

FWB-2250

Networking Motherboard

CompactFlash™ Socket

4 LAN Ports

2 USB 2.0, 1 USB 3.0

1 COM for Console

Copyright Notice

This document is copyrighted, 2015. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEON assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein. AAEON reserves the right to make changes in the product design without notice to its users.

Acknowledgments

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

- Intel® and Atom™ are trademarks of Intel® Corporation.
- AML is a trademark of American Megatrends Inc.
- CompactFlash™ is a trademark of the Compact Flash Association.
- Microsoft Windows® is a registered trademark of Microsoft Corp.

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

Caution

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

Packing List

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

- FWB-2250
- DVD-ROM for manual (in PDF format)
- 40W Power Adapter

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

China RoHS Requirements

产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

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	×	○	○	○	○	○
<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: 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。</p>						

Contents

Chapter 1 General Information

1.1 Introduction.....	1-2
1.2 Features	1-3
1.3 Specifications	1-4
1.4 General System Information	1-7

Chapter 2 Quick Installation Guide

2.1 Safety Precautions	2-2
2.2 Dimensions.....	2-3
2.3 Jumpers and Connectors	2-5
2.4 List of Jumpers.....	2-7
2.5 List of Connectors	2-8
2.6 Setting Jumpers	2-10
2.7 Auto PWRBTN Selection (JP1).....	2-11
2.8 HDD POWER (CN1, CN4)	2-11
2.9 CMOS Setting Selection (CN2).....	2-11
2.10 RTCTEST Setting Selection (CN3).....	2-11
2.11 CF Power Selection (CN6).....	2-11
2.12 VGA Connector (CN28)	2-12
2.13 PS2 Header (CN29)	2-12
2.14 CPU FAN (CPU FAN)	2-12

Chapter 3 AMI BIOS Setup

3.1 System Test and Initialization	3-2
--	-----

3.2 AMI BIOS Setup	3-3
--------------------------	-----

Chapter 4 Driver Installation

4.1 Installation	4-3
------------------------	-----

Appendix A Programming the Watchdog Timer

A.1 Watchdog Timer Initial Program	A-2
--	-----

Appendix B I/O Information

B.1 I/O Address Map	B-2
B.2 Memory Address Map.....	B-3
B.3 IRQ Mapping Chart	B-4

Appendix C Standard Firewall Platform Setting

C.1 Standard Firewall Platform Setting	C-2
C.2 Status LED Sample Code.....	C-3
C.3 LAN Bypass Mode Sample Code	C-6
C.4 Console Redirection	C-10

Chapter

1

General Information

1.1 Introduction

FWB-2250 adopts the Intel® Atom™ E3815/E3827/Celeron® J1900 processor SoC. The system memory features two 204-pin single channel DDR3L 1066/1333 SODIMM up to 8GB. It deploys four Gigabit Ethernet LAN ports with optional one pair with LAN bypass function.

In addition, it offers flexible expansion with network products and features one optional MiniCard socket, two USB 2.0 ports and one USB 3.0 port, and one RJ-45 console port. The console port deploys console re-direction that increases the network security via remote control. All of these designs provide for a more user-friendly solution.

1.2 Features

- 4-LAN-port Networking Motherboard
- Onboard Intel® Atom™ E3815/E3827/Celeron® J1900 Processor SoC
- 204-pin Single Channel DDR3L 1066/1333 SODIMM, up to 8GB
- 10/100/1000Base-TX Ethernet Port x 4 (up to one pair LAN bypass)
- CompactFlash™ Socket x 1
- RJ-45 Console x 1, USB 2.0 x 2, USB 3.0 x 1
- DC 12V
- MiniCard Socket x 1

1.3 Specifications

System

Dimensions	110mm x 145mm (4.33" x 5.71")
Processor	Intel® Atom™ E3815 1.46 GHz (Single Core) Intel® Atom™ E3827 1.75 GHz (Dual Core) Intel® Celeron® J1900 2.0 GHz (Quad Core)
System Memory	204-pin DDR3L 1066/1333 SODIMM x 2, up to 8GB
Ethernet	Intel® Ethernet Controller I211-AT, Gigabit Ethernet x 4 (1 pair bypass, optional)
BIOS	AMI BIOS
Serial ATA	CompactFlash™ x 1
Expansion Interface	MiniCard socket x 1
Watchdog Timer	1~255 steps by software programming
MTBF	90,000
OS Support	Windows® 7 or above, Linux

