

FWS-810

1U Rackmount
Network Appliance Platform
One 3.5" Disk Drive bay
Six LAN Ports
Two Type A USB Ports

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Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 1 FWS-810
- 1 Quick Installation Guide
- 1 CD-ROM for manual (in PDF format) and drivers
- 1 Heatpipe Module
- 1 Serial ATA Cable
- 1 Hard Disk Drive Power Cable
- 2 Ear Brackets
- Screw Accessories

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

Note:

PS2 keyboard/mouse cable and VGA Cable are optional accessories, please purchase those cables according to the following item numbers.

1701160302 VGA Cable

1700060150 PS2 KB/MS Cable

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Chapter

1

**General
Information**

1.1 Introduction

FWS-810 is a 1U rackmount Network Appliance for performance Network applications. Mainly designed for system integrator or users who require compact system.

The FWS-810 support Intel[®] Socket 478 CPU board and is equipped with 1U ATX power supply, It features 6 LAN ports (10/100 or 10/100/1000) for network application system. FWS-810 can be standard mounted and easy to fit into limited space environment.

1.2 Features

- 1U 6 LAN ports Network Appliance platform
- Supports Intel® Pentium® 4 Socket 478 CPU, up to 3.0GHz
- 2x184-pin Dual Channel DDR400 SDRAM DIMM Support Up to 2GB (DIMM Height under 31mm)
- Supports Six 10/100 or 1000Base-TX Ethernet
- Supports One Ultra ATA100 Port & Two SATA-150 & DOM (DOM Height under 29mm)
- Supports Compact Flash Type-II connector
- 250W Power With Auto Range Input
- Supports Six USB2.0 Ports (Four Pin Headers)
- Supports LCM with keypad (front panel), Two USB2.0 Ports & One RS-232 console port (front panel)
- Supports Internal 3.5" HDD Drive Bay

1.3 Specifications

System

Construction:	1U 6-port Network Appliance
CPU	Intel Pentium 4 Socket 478 up to 3.0G (FSB 400/533/800)
Memory	2 x 184-Pin DDR400 DIMM Socket, total up to 2GB, Support Dual Channel
Chipset	Intel [®] 865GV + Intel [®] 82801DB(ICH5)
LAN	6 x PCI 10/100Mb or 10/100/1000Mb LAN, RJ-45 x 6; Intel [®] 82551/82541 controller (with 2 ports bypass function LAN1 & LAN2)
BIOS	Award Plug & Play FWH BIOS--4Mb ROM
IDE Interface	ATA-100 x 1 channel (Supports CD-ROM ATAPI devices)
SATA Interface	SATA 150 x 2
Solid Storage Disk	Supports CFD type II Connector (ATA Mode)
Expansion Interface	Mini PCI Type III
Watchdog Timer	1~255 steps, can be set with software on Super I/O
RTC	Internal RTC
Storage	Internal : One 3.5" Hard Disk Drive

System Fan	Three 4cm Ball Bearing Fans
Color	Blue & Red
Power Requirement	ATX 250W, auto range
Dimensions	16.93" (W) x 14.96" (D) x 1.73" (H) (430mm x 380mm x 44mm)—Chassis 9.84" (W) x 11.02 (D) (250mmx 280mm)—Board
Net Weight	17.6 lb (8 kg)
 <i>Display</i>	
VGA Controller	Integrated VGA on Intel 865GV, pin header connector
 <i>I/O</i>	
Serial Port	Two COM ports: (Internal Pin Header x 1) COM 1: RS-232 COM 2: RS-232 (Pin Header)
K/B and Mouse	Reserved pin header
Universal Serial Bus	Two TYPE-A Connectors on front panel
Front I/O panel	One Bypass LED One Status LED One Power LED One HDD Active LED Six LAN LEDs

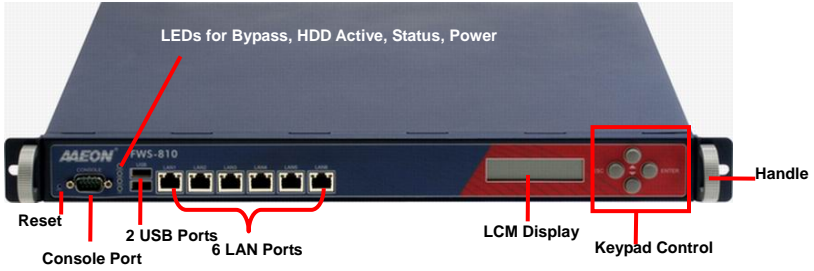
	Two USB Ports
	Six LAN Ports
	One DB-9 connector
	One LCM Display
	One Reset Button
Rear I/O Panel	One PCI expansion slot

Environmental

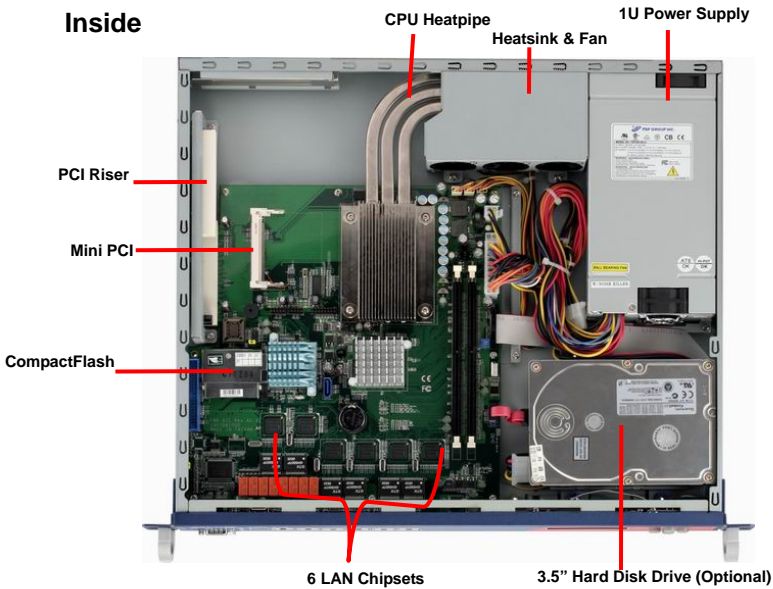
Operating Temp.	32° F ~ 104° F (0° C ~ 40° C)
Storage Temp.	-4° F ~ 140° F (-20° C ~ 60° C)
Operating humidity:	10%~ 80%
Storage humidity:	10% ~ 80% @ 40° C, non-condensing
Vibration	0.5G / 5 ~ 500Hz / operation (3.5" Hard Disk Drive)
	1.5G / 5 ~ 500Hz / non operation
Shock	10G peak acceleration (11 m sec. duration), operation
	20G peak acceleration (11 m sec. duration), non operation
EMC	CE/ FCC Class A, UL

1.4 General System Information

Front Panel:



Inside



Chapter

2

FWS-810 Quick Installation Guide

Notice:

The Quick Installation Guide is derived from Chapter 2 of the user manual. For other chapters and further installation instructions, please refer to the user manual CD-ROM that came with the product.



