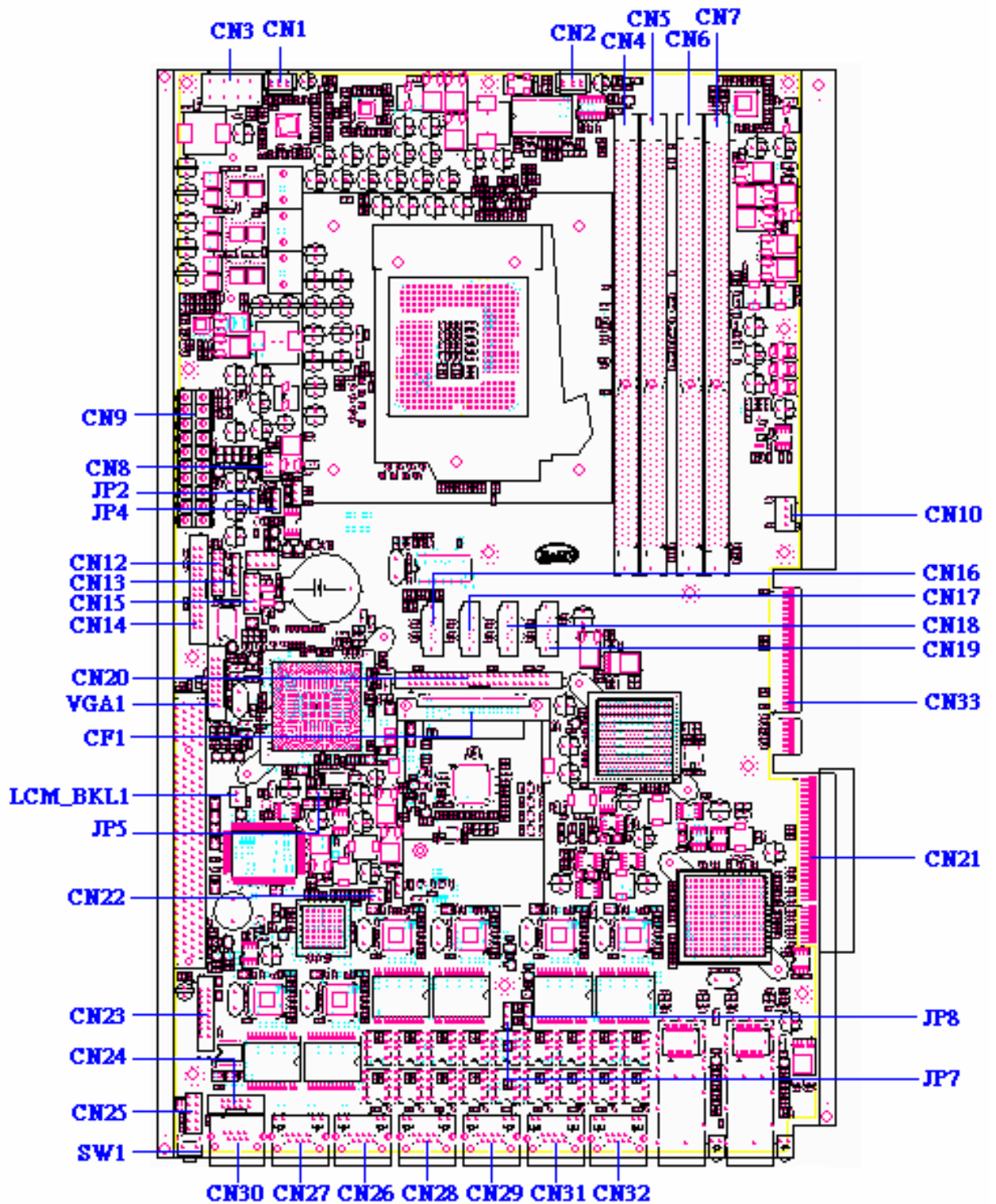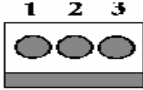
Connector	Define	Connector	Define
CN1	System FAN Connector	CN23	USB/LED Box Header
CN2	System FAN Connector	CN24	COM2 Box Header
CN3	+12V Power Connector	CN25	GPO Pin Header
CN4	DDR2 Slot	CN26	Gigabit Ethernet RJ-45 Connector
CN5	DDR2 Slot	CN27	Gigabit Ethernet RJ-45 Connector
CN6	DDR2 Slot	CN28	Gigabit Ethernet RJ-45 Connector
CN7	DDR2 Slot	CN29	Gigabit Ethernet RJ-45 Connector
CN8	CPU FAN Connector	CN30	COM1 RJ-45Connector
CN9	ATX Power Connector	CN31	Gigabit Ethernet RJ-45 Connector
CN10	4 Pin Power Connector	CN32	Gigabit Ethernet RJ-45 Connector
CN12	LPC Pin Header	CN33	PCI-E x8 Golden Finger
CN13	GPI Pin Header	CF1	CF Socket
CN14	LCM Box Header	VGA1	VGA Box Header
CN15	PS2 KB/ MS Pin Header	LCM_BKL1	LCM Backlight Connector
CN16	SATA Connector	SW1	Reset Switch
CN17	SATA Connector	JP2	Auto Power On Select Pin Header
CN18	SATA Connector	JP4	Watchdog Function Selection
CN19	SATA Connector	JP5	Clear CMOS Pin Header
CN20	IDE 44 Pin BOX Header	JP7	LAN 5/6 Bypass Selection
CN21	Proprietary PCI-E x8 Connector	JP8	LAN 3/4 Bypass Selection
CN22	Power ON/System Reset Pin Header		
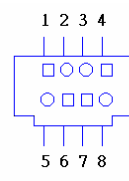
2.2 Connector and Jumper Setting

CN1/ CN2: System FAN Connector
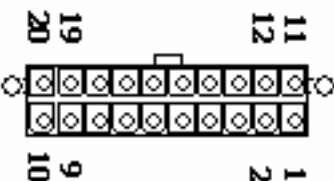
CN8: CPU FAN Connector

Pin	Define
1	Ground
2	+12V
3	Speed Detect

CN3：+12V Power Connector

Pin	Define	Pin	Define
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V
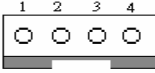
CN9：ATX Power Connector

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
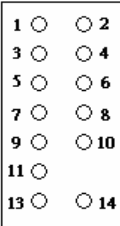
16	Ground	6	+5V
17	Ground	7	Ground
18	RSVD	8	POWER GOOD
19	+5V	9	5VSB
20	+5V	10	+12V

CN10: Power Connector
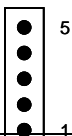
Pin	Define
1	+12V
2	GND
3	GND
4	VCC5

CN12 : LPC Pin Header

Pin	Define	Pin	Define
1	+3.3V	2	LAD0
3	LAD1	4	LAD2
5	LAD3	6	LFRAME#
7	RESET#	8	+5V
9	+5V	10	+5V
11	GND		
13	SERIRQ	14	DRQ0#

CN13: GPI Pin Header

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

CN14 : LCM 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

CN15: PS/2 KB/MS Pin Header

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

CN16/17/18/19:SATA Port Connector
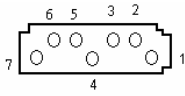
Pin	Define
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

CN20: IDE 44 Pins Box Header (2.0mm pitch)
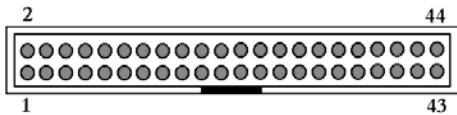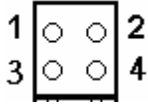
Pin	Define	Pin	Define
1	RSTPIDE#	2	Ground
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	Ground	20	NC
21	PDDREQ	22	Ground
23	PDIOW#	24	Ground
25	PDIOR#	26	Ground
27	PDIORDY	28	Ground
29	PDDACK#	30	Ground
31	IRQ14	32	V5P0
33	PDA1	34	PD66#
35	PDA0	36	PDA2
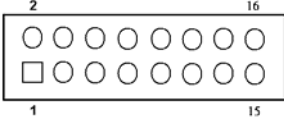
37	PDCS#1	38	PDCS#3
39	PIDELED	40	Ground
41	V5P0	42	V5P0
43	Ground	44	N/C
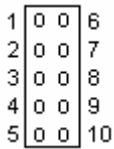
CN22：Power ON/System Reset Pin Header

Pin	Define	Pin	Define
1	POWER ON +	2	POWER ON -
3	GND	4	RESET

CN23：USB/LED Box Header

Pin	Define	Pin	Define
1	+5V	2	+5V
3	USB_P1+	4	USB_P0+
5	USB_P1-	6	USB_P0-
7	GND	8	GND
9	N.C.	10	HDD LED-
11	+3.3V	12	BYPASS LED1-
13	N.C.	14	BYPASS LED2-
15	+3.3V	16	RESERVED
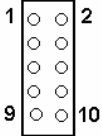
CN24：COM2 Box Header

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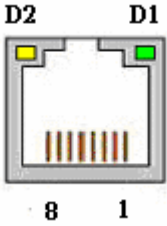
2	RXD#	7	RTS#
3	TXD#	8	CTS#
4	DTR#	9	RI#2

CN25：GPO Pin Header

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

CN26/CN27/CN28/CN29/CN31/CN32: Gigabit Ethernet RJ-45 Connector

Pin	Define
1	TX+
2	TX-
3	RX+
4	Chassis Ground
5	Chassis Ground
6	RX-
7	Chassis Ground
8	Chassis Ground
D2: Speed indicated LED	
1 Gbps	GREEN
100 Mbps	YELLOW
D1 :Link/Activity LED	

Link	GREEN
Activity	BLINKING

CN30: COM1 RJ-45 Connector
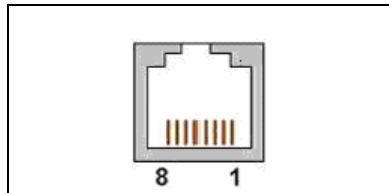
Pin	Define(STD)
1	CTS#
2	DTR#
3	TXD#
4	GND
5	Ground
6	RXD#
7	DSR#
8	RTS#

CF1: CF Socket
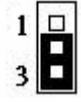
Please refer to the Ch.2.3 CompactFlash^{TM} Card Socket Pin Define.

VGA1: VGA Box Header
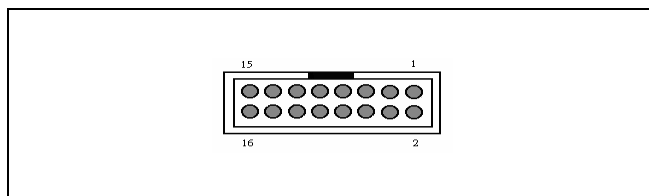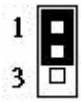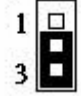
Pin	Define	Pin	Define
1	RED	2	GREEN
3	BLUE	4	+5V
5	Ground	6	Ground
7	Ground	8	Ground
9	+5V	10	Ground
11	+5V	12	SDA
13	HSYNC	14	VSYNC
15	SCL	16	NC
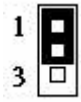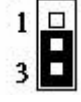
JP2：Auto Power On Select Pin Header

Pin		Setting
1 ▣ 3	1-2	ATX Mode (Default)
1 ▢ 3	2-3	Auto Power On Mode
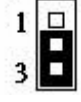
JP4: Watchdog Function Selection

Pin		Setting
1 ▣ 3	1-2	Lan Bypass
1 ▢ 3	2-3	H/W Reset

JP5: Clear CMOS Pin Header

Pin		Setting
1 ▣ 3	1-2	Normal (Default)
1 ▢ 3	2-3	Clear CMOS

JP7: LAN 5/6 Bypass Selection

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

JP8: LAN 3/4 Bypass Selection
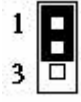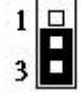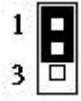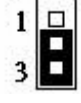
Pin		Setting
1-2		Normal (Default)
2-3		Bypass Always Disable

JP5: GPI or H/W Reset Selection for SW1 Button

Pin		Setting
1-2		GPI
2-3		RESET

2.3 CompactFlash^{TM} Card Socket Pin Define

CompactFlash^{TM} 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^{TM} 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
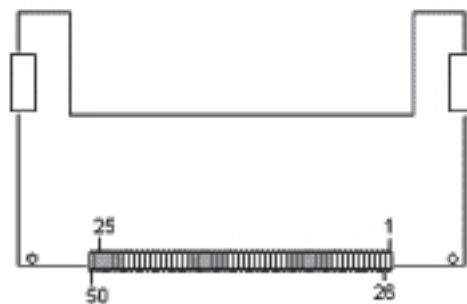
Chapter 3. Optional GbE Module & Riser Card Setting

The PL-80160 can offer various GbE module combinations to match various applications and market demand.

