



User's Manual

Version 1.2

Network Appliance

Model Number PL-10390

1U Rack-mount Intel® Dual Core Xeon® LV/ULV Network Appliance with Eight GbE, PCI, LCM



www.win-ent.com

User's Manual, Version 1.2

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Chapter 1. General Information

1.1 Introduction

The PL-10390 is a high performance networking platform based on an Intel Dual Core Xeon® LV/ULV architecture combined with Intel 3100 integrated chipset. The PL-10390 is designed to support GbE modules and I/O module. It can support two GbE modules which are equipped with eight GbE ports in total and with bypass function in four GbE ports. Offering a good cost / performance ratio, this high performance platform is suitable for SMB/Enterprise network applications. It can effectively used for as a platform for Firewall, VPN, Load Balancing, UTM, IPS, IDS, and other network applications.

1.2 Specifications

General Functions	
CPU	Intel Dual Core Xeon® LV/ULV Processors with 667MHz FSB
Chipset	Intel 3100
Memory	Two 240pin DDR II DIMM socket at 400MHz up to 4GB
Ethernet	Eight GbE ports utilizing two Intel® 82571EB PCI-Ex4 and four Intel® 82573L PCI-Ex1 Ethernet controllers (One removable module with 4 SFP/Copper bypass ports)
SATA	Two SATA connectors
Enhanced IDE	One 40pin E-ATA connector
I/O Port	One RJ45 console port & one USB2.0 port
Expansion Slot	One PCI Slot and one Mini PCI slot
SSD	One 50-pin CompactFlash™ type II socket
Mechanical & Environmental	
LCD Indicator	LED indicators for Power/HDD/Bypass/SFP Link
LCM & Keypad	20 x 2 characters LCM & four buttons keypad
Power Supply	1U 200W ATX power supply
Operating Temperature	32 to 104°F (0 to 40°C)
Storage Temperature	4 to 167°F (-20 to 75°C)
Humidity	5 to 95% relative humidity, non-operating, non-condensing
Dimensions (W x D x H)	440mm (W) x 400mm (D) x 44mm (H) (17.3" W x 15.7" D x 1.7" H)
Certifications	CE/FCC
* Note: All specifications are subject to change without prior notice	

1.3 Ordering Information

Accessories for the PL-10390

Model	Description
PL-1039A	1U rack-mount Intel® Dual Core Xeon® LV/ULV (Sossaman) Networking Appliance, eight Copper, four ports with bypass function, LCM
PL-1039B	1U rack-mount Intel® Dual Core Xeon® LV/ULV (Sossaman) Networking Appliance, four Copper, four SFP with bypass function, LCM
DK001	Cable development kit
TCB890201	Rack mount kit
TCB890202	2.5" HDD kit
TCB890203	3.5" HDD kit

1.4 Packaging

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

1. PL-10390 chassis *1
2. PL-10390 main board *1
3. Cables (Optional)
4. CD-ROM that contains the following folders:
 - (1) Manual
 - (2) System Driver
 - (3) Ethernet Driver
 - (4) Utility Tools

If any item of above is missing or damaged, please contact your dealer or retailer from whom you purchased the PL-10390. Keep the box and carton when you probably ship or store PL-10390 in near future. After you unpack the goods, inspect and make sure the packaging is intact. Do not plug the power adapter to the main board of PL-10390 if you already find it appears damaged.

Note: Keep the PL-10390 in the original packaging until you start installation.

1.5 Precautions

Please make sure you properly ground yourself before handling the PL-10390 appliance or any system components. Electrostatic discharge can be easily damage the PL-10390 appliance.

Do not remove the anti-static packing until you are ready to install the PL-10390. Ground yourself before removing any system component from its protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

Handle the PL-10390 appliance by its edges and avoid touching its components.