Part No. 2001810011 Printed in Taiwan April 2007

2.1 Safety Precautions

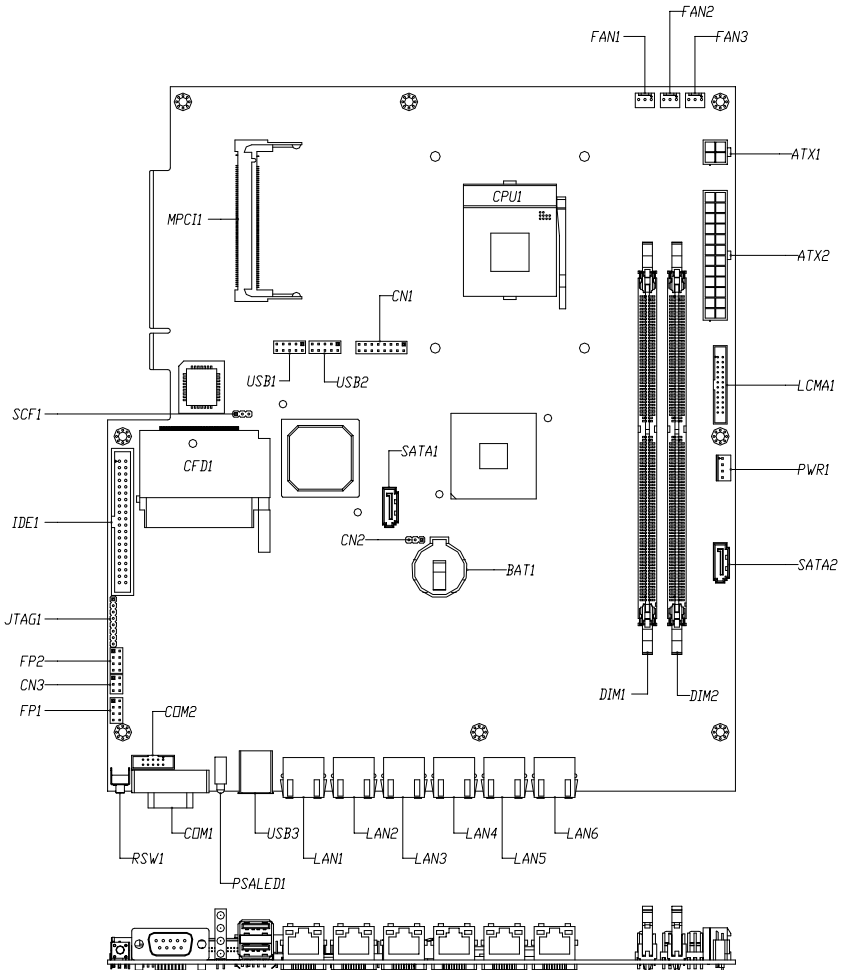
Warning!

Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

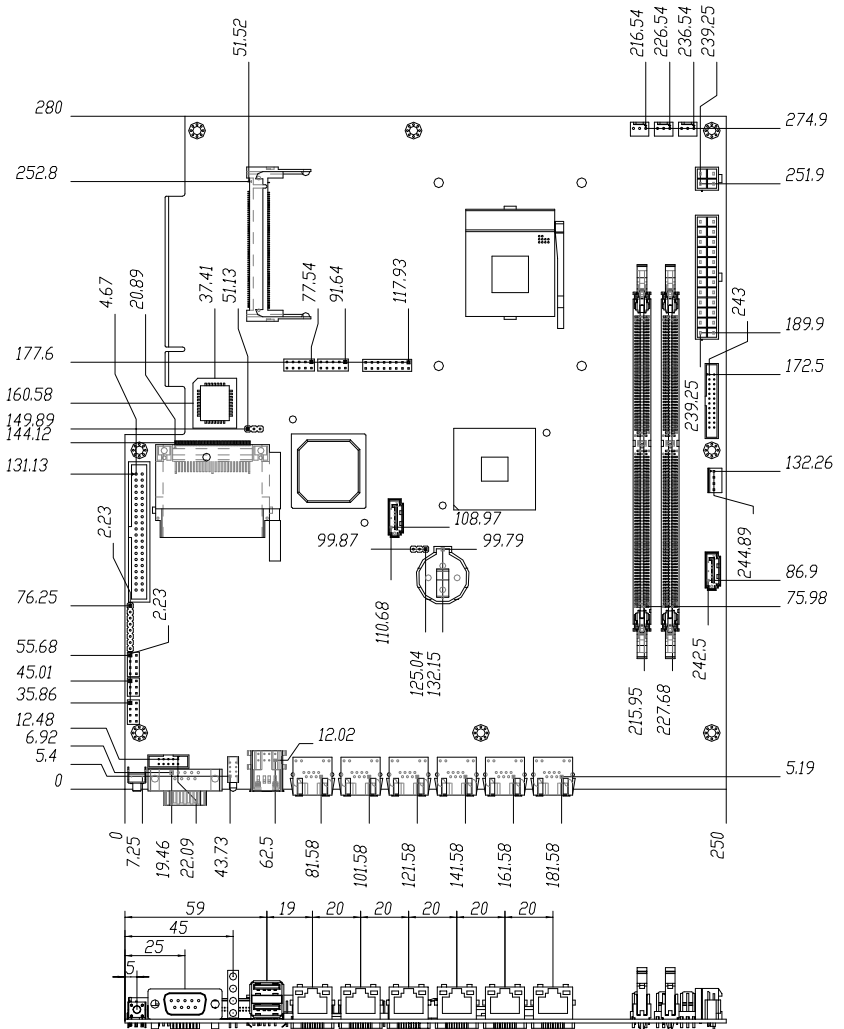
Caution!

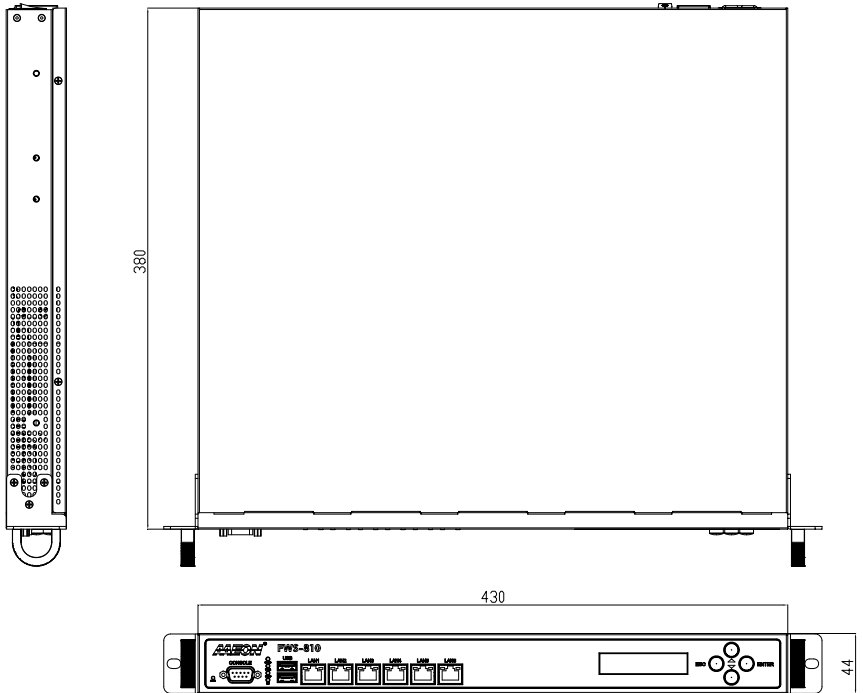
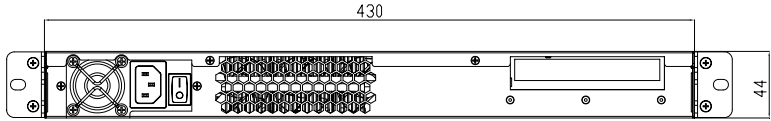
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis

2.2 Location of Connectors



2.3 Mechanical Drawing





Unit: mm

2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

Label	Function
CN2	Clear CMOS
SCF1	CF Card Master/Slave Selection
FP2	Internal BUZZER

2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

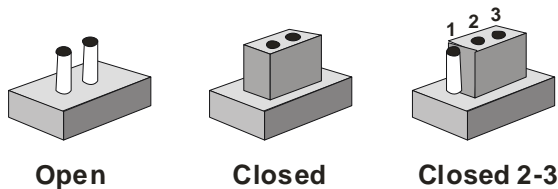
Label	Function
FP1	Front Panel Connector 1
FP2	Front Panel Connector 2
ATX2	ATX Power Connector
ATX1	ATX Power_12V Connector
CN1	VGA Display PIN HEADER
IDE1	IDE Connector
SATA1~2	Serial ATA Connector
CFD1	Compact Flash Slot
COM1	RS-232 Serial Port Connector
COM2	RS-232 Serial Port PIN HEADER
MPC11	Mini PCI Slot
DIMM1~2	DIMM Slot
USB1~2	USB PIN HEADER
USB3	USB Connector
FAN1~ FAN3	Fan Connector
CN3	Keyboard/Mouse PIN HEADER
LCMA1	LCM & Key Pad Control PIN HEADER

Note: DIMM height limitation is 31mm; DOM height limitation is 29mm.

