

FWS-7250

1U Rackmount

Network Appliance Platform

3.5" SATA HDD x 1

or 2.5" SATA HDD x 2

CF SATA Socket

4 LAN Ports

2 USB2.0, 1 COM for Console

1 MiniCard Slot

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Packing List

Before installation, please make sure that the following materials have been shipped:

- FWS-7250
- CD-ROM for manual (in PDF format) and drivers
- Ear Bracket x 1 set
- Screws

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

Note:

VGA Cable is an optional accessory. Please only purchase cable with the following item number.

- **1700160150** VGA Cable (must be used with two **S21D305011** screws)

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Chapter

1

**General
Information**

1.1 Introduction

FWS-7250 adopts the Intel® Quad-Core Celeron™ J1900 Processor. The system memory features two 204-pin Dual channel DDR3L 1333MHz SODIMM slots up to 8GB. It deploys four Gigabit Ethernet LAN ports with two pairs LAN bypass function. The condensed appearance of FWS-7250 features 1U form factor that fits nicely into a space- limited environment.

This compact FWS-7250 can be equipped with one 3.5"/2.5" SATA HDD and CF-SATA socket or two 2.5" SATA HDD. In addition, it offers flexible expansion with network products and features one Mini-Card slot with SIM socket, two USB2.0 ports and one RS-232 console port on the front panel. The console port deploys console re-direction that increases the network security via remote control. Moreover, the front panel supports LCM with keypad control for easy access and operation. All of these designs provide for a more user-friendly solution.

1.2 Features

- 1U Rackmount 4 LAN ports Network Appliance
- Onboard Intel® Celeron™ J1900 Quad-Core processor
- Two 204-pin Dual Channel DDR3L 1333MHz SODIMM Up to 8GB
- 10/100/1000Base-TX Ethernet Port x 4 With Two Pairs LAN Bypass Function
- 3.5" or 2.5" SATA HDD x 1 and CF-SATA Socket or 2.5" SATA HDD x 2
- One Parallel LCM with Keypad
- RS-232 Console x 1 (Front Panel x 1, optional Pin Header x 1), USB2.0 x 2 (Type A Connector x 2 and optional Pin Header x 2)
- AC Power Input Requirement
- Mini-Card Slot x 1
- Parallel LCM With Keypad On The Front Panel

1.3 Specifications

System

Form Factor	1U Rackmount 4 LAN ports Network Appliance
Processor	Onboard Intel® Celeron™ J1900 2 GHz processor (Co-lay E3845 1.91GHz) SoC
System Memory	204-pin Dual channel DDR3L 1333MHz SODIMM slot x 2, up to 8GB
Chipset	-
Ethernet	Intel® I210AT controller, Gigabit Ethernet x 4 with 2 pairs LAN bypass function
BIOS	AMI BIOS
Serial ATA	SATA II port x1 w/ CF card (Optional 2 x SATA II port onboard)
SSD	CF-SATA x 1
Expansion Interface	MiniCard slot and USB2.0 x 1 (Optional) w/ SIM card socket
Watchdog Timer	System reset: 1~255 steps by software programming
RTC	Internal RTC
Storage	3.5" or 2.5" SATA HDD x 1 and CF-SATA socket x 1 or 2.5" SATA HDD x 2
Front I/O Panel	Power LED x 1, Bypass LED x 2, Status LED x 1, HDD Active LED x 1, USB port x

	2, RJ-45 port with LED x 4, Parallel LCM display and keypad x 1, Software programmable button x 1
Rear I/O Panel	AC power input x 1, Power switch x 1
Color	Black
Power Supply	100W AC power input
Power Requirement	One 24-pin ATX power connector
Dimension	16.92"(W) x 7.87"(D) x 1.73"(H) (430mm x 200mm x 44mm)
Certification	CE/FCC Class A

Display

Chipset	-
Graphic Engine	Intel® HD Graphics
Resolution	2048x1536
Output Interface	VGA internal box header

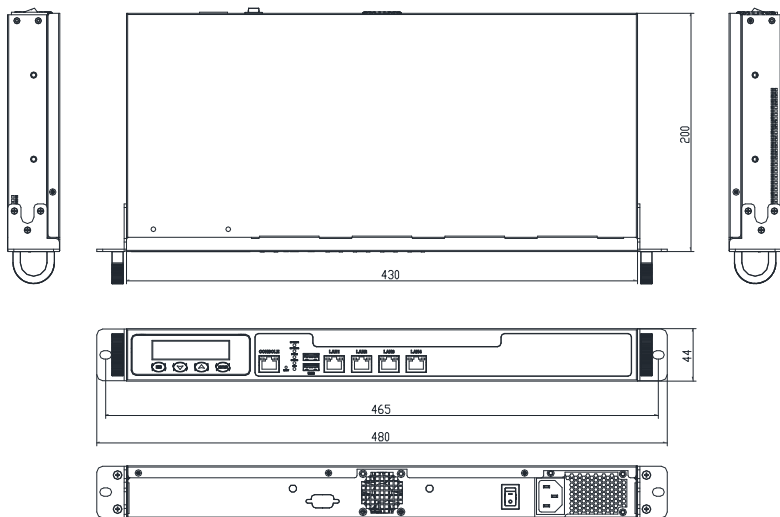
I/O

Serial Port	RJ-45 console x 1 COM1: RS-232 with pin header (optional)
Keyboard & Mouse	Reserved pin header
USB	USB2.0 x 4: USB for internal pin header x 2 (optional) USB2.0 Type A on I/O side

Environment

Operating Temperature	32°F~104°F (0°C ~40°C)
Storage Temperature	-4°F~104°F (-20°C ~60°C)
Operating Humidity	10%~80% relative humidity, non-condensing
Storage Humidity	10%~80% @ 40°C, non-condensing
Vibration	0.5g rms/5~500Hz/ operation (2.5" HDD x 2) 1.5g rms/5~500Hz/ non-operation
Shock	10G peak acceleration (11m sec. duration), operation 20G peak acceleration (11m sec. duration), non operation

1.4 General System Information



Chapter

2

**Quick
Installation
Guide**

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!



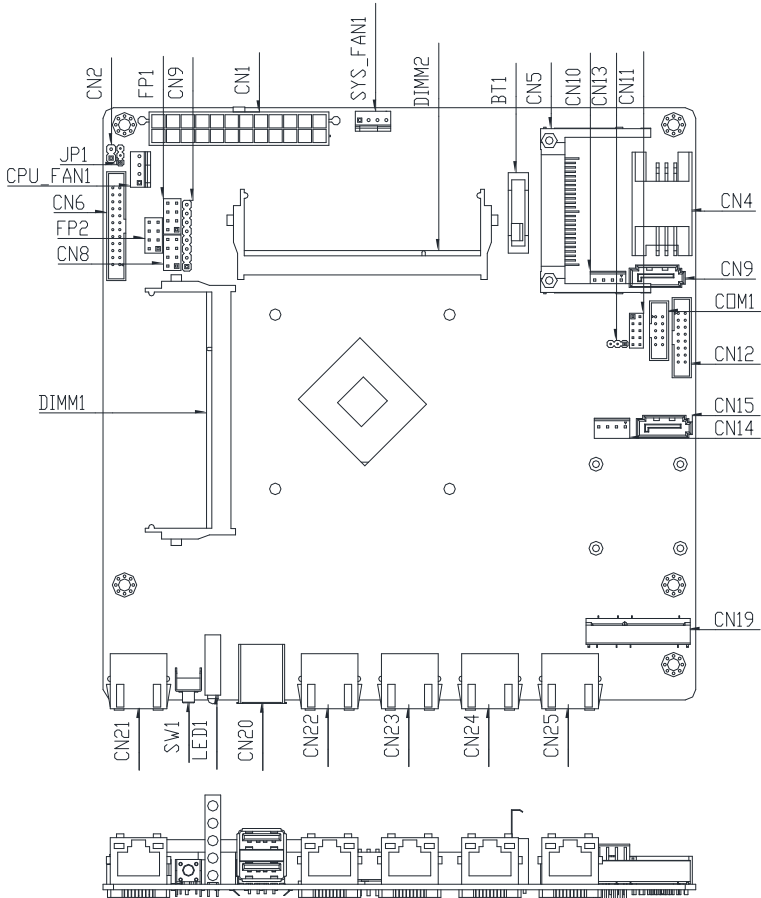
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

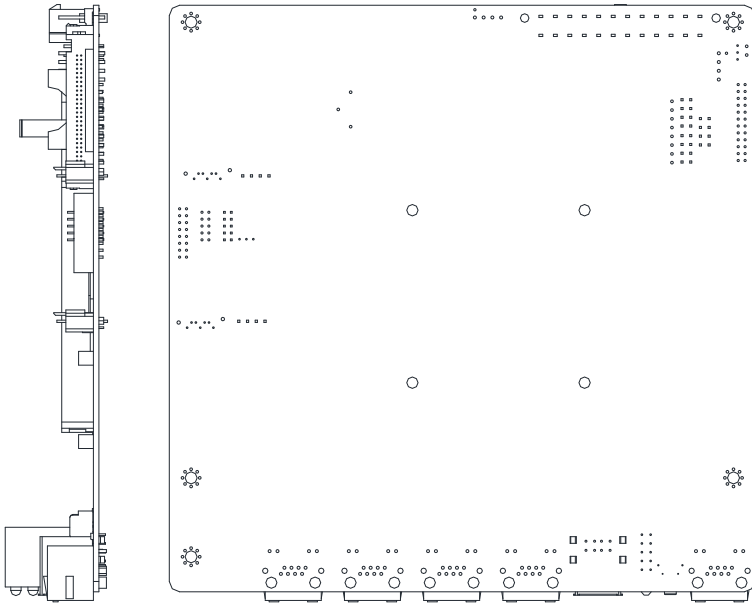
Caution!