3.1 IP-9060A: Ethernet module with two GbE Copper and two GbE SFP

IP-9060A is a two GbE Copper and two GbE SFP Ethernet module. The golden edge fingers must be connected with CN21 proprietary connector of the PL-80160 board.

Golden Edge Fingers must be connected with
CN21 of PL-80160 SBC. (or PCI-E x8 slot of
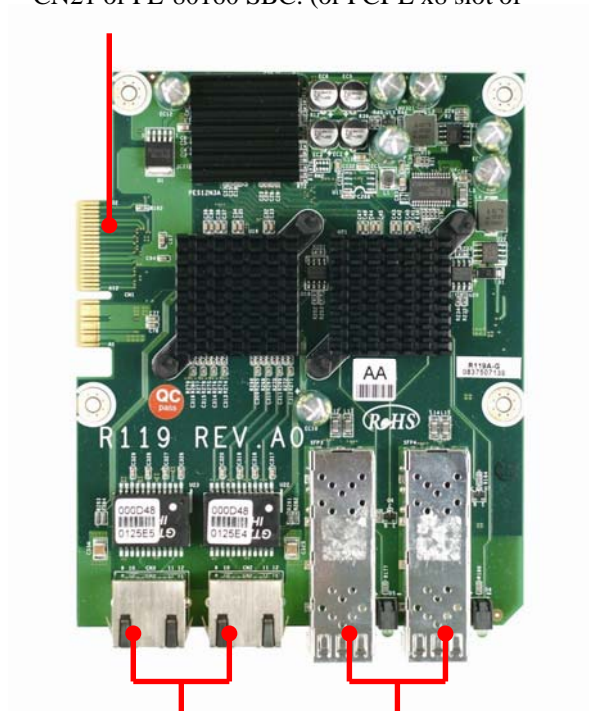
2 x GbE Copper ports   2 x GbE SFP ports

3.2 IP-9061A: Ethernet module with four GbE SFP

IP-9061A is a four GbE SFP Ethernet module. The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board.

Golden Edge Fingers must be connected with

CN21 of PL-80160 SBC. (or PCI-E x8 slot of
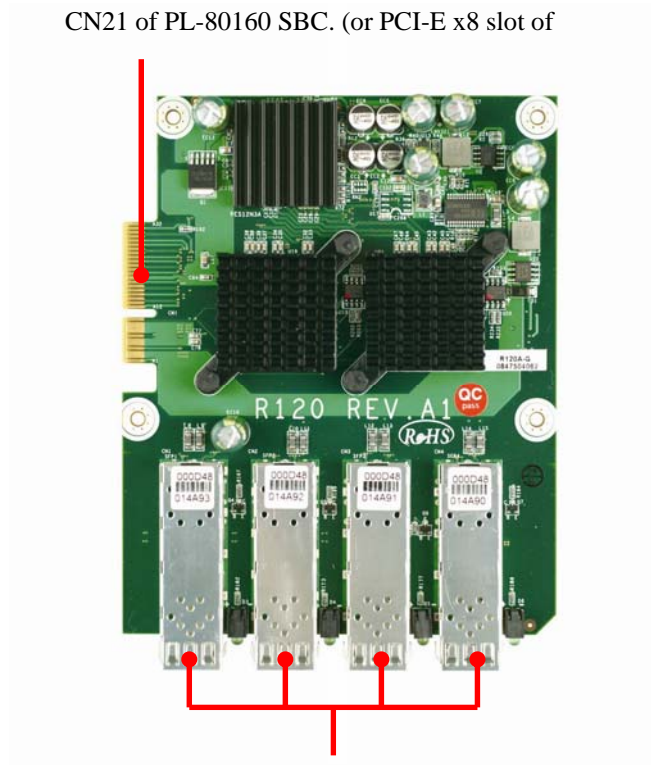
4 x GbE SFP ports

3.3 IP-9062B: Ethernet module with two GbE Copper or SFP

IP-9062B is a two GbE Copper Ethernet module and designed to reserve one pair bypass function for optional (ODM project). The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board. The alternative IP-9062A is a two GbE SFP Ethernet module.

Golden Edge Fingers must be connected with CN21 of PL-80160 SBC.
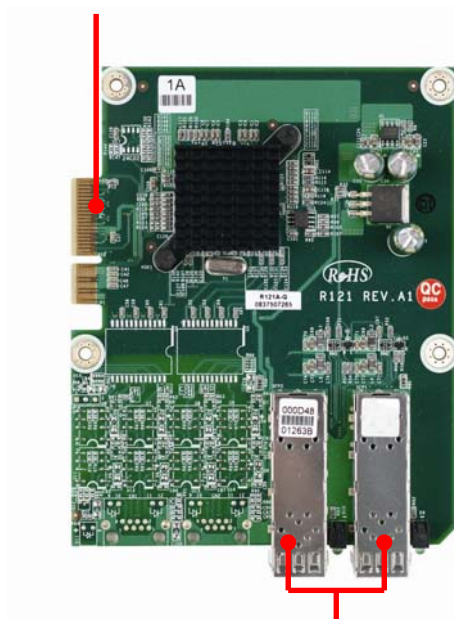
Golden Edge Fingers must be connected with CN21 of PL-80160 SBC.

2 x GbE SFP ports

2 x GbE Copper ports

Picture-1: IP-9062A

Picture-2: IP-9062B

3.4 IP-9063A: Ethernet module with four GbE Copper

IP-9063A is a four GbE Copper Ethernet module. The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board.

Golden Edge Fingers must be connected with CN21

of PL-80160 SBC (or PCI-E x8 slot of R117A)
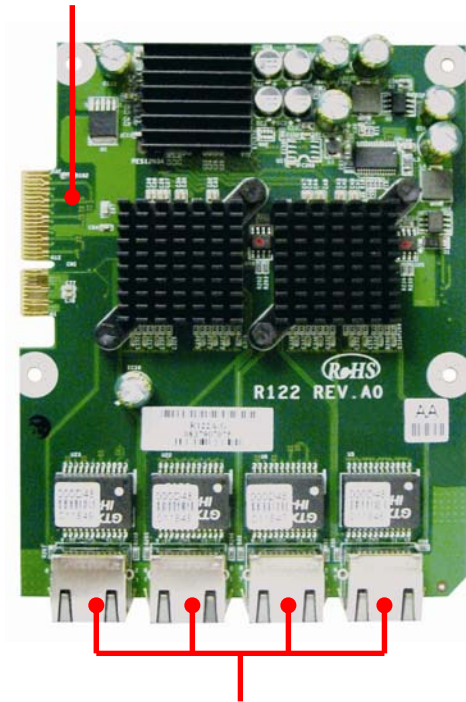
4 x GbE Copper ports

3.5 IP-9064A: Ethernet module with eight GbE Copper

IP-9064A is a Eight GbE Copper Ethernet module. The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board.

Golden Edge Fingers must be

connected with CN21 of PL-80160

SBC.

8 x GbE Copper ports
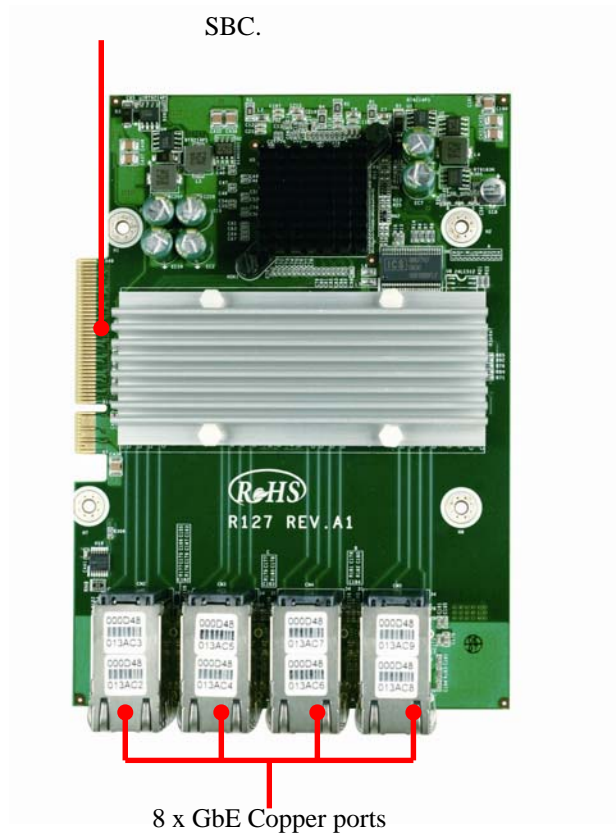
3.6 IP-9065A: Ethernet module with eight GbE SFP

IP-9065A is an Eight GbE SFP Ethernet module. The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board.

Golden Edge Fingers must be

connected with CN21 of PL-80160

SBC.

8 x GbE SFP ports
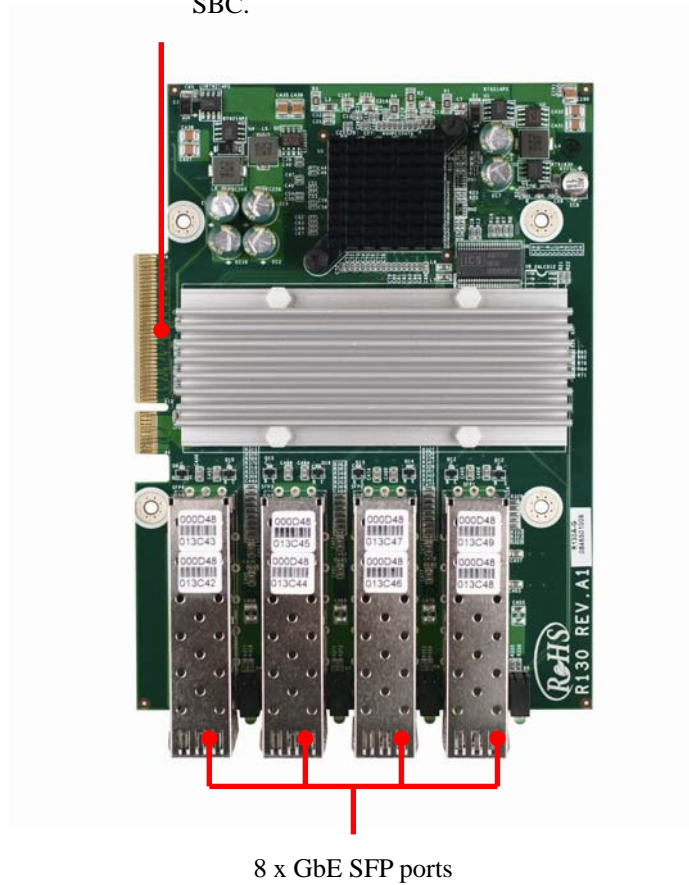
3.7 R168: Ethernet module with four GbE Copper and bypass

R168 is a four GbE Copper Ethernet module with bypass. The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board.

