Lanner Electronics Inc.
Reinforced Networking Systems

FW-6420 Series

Mini Desktop VIA Eden low-power Network Security Appliance

User's Manual

Lanner Electronics Inc.
Reinforced Networking Systems

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Trademark Acknowledgments

Radio Frequency Emissions Notice

This equipment has been tested and found to comply with the digital device limits pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when operate in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be required to correct the interference at his expense.

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Safety Instructions

The following information relates to the safety of installation and maintenance personnel. Read all instructions before attempting to unpack, install or operate this equipment, especially before connecting the power adapter.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.

- Do not apply power into FW-6420 before installation or when disconnecting this product from its original system setup.

- Use only the specified power adapter (output voltage: 12VDC/5A) and make sure the power adaptor's plug matches your electrical wall outlet.

- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.

- Locate a safe and dry location to place this product. Keep it away from wet surfaces/surroundings.

- Never push an object of any kind into this product through openings or empty slots, as you may damage parts.

- Do not attach the power supply cabling to building surfaces. Do not allow anything to rest on the power cabling or allow it to be abused by persons walking on it.

- Distance your working area from moist floors, ungrounded power extension cables, and unavailable safety grounds.

- Avoid installation of this product during a lighting storm.

- Damages caused by electrostatic discharge may result in total or intermittent system failures. To minimize the possibility of ESD damage, an anti-static strap is highly recommended.

- When cleaning or servicing this unit, avoid using highly toxic or aerosol cleaners. Use a clean damp cloth when wiping its surfaces.

- Do not place this device in a tight and sealed location. Place the unit where it can access sufficient airflow to its vent holes (openings along its sides). Never block or cover these openings.

- Do not disassemble this product on your own.

Getting Technical Assistance

Should you encounter questions or problems with your FW-6420, Lanner Electronics is ready to assist you within the guidelines of our product support programs. First, check the electronic product documentation for assistance. If you still cannot find the solution to your problem, contact Lanner sales team with the following information handy:

- ■ FW-6420 model name
- ■ Part number
- ■ Local network configuration details
- ■ The abnormal behavior and/or error messages reported by your network system
- ■ Your questions, or a description of the problem you are experiencing

Call, fax, or e-mail Lanner Electronics for technical support.

Phone: 886-2-8692-6060

Fax: 886-2-8692-6101

E-mail: sales@lannerinc.com

About this Manual

This target audience of this manual includes users, administrators and technicians. This publication is a useful reference when installing, configuring, operating and managing the FW-6420. This breakdown and short descriptions of this manual's contents are as follows:

- ■ Chapter 1 – Introduction provides an overview of the FW-6420 mini desktop network security appliance, including its related features, application usage and technical specifications list. The chapter also guides users through the pre and post installation process by listing safety tips plus an overall detailed description of the control board and system and their vital components.

- ■ Chapter 2 – Introduce Hardware Installation

- ■ Chapter 3 – Award BIOS Setup

- ■ *Appendix A –summarizes the specification of the power adapter*

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Getting Started

1.1 Introduction

Figure 1 – FW-6420 Outlook

Designed for the Small and Medium-sized Businesses(SMB) in mind, the FW-6420 is a powerful, yet flexible mini-desktop solution for the SMB network security market. The FW-6420 is embedded with a VIA Eden low power CPU, running at 400MHz or 1GHz. It is also equipped with four Ethernet ports each with its own Realtek RTL8139C+ and supports Compact Flash Type II, PCI and Mini PCI. The FW-6420 is the ideal solution for developers, who require a speedy Time-to-Market network security product for the fast growing network security market. With this network security device you can provide a number of networking security functions that werer previously only available for the larger Enterprises, such as Virtual Private Network (VPN), Firewall, Multi-Homing and many more.

1.1.1 Features

Listed below are the key features of FW-6420.

■ Supports 2.5" HDD

■ Supports VIA Eden ESP 400MHz or 1GHz processor

■ Supports one DDR DIMM socket (184-pin);up to 1 GB

■ Supports four 10/100Mbps Ethernet ports, each with an independent Realtek RTL8139C+ chipset

■ Supports Compact Flash, Serial(RS-232), PCI and Mini PCI.

■ One software reset Button

■ Mini desktop network security solution

■ Suitable Network applications; Virtual Private Network(VPN), Firewall, IDS, Multi-Homing, Residential Gateway, Router and many more…

1.2   Technical Specifications

Model Name	FW-6420B	FW-6420E
SBC		
SBC	EM-661B	EM-661E
CPU	VIA Eden 400 MHz	VIA Eden 1GHz
Chipset	VIA CLE266 VT8623/VT8235	
BIOS	Award BIOS	
Memory	One 184 pin DDR DIMM, up to 1GB	
Network interface	Four Realtek RTL8139C+, support 10/100Mbps Ethernet with four external RJ-45 Connectors	
SSD	One CompactFlash TypeII Socket	
I/O Interface	One DB-9 RS-232 connector	
Expansion Slot	One PCI and One Mini-PCI slot	
Reset	One reset button for software reset	
RTC	Internal RTC with LI battery	
Power	One power jack 12V, 5A, 2.5mm	
Mechanical/ Environmental		
Form Factor	Slim destop	
LED Indicator	1*Power, 1*Status, 4*LAN speed 10/100Mbps, 4*LAN link/Active	
Operating Temperature	0 ^{o}C – 40 ^{o}C	
Storage Temperature	-20 ^{o}C – 70 ^{o}C	
Humidity	5% - 95% RH, non-condersing	
Chassis Material	Steel	
Dimension(H x W x D)	50 x 330 x 161.7 mm	
Net Weight	2 KGS	
Certification	CE, FCC CLASS B	
Software support	Linux 6.5 and above, Windows 95/98/2000/2003/ME/XP	

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1.3 Packing Contents

Carefully unpack your package and make sure that you have the following items.

- FW-6420 Network security Platform
- Console cable
- 1.8 meters long cross-over Ethernet cable
- 1.8 meters long straight-through Ethernet cable
- Face panel name plate label
- Power adapter
- Power cable
- Drivers and User's Manual CD

If you find anything missing or damaged, promptly contact your dealer for assistance.

1.4   EM-661 System Board

EM-661 is the system board bundled with the FW-6420 Network security platform. The succeeding sections list all EM-661 related jumper settings and connector pin assignments.

1.4.1 Mechanical Dimensions
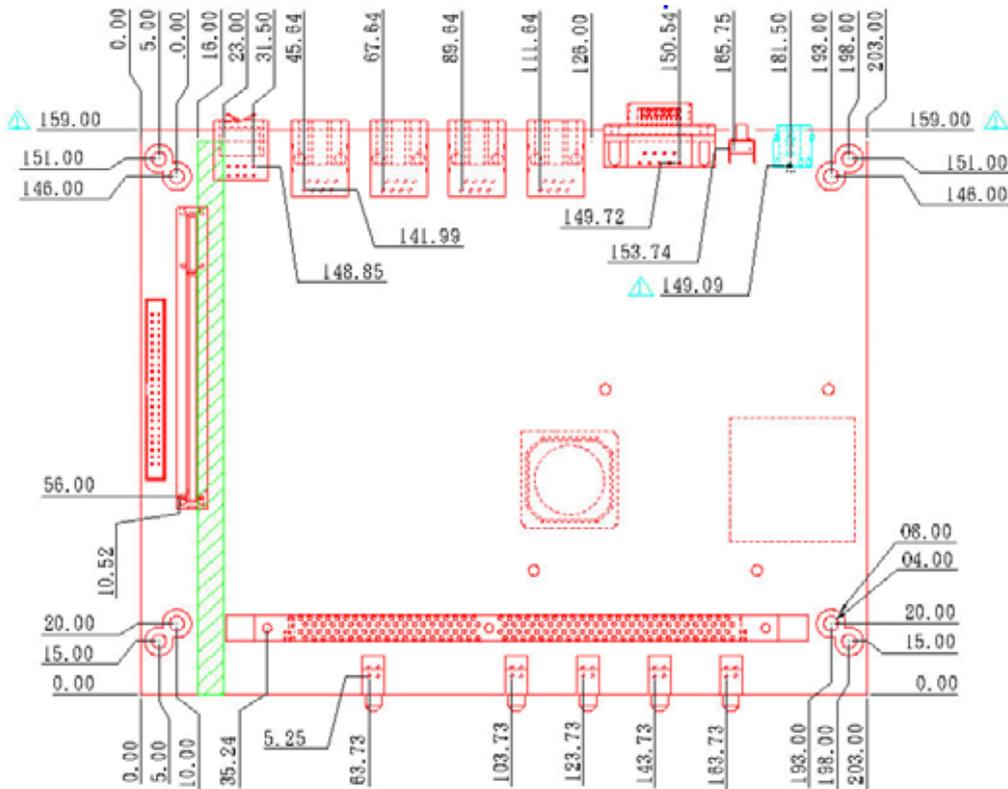
Figure 2 – EM-661 Control Board Dimensions (units in mm)