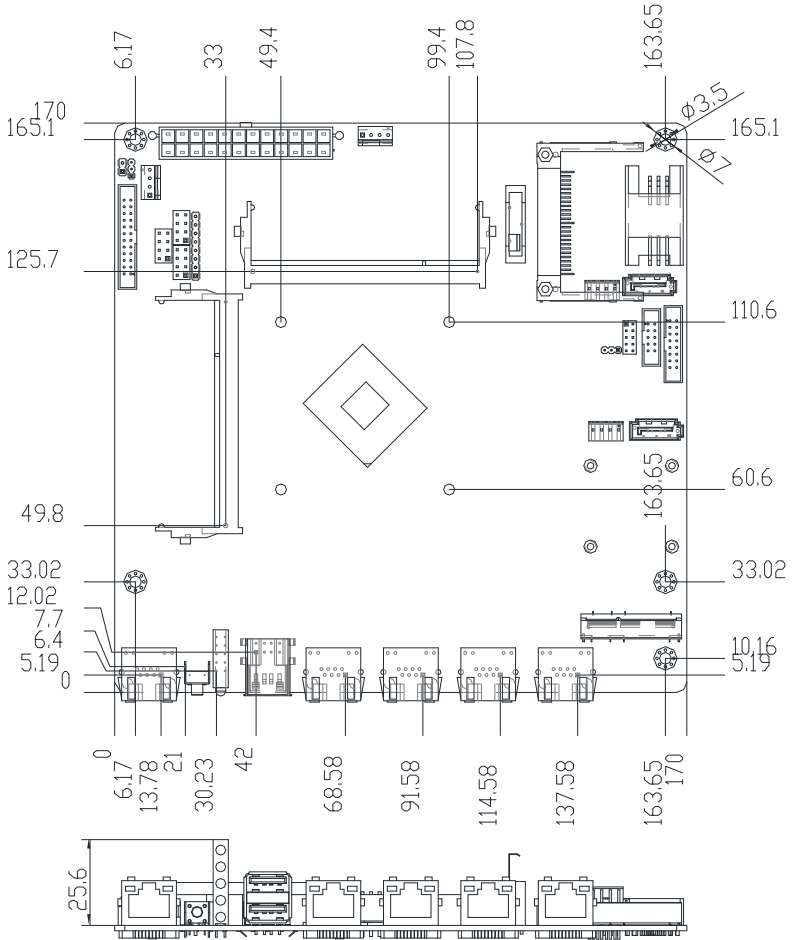
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

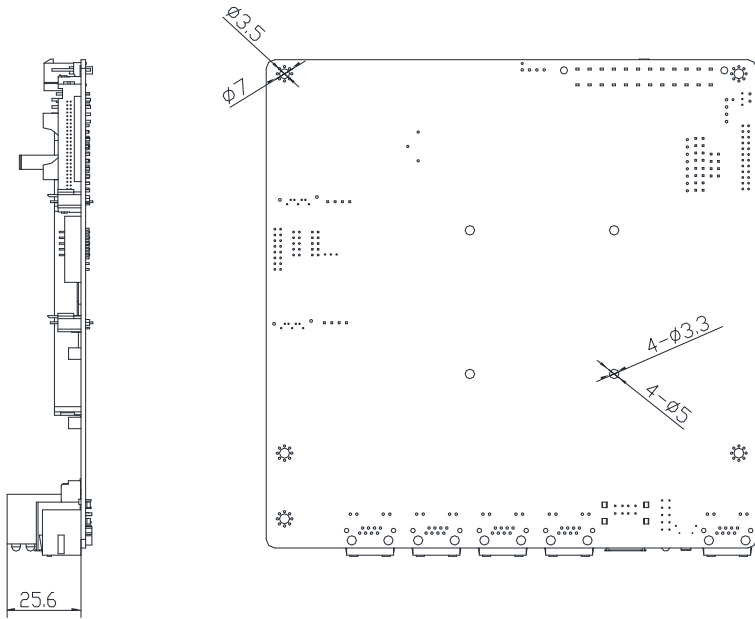
2.2 Location of Connectors of Main Board





2.3 Mechanical Drawing of Main Board





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	Auto Power Button
CN13	CF Power Selection
CN16	CMOS Setting Selection
CN17	RTC Test Setting Selection

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:

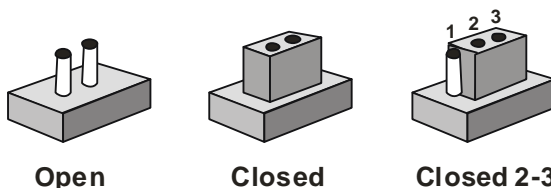
Label	Function
CN1	24-Pin ATX Power Connector
CN2	Power Button
CN4	SIM Card Socket
CN5	CompactFlash Socket
CN6	LCM Connector
CN8	PS/2 Keyboard/Mouse Pin Header
CN9	SATA Port Connector
CN10	SATA Power Connector
CN11	USB2.0 Port 1 Pin Header
CN12	VGA Pin Header

CN14	SATA Power Connector
CN15	SATA Port Connector
CN19	Mini PCI-E Slot
CN20	USB2.0 Type-A Connector
CN21	Console Port Connector
CN22	Giga LAN Port Connector
CN23	Giga LAN Port Connector
CN24	Giga LAN Port Connector
CN25	Giga LAN Port Connector
BT1	Battery
COM1	COM Port Connector
CPU_FAN1	4-Pin Fan Connector
DIMM1	DDR3L SODIMM Slot
DIMM2	DDR3L SODIMM Slot
FP1	Front Panel Connector 1
FP2	Front Panel Connector 2
SW1	Reset Switch (Controlled by apps)
SYS_FAN1	4-Pin Fan 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.



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 Auto Power Button (JP1)



JP1	Function
1-2	Disable Auto Power Button
2-3	Enable Auto Power Button

2.8 CF Power Selection (CN13)



CN13	Function
1-2	+5V
2-3	+3.3V

2.9 CMOS Setting Selection (CN16)



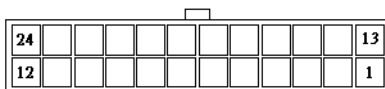
CN16	Function
1-2	Clear CMOS
2-3	Normal

2.10 RTC Test Setting Selection (CN17)



CN17	Function
1-2	RTC Test
2-3	Normal

2.11 24-Pin ATX Power Connector (CN1)



Pin	Signal	Signal Type	Signal Level
1	+3.3V	PWR	+3.3V
2	+3.3V	PWR	+3.3V
3	GND	GND	
4	+5V	PWR	+5V
5	GND	GND	
6	+5V	PWR	+5V
7	GND	GND	
8	PWROK	Input	+5V
9	+5VSB	PWR	+5V
10	+12V	PWR	+12V
11	+12V	PWR	+12V
12	+3.3V	PWR	+3.3V
13	+3.3V	PWR	+3.3V
14	-12V	PWR	-12V
15	GND	GND	
16	PS_ON#	Output	By SIO Level
17	GND	GND	
18	GND	GND	
19	GND	GND	

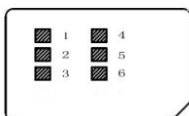
20	NC		
21	+5V	PWR	+5V
22	+5V	PWR	+5V
23	+5V	PWR	+5V
24	GND	GND	

2.12 Power Button (CN2)



Pin	Signal	Signal Type	Signal Level
1	Power On Button (+)	Input	
2	Power On Button (-)	Input	