Display

Chipset	Intel® Atom™ E3815/E3827/Celeron® J1900
Graphic Engine	Intel® HD
Resolution	2560x1600
Output Interface	Reserved VGA internal box header

I/O

LAN Port	RJ-45 Port x 4
-----------------	----------------

Serial Port	RJ-45 Console x 4
Keyboard & Mouse	Reserved pin header
USB	USB 2.0 Type A on I/O side x 2 USB 3.0 x 1
LED	Power LED x 1, Status LED x 1, HDD Active x 1, LAN LED x 8, Bypass LED x 1 (Optional)
Others	Power on/off x 1, Software Programmable Reset x 1

Environment

Operating Temperature	0°C ~ 60°C (32°F ~ 140°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Operating Humidity	0%~90% @RH, non-condensing

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!



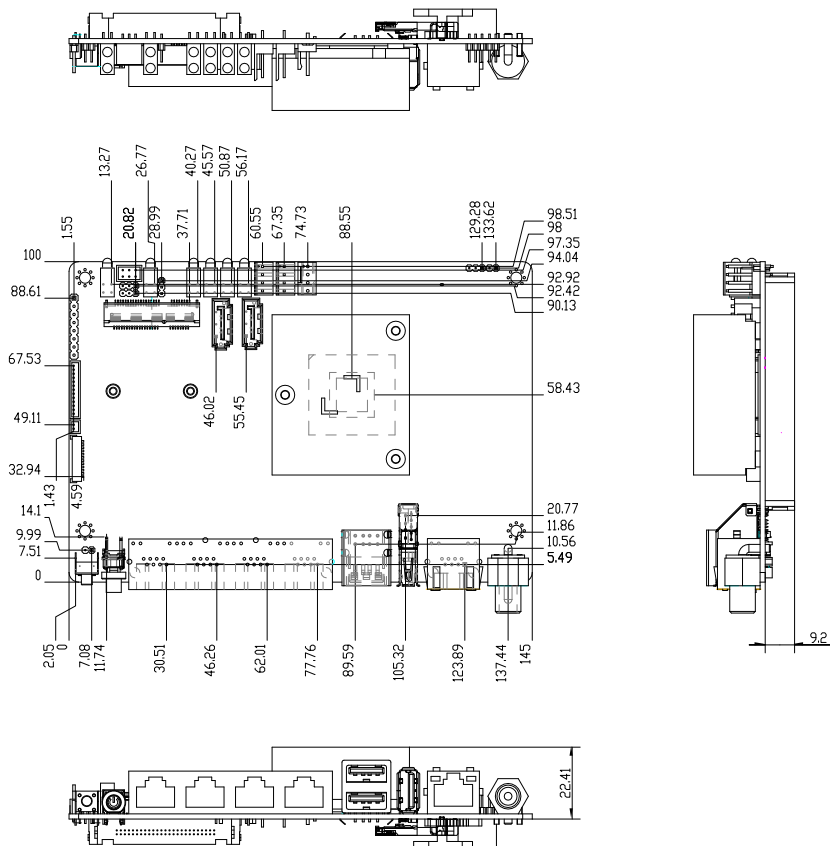
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

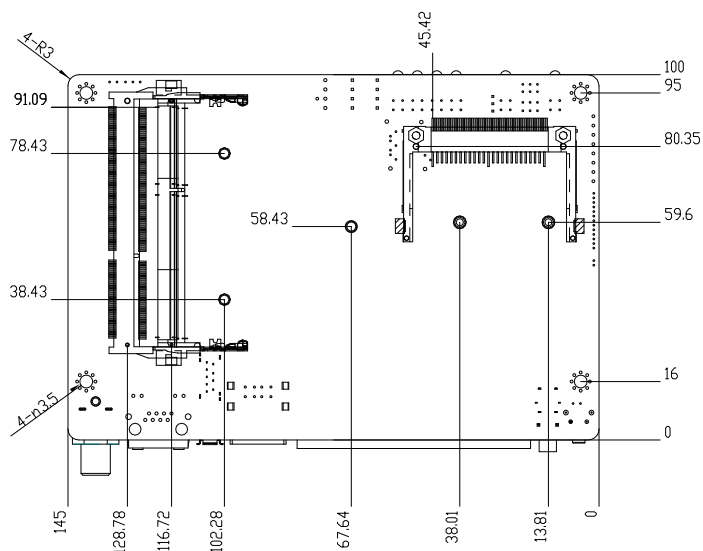
Caution!