2.6 Setting Jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip.

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

2.7 Clear CMOS (CN2)

CN2	Function
1-2	Normal (Default)
2-3	Clear

2.8 CF MASTER Selection (SCF1)

SCF1	Function
1-2	MASTER (Default)
2-3	SLAVE

2.9 BUZZER (FP2)

FP2	Function
5-7	Enable Internal SPK (Default)
Open	Disable Internal SPK

2.10 Front Panel Connector (FP1)

Pin	Signal	Pin	Signal
1	Power On Button(+)	2	Reset Switch(+)
3	Power On Button(-)	4	Reset Switch(-)
5	IDE LED(+)	6	Power LED(+)
7	IDE LED(-)	8	Power LED(-)

2.11 Front Panel Connector (FP2)

Pin	Signal	Pin	Signal
1	External Speaker(+)	2	NC
3	NC	4	GND
5	Internal Buzzer(-)	6	I2C Bus SMB Clock
7	External Speaker(-)	8	I2C Bus SMB Data

Note: Internal Buzzer enable: Close Pin 5,7

2.12 VGA Connector (CN1)

Pin	Signal	Pin	Signal
1	R	2	POWER
3	G	4	GND
5	B	6	NC
7	NC	8	V_SDAT
9	GND	10	HSYNC
11	GND	12	VSYNC
13	GND	14	V_SCLK
15	GND	16	NC

2.13 COM1 & COM2 Serial Port Connector (COM1 & COM2)

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR

7	RTS	8	CTS
9	RI	10	NC

2.14 USB Connector (USB1~3)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD-	4	GND
5	USBD+	6	USBD+
7	GND	8	USBD-
9	GND	10	+5V

Note: When activating the COM port LL5 test, please “Disable” the USB keyboard and mouse in BIOS setting.

2.15 Fan Connector (FAN1~3)

Pin	Signal
1	GND
2	+12V
3	Speed Sense

2.16 PS2 Keyboard/Mouse Connector (CN3)

Pin	Signal
1	KB_DATA
2	KB_CLK
3	GND
4	+5V
5	MS_DATA

6	MS_CLK-
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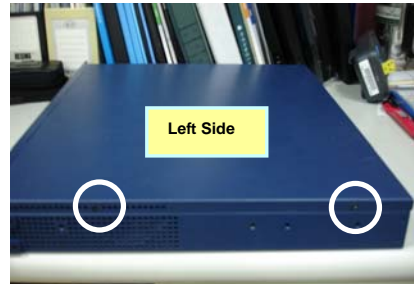
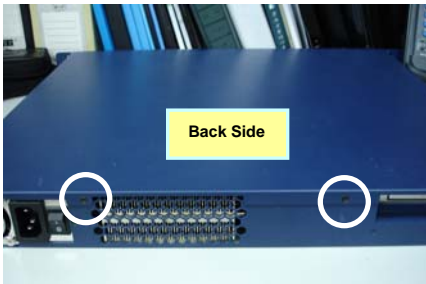
2.17 LCM & Key Pad Control Connector (LCMA1)

Pin	Signal	Pin	Signal
1	POWER	2	GND
3	LSLIN-	4	VEE
5	LAFD-	6	LINIT-
7	LPD1	8	LPD0
9	LPD3	10	LPD2
11	LPD5	12	LPD4
13	LPD7	14	LPD6
15	LCD-	16	VCC
17	UP	18	RIGHT
19	LEFT	20	DOWN
21	RESET	22	NC
23	NC	24	NC

2.18 Removing the Cover

Before you install drives or plug-in cards into the FWS-810, please switch the unit off and remove the power cord first.

Step 1: Unscrew the upper lid

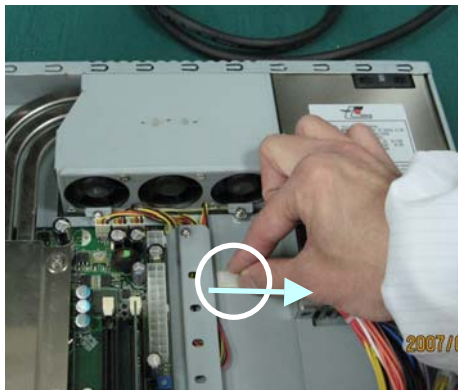


Step 2: Isolate the upper lid from the chassis



2.19 Installing the CPU and the Heatpipe

Step 1: Get the white tape from the interstice



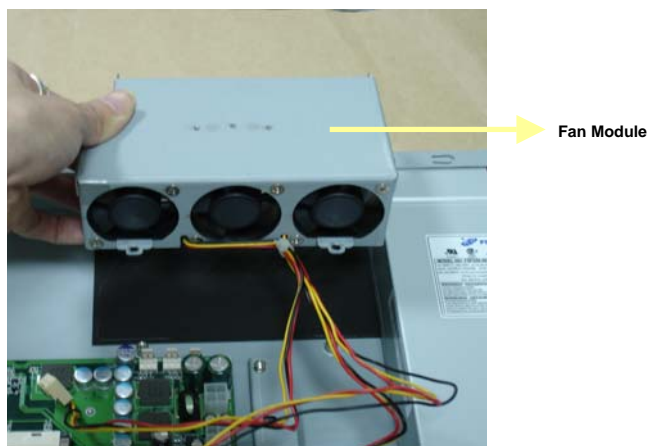
Step 2: Pull up the power cable



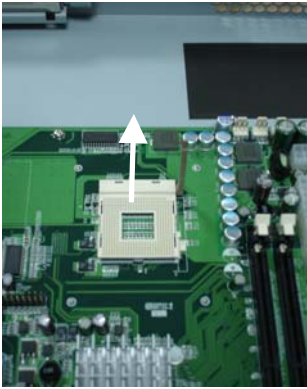
Step 3: Loosen these two screws and pull off the power cable of the three fans



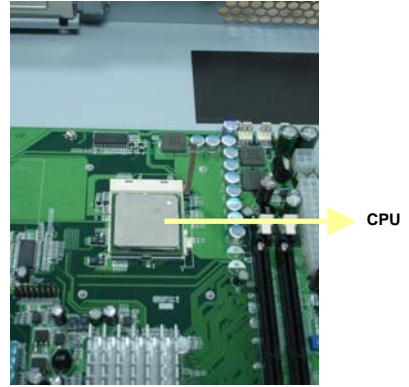
Step 4: Lift up the fan module aside



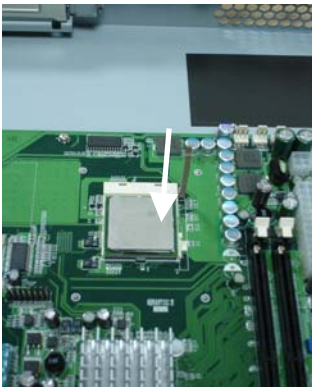
Step 5: Lift up the socket



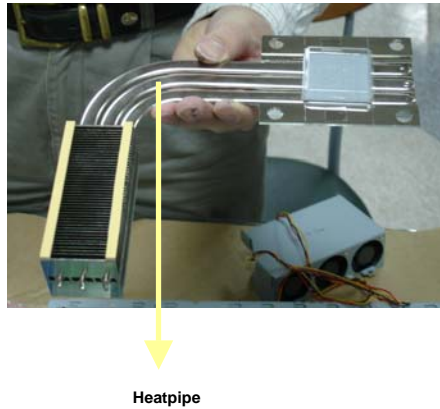
Step 6: Put the CPU on socket



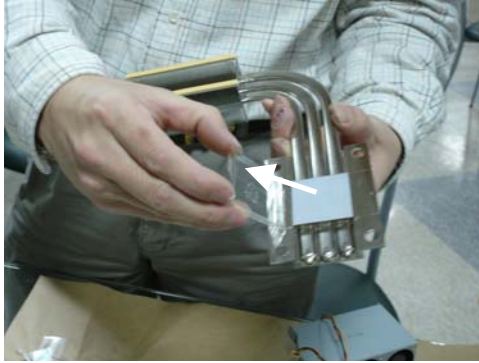
Step 7: Lock the CPU Socket



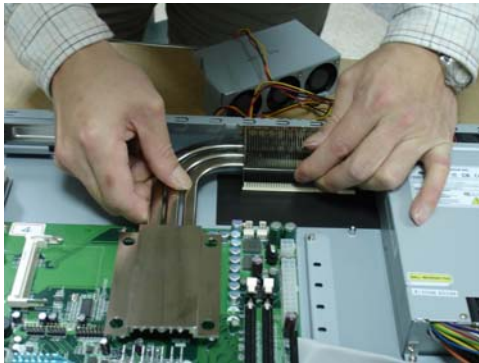
Step 8: The Heatpipe module is already with thermal paste