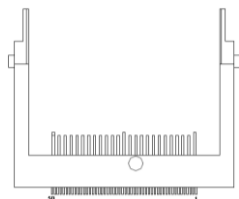
2.13 SIM Card Socket (CN4)



Pin	Signal	Signal Type	Signal Level
1	UIM_PWR	PWR	
2	UIM_RST	Input	
3	UIM_CLK	Input	
4	GND	GND	
5	UIM_VPP	PWR	

6 UIM_DATA I/O

2.14 CompactFlash Socket (CN5)



Pin	Signal	Signal Type	Signal Level
1	GND	GND	
2	D3	Input / Output	
3	D4	Input / Output	
4	D5	Input / Output	
5	D6	Input / Output	
6	D7	Input / Output	
7	CS1#	Output	
8	A10	Output	
9	ATA_SEL	Output	
10	A9	Output	
11	A8	Output	
12	A7	Output	
13	VCC_CFD	PWR	+5V(Default)/ +3.3V
14	A6	Output	
15	A5	Output	

16	A4	Output	
17	A3	Output	
18	A2	Output	
19	A1	Output	
20	A0	Output	
21	D0	Input / Output	
22	D1	Input / Output	
23	D2	Input / Output	
24	IOOSC16#	Output	
25	CD2#	Input	
26	CD1#	Input	
27	D11	Input / Output	
28	D12	Input / Output	
29	D13	Input / Output	
30	D14	Input / Output	
31	D15	Input / Output	
32	CS1#	Output	
33	VS1#	Input	
34	IORD#	Output	
35	IOWR#	Output	
36	WE#	Output	
37	INTRQ	Input	
38	VCC_CFD	PWR	+5V(Default)/ +3.3V
39	CSEL#	Output	

40	VS2#	Input
41	RESET	Output
42	IORDY	Input
43	DMARQ#	Input
44	DMACK#	Output
45	DASP#	Input / Output
46	PDIAG#	Input / Output
47	D8	Input / Output
48	D9	Input / Output
49	D10	Input / Output
50	GND	GND

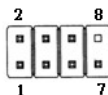
2.15 LCM Connector (CN6)



Pin	Signal	Signal Type	Signal Level
1	LCMVCC	PWR	+5V
2	LCMGND	GND	
3	SLIN#	Output	
4	VEE	PWR	
5	AFD#	Output	
6	INIT#	Output	
7	DATA1	Input / Output	
8	DATA0	Input / Output	

9	DATA3	Input / Output	
10	DATA2	Input / Output	
11	DATA5	Input / Output	
12	DATA4	Input / Output	
13	DATA7	Input / Output	+5V(Default)/ +3.3V
14	DATA6	Input / Output	
15	LCD#	Output	
16	+5V	PWR	+5V
17	KEY PAD Up	Input	+3.3V
18	KEY PAD Right	Input	+3.3V
19	KEY PAD Left	Input	+3.3V
20	KEY PAD Down	Input	+3.3V
21	RSTSW#	Input	+3.3V
22	NC		
23	NC		
24	NC		

2.16 PS/2 Keyboard/Mouse Pin Header (CN8)



Pin	Signal	Signal Type	Signal Level
1	KB_DATA	Input / Output	
2	KB_CLK	Output	

3	GND	GND	
4	+5V_KB	PWR	+5V
5	MS_DATA	Input / Output	
6	MS_CLK	Output	
7	Key	N/A	
8	N.C.		

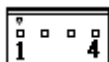
Note: Max rating for pin 4 is 0.55A at 5V

2.17 SATA Port Connector (CN9)



Pin	Signal	Signal Type	Signal Level
1	GND	GND	
2	SATA_TXP2	DIFF	
3	SATA_TXN2	DIFF	
4	GND	GND	
5	SATA_RXN2	DIFF	
6	SATA_RXP2	DIFF	
7	GND	GND	

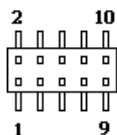
2.18 SATA Power Connector (CN10 & CN14)



Pin	Signal	Signal Type	Signal Level
1	+12V	PWR	+12V
2	GND	GND	
3	GND	GND	
4	+5V	PWR	+5V

Note: Max rating for pin 1 is 1A at 12V

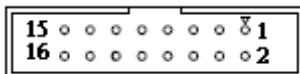
2.19 USB2.0 Port 1 Pin Header (CN11)



Pin	Signal	Signal Type	Signal Level
1	+5V_USB3	PWR	+5V
2	NC	NC	
3	USB3_N	DIFF	
4	NC	NC	
5	USB3_P	DIFF	
6	NC	NC	
7	GND	GND	
8	NC	NC	
9	GND	GND	
10	NC	NC	

Note: Max rating for pin 8 is 0.5A at 5V

2.20 VGA Pin Header (CN12)



Pin	Signal	Signal Type	Signal Level
1	Red	Output	
2	+5V_CRT	PWR	+5V
3	Green	Output	
4	GND	GND	
5	Blue	Output	
6	CRT_PLUG#	Input	
7	N.C.		
8	DDC_DATA	Input / Output	+3.3V
9	GND	GND	
10	CRT_OHSYNCF	Output	
11	GND	GND	
12	CRT_OVSYNCF	Output	
13	GND	GND	
14	DDC_CLK	Input / Output	+3.3V
15	GND	GND	
16	N.C.		

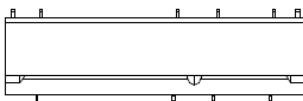
Note: Max rating for pin 2 is 1.5A at 5V

2.21 SATA Port Connector (CN15)



Pin	Signal	Signal Type	Signal Level
1	GND	GND	
2	SATA_TXP1	DIFF	
3	SATA_TXN1	DIFF	
4	GND	GND	
5	SATA_RXN1	DIFF	
6	SATA_RXP1	DIFF	
7	GND	GND	

2.22 Mini PCI-E Slot (CN19)



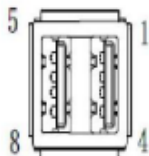
Pin	Signal	Signal Type	Signal Level
1	PCIE_WAKE#	Input	
2	+3.3VDUAL	PWR	+3.3V
3	N.C.		
4	GND	GND	
5	N.C.		
6	+1.5V	PWR	+1.5V

7	PCIE_REQ	Input	
8	UIM_PWR	Input	
9	GND	GND	
10	UIM_DATA	Input / Output	
11	PCIE_CLK#	DIFF	
12	UIM_CLK	Input	
13	PCIE_CLK	DIFF	
14	UIM_RESET	Input	
15	GND	GND	
16	UIM_VPP	Input	
17	N.C.		
18	GND	GND	
19	N.C.		
20	WLAN_EN	Output	
21	GND	GND	
22	PLT_RST#	Output	
23	PER_N	DIFF	
24	+3.3VDUAL	PWR	+3.3V
25	PER_P	DIFF	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V
29	GND	GND	
30	SMB1_CLK	Output	

31	PET_N	DIFF	
32	SMB1_DAT	Input / Output	
33	PET_P	DIFF	
34	GND	GND	
35	GND	GND	
36	USB_DN	DIFF	
37	GND	GND	
38	USB_DP	DIFF	
39	+3.3VDUAL	PWR	+3.3V
40	GND	GND	
41	+3.3VDUAL	PWR	+3.3V
42	LED_WWAN#	Output	
43	GND	GND	
44	LED_WLAN#	Output	
45	Reserved	N/A	
46	LED_WPAN#	Output	
47	Reserved	N/A	
48	+1.5V	PWR	+1.5V
49	Reserved	N/A	
50	GND	GND	
51	Reserved	N/A	
52	+3.3VDUAL	PWR	+3.3V

Note: Max rating for pin 2, 24, 39, 41, 52 are 2.75A at 3VSB, pin 6, 28, 48 are 0.5A at 1.5V

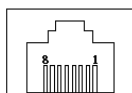
2.23 USB2.0 Type-A Connector (CN20)



Pin	Signal	Signal Type	Signal Level
1	+5V_USB1	PWR	+5V
2	USB1_N	DIFF	
3	USB1_P	DIFF	
4	GND	GND	
5	+5V_USB2	PWR	+5V
6	USB2_N	DIFF	
7	USB2_P	DIFF	
8	GND	GND	

Note: Max rating for pin 1 is 0.5A at 5V

2.24 Console Port Connector (CN21)

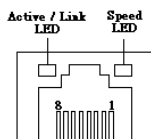


Pin	Signal	Signal Type	Signal Level
1	RTS1	Input	
2	DTR1	Input	

3	TXD1	Output	±9V
4	DCD1	Output	±9V
5	GND	GND	
6	RXD1	Input	
7	DSR1	Output	±9V
8	CTS1	Input	
9	RI1 / +5V / +12V	Input / PWR	By Jumper Selection

