FWS-7300

1U Rackmount

Network Appliance Platform

1 ATA100, 2 SATA I

6 USB, 2 COM, Mini PCI

Copyright Notice

Acknowledgments

All other products' name or trademarks are properties of their respective owners.

- Award is a trademark of Award Software International, Inc.

- CompactFlash™ is a trademark of the Compact Flash Association.

- Intel®, Pentium M® are trademarks of Intel® Corporation.

- Microsoft Windows® is a registered trademark of Microsoft Corp.

- ISoundBlaster is a trademark of Creative Labs, Inc.

All other product names or trademarks are properties of their respective owners.

Packing List

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

- 1   FWS-7300
- 1   Quick Installation Guide
- 1   CD-ROM for manual (in PDF format) and drivers
- 1   CPU cooler (optional)
- 1   SATA Cable
- 1   D-sub 9-pin 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.

Contents

Chapter 3 Award BIOS Setup

Chapter 4 Driver Installation

Appendix A Programming the Watchdog Timer

Appendix B I/O Information

Appendix C Standard Firewall Platform Setting

Chapter

1

General Information

1.1 Introduction

FWS-7300 adopts Intel® Pentium® M processor up to 2.1GHz (BGA/ Socket co-lay). The chipset is equipped with Intel® 910GMLE and Intel® 82801FBM (ICH6M). In addition, the system memory features two 200-pin DDRII 400 SODIMM socket total up to 2GB. FWS-7300 deploys eight LAN ports that can use four PCI-E〔x1〕 and four PCI 10/100/1000Base-TX Ethernet ports. The condensed appearance of FWS-7300 features 1U form factor that fits nicely into a space- limited environment.

This compact FWS-7300 is equipped with one ATA100 that supports CD-ROM ATAPI devices, two SATA I and CompactFlash™ Type II connector with ATA mode. In addition, it offers flexible expansion with network products and features one Mini PCI Type III expansion socket, six USB2.0 ports and two RS-232 console ports. The console port deploys console re-direction that increases the network security via remote control. Moreover, there is a front panel support LCM with keypad control that allows for easy access and operation. All of these designs provide for a more user-friendly solution.

1.2 Features

- 1U 8 LAN Network Appliance Platform
- Intel® Pentium® M 90nm Processor, Up to 2.1GHz (BGA/Socket Co-Lay)
- 200-pin Dual-Channel DDRII 400 DIMM Support Up to 2GB
- Intel® 910GMLE Integrated Graphics Accelerator
- 10/100/1000Base-TX Ethernet x 8 for Optional (2-port Bypass Function)
- Ultra ATA-100 And DOM Up to 2GB x 1, SATA I x 2
- CompactFlash™ Type II Connector
- 150W Power with Auto Range Input
- USB2.0 x 6 (Pin Header x 4 and Type A Connector x 2)
- Parallel LCM With Keypad and USB2.0 x 2 On The Front Panel
- RS-232 Console x 2 (Front Panel x 1, Pin Header x 1)
- Watchdog Function 1~255 Sec
- Internal 3.5" Disk Drive Bay x 1

1.3 Specifications

System

Construction	1U 8 ports Firewall
CPU	Intel$^®$ Pentium$^®$ M up to 2.1GHz (BGA/ Socket Co-lay)
Memory	200-pin DDRII 400 SODIMM x 2, total up to 2GB
Chipset	Intel$^®$ 910GMLE + Intel$^®$ 82801FBM (ICH6M)
LAN (Optional)	PCI-E〔x1〕10/100/1000Base-TX x 2 (Intel$^®$ 82574), PCI 10/100/1000Base-TX x 4 (Intel$^®$ 82541/ 82551 co-lay, with 2-port bypass function); PCI-E〔x1〕10/100/1000Base-TX x 2 (Intel$^®$ 82574) LAN card for optional; LAN1 & LAN2 with Bypass Function
BIOS	Award Plug & Play FWH BIOS – 8Mb ROM
IDE	ATA 100 x 1 channel (Supports CD-ROM ATAPI devices)
SATA Interface	SATA I x 2
Solid Storage Disk	Supports CFD Type II connector(ATA mode)

Note: Please change the IDE BIOS setting to "Slave" when you use the CF and IDE.

Expansion Interface	Mini PCI Type III Socket & PCI connector x 1 with 2 slots riser card
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 Bay
System Fan	Three 4cm Ball Bearing Fans
Color	Blue and Red
LCM	2x16 characters with 4 keypad control
Power Supply	ATX 150W, auto range
Dimensions	16.9" (W) x 15" (D) x 1.7"(H) (430mm x 380mm x 44mm) —Chassis
	9.8" (W) x 11" (D) (250mm x 280mm) —Board
Power Consumption	87W, Intel® Pentium® M 1.8GHz
MTBF (Hours)	58,000
EMC	Class A, UL

I/O

Serial Port	Two COM ports: (Internal Pin Header x 1)
	COM 1: RS-232
	COM 2: RS-232 (Pin Header)
Keyboard & Mouse	Reserved pin header
Universal Serial Bus	Type A Connector x 2 on front panel
Front I/O Panel	Bypass LED x 1
	Power LED x 1

Status LED x 1

HDD Active LED x 1

USB Port x 2

LAN with LED x 6

DB-9 connector x 1

LCM Display x 1

Software Default Switch x 1

Rear I/O panel   PCI Expansion Slot x 2

Environmental

Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-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