1.6 SystemLayout

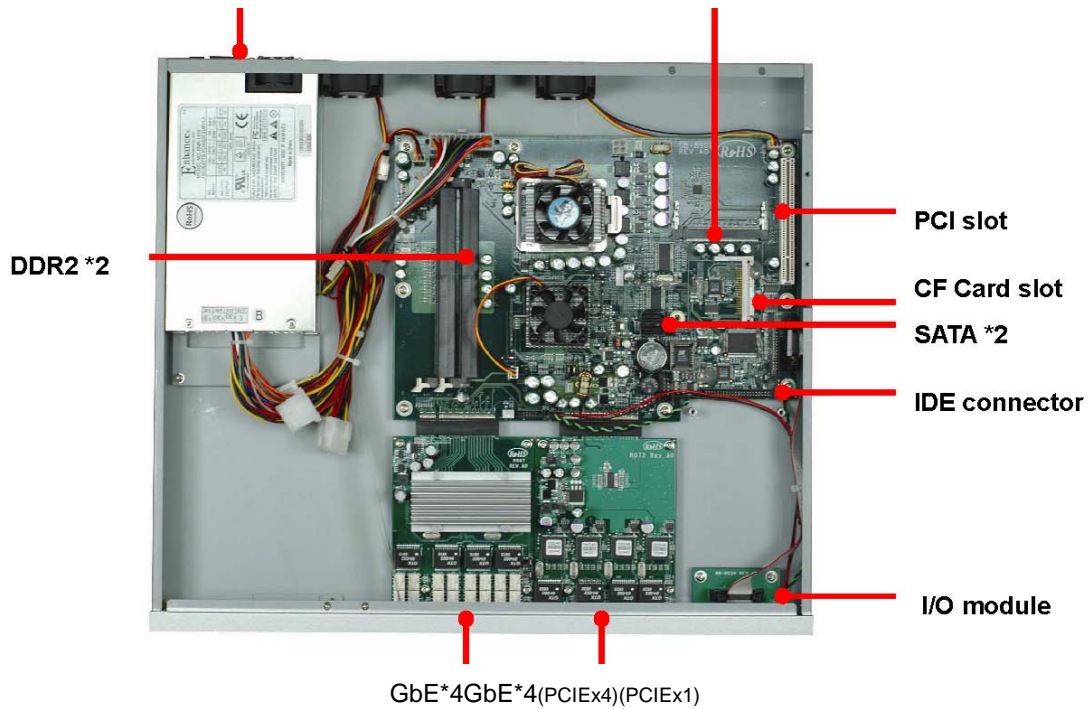
PL-10390 Front Side



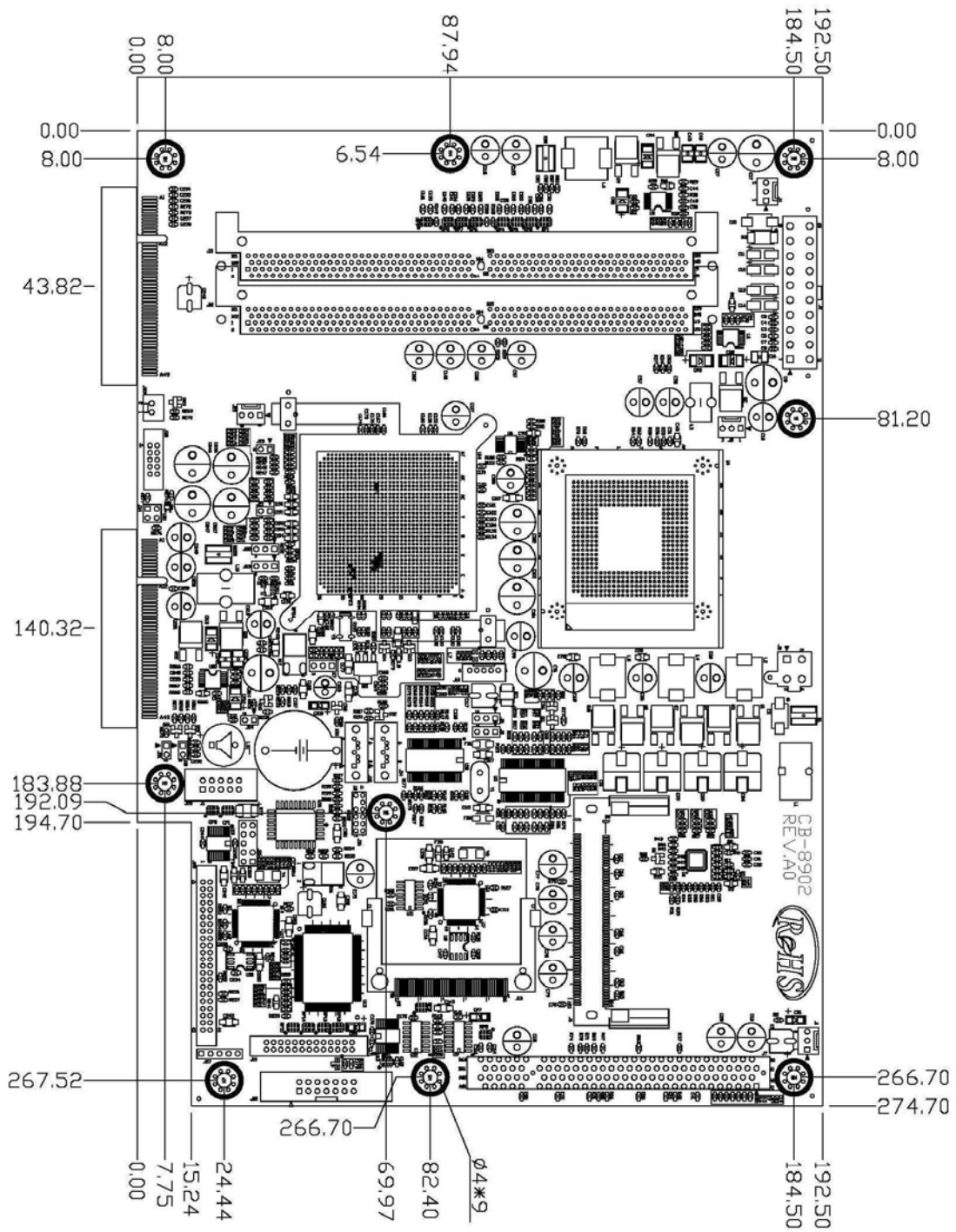
PL-10390 Rear Side



PL-10390 Top Side 1UATXpowerMiniPCslot

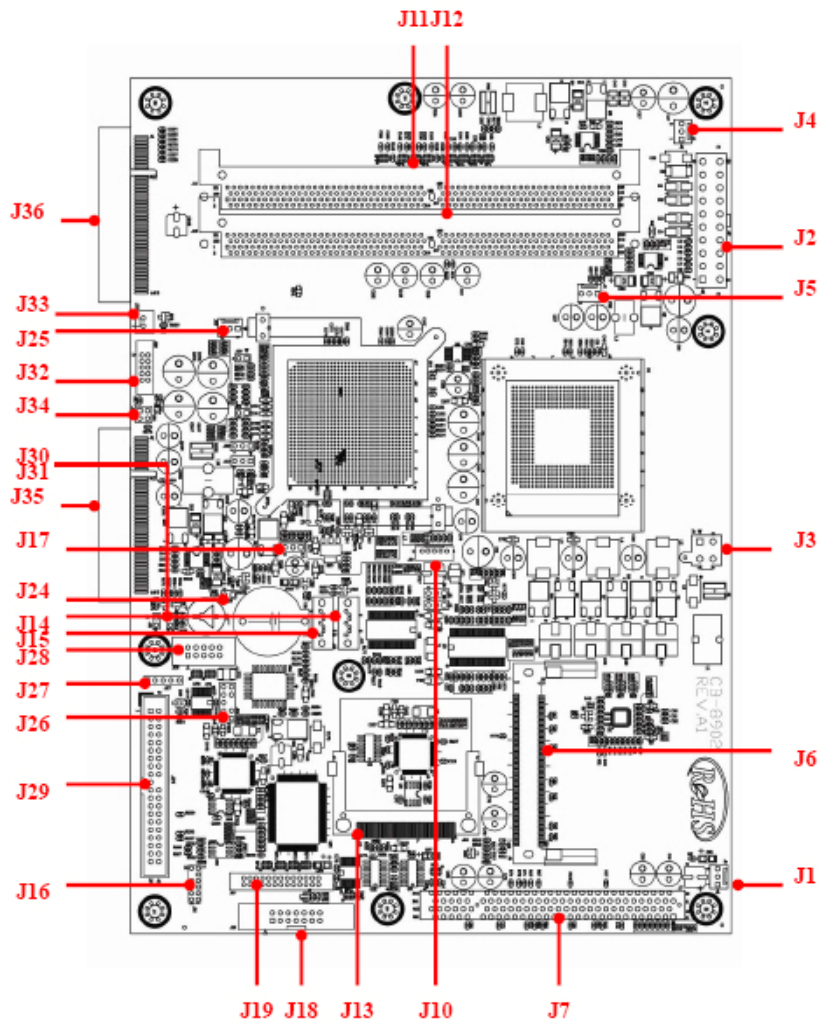


1.7 Board Dimensions



Chapter 2.Connector/Jumper Configuration

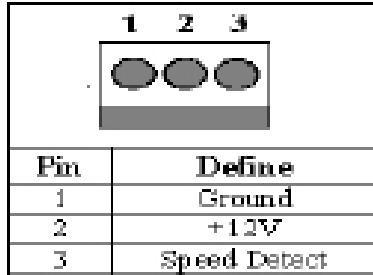
2.1 Connector/Jumper Location and Definition



Connector	Description	Connector	Description
J1	System Fan	J2	ATX Power Connector (2x10Pin)
J3	ATX Power Connector 12V(2X2Pin)	J4	System Fan
J5	System Fan	J6	Mini PCI slot
J7	PCI socket	J8	For debug only
J9	For debug only	J10	USB
J11	DDR II socket	J12	DDR II Socket
J13	CF card socket	J14	SATA connector
J15	SATA connector	J16	LPC
J17	Clear CMOS	J18	COM1&USB

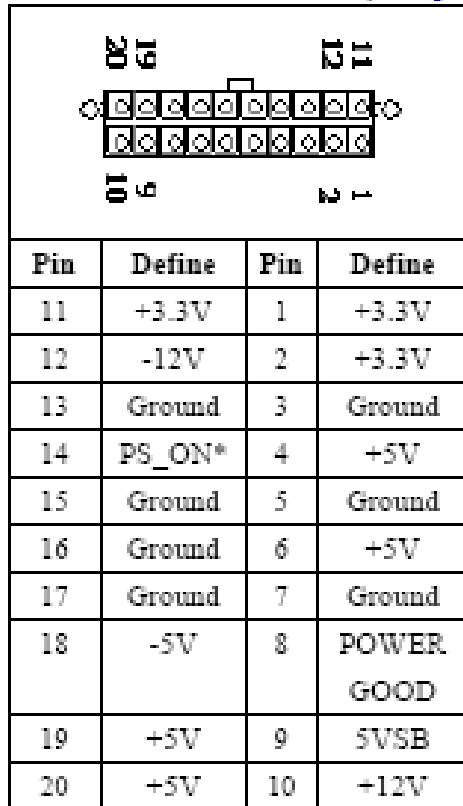
J19	Parallel port	J20	For debug only
J21	For debug only	J22	For debug only
J23	For debug only	J24	Speaker On
J25	System fan	J26	PS2KB/MS connector
J27	GPI connector	J28	COM2 connector
J29	40 pin IDE connector	J30	Reset In
J31	Watchdog Enable	J32	GPO connector
J33	Back light connector	J34	Power/HDD LED connector
J35	Connector for GbEx1 module	J36	Connector for GbE x 4module

J1/J4/J5/J25: CPU/system fan

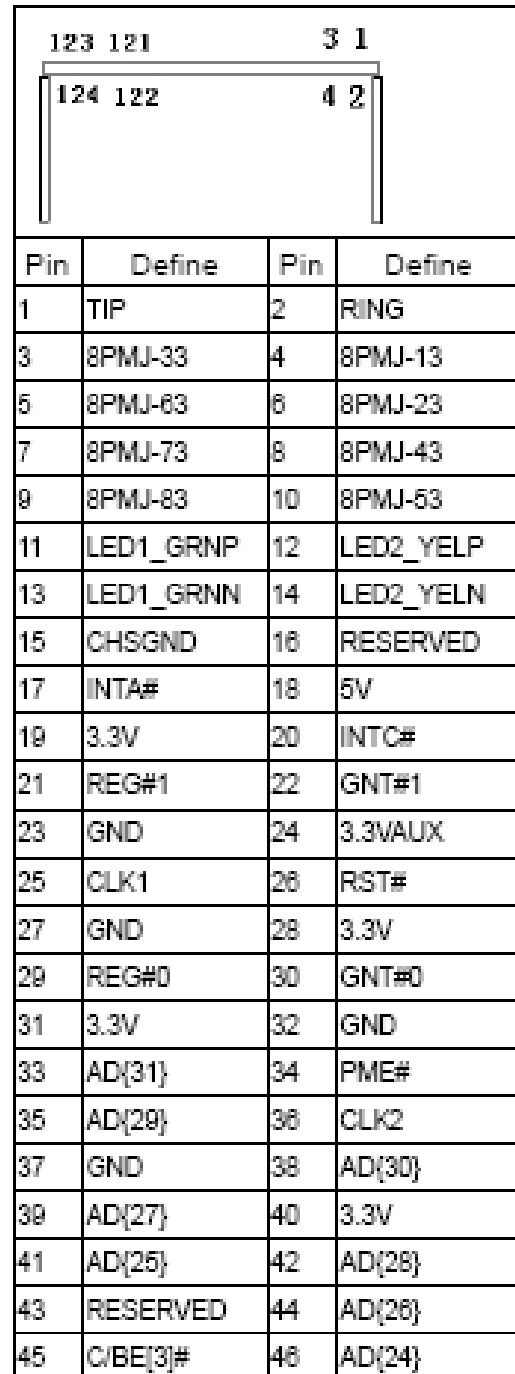


2	Ground
3	+12V
4	+12V

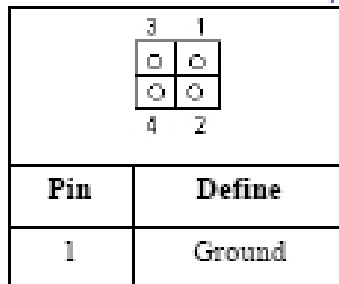
J2: ATX Power Connector (2*10pin)



J6: Mini PCI

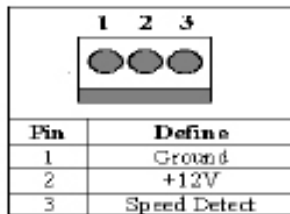


J3: AT Power Connector (2*2pin)



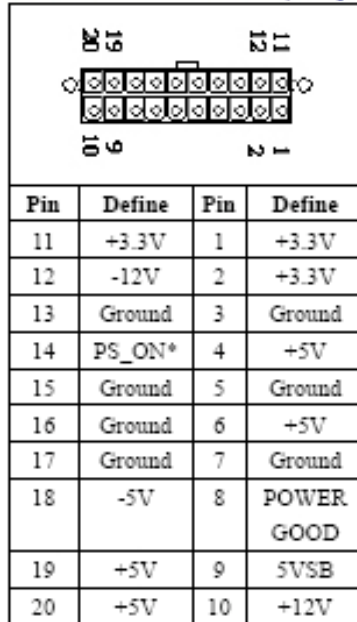
2.2 Connector and Jumper Setting

J1/J4/J5/J25: CPU/system fan

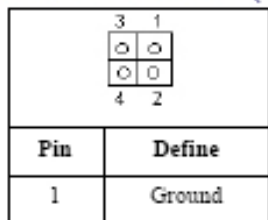


2	Ground
3	+12V
4	+12V

J2: ATX Power Connector (2*10pin)



J3: AT Power Connector (2*2pin)




J6: Mini PCI

Pin	Define	Pin	Define
1	TIP	2	RING
3	8PMJ-33	4	8PMJ-13
5	8PMJ-63	6	8PMJ-23
7	8PMJ-73	8	8PMJ-43
9	8PMJ-83	10	8PMJ-53
11	LED1_GRNP	12	LED2_YELP
13	LED1_GRNN	14	LED2_YELN
15	CHSGND	16	RESERVED
17	INTA#	18	5V
19	3.3V	20	INTC#
21	REG#1	22	GNT#1
23	GND	24	3.3VAUX
25	CLK1	26	RST#
27	GND	28	3.3V
29	REG#0	30	GNT#0
31	3.3V	32	GND
33	AD{31}	34	PME#
35	AD{29}	36	CLK2
37	GND	38	AD{30}
39	AD{27}	40	3.3V
41	AD{25}	42	AD{28}
43	RESERVED	44	AD{26}
45	C/BE{3}#	46	AD{24}