1.4.2 Board Layout
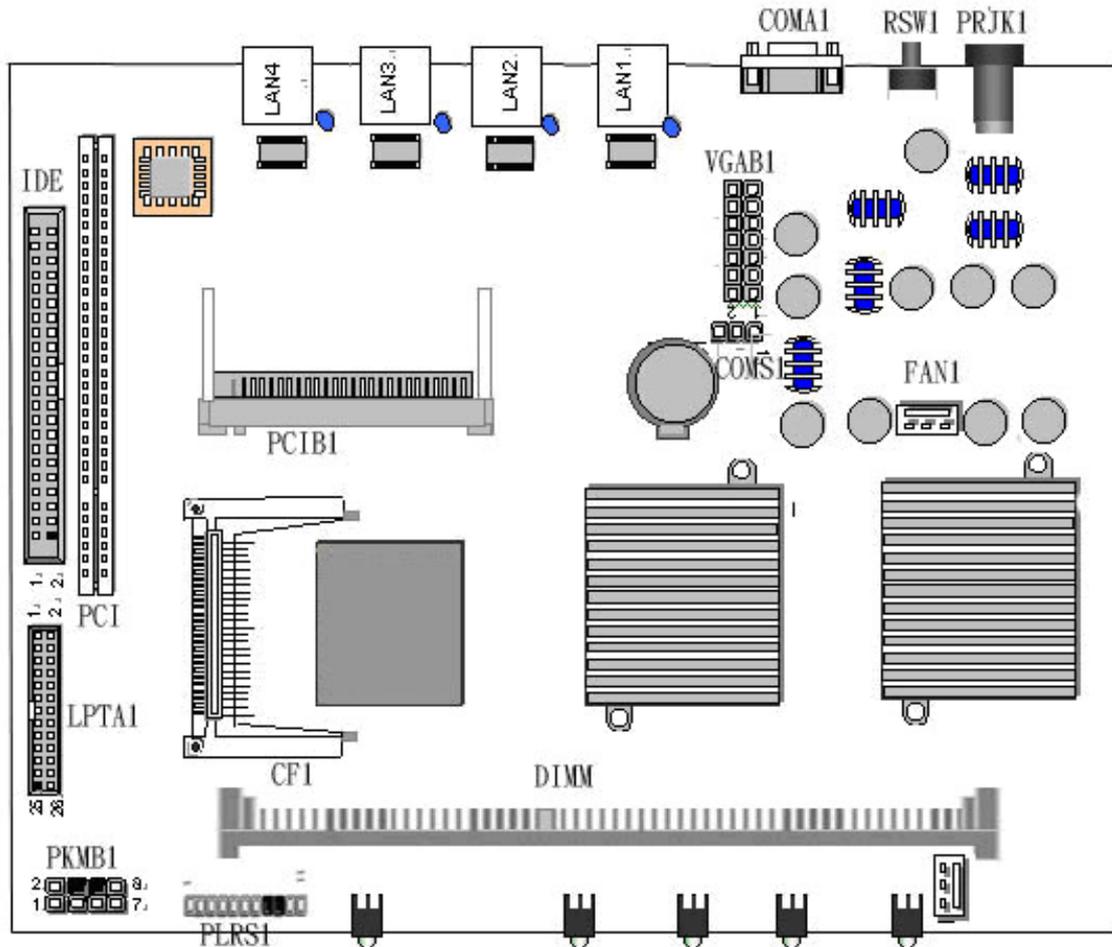
Figure 3 – EM-661 Jumpers and Connectors

1.4.3 Jumper Settings and I/O Connector

The onboard jumper settings and I/O connector of EM-661 are custom-tailored to fit the FW-6420 functionality. Changing the jumper settings may result in system malfunction or unforeseen damages.

Jumper Settings and I/O Connector Summary for EM-661

JUMPER	FUNCTION
CMOS1	Clear CMOS Data
PLRS1	Power LED,HD LED, Reset, Speaker Connector(11 Pin 2.54mm)
FAN1	3 Pin Fan Connector
LAN1-4	LAN Connector
PRJK1	3 Pin Power Input Jack
COMA1	RS-232 Serial Port #1 Connector (D-Sub)
PKMB1	PS/2 Keyboard & Mouse Connector
VGAB1	External VGA Connector (Header)
LPTA1	Parallel Connector
USBB1	Dual USB Connector
CF1	Compact Flash Connector
IDEB1	IDE Interface Connector
PCIB1	124 Pin Mini PCI Socket

1.4.4 Connector Pin Assignments

CMOS1:Clear CMOS Data

COM1	Description
1-2	Normal (Default)
2-3	Clear CMOS
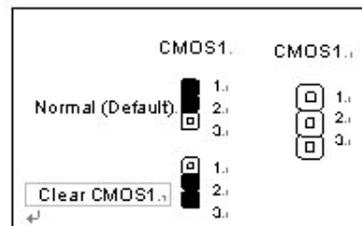
PLRS1:Power LED,HD LED, Reset, Speaker Connector(11 Pin 2.54mm)

Pin No.	Description	Pin No.	Description
1	Power LED +	2	Power LED -
3	Ground	4	HDD LED +
5	HDD LED -	6	RESET SW +
7	RESET SW – (GND)	8	External Speaker -
9	Internal Buzzer -	10	NC
11	External Speaker +		
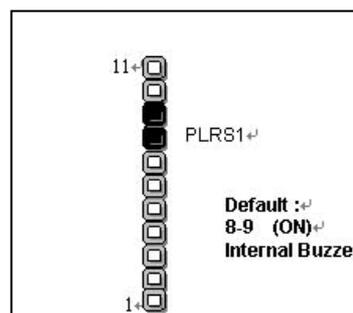
FAN1 : 3 Pin FAN Connector

Pin No.	Description
1	Ground
2	+12V
3	FAN Status
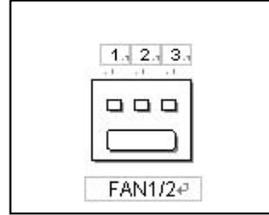
LANA1~4: Type 1 (RJ-45)

Pin No.	Description Fast E-Net
1	TX+
2	TX-
3	RX+
4	T45
5	T45
6	RX-
7	T78
8	T78
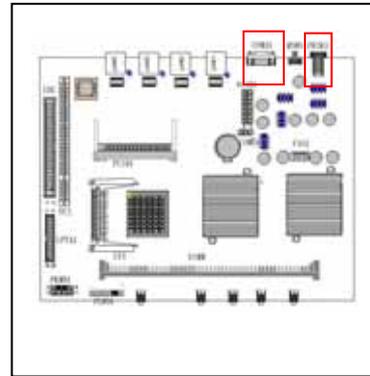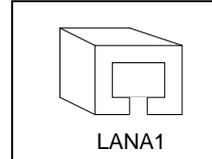
PRJK1 : 3 Pin Power Input Jack

Pin No.	Description
1	Ground
2	Ground
3	+12V

COMA1: RS-232 Serial Port #1 Connector (D-Sub)

Pin No.	Description
1	Data Carrier Detect (DCDA #)
2	Receive Data (RXDA)
3	Transmit Data (TXDA)
4	Data Terminal Ready (DTRA #)
5	Ground (GND)
6	Data Set Ready (DSRA #)
7	Request To Send (RTSA #)
8	Clear To Send (CTSA #)
9	Ring Indicator (RIA #)
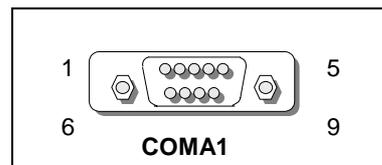
VGB1 : External VGA Connector (2X6 Header 2.54mm)

Pin No.	Description	Pin No.	Description
1	R	2	Ground
3	G	4	Ground
5	B	6	Ground
7	H-SYNC	8	Ground
9	V-SYNC	10	Ground
11	Detect-display Data	12	Detect-display CLOCK

7
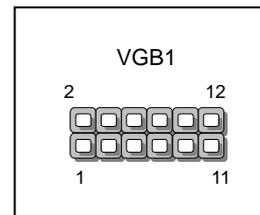
PKMB1: PS/2 Keyboard & Mouse Connector (2x4 Header 2.54mm)

Pin No.	Description
1	KBCLK)
2	Ground
3	NC
4	KBDATA
5	NC
6	MSDATA
7	MSCLK
8	VCC

PKMB1

```
1  □□  2
3  □□  4
5  □□  6
7  □□  8
```
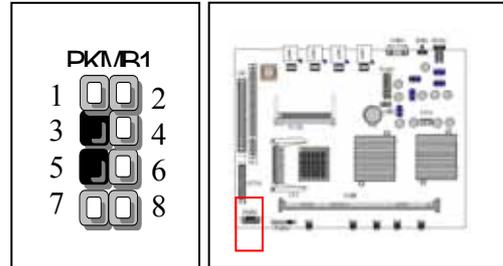
USBB1: Dual Connector

Pin No.	Description	Pin No.	Description
1	USB_VCC	2	USBD0-
3	USBD0+	4	Ground
5	USB_VCC	6	USBD1-
7	USBD1+	8	Ground

IDEA1 : IDE Interface Connector (44Pin 2.0mm Pitch Header)

Pin No.	Description	Pin No.	Description
1	Reset #	2	Ground
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
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	Ground	20	NC
21	DMA REQ#	22	Ground
23	IOW #	24	Ground
25	IOR #	26	Ground
27	IOCHRDY	28	Ground
29	DMA ACK #	30	Ground
31	Interrupt	32	NC
33	SA 1	34	NC
35	SA 0	36	SA 2
37	HDC CS 0#	38	HDC CS 1#
39	HDD Active	40	Ground
41	VCC	42	VCC
43	Ground	44	NC

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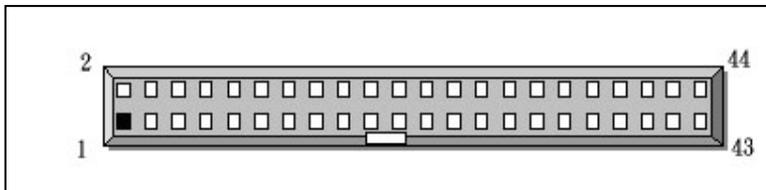
CF1: Compact Flash Connector

Pin No.	Description	Pin No.	Description
1	Ground	26	CD1-
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	CE1#	32	CE2#
8	A10	33	VS1#
9	OE#	34	IOR#
10	A9	35	IOW#
11	A8	36	WE#
12	A7	37	READY#
13	CFVCC3	38	CFVCC3
14	A6	39	CSEL
15	A5	40	VS2#
16	A4	41	RESET
17	A3	42	WAIT#
18	A2	43	INPACK#
19	A1	44	REG#
20	A0	45	DASP#
21	DATA0	46	DIAG#
22	DATA1	47	DATA8
23	DATA2	48	DATA9
24	WP	49	DATA10
25	CD2-	50	Ground

50   CF1   26

25   1
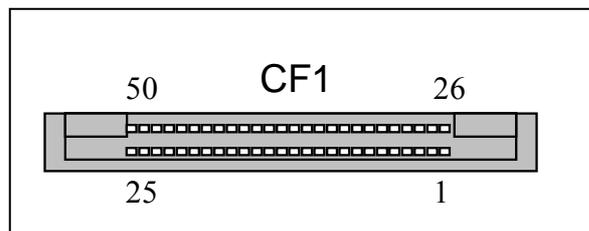
LPTA1: Parallel Connector (26 Pin 2.00mm Pitch Header)

Pin No.	Description	Pin No.	Description
1	Strobe #	2	Auto Form Feed
3	Data0	4	Error #
5	Data1	6	Initialize #
7	Data2	8	Printer Select IN #
9	Data3	10	Ground
11	Data4	12	Ground
13	Data5	14	Ground
15	Data6	16	Ground
17	Data7	18	Ground
19	Acknowledge #	20	Ground
21	Busy	22	Ground
23	Paper Empty	24	Ground
25	Printer Select	26	KEY
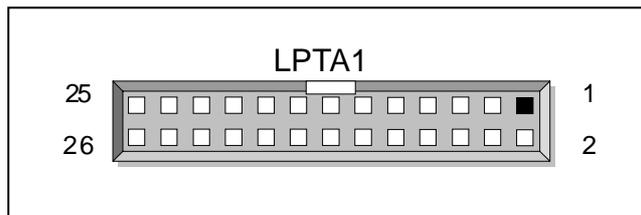
PCIB1:124-pin Mini PCI Sockets