1.4 General System Information

Reset

LCM Display w/Keypad

Console

USB x 2

LAN x 6

LAN Card for optional

PCI Expansion Slot x 2

1U Power Supply
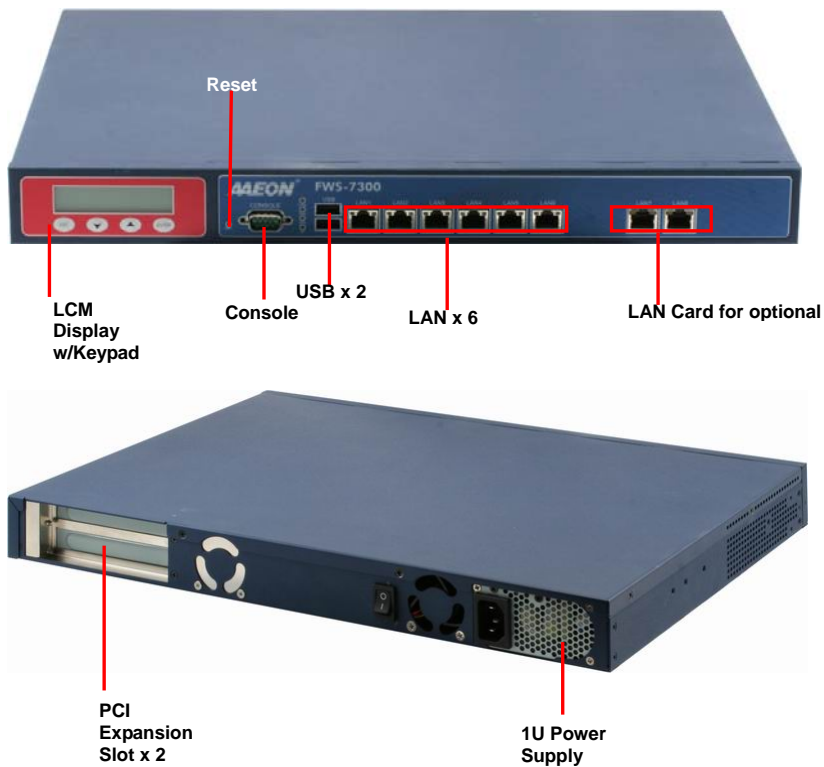
Chapter

2

FWS-7300 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.

OZONE SAFE

RECYCLABLE

2.1 Safety Precautions

The installation is intended for technically qualified personnel who have experience installing and configuring system boards.

The equipment can be installed in a restricted access location (RAL) only.

A restricted access location is a site location for equipment where the following criteria apply:

01. Access can only be gained by service persons or by users who have been trained on the restrictions and the precautions for this specific site.

02. Access is by means of at least one of the following, special tool, lock and key, or other means of security, and is controlled by the authority responsible for the location.