47	AD{23}	48	IDSEL
49	GND	50	GND
51	AD{21}	52	AD{22}
53	AD{19}	54	AS{20}
55	GND	56	PAR
57	AD{17}	58	AD{18}
59	C/BE[2]#	60	AD[16]
61	IRDY#	62	GND
63	3.3V	64	FRAME#
65	CLKRUN#	66	TRDY#
67	SERP#	68	STOP#
69	GND	70	3.3V
71	PERP	72	DEVSEL#
73	CB/E[1]	74	GND
75	AD[14]	76	AD[15]
77	GND	78	AD[13]
79	AD[12]	80	AD[11]
81	AD[10]	82	GND
83	GND	84	AD[09]
85	AD[06]	86	C/BE[0]#
87	AD[07]	88	3.3V
89	3.3V	90	AD[06]
91	AD[05]	92	AD[04]
93	RESERVED	94	AD[02]
95	AD[03]	96	AD[00]
97	5V	98	RESERVED_ WIP4
99	AD[01]	100	RESERVED_ WIP4
101	GND	102	GND
103	AC_SYNC	104	M66EN
105	AC_SDATA_IN	106	AC_SDATA_ OUT
107	AC_BIT_CLK	108	AC_CODEC_ ID0#
109	AC_CODEC_ ID1#	110	AC_RESET#


111	MOD_AUDIO_ MOD	112	RESERVED
113	AUDIO_GND	114	GND
115	SYS_AUDIO_ OUT	116	SYS_AUDIO_ IN
117	SYS_AUDIO_ OUT G	118	SYS_AUDIO_ IN G
119	AUDIO_GND	120	AUDIO_GND
121	RESERVED	122	MPCIACT#
123	VCC5VA	124	3.3VAUX

J10: USB header



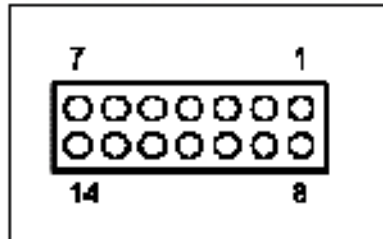
Pin	Define
1	USBVCC
2	USBP1N
3	USBP1P
4	Ground
5	Ground

J14/J15: SATA 0/1 Connector



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

J18: COM1 & USB Connector



Pin	Define	Pin	Define
1	RTS#	8	RXD#
2	DTR#	9	DSR#
3	TXD#	10	CTS#
4	Ground	11	Ground
5	USB0N	12	USB0P
6	-	13	-
7	USBVCC	14	USBVCC

J19: Parallel port

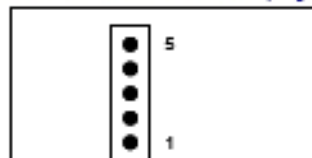


Pin	Define	Pin	Define
1	STROBE	14	AUTOFD
2	PD0	15	ERR
3	PD1	16	INT
4	PD2	17	SLCTIN
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK*	23	Ground
11	BUSY	24	Ground
12	PE	25	Ground
13	SLCT	26	Ground



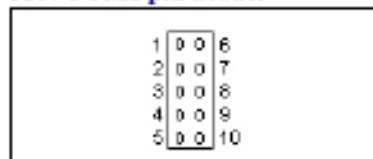
Pin	Define	Pin	Define
1	KCLK	2	MCLK
3	KDAT	4	MDAT
5	Reserved	6	Not used
7	GND	8	GND
9	+5V	10	+5V

J27: GPIO Connector (Input)



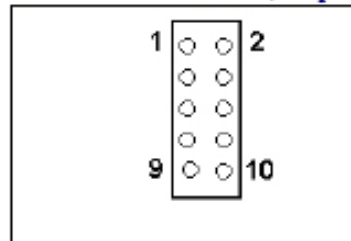
Pin	Define
1	GPIO0
2	GPIO1
3	GPIO2
4	GPIO3
5	Ground

J28: COM2 pin header



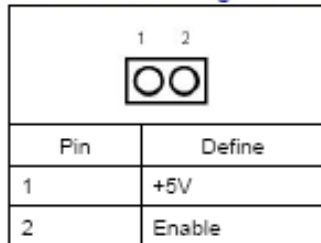
Pin	Define	Pin	Define
1	DCD#	6	DSR#
2	RXD#	7	RTS#
3	TXD#	8	CTS#
4	DTR#	9	RI#2
5	Ground	10	NC

J32: GPIO Connector (Output)

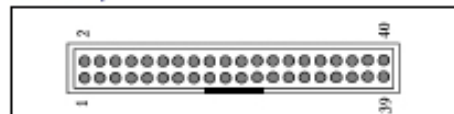


Pin	Define	Pin	Define
1	GPO4	2	Ground
3	GPO5	4	Ground
5	GPO6	6	Ground
7	GPO7	8	Ground
9	Ground	10	+5V

J33: LCM Backlight Header



J29: IDE Connector (2*20 pin, 2.54mm)



Pin	Define	Pin	Define
1	RESET*	2	GND
3	DATA 7	4	DATA 8
5	DATA 8	6	DATA 9

9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	KEY PIN
21	DREQ	22	GND
23	DIOW*	24	GND
25	DIOR*	26	GND
27	IOCHRDY	28	GND
29	DACK*	30	GND
31	IRQ14	32	N/C
33	A1	34	DETECT
35	A0	36	A2
37	PDCS#1	38	PDCS#3*
39	ACTIVE*	40	GND

Jumper Setting

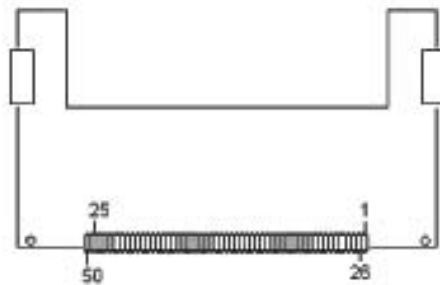
J17: Clear CMOS

Pin	Setting
	Normal (Default)
	Clear CMOS

2.3 CompactFlash™ Card Socket Pin Define

A CompactFlash card is a small removable mass storage device that provides complete PCMCIAATA functionality and compatibility, plus True IDE functionality compatible with ATA/ATAPI4. CompactFlash storage products are solid state, i.e., they contain no moving parts. Thus, these devices provide 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/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



2.4 How to Set Bypass Function

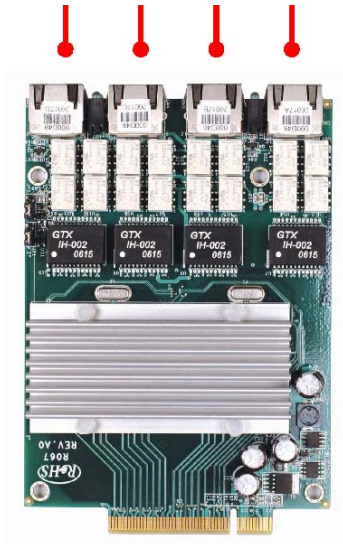
The optional GbE module can be set to by-pass mode. There are two ways to setup by-pass function.

1. Set bypass GbE module IP-10360 or IP-10340 JP1 to 2-3 shorted, and JP2 to 2-3 shorted.
2. Setup by GPIO, please see the below program.

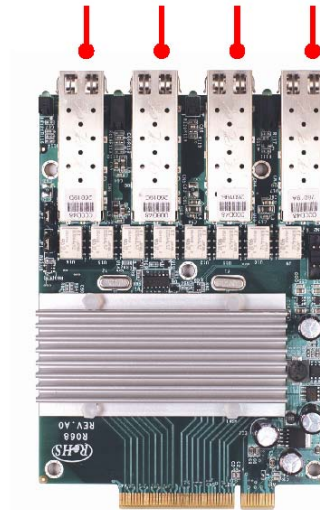
Item	Program
Enable all ports bypass function	O 48E A7
Disable all ports bypass function	O 48E BF

Enable LAN1& LAN2 bypass function	O 48E B7
Disable LAN1 & LAN2 bypass function	O 48E BF
Enable LAN3 & LAN4 bypass function	O 48E AF
Disable LAN3 & LAN4 bypass function	O 48E BF

LAN4LAN3LAN2LAN1LAN4LAN3LAN2LAN1



IP-10360 Layout



IP-10340Layout

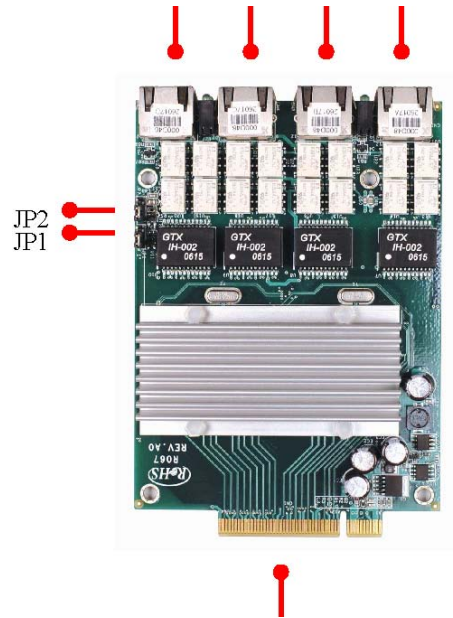
Chapter 3. Optional GbE Module & Riser Card Settings

The PL-10390 can offer various GbE module combinations to serve a variety of different applications and market requirements.

3.1 IP-10360: Ethernet module with four GbE Copper bypass function

IP-10360 is a removable four GbE Copper module with bypass function. The golden edge fingers must be connected with J36 proprietary connector of PL-10390 appliance. It allows user to set the Jumper 1 & Jumper 2 to enable bypass function. Please note IP-10360 can't plug into J35 proprietary connector.