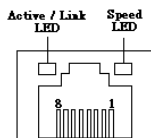
Note: Max rating for pin 9 is 1A at 5V and 12V

2.25 Giga LAN Port Connector (CN22)



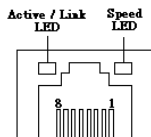
Pin	Signal	Signal Type	Signal Level
1	LAN1_MDI0P	DIFF	
2	LAN1_MDI0N	DIFF	
3	LAN1_MDI1P	DIFF	
4	LAN1_MDI2P	DIFF	
5	LAN1_MDI2N	DIFF	
6	LAN1_MDI1N	DIFF	
7	LAN1_MDI3P	DIFF	
8	LAN1_MDI3N	DIFF	

2.26 Giga LAN Port Connector (CN23)



Pin	Signal	Signal Type	Signal Level
1	LAN2_MDI0P	DIFF	
2	LAN2_MDI0N	DIFF	
3	LAN2_MDI1P	DIFF	
4	LAN2_MDI2P	DIFF	
5	LAN2_MDI2N	DIFF	
6	LAN2_MDI1N	DIFF	
7	LAN2_MDI3P	DIFF	
8	LAN2_MDI3N	DIFF	

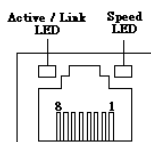
2.27 Giga LAN Port Connector (CN24)



Pin	Signal	Signal Type	Signal Level
1	LAN3_MDI0P	DIFF	

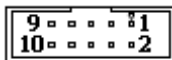
2	LAN3_MDI0N	DIFF
3	LAN3_MDI1P	DIFF
4	LAN3_MDI2P	DIFF
5	LAN3_MDI2N	DIFF
6	LAN3_MDI1N	DIFF
7	LAN3_MDI3P	DIFF
8	LAN3_MDI3N	DIFF

2.28 Giga LAN Port Connector (CN25)



Pin	Signal	Signal Type	Signal Level
1	LAN4_MDI0P	DIFF	
2	LAN4_MDI0N	DIFF	
3	LAN4_MDI1P	DIFF	
4	LAN4_MDI2P	DIFF	
5	LAN4_MDI2N	DIFF	
6	LAN4_MDI1N	DIFF	
7	LAN4_MDI3P	DIFF	
8	LAN4_MDI3N	DIFF	

2.29 COM Port Connector (COM1)



RS-232

Pin	Signal	Signal Type	Signal Level
1	DCD1	Input	
2	RXD1	Input	
3	TXD1	Output	±9V
4	DTR1	Output	±9V
5	GND	GND	
6	DSR1	Input	
7	RTS1	Output	±9V
8	CTS1	Input	
9	RI1 / +5V / +12V	Input / PWR	By Jumper Selection
10	N.C.		

Note: Max rating for pin 9 is 1A at 5V& 12V

RS-422

Pin	Signal	Signal Type	Signal Level
1	RS422_TX-	DIFF	
2	RS422_RX+	DIFF	
3	RS422_TX+	DIFF	
4	RS422_RX-	DIFF	

5	GND	GND	
6	NC		
7	NC		
8	NC		
9	NC / +5V / +12V	PWR	By Jumper Selection
10	N.C.		

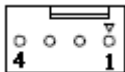
Note: Max rating for pin 9 is 1A at 5V& 12V

RS-485

Pin	Signal	Signal Type	Signal Level
1	RS485_D-	DIFF	
2	NC		
3	RS485_D+	DIFF	
4	NC		
5	GND	GND	
6	NC		
7	NC		
8	NC		
9	NC / +5V / +12V	PWR	By Jumper Selection
10	N.C.		

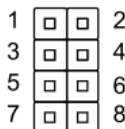
Note: Max rating for pin 9 is 1A at 5V& 12V

2.30 4-pin Fan Connector (CPU_FAN1)



Pin	Signal	Signal Type	Signal Level
1	GND	GND	
2	FAN_PWR	PWR	+12V
3	FAN_TAC	Input	
4	FAN_CTL	Output	

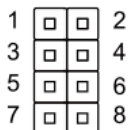
2.31 Front Panel Connector (FP1)



Pin	Signal	Signal Type	Signal Level
1	External Speaker (+)	Output	
2	Key Board Lock (+)	Output	
3	NC	Floting	
4	GND	POWER	
5	External Speaker (-)	Output	
6	I2C Bus SMB Clock	Input / Output	
7	External Speaker (-)	Output	
8	I2C Bus SMB Data	Input / Output	

Note: Max rating for pin 1, 2, 3, 4, 7, 8 are 0.25A at 5V

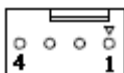
2.32 Front Panel Connector (FP2)



Pin	Signal	Signal Type	Signal Level
1	Power On Button(+)	Input	
2	Reset Switch (+)	Input	
3	Power On Button(-)	POWER	
4	Reset Switch (-)	POWER	
5	HDD LED (+)	POWER	
6	Power LED(+)	POWER	
7	HDD LED (-)	Output	
8	Power LED(-)	Output	

Note: Max rating for pin 1, 2, 3, 4, 7, 8 are 0.25A at 5V

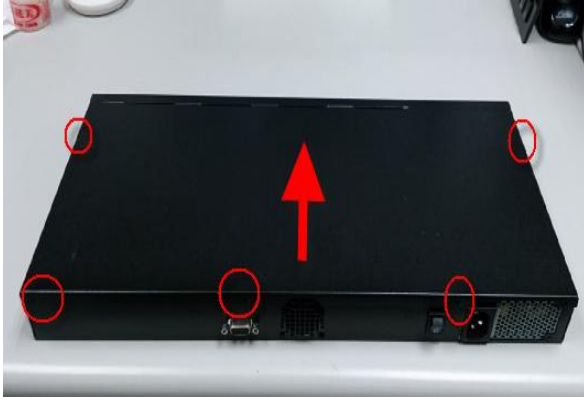
2.33 4-pin Fan Connector (SYS_FAN1)



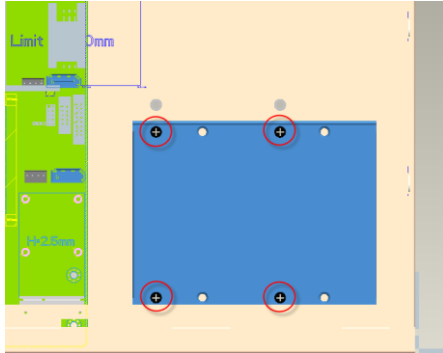
Pin	Signal	Signal Type	Signal Level
1	GND	GND	
2	FAN_PWR	PWR	+12V
3	FAN_TAC	Input	
4	FAN_CTL	Output	

2.34 Installing the 2.5" Hard Disk Drive

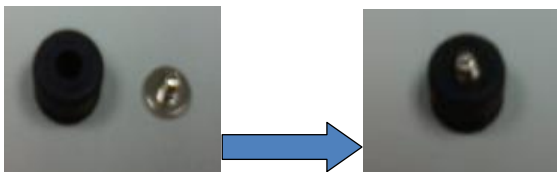
Step 1: Remove the cover



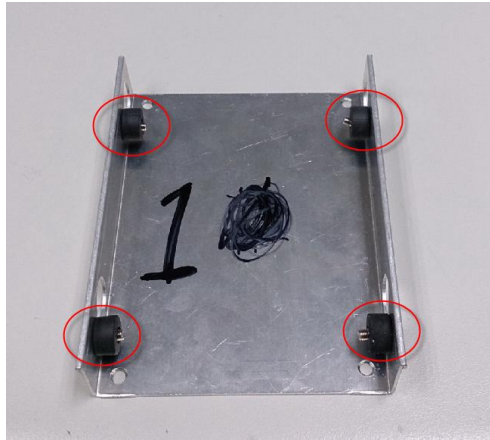
Step 2: Remove the HDD bracket



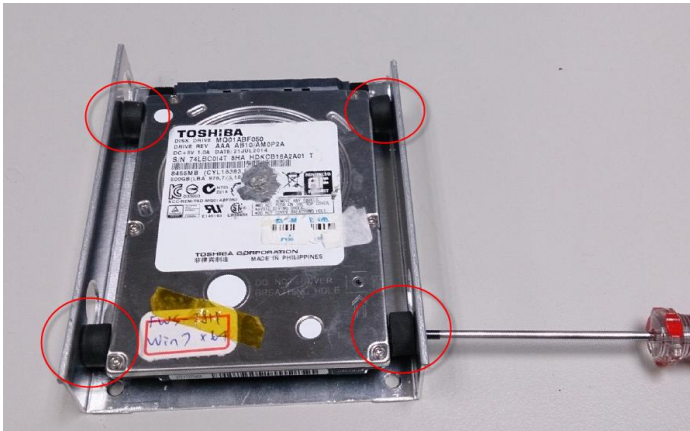
Step 3: Put the screws into cushions



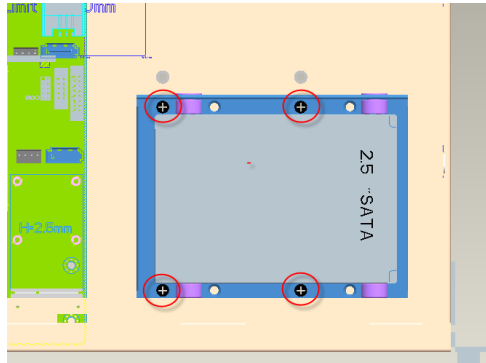
Step 4: Attach the assembled screws to HDD bracket