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

Risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

2.2 Location of Connectors

Board of FWS-7300

Component side
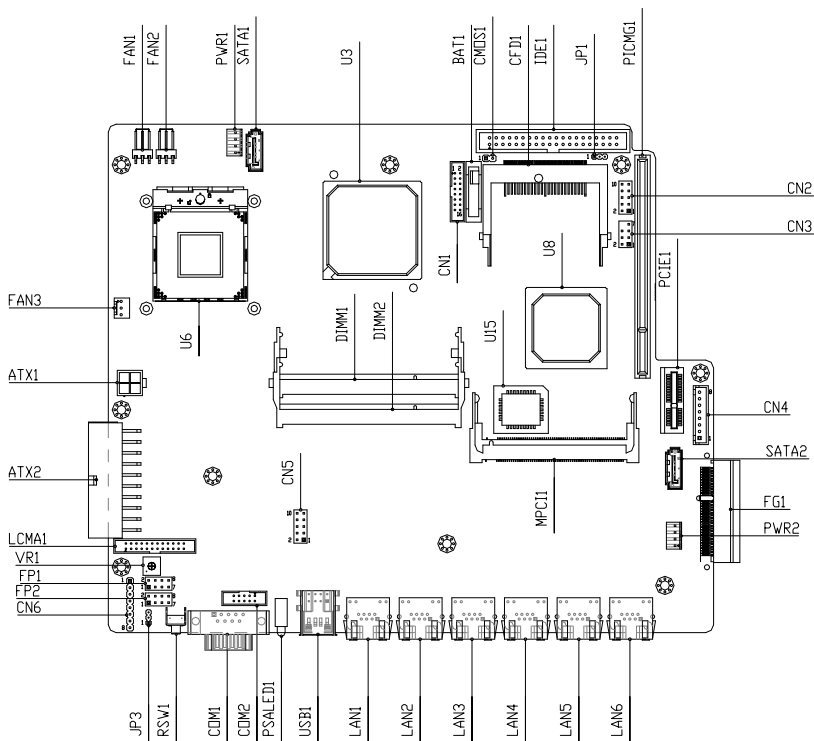
2.3 Mechanical Drawing

Board of FWS-7300

Component Side
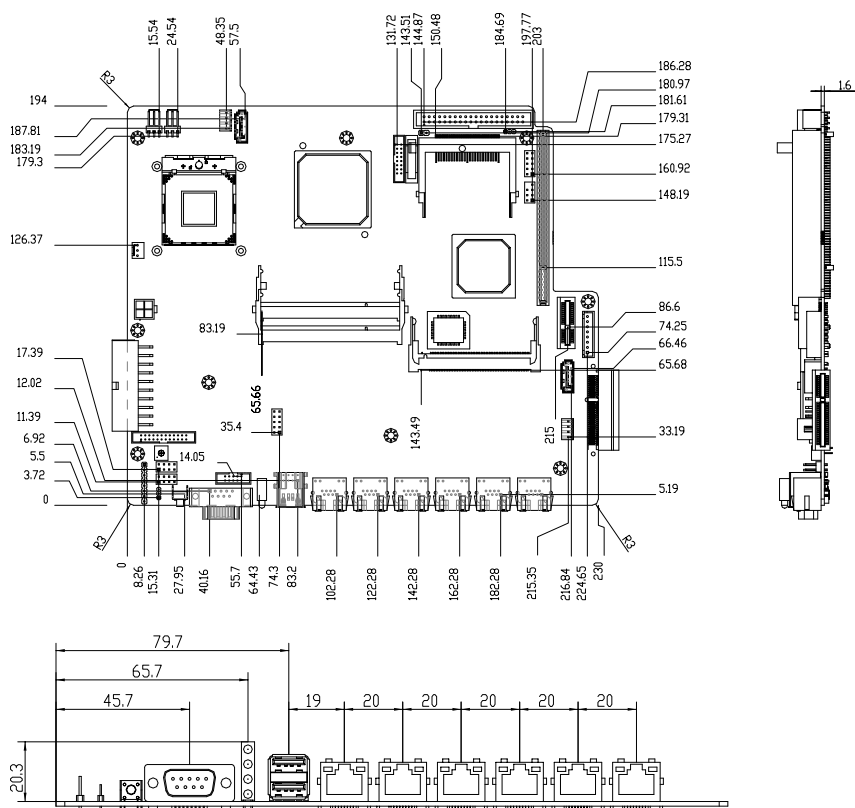
Solder Side
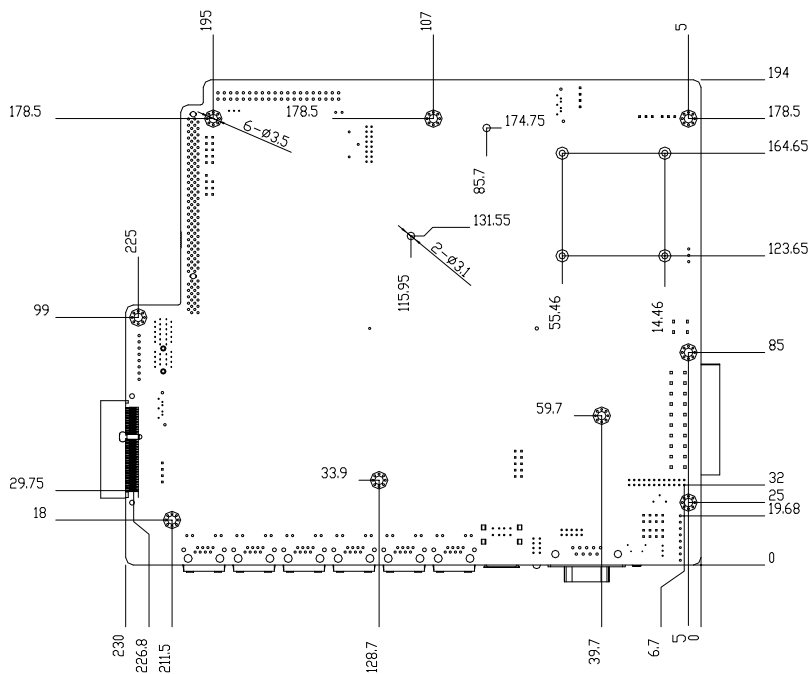
Mechanical Drawing of FWS-7300
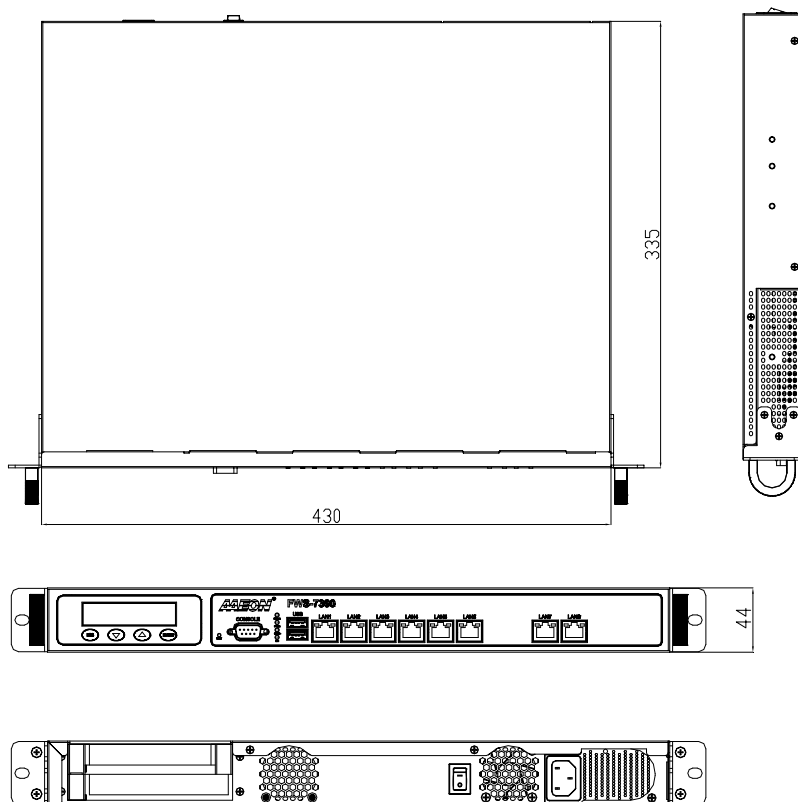
2.4 List of Jumpers

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
JP1	CFD Power Select
CMOS1	Clear CMOS
JP3	Auto Power on Select
FP1	Front Panel Connector 1
FP2	Front Panel Connector 2

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
ATX2	ATX Power Connector
ATX1	ATX Power_12V Connector
SATA1~2	Serial ATA Connector
IDE1	IDE Connector
USB1	USB Connector
CN2、5	USB PIN HEADER
COM1	RS-232 Serial Port Connector
COM2	RS-232 Serial Port PIN HEADER
DIMM1~2	SODIMM DDRII Slot
FAN1~3	Fan Connector
CN3	PS2 Keyboard/Mouse Connector
PWR1~2	SATA POWER Connector
CFD1	Compact Flash Slot
MPCI1	Mini PCI Slot
LCMA1	LCM & Key Pad Control PIN HEADER
LAN1~6	LAN Connector
CN1	VGA Connector