Golden Edge Fingers must be

connected with CN21 of PL-89160

SBC.
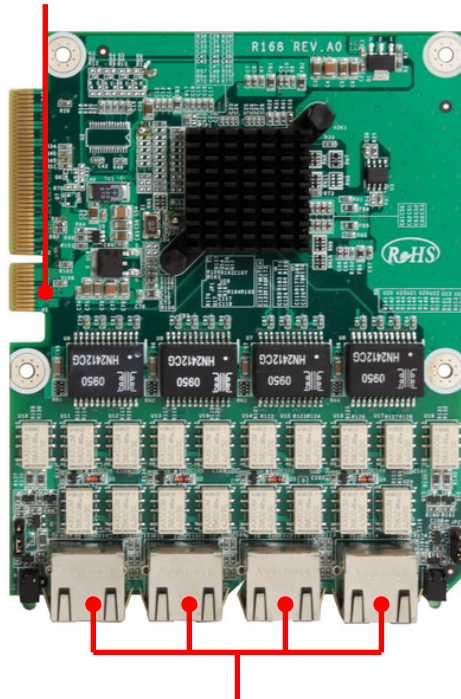
4 x GbE Copper ports

3.8 R169: Ethernet module with four GbE SFP

R169 is a four GbE SFP Ethernet module. The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board.

Golden Edge Fingers must be
connected with CN21 of PL-80160
SBC.

4 x GbE SFP ports
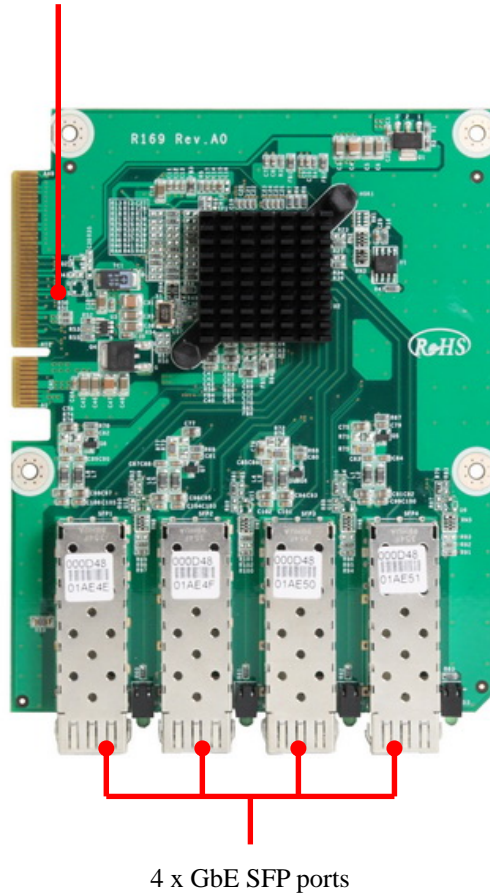
3.9 R171: Ethernet module with eight GbE Copper

R171 is an eight GbE Copper Ethernet module. The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board.

Golden Edge Fingers must be

connected with CN21 of PL-80160

SBC.
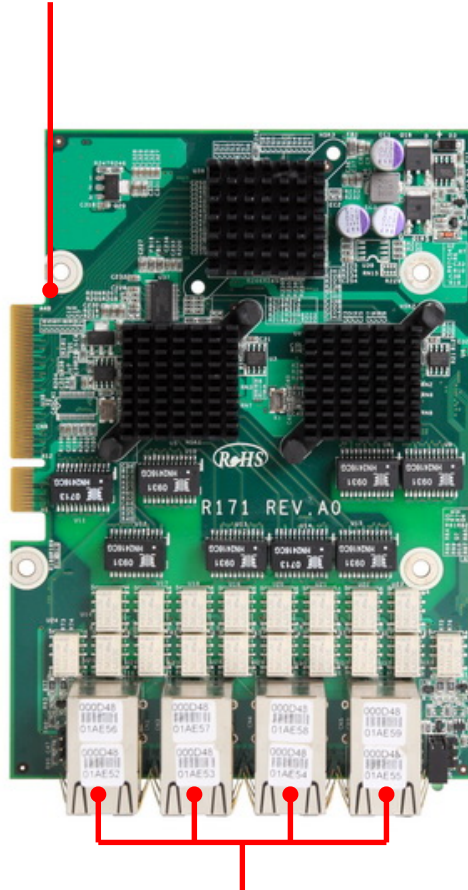
8 x GbE Copper ports

3.10 R175: Ethernet module with four GbE Copper and bypass

R175 is a four GbE Copper Ethernet module with bypass. The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board.

Golden Edge Fingers must be

connected with CN21 of PL-80160

SBC.
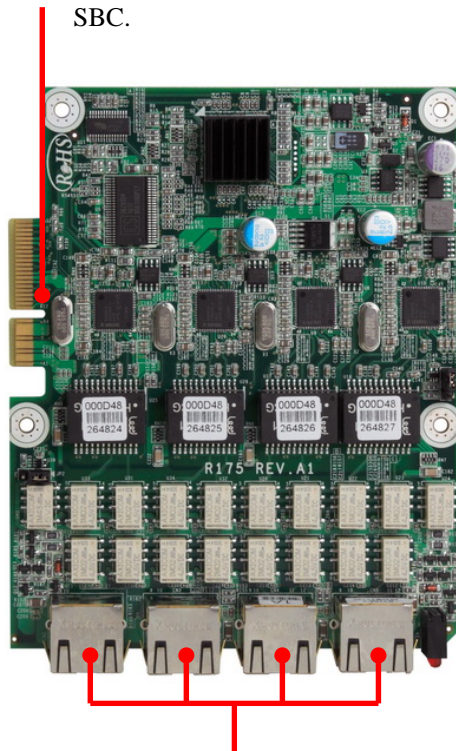
4 x GbE Copper ports

3.11 R186: Ethernet module with four GbE Copper & four GbE SFP

R186 is a four GbE Copper and four GbE SFP Ethernet module with bypass. The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board.

Golden Edge Fingers must be

connected with CN21 of PL-80160

SBC.
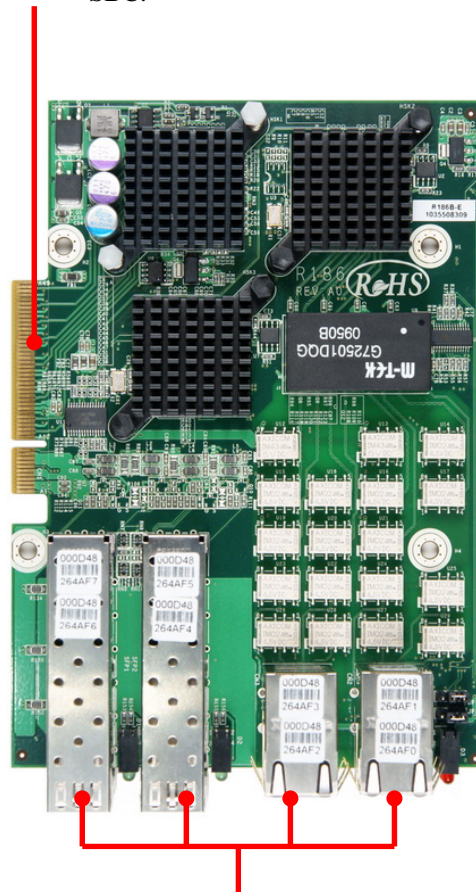
4 x GbE Copper &

4 x GbE SFP ports

3.11 R188: Ethernet module with two 10GbE SFP+

R188 is a two 10GbE SFP+ Ethernet module. The golden edge fingers must be connected with CN21 proprietary connector of PL-80160 board.

Golden Edge Fingers must be

connected with CN21 of PL-80160

SBC.

2 x 10GbE SFP+ ports
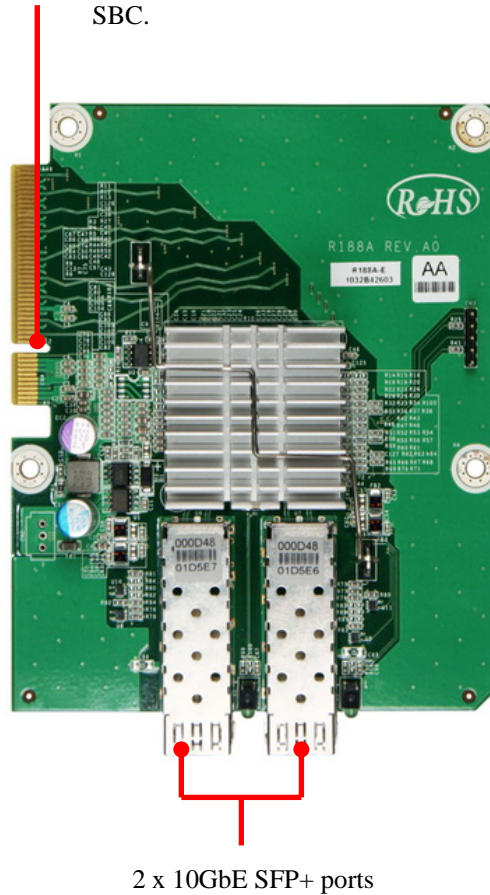
Chapter 4. BIOS Setup

The ROM chip of your PL-80160 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, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes BIOS Setup Utility, 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-80160 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 BIOS Setup Utility

Use the BIOS Setup Utility 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 BIOS Setup Utility after you turn on the system. On-screen instructions explain how to use the program.

Enter the BIOS Setup Utility'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 BIOS Setup Utility.   The main menu appears:

```
                        BIOS SETUP UTILITY
  Main     Advanced    Boot    Security    Chipset    Exit

  System Overview                              Use [ENTER], [TAB]
                                               or [SHIFT-TAB] to
  AMIBIOS                                      select a field.
  Version    :08.00.15
  Build Date:10/07/10
  ID         :89600010                         Use [+] or [-] to
                                               configure system Time.
  Processor

  Speed      :255MHz
  Count      :255

  System Memory                                ←    Select Screen
  Size       :2040MB                           ↑↓   Select Item
                                               +-   Change Field
  System Time            [03:09:23]            Tab  Select Field
  System Date            [Thu 10/07/2010]      F1   General Help
                                               F10  Save and Exit
                                               ESC  Exit

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```

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 BIOS Setup Utility 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.

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:

```
                        BIOS SETUP UTILITY
 Main   Advanced   Boot   Security   Chipset   Exit

 Advanced Settings                            Configure CPU.

 WARNING: Setting wrong values in below sections
          may cause system to malfunction.

 ▶ CPU Configuration
 ▶ IDE Configuration
 ▶ SuperIO Configuration
 ▶ W83793G Hardware Health Configuration
 ▶ ACPI Configuration
 ▶ AHCI Configuration
 ▶ Remote Access Configuration
 ▶ USB Configuration
                                         ←    Select Screen
                                         ↑↓   Select Item
                                         Enter Go to Sub Screen
                                         F1   General Help
                                         F10  Save and Exit
                                         ESC  Exit


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```

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.
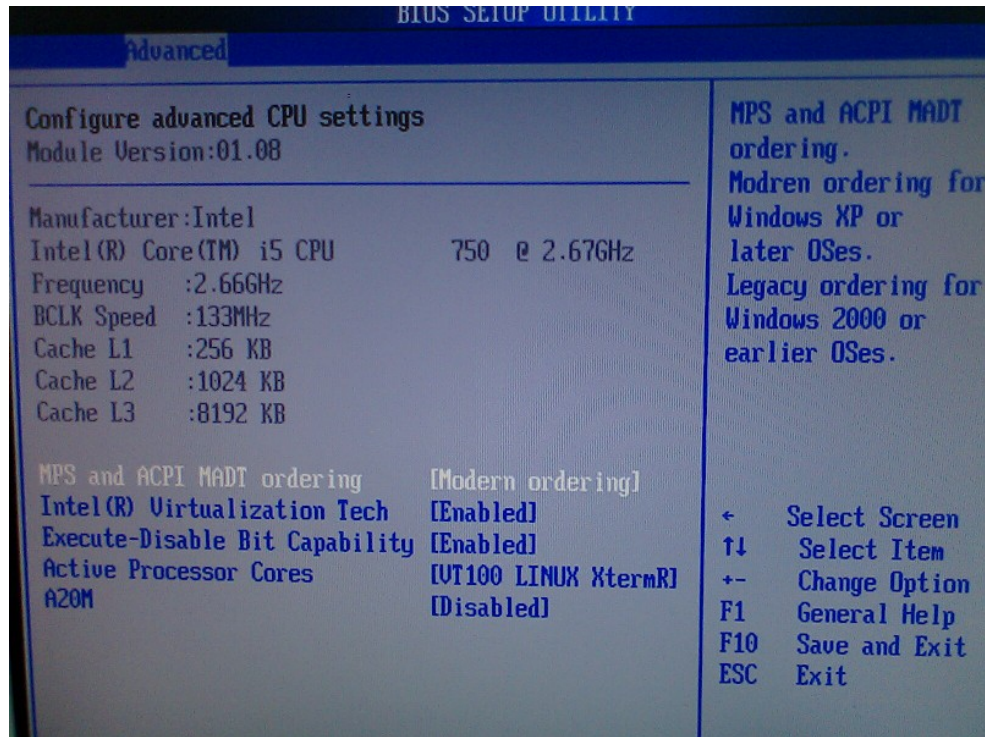
Intel Virtualization Tech: [Enabled]

Enabled: Allows legacy OSes to boot even without support for CPUs with extended cPUID functions.