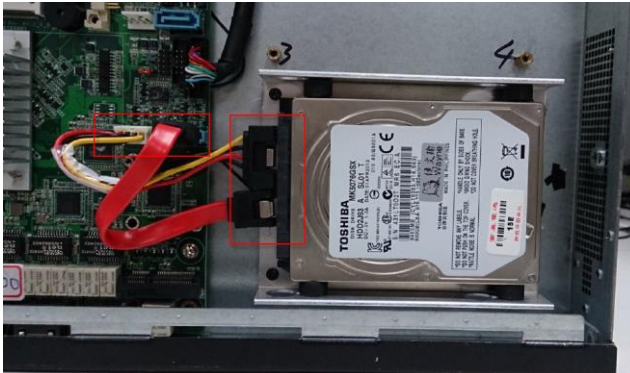
Step 5: Place the HDD inside the bracket, tighten the highlighted screws to secure



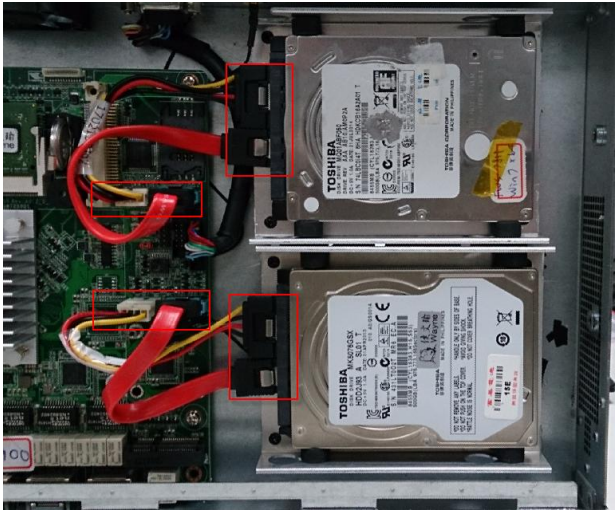
Step 6: Place the assembled HDD back to the chassis, tighten the highlighted screws to secure



Step 7: Connect the SATA cable and power cable to the HDD

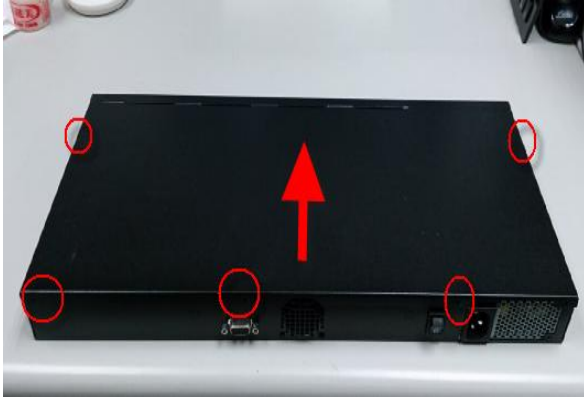


*Repeat the steps above to install a second 2.5" HDD, if any.

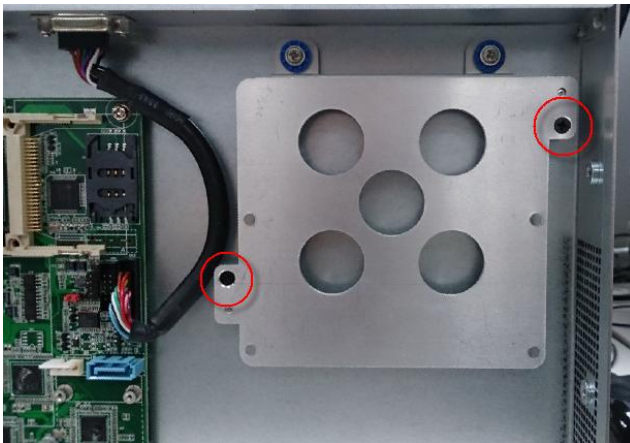


2.35 Installing the 3.5" Hard Disk Drive

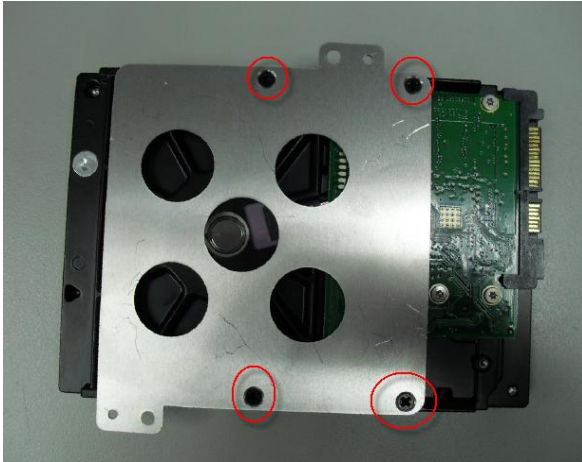
Step 1: Remove the cover



Step 2: Remove the bracket



Step 3: Secure the bracket to the underside of the hard disk



Step 4: Place assembled HDD back to the chassis, tighten the highlighted screws to secure.



Step 5: Connect the SATA cable and power cable to the HDD



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

**AMI
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.

System configuration verification

These routines check the current system configuration stored in the CMOS memory and BIOS NVRAM. If system configuration is not found or system configuration data error is detected, system will load optimized default and re-boot with this default system configuration automatically.

There are four situations in which you will need to setup system configuration:

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

The FWS-7250 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 AMI BIOS Setup

AMI 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 and BIOS NVRAM 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.

Main

Set the date, use tab to switch between date elements.

Advanced

Enable/disable boot option for legacy network devices.

Chipset

Host bridge parameters.

Boot

Enables/disables quiet boot option.

Security

Set setup administrator password.

Save & Exit

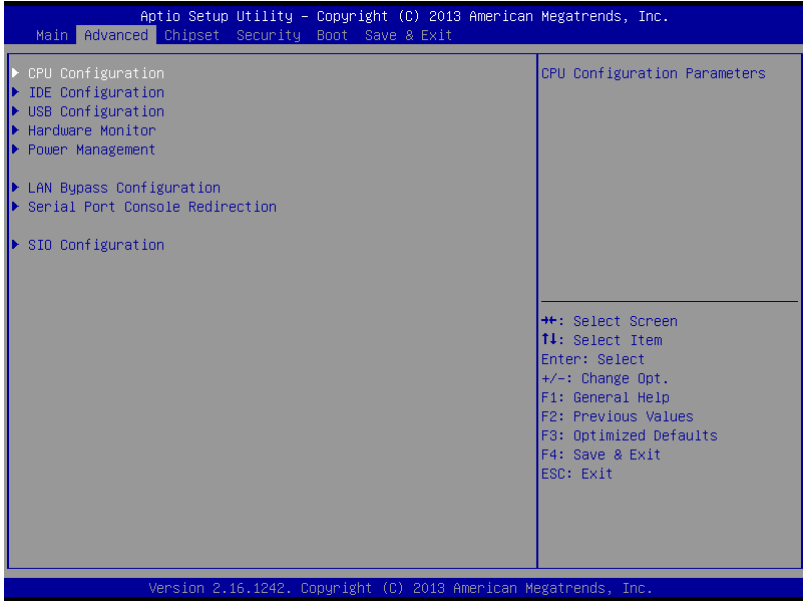
Exit system setup after saving the changes.

Setup Menu

Setup submenu: Main

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.	
Main Advanced Chipset Security Boot Save & Exit	
BIOS Information FWS-7250 R1.0 (K725AM10) (01/27/2015) x64	Set the Date. Use Tab to switch between Date elements.
BIOS Vendor Compliance	American Megatrends UEFI 2.3; PI 1.2
System Date System Time	[Tue 01/27/2015] [15:05:17]
Access Level	Administrator
	++ : Select Screen F1 : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.	