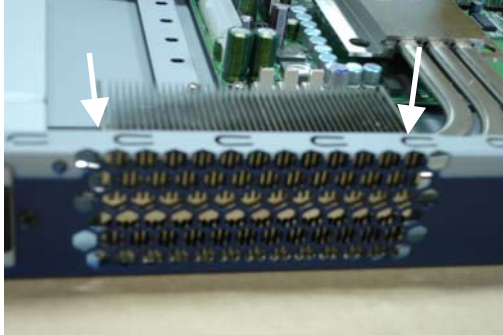
Step 9: Remove the transparent cap



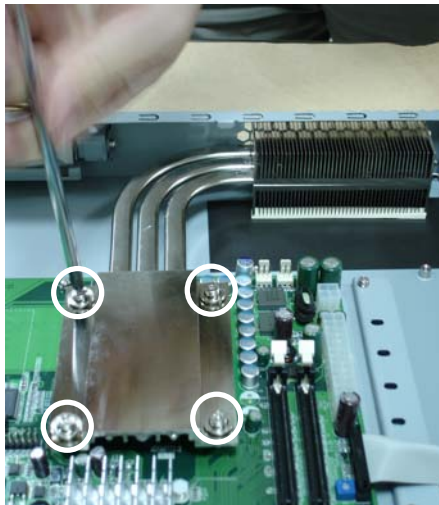
Step 10: Put the heatpipe on the Motherboard where the socket has already been put on CPU in the Chassis



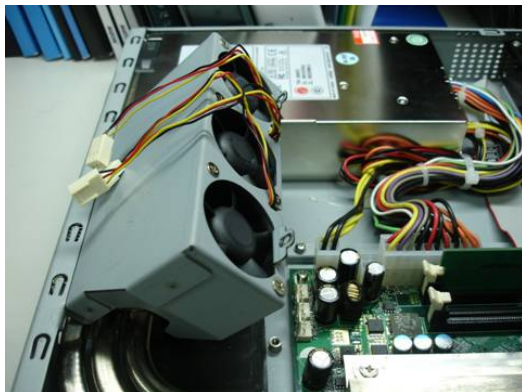
Step 11: Be sure the heatpipe has been put in the right position against the vent properly



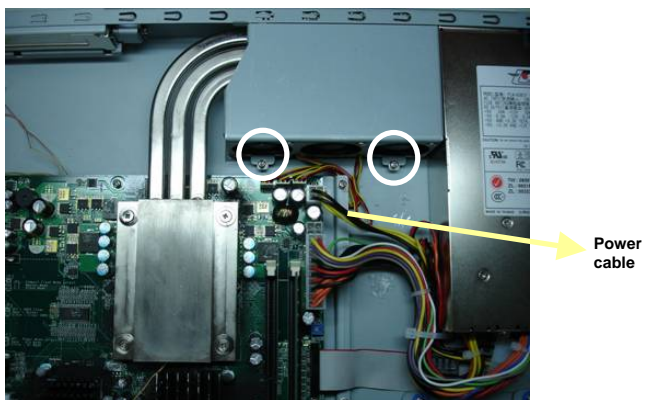
Step 12: Fasten the four screws of the heatpipe



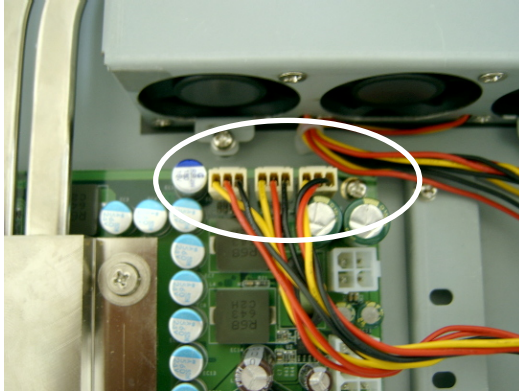
Step 13: Put the fan module back to the original place



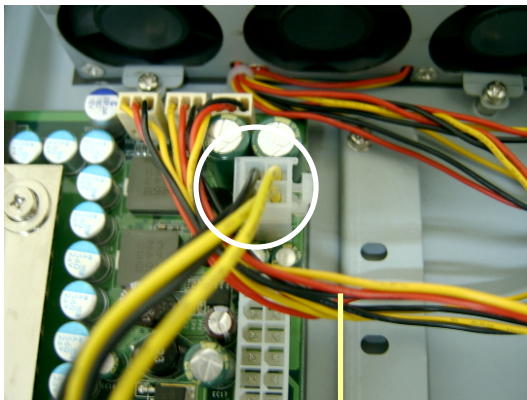
Step 14: Fasten the two screws of the fan module and plug in the power cable



Step 15: Insert the Power cable of Fan Module

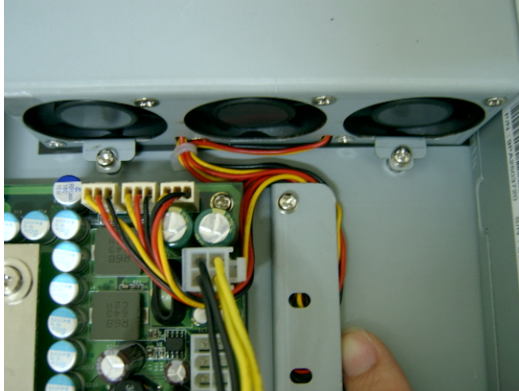


Step 16: Insert 12V Power Cable



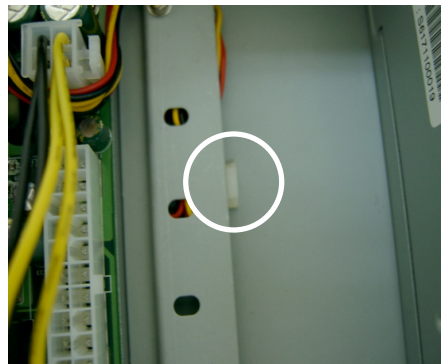
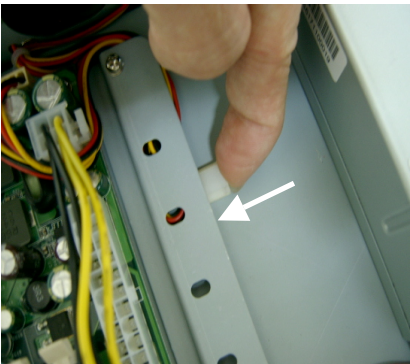
Power cables of FAN Module are under the 12V Power Cable

Step 17: Collect the power cable of Fan Module under the bracket for storage



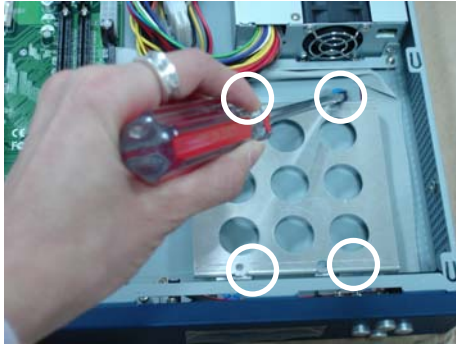
Note: Please pull the power cable tightly and keep it off the FAN

Step 18: Insert the white tape into the bracket to fix the power cable of Fan Module