Disabled: Disable this function.

Execute-Disable Bit Capability: [Enabled]

Enabled: Enables the no-Execution Page Protection Technology.

Disabled: Force the XD feature flag to always return to zero(0).

A20M: [Disable]

Legacy OSes and APs may need this function enable.

4.4.2 IDE Configuration

This sub menu allows you to set or change the configurations for the IDE devices installed in the system.
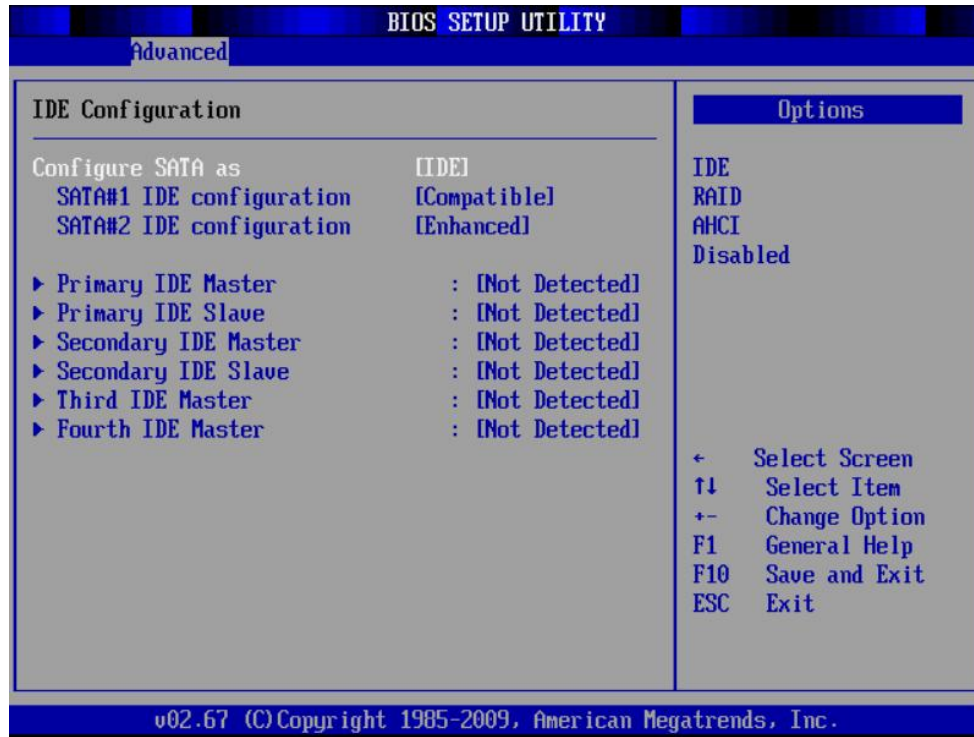
* Primary/Secondary/Third/Fourth IDE Master

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/Secondary IDE Slave

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 (Secondary/Third/Fourth IDE Master & Primary/Secondary IDE Slave are as same as this item.)

```
                        BIOS SETUP UTILITY
    Advanced

  Primary IDE Master                              Select the type
                                                  of device connected
  Device    :Not Detected                         to the system.

  Type                        [Auto]
  LBA/Large Mode              [Auto]
  Block (Multi-Sector Transfer)  [Auto]
  PIO Mode                    [Auto]
  DMA Mode                    [Auto]
  S.M.A.R.T.                  [Auto]
  32Bit Data Transfer         [Disabled]

                                                  ←     Select Screen
                                                  ↑↓    Select Item
                                                  +-    Change Option
                                                  F1    General Help
                                                  F10   Save and Exit
                                                  ESC   Exit


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```

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: [Disabled]

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

This sub menu allows you to set or change the configurations for Super I/O function.

```
                    BIOS SETUP UTILITY
  Advanced

Configure W83627EHF Super IO Chipset          Allows BIOS to Select
                                              Parallel Port Base
Parallel Port Address       [378]            Addresses.
   Parallel Port Mode       [Normal]
   Parallel Port IRQ        [IRQ7]
   power off bypass         [Enabled]
   power on bypass          [Enabled]
Watch Dog Controller        [Disabled]




                                              ↔     Select Screen
                                              ↑↓    Select Item
                                              +-    Change Option
                                              F1    General Help
                                              F10   Save and Exit
                                              ESC   Exit


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```

```
                    BIOS SETUP UTILITY
  Advanced

Configure Win627EHF Super IO Chipset          Allows BIOS to Select
                                              Parallel Port Base
Parallel Port Address       [Disabled]       Addresses.
WatchDog time mode          [Second]
WatchDog Time-out           [000]





                                              ←     Select Screen
                                              ↑↓    Select Item
                                              +-    Change Option
                                              F1    General Help
                                              F10   Save and Exit
                                              ESC   Exit


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```

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.

Power Off Bypass: [Enabled]

This item allows you to enable or disable the LAN bypass function when Power Off.

Power On Bypass: [Disabled]

This item allows you to enable or disable the LAN bypass function when Power On.

Please refer to the Appendix B for LAN Bypass Programming Guide.

Watch Dog Controller: [Disable]

This item allows you to enables or disables Watch Dog Controller.

Please refer to the Appendix A for Watchdog Timer Programming Guide.

4.4.4 Hardware Health Configuration

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

```
                    BIOS SETUP UTILITY
         Advanced

   Hardware Health Configuration

   System Temperature        :36°C/96°F
   CPU Temperature           :46°C/114°F

   CPUFAN0 Speed             :6428 RPM

   Vcore                     :0.968 V
   +3.3V                     :3.296 V
   +12V                      :12.144 V
   +VCCP                     :1.064 V
   +VCC_DDR                  :1.832 V
   +5V                       :5.043 V           ↔     Select Screen
   +1.5V                     :1.488 V           ↑↓    Select Item
   +3.3VSB                   :3.296 V           F1    General Help
   VBAT                      :3.040 V           F10   Save and Exit
                                                ESC   Exit



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```
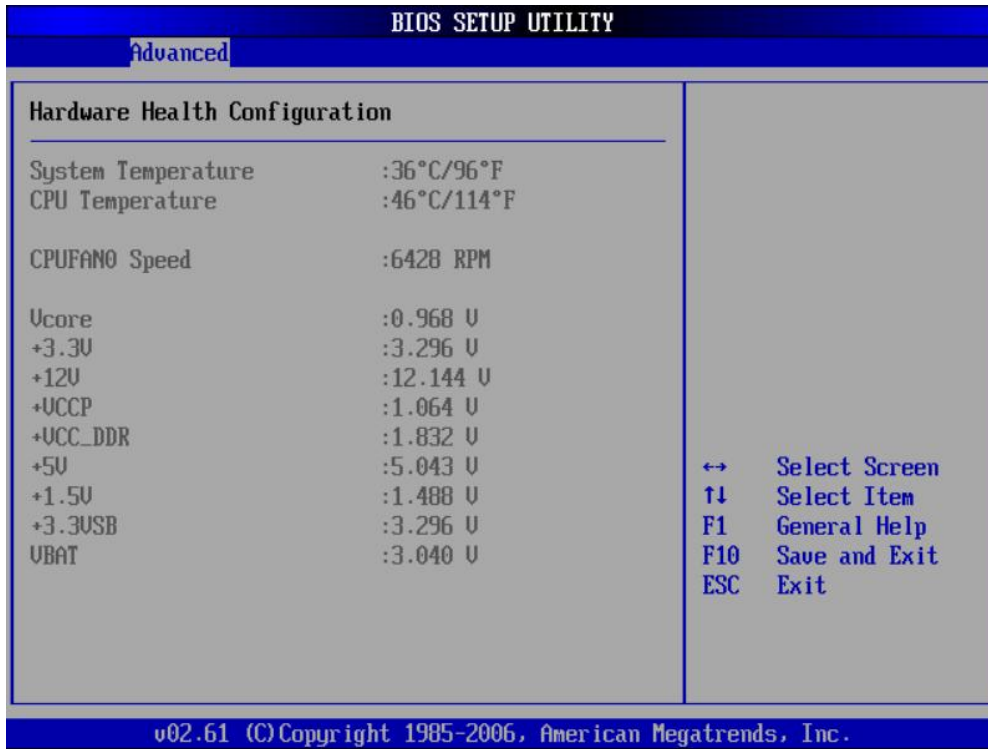
4.4.5 Event Log Configuration

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

```
                    BIOS SETUP UTILITY
         Advanced

   Event Logging details                        View all unread events
                                                on the Event Log.
   View Event Log
   Mark all events as read
   Clear Event Log




                                                ↔     Select Screen
                                                ↑↓    Select Item
                                                Enter Go to Sub Screen
                                                F1    General Help
                                                F10   Save and Exit
                                                ESC   Exit


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```

4.4.6 Remote Access Configuration

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

```
                    BIOS SETUP UTILITY
  Advanced

 Configure Remote Access type and parameters      Select Remote Access
                                                  type.
 Remote Access              [Enabled]

 Serial port number         [COM1]
    Base Address, IRQ        [3F8h, 4]
 Serial Port Mode          [115200 8,n,1]
 Flow Control              [None]
 Redirection After BIOS POST [Disabled]
 Terminal Type             [ANSI]
 VT-UTF8 Combo Key Support  [Enabled]
 Sredir Memory Display Delay [No Delay]

                                                  ←     Select Screen
                                                  ↑↓    Select Item
                                                  +-    Change Option
                                                  F1    General Help
                                                  F10   Save and Exit
                                                  ESC   Exit

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```

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 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: [Disabled]

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.

4.4.7 USB Configuration

This sub menu allows you to change the USB-related features.
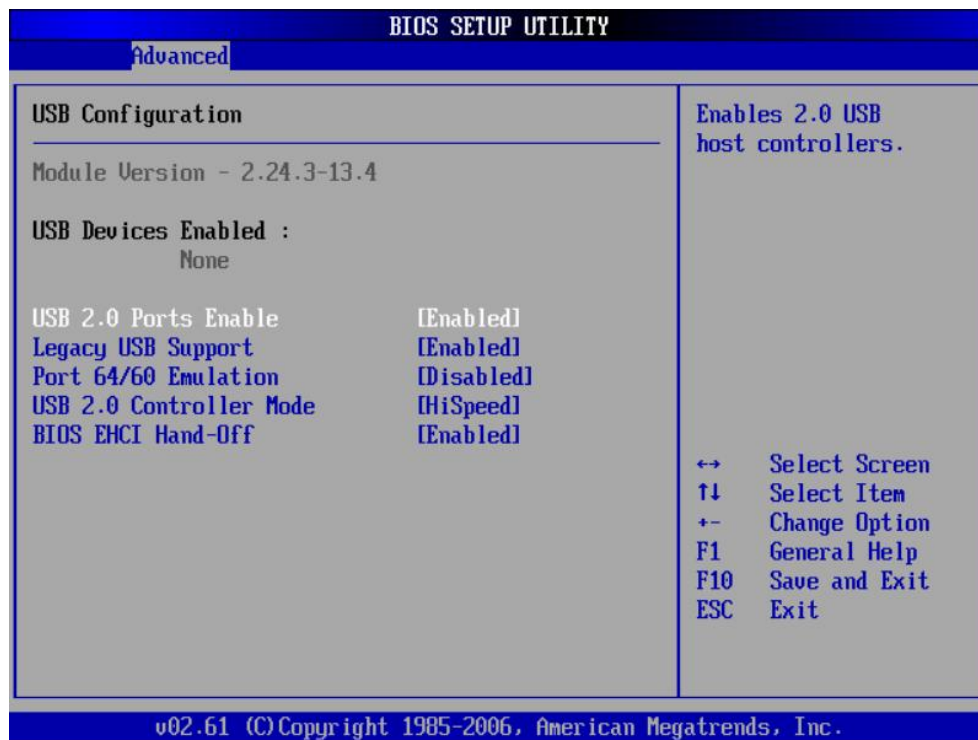
USB 2.0 Ports Enable:

This item allows you to enables or disables USB 2.0 ports.