Pin No.	Description	Pin No.	Description
1	TIP	2	RING
3	8PMJ-3	4	8PMJ-1
5	8PMJ-6	6	8PMJ-2
7	8PMJ-7	8	8PMJ-4
9	8PMJ-8	10	8PMJ-5
11	LED1_GRNP	12	LED2_YELP
13	LED1_GRNN	14	LED2_YELP
15	CHSGND	16	RESERVED
17	INT-B	18	+5V
19	+3.3V	20	INT-A
21	RESERVED	22	RESERVED
23	GROUND	24	3.3VAUX
25	CLK	26	RST
27	GROUND	28	+3.3V
29	REO	30	GNT
31	+3.3V	32	Ground
33	AD31	34	PME
35	AD29	36	RESERVED
37	Ground	38	AD30
39	AD27	40	+3.3V
41	AD25	42	AD28
43	RESERVED	44	AD26
45	C_BE-3	46	AD24
47	AD23	48	IDSEL
49	Ground	50	Ground
51	AD21	52	AD22
53	AD19	54	AD20
55	Ground	56	PAR
57	AD17	58	AD18
59	C_BE-2	60	AD16
61	IRDY	62	Ground
63	+3.3V	64	FRAME
65	CLKRUN	66	TRDY
67	SERR	68	STOP
69	Ground	70	+3.3V
71	PERR	72	DEVSEL
73	C_BE-1	74	Ground
75	AD14	76	AD15
77	Ground	78	AD13
79	AD12	80	AD11
81	AD10	82	Ground

- More -

Pin No.	Description	Pin No.	Description
83	Ground	84	AD9
85	AD8	86	C_BE-0
87	AD7	88	+3.3V
89	+3.3V	90	AD6
91	AD5	92	AD4
93	RESERVED	94	AD2
95	AD3	96	AD0
97	+5V	98	RESERVED-WIP
99	AD1	100	RESERVED-WIP
101	Ground	102	Ground
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_MON	112	RESERVED
113	AUDIO_GND	114	Ground
115	SYS_AUDIO_OUT	116	SYS_AUDIO_IN
117	SYS_AUDIO_OUT GND	118	SYS_AUDIO_IN GND
119	AUDIO_GND	120	AUDIO_GND
121	RESERVED	122	MPCIACT
123	VCC5VA	124	3.3AUX

RSW1: 4-pin Software Reset Switch

Pin No.	Description
1	Reset signal
2	Ground
3	Ground
4	Ground
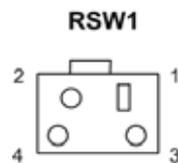
1.5 FW-6420 Mini Desktop Firewall Mechanisms

This section of the manual describes the mechanical and device nomenclature of FW-6420.

1.5.1 Mechanical Dimensions

The illustration below identifies the physical measurements of the FW-6420.
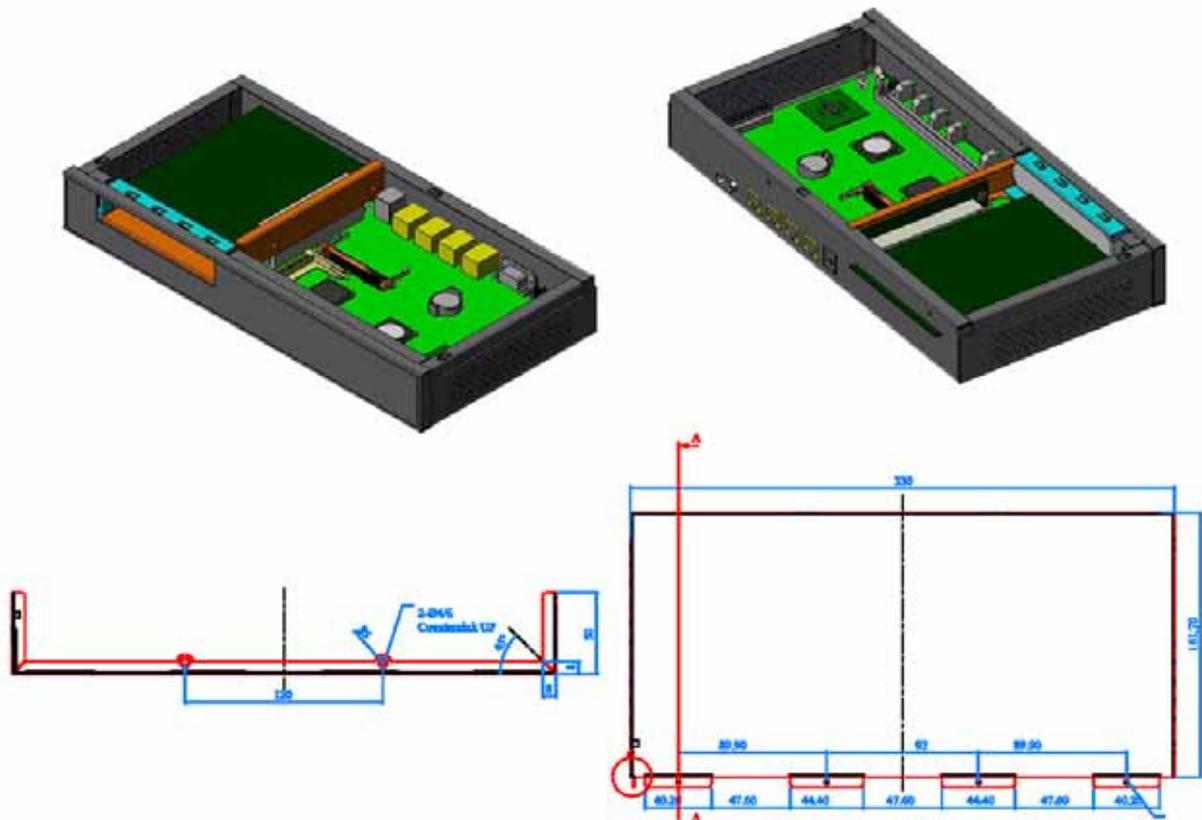
Figure 4 – FW-6420 Chassis

1.5.2 Face Panel

Figure 5 – FW-6420 Face Panel

Face Panel LED Status and Behavior

The following table lists and explains the behavior of each LED on the FW-6420 front panel.

LED	Color	Status	Description
Power	Green	On	When FW-6420 power is switched ON
	N/A	Off	No power connected
Status	Green/RED		Programmable via GPIO
Ethernet Ports 10/100	Green		LAN Speed 100 Mbps
	N/A		LAN Speed 10 Mbps
Ethernet Ports Link/ACT	Green	On	This LED indicate that the port continuously connection
		Flash	This LED will flash when the data is transmitted on the port.

GPIO definition

Name	Color	Condition	VT8235 GPIO			Description
			08	09	10	
Status	RED	Off	0	0	0	User Define
	RED	0.1 sec Blink	0	1	0	
	RED	0.5 sec Blink	1	0	0	
	RED	On	1	1	0	
	Green	Off	0	0	1	
	Green	0.1 sec Blink	0	1	1	
	Green	0.5 sec Blink	1	0	1	
	Green	On	1	1	1	System Ready ON

Notes *Lanner provide the LED Status Sample code in the Manual/Driver CD.*

The path is \Driver\LED_Sample_Code

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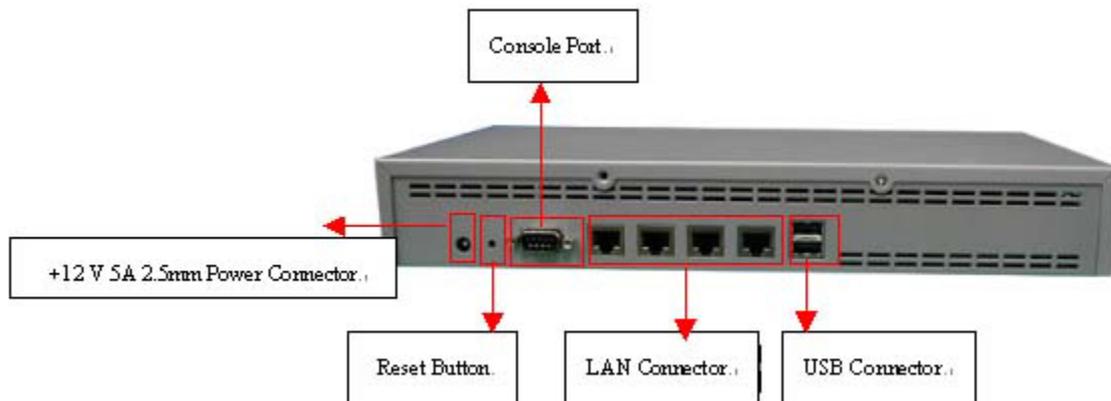
1.5.3 Rear View

Figure 6 – FW-6420 Rear View

- **Console Port:** via the console port cable, this connector attaches FW-6420 to the host PC . The default baud rate is **38400**.

- **LAN Connector:** Ethernet RJ-45 connector, connected to networking environment using a RJ-45 Ethernet cable

- **DC Power Jack:** Power connector, connected to the power adapter packed with the FW-6420

- **Reset Button:** This is software reset button. It is defined by VT8235 GPIO 11.

Warning:

Faulty or improper use of the power adaptor may cause permanent damage to the power supply and the FW-6420. Plug the adaptor to an electrical wall outlet that matches its specifications.

C h a p t e r   2

FW-6420 Hardware Installation Guide

2.1   *Hardware Installation Guide*

- **Removing the Top Cover**
    Step 1 : Unscrew two screws from back of the system.

    Step 2 : Unscrew two screws from right of the system.

    Step 3 : Unscrew two screws from left of the system.

| Step 1 | Step 2 | Step 3 |
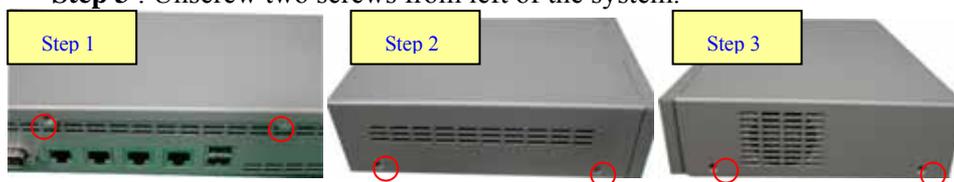
Step 4 : Pull the top panel up as shown in below graph. Put the top panel in a safe place.