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.
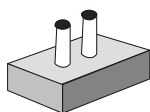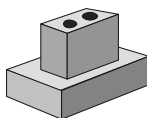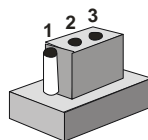
Open   **Closed**   **Closed 2-3**

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 CFD Power Selection (JP1)

JP1	Function
Close 1-2	+3.3V
Close 2-3	+5V (Default)

2.8 Clear CMOS (CMOS1)

CMOS1	Function
1-2	Clear CMOS
Open	Protected (Default)

2.9 Auto Power Selection (JP3)

JP3	Function
Close 1-2	Enable
Close 2-3	Disable (Default)

2.10 BUZZER (FP2)

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

2.11 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 (-)

2.12 Front Panel Connector (FP2)

Pin	Signal	Pin	Signal
1	External Speaker (+)	2	GND
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

2.13 USB Connector (USB1)

Pin	Signal	Pin	Signal
1	GND	2	USBD0+
3	USBD0-	4	+5V
5	GND	6	USBD1+
7	USBD1-	8	+5V

2.14 USB Pin Header (CN2, CN5)

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

2.15 RS-232 Serial Port Connector (COM1)

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR

5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	NC

2.16 RS-232 Serial Port Pin Header (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

2.17 Power Connector (ATX2)

Pin	Signal	Pin	Signal
1	+3.3V	2	+3.3V
3	GND	4	+5V
5	GND	6	+5V
7	GND	8	PWROK
9	+5VSB	10	+12V
11	+3.3V	12	-12V
13	GND	14	PS_ON
15	GND	16	GND
17	GND	18	NC
19	+5V	20	+5V

2.18 FAN Connector (FAN1, FAN2, FAN3)

Pin	Signal	Pin	Signal
1	GND	2	+12V
3	SENCE		

2.19 PS/2 Keyboard/ Mouse Connector (CN3)

CN3	Function
1	KB_DATA
2	KB_CLK
3	GND
4	+5V
5	MS_DATA
6	MS_CLK-
7	NC
8	NC

2.20 SATA Power Connector (PWR1,2)

Pin	Signal	Pin	Signal
1	+12V	2	GND
3	GND	4	+5V

2.21 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

2.22 VGA Connector (CN1)

Pin	Signal	Pin	Signal
1	VGA_R	2	VGA_+5V
3	VGA_G	4	GND
5	VGA_B	6	NC
7	NC	8	VGA_SDATA
9	GND	10	VGA_HS
11	GND	12	VGA_VS
13	GND	14	VGA_SCLK
15	GND	16	NC

2.23 Removing the Cover

Before you install drives or plug-in cards into the FWS-7300, please switch the unit off and remove the power cord first.

Step1: Unscrew the upper lid and isolate the upper lid from the Chassis
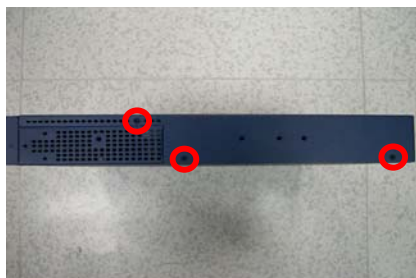
2.24 Installing the CPU and CPU Cooler Fan

Step 1: Loosen the screw

Step 2: Put the CPU on the socket then fasten the screw
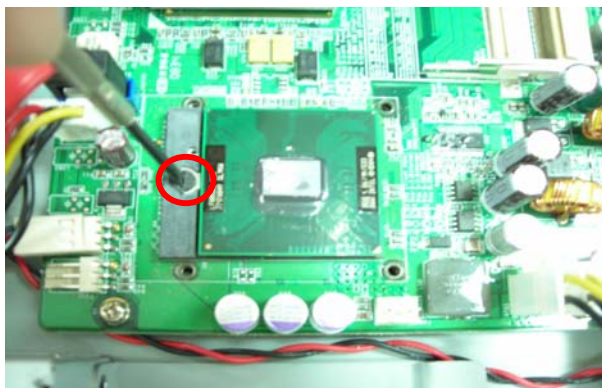
Step 3: Put the CPU cooler on the top of CPU then fasten the four screws
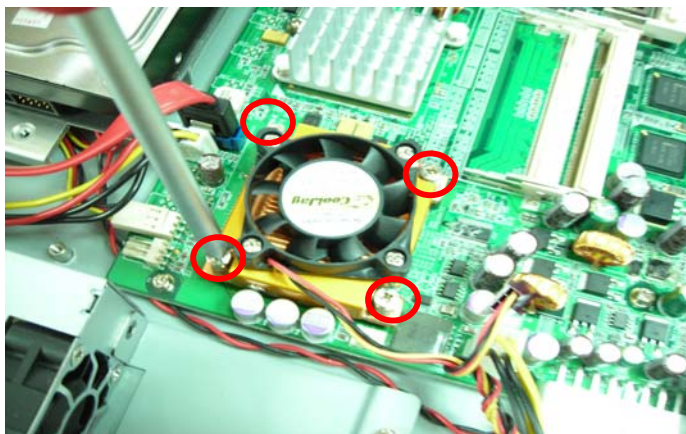
2.25 Installing the Hard Disk Drive