Setup submenu: Advanced



CPU Configuration

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Advanced

<p>CPU Configuration</p> <p>Intel(R) Atom(TM) CPU E3845 @ 1.91GHz</p> <p>CPU Signature 30679</p> <p>Microcode Patch 903</p> <p>BayTrail SoC D0 Stepping</p> <p>Max CPU Speed 1910 MHz</p> <p>Min CPU Speed 500 MHz</p> <p>Processor Cores 4</p> <p>Intel HT Technology Not Supported</p> <p>Intel VT-x Technology Supported</p> <p>L1 Data Cache 24 KB x 4</p> <p>L1 Code Cache 32 KB x 4</p> <p>L2 Cache 1024 kB x 2</p> <p>L3 Cache Not Present</p> <p>Intel Virtualization Technology [Enabled]</p> <p>EIST [Enabled]</p>	<p>When enabled, a WMM can utilize the additional hardware capabilities provided by Vanderpool Technology</p> <p>++: Select Screen !!: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</p>
---	--

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Options summary:

Intel Virtualization Technology	Disabled	Optimal Default, Failsafe Default
	Enabled	
EIST	Disabled	Optimal Default, Failsafe Default
	Enabled	

IDE Configuration (IDE)

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Advanced

IDE Configuration SATA Mode [AHCI Mode] SATA Port0 Not Present Compact Flash Not Present	Select IDE / AHCI ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
---	---

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Options summary:

SATA Mode	IDE Mode	Optimal Default, Failsafe Default
	AHCI Mode	

USB Configuration

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Advanced

<p>USB Configuration</p> <p>USB Devices: 1 Drive, 1 Keyboard, 1 Hub</p> <p>Legacy USB Support [Enabled]</p>	<p>Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
---	---

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Options summary:

Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS. AUTO option disables legacy support if no USB devices are connected		

Hardware Monitor

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Advanced

Pc Health Status		For En/Disable CPU FAN1 Smart Control
CPU Temperature	: +41 ℃	Enabled: FAN is running in accordance with user settings
SYS Temperature	: +38 ℃	Disabled: FAN is always running with full speed
CPU FAN	: N/A	
SYS FAN	: N/A	
VDCORE	: +0.900 V	
VMEM	: +1.368 V	
+12V	: +12.000 V	
+5V	: +5.020 V	
+1.8V	: +1.800 V	
5VSB	: +5.016 V	
VBAT	: +3.048 V	
CPU_FAN Smart Control	[Disabled]	
SYS_FAN Smart Control	[Disabled]	

++: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F2: Previous Values
 F3: Optimized Defaults
 F4: Save & Exit
 ESC: Exit

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Options summary:

CPU_FAN Smart Control	Disabled	Optimal Default, Failsafe Default
	Enabled	
CPU_FAN Smart Control Enable		
FAN Control Mode	Manual Mode	Optimal Default, Failsafe Default
	Automatic Mode	
Manual Mode		
PWM Duty	0-255	
Automatic Mode		
Spin PWM	0-255	
Off Control Temperature	0-127	
Start Control Temperature	0-127	
Full Speed Temperature	0-127	
PWM Slope	1-15	

SYS_FAN Smart Control	Disabled	Optimal Default, Failsafe Default
	Enabled	
SYS_FAN Smart Control Enable		
FAN Control Mode	Manual Mode	Optimal Default, Failsafe Default
	Automatic Mode	
Manual Mode		
PWM Duty	0-255	
Automatic Mode		
Spin PWM	0-255	
Off Control Temperature	0-127	
Start Control Temperature	0-127	
Full Speed Temperature	0-127	
PWM Slope	1-15	

Power Management

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Advanced

<p>Power Management</p> <p>Power Mode [ATX Type] AC Power Loss [Last State]</p> <p>Wake Configuration RTC wake system from S5 [Disabled]</p>	<p>Select power supply mode.</p> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
--	---

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Options summary:

Power Mode	ATX Type AT Type	Optimal Default, Failsafe Default
Select power supply mode.		
AC Power Loss	Last State Always On Always Off	Optimal Default, Failsafe Default
Select power state when power is re-applied after a power failure.		
RTC wake system from S5	Disabled Fixed Time Dynamic Time	Optimal Default, Failsafe Default
Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified		

LAN Bypass Configuration

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Advanced

<p>LAN Bypass Configuration</p> <p>LAN Bypass Status LED [LED OFF]</p> <p>LAN Bypass Kit 1 Configuration</p> <p>Mode for Power-on [PassTru]</p> <p>Mode for Power-off [PassTru]</p> <p>LAN Bypass Kit 2 Configuration</p> <p>Mode for Power-on [PassTru]</p> <p>Mode for Power-off [PassTru]</p> <p>WDT Configuration [System Reset]</p>	<p>Configure LAN Bypass Status LED.</p> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
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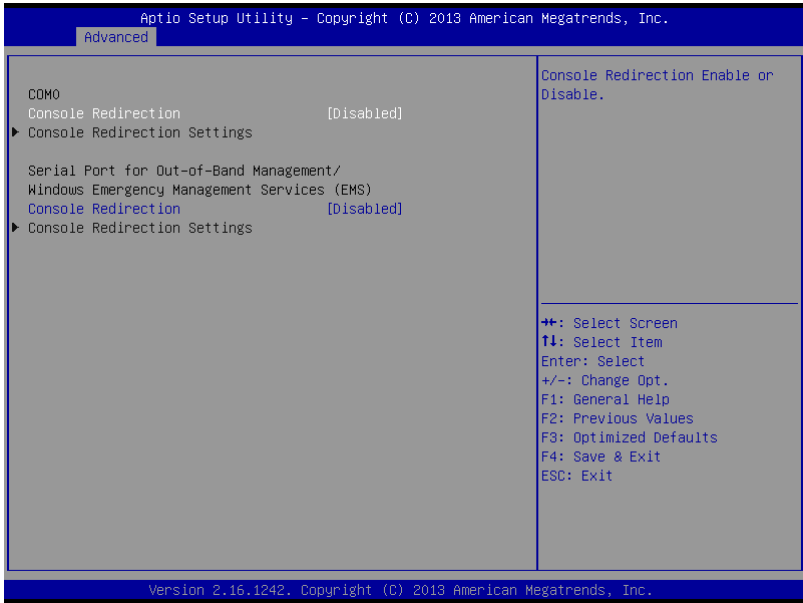
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Options summary:

LAN Bypass Status LED Configuration	LED OFF	Optimal Default, Failsafe Default
	RED LED ON	
	RED LED BLINK	
	RED LED FAST BLINK	
	GREEN LED ON	
	GREEN LED BLINK	
	GREEN LED FAST BLINK	
LAN Bypass Kit 1 Configuration		
Mode for power-on	PassTru	Optimal Default, Failsafe Default
	Bypass	
Mode for power-off	PassTru	Optimal Default, Failsafe Default
	Bypass	

LAN Bypass Kit 2 Configuration		
Mode for power-on	PassTru	Optimal Default, Failsafe Default
	Bypass	
Mode for power-off	PassTru	Optimal Default, Failsafe Default
	Bypass	
WDT Configuration	Force Bypass	Optimal Default, Failsafe Default
	System Reset	

Serial Port Console Redirection



Options summary:

COM0		
Console Redirection	Enable	Optimal Default, Failsafe Default
	Disable	
Windows Emergency Management Services(EMS)		
Console Redirection	Enable	Optimal Default, Failsafe Default
	Disable	

COM0 Console Redirection Settings

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Advanced

<p>COM0 Console Redirection Settings</p> <p>Terminal Type [ANSI] Bits per second [115200] Data Bits [8] Parity [None] Stop Bits [1] Flow Control [None] VT-UTF8 Combo Key Support [Enabled] Recorder Mode [Disabled] Resolution 100x31 [Disabled] Legacy OS Redirection Resolution [80x24] Putty KeyPad [VT100] Redirection After BIOS POST [Always Enable]</p>	<p>Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
--	--

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Options summary:

Terminal Type	VT100	Optimal Default, Failsafe Default
	VT100+	
	VT-UTF8	
	ANSI	
Bits per second	9600	Optimal Default, Failsafe Default
	19200	
	38400	
	57600	
	115200	
Data Bits	7	Optimal Default, Failsafe Default
	8	