Step 4
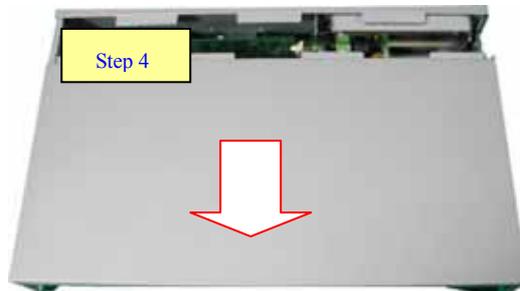
- **System Memory**
    Step 1: The DIMM slot has a notch, the DIMM memory module only fit in one direction.
    Step 2: Align the memory notch to the module and push the memory into the DIMM socket
            vertically.

| Step 1 | Step 2 |

Notch
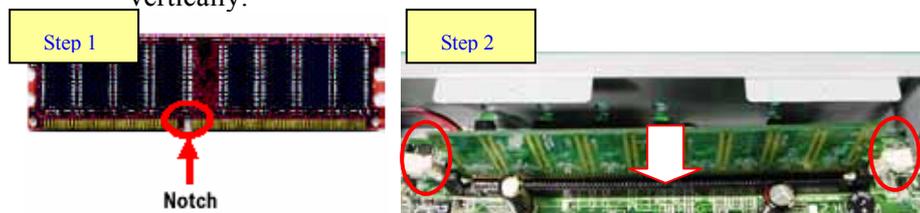
- **Installing Hard Disk Drive**

  Step 1: Take off four screws from the hard disk bracket.

  Step 2: Moving the hard disk bracket.

  Step 3: Insert the hard disk in the bracket and screwing four screws with the hard disk together from both sides.

  Step 4: Install the 44-pin hard disk cable to the hard drive and screw four screws in the hard disk bracket.
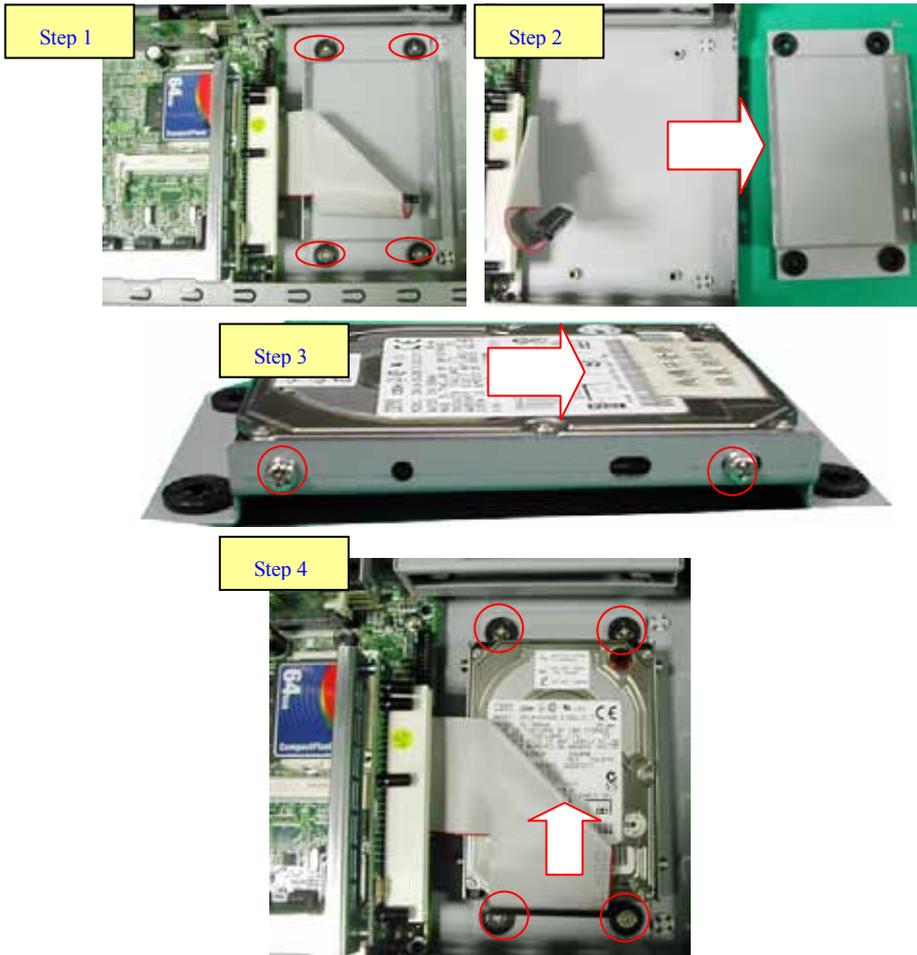
- **Installing Compact Flash Card**

  Step 1: Insert the compact flash card into the slot carefully as shown in the picture.

- **Installing the Mini-PCI Card**

    Step 1: Insert the PCI expansion card into the mini-PCI slot at 45 degree.

    Step 2: Push down the PCI expansion card and the PCI expansion card is clicked together completely with the PCI expansion slot.
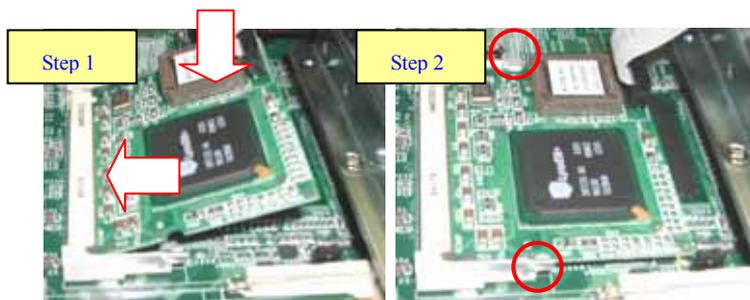
- **Installing the Standard PCI Expansion Card**

    Step 1: Press the both button.

    Step 2: Move the bracket.

    Step 3: Take off two screws from the riser card bracket.

    Step 4: Pull up the reiser card bracket.

    Step 5: Insert your PCI card and screw the screw.

    Step 6: Put the riser card bracket and screw the two screws.
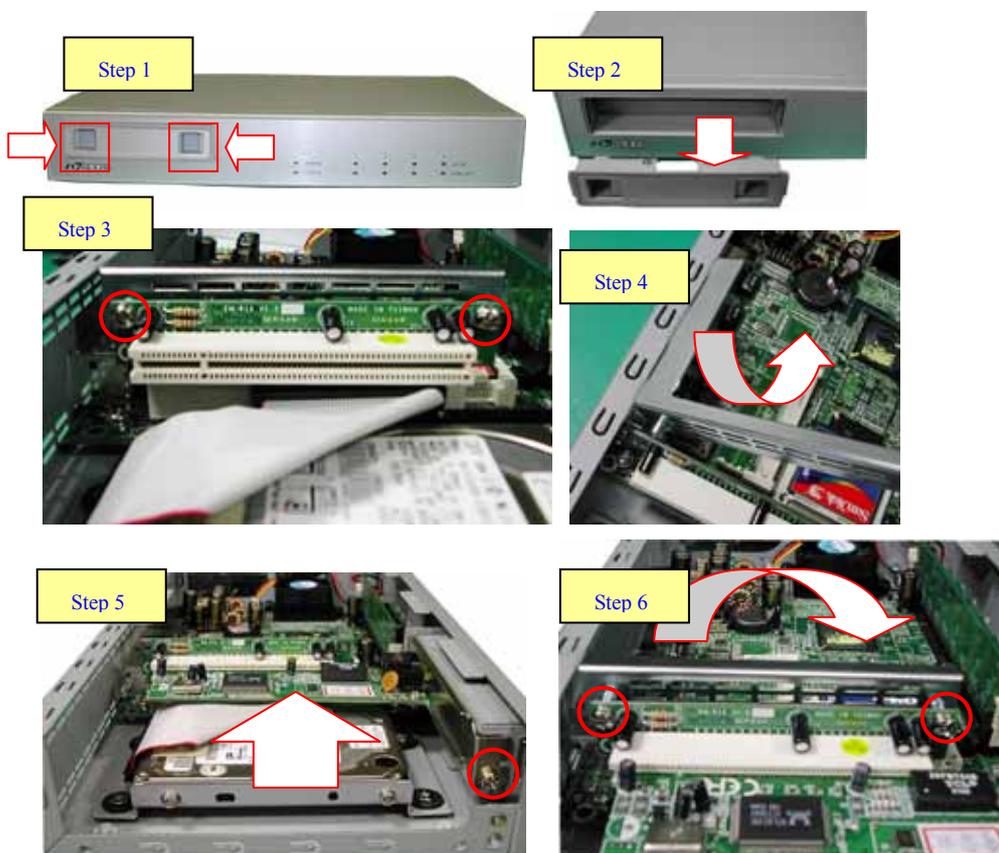
⚠️ **Warning:** *Be notes that the power consumption of the PCI card must be under 15W.*

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Chapter 3
Award BIOS Setup

Award's ROM BIOS provides a built-in Setup program that allows users to modify the basic system configuration and settings. The modified data will be stored in a battery-backed CMOS RAM so that this data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM remains unchanged unless there is a configuration change in the system, such as hard drive replacement or new equipment installment.

3.1 Running AWARD BIOS

The Setup Utility is stored in the BIOS ROM. When the power of the computer system is turned on, a screen message will appear to give you an opportunity to call up the Setup Utility while the BIOS will enter the Power On Self Test (POST) routines. The POST routines perform various diagnostic checks while initializing the board hardware. If the routines encounter an error during the tests, the error will be reported in one of two ways, a series of short beeps or an error message on the screen. There are two kinds of errors, fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

" Press <F1> to RESUME "

Write down the message and press the F1 key to continue the boot up sequence. After the POST routines are completed, the following message appears:

" Press DEL to enter SETUP "

Entering Setup

Turn on the power of the computer system and press <Del> immediately. If you don't have the chance to respond, reset the system by simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys, or by pushing the ' Reset ' button on the system cabinet. You can also restart by turning the system OFF then ON.

3.2 CMOS Setup Utility

To access the Award BIOS HIFLEX SETUP UTILITY program, press the <DEL> key. The screen display will appears as:

Main Program Screen


```
              Phoenix - AwardBIOS CMOS Setup Utility

    ▶ Standard CMOS Features          ▶ PC Health Status
    ▶ Advanced BIOS Features             Load Optimized Defaults
    ▶ Advanced Chipset Features          Set Supervisor Password
    ▶ Integrated Peripherals             Set User Password
    ▶ Power Management Setup             Save & Exit Setup
    ▶ PnP/PCI Configurations             Exit Without Saving

    Esc : Quit      F9 : Menu in BIOS      ↑ ↓ → ←   : Select Item
    F10 : Save & Exit Setup

                  Time, Date, Hard Disk Type...
```

This screen provides access to the utility's various functions.