Step 1: Loosen the four screws
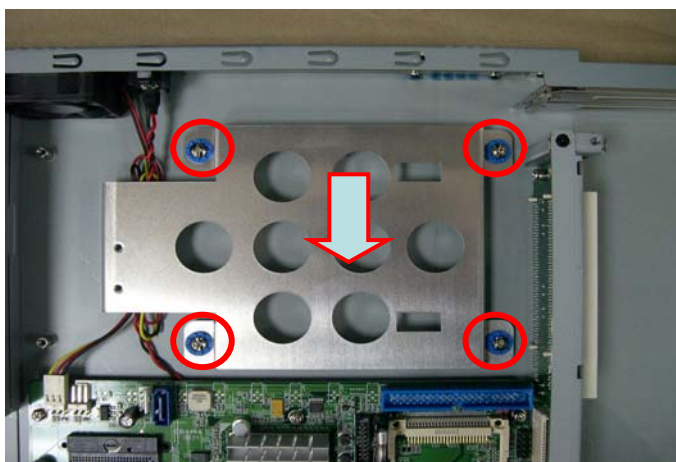
Step 2: Lift up the hard disk drive bracket aside
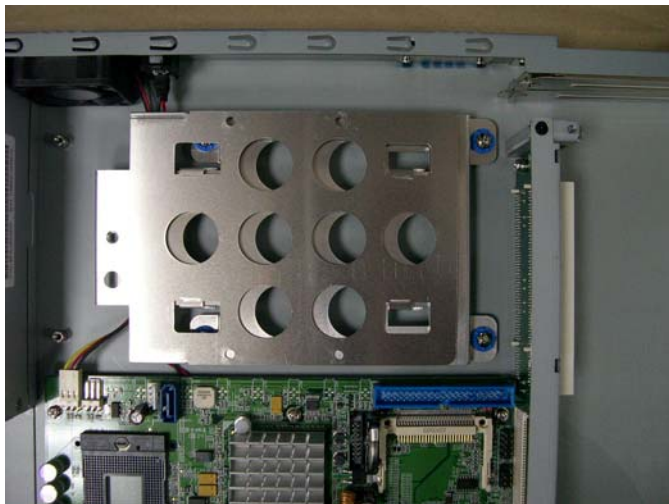
Step 3: Fasten the hard disk in the driver bay by using the four screws
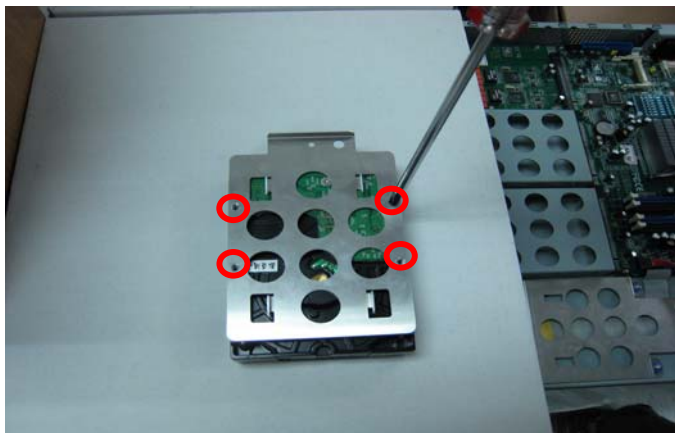
Step 4: Lift down the hard disk drive and push into the bracket, then fasten

the hard disk driver bay by using the screws

Step 5: Connect the SATA cable and power cable into the Hard Disk.

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	×	○	○	○	○	○

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。

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。

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。

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-7300 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 <Del> 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.

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-7300 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 Chipset 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-7300 CD-ROM into the CD-ROM drive and install

the drivers from Step 1 to Step 3 in order.

Step 1 – Install Chipset Driver

1.   Click on the *step 1-Chipset* folder and double click on the *infinst_autol* file

2.   Follow the instructions that the window shows

3.   The system will help you install the driver automatically

Step 2 – Install VGA Driver

1.   Click on the *step 2-VGA* folder and double click on the *win2k_xp142550* file

2.   Follow the instructions that the window shows

3.   The system will help you install the driver automatically

Step 3 – Install LAN Driver

1.   Click on the *step 3 –LAN* folder and select the OS your system is

2.   Double click on *.exe* located in each OS folder

3.   Follow the instructions that the window shows

4.   The system will help you install the driver automatically

Appendix

A

Programming the
Watchdog Timer

A.1 Programming

FWS-7300 utilizes ITE 8712 chipset as its watchdog timer controller. (K version)

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

Configuring Sequence Description

After the hardware reset or power-on reset, the ITE 8712 enters the normal mode with all logical devices disabled except KBC.
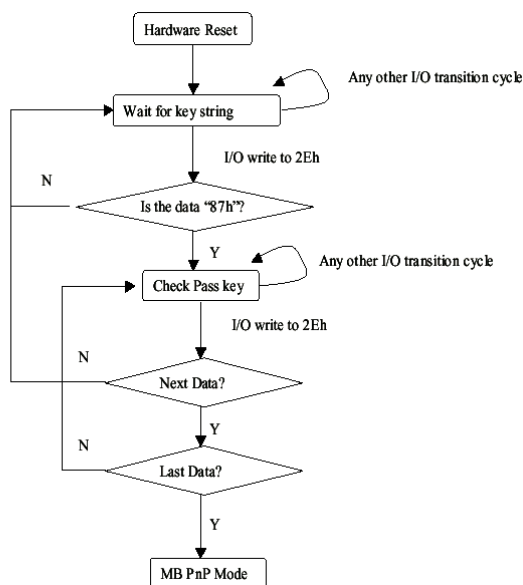
There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

To enter the MB PnP Mode, four 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 four write opera-tions to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP 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 MB PnP Mode

Set bit 1 of the configure control register (Index=02h) to 1 to exit the MB PnP Mode.

WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02H	W	N/A	Configuration Control
07H	71H	R/W	00H	WatchDog Timer Control Register
07H	72H	R/W	00H	WatchDog Timer Configuration Register
07H	73H	R/W	00H	WatchDog Timer Time-out Value (LSB) Register
07H	74H	R/W	00H	WatchDog Timer Time-out Value (MSB) Register

Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

Bit	Description
7-2	Reserved
1	Returns to the Wait for Key state. This bit is used when the configuration sequence is completed.
0	Resets all logical devices and restores configuration registers to their power-on states.