Legacy USB Support: [Enabled]

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

Port 64/60 Emulation: [Disabled]

This item allows you to enable emulation of I/O ports 64h and 60h so that there is full PS/2 legacy support for USB keyboards and mice. It is also useful in providing USB keyboard and mouse support in Windows NT which does not natively support USB.

USB 2.0 Controller Mode: [HiSpeed]

This item allows you to configure the USB 2.0 controller in HiSpeed (480Mbps) or FullSpeed (12Mbps).

BIOS EHCI Hand-Off: [Enabled]

This item allows you to enable support for operating systems without an EHCI hand-off feature.

4.5 Boot Menu

The Boot menu items allow you to change the settings for the system boot devices.

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

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

```
                        BIOS SETUP UTILITY
 Main    Advanced    Boot    Security    Chipset    Exit

 Boot Settings                              Configure Settings
 ─────────────────────────                  during System Boot.
 ▶ Boot Settings Configuration

 ▶ Boot Device Priority
 ▶ Hard Disk Drives




                                            ↔      Select Screen
                                            ↑↓     Select Item
                                            Enter Go to Sub Screen
                                            F1    General Help
                                            F10   Save and Exit
                                            ESC   Exit


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```

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.

4.5.1 Boot Settings Configuration

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

```
                        BIOS SETUP UTILITY
              Boot

  Boot Settings Configuration                      Allows BIOS to skip
  ──────────────────────────────────              certain tests while
  Quick Boot                    [Enabled]          booting. This will
  Hit 'DEL' Message Display     [Enabled]          decrease the time
  Onboard Lan Boot ROM          [Disabled]         needed to boot the
                                                   system.




                                                   ←     Select Screen
                                                   ↑↓    Select Item
                                                   +-    Change Option
                                                   F1    General Help
                                                   F10   Save and Exit
                                                   ESC   Exit



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```

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.

4.5.2 Boot Device Priority

```
                        BIOS SETUP UTILITY
                Boot

Boot Device Priority                        Specifies the boot
_____      sequence from the
                                            available devices.
1st Boot Device            [HDD:SM-TRANSCEND]
                                            A device enclosed in
                                            parenthesis has been
                                            disabled in the
                                            corresponding type
                                            menu.


                                            ↔    Select Screen
                                            ↑↓   Select Item
                                            +-   Change Option
                                            F1   General Help
                                            F10  Save and Exit
                                            ESC  Exit


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```
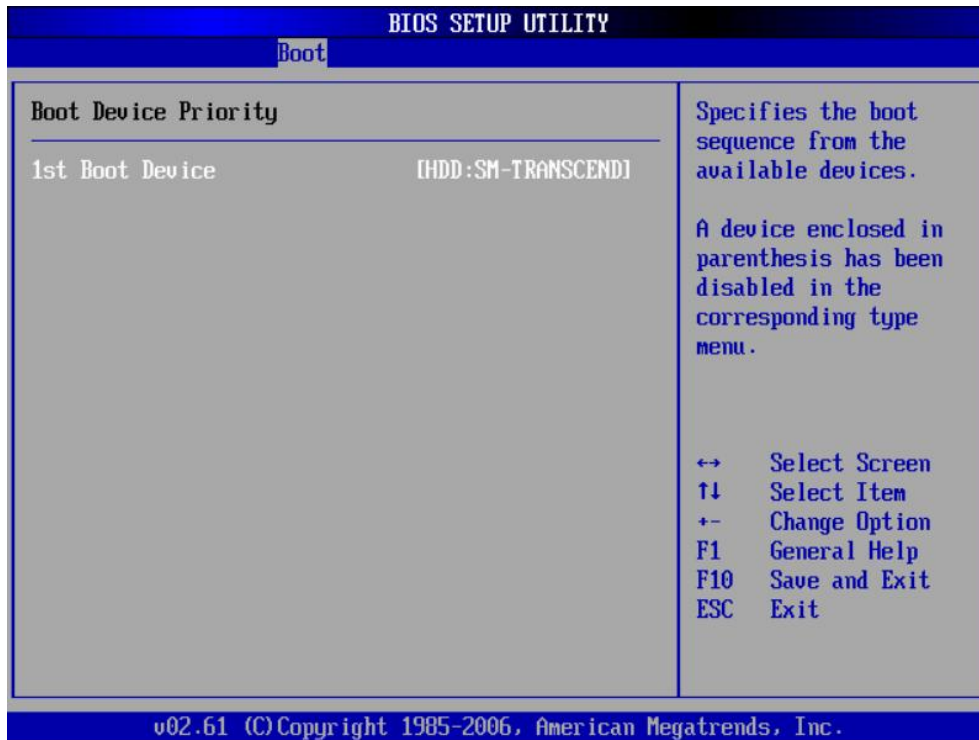
1st Boot Device: [HDD: SM-TRANSCEND]

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.

4.5.3 Hard Disk Drives
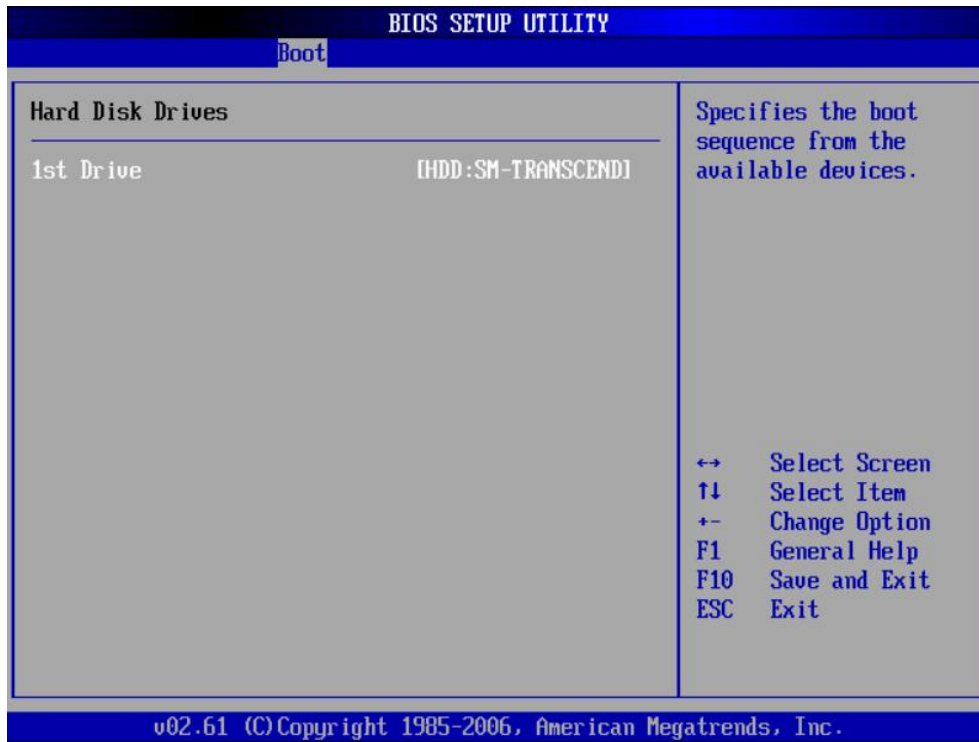
1st Drive: [HDD: SM-TRANSCEND]

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

4.6 Security Menu

The Security menu items allow you to set and change the password for BIOS security.

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

1. Choose "Security" from the main menu. The following screen appears:
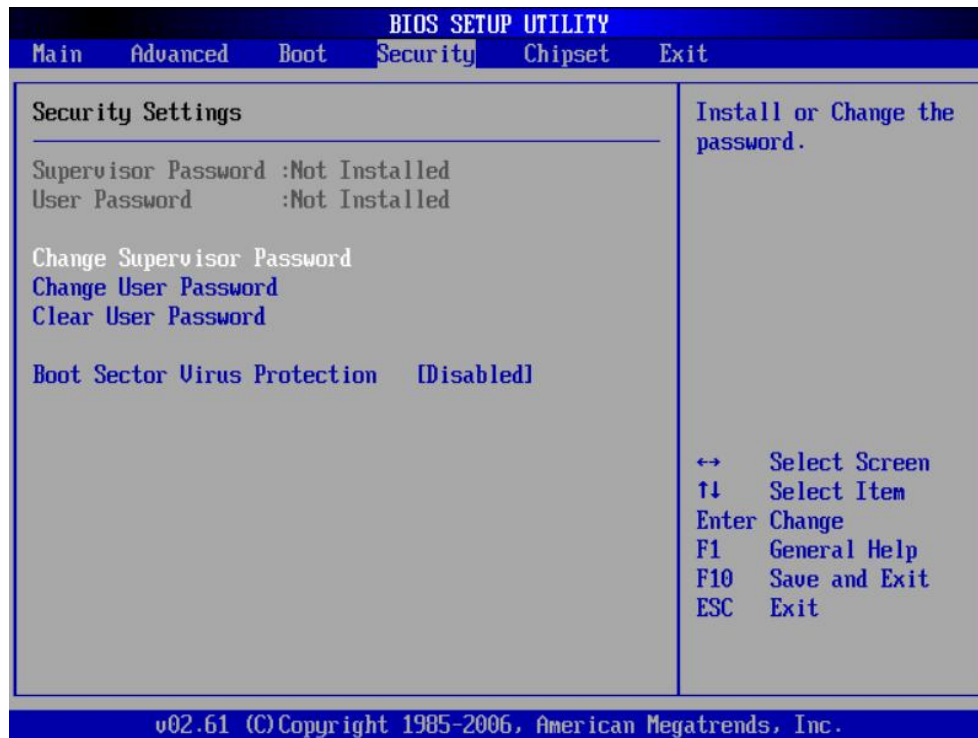
2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. Please press the <F1> key for information on the various options.

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.

Clear User Password:

This item allows you to clear the user password.

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.

4.7 Chipset Menu

The Chipset menu items allow you to change the settings for the VGA and SATA devices.

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

1. Choose "Chipset" from the main menu. The following screen appears.
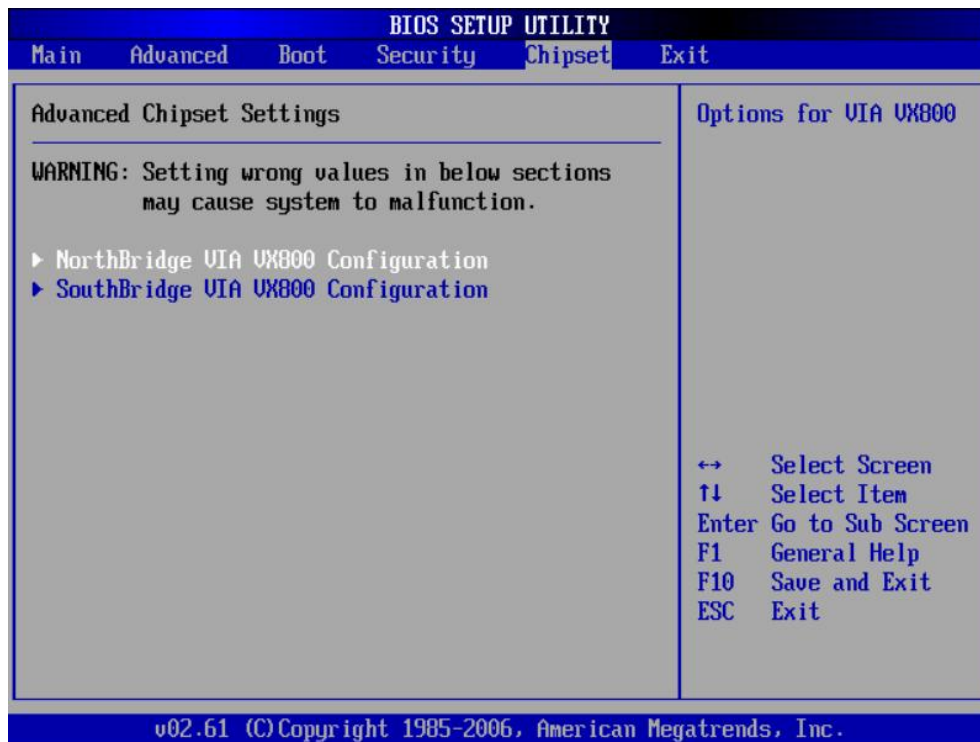
```
                        BIOS SETUP UTILITY
  Main    Advanced    Boot    Security    Chipset    Exit

  Advanced Chipset Settings                    Options for VIA VX800

  WARNING: Setting wrong values in below sections
           may cause system to malfunction.