Listed below are explanation of the keys displayed at the bottom of the screen:

<ESC>   **:** Exit the utility.

<↑ ↓ → ←>   **:** Use arrow keys ↑ ↓ → ← to move cursor to your desired selection.

<F1>   **:** General Help

<F5>   **:** Previous Values

<F6>   **:** Fail-Safe Defaults

<F7>   **:** Optimized Defaults

<F10>   **:** Saves all changes made to Setup and exits program.

+/-/PU/PD   ：Change Value

Standard CMOS Setup: Use this menu for basic system configurations.

Advanced BIOS Features: Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features: Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals: Use this menu to specify your settings for integrated peripherals.

Power Management Setup: Use this menu to setup power control.

PnP/PCI Configuration: This entry appears if your system supports PnP/PCI.

PC Health Status: This entry shows your PC health status if Hardware Monitor Chipset is installed.

Load Optimized Defaults: Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.

Set Supervisor Password: Use this menu to set Supervisor Passwords.

Set User Password: Use this menu to set User Passwords.

Save & Exit Setup: Save CMOS value changes to CMOS and exit setup.

Exit Without Saving: Abandon all CMOS value changes and exit setup.

3.3 Standard CMOS Setup

When you select the "STANDARD CMOS SETUP" on the main program, the screen display will appears as:

Standard CMOS Setup Screen


```
Phoenix - AwardBIOS CMOS Setup Utility
            Standard CMOS Features

 Date (mm:dd:yy)        Wed, Jul  7 2004        Item Help
 Time (hh:mm:ss)        14 : 18 :  1
                                           Menu Level    ▶
▶ IDE Primary Master
▶ IDE Primary Slave                        Change the day, month,
▶ IDE Secondary Master                     year and century
▶ IDE Secondary Slave

 Drive A                [None]
 Drive B                [None]
 Halt On                [All , But Disk/Key]

 Base Memory                 640K
 Extended Memory            65535K
 Total Memory                1024K


↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
           F5:Previous Values              F7: Optimized Defaults
```

The Standard CMOS Setup utility is used to configure the following components such as date, time, hard disk drive, floppy drive, display and memory. Once a field is highlighted, on-line help information is displayed in the left bottom of the Menu screen.

BIOS Setting and Terms Description	
Set Date	Month, Date, Year.
Set Time :	Hour, Minute and Second. Use 24-hour clock format (for p.m. time, add 12 to the hour number, e.g. you would enter 4:30 p.m. as 16:30).
IDE Primary (Secondary) Master (Slave):	Press PgUp / <+> or PgDn / <-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

IDE Primary Master

```
          Phoenix - AwardBIOS CMOS Setup Utility
                     IDE Primary Master
┌────────────────────────────────────────────┬──────────────────────┐
│   IDE HDD Auto-Detection    [Press Enter]    │     Item Help        │
│                                              ├──────────────────────┤
│   IDE Primary Master        [Auto]           │  Menu Level    ▶▶    │
│   Access Mode               [Auto]           │                      │
│                                              │  To auto-detect the  │
│   Capacity                       0 MB        │  HDD's size, head... on│
│                                              │  this channel        │
│   Cylinder                       0           │                      │
│   Head                           0           │                      │
│   Precomp                        0           │                      │
│   Landing Zone                   0           │                      │
│   Sector                         0           │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
├──────────────────────────────────────────────┴──────────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│            F5:Previous Values          F7: Optimized Defaults       │
└──────────────────────────────────────────────────────────────────────┘
```

↑ ↓ → Move   Enter: Select   +/-/PU/PD: Value   F10: Save   Esc: Exit   F1: General Help

F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

IDE Primary Slave
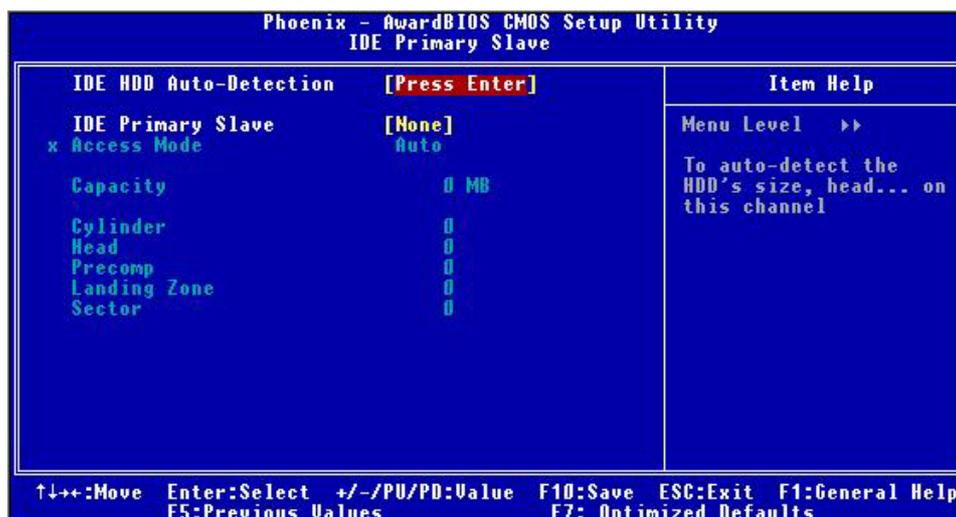
```
          Phoenix - AwardBIOS CMOS Setup Utility
                     IDE Primary Slave
┌────────────────────────────────────────────┬──────────────────────┐
│   IDE HDD Auto-Detection    [Press Enter]    │     Item Help        │
│                                              ├──────────────────────┤
│   IDE Primary Slave         [None]           │  Menu Level    ▶▶    │
│ x Access Mode                Auto            │                      │
│                                              │  To auto-detect the  │
│   Capacity                       0 MB        │  HDD's size, head... on│
│                                              │  this channel        │
│   Cylinder                       0           │                      │
│   Head                           0           │                      │
│   Precomp                        0           │                      │
│   Landing Zone                   0           │                      │
│   Sector                         0           │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
├──────────────────────────────────────────────┴──────────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│            F5:Previous Values          F7: Optimized Defaults       │
└──────────────────────────────────────────────────────────────────────┘
```

↑ ↓ → Move   Enter: Select +/-/PU/PD: Value F10: Save   Esc: Exit   F1: General Help

F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

Here is a brief explanation of drive specifications:

- **Access Mode:** The settings are Auto, Normal, Large, LBA.

- **Cylinder:** Number of cylinders

- **Head:** Number of heads

- **Precomp:** Write precom

- **Landing Zone:** Landing Zone

- **Sector:** Number of sectors

Drive A and Drive B : Select the correct specifications for the diskette drive(s) installed in the computer.

None		No diskette drive installed
360K	5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M,	5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K	3.5 in	3 1-2 inch double-sided drive; 720 kilobyte capacity
1.44M,	3.5 in	3 1-2 inch double-sided drive; 1.44 megabyte capacity
2.88M,	3.5 in	3 1-2 inch double-sided drive; 2.88 megabyte capacity

Note : 1.   Not Installed could be used as an option for diskless workstations..

2.   Highlight the listing after each drive name and select the appropriate entry.

Halt On : During the power-on-self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors POST and continue the boot-up process. These are the selections:

No errors	Whenever the BIOS detects a non-fatal error the system will not be stopped and you will be prompted
All errors	The system boot will be stopped for any error that may be detected.
All, But Keyboard	The system boot will not stop for a keyboard error ; it will stop for all Other errors.
All, But Diskette	The system boot will not stop for a disk error ; it will stop for all other Errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error ; it will stop for all other errors.

3.4 Advanced BIOS Features Setup

When you select the "ADVANCED CMOS SETUP" on the main program, the screen display will appears as:

Advanced BIOS Features Setup Screen


```
          Phoenix - AwardBIOS CMOS Setup Utility
                   Advanced BIOS Features

   Virus Warning              [Disabled]          Item Help
   Quick Power On Self Test   [Enabled]
   First Boot Device          [HDD-0]       Menu Level    ▶
   Second Boot Device         [HDD-1]
   Third Boot Device          [CDROM]       Allows you to choose
   Boot Other Device          [Enabled]     the VIRUS warning
   Swap Floppy Drive          [Disabled]    feature for IDE Hard
   Boot Up NumLock Status     [On]          Disk boot sector
   Security Option            [Setup]       protection. If this
   PS2 Mouse Function Control [Enabled]     function is enabled
   HDD S.M.A.R.T. Capability  [Enabled]     and someone attempt to
   Video BIOS Shadow          [Enabled]     write data into this
   C8000-CBFFF Shadow         [Disabled]    area , BIOS will show
   CC000-CFFFF Shadow         [Disabled]    a warning message on
   D0000-D3FFF Shadow         [Disabled]    screen and alarm beep
   D4000-D7FFF Shadow         [Disabled]
   D8000-DBFFF Shadow         [Disabled]
   DC000-DFFFF Shadow         [Disabled]
   Full Screen LOGO Show      [Disabled]

↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
           F5:Previous Values              F7: Optimized Defaults
```

BIOS Setting and Terms Description	
Virus Warning	The default setting of Virus Warning is "Disabled". When it is enabled, any attempt to write the boot sector and partition table will halt the system and cause a warning message to appear. If this happens, you can use an anti-virus utility on a virus free, bootable floppy diskette to reboot, to clean and to investigate your system.
Quick Power On Self Test	The default setting is "Enabled". This speeds up the Power On Self Test (POST) by skipping some items that are normally checked during the full POST. If your system is functioning normally, you can choose this feature to speed up the booting process.
First / Second / Third / Other Boot Device :	The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-2/HDD-3, SCSI, CDROM, LAN, and Disabled
Swap Floppy Drive	The default setting is "Default". If the system has two floppy drives, choose enable to assign physical drive B to logical drive A and vice-versa.
Boot Up Numlock Status	The default setting is "On". If set "Off", the cursor controls will function on the numeric keypad.
Security Option	This setting controls the password in the main screen. The options are "Setup" and "System". Select "Setup" and it will protect the Setup Utility settings from being tampered with. Select "System" if you want to use password feature every time the system boots up. The default setting is "Setup". You can create your password by using the "SUPERVISOR/USER PASSWORD" utility on the main program screen.
PS/2 Mouse Function Control	When this option is set *Enabled*, awardbios supports a PS/2 type mouse. The settings are *Enabled* or *Disabled*. The default setting is *Disabled*. System Boot Up Sequence.