GbE#4GbE#3GbE#2GbE#1



Golden Edge Fingers to be connected with J36 of PL-10390

JP1: GbE #1 & #2 Bypass

Pin		Setting
1 3	12	Normal
1 3	23	Bypass

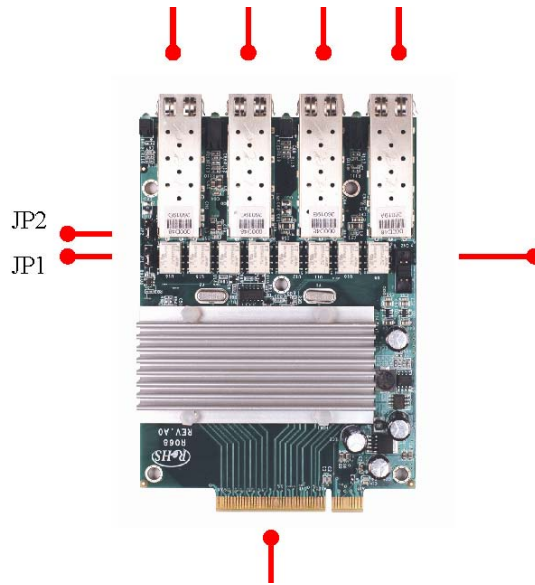
JP2: GbE #3 & #4 Bypass

Pin		Setting
1 3	12	Normal
1 3	23	Bypass

3.2 IP-10340: Ethernet module with four GbE SFP bypass function

IP-10340 is a removable four GbE SFP module with bypass function. The golden edge fingers must be connected with J36 proprietary connector of PL-10390 appliance. It allows users to set the Jumper 1 & Jumper 2 to enable bypass function. Please note the IP-10340 can't be plugged into the J35 proprietary connector.

GbE#4GbE#3GbE#2GbE#1



CN1: Connector for MB-09019

Golden Edge Fingers to be connected with J36 of PL-10390

JP1: GbE # 1 & #2 Bypass

Pin		Setting
	12	Normal
	23	Bypass

JP2: GbE #3 & #4 Bypass

Pin		Setting
	12	Normal
	23	Bypass

3.3 IP-10330: Ethernet module with four PCI E x1 GbE Copper

IP-10330 is a removable four GbE Copper module without bypass function. The interface of IP-10330 is PCI-E x1. The golden edge fingers must be connected with J35 proprietary connector of PL-10390 appliance. Please note R-073A can't be plugged into J36 proprietary connector.



3.4 MB-09019: Rechargeable riser card for bypass SFP Ethernet module

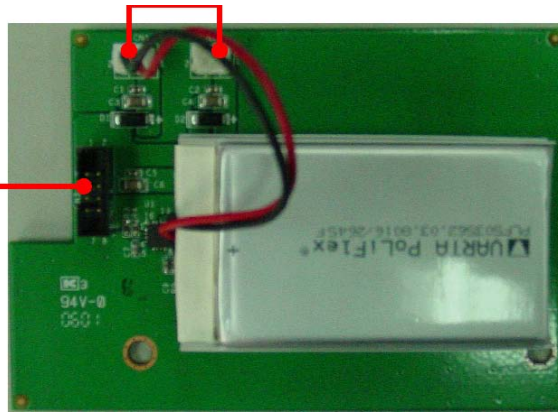
MB-09019 is a rechargeable riser card to provide power for SFP bypass function when power is off. It must be fixed with R068A, the CN3 is connected to CN1 of IP-10340.

Power Connector CN1, CN2

CN3: Connector for IP-10340 CN1

Power Connector CN1, CN2

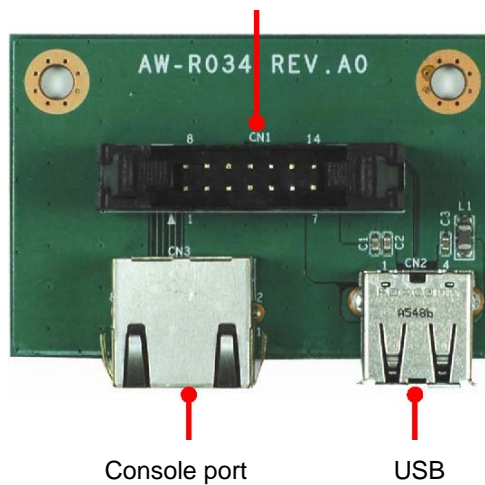
CN3: Connector for IP-10340 CN1



3.5 IP-10350: USB & COM port RJ45 card

IP-10350 is a USB and COM port module. It must be connected to PL-10390 to offer external USB and Console ports. The CN1 IP-10350 must connect with J18 of PL-10390 appliance.

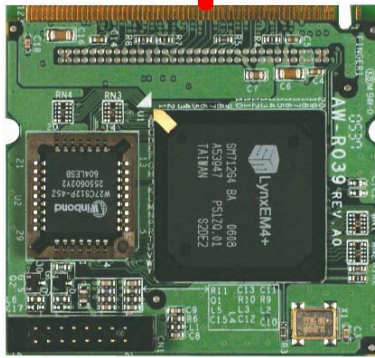
CN1: Connector for J18 of PL-10390



3.6 IP-A6066: Mini PCI VGA Card

IP-A6066 is a Mini PCI VGA adapter card. Due to PL-10390 has no VGA connector, the IP-A6066 can provide VGA output for test purposes. It must be connected to J6 of the PL-10390 (board, MB-90420).

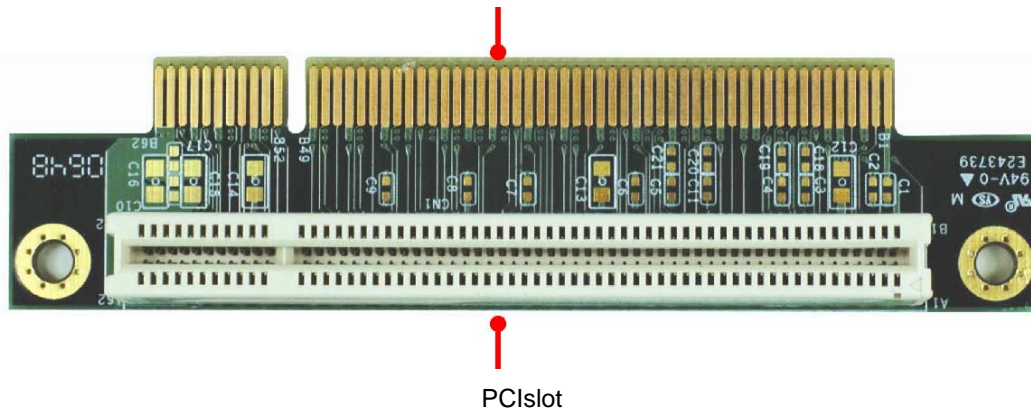
Golden finger edges to connect to J6 of PL-10390



3.7 IP-10320: PCI Riser Card

IP-10320 is a one slot PCI riser card for PL-10390. It can offer additional PCI expansion capability. It must be connected to J7 of PL-10390.

Golden finger edges to connect to J7 of PL-10390



Chapter 4. BIOS Setup

The ROM chip of your PL-10390 appliance is configured with a customized Basic Input/Output System (BIOS) from Phoenix-Award 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 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 the system out when it's turned 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 main board
- Type of display adapter installed
- Number and type of disk drives

The CMOS memory is maintained by a battery installed on the PL-10390 appliance. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS enables simple reloading of the CMOS data when batteries are replaced.

4.1 Quick Setup

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

- 1 Choose "Load Optimized Defaults" from the main menu. This loads the setup default values from the BIOS Features Setup and Chipset Features Setup screens.
- 2 Choose "Standard CMOS Features" 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 & Exit Setup") to save your changes and reboot the system.

4.2 Entering the CMOS Setup Program

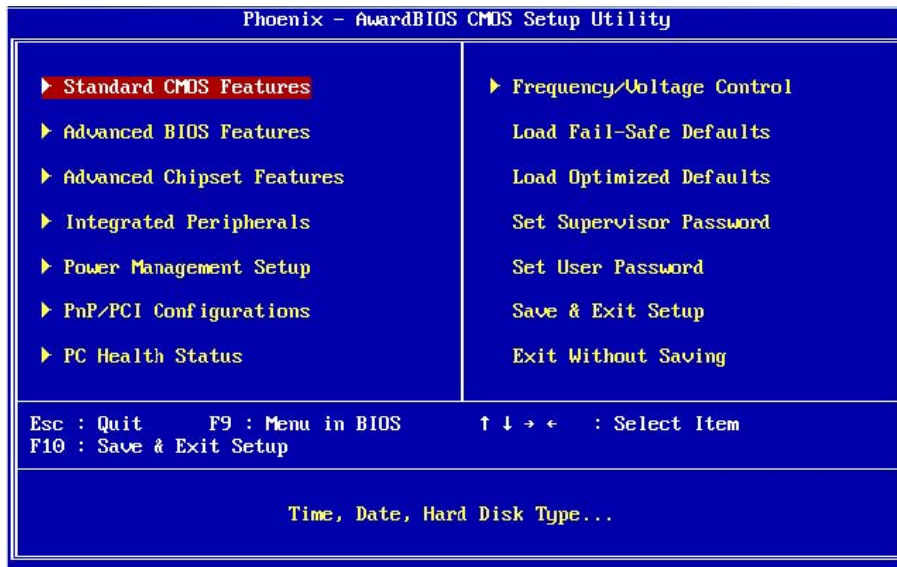
Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after you:

- Received an error code at startup
- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the Phoenix-Award 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 key to enter CMOS Setup program. The main menu appears:



The following sections contain brief descriptions of each set up option.

In the main menu, press F10 (“Save & Exit Setup”) to save your changes and reboot the system. Choosing “EXIT WITHOUT SAVING” ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

4.3 Menu Options

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

STANDARD CMOS FEATURES:

Configure the date & time, hard disk drive type, floppy disk drive type, primary display type and more

ADVANCED BIOS FEATURES:

Configure advanced system options such as enabling/disabling cache memory and shadow RAM

ADVANCED CHIPSET FEATURES:

Configure advanced chipset register options such DRAM timing

INTEGRATED PERIPHERALS:

Configure onboard I/O functions

POWER MANAGEMENT SETUP:

Configure power management features such as timer selects

PNP/PCI CONFIGURATION:

Configure Plug & Play IRQ assignments and PCI slots

PC HEALTH STATUS:

Configure the CPU speed and, if the optional system monitor IC is installed, view system information

LOAD FAIL-SAFE DEFAULT:

Loads BIOS default values. Use this option as diagnostic aid if your system behaves erratically

LOAD OPTIMIZED DEFAULTS:

Loads optimized BIOS settings

SET SUPERVISOR/USER PASSWORD:

Configure the system so that a password is required when the system boots or you attempt to enter the CMOS setup program. When you log in with this password, you will be able to enter the CMOS Setup main menu, but you can not enter other menus in the CMOS Setup program.