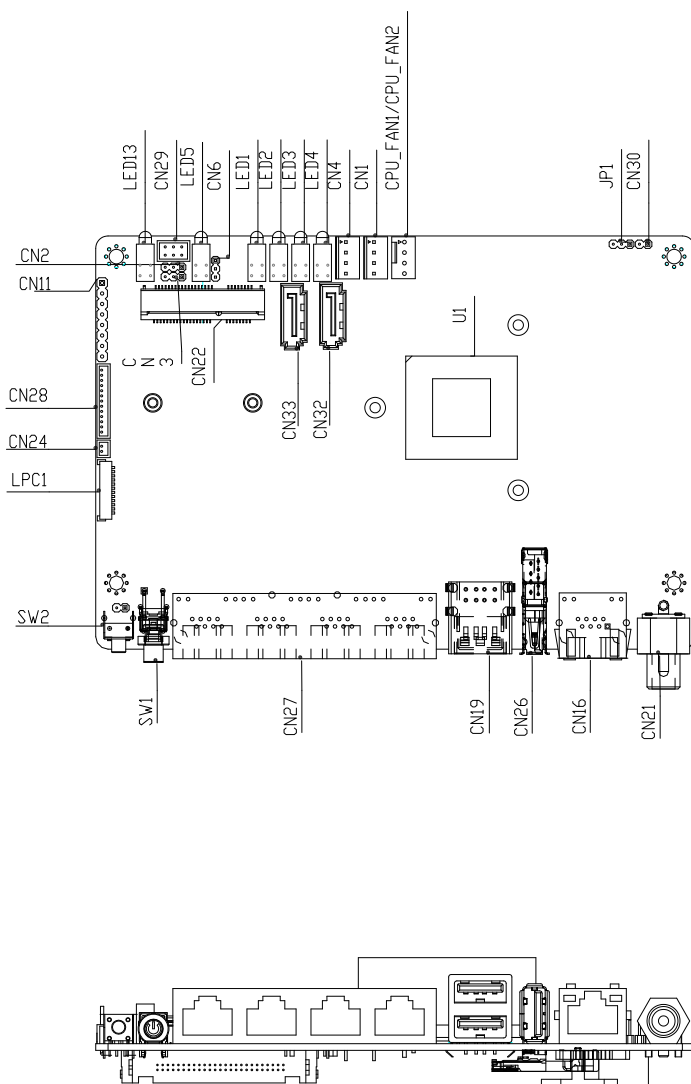
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

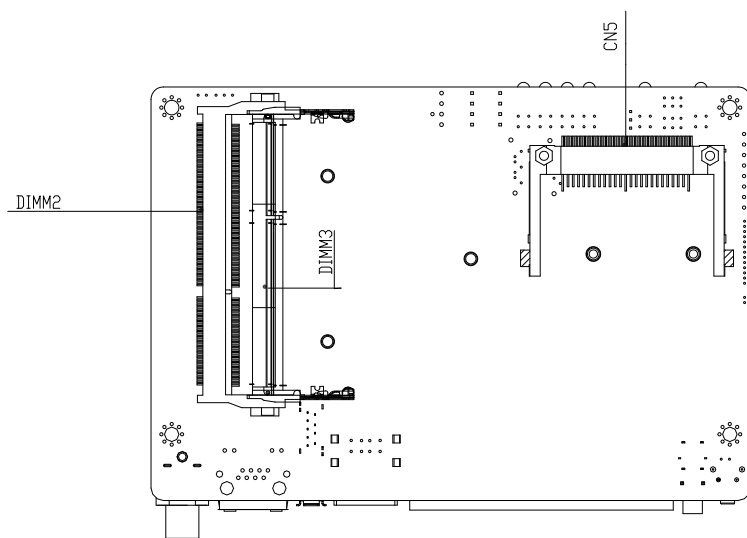
2.2 Dimensions





2.3 Jumpers and Connectors





2.4 List of Jumpers

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

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

Label	Function
CN2	Clear CMOS
CN3	RTC TEST
CN6	CF Power Selection
JP1	Auto Power Button
CN30	Power Button
CN31	Software Reset