HDD S.M.A.R.T. Capability	Enable installs SMART(Self-Monitoring Analysis-Reporting Technology), which issues a warning if an IDE failure is imminent.
Video BIOS Shadow	Determines whether video BIOS will be copied to RAM. Video shadow will increase the video speed. The default setting is "Eable". Enable copies Video BIOS to shadow RAM Improves performance.
C8000-CBFFF / CC000-CFFFF / D0000-D3FFF / D4000-D7FFF / D8000-DBFFF / DC000-DFFFF Shadow	These categories determine whether option ROMs will be copied to RAM. Enabled optional shadow is enabled Disabled optional shadow is disabled
Full Screen LOGO Show	Show full screen logo during BIOS bootup process. Seetings : Enabled and Disabled.

3.5 Advanced Chipset Setup

When you select the "CHIPSET FEATURES SETUP" on the main program, the screen display will appears as:

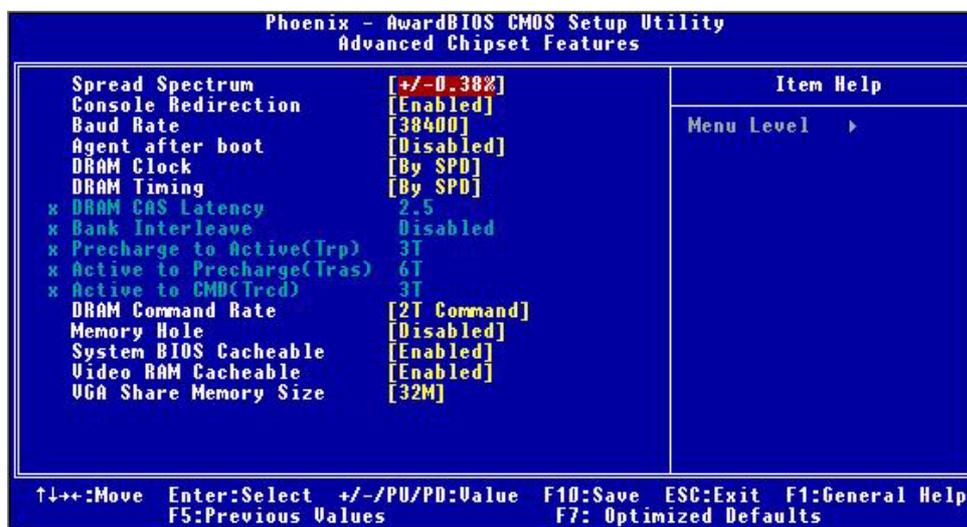**Advanced Chipset Features Setup Screen**

```
Phoenix - AwardBIOS CMOS Setup Utility
         Advanced Chipset Features

   Spread Spectrum         [+/-0.38%]          Item Help
   Console Redirection     [Enabled]
   Baud Rate               [38400]         Menu Level  ▶
   Agent after boot        [Disabled]
   DRAM Clock              [By SPD]
   DRAM Timing             [By SPD]
 x DRAM CAS Latency         2.5
 x Bank Interleave          Disabled
 x Precharge to Active(Trp)  3T
 x Active to Precharge(Tras) 6T
 x Active to CMD(Trcd)       3T
   DRAM Command Rate       [2T Command]
   Memory Hole             [Disabled]
   System BIOS Cacheable   [Enabled]
   Video RAM Cacheable     [Enabled]
   VGA Share Memory Size   [32M]

↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
        F5:Previous Values              F7: Optimized Defaults
```

BIOS Setting and Terms Description	
Spread Spectrum	When the mainboard's clock generator pulses, the extreme values(spikes) of the pulses creates EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves.
Console Redirection	Console redirection allows you to manage a host (local) system from a client (remote) system by redirecting keyboard input and text output through a serial port.

	You can choice Enable, Disable and Auto.
Baud Rate	The Default baud rate is 38400.
DRAM Clock	This item enables you to manually set the DRAM Clock. We recommend that you leave this item at the default value.
DRAM Timing Control	Set this By SPD to enable the system to automatically set the SDRAM timing by SPD (Serial Presence Detect). SPD is an EEPROM chip on the DIMM module that stores information about the memory chips it contains, including size, speed, voltage, row and column addresses, and manufacturer.
DRAM CAS Latency (2.5)	Enables you to select the CAS latency time in HCLKs of 2/2 or 3/3. The value is set at the factory depending on the DRAM installed. Do not change the val-ues in this field unless you change specifications of the installed DRAM or the installed CPU. The options are "2" and "2.5" default.
Bank Interleave	Enable this item to increase memory speed. When enabled, separate memory banks are set for odd and even addresses and the next byte of memory can be accessed while the current byte is being refreshed.
Precharge to Active (3T/4T)	This item is used to designate the minimum Row Precharge time of the SDRAM devices on the module.
Active to Precharge (6T/10T)	This item specifies the number of clock cycles needed after a bank active command before a precharge can occur.
Active to CMD (3T)	This item specifies the minimum required delay between activation of different rows.
DRAM DRAM Command Rate (2T command)	This item enables you to specify the waiting time for the CPU to issue the next command after issuing the command to the DDR memory. We recommend that you leave this item at the default value.
Memory Hole At 15M-16M	You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.
System BIOS Cacheable	Selecting "Enabled" allows caching of the system BIOS ROM at F0000h – FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are "Enabled" and "Disabled".
Video BIOS Cacheable	Selecting Enabled allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.
VGA Share Memory Size	Select VGA memory size

3.6 Integrated Peripherals Setup

When you select the "INTEGRATED PERIPHERIALS" on the main program, the screen display will appears as:

Integrated Peripherals Setup Screen

```
Phoenix - AwardBIOS CMOS Setup Utility
                Integrated Peripherals
 UART Mode Select          [Normal]              Item Help
 UR2 Duplex Mode           [Half]
 OnChip IDE Channel0       [Enabled]        Menu Level    ▶
 OnChip IDE Channel1       [Enabled]
 Support UltraDMA 66&100   [Disabled]
 OnChip USB Controller     [All Enabled]
 USB 2.0 Controller        [Enabled]
 USB Keyboard Support      [Disabled]
 USB Mouse Support         [Disabled]
 Onboard Lan Boot ROM      [Disabled]
 Onboard LAN1 Control      [Enabled]
 Onboard LAN2 Control      [Enabled]
 Onboard LAN3 Control      [Enabled]
 Onboard LAN4 Control      [Enabled]
 Onboard FDC Controller    [Disabled]
 Onboard Serial Port 1     [3F8/IRQ4]
 Onboard Parallel Port     [378/IRQ7]
 Parallel Port Mode        [SPP]
 ECP Mode Use DMA          [3]
 ↑↓←→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
            F5:Previous Values            F7: Optimized Defaults
```

BIOS Setting and Terms Description	
OnChip IDE Device	The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.
Support UltraDMA 66&100	Ultra DMA/66&100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver. If your hard drive and your system software both support Ultra DMA/66, select Auto to enable BIOS support. The settings are "Disabled".
OnChip USB Controller	Select Enabled if your system contains a Universal Serial Bus(USB) controller and you have USB peripherals.
USB 2.0 Controller	Select Enabled if your system contains a Universal Serial Bus(USB) controller and you have USB 2.0 peripherals.
USB Keyboard Support	Select Enabled if your system contains a Universal Serial Bus(USB) controller and you have a USB keyboard.
USB Mouse Support	Select Enabled if your system contains a Universal Serial Bus(USB) controller and you have a USB Mouse.
UART Mode Select	The serial port on your system may offer a variety of infrared port modes. Click here for a description of various modes.
UR2 Duplex Mode	This field is available when UART 2 Mode is set to either ASKIR or IrDA. This item enables you to determine the infrared function of the onboard infrared chip. The options are Full and Half (default).
Onboard LAN Boot ROM	PXE is based on the Dynamic Host Configuration Protocol (DHCP), and Trivial File Transfer Protocol (TFTP). When a PXE enabled client boots, it obtains an IP address from a DHCP server. It then discovers the Proxy DHCP server, which provides the client with a list of Boot Servers. The client then communicates with the appropriate Boot Server and receives

	the name of the boot image. The client uses TFTP to download the Network Bootstrap Program (NBP) from the Boot Server and then initiates execution of the image (boots from the image).
Onboard LAN1/LAN2/LAN3/LAN4 Control	Enable your LAN Controller
On board FDC Controller	Enable the onboard floppy controller. Select Enabled when you have installed a floppy disk drive.
Onboard Serial Port 1	Select an address and corresponding interrupt for the first and second serial ports. The settings are "3F8/IRQ4", "2E8/IRQ3", "3E8/IRQ4", "2F8/IRQ3", "Disabled", "Auto".
Onboard Parallel Port	This item allows you to determine onboard parallel port controller I/O address setting. The settings are "378H/IRQ7", "278H/IRQ5", "3BC/IRQ7", "Disabled".
Parallel Port Mode	Select an operating mode for the onboard parallel (printer) port. Select "Normal", "Compatible", or "SPP" unless you are certain your hardware and software both support one of the other available modes.
ECP Mode Use DMA	Select a DMA channel for the parallel port for use during ECP mode. The settings are "3" and "1"

3.7 Power Management Setup

The "Power Management Setup" controls the CPU card's "Green" features. When you select the "POWER MANAGEMENT SETUP" on the main program, the screen display will appears as:

Power Management Setup Screen
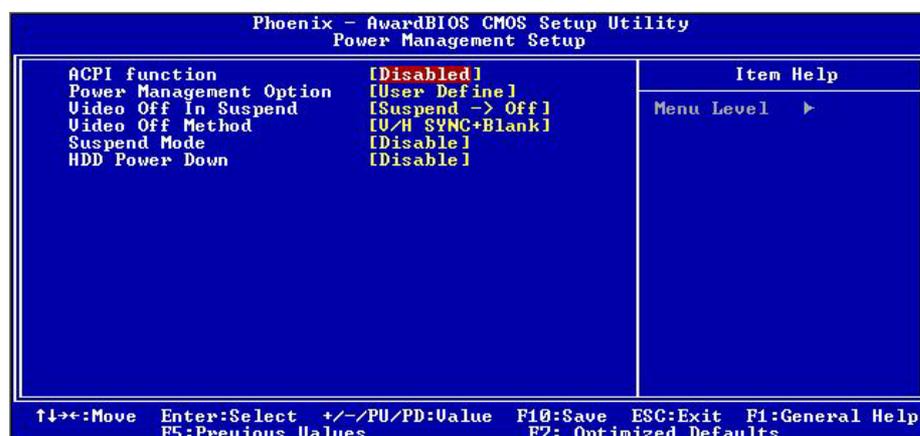
ACPI Function : This item allows you to enable or disable the Advanced Configuration and Power Management (ACPI). The settings are "Enabled" and "Disabled".