Parity	None	Optimal Default, Failsafe Default
	Even	
	Odd	
	Mark	
	Space	
Stop Bits	1	Optimal Default, Failsafe Default
	2	
Flow Control	None	Optimal Default, Failsafe Default
	Hardware RTS/CTS	
VT-UTF8 Combo Key Support	Disable	Optimal Default, Failsafe Default
	Enable	
Recorder Mode	Disable	Optimal Default, Failsafe Default
	Enable	
Resolution 100x31	Disable	Optimal Default, Failsafe Default
	Enable	
Legacy OS Redirection Resolution	80x24	Optimal Default, Failsafe Default
	80x25	
Putty Keypad	VT100	Optimal Default, Failsafe Default
	LINUX	
	XTERMR6	
	SCO	
	VT400	
Redirection After BIOS POST	Always Enable	Optimal Default, Failsafe Default
	BootLoader	

Console Redirection Settings

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Advanced

Out-of-Band Mgmt Port	COM0	VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation.
Terminal Type	[VT-UTF8]	
Bits per second	[115200]	
Flow Control	[None]	
Data Bits	8	
Parity	None	
Stop Bits	1	

++: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F2: Previous Values
 F3: Optimized Defaults
 F4: Save & Exit
 ESC: Exit

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Options summary:

Terminal Type	VT100	Optimal Default, Failsafe Default
	VT100+	
	VT-UTF8	
	ANSI	
Bits per second	9600	Optimal Default, Failsafe Default
	19200	
	57600	
	115200	
Flow Control	None	Optimal Default, Failsafe Default
	Hardware RTS/CTS	
	Software Xon/Xoff	

SIO Configuration

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Advanced

AMI SIO Driver Version : A5.05.03

Super IO Chip Logical Device(s) Configuration

- ▶ [*Active*] Serial Port 1
- ▶ [*Active*] Serial Port 2
- ▶ [*Active*] Parallel Port
- ▶ [*Active*] PS2 Keyboard
- ▶ [*Active*] PS2 Mouse

WARNING: Logical Devices state showing at the left side of the controll, reflects current Logical Device state. Cahnges made during Setup Session will be shown after you restart the system.

View and Set Basic properties of the SIO Logical device. Like IO Base, IRQ Range, DMA Channel and Device Mode.

++: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F2: Previous Values
 F3: Optimized Defaults
 F4: Save & Exit
 ESC: Exit

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Serial Port 1 Configuration

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Advanced

<p>Serial Port 1 Configuration</p> <p>Use This Device [Enabled]</p> <p>Logical Device Settings: Current : IO=3F8h; IRQ=4;</p> <p>Possible: [Use Automatic Settings]</p> <p>WARNING: disabling SIO Logical Devices may have unwanted side effects. PROCEED WITH CAUTION.</p>	<p>Enable or Disable this Logical Devicie.</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
---	--

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Options summary:

Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=3F8; IRQ=4;	
	IO=2F8; IRQ=3;	
Select an optimal setting for IO device		

Serial Port 2 Configuration

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Advanced

<p>Serial Port 2 Configuration</p> <p>Use This Device [Enabled]</p> <p>Logical Device Settings: Current : IO=2F8h; IRQ=3;</p> <p>Possible: [Use Automatic Settings]</p> <p>WARNING: disabling SIO Logical Devices may have unwanted side effects. PROCEED WITH CAUTION.</p>	<p>Enable or Disable this Logical Devcie.</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
---	---

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Options summary:

Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2F8; IRQ=3;	
	IO=3F8; IRQ=4;	
Select an optimal setting for IO device		

Parallel Port Configuration

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Advanced

<p>Parallel Port Configuration</p> <p>Use This Device [Enabled]</p> <p>Logical Device Settings: Current : IO=378h; IRQ=5;</p> <p>Possible: [Use Automatic Settings] Mode : [Standard Parallel P...]</p> <p>WARNING: disabling SIO Logical Devices may have unwanted side effects. PROCEED WITH CAUTION.</p>	<p>Enable or Disable this Logical Devcie.</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
---	---

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Options summary:

Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=378; IRQ=5;	
	IO=378; IRQ=5,6,7,9,10,11,12	
	IO=278; IRQ=5,6,7,9,10,11,12	
Select an optimal setting for IO device		
Mode	Standard Parallel Port mode (SPP)	
	EPP Mode	
	ECP Mode	
	EPP mode & ECP mode	

PS2 Keyboard Configuration

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Advanced

<p>PS2 Keyboard Configuration</p> <p>Use This Device [Enabled]</p> <p>Logical Device Settings: Current : IO=60h; IO=64h; IRQ=1;</p> <p>Possible: [Use Automatic Settings]</p> <p>WARNING: disabling SIO Logical Devices may have unwanted side effects. PROCEED WITH CAUTION.</p>	<p>Enable or Disable this Logical Devicie.</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
---	--

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Options summary:

Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=60; IO=64; IRQ=1;	
Select an optimal setting for IO device		

PS2 Mouse

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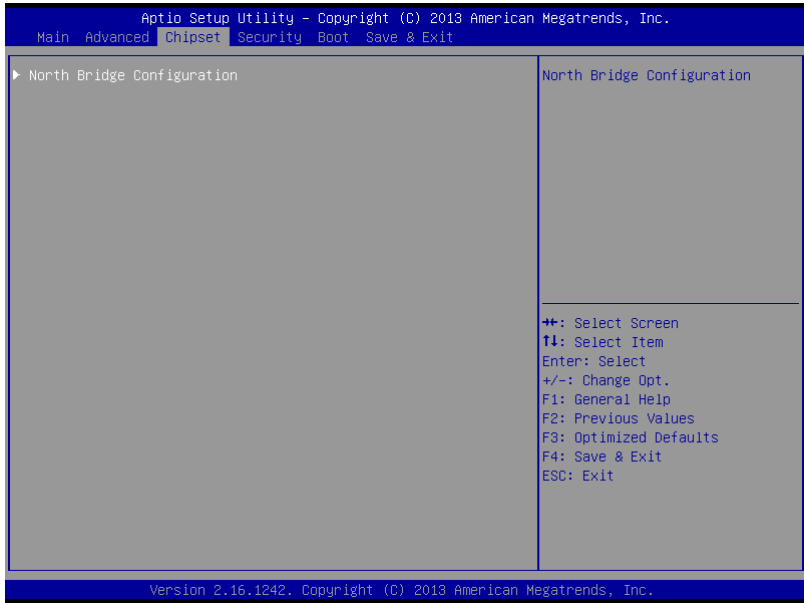
Advanced

<p>PS2 Mouse Configuration</p> <p>Use This Device [Enabled]</p> <p>Logical Device Settings: Current : IRQ=12;</p> <p>Possible: [Use Automatic Settings]</p> <p>WARNING: disabling SIO Logical Devices may have unwanted side effects. PROCEED WITH CAUTION.</p>	<p>Enable or Disable this Logical Devcie.</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
---	---

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Options summary:

Use This Device	Disabled	
	Enabled	
Optimal Default, Failsafe Default		
En/Disable Serial Port (COM)		
Possible:	Use Automatic Settings	
	IRQ=12;	
Optimal Default, Failsafe Default		
Select an optimal setting for IO device		

Setup submenu: Chipset

North Bridge

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Chipset

North Bridge Configuration	Display Control Configuration
Memory Information	
Total Memory	4096 MB (LPDDR3)
Memory Slot0	4096 MB (LPDDR3)
Memory Slot1	Not Present
▶ Display Control Configuration	
	++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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Display Control Configuration

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Chipset

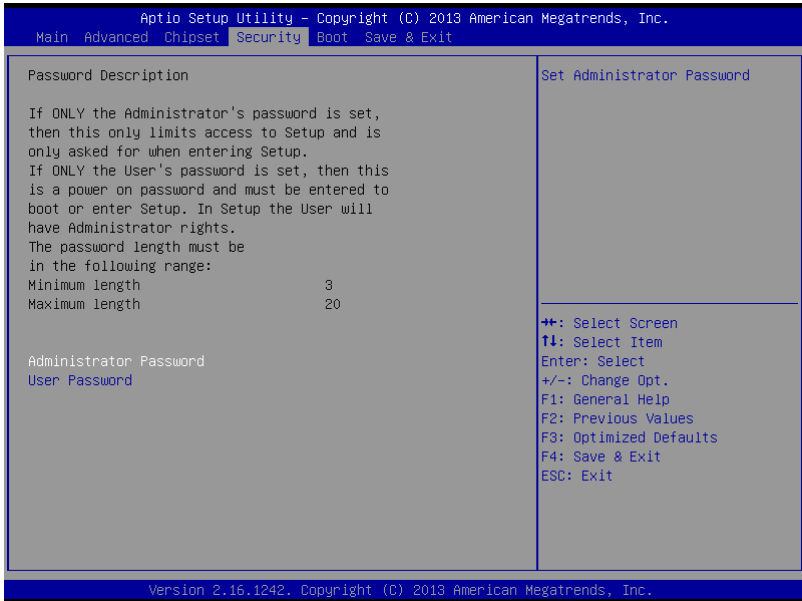
Display Control Configuration		Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
DVMT Pre-Allocated	[64M]	++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
DVMT Total Gfx Mem	[256MB]	