SAVE & EXIT SETUP:

Save changes of values to CMOS and exit the CMOS setup program

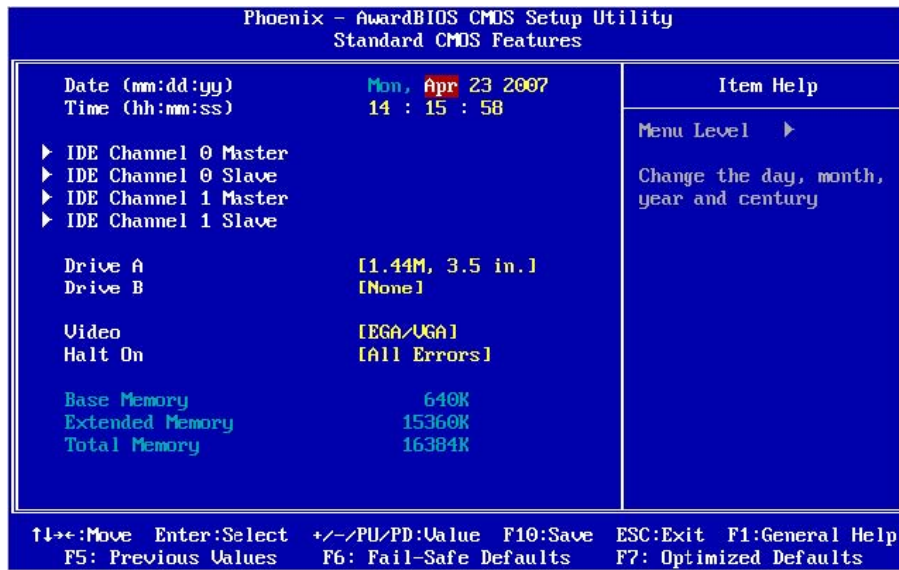
EXIT WITHOUT SAVING:

Abandon all CMOS changes and exit the CMOS setup program

4.4 Standard CMOS Features Setup

Use the Standard CMOS Setup option as follows:

1. Choose “Standard CMOS Features” from the main menu. The following screen appears:



Option	Description
Date (mm:dd:yy)	Type the current date
Time (hour:min:sec)	Type the current time (24-hour clock)
IDE channel	Select from “Auto”, “User”, or “None” If your drive is not one of the predefined types, choose

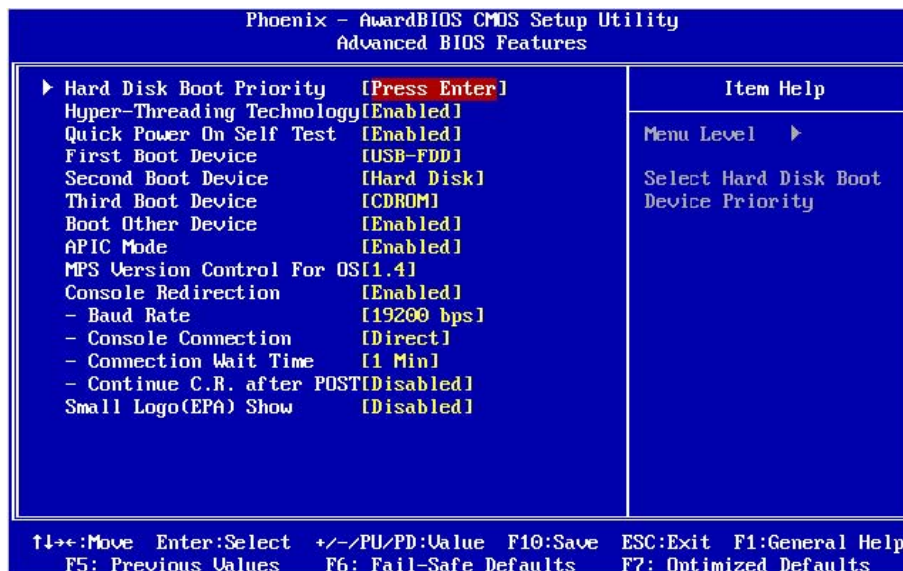
	<p>"User" and enter the following drive specifications: Cylinders, heads, Wpcom, L-Zone, sectors, and mode</p> <p>Consult the documentation received with the drive for the values that will give you optimum performance.</p>
Video	<p>Select the default video device: EGA/VGA, CGA 40, CGA 80, Mono</p>
Halt On	<p>Select the situation what you want BIOS to stop power on self test process and notice you.</p> <p>Choose: <All Errors> <No Errors/ All> <But Keyboard > <All, But Diskette> <All, But Disk/Key></p>

3. After you have finished with the Standard CMOS Features program, press the <ESC> key to return to the main menu.

4.5 Advanced BIOS Features Setup

↓ Use the Advanced BIOS Features Setup option as follows:

1. Choose "Advanced BIOS Features Setup" from the main menu. The following screen appears:
2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUP/PgDN keys. Press the <F1> "Help" key for information on the available options:

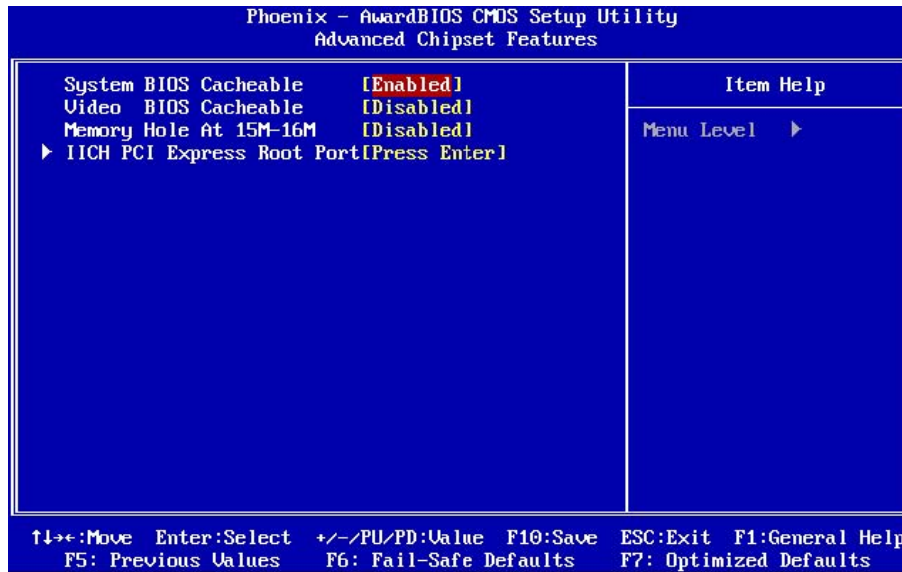


Option	Description
Hard Disk Boot Priority	Set up the hard disk boot sequence.
Hyper-Threading Technology	Allow to enable or disable CPU Hyper-Threading Technology future. Note the future is only working for the operation system with multi processors mode supported.
Quick Power On Self Test	Skip some checking items and speed up the power on process.
First/Second/Third Boot Device	The BIOS attempts to load the operating system from the devices in the sequence selected in these items. Choose: HDD-0, LS-120, USB FDD...
Boot Other Device	Set up other device to be bootable.
APIC Mode	Select <enable> will expand available IRQ resources for the system.
MPS Version Control For OS	The filed allow you to select MPS (Multi Processor Specification) version to be used for the Operation System. Select 1.1, 1.4. Default is 1.4.
Console Redirection	Choose <enabled> allowing connecting the server of hyper terminal to monitor client side. It has to be worked under DOS mode, and the client terminal doesn't need graphic function.
Baud Rate	The data transfer rate (bit per second) to agent. Choose 9600/19200/38400/57600/115200 item.
Console Connection	Allow you to select console connection mode.
Connection Wait Time	Specify the timeout value for connection. You can select <1 min>, <2 mins>, <4 mins>, <8 mins>.
Continue C.R. after POST	Select to continue console redirection after OS has been loaded.
Small Logo (EPA) Show	Allow EPA logo appears during boot up.

4.6 Advanced Chipset Features Setup

Use the Advanced Chipset Features Setup option as follows:

1. Choose “Advanced Chipset Features Setup” 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.



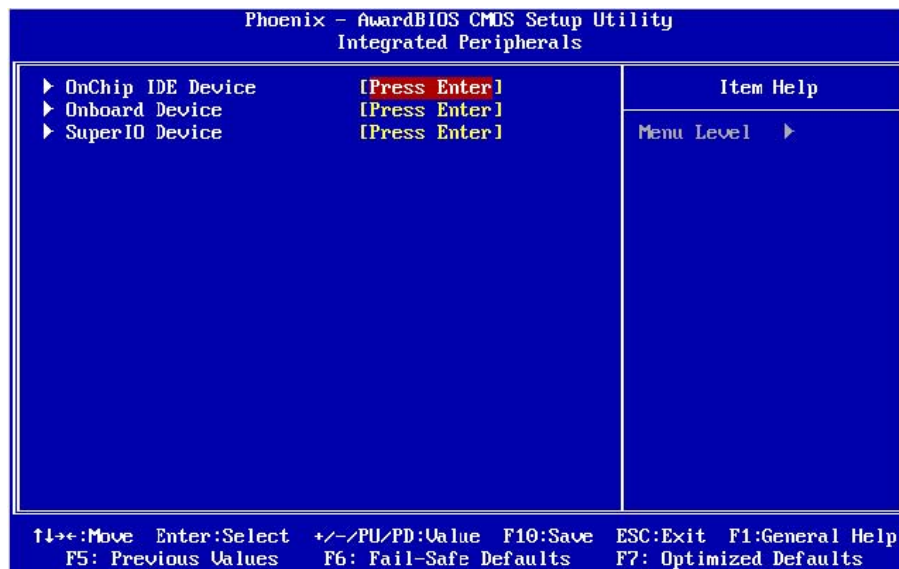
Options	Description
System BIOS Cacheable	Select Enabled or Disabled. When enabled, caching of the system BIOS at F0000h-FFFFFh, enhancing system performance. However, if any program writes to this memory area, a system error may result.
Video BIOS Cacheable	Select Enabled or Disabled. When Enable this option to allow caching of the Video BIOS.
Memory Hole at 15M-16M	Select Enabled or Disabled. You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it can not be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirement.
I ICH PCI Express Root Port	Select and setup PCI Express root port.

4.7 Integrated Peripherals

↓ Use the Integrated Peripherals Setup option as follows:

- 1 Choose “Integrated Peripherals Setup” 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 Press the <F1> key for information on the various options.