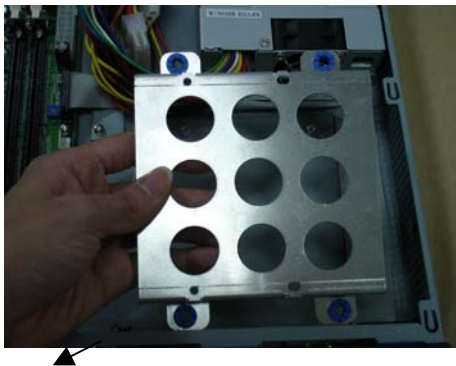


2.20 Installing the Hard Disk Drive

Step 1: Loosen the four screws



Step 2: Lift up the Hard Disk Drive Bracket aside



Step 3: Fasten the Hard Disk Drive Bracket with the back side of Hard Disk Drive by using the four screws



Step 4: Overturn the Hard Disk Drive and put it into the chassis

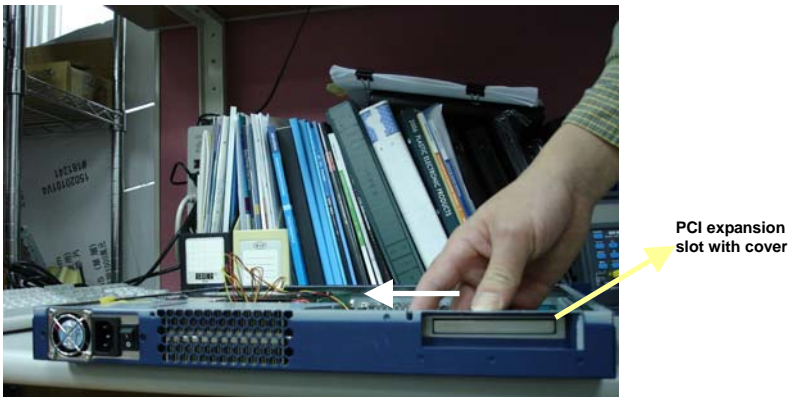


Step 5: Fasten the four screws of the Hard Disk Drive Bracket

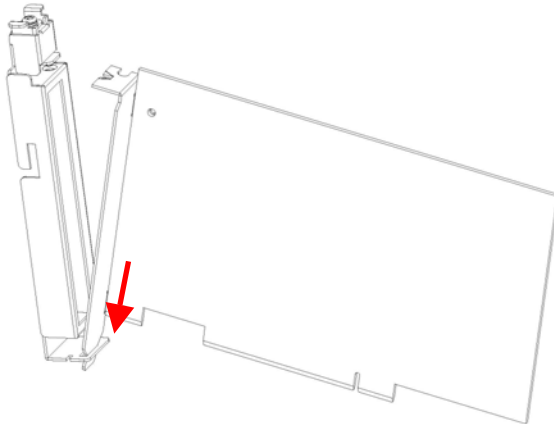


2.21 Installing the Add-on Card

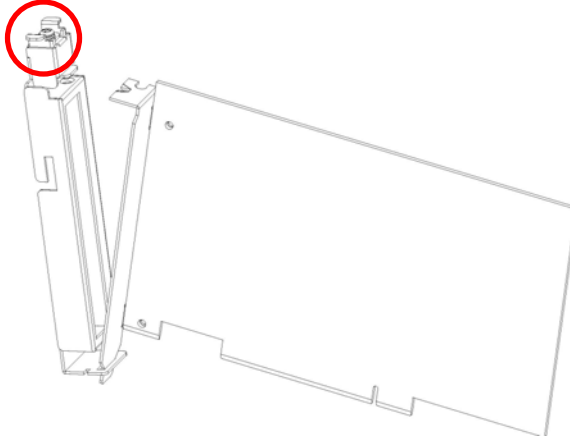
Step 1: Slide the cover of the PCI Expansion Slot horizontally and remove the cover backward



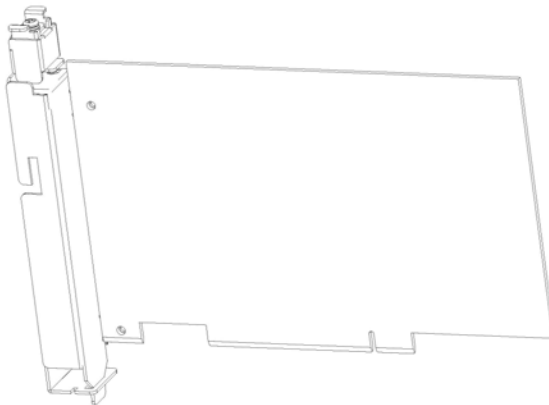
Step 2: Insert PCI card bracket to the cover bottom of the PCI Expansion Slot



Step 3: Pull up the drawstring of the cover and hold

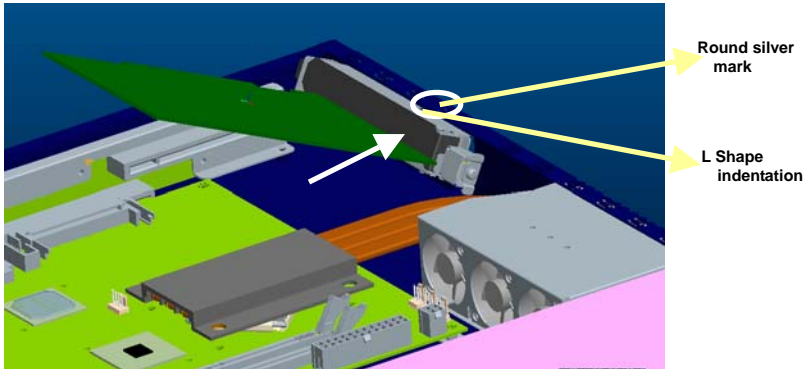


Step 4: Connect the top of the PCI Bracket to the cover and release the drawstring



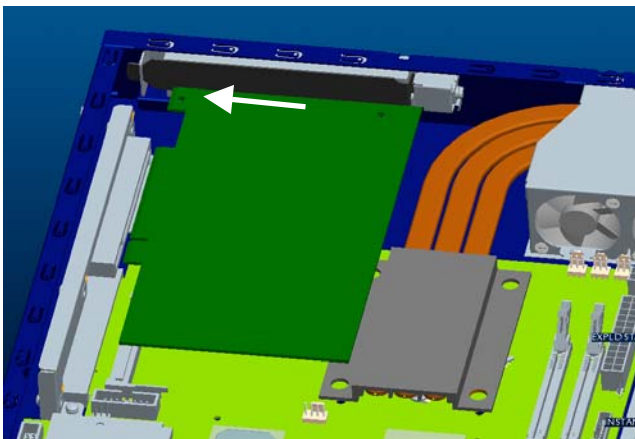
Note: There is an indentation on the PCI bracket and you will see a hole on the cover when you pull up the drawstring. Please make sure the indentation has been placed on the hole on the cover and then release the drawstring to lock the card firmly.

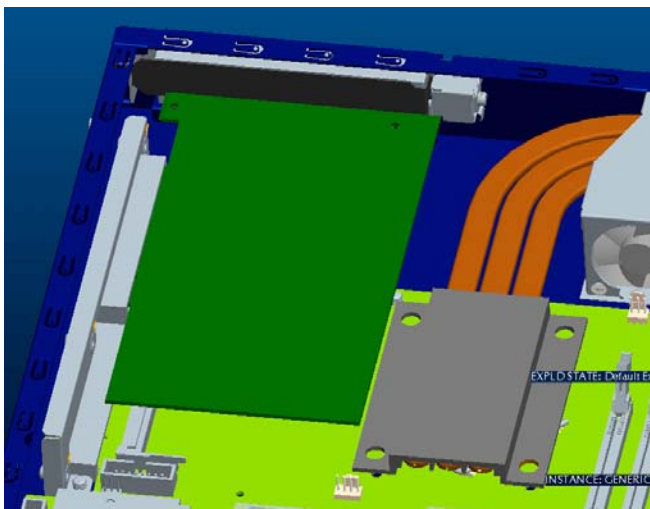
Step 5: Insert the PCI card to the FWS-810



Note: There is a *round silver mark* on the top of the front panel. Please make sure the *L shape indentation* on the cover has been aimed at the mark when you insert the PCI card to the FWS-810.