  ▶ NorthBridge VIA VX800 Configuration
  ▶ SouthBridge VIA VX800 Configuration




                                             ↔     Select Screen
                                             ↑↓    Select Item
                                             Enter Go to Sub Screen
                                             F1    General Help
                                             F10   Save and Exit
                                             ESC   Exit


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```

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.

4.7.1 NorthBridge VIA VX800 Configuration

This sub menu allows you to change the AGP & P2P features.
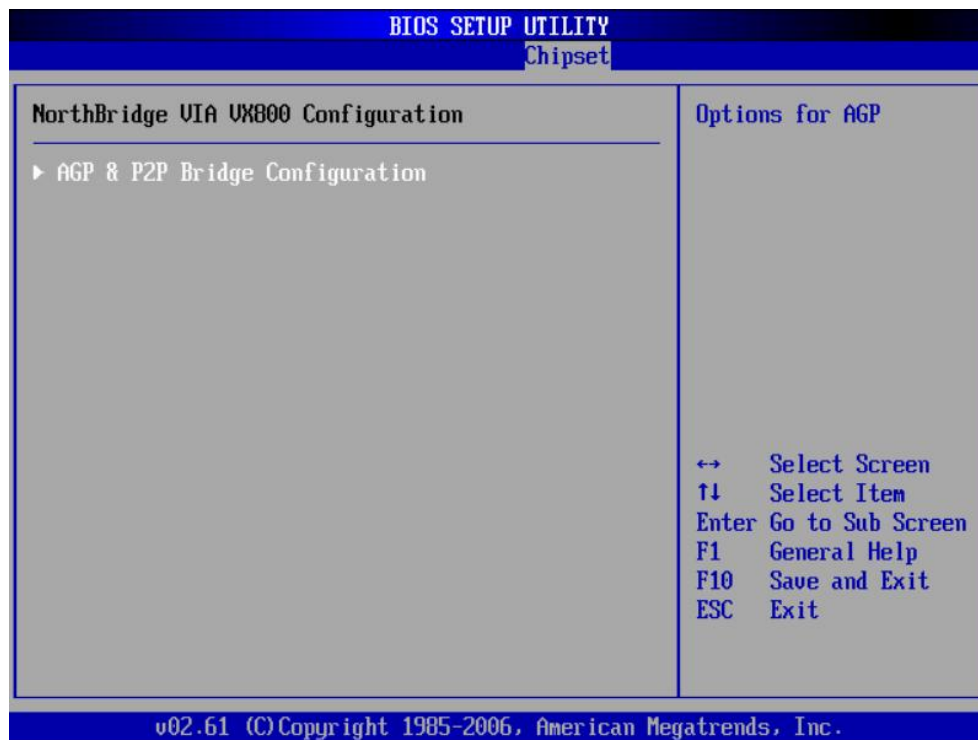
3.7.1.1 AGP & P2P Bridge Configuration
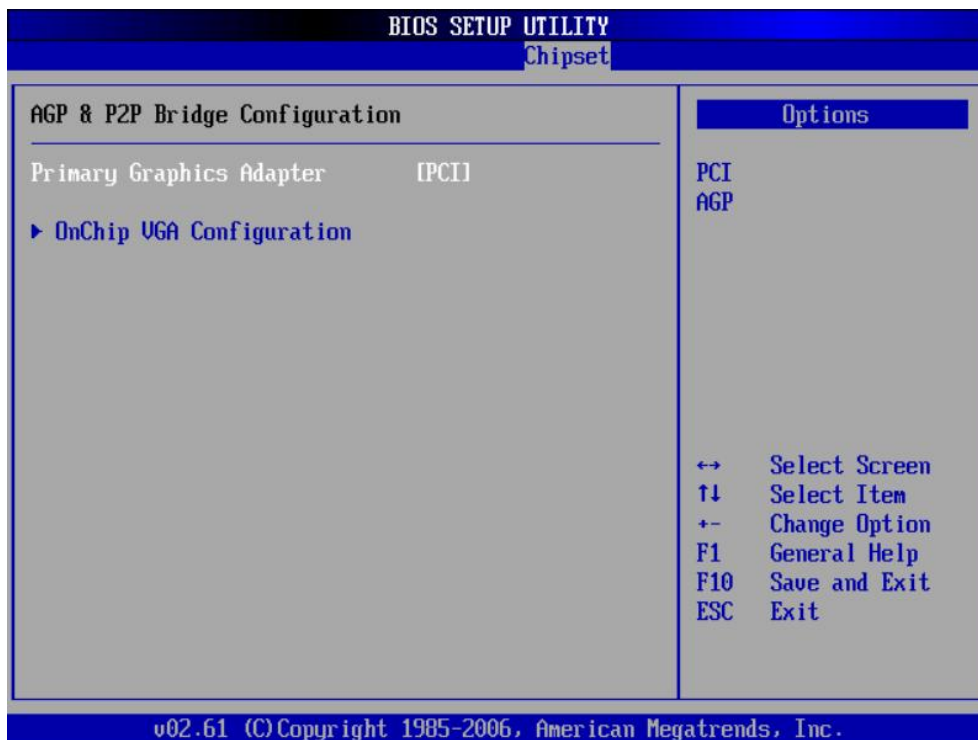
Primary Graphic Adapter: [PCI]

This item allows you to configure the Primary Graphic Adapter in PCI or AGP.

[PCI]: If you install a graphic adapter on PCI or mini-PCI slot, you can select this item.

[AGP]: This item is to use the internal graphic controller (OnChip VGA) of North Bridge to be primary graphic adapter.

4.7.1.1.1 OnChip VGA Configuration

This sub menu allows you to change the OnChip VGA features.

```
                    OnChip VGA Configuration
                          Chipset

 VGA Frame Buffer Size      [256MB]              Options

                                            8MB
                                            16MB
                                            32MB
                                            64MB
                                            128MB
                                            256MB



                                            ↔    Select Screen
                                            ↑↓   Select Item
                                            +-   Change Option
                                            F1   General Help
                                            F10  Save and Exit
                                            ESC  Exit


        v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
```
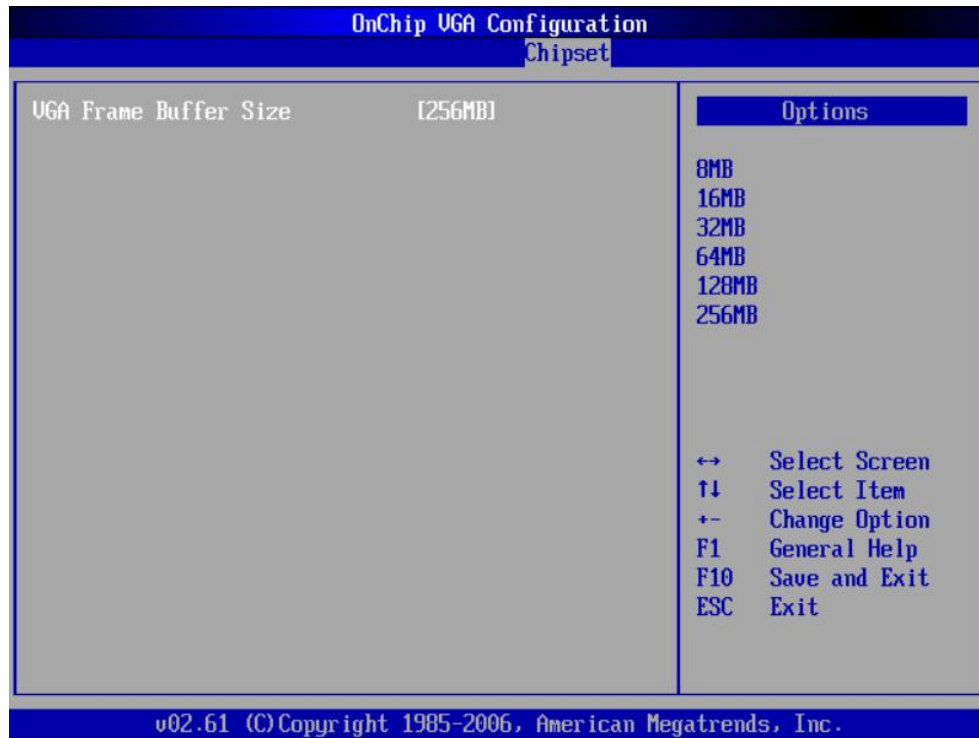
VGA Frame Buffer Size: [256MB]

This item allows you to set the maximum memory size assigned to the internal graphic controller (OnChip VGA).

4.7.2 SouthBridge VIA VX800 Configuration

This sub menu allows you to change the South Bridge features.

```
                SouthBridge VIA VX800 Configuration
                             Chipset

  * Serial ATA IDE Controller    [IDE]              Options
  * SATA GenI/II Control          [Auto]
  * SATA Partial Control          [Disabled]     IDE
  * SATA Slumber Control          [Disabled]     RAID
  * HIPM Support Control          [Disabled]
  * SATA Channel Enable           [Enabled]
  * PATA Channel Enable           [Enabled]




                                               ↔    Select Screen
                                               ↑↓   Select Item
                                               +-   Change Option
                                               F1   General Help
                                               F10  Save and Exit
                                               ESC  Exit



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```

Serial SATA IDE Controller: [IDE]

This item allows you to configure the SATA IDE controller in IDE or RAID mode.

SATA GenI/II Control:[Auto]

This item allows you to configure the SATA GenI/II control in automatic or Gen I / II.

SATA Partial Control:[Disabled]

This item allows you to enable or disable the SATA Partial Control.

SATA Slumber Control:[Disabled]

This item allows you to enable or disable the SATA Slumber Control.

HIPM Support Control:[Disabled]

This item allows you to enable or disable the HIPM Support Control.

SATA Channel Enable:[Enabled]

This item allows you to enable or disable the SATA Channel function.

PATA Channel Enable:[Enabled]

This item allows you to enable or disable the PATA Channel function.

4.7 Exit Menu

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:**

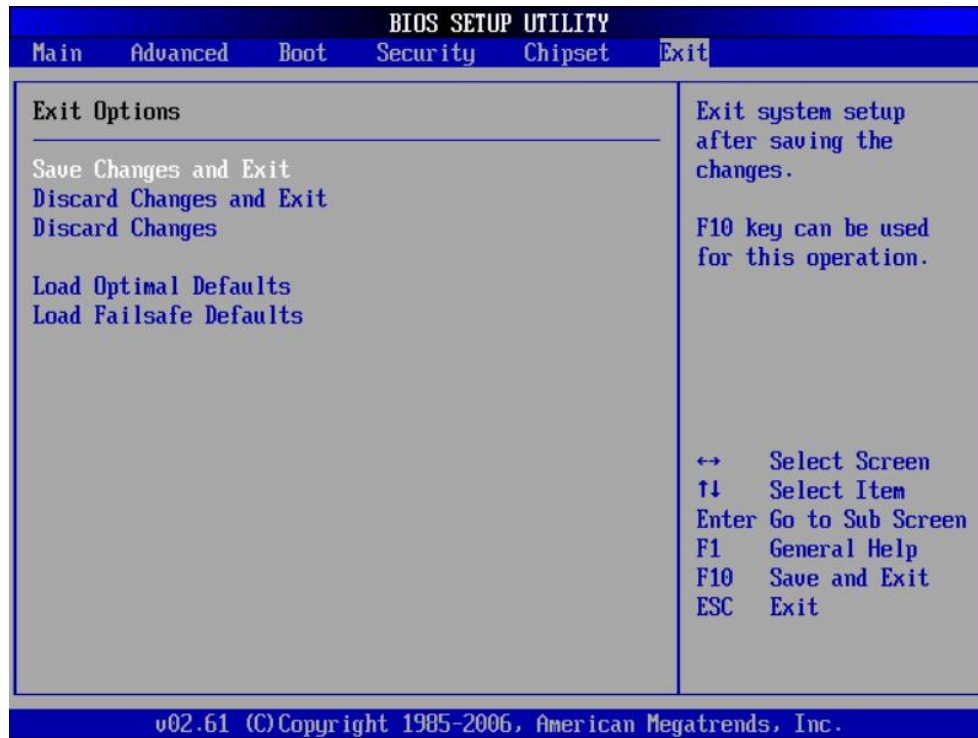1. Choose "Exit" from the main menu. The following screen appears.