WatchDog Timer Control Register (Index=71h, Default=00h)

Bit	Description
7	WDT is reset upon a CIR interrupt
6	WDT is reset upon a KBC (Mouse) interrupt
5	WDT is reset upon a KBC (Keyboard) interrupt
4	WDT is reset upon a read or a write to the Game port base address
3-2	Reserved
1	Force Time-out. This bit is self-clearing
0	WDT status
	1: WDT value reaches 0
	0: WDT value is not 0

WatchDog Timer Configuration Register (Index=72h, Default=00h)

Bit	Description
7	WDT Time-out value select
	1: Second
	0: Minute
6	WDT output through KRST (pulse) enable
5	WDT Time-out value Extra select
	1: 4s.
	0: Determine by WDT Time-out value select (bit7 of this register)
4	WDT output through PWROK1/PWROK2 (pulse) enable
3	Select the interrupt level[note] for WDT

WatchDog Timer Time-out Value (LSB) Register (Index=73h, Default=00h)

Bit	Description
7-0	WDT Time-out value 7-0

WatchDog Timer Time-out Value (MSB) Register (Index=74h, Default=00h)

Bit	Description
7-0	WDT Time-out value 15-8

A.2 ITE8712 Watchdog Timer Initial Program

```
        .MODEL SMALL
        .CODE
Main:
        CALL Enter_Configuration_mode
        CALL Check_Chip
        mov cl, 7
        call Set_Logic_Device
        ;time setting
        mov cl, 10 ; 10 Sec
        dec al
Watch_Dog_Setting:
        ;Timer setting
        mov al, cl
```

```
mov cl, 73h
call Superio_Set_Reg
;Clear by keyboard or mouse interrupt
mov al, 0f0h
mov cl, 71h
call Superio_Set_Reg
;unit is second.
mov al, 0C0H
mov cl, 72h
call Superio_Set_Reg
; game port enable
mov cl, 9
call Set_Logic_Device


Initial_OK:
CALL Exit_Configuration_mode
MOV AH,4Ch
INT 21h


Enter_Configuration_Mode PROC NEAR
MOV SI,WORD PTR CS:[Offset Cfg_Port]


MOV DX,02Eh
MOV CX,04h
Init_1:
```

```
MOV AL,BYTE PTR CS:[SI]
OUT DX,AL
INC SI
LOOP Init_1
RET
Enter_Configuration_Mode ENDP


Exit_Configuration_Mode PROC NEAR
MOV AX,0202h
CALL Write_Configuration_Data
RET
Exit_Configuration_Mode ENDP


Check_Chip PROC NEAR


MOV AL,20h
CALL Read_Configuration_Data
CMP AL,87h
JNE Not_Initial


MOV AL,21h
CALL Read_Configuration_Data
CMP AL,12h
JNE Not_Initial
```

Need_Initial:

      STC

      RET

Not_Initial:

      CLC

      RET

      Check_Chip ENDP

      Read_Configuration_Data PROC NEAR

      MOV DX,WORD PTR CS:[Cfg_Port+04h]

      OUT DX,AL

      MOV DX,WORD PTR CS:[Cfg_Port+06h]

      IN AL,DX

      RET

      Read_Configuration_Data ENDP

      Write_Configuration_Data PROC NEAR

      MOV DX,WORD PTR CS:[Cfg_Port+04h]

      OUT DX,AL

      XCHG AL,AH

      MOV DX,WORD PTR CS:[Cfg_Port+06h]

      OUT DX,AL

      RET

      Write_Configuration_Data ENDP

      Superio_Set_Reg proc near

Appendix A Programming the Watchdog Timer A-8

```
push ax
MOV DX,WORD PTR CS:[Cfg_Port+04h]
mov al,cl
out dx,al
pop ax
inc dx
out dx,al
ret
Superio_Set_Reg endp.Set_Logic_Device proc near


Set_Logic_Device    proc    near
push ax
push cx
xchg al,cl
mov cl,07h
call Superio_Set_Reg
pop cx
pop ax
ret
Set_Logic_Device endp


;Select 02Eh->Index Port, 02Fh->Data Port
Cfg_Port DB 087h,001h,055h,055h


DW 02Eh,02Fh
```

END Main

Note: Interrupt level mapping

0Fh-Dh: not valid

0Ch: IRQ12

.