Step 6: When the PCI Card has been inserted to the PCI expansion slot properly, slide it horizontally to the opposite direction mentioned in Step 1 and you have finished the Add-on Card Installation





Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

AAEON Boxer/ Industrial System

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
外壳	×	○	○	○	○	○
中央处理器 与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
电源	×	○	○	○	○	○
<p>O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。</p> <p>X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。</p> <p>备注: 一、此产品所标示之环保使用期限，系指在一般正常使用状况下。 二、上述部件物质中央处理器、内存、硬盘、电源为选购品。</p>						

Chapter

3

**Award
BIOS Setup**

3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see 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.

System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The CMOS memory has lost power and the configuration information has been erased.

The FWS-810 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 Award BIOS Setup

Awards BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press immediately. This will allow you to enter Setup.



Standard CMOS Features

Use this menu for basic system configuration. (Date, time, IDE, etc.)

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 performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. (Primary slave, secondary slave, keyboard, mouse etc.)

Power Management Setup

Use this menu to specify your settings for power management. (HDD power down, power on by ring, KB wake up, etc.)

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This menu allows you to set the shutdown temperature for your system.

Frequency/Voltage Control

Use this menu to specify your settings for auto detect DIMM/PCI clock and spread spectrum.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While AWARD has designated the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Supervisor/User Password

Use this menu to set Supervisor/User Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

You can refer to the "AAEON BIOS Item Description.pdf" file in the CD for the meaning of each setting in this chapter.

Chapter

4

**Driver
Installation**

The FWS-810 comes with an AutoRun CD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver CD, the driver CD-title will auto start and show the installation guide. If not, please follow the sequence below to install the drivers.

Follow the sequence below to install the drivers:

Step 1 – Install INF Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

USB 2.0 Drivers are available for download using Windows® Update for both Windows® XP and Windows® 2000. For additional information regarding USB 2.0 support in Windows® XP and Windows® 2000, please visit www.microsoft.com/hwdev/usb/.

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the FWS-810 CD-ROM into the CD-ROM drive and install the drivers from Step 1 to Step 3 in order.

Step 1 – Install INF Driver

1. Click on the **Step 1-INF** folder and select the OS you system is
2. If the system is Windows 2000, please double click on ***infinst_autol***
If the system is Windows XP, please double click on **Setup**
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 2 – Install VGA Driver

1. Click on the **Step 2 –VGA** folder and select the folder of ***Windows***
2. Double click on ***win2k_xp149***
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 3 – Install LAN Driver

1. Click on the **Step 3 –LAN** folder and double click on **Autorun**
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Appendix

A

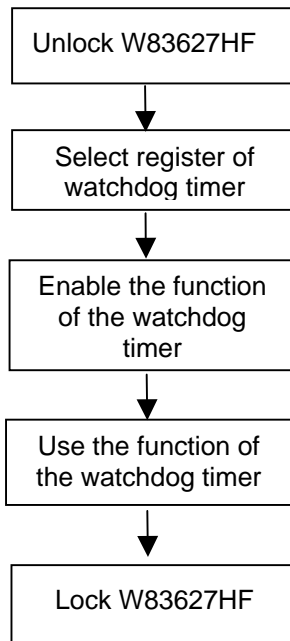
Programming the Watchdog Timer

A.1 Programming

FWS-810 utilizes W83627HF chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEON initial watchdog timer program is also attached based on which you can develop customized program to fit your application.

Configuring Sequence Description



There are three steps to complete the configuration setup:

- (1) Enter the W83627HF config Mode
- (2) Modify the data of configuration registers

- (3) Exit the W83627HF config Mode. Undesired result may occur if the config Mode is not exited normally.

(1) Enter the W83627HF config Mode

To enter the W83627HF config Mode, two special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform two write operations to the Special Address port (2EH). The different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h,87h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the config Mode. Before accessing a selected register, the content of

Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the W83627HF config Mode

The exit key is provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
0aah:	2Eh	2Fh

WatchDog Timer Register I (Index=F5h, Default=00h)

CRF5 (PLED mode register. Default 0 x 00)

- Bit 7-6** : select PLED mode
- = 00 Power LED pin is tri-stated.
 - = 01 Power LED pin is driven low.
 - = 10 Power LED pin is a 1Hz toggle pulse with 50 duty cycle.
 - = 11 Power LED pin is a 1/4Hz toggle pulse with 50 duty cycle.
- Bit 5-4** : Reserved
- Bit 3** : select WDTO count mode.
- = 0 second
 - = 1 minute
- Bit 2** : Enable the rising edge of keyboard Reset (P20) to force Time-out event.
- = 0 Disable
 - = 1 Enable
- Bit 1-0** : Reserved

WatchDog Timer Register II (Index=F6h, Default=00h)

- Bit 7-0** = 0 x 00 Time-out Disable
- = 0 x 01 Time-out occurs after 1 second/minute
 - = 0 x 02 Time-out occurs after 2 second/minutes
 - = 0 x 03 Time-out occurs after 3 second/minutes

.....
= 0 x FF Time-out occurs after 255
second/minutes

WatchDog Timer Register III (Index=F7h, Default=00h)

- Bit 7** : Mouse interrupt reset Enable or Disable
= 1 Watchdog Timer is reset upon a Mouse interrupt
= 0 Watchdog Timer is not affected by Mouse interrupt
- Bit 6** : Keyboard interrupt reset Enable or Disable
= 1 Watchdog Timer is reset upon a Keyboard interrupt
= 0 Watchdog Timer is not affected by Keyboard interrupt
- Bit 5** : Force Watchdog Timer Time-out. Write Only
= 1 Force Watchdog Timer time-out event: this bit is self-clearing
- Bit 4** : Watchdog Timer Status. R/W
= 1 Watchdog Timer time-out occurred
= 0 Watchdog Timer counting
- Bit 3-0** : These bits select IRQ resource for Watchdog. Setting of 2 selects SMI.

A.2 W83627HF Watchdog Timer Initial Program

Example: Setting 10 sec. as Watchdog timeout interval

```
;/;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

```
Mov dx,2eh           ;Enter W83627HF config mode
```

```
Mov al,87h          (out 87h to 2eh twice)
```

```
Out dx,al
```

```
Out dx,al
```

```
;/;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

```
Mov al,07h
```

```
Out dx,al
```

```
Inc dx
```

```
Mov al,08h          ;Select Logical Device 8 (GPIO Port  
2)
```

```
Out dx,al
```

```
;/;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

```
Dec dx
```

```
Mov al,30h          ;CR30 (GP20~GP27)
```

```
Out dx,al
```

```
Inc dx
```

```
Mov al,01h          ;Activate GPIO2
```

```
Out dx,al
```

```
;/;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

```
Dec dx
```

```
Mov al,0f5h ;CRF5 (PLED mode register)
```

```
Out dx,al
```

```
Inc dx
```

```
In al,dx
```

```
And al,not 08h ;Set second as counting unit
```

```
Out dx,al
```

```
;/;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