Option	Description
Onboard Device	
OnChip IDE Device	Select and setup the SATA, IDE devices
Onboard Device	Select and setup the PCI devices
Super I/O Device	Select and setup the super I/O devices

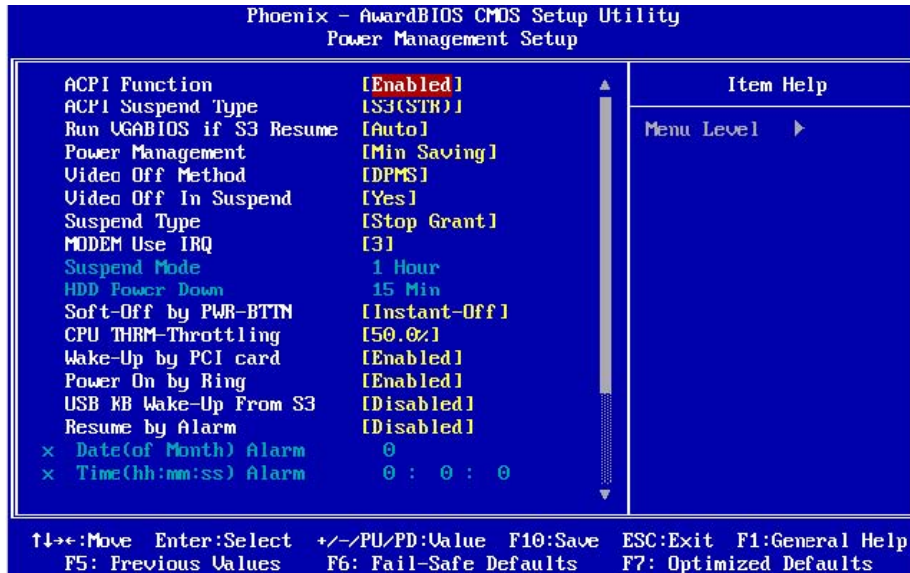


4.8 Power Management Setup

The Power Management Setup controls the board's "green" features. To save energy these features shut down the video display and hard disk drive.

Use the Power Management Setup option as follows:

1. Choose "Power Management Setup" from the main menu. The following screen appears.



Option	Description
ACPI Function	Allows user to enable or disable ACPI function. ACPI enables the PC system to turn its peripherals on and off to improve power management. It also allows the turning on & off external devices.
ACPI Suspend Type	Select the type the system suspends. The default is S1 (POS), it is equivalent to a software power down. If you select S3(STR), it is suspended to RAM. The system shuts down with the exception of a refresh current to the system memory.
Run VGA BIOS if S3 Resume	Allows the system to initialize the VGA BIOS from S3 (Suspend to) RAM sleep state.
Power	This field allows you to select the type (or degree)

Management	of power saving by changing the length of idle time that elapses before the "Suspend Mode" and "HDD Power Down" field is activated. Min Saving Minimum power saving time for the " Suspend Mode" and "HDD Power Down" =15min. Max Saving Maximum power saving time for the "Suspend Mode" and "HDD Power Down"=1 min. User Define Allows you to set the power saving time in the "Suspend Mode" and "HDD Power Down" field.
Video Off Method	This determines the manner in which the monitor is blanked. V/H SYNC + Blank This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Video Off In Suspend	Determines if the video power down when the system is put into suspend mode.
Suspend Type	Determines if the CPU goes into Idle Mode during power saving mode.
Suspend Mode	When the system enters the Suspend mode, the CPU and onboard peripherals will be shut off.
MODEM Use IRQ	Determines the Interrupt Request Line (IRQ) that is used by modem. It allows you to have an incoming call on a modem to automatically resume the system from power-saving mode.
HDD Power Down	This is selectable only when the power management filed is set to user define. When the system enters the HDD power down mode according to the power saving time selected, the hard disk drive will be powered down while all other devices remain active.
Sort-Off by PWR-BTTN	Determines how long you must press and hold down the power button before the system shut down (only with ATX motherboards and case).
CPU THUM-Throttling	Allows to decrease CPU speed when temperature increases to save a lot of power and CPU life. The default is 50%, you can set the value to be lower if you want to have faster CPU speed.
Wake-Up by PCI card	Allows PCI activity to wake up the system from a power-saving mode.
Power on by Ring	Allows modem activity to wake up the system from

	a power-saving mode.
Wake-Up on LAN	Allows LAN activity to wake up the system from a power-saving mode.
USB KB Wake-Up from S3	Allows USB KB to wake up the system in S3 mode.
Resume by Alarm	Allows you to set the date, hour, minute, second to turn on your system.
Primary/Secondly IDE 0/1	When the filed is enabled, the system will restart the power-saving timeout counter when the activity is detected on any drives on the primary or secondly IDE channel.
FDD, COM, LPT Port	When the filed is enabled, the system will restart the power-saving timeout counter when the activity is detected on floppy disk drive, serial port or printer port.
PCI PIRQ[A-D]#	When the filed is enabled, PCI device set as the Master will power on the system.

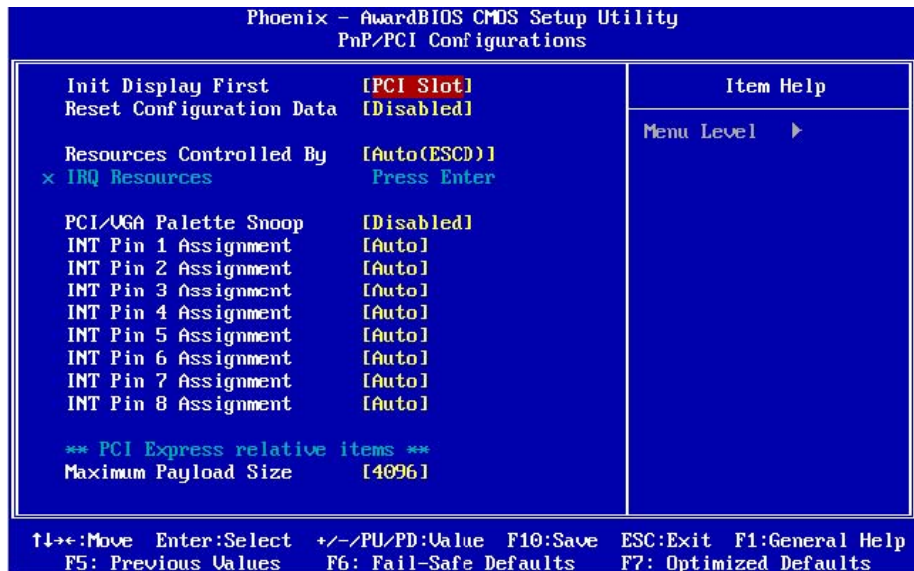
3. After you have finished with the Power Management Setup, press the <ESC> key to return to the main menu.

4.9 PNP/PCI Configuration

This option is used to configure Plug and Play assignments and route PCI interrupts to designated ISA interrupts.

Use the PNP/PCI Configuration Setup option as follows:

1. Choose “PNP/PCI Configuration Setup” 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.



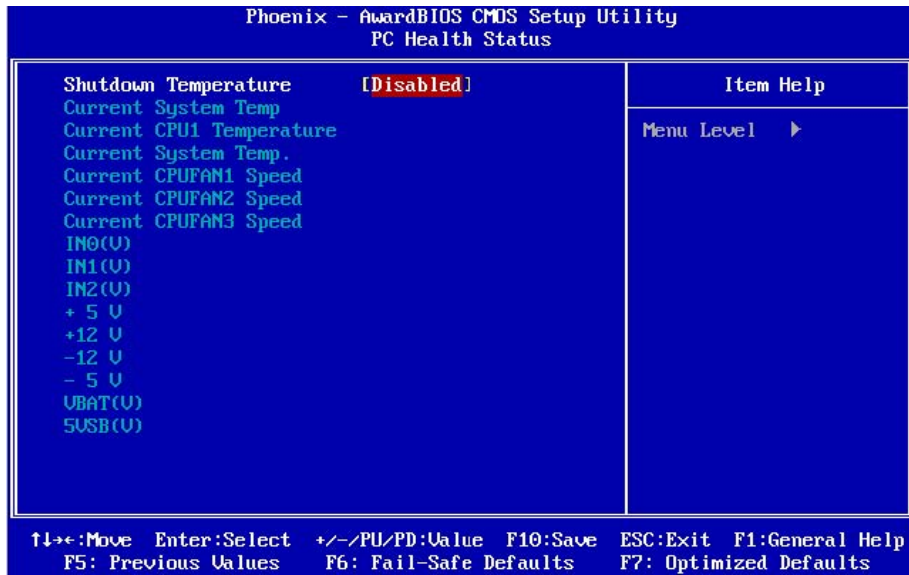
Option	Description
Init Display First	Allows user to choose the priority of PCI VGA card or onboard. Default is <PCI slot>.
Reset Configuration Data	Enabled The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configure data Disabled The BIOS will not reset the configuration Data.
Resources Controlled By	Resources controlled by the Award plug and play BIOS has the capability to automatically configure all of the boot and plug and play compatible devices. Auto (ESCD): The system will automatically detect the settings for you. Manual: Choose the specific IRQ in the “IRQ Resources” field.
PCI/VGA Palette Snoop	This field determines whether the MPEG ISA/VESA VGA cards a work with PCI/VGA or not Enable MEPG ISA/VESA VGA cards work with PCI/VGA. Disabled MPEG ISA/VESA VGA card does not work with PCI/VGA
Maximum Payload Size	Allows you to set the PCI Express Maximum TLP payload size. You can select <128>, <256>, <512>, <1024>, <2048> or <4096>.