```
                      BIOS SETUP UTILITY
  Main    Advanced   Boot   Security   Chipset   Exit

  Exit Options                              Exit system setup
  _____        after saving the
  Save Changes and Exit                     changes.
  Discard Changes and Exit
  Discard Changes                           F10 key can be used
                                            for this operation.
  Load Optimal Defaults
  Load Failsafe Defaults




                                            ↔     Select Screen
                                            ↑↓    Select Item
                                            Enter Go to Sub Screen
                                            F1    General Help
                                            F10   Save and Exit
                                            ESC   Exit


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```

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 Exit, press the <ESC> key to return to the main menu.

Save Changes and Exit:

Save the changes to the system and exit the BIOS setup program. F10 key can be used for this operation.

Discard Changes and Exit:

Exit the BIOS setup program without saving the changes to the system. ESC key can be used for this operation.

Discard Changes:

Discard the changes and load the previous saved settings. F7 key can be used for this operation.

Load Optimal Defaults:

This item allows you to load optimal defaults for all settings on the BIOS Setup menus, and it will provide the best performance settings for system. F9 key can be used for this operation.

Load Failsafe Defaults:

This item allows you to load failsafe defaults for all settings on the BIOS Setup menus, , and it will provide the most stable performance settings for system. 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-80160 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
Windows®	Windows XP 32bit / 64bit SP2
	Windows XP 32bit / 64bit SP3
	Windows Server 2003
	Windows Server 2008
	Windows 7 32bit / 64bit
Linux & Unix Like	RedHat Fedora 9/10/11/12, RedHat Enterprise and other Linux Distribution base on Linux kernel 2.6.23.1-42 or above.

5.2 System Driver Installation

PL-80160 offers the driver for Windows operation system that is listed above in the setup CD. Please install the drivers for your OS that has installed in system.

WIN Enterprises, Inc.   60   Sept., 2010
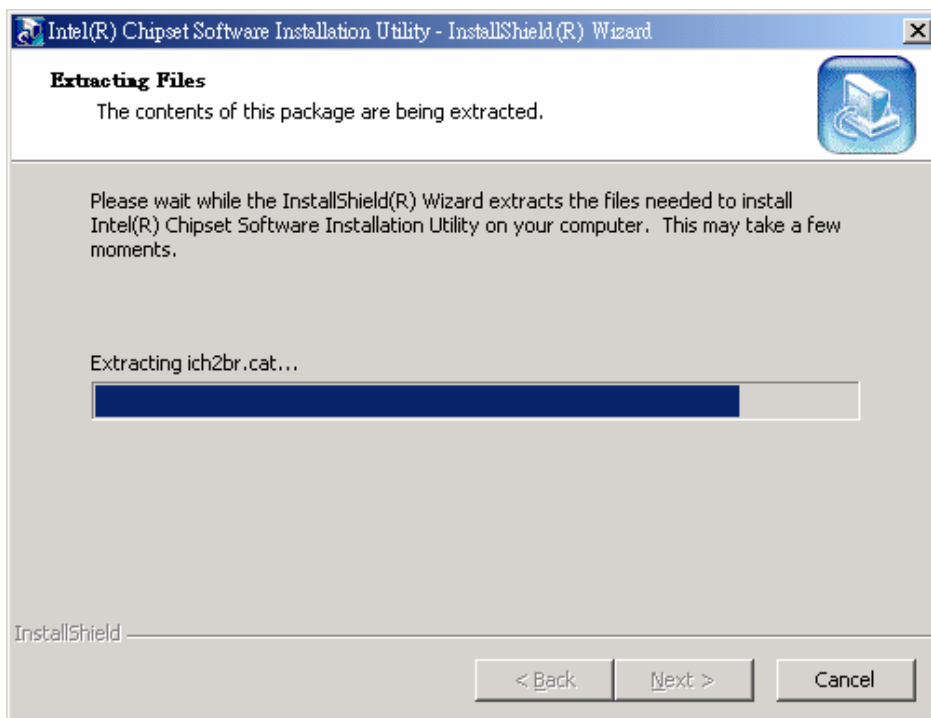
5.3 LAN Driver Installation

PL-80160 offers the LAN driver for Windows operation system that is listed above in the setup CD.   Please click the Autorun file and install the driver following the procedures.

1. Insert the setup CD of PL-80160 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: Watchdog Timer Programming Guide

Watchdog timer overview

As systems continually become more complex, the likelihood that a platform will suffer a hard hang, an operating system (OS) software lockup, or an application lockup is also becoming more likely. Watchdog timer can be used to monitor system software operation and take corrective action if the software fails to function after the programmed period. This section describes the operation of the watchdog timer and how to program it.
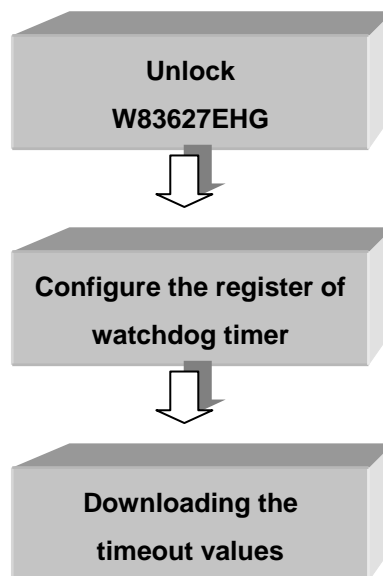
1. Programming the Watchdog Timer

The WIN PL-80160 provides a watchdog timer that can reset the system or activate LAN bypass function. It provides the following function for user programming:

- Can be enabled and disabled by user's program
- Timer can be set from 1 to 255 seconds or 1 to 255 minutes
- Generates a KBRST# or activate WDTO# signal if the software fails to reset the timer when timeout.

2. Watchdog Timer Control Register

The I/O port address of the watchdog timer is 2EH and 2FH, 2EH is the address port, 2FH is the data port. You must first assign the address of register by writing address value into address port 2EH, then write/read data to/from the assigned register through data port 2FH.

```
┌─────────────────────┐
│      Unlock         │
│   W83627EHG         │
└─────────────────────┘
          ⇩
┌─────────────────────┐
│ Configure the register of │
│   watchdog timer    │
└─────────────────────┘
          ⇩
┌─────────────────────┐
│   Downloading the   │
│   timeout values    │
└─────────────────────┘
```

Start the WDT counting down

Lock W83627EHG
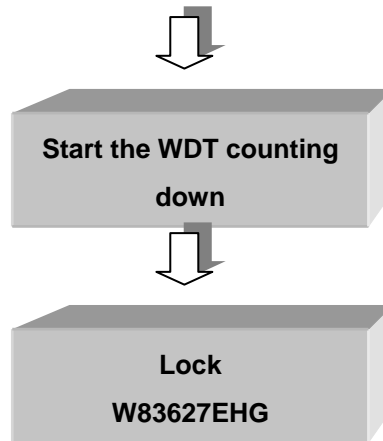
Watchdog Timer Registers		
Address of register (2EH)	**R/W**	**Value (2FH) and Description**
87H	-----	Write this address to I/O address port 2EH twice to unlock the W83627EHG
07H	W	Write 08h to point to logical device 8 and select the register of watchdog timer.
30H	R/W	Write 01h to activate WDTO#. Disabled is set as default.
CRF5, Bit 3	R/W	Select WDTO# count mode. 0: Second Mode 1: Minute Mode
CRF5, Bit 1	R/W	Enable / Disable the WDTO# output low pulse to KBRST# 0: Disable 1: Enable
CRF6	R/W	Watchdog time-out value. 0: stop timer [default] 01~FFh: Writing a non-zero value to this register causes the counter to load the value to watchdog counter and start counting down. The amount of the count, in seconds or minutes, depends on the value set in register CRF5, bit 3. This number decides how long the watchdog timer waits for strobe before generating an interrupt or reset signal. Writing a new value to this register can reset the timer to count with the new value
AAH	-----	Write this address to I/O port 2EH to lock watchdog timer.

3. Example program 1

Enable watchdog timer and set 10 seconds as timeout interval and issue KBRST# as the time-out event occur.

```
;----------------------------------------------------------------------------
;Enter the extended function mode, interruptible double-write
;----------------------------------------------------------------------------
MOV DX,2EH   ; Unlock W83627EHG
MOV AL,87H
OUT DX,AL
OUT DX,AL
;----------------------------------------------------------------------------
; Configure logical device 8
;----------------------------------------------------------------------------
MOV AL,07H
OUT DX,AL       ; Point to Logical Device Number Reg.
INC DX
MOV AL,08H
OUT DX,AL       ; Select logical device 8
;----------------------------------------------------------------------------
; Set second as counting unit and KBRST# time-out event
;----------------------------------------------------------------------------
DEC DX
MOV AL,F5H
OUT DX,AL        ; Select CRF5
INC DX
IN AL,DX
AND AL,F5H        ; Set Watchdog time-our to second mode
OR AL,02H
OUT DX,AL         ; Enable the WDTO# output low pulse to KBRST#
;----------------------------------------------------------------------------
; Load 10 seconds to Watchdog Counter and start counting down
;----------------------------------------------------------------------------
DEC DX
MOV AL,F6H
OUT DX,AL        ; Select CRF6
INC DX
```

```
MOV AL,0AH
OUT DX,AL        ; Time-out occurs after 10 seconds
;--------------------------------------------------------------------------------
; Exit extended function mode
;--------------------------------------------------------------------------------
DEC DX
MOV AL,AAH
OUT DX,AL
```

4. Example program 2

Enable watchdog timer and set 2 minutes as timeout interval and set WDTO#
signal as the time-out event to control LAN by-pass or activate hardware reset
through JP4. Please refer to jumper setting section for more detail information.

```
;----------------------------------------------------------------------------
;Enter the extended function mode, interruptible double-write
;----------------------------------------------------------------------------
MOV DX,2EH   ; Unlock W83627EHG
MOV AL,87H
OUT DX,AL
OUT DX,AL
;----------------------------------------------------------------------------
; Configure logical device 8
;----------------------------------------------------------------------------
MOV AL,07H
OUT DX,AL      ; Point to Logical Device Number Reg.
INC DX
MOV AL,08H
OUT DX,AL      ; Select logical device 8
;----------------------------------------------------------------------------
; Set minute as counting unit
;----------------------------------------------------------------------------
DEC DX
MOV AL,F5H
OUT DX,AL        ; Select CRF5
```

```
INC DX
MOV AL,08H
OUT DX,AL          ; Set Watchdog time-our to minute mode
;----------------------------------------------------------------------------------
; Load 2 minutes to Watchdog Counter and start counting down
;----------------------------------------------------------------------------------
DEC DX
MOV AL,F6H
OUT DX,AL          ; Select CRF6
INC DX
MOV AL,02H
OUT DX,AL          ; Time-out occurs after 2 minutes
;----------------------------------------------------------------------------------
; Exit extended function mode
;----------------------------------------------------------------------------------
DEC DX
MOV AL,AAH
OUT DX,AL
```

Appendix B: LAN Bypass Programming Guide

WIN PL-80160 provides LAN bypass functionality to ensure that data can still pass through the device, even when it is powered off. This feature helps ensure the continuous flow of data through the device in the event of a hardware failure. For network security appliances deployed at the gateway, for example, it is crucial that they provide LAN bypass functionality to ensure that hardware failure on these appliances will not bring down the entire network. Related BIOS settings are in the "Super IO Configuration" section.