.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected

Appendix

B

I/O Information

B.1 I/O Address Map

```
Input/output (IO)
    [00000000 - 0000000F] Direct memory access controller
    [00000010 - 0000001F] PCI bus
    [00000020 - 00000021] Programmable interrupt controller
    [00000022 - 0000003F] PCI bus
    [00000040 - 00000043] System timer
    [00000044 - 00000047] PCI bus
    [0000004C - 0000006F] PCI bus
    [00000060 - 00000060] PC/AT PS/2 Keyboard (84-Key)
    [00000061 - 00000061] System speaker
    [00000064 - 00000064] PC/AT PS/2 Keyboard (84-Key)
    [00000070 - 00000071] System CMOS/real time clock
    [00000072 - 0000007F] PCI bus
    [00000081 - 00000083] Direct memory access controller
    [00000087 - 00000087] Direct memory access controller
    [00000089 - 0000008B] Direct memory access controller
    [0000008F - 00000091] Direct memory access controller
    [00000090 - 00000091] PCI bus
    [00000093 - 0000009F] PCI bus
    [000000A0 - 000000A1] Programmable interrupt controller
    [000000A2 - 000000BF] PCI bus
    [000000C0 - 000000DF] Direct memory access controller
    [000000D0 - 000000EF] PCI bus
    [000000F0 - 000000FF] Numeric data processor
    [00000100 - 00000CF7] PCI bus
    [000001F0 - 000001F7] Primary IDE Channel
    [00000274 - 00000277] ISAPNP Read Data Port
    [00000279 - 00000279] ISAPNP Read Data Port
    [000003B0 - 000003BB] Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
    [000003C0 - 000003DF] Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
    [000003F0 - 000003F5] Standard floppy disk controller
    [000003F6 - 000003F6] Primary IDE Channel
    [000003F7 - 000003F7] Standard floppy disk controller
    [00000500 - 0000051F] Intel(R) 82801FB/FBM SMBus Controller - 266A
    [00000A79 - 00000A79] ISAPNP Read Data Port
    [00000D00 - 0000FFFF] PCI bus
    [0000B000 - 0000BFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2662
    [0000BF00 - 0000BF1F] Intel(R) 82574L Gigabit Network Connection
    [0000C000 - 0000CFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2660
    [0000CF00 - 0000CF1F] Intel(R) 82574L Gigabit Network Connection #2
    [0000DC00 - 0000DC3F] Intel(R) PRO/1000 MT Network Connection #4
    [0000DD00 - 0000DD3F] Intel(R) PRO/1000 MT Network Connection #3
    [0000DE00 - 0000DE3F] Intel(R) PRO/1000 MT Network Connection #2
    [0000DF00 - 0000DF3F] Intel(R) PRO/1000 MT Network Connection
    [0000F300 - 0000F30F] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
    [0000F400 - 0000F403] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
    [0000F500 - 0000F507] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
    [0000F600 - 0000F603] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
    [0000F700 - 0000F707] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
    [0000F800 - 0000F80F] Intel(R) 82801FB/FBM Ultra ATA Storage Controllers - 266F
    [0000FB00 - 0000FB1F] Intel(R) 82801FB/FBM USB Universal Host Controller - 265B
    [0000FC00 - 0000FC1F] Intel(R) 82801FB/FBM USB Universal Host Controller - 265A
    [0000FD00 - 0000FD1F] Intel(R) 82801FB/FBM USB Universal Host Controller - 2659
    [0000FE00 - 0000FE1F] Intel(R) 82801FB/FBM USB Universal Host Controller - 2658
    [0000FF00 - 0000FF07] Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
```

B.2 Memory Address Map

```
AAEON-32CD392F7
  ⊞ Direct memory access (DMA)
  ⊞ Input/output (IO)
  ⊞ Interrupt request (IRQ)
  ⊟ Memory
       [00000000 - 0009FFFF] System board
       [0009F000 - 000BFFFF] PCI bus
       [000A0000 - 000BFFFF] Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
       [000CE800 - 000CFFFF] Motherboard resources
       [000CE800 - 000EEFFF] PCI bus
       [000E0000 - 000EFFFF] Motherboard resources
       [000F0000 - 000F3FFF] Motherboard resources
       [000F4000 - 000F7FFF] Motherboard resources
       [000F8000 - 000FFFFF] Motherboard resources
       [00100000 - 00FFFFFF] System board
       [7F700000 - DFFFFFFF] PCI bus
       [D0000000 - DFFFFFFF] Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
       [F0000000 - FEBFFFFF] PCI bus
       [FD800000 - FD8FFFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2662
       [FD8C0000 - FD8DFFFF] Intel(R) 82574L Gigabit Network Connection
       [FD8FC000 - FD8FFFFF] Intel(R) 82574L Gigabit Network Connection
       [FD900000 - FD9FFFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2660
       [FDA00000 - FDAFFFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2660
       [FDAC0000 - FDADFFFF] Intel(R) 82574L Gigabit Network Connection #2
       [FDAFC000 - FDAFFFFF] Intel(R) 82574L Gigabit Network Connection #2
       [FDD00000 - FDD1FFFF] Intel(R) PRO/1000 MT Network Connection #4
       [FDD20000 - FDD3FFFF] Intel(R) PRO/1000 MT Network Connection #4
       [FDD40000 - FDD5FFFF] Intel(R) PRO/1000 MT Network Connection #3
       [FDD60000 - FDD7FFFF] Intel(R) PRO/1000 MT Network Connection #3
       [FDD80000 - FDD9FFFF] Intel(R) PRO/1000 MT Network Connection #2
       [FDDA0000 - FDDBFFFF] Intel(R) PRO/1000 MT Network Connection #2
       [FDDC0000 - FDDDFFFF] Intel(R) PRO/1000 MT Network Connection
       [FDDE0000 - FDDFFFFF] Intel(R) PRO/1000 MT Network Connection
       [FDE00000 - FDEFFFFF] Intel(R) 82801FB/FBM PCI Express Root Port - 2662
       [FDF00000 - FDF7FFFF] Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
       [FDF80000 - FDFBFFFF] Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
       [FDFFD000 - FDFFD3FF] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
       [FEC00000 - FEC0FFFF] System board
       [FEC01000 - FEDFFFFF] PCI bus
       [FEE00000 - FEE0FFFF] System board
       [FEE01000 - FFAFFFFF] PCI bus
       [FFB00000 - FFB7FFFF] System board
       [FFB80000 - FFBFFFFF] Intel(R) 82802 Firmware Hub Device
       [FFF00000 - FFFFFFFF] System board
```