--	--

3. Please press the <ESC> key to return the main menu after finishing with the PNP/PCI Configuration Setup.

4.10 PC Health Status

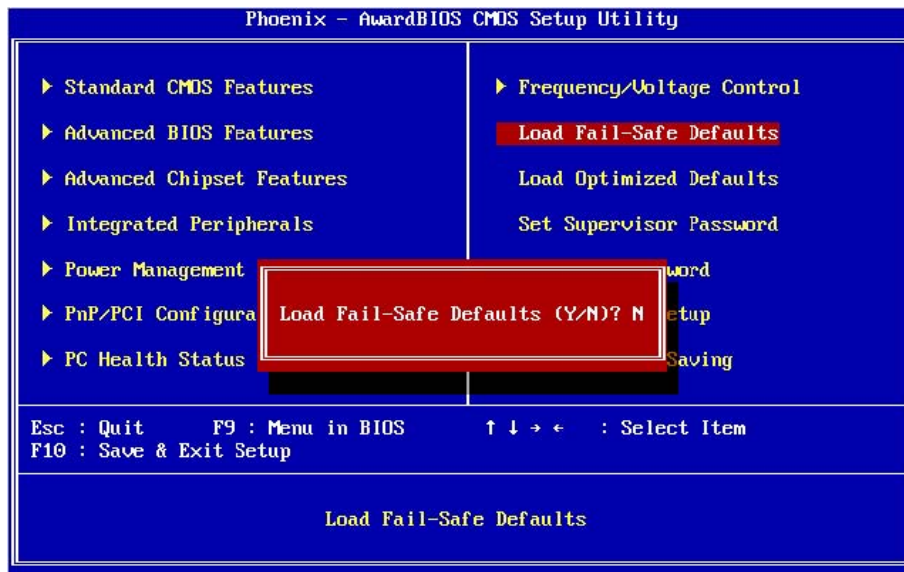
Choose “PC Health Status” from the main menu ,the following screen appears:



Option	Description
Shutdown Temperature	The system will shutdown when the CPU temperature is higher than the maximum limit.

4.11 Load Fail-Safe Defaults

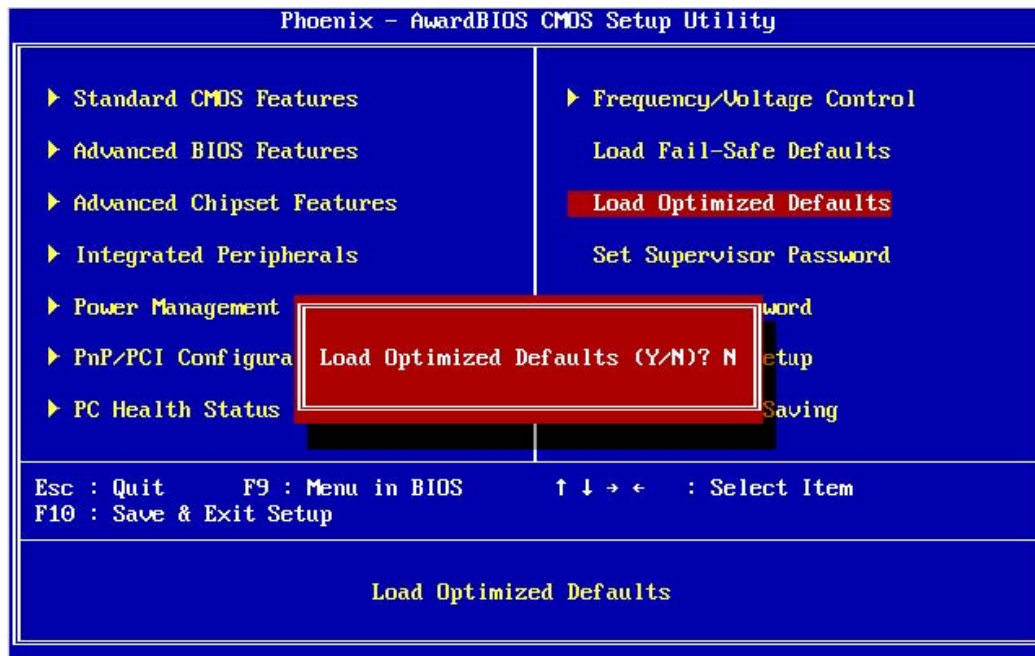
This option loads the troubleshooting default values permanently stored in the BIOS ROM. This is useful if you are having problems with the main board and need to debug or troubleshoot the system. The loaded default settings do not affect the Standard CMOS Setup screen.



To use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the BIOS default values. Press the <Y> key and then press <Enter> if you want to load the BIOS default.

4.12 Load Optimized Defaults

This option loads optimized settings stored in the BIOS ROM. The auto-configured settings do not affect the Standard CMOS Setup screen.



To use this feature, highlight it on the main screen and press <Enter>. A line

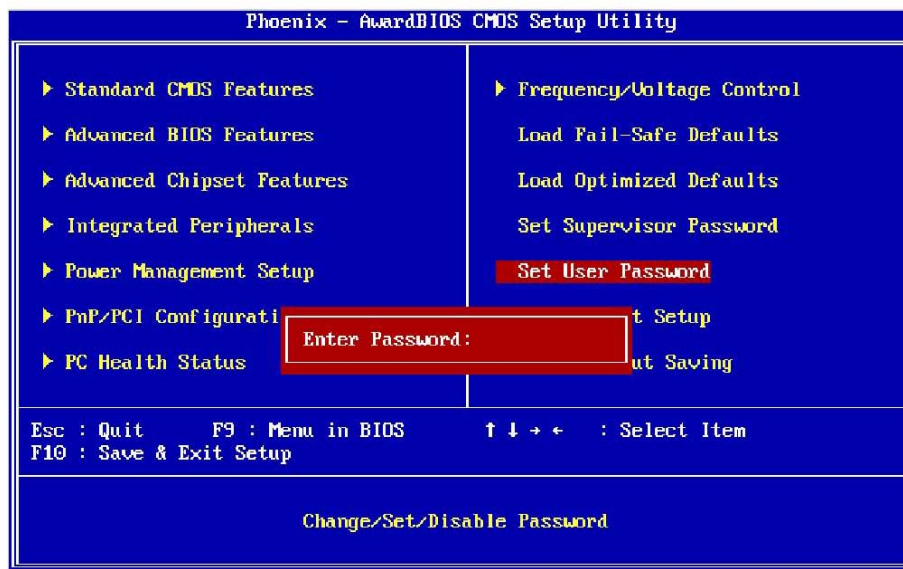
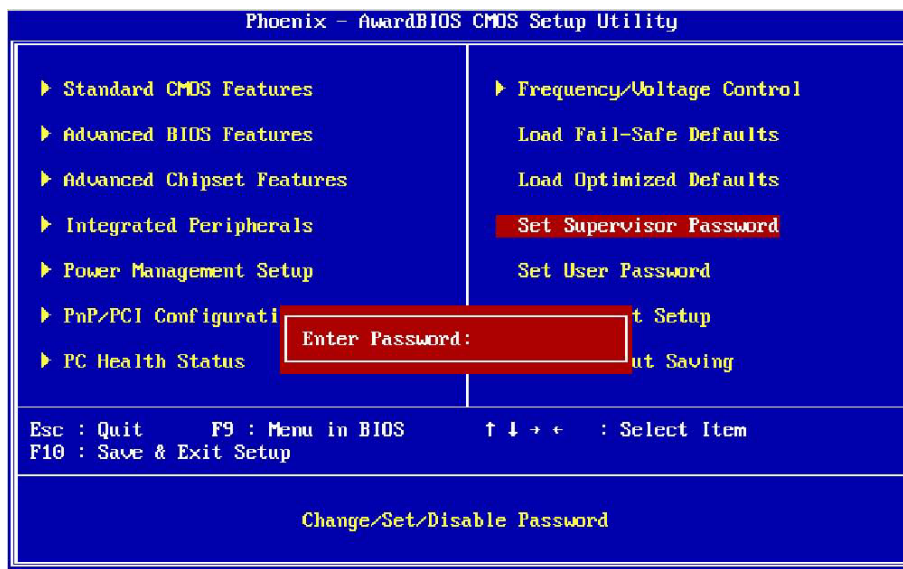
will appear on the screen asking if you want to load the Optimized Default Values. Press the <Y> key and then press <Enter> if you want to load the SETUP default.

4.13 Set Supervisor/User Password

The password options let you prevent unauthorized system boot-up or unauthorized use of CMOS setup. The Supervisor Password allows both system and CMOS Setup program access; the User Password allows access to the system and the CMOS Setup Utility main menu.

The password functions are disabled by default. You can use these options to enable a password function or, if a password function is already enabled, change the password.

To change a password, first choose a password option from the main menu and enter the current password. Then type your new password at the prompt. The password is case sensitive and you can use up to 8 alphanumeric characters. Press <Enter> after entering the password. At the Next Prompt, confirm the new password by typing it and pressing <Enter> again.

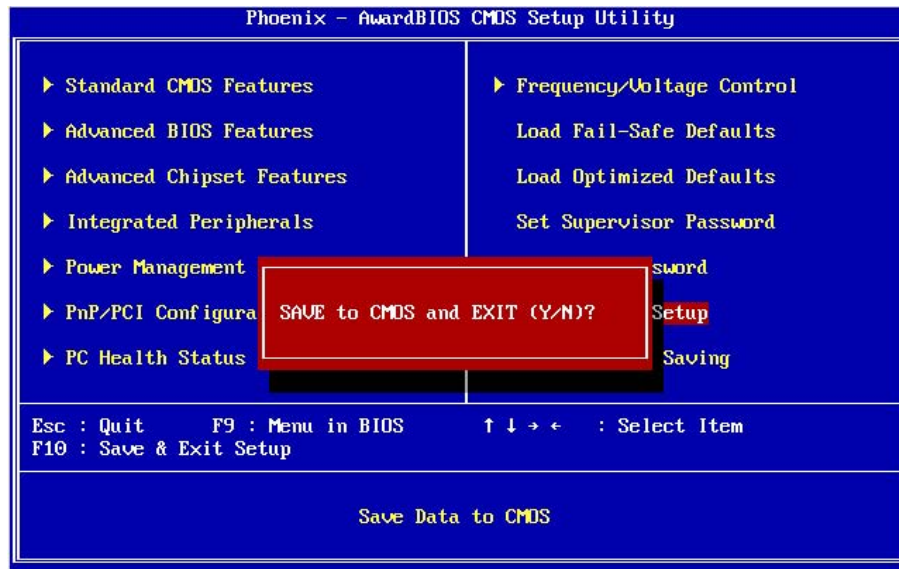


After you use this option to enable a password function, use the “Security Option

"in" BIOS Feature Setup" to specify whether a password is required every time the system boots or only when an attempt is made to enter the CMOS Setup program.