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Options summary:

DVMT Pre-Allocated	64M	Optimal Default, Failsafe Default
	96M	
	128M	
	160M	
	192M	
	224M	
	256M	
	288M	
	320M	
	352M	
	384M	
	416M	
	448M	
480M		
512M		
DVMT Total Gfx Mem	128MB	Optimal Default, Failsafe Default
	256MB	
	Max	

Security



Change User/Supervisor Password

You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

If you highlight these items and press Enter, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

Removing the Password

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

Setup submenu: Boot

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Main Advanced Chipset Security **Boot** Save & Exit

<p>Boot Configuration</p> <p>Quiet Boot [Enabled]</p> <p>Option ROM Messages [Force BIOS]</p> <p>Launch PXE OpROM [Disabled]</p> <p>Boot Option Priorities</p> <p>Boot Option #1 [UEFI: Lexar USB Fla...]</p> <p>Boot Option #2 [Lexar USB Flash Dri...]</p> <p>Boot Option #3 [UEFI: Built-in EFI ...]</p> <p>Hard Drive BBS Priorities</p>	<p>Enables or disables Quiet Boot option</p> <hr/> <p> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
--	--

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Options summary:

Quiet Boot	Disabled	Default
	Enabled	
En/Disable showing boot logo.		
Option ROM Messages	Force BIOS	Default
	Keep Current	
Set display mode for Option ROM		
Launch PXE OpROM	Disabled	Default
	Enabled	
En/Disable Legacy Boot Option		

BBS Priorities

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Boot		
Boot Option #1	[Lexar USB Flash Dri...]	Sets the system boot order
		++ : Select Screen ↑↓ : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Setup submenu: Exit



Chapter

4

**Driver
Installation**

The FWS-7250 comes with a driver disk that contains all drivers and utilities you need to setup your product.

Insert the disk and the installation guide will start automatically. If it doesn't, 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 Graphics Driver

Step 3 – Install LAN Driver

Step 4 – Install xHCI Driver

Step 5 – Install Intel Sideband Fabric Device Driver

Please read instructions below for further details.

4.1 Installation

Insert the FWS-7250 DVD-ROM into the DVD-ROM drive and install the drivers from Step 1 to Step 5 in order.

Step 1 – Install Chipset Driver

1. Open the **Step 1 - Chipset** folder and open the **SetupChipset.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

Step 2 – Install VGA Driver

1. Open on the **Step 2 – Graphics** folder and select your OS
2. Open the **Setup.exe** located in the folder
3. Follow the instructions
4. Driver will be installed automatically

Step 3 – Install Network Driver

1. Click on the **Step 3 – Network** folder and select your OS
2. Open the **.exe** file located in the folder
3. Follow the instructions
4. Driver will be installed automatically

Step 4 – Install xHCI Driver

1. Open the **Step 4 - xHCI** folder and open the **Setup.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

Step 5 – Install Intel Sideband Fabric Device Driver

1. Open the **Step 5 – Intel Sideband Fabric Device Driver** folder and open the **Setup.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

Appendix

A

Programming the Watchdog Timer

A.1 Watchdog Timer Initial Program

Table 1 : SuperIO relative register table		
	Default Value	Note
Index	0x2E ^(Note1)	SIO MB PnP Mode Index Register 0x2E or 0x4E
Data	0x2F ^(Note2)	SIO MB PnP Mode Data Register 0x2F or 0x4F

Table 2 : Watchdog relative register table					
	LDN	Register	BitNum	Value	Note
Timer Counter	0x07 ^(Note3)	0x73 ^(Note4)		(Note24)	Time of watchdog timer (0~255) This register is byte access
Counting Unit	0x07 ^(Note5)	0x72 ^(Note6)	7 ^(Note7)	1 ^(Note8)	Select time unit. 1: second 0: minute
Watchdog Enable (KRST)	0x07 ^(Note9)	0x72 ^(Note10)	6 ^(Note11)	1 ^(Note12)	0: Disable 1: Enable
Timeout Status	0x07 ^(Note13)	0x71 ^(Note14)	0 ^(Note15)	1	1: Clear timeout status

```
*****
// SuperIO relative definition (Please reference to Table 1)
#define byte SIOIndex //This parameter is represented from Note1
#define byte SIOData //This parameter is represented from Note2
#define void IOWriteByte(byte IOPort, byte Value);
#define byte IOReadByte(byte IOPort);
// Watch Dog relative definition (Please reference to Table 2)
#define byte TimerLDN //This parameter is represented from Note3
#define byte TimerReg //This parameter is represented from Note4
#define byte TimerVal // This parameter is represented from Note24
#define byte UnitLDN //This parameter is represented from Note5
#define byte UnitReg //This parameter is represented from Note6
#define byte UnitBit //This parameter is represented from Note7
#define byte UnitVal //This parameter is represented from Note8
#define byte EnableLDN //This parameter is represented from Note9
#define byte EnableReg //This parameter is represented from Note10
#define byte EnableBit //This parameter is represented from Note11
#define byte EnableVal //This parameter is represented from Note12
#define byte StatusLDN // This parameter is represented from Note13
#define byte StatusReg // This parameter is represented from Note14
#define byte StatusBit // This parameter is represented from Note15
*****
```

```
*****
VOID Main() {
    // Procedure : AaeonWDTConfig
    // (byte)Timer : Time of WDT timer.(0x00~0xFF)
    // (boolean)Unit : Select time unit(0: second, 1: minute).
    AaeonWDTConfig();

    // Procedure : AaeonWDTEnable
    // This procedure will enable the WDT counting.
    AaeonWDTEnable();
}
*****
```

```
*****
// Procedure : AaeonWDTEnable
VOID AaeonWDTEnable (){
    WDTEnableDisable(EnableLDN, EnableReg, EnableBit, 1);
}

// Procedure : AaeonWDTConfig
VOID AaeonWDTConfig (){
    // Disable WDT counting
    WDTEnableDisable(EnableLDN, EnableReg, EnableBit, 0);
    // Clear Watchdog Timeout Status
    WDTClearTimeoutStatus();
    // WDT relative parameter setting
    WDTParameterSetting();
}

VOID WDTEnableDisable(byte LDN, byte Register, byte BitNum, byte Value){
    SIOBitSet(LDN, Register, BitNum, Value);
}

VOID WDTParameterSetting(){
    // Watchdog Timer counter setting
    SIOByteSet(TimerLDN, TimerReg, TimerVal);
    // WDT counting unit setting
    SIOBitSet(UnitLDN, UnitReg, UnitBit, UnitVal);
}

VOID WDTClearTimeoutStatus(){
    SIOBitSet(StatusLDN, StatusReg, StatusBit, 1);
}
*****
```

```
VOID SIOEnterMBPnPMode(){
    Switch(SIOIndex){
        Case 0x2E:
            IOWriteByte(SIOIndex, 0x87);
            IOWriteByte(SIOIndex, 0x01);
            IOWriteByte(SIOIndex, 0x55);
            IOWriteByte(SIOIndex, 0x55);
            Break;
        Case 0x4E:
            IOWriteByte(SIOIndex, 0x87);
            IOWriteByte(SIOIndex, 0x01);
            IOWriteByte(SIOIndex, 0x55);
            IOWriteByte(SIOIndex, 0xAA);
            Break;
    }
}

VOID SIOExitMBPnPMode(){
    IOWriteByte(SIOIndex, 0x02);
    IOWriteByte(SIOData, 0x02);
}

VOID SIOSelectLDN(byte LDN){
    IOWriteByte(SIOIndex, 0x07); // SIO LDN Register Offset = 0x07
    IOWriteByte(SIOData, LDN);
}
```

VOID **SIOBitSet(byte LDN, byte Register, byte BitNum, byte Value){**

Byte TmpValue;

SIOEnterMBPnPMode();

SIOSelectLDN(byte LDN);

IOWriteByte(SIOIndex, Register);

TmpValue = IOReadByte(SIOData);

TmpValue &= ~(1 << BitNum);

TmpValue |= (Value << BitNum);

IOWriteByte(SIOData, TmpValue);

SIOExitMBPnPMode();

}

VOID **SIOByteSet(byte LDN, byte Register, byte Value){**

SIOEnterMBPnPMode();

SIOSelectLDN(LDN);

IOWriteByte(SIOIndex, Register);

IOWriteByte(SIOData, Value);

SIOExitMBPnPMode();

}