B.3 IRQ Mapping Chart

```
□ 🖥 AAEON-32CD392F7
  ⊞ ▦ Direct memory access (DMA)
  ⊞ ▦ Input/output (IO)
  ⊟ ▦ Interrupt request (IRQ)
       🖳 (ISA)  0    System timer
       ⌨ (ISA)  1    PC/AT PS/2 Keyboard (84-Key)
       🖴 (ISA)  6    Standard floppy disk controller
       🖴 (ISA)  8    System CMOS/real time clock
       🖱 (ISA) 12    Microsoft PS/2 Mouse
       🖳 (ISA) 13    Numeric data processor
       🖴 (ISA) 14    Primary IDE Channel
       🖳 (PCI)  8    Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
       🖳 (PCI) 112   Intel(R) 82801FB/FBM PCI Express Root Port - 2660
       🖳 (PCI) 113   Intel(R) 82801FB/FBM PCI Express Root Port - 2662
       🔌 (PCI) 116   Intel(R) 82801FB/FBM USB Universal Host Controller - 2658
       🔌 (PCI) 117   Intel(R) 82801FB/FBM USB Universal Host Controller - 2659
       🔌 (PCI) 118   Intel(R) 82801FB/FBM USB Universal Host Controller - 265A
       🔌 (PCI) 119   Intel(R) 82801FB/FBM USB Universal Host Controller - 265B
       🖳 (PCI) 125   Intel(R) 82801FB/FBM SMBus Controller - 266A
       🖴 (PCI) 125   Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
       🖧 (PCI) 128   Intel(R) 82574L Gigabit Network Connection
       🖧 (PCI) 128   Intel(R) 82574L Gigabit Network Connection #2
       🖧 (PCI) 16    Intel(R) PRO/1000 MT Network Connection
       🖧 (PCI) 20    Intel(R) PRO/1000 MT Network Connection #2
       🖧 (PCI) 24    Intel(R) PRO/1000 MT Network Connection #3
       🖧 (PCI) 28    Intel(R) PRO/1000 MT Network Connection #4
```

B.4 DMA Channel Assignments

```
□ 🖥 AAEON-32CD392F7
  ⊟ ▦ Direct memory access (DMA)
       🖴 2    Standard floppy disk controller
       🖳 4    Direct memory access controller
  ⊞ ▦ Input/output (IO)
  ⊞ ▦ Interrupt request (IRQ)
  ⊞ ▦ Memory
```

Appendix

C

Standard Firewall
Platform Setting

C.1 Standard Firewall Platform Setting

Status LED	Disable	I/O PORT 48Eh set bit 3 to 1,
		I/O PORT 4B8h set bit 1 to 1
	Red LED ON	I/O PORT 48Eh set bit 3 to 1,
		I/O PORT 4B8h set bit 1 to 0
	Red LED Blink	I/O PORT 48Eh set bit 3 to 1,
		I/O PORT 4B8h set bit 1 to 0
		I/O PORT 49Ah set bit 3 to 1
	Green LED ON	I/O PORT 48Eh set bit 3 to 0,
		I/O PORT 4B8h set bit 1 to 1
	Green LED Blink	I/O PORT 48Eh set bit 3 to 0,
		I/O PORT 4B8h set bit 1 to 1
		I/O PORT 49Ah set bit 3 to 1
LAN Bypass	Disable	SUPER I/O CBh LDN 7 set bit 6 to 1,
		I/O PORT 48Fh set bit 1 to 1
	Force Mode	SUPER I/O CBh LDN 7 set bit 6 to 1
		I/O PORT 48Fh set bit 1 to 0
	Watch Dog Mode	SUPER I/O CBh LDN 7 set bit 6 to 0
		I/O PORT 48Fh set bit 1 to 1
LCM Function	Disable	
	378/IRQ7	
Software Reset		Press Software Reset button I/O PORT:
		801h bit 0 will be set 0

C.2 Status LED Sample Code

Status LED Sample code

[Disabled LED Function]

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


        mov dx,4B8h                ;( IO_PORT = 4B8h)
        in   al,dx
        or   al,00000010b ;set bit 1 -->high
        out dx,al
```

[RED LED ON]

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


        mov dx,4B8h                ;( IO_PORT = 4B8h)
        in   al,dx
        and al,11111101b  ;set bit 1 -->LOW
```

```
        out dx,al
```

[RED LED BLINK]

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


        mov dx,4B8h                 ;( IO_PORT = 4B8h)
        in   al,dx
        and al,11111101b  ;set bit 1 -->low
        out dx,al


        mov dx,49Ah                 ;( IO_PORT = 49Ah)
        in   al,dx
        or   al,00001000b ;set bit 3 -->high(control blink)
        out dx,al
```

[GREEN LED ON]

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


        mov dx,4B8h                 ;( IO_PORT = 4B8h)
```

```
        in   al,dx
        or   al,00000010b ;set bit 1 -->high
        out dx,al
```

[GRN LED BLINK]

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


        mov dx,4B8h                 ;( IO_PORT = 4B8h)
        in   al,dx
        or   al,00000010b ;set bit 1 -->high
        out dx,al


        mov dx,49Ah                 ;( IO_PORT = 49Ah)
        in   al,dx
        or   al,00001000b ;set bit 3 -->high(control blink)
        out dx,al
```

C.3 LAN Bypass Mode Sample Code

LAN BYPASS MODE Sample code

[Disable Function]

```
        call    Superio_Enter_Config
        mov    cl, 7
        call    Set_Logic_Device
        mov    cl, 0CBh
       call    Superio_Get_Reg
        or      al, 40h        ;set bit 6 → high
        call    Superio_Set_Reg


        mov dx,48Fh                    ;( IO_PORT = 48Fh)
        in    al,dx
        and al,11111110b   ;set bit 0-->low
        out dx,al
```

[Force Mode]

```
        call    Superio_Enter_Config
        mov    cl, 7
        call    Set_Logic_Device
        mov    cl, 0CBh
        call    Superio_Get_Reg
        or      al, 40h        ;set bit 6 → high
```

```
call    Superio_Set_Reg

mov dx,48Fh                  ;( IO_PORT = 48Fh)
in   al,dx
and al,11111110b  ;set bit 2-->low
out dx,al
```

[Watch Dog Mode]

```
 call   Superio_Enter_Config
mov  cl, 7
call   Set_Logic_Device
mov  cl, 0CBh
call   Superio_Get_Reg
and    al, 00h        ;set bit 6 → low
call   Superio_Set_Reg

mov dx,48Fh                  ;( IO_PORT = 48Fh)
in   al,dx
or   al,00000001b ;set bit 0-->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-7300 and remote client system.

2. Setup BIOS in FWS-7300.

    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-7300 and it will display the BIOS
information on the client system.