Power Management :

There are three selections for Power Management, three of which have fixed mode setting

Disable (Default)	No power management. Disables all four modes.
Min. Power Saving	Minimum power management. Doze Mode=1hr. Standby Mode =1hr., Suspend Mode=1hr., and HDD Power Down=15min.
Max. Power Saving	Maximum power management. –Only available for SL CPU's. Doze Mode=1min., Standby Mode=1min., Suspend Mode=1min., and HDD Power Down=1min
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disabled

Video Off In Suspend : This option is for choosing the setting in which the monitor will turn off. The default setting is "Suspend".

Always On	The monitor will be turned on
Suspend -> Off	The monitor will be turned off.

Video Off Method : This determines the manner in which the monitor is blanked. The default setting is "V/H SYNC+Blank".

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blank to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.

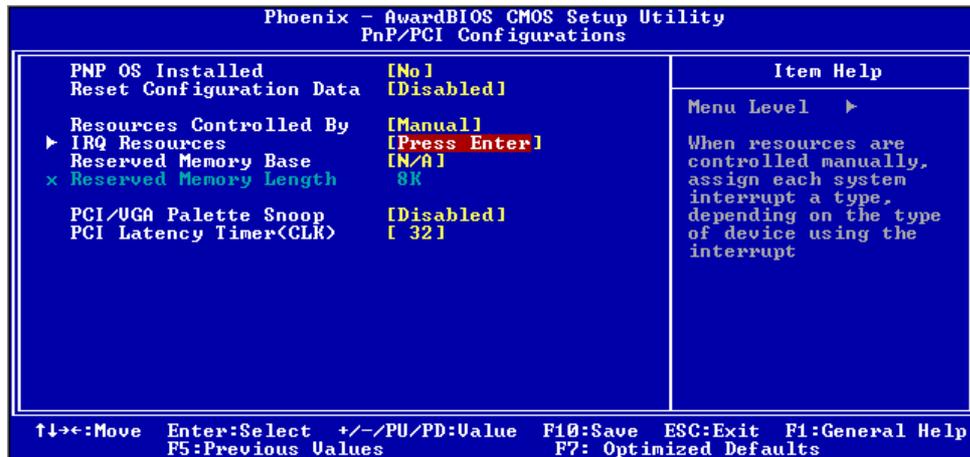**Suspend Type** : Options are from "1 Min". to "15 Min".

HDD Power Down: Options are from "1 Min". to "15 Min". and "Disable". The IDE hard drive will spin down if it is not accessed within a specified length of time.

After you have made your selection in the POWER MANAGEMENT SETUP, press the <ESC> key to go back to the main program screen.

3.8 PCI Plug and Play Setup

Both the ISA and PCI buses on the CPU card use system IRQs & DMAs. You must set up the IRQ and DMA assignments correctly through the PnP/PCI Configuration Setup utility, otherwise the motherboard will not work properly.

PnP/PCI Configuration Setup Screen

```
                Phoenix - AwardBIOS CMOS Setup Utility
                        PnP/PCI Configurations

    PNP OS Installed            [No]                    ┌────────────────────┐
    Reset Configuration Data    [Disabled]              │     Item Help       │
                                                        │                     │
    Resources Controlled By     [Manual]                │ Menu Level    ▶     │
  ▶ IRQ Resources               [Press Enter]           │                     │
    Reserved Memory Base        [N/A]                   │ When resources are  │
  x Reserved Memory Length       8K                     │ controlled manually,│
                                                        │ assign each system  │
    PCI/VGA Palette Snoop       [Disabled]              │ interrupt a type,   │
    PCI Latency Timer(CLK)      [ 32]                    │ depending on the type│
                                                        │ of device using the │
                                                        │ interrupt           │
                                                        │                     │
                                                        └────────────────────┘

  ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
             F5:Previous Values               F7: Optimized Defaults
```

BIOS Setting and Terms Description	
PnP OS Installed	Select "Yes" if you are using a Plug and Play capable operating system. Select "NO" if you need the BIOS to configure non-boot devices
Reset Configuration Data	Normally, you leave this field "Disabled", Select "Enabled" to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.
Resource Controlled By	The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®98. If you set this field to "Manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is proceded by a "▶"). The settings are "Auto(ESCD)", "Manual".
IRQ Resources	When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt. **IRQ3/4/5/7/9/10/11/12/14/15:** These items specify the bus where the specified IRQ line is used. The settings determine if Award BIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the IRQ pool, the end user can use these settings to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configures by Award BIOS. All IRQs used by onboard I/O are configured as PCI/PnP. If all IRQs are

	set to ISA/EISA, and IRQ14/15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices. Settings: ISA/EISA and PCI/PnP.
Reserved Memory Base	This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards. The settings are N/A, C8000, CC000, D0000, D4000, D8000 or DC000.
Reserved Memory Length	This option specifies the size of the memory area reserved for legacy ISA adapter cards. The settings are 8K, 16K, 32K or 64K.
PCI/VGA Palette Snoop	Leave this field at "Disabled". The settings are "Enabled", "Disabled".
PCI Latency Timer(CLK)	When enabled this item, the PCI cycle will only be deferred after it has been held in a "Snoop Stall" for 31 clocks and another ADS# has arrived. When disabled, the PCI cycle will be deferred immediately after the GMCH receives another ADS#.

3.9 PC Health Status

This section helps you to get more information about your system including CPU temperature, FAN speed and voltages. It is recommended that you contact your motherboard supplier to get proper value about your setting of the CPU temperature.
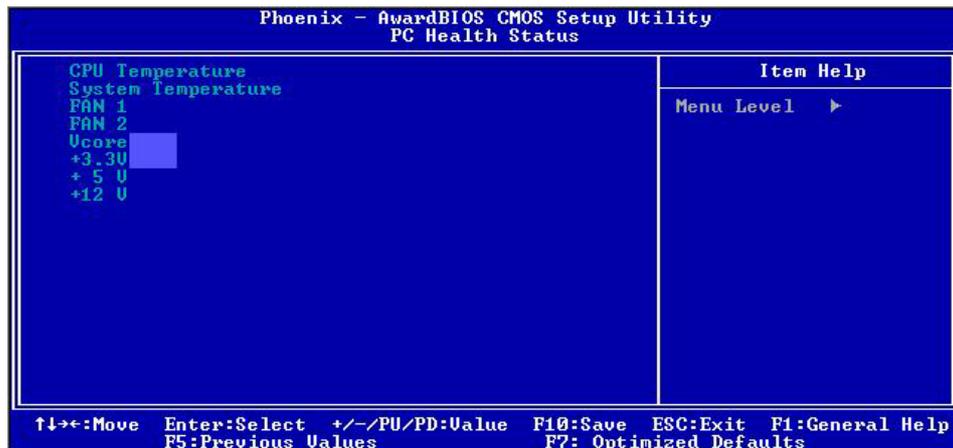
```
                Phoenix - AwardBIOS CMOS Setup Utility
                            PC Health Status
┌──────────────────────────────────────────────┬──────────────────────┐
│  CPU Temperature                               │       Item Help      │
│  System Temperature                            ├──────────────────────┤
│  FAN 1                                         │  Menu Level    ▶     │
│  FAN 2                                         │                      │
│  Vcore                                         │                      │
│  +3.3V                                         │                      │
│  + 5 V                                         │                      │
│  +12 V                                         │                      │
│                                                │                      │
│                                                │                      │
│                                                │                      │
│                                                │                      │
│                                                │                      │
├────────────────────────────────────────────────┴────────────────────┤
│ ↑↓→←:Move   Enter:Select   +/-/PU/PD:Value   F10:Save  ESC:Exit  F1:General Help │
│              F5:Previous Values              F7: Optimized Defaults   │
└──────────────────────────────────────────────────────────────────────┘
```

↑ ↓ → Move   Enter: Select   +/-/PU/PD: Value   F10: Save   Esc: Exit   F1: General Help

F5: Previous Values   F6: Fail-Safe Defaults F7: Optimized Defaults

3.10 Load Optimal Defaults

When you press "Enter" on this item, you get a confirmation dialog box with a message similar to :

```
          Phoenix - AwardBIOS CMOS Setup Utility
┌─────────────────────────────────────────────────────────────┐
│ ▶ Standard CMOS Features          ▶ Frequency/Voltage Control │
│ ▶ Advanced BIOS Features            Load Optimized Defaults   │
│ ▶ Advanced Chipset Features         Set Supervisor Password   │
│ ▶ Integrated Peripherals            Set User Password         │
│ ▶ Power Management          ┌──────────────────────┐ etup     │
│ ▶ PnP/PCI Configura         │Load Optimized Defaults (Y/N)? N │ Saving│
│ ▶ PC Health Status          └──────────────────────┘          │
│                                                               │
├─────────────────────────────────────────────────────────────┤
│ Esc : Quit     F9 : Menu in BIOS      ↑ ↓ → ←  : Select Item │
│ F10 : Save & Exit Setup                                       │
│                                                               │
│                  Load Optimized Defaults                      │
└─────────────────────────────────────────────────────────────┘
```

Pressing "Y" loads the default values that are factory settings for optimal performance system operations.