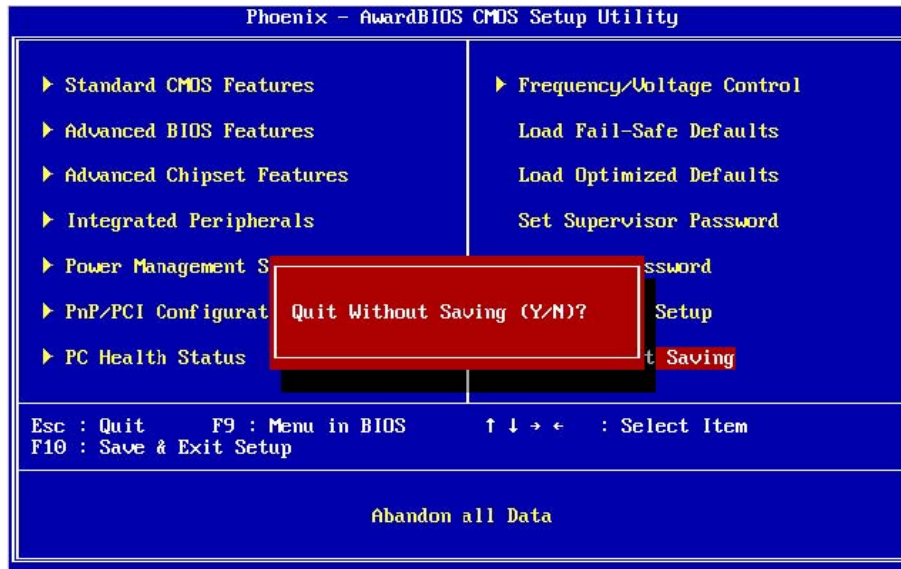
4.14 Save and Exit Setup

This function automatically saves all CMOS values before exiting Setup.



4.15 Exit Without Saving

Use this function to exit Setup without saving the CMOS value.



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

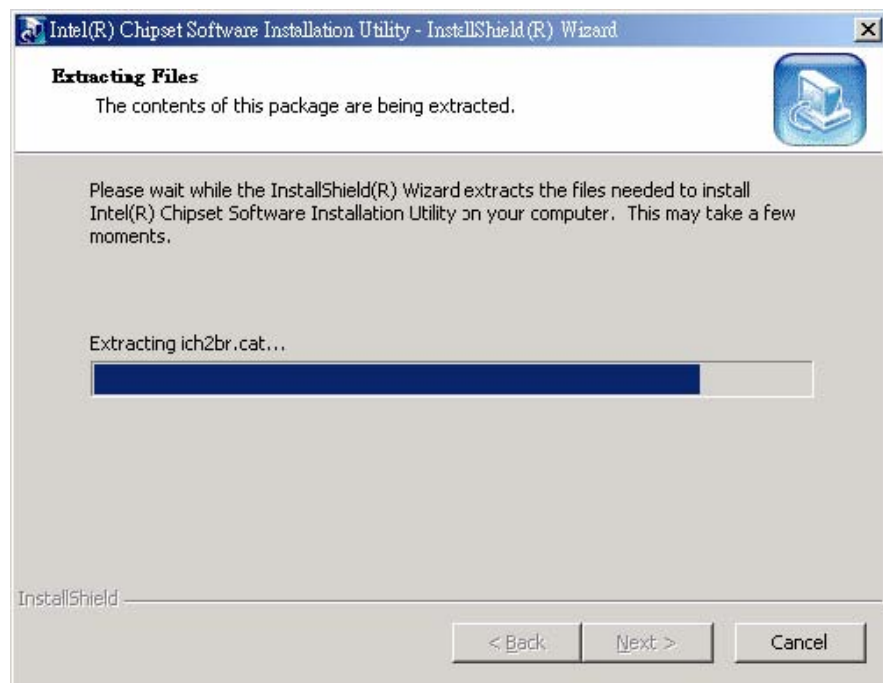
MB-90420, which is used in the PL-10390, can support Windows® and Linux® operation system as follows. Before installation, please check your OS version. If your OS is not in the following list, please upgrade your OS version.

OS Version

- DOS: DOS 6.22
- Windows®: Windows® 2000 SP4/Windows® XP SP2
- Linux®: CentOS 4/Fedora Core 7

5.2 System Driver Installation

PL-10390 provides the system driver in the setup CD. Please install the driver following the procedures.



5.3 VGA Driver Installation

MB-90420, which is used in the PL-10390, provides the VGA driver in the setup CD. Please click the Setup file and install the driver following the procedures.

5.4 LAN Driver Installation

PL-10390 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-10390 [MB-90420 board] 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-10390 [MB-90420 board] provides a watchdog timer that resets the CPU or enables LAN bypass mode. This function ensures greater system reliability in industrial standalone 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	255sec

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 countdown. 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 timeout. The following program shows how to set the watchdog timer:

ASSEMBLY LANGUAGE DOS DEBUG
Program 1: Initializing the watchdog controller

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 AL,2BH	O 2E 2B
OUT DX,AL	O 2F C4
MOV DX,2FH	
MOV AL,C4H	
OUT DX,AL	
MOV AL,07H	O 2E 07
OUT DX,AL	O 2F 08
MOV DX,2FH	
MOV AL,08H	
OUT DX,AL	

Program 2: Writing a watchdog timer interval value

MOV DX,2EH	O 2E F6
MOV AL,F6H	O 2F XX
OUT DX,AL	
MOV DX,2FH	
MOV AL,XXH ; Timer interval *** see note ***	
OUT DX,AL	
MOV DX,2EH	O 2E AA
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 1
5. Run Program 2 (change the timer interval value to 3CH, 60 seconds)
6. Run your Application Program#2 (Be sure your Application Program will be finished within 60 seconds)
7. Run Program 1
8. Run Program 2 (reload the timer interval value of 3CH, 60 seconds)
9. Run Program 1
10. Run Program 3 (Load the timer interval of 00H, and disable the watchdog timer function)

Appendix B: Programming the GPIO

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

Programming of the GPI

0: LOW; 1: HIGH

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

Note: x is the reserved data.

Debug:

-O 2E 87

-O 2E 87

-O 2E 07

-O 2F 07

-O 2E F1

-I 2F

Note: Data will be input in AL register.

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.

Debug:
-O 2E 87
-O 2E 87
-O 2E 07
-O 2F 07
-O 2E F1
-O 2F Data

Appendix C: System Resources

Interrupt Controller

The MB-90420, used in the PL-10390, is a fully PC compatible control board. 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 Window directory to see their map.

IRQ	Assignment
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	InterruptreroutingfromIRQ8throughIRQ15
IRQ3	SerialPort2
IRQ4	SerialPort1
IRQ5	PCI Device
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port 1
IRQ8	Real Time Clock
IRQ9	ACPI
IRQ10	PCI Device
IRQ11	PCI Device
IRQ12	PS2
IRQ13	Math Coprocessor
IRQ14	Primary IDE Controller
IRQ15	None

DMA Channel Assignment

Channel 4 is by default used to cascade to two controllers

Channel	Assignment
DMA0	Available for PCI and ISA Slot
DMA1	Available for PCI and ISA Slot
DMA2	Floppy Disk Controller
DMA3	Available for PCI and ISA Slot
DMA4	Cascade
DMA5	Available for PCI and ISA Slot

DMA6	Available for PCI and ISA Slot
DMA7	Available for PCI and ISA Slot

Memory Map

The following table indicates memory of MB-90420. The address ranges specify the run-time code length.

Memory below 1MB (1MB~640KB)

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

Memory above 1MB (1MB~2093952KB)

Address Range	Type	Owner
D0000000~D3FFFFFF7	PCI	Host Bridge
D4000000~D5FFFFFFF	PCI	PCI PCI Bridge
D6000000~D6FFFFFFF	PCI	PCI PCI Bridge

System Memory Map

Start High	Start Low	Size High	Size	Type
00000000	00000000	00000000	0009FC00	Available
00000000	00100000	00000000	07EF0000	Available
00000000	000F0000	00000000	00010000	Reserved
00000000	FEC00000	00000000	01400000	Reserved
00000000	07FF3000	00000000	0000D000	ACPI Space
00000000	07FF0000	00000000	00003000	NVS Space
00000000	0009FC00	00000000	00000400	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	8042 Compatible Keyboard Controller
61	AT Style Speaker
64	8042 Compatible Keyboard Controller
70 ~ 71	Real Time Clock
81 ~ 83	AT DMA Controller
87	AT DMA Controller
89 ~ 8B	AT DMA Controller
8F ~ 91	AT DMA Controller
A0 ~ A1	AT Interrupt Controller
C0 ~ DF	ATA DAM Controller
F0 ~ FF	Math Coprocessor
170~177	IDE Controller
1F0~1F7	IDE Controller
200~207	Game Port
2F8~2FF	Communication Port (COM2)
376	IDE Controller
378~37A	LPT1
3B0~3BB	VGA Adapter
3C0~3DF	VGA Adapter
3F6	IDE Controller
3F7	FDD Controller
3F8~3FF	Communication Port (COM1)
480~48F	PCI Bus
4D0~4D1	PCI Bus
CF8~CFF	PCI Bus
4000~407F	PCI Bus
4080~40FF	PCI Bus
5000~501F	PCI Bus
6000~607F	PCI Bus
D000~D00E	IDE Controller

D400~D41E	USB Controller
D800~D81E	USB Controller
DC00~DCFE	Multimedia Audio
E000~E002	Multimedia Audio
E400~E402	Multimedia Audio

Appendix D: Cable Development Kit

WIN offers a variety of cables for development use.

Item & Description	Part No.	Qty
Cross Over 2M Yellow Color/RoHS	CB-11630	1
Ethernet Cat.5 Cable 2M / RoHS	CB-10860	1
RJ45 to DB92M Cable / RoHS	CB-11700	1
2m null modem cable / RoHS	CB-10550	1
VGA CABLE (2mm) 15CM / RoHS	CB-11870	1
KB / MS CABLE 15 CM / RoHS	CB-11860	1
USB CABLE 25 CM / RoHS	CB-12000	1

CB-11630



CB-10860



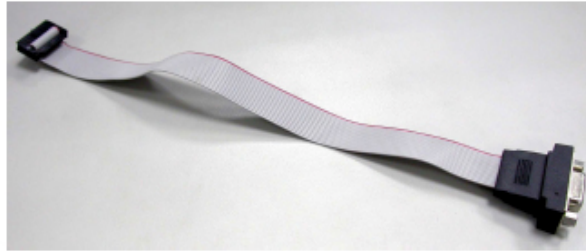
CB-11700



CB-10550



CB-11870



CB-11860



CB-12000



sales@win-ent.com