```
Dec dx
```

```
Mov al,0f6h ; CRF6
```

```
Out dx,al
```

```
Inc dx
```

```
Mov al,10 ;Set timeout interval as 10 sec.
```

```
Out dx,al
```

```
;/;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

```
Dec dx ;Exit W83627HF config mode
```

```
Mov al,0aah (out 0aah to 2eh once)
```

```
Out dx,al
```

```
;/;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

Appendix

B

I/O Information

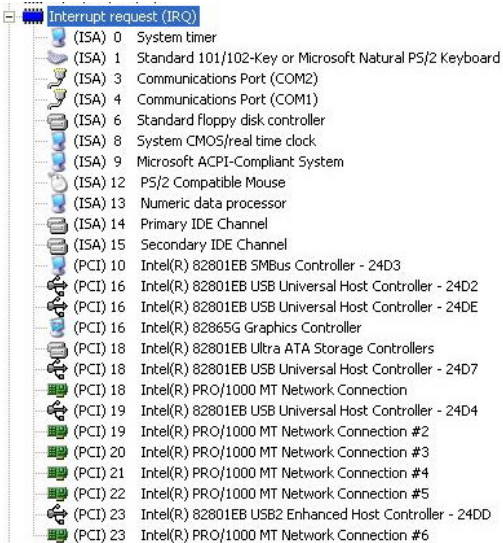
B.1 I/O Address Map

Input/output (IO)	
[00000000 - 0000000F]	Direct memory access controller
[00000000 - 00000CF7]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[00000060 - 00000060]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000061 - 00000061]	System speaker
[00000062 - 00000063]	Motherboard resources
[00000064 - 00000064]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000065 - 0000006F]	Motherboard resources
[00000070 - 00000073]	System CMOS/real time clock
[00000074 - 0000007F]	Motherboard resources
[00000080 - 00000090]	Direct memory access controller
[00000091 - 00000093]	Motherboard resources
[00000094 - 0000009F]	Direct memory access controller
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	Motherboard resources
[000000C0 - 000000DF]	Direct memory access controller
[000000E0 - 000000EF]	Motherboard resources
[000000F0 - 000000FF]	Numeric data processor
[00000170 - 00000177]	Secondary IDE Channel
[000001F0 - 000001F7]	Primary IDE Channel
[00000274 - 00000277]	ISAPNP Read Data Port
[00000279 - 00000279]	ISAPNP Read Data Port
[00000294 - 00000297]	Motherboard resources
[000002FB - 000002FF]	Communications Port (COM2)
[00000376 - 00000376]	Secondary IDE Channel
[00000378 - 0000037F]	Printer Port (LPT1)
[00000380 - 000003BB]	Intel(R) 82865G Graphics Controller
[000003C0 - 000003DF]	Intel(R) 82865G Graphics Controller
[000003F0 - 000003F5]	Standard floppy disk controller
[000003F6 - 000003F6]	Primary IDE Channel
[000003F7 - 000003F7]	Standard floppy disk controller
[000003FB - 000003FF]	Communications Port (COM1)
[00000400 - 000004BF]	Motherboard resources
[000004D0 - 000004D1]	Motherboard resources
[00000500 - 0000051F]	Intel(R) 82801EB SMBus Controller - 24D3
[00000778 - 00000778]	Printer Port (LPT1)
[00000800 - 0000087F]	Motherboard resources
[00000A78 - 00000A78]	Motherboard resources
[00000B78 - 00000B78]	Motherboard resources
[00000B8C - 00000B8F]	Motherboard resources
[00000D00 - 0000FFFF]	PCI bus
[00000E78 - 00000E78]	Motherboard resources
[00000F78 - 00000F78]	Motherboard resources
[00000F8C - 00000F8F]	Motherboard resources
[0000C000 - 0000C03F]	Intel(R) PRO/1000 MT Network Connection
[0000C100 - 0000C13F]	Intel(R) PRO/1000 MT Network Connection #2
[0000C200 - 0000C23F]	Intel(R) PRO/1000 MT Network Connection #3
[0000C300 - 0000C33F]	Intel(R) PRO/1000 MT Network Connection #4
[0000C400 - 0000C43F]	Intel(R) PRO/1000 MT Network Connection #5
[0000C500 - 0000C53F]	Intel(R) PRO/1000 MT Network Connection #6
[0000D800 - 0000D81F]	Intel(R) 82801EB USB Universal Host Controller - 24D7
[0000D900 - 0000D91F]	Intel(R) 82801EB USB Universal Host Controller - 24DE
[0000DA00 - 0000DA07]	Intel(R) 82865G Graphics Controller
[0000DB00 - 0000DB07]	Intel(R) 82801EB Ultra ATA Storage Controllers
[0000DC00 - 0000DC03]	Intel(R) 82801EB Ultra ATA Storage Controllers
[0000DD00 - 0000DD07]	Intel(R) 82801EB Ultra ATA Storage Controllers
[0000DE00 - 0000DE03]	Intel(R) 82801EB Ultra ATA Storage Controllers
[0000DF00 - 0000DF0F]	Intel(R) 82801EB Ultra ATA Storage Controllers
[0000E100 - 0000E11F]	Intel(R) 82801EB USB Universal Host Controller - 24D2
[0000E300 - 0000E31F]	Intel(R) 82801EB USB Universal Host Controller - 24D4
[0000F000 - 0000F00F]	Intel(R) 82801EB Ultra ATA Storage Controllers

B.2 Memory Address Map

Address Range	Device
[00000000 - 0009FFFF]	System board
[000A0000 - 000BFFFF]	Intel(R) 82865G Graphics Controller
[000A0000 - 000BFFFF]	PCI bus
[000C0000 - 000DFFFF]	PCI bus
[000E0000 - 000EFFFF]	System board
[000F0000 - 000FFFFF]	System board
[00100000 - 0F6DFFFF]	System board
[0F6E0000 - 0F6FFFFF]	System board
[0F700000 - FEBFFFFF]	PCI bus
[F0000000 - F7FFFFFF]	Intel(R) 82865G Graphics Controller
[F8400000 - F841FFFF]	Intel(R) PRO/1000 MT Network Connection
[F8420000 - F843FFFF]	Intel(R) PRO/1000 MT Network Connection
[F8440000 - F845FFFF]	Intel(R) PRO/1000 MT Network Connection #2
[F8460000 - F847FFFF]	Intel(R) PRO/1000 MT Network Connection #2
[F8480000 - F849FFFF]	Intel(R) PRO/1000 MT Network Connection #3
[F84A0000 - F84BFFFF]	Intel(R) PRO/1000 MT Network Connection #3
[F84C0000 - F84DFFFF]	Intel(R) PRO/1000 MT Network Connection #4
[F84E0000 - F84FFFFF]	Intel(R) PRO/1000 MT Network Connection #4
[F8500000 - F851FFFF]	Intel(R) PRO/1000 MT Network Connection #5
[F8520000 - F853FFFF]	Intel(R) PRO/1000 MT Network Connection #5
[F8540000 - F855FFFF]	Intel(R) PRO/1000 MT Network Connection #6
[F8560000 - F857FFFF]	Intel(R) PRO/1000 MT Network Connection #6
[F8600000 - F867FFFF]	Intel(R) 82865G Graphics Controller
[F8680000 - F86803FF]	Intel(R) 82801EB USB2 Enhanced Host Controller - 24DD
[FEBFFC00 - FEBFFFFF]	Intel(R) 82801EB Ultra ATA Storage Controllers
[FEC00000 - FEC00FFF]	System board
[FEC01000 - FED8FFFF]	System board
[FEE00000 - FEE00FFF]	System board
[FFB80000 - FFB7FFFF]	System board
[FFB80000 - FFB7FFFF]	Intel(R) 82802 Firmware Hub Device
[FFF00000 - FFFFFFFF]	System board

B.3 IRQ Mapping Chart



The screenshot shows the 'Interrupt request (IRQ)' section in Windows Device Manager. It lists various hardware components and their assigned IRQs. The list includes ISA and PCI devices, such as system timers, keyboards, communication ports, floppy disk controllers, mice, IDE channels, and various Intel controllers for SMBus, USB, graphics, and network connections.

Device	IRQ
(ISA) 0	System timer
(ISA) 1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
(ISA) 3	Communications Port (COM2)
(ISA) 4	Communications Port (COM1)
(ISA) 6	Standard floppy disk controller
(ISA) 8	System CMOS/real time clock
(ISA) 9	Microsoft ACPI-Compliant System
(ISA) 12	PS/2 Compatible Mouse
(ISA) 13	Numeric data processor
(ISA) 14	Primary IDE Channel
(ISA) 15	Secondary IDE Channel
(PCI) 10	Intel(R) 82801EB SMBus Controller - 24D3
(PCI) 16	Intel(R) 82801EB USB Universal Host Controller - 24D2
(PCI) 16	Intel(R) 82801EB USB Universal Host Controller - 24DE
(PCI) 16	Intel(R) 82865G Graphics Controller
(PCI) 18	Intel(R) 82801EB Ultra ATA Storage Controllers
(PCI) 18	Intel(R) 82801EB USB Universal Host Controller - 24D7
(PCI) 18	Intel(R) PRO/1000 MT Network Connection
(PCI) 19	Intel(R) 82801EB USB Universal Host Controller - 24D4
(PCI) 19	Intel(R) PRO/1000 MT Network Connection #2
(PCI) 20	Intel(R) PRO/1000 MT Network Connection #3
(PCI) 21	Intel(R) PRO/1000 MT Network Connection #4
(PCI) 22	Intel(R) PRO/1000 MT Network Connection #5
(PCI) 23	Intel(R) 82801EB USB2 Enhanced Host Controller - 24DD
(PCI) 23	Intel(R) PRO/1000 MT Network Connection #6

B.4 DMA Channel Assignments



The screenshot shows the 'Direct memory access (DMA)' section in Windows Device Manager. It lists two devices: a Standard floppy disk controller assigned to DMA channel 2, and a Direct memory access controller assigned to DMA channel 4.

Device	DMA Channel
Standard floppy disk controller	2
Direct memory access controller	4

Appendix

C

Standard Firewall Platform Setting

C.1 Standard Firewall Platform Setting

Status LED	Disable	I/O PORT 48Fh set bit 4 to 1, I/O PORT 48Fh set bit 3 to 1
	Red LED ON	I/O PORT 48Fh set bit 4 to 1, I/O PORT 48Fh set bit 3 to 0
	Red LED Blink	I/O PORT 48Fh set bit 4 to 1, I/O PORT 48Fh set bit 3 to 0 I/O PORT 49Bh set bit 4 to 1
	Green LED ON	I/O PORT 48Fh set bit 4 to 0, I/O PORT 48Fh set bit 3 to 1
	Green LED Blink	I/O PORT 48Fh set bit 4 to 0, I/O PORT 48Fh set bit 3 to 1 I/O PORT 49Bh set bit 4 to 1
LAN Bypass	Disable	I/O PORT 48Fh set bit 0 to 1, I/O PORT 48Fh set bit 1 to 0
	Force Mode	I/O PORT 48Fh set bit 0 to 0 I/O PORT 48Fh set bit 1 to 0
	Watch Dog Mode	I/O PORT 48Fh set bit 0 to 1 I/O PORT 48Fh set bit 1 to 1
LCM Function	Disable	
	378/IRQ7	
Software Reset		Press Software Reset button I/O PORT: 42Ah bit 7 will be set 1

C.2 Status LED Sample Code

[Disabled LED Function]