The PL-80160 provides two pair bypass function between CN28 / CN29 and CN31 / CN32 LAN ports on motherboard. (Refer to Page 10.). The BIOS "Power on/off Bypass" settings control the bypass function through GPIO pins.

End

1. LAN Bypass Definition

There are two bypass settings in BIOS setup.

Power off Bypass: Enable/Disable

Power on Bypass: Enable/Disable

Note: If "Power off Bypass" set to "Disable", the "Power on Bypass" also set to "Disable" and it can not allow to be changed or selected.

**The table and figures below are the explanation for the behavior of LAN Bypass function.**

| Power status	BIOS Bypass setting	Bypass Behavior
ON	Power off Bypass: Disable Power on Bypass: Disable	A
ON	Power off Bypass: Enable Power on Bypass: Disable	A
ON	Power off Bypass: Enable Power on Bypass: Enable * Note	B
OFF	Power off Bypass: Disable Power on Bypass: Disable	A
OFF	Power off Bypass: Enable Power on Bypass: Disable	B
OFF	Power off Bypass: Enable	B

	Power on Bypass: Enable *Note*	

Note: Before you want to set this item, the "Power off Bypass" must set to "Enable".

Bypass Behavior A:
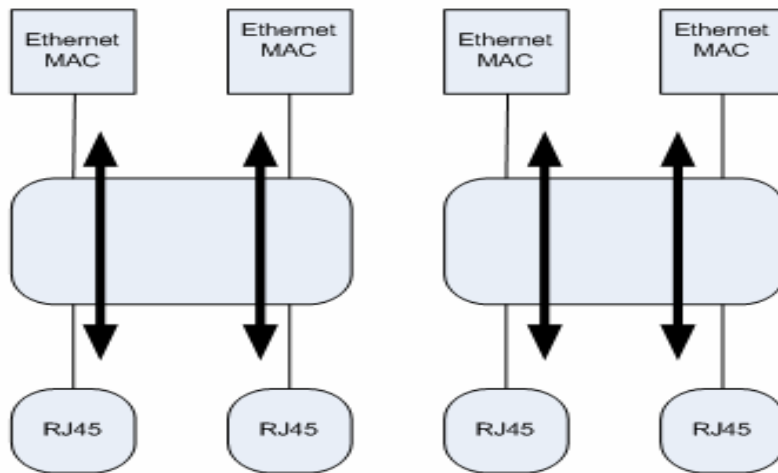
Bypass Behavior B:
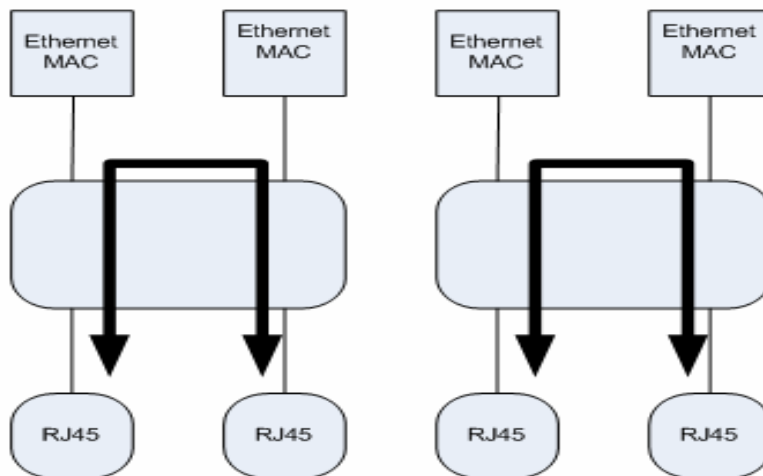
2. How to control bypass function by watchdog timer

Please follow below steps to set the LAN bypass function control by watchdog timer.

(1). Setup jumper JP6 to 2-3 shorted to enable bypass function when watchdog timer time-out.

(2). Refer to watchdog timer section to set timer interval value and enable watchdog timer.

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

3. How to control LAN bypass function by GPIO during power on state

The bypass function can be enabled or disabled through Super I/O W83627EHG GPIO1 during power on state. Below is the I/O port address and control bit.

Bypass Control Register							
Logical Device 7, CR 30h							
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
X	X	X	X	X	R/W	R/W	R/W

R/W: Read/Write, X: Not used

Bit [2:0]:

101 – Set bypass to disable when power on

010 – Set bypass to enable when power on

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

(1). Set jumper JP6 to 1-2 to and bypass function can be controlled by GPI1.

(2). Refer to below program code and set LAN bypass enable or disable.

Bypass disabled when power on

```
==============================
MOV DX, 02EH
MOV AL, 07H          ;Logic Device 7
OUT DX, AL
INC  DX
OUT DX, AL           ;select Logic device 7

DEC DX
MOV AL, 30H
OUT DX, AL
INC  DX
MOV AL, 01H
OUT DX, AL           ;Enable GPIO1

DEC DX
MOV AL, 0F1H
OUT DX, AL
INC  DX
IN   AL, DX          ;Read register F1 Data
```

```
AND AL, 11111000B          ;Mask Bit 0 1 2 to use Bypass
OR   AL, 00000101B         ;set disable bypass bit
OUT DX, AL           ;out setting
==============================
```

Bypass enabled when power on

```
==============================
MOV DX, 02EH
MOV AL, 07H          ;Logic Device 7
OUT DX, AL
INC  DX
OUT DX, AL           ;select Logic device 7

DEC DX
MOV AL, 30H
OUT DX, AL
INC  DX
MOV AL, 01H
OUT DX, AL           ;Enable GPIO1

DEC DX
MOV AL, 0F1H
OUT DX, AL
INC  DX
IN    AL, DX          ;Read register F1 Data

AND AL, 11111000B          ;Mask Bit 0 1 2 to use Bypass
OR   AL, 00000010B         ;set Power on bypass bit
OUT DX, AL           ;out setting
==============================
```

4. How to control LAN bypass function by GPIO during power off state

The power off bypass function can be enabled or disabled through W83627EHG GPIO1. Below is the I/O port address and control bit.

Bypass Control Register							
Logical Device 7, CR 30h							
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
X	X	X	X	X	R/W	R/W	R/W

R/W: Read/Write, X: Not used

Bit [2:0]:

101 – Set bypass to disable when power off

110 – Set bypass to enable when power off

Refer to below program code and set LAN bypass enable or disable when power off.

Bypass disabled when power off

```
==============================
MOV DX, 02EH
MOV AL, 07H          ;Logic Device 7
OUT DX, AL
INC  DX
OUT DX, AL           ;select Logic device 7

DEC DX
MOV AL, 30H
OUT DX, AL
INC  DX
MOV AL, 01H
OUT DX, AL           ;Enable GPIO1

DEC DX
MOV AL, 0F1H
OUT DX, AL
INC  DX
IN   AL, DX          ;Read register F1 Data

AND AL, 11111000B        ;Mask Bit 0 1 2 to use Bypass
```

```
OR   AL, 00000101B        ;set disable bypass bit
OUT DX, AL          ;out setting
==============================
```

Bypass enabled when power off

```
==============================
MOV DX, 02EH
MOV AL, 07H          ;Logic Device 7
OUT DX, AL
INC  DX
OUT DX, AL          ;select Logic device 7

DEC DX
MOV AL, 30H
OUT DX, AL
INC  DX
MOV AL, 01H
OUT DX, AL          ;Enable GPIO1

DEC DX
MOV AL, 0F1H
OUT DX, AL
INC  DX
IN    AL, DX          ;Read register F1 Data

AND AL, 11111000B        ;Mask Bit 0 1 2 to use Bypass
OR   AL, 00000110B        ;set Power on bypass bit
OUT DX, AL          ;out setting
==============================
```

Appendix C: System Resources

Interrupt Controller:

The PL-80160 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-PCI Bridge
IRQ6	FDD Controller
IRQ7	Ethernet Controller
IRQ8	RTC
IRQ9	ISA/free
IRQ10	PCI-PCI Bridge
IRQ11	Ethernet Controller
IRQ12	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
DMA0	ISA/Free
DMA1	ISA/Free
DMA2	FDD Controller
DMA3	ISA/Free
DMA4	AT DMA controller /Cascade
DMA5	ISA/Free

DMA6	ISA/Free
DMA7	ISA/Free

Memory Map:

The following table indicates memory of PL-80160. 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 ~ CCFFF	ISA	Adapter ROM
E4000 ~ E7FFF	ISA	Mapped RAM
EC000 ~ EFFFF	ISA	Mapped RAM
F0000 ~ FFFFF	ISA	System BIOS

Memory above 1MB (1MB ~ 1833984 KB)

Address Range	Type	Owner
D0000000~DFFFFFFF	PCI	PCI-PCI Bridge
FB7FC000~FB7FC3FF	PCI	USB Controller
FB7FE000~FB7FE3FF	PCI	USB Controller
F8000000~FB8FFFFF	PCI	PCI-PCI Bridge
FB980000~FB9BFFFF	PCI	Ethernet Controller
FB9DC000~FB9DFFFF	PCI	Ethernet Controller
FB9E0000~FB9FFFFF	PCI	Ethernet Controller
FBA80000~FBABFFFF	PCI	Ethernet Controller
FBADC000~FBADFFFF	PCI	Ethernet Controller
FBAE0000~FBAFFFFF	PCI	Ethernet Controller
FBB80000~FBBBFFFF	PCI	Ethernet Controller
FBBDC000~FBBDFFFF	PCI	Ethernet Controller
FBBE0000~FBBFFFFF	PCI	Ethernet Controller
FBC00000~FBEFFFFF	PCI	Ethernet Controller
FBF00000~FBFFFFFF	PCI	Ethernet Controller

System Memory Map

Start High	Start Low	Size High	Size	Type
00000000	00000000	00000000	0009FC00	Available
00000000	0009FC00	00000000	00000400	Reserved
00000000	000E0000	00000000	00020000	Reserved
00000000	00100000	00000000	7F6A0000	Available
00000000	7F7A0000	00000000	0000E000	SCPI Space
00000000	7F7AE000	00000000	00022000	AVS Space
00000000	7F7D0000	00000000	00010000	Reserved
00000000	7F7ED000	00000000	00013000	Reserved
00000000	7F800000	00000000	00800000	Reserved
00000000	FEE00000	00000000	00001000	Reserved
00000000	FFA00000	00000000	00600000	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
2E ~ 2F	Motherboard Resource
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
1F0~1F7	IDE controller
2F8 ~ 2FF	COM2
376	IDE controller
378 ~ 37A	LPT1

3B0 ~ 3BB	VGA Adapter
3C0 ~ 3DF	VGA Adapter
3F6	IDE controller
3F8 ~ 3FF	COM1
4D0 ~ 4D1	Motherboard Resource
500 ~ 57F	Motherboard Resource
800 ~ 87F	Motherboard Resource
A00 ~ A0F	Motherboard Resource
A10 ~ A1F	Motherboard Resource
CF8 ~ CFF	Motherboard Resource
7000 ~ 7FFF	PCI-PCI Bridge
8C00 ~ 8C1E	Ethernet Controller
9C00 ~ 9C1E	Ethernet Controller
AC00 ~ AC1E	Ethernet Controller
B000 ~ DFFF	PCI-PCI Bridge
E000 ~ EFFF	PCI-PCI Bridge

Appendix D: Cable Development Kit

The PL-80160 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 -CO5204-00	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-CO5204-00   CB-RJDB91-00

CB-DB9200-00   CB-IVGA01-00

CB-IPS200-00   CB-IUSB01-00