3.11 Supervisor / User Password

The "SUPERVISOR/USER PASSWORD" utility sets the password. The SBC is shipped with the password disabled. If you want to change the password, you must first enter the current password, then at the prompt -- enter your new password. The password is case sensitive, and can be up to 8 alphanumeric characters. Press <Enter> after you have finished typing in the password. At the next prompt, confirm the new password by re-typing it and pressing <Enter> again. When you are done, the screen automatically reverts to the main screen. Remember that when you use this feature, the "Security Option" line in BIOS FEATURES SETUP will determine when entering the password will be required.

```
              Phoenix - AwardBIOS CMOS Setup Utility
   ┌──────────────────────────────────┬──────────────────────────────────┐
   │ ► Standard CMOS Features          │ ► Frequency/Voltage Control       │
   │ ► Advanced BIOS Features          │   Load Optimized Defaults         │
   │ ► Advanced Chipset Features        │   Set Supervisor Password         │
   │ ► Integrated Peripherals          │   Set User Password               │
   │ ► Power Management Setup           │   Save & Exit Setup               │
   │ ► PnP/PCI Configurati┌────────────────────────────┐ut Saving          │
   │ ► PC Health Status   │ Enter Password:            │                   │
   │                      └────────────────────────────┘                   │
   ├──────────────────────────────────┴──────────────────────────────────┤
   │ Esc : Quit        F9 : Menu in BIOS      ↑ ↓ → ←   : Select Item      │
   │ F10 : Save & Exit Setup                                               │
   ├──────────────────────────────────────────────────────────────────────┤
   │              Change/Set/Disable Password                              │
   └──────────────────────────────────────────────────────────────────────┘
```
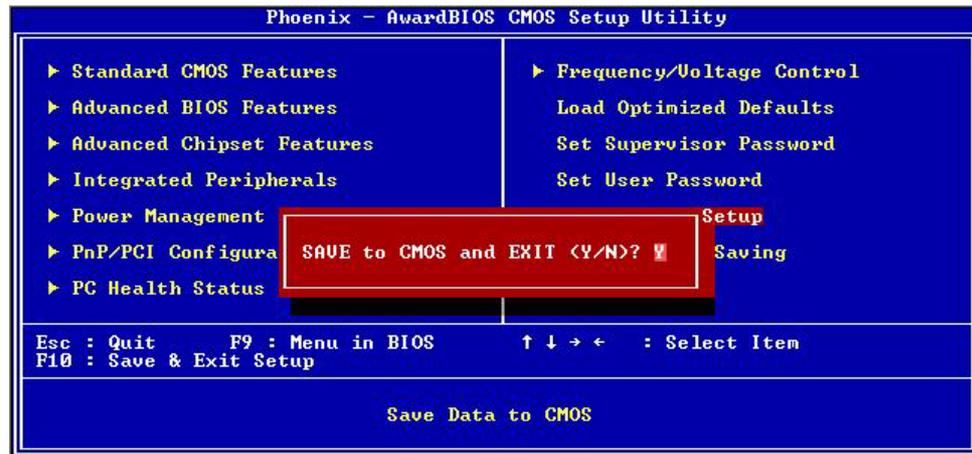
To disable the password, press the <Enter> key instead of entering a new password when the "Enter Password" in the dialog box appears. A message will appear confirming that the password is disabled.

If you have set both supervisor and user password, only the supervisor password allows you to enter the BIOS SETUP PROGRAM.

Note : If you forget your password, the only way to solve this problem is to discharge the CMOS memory.

3.12 Save & Exit Setup

Select this option and press the <Enter> key to save the new setting information in the CMOS memory and continue with the booting process.

```
                Phoenix - AwardBIOS CMOS Setup Utility

  ▶ Standard CMOS Features          ▶ Frequency/Voltage Control
  ▶ Advanced BIOS Features             Load Optimized Defaults
  ▶ Advanced Chipset Features          Set Supervisor Password
  ▶ Integrated Peripherals             Set User Password
  ▶ Power Management                                        Setup
  ▶ PnP/PCI Configura    SAVE to CMOS and EXIT (Y/N)? Y      Saving
  ▶ PC Health Status

  Esc : Quit      F9 : Menu in BIOS       ↑↓→←   : Select Item
  F10 : Save & Exit Setup

                        Save Data to CMOS
```
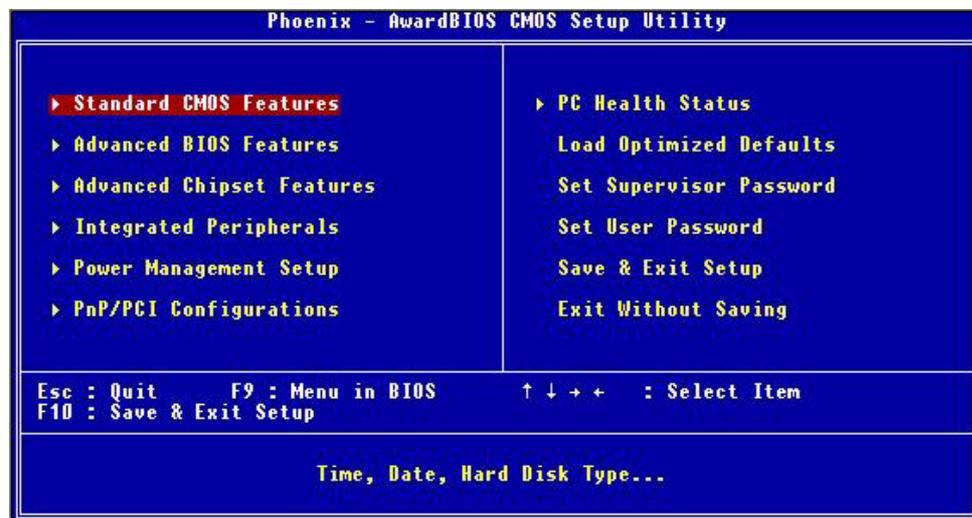
Typing Y will allow you to quit the Setup Utility and save the user setup changes to RTC CMOS.

Typing N will return to Setup Utility.

3.13 Exit Without Saving

Select this option and press the <Enter > key to exit the Setup Utility without recording any new values or changing old ones.

```
                Phoenix - AwardBIOS CMOS Setup Utility

  ▶ Standard CMOS Features          ▶ PC Health Status
  ▶ Advanced BIOS Features             Load Optimized Defaults
  ▶ Advanced Chipset Features          Set Supervisor Password
  ▶ Integrated Peripherals             Set User Password
  ▶ Power Management Setup              Save & Exit Setup
  ▶ PnP/PCI Configurations             Exit Without Saving

  Esc : Quit      F9 : Menu in BIOS       ↑↓→←   : Select Item
  F10 : Save & Exit Setup

                   Time, Date, Hard Disk Type...
```

Typing Y will allow you to quit the Setup Utility without saving any changes to RTC CMOS.

Typing N will return to the Setup Utility.

Appendix A
Power Adapter

Power Adapter Specification

General Specifications	
Input voltage	90VAC to 264 VAC
Input frequency	47 Hz to 63 Hz
Inrush current	1.2 A rms max at AC low line input and DC output full load
Input protection	2A Fuse
Input surge current	45A/60A max
Efficiency	75% min
Hold up time	10ms min, at AC nominal input/output full load
Load Regulation	+/- 5%
Operating temperature	0 ^{o}C to 40 ^{o}C convection
Storage temperature	-20 ^{o}C to +85 ^{o}C
EMC	EN55022 "B", FCC"B"
CE spec	EN55022, EN6100-3-2, EN6100-3-3, EN50082-1, EN6100-4-2, EN6100-4-3, EN6100-4-4
Safety approval	CUL, CB, TUV, PSE-MARK, CNS
Mechanical Dimensions	118.0mm X 60.0mm X 39.0mm

Output Specifications

Voltage	Loading(A)		Tolerance Range	Adjustable voltage Range
	Min	Normal Max	Total Regulation	
+12V	0	5A	+/- 5%	NONE

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<div align="right">

A p p e n d i x   B
Console Redirection

</div>

Console redirection allows you to maintain a system from a remote location by re-directing keyboard input and text output through the serial port. This section will tell you how to use console redirection.

1. Please insert console cable between on FW-6420 and Remote Client System.

2. Setup BIOS in FW-6420.
   BIOS → Advanced Chipset Setup → Baud Rate : 38400 (Default)
   BIOS → Advanced Chipset Setup → Console Redirection : Enabled(Default)

Enabled	Attempt to redirect console via COM port.
Disabled	Attempt to redirect console when keyboard absent.
Auto	If keyboard is plug in the Controller board, the Console Redirection will not display BIOS screen on remote client.
	If keyboard is not plug in the Controller board, the Console Redirection will display BIOS screen on remote client.

3. Configure Console redirection on client system. This example is for Windows platform.
   i . Click the Start button, point to **programs → Accessories → Communications**, and click **Hyper Terminal**.
   ii. Enter any name for the new connection and select any icon.
   iii. Click OK.
   iv. From the Connect to pull-down menu, select a COM port available on your client system and click OK.
   v. Select **Baud Rate → 38400** , **Flow control →None** , **Data bit→8** , **Parity check → None** , **Stop bit → 1**.

4. Power on FW-6420 and it will display the bios information on the client system.

Terms and Conditions

Date:2004.07.08

Warranty Policy

1. All products are warranted against defects in materials and workmanship for a period of two years from the date of your purchase.

2. The buyer will bear the return freight charges for goods returned for repair within the warranty period; whereas manufacturer will bear the after service freight charges back to user site.

3. The buyer will pay for repair (for replaced components plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.

4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service", RMA goods will be returned at customer's expense.

5. The following conditions resulting to the defective goods are excluded from this warranty:

    A. Improper or inadequate maintenance by the customer

    B. Unauthorized modification, misuse, or reversed engineering of the product

    C. Operation outside of the environmental specifications for the product.

RMA Service

1. ***Requesting for a RMA#:***

    To obtain a RMA number, simply fill out and fax the "RMA Request Form" to your supplier.

2. ***Shipping:***

    A. The customer is required to fill up the problem code as listed. If your problem is not among the codes listed, please write the symptom description on the remark.

    B. Ship the defective unit(s) on freight prepaid terms.

    C. Mark the RMA # clearly on the box.

    D. Customer is responsible for shipping damage(s) resulting from inadequate/loose packing of the defective unit(s).

    E. Use the original packing materials whenever possible.

3. ***All RMA# are valid for 30 days only:***

    RMA goods received after the effective RMA# period will be rejected.

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RMA Service Request Form

When requesting RMA service, please fill out this **RMA Service Request Form**.

Without this form your RMA will be REJECTED!!!

RMA No:	Reasons to Return: □ Repair(Please include failure details) □ Testing Purpose

Company: Contact Person:

Phone No.   Purchased Date:

Fax No.:   Applied Date:

Return Shipping Address: _____

Shipping by: □ Air Freight □ Sea □ Express_____ □ Others:_____

Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

*Problem Code:

01:D.O.A.	07: BIOS Problem	13: SCSI	19: DIO
02: Second Time R.M.A.	08: Keyboard Controller Fail	14: LPT Port	20: Buzzer
03: CMOS Data Lost	09: Cache RMA Problem	15: PS2	21: Shut Down
04: FDC Fail	10: Memory Socket Bad	16: LAN	22: Panel Fail
05: HDC Fail	11: Hang Up Software	17: COM Port	23: CRT Fail
06: Bad Slot	12: Out Look Damage	18: Watchdog Timer	24: Others (Pls specify)

Request Party   *Confirmed By Supplier*

_____   _____
Authorized Signatures / Date   **Authorized Signatures / Date**