```
mov dx,48Fh          ;( IO_PORT = 48Fh)
in  al,dx
or  al,00010000b ;set bit 4 -->high
out dx,al
```

```
mov dx,48Fh          ;( IO_PORT = 48Fh)
in  al,dx
or  al,00001000b ;set bit 3 -->high
out dx,al
```

[RED LED ON]

```
mov dx,48Fh          ;( IO_PORT = 48Fh)
in  al,dx
or  al,00010000b ;set bit 4 -->high
out dx,al
```

```
mov dx,48Fh          ;( IO_PORT = 48Fh)
in  al,dx
and al,11110111b ;set bit 3 -->LOW
out dx,al
```

[RED LED BLINK]

```
mov dx,48Fh          ;( IO_PORT = 48Fh)
in  al,dx
or  al,00010000b ;set bit 4 -->high
out dx,al
```

```
mov dx,48Fh          ;( IO_PORT = 48Fh)
in  al,dx
and al,11110111b ;set bit 3 -->low
out dx,al
```

```
mov dx,49Bh          ;( IO_PORT = 49Bh)
in  al,dx
or  al,00010000b ;set bit 4 -->high(control blink)
out dx,al
```

[GREEN LED ON]

```
mov dx,48Fh          ;( IO_PORT = 48Fh)
in  al,dx
and al,11101111b ;set bit 4 -->low
out dx,al
```

```
mov dx,48Fh          ;( IO_PORT = 48Fh)
in  al,dx
or  al,00001000b ;set bit 3 -->high
```

```
out dx,al
```

```
[GRN LED BLINK]
```

```
mov dx,48Fh          ;( IO_PORT = 48Fh)
```

```
in al,dx
```

```
and al,11101111b ;set bit 4 -->low
```

```
out dx,al
```

```
mov dx,48Fh          ;( IO_PORT = 48Fh)
```

```
in al,dx
```

```
or al,00001000b ;set bit 3 -->high
```

```
out dx,al
```

```
mov dx,49Bh          ;( IO_PORT = 49Bh)
```

```
in al,dx
```

```
or al,00010000b ;set bit 4 -->high(control blink)
```

```
out dx,al
```

C.3 LAN Bypass Mode Sample Code

[Disable Function]

```
mov dx,48Fh           ;( IO_PORT = 48Fh)
in  al,dx
or  al,00000001b ;set bit 0-->high
and al,11111101b ;set bit 1-->low
out dx,al
```

[Force Mode]

```
mov dx,48Fh           ;( IO_PORT = 48Fh)
in  al,dx
and al,11111100b ;set bit 0,1-->low
out dx,al
```

[Watch Dog Mode]

```
mov dx,48Fh           ;( IO_PORT = 48Fh)
in  al,dx
or  al,00000011b ;set bit 0,1-->high
out dx,al
```

C.4 LCM Sample Code

```
void Display_Clear()
{
    outportb(0x378, 0x01);
    wait();
    outportb(0x37A, 0xC8);
    wait();
    outportb(0x37A, 0xCA);
    wait();
}

void Return_Home()
{
    outportb(0x378, 0x02);
    wait();
    outportb(0x37A, 0xC8);
    wait();
    outportb(0x37A, 0xCA);
    wait();
}
```

```
}
```

```
void Entry_mode_set()
```

```
{
```

```
    outportb(0x378, 0x06);
```

```
    wait();
```

```
    outportb(0x37A, 0xC8);
```

```
    wait();
```

```
    outportb(0x37A, 0xCA);
```

```
    wait();
```

```
}
```

```
void Display_Off()
```

```
{
```

```
    outportb(0x378, 0x08);
```

```
    wait();
```

```
    outportb(0x37A, 0xC8);
```

```
    wait();
```

```
    outportb(0x37A, 0xCA);
```

```
        wait();
    }

void Display_On_Cursor_Off()
{
    outportb(0x378, 0x0C);
    wait();
    outportb(0x37A, 0xC8);
    wait();
    outportb(0x37A, 0xCA);
    wait();
}

void Display_On_Cursor_On()
{
    outportb(0x378, 0x0E);
    wait();
    outportb(0x37A, 0xC8);
    wait();
}
```



```
        outportb(0x37A, 0xCA);

        wait();

    }

/*****
***/

// Set the interface data length.

// Number of display line and character font.

// For 5x7 dots and 2 lines display now.

/*****
***/

void Function_Set()

{

    outportb(0x378, 0x38);

    wait();

    outportb(0x37A, 0xC8);

    wait();

    outportb(0x37A, 0xCA);
```

```
    wait();  
}
```

```
void Write_Char( char x )  
{  
    outportb(0x378, x);  
    outportb(0x37A, 0xC0);  
    wait();  
    outportb(0x37A, 0xC2);  
    wait();  
}
```

```
void Change_Line()  
{  
    outportb(0x378, 0xC0);  
    wait();  
    outportb(0x37A, 0xC8);  
    wait();  
    outportb(0x37A, 0xCA);
```

```
        wait();
    }

void wait()
{
    for (int i = 0 ; i < 0x10 ; i++)
    {
        for (int j = 0 ; j < 0x80 ; j++)
        {
            outportb(0x0EB, 0Xff);
        }
    }
}
```

C.5 Console Redirection

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 the console redirection.

1. Please insert console cable between on FWS-810 and remote client system.

2. Setup BIOS in FWS-810.

BIOS >> advanced BIOS features >> Baud Rate:
19200(Default)

BIOS >> advanced BIOS features >> Console Redirection:
Enable (Default)

Enabled	Attempt to redirect console via COM port
Disabled	Console redirection function disabled

3. Configure Console redirection on client system. This example is for Windows platform.

Step1 - Click the Start button, point to programs >> Accessories >> Communication, and click Hyper Terminal

Step2 - Enter any name for the new connection and select any icon

Step3 - Click OK

Step4 - From the connect to pull-down menu, select a COM port available on your client system and click OK

Step5 - Select Baud Rate >> 19200, Flow control >> None, Data bit >>8, Parity cheek >> None, Stop bit>>1

4. Power on FWS-810 and it will display the BIOS information on the client system.