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	HDD POWER
CN4	HDD POWER
CN5	CF SOCKET
CN16	COM1
CN19	2*USB2.0
CN21	+12V POWER IN
CN22	Mini-card socket
CN24	Battery
CN26	USB3.0+USB2.0
CN27	LAN1~4
CN28	VGA Connector
CN29	PS2
CN32, CN33	SATA Connector
DIMM2	DDR3L SODIMM
DIMM3	DDR3L SODIMM
SW1	Power Button
SW2	Software Reset
SATA1	SATA Connector
LED13	POWER+HDD LED Instruction
LED5	BYPASS+STATE LED Instruction

LED1	LAN1 LED Instruction
------	----------------------

LED2	LAN2 LED Instruction
------	----------------------

LED3	LAN3 LED Instruction
------	----------------------

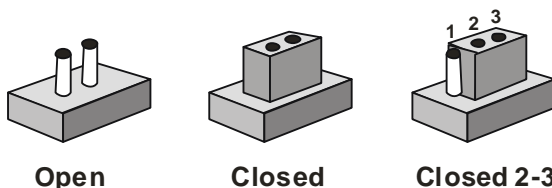
LED4	LAN4 LED Instruction
------	----------------------

CPU_FAN	FAN
---------	-----

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 PWRBTN Selection (JP1)

JP1	Function
1-2	Don't use Auto PWRBTN (Default)
2-3	Use Auto PWRBTN

2.8 HDD POWER (CN1, CN4)

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

2.9 CMOS Setting Selection (CN2)

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

2.10 RTCTEST Setting Selection (CN3)

CN3	Function
1-2	RTCTEST
2-3	Normal (Default)

2.11 CF Power Selection (CN6)

CN6	Function
1-2	5V
2-3	3.3V (Default)

2.12 VGA Connector (CN28)

Pin	Signal	Pin	Signal
1	VS	2	HS
3	GND	4	SCL
5	SDA	6	GND
7	BLUE	8	GND
9	GREEN	10	GND
11	RED	12	GND
13	5V		

2.13 PS2 Header (CN29)

Pin	Signal	Pin	Signal
1	KDAT	2	KCLK
3	GND	4	+5V
5	MDAT	6	KCLK

2.14 CPU FAN (CPU FAN)

Pin	Signal	Pin	Signal
1	GND	2	+12V
3	FANTAC	4	FANCONTROL

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 FWB-2250 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

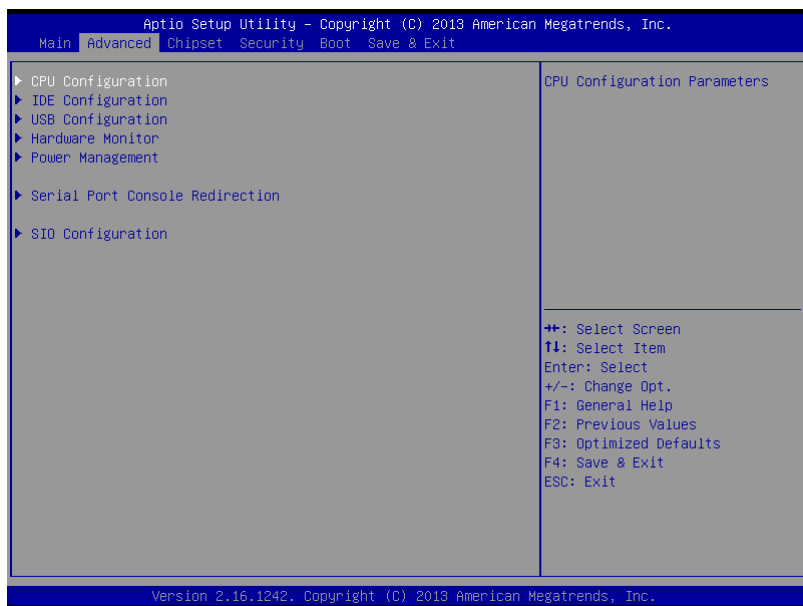
Power on the computer and press or <F2> immediately. This will allow you to enter Setup.

Setup Menu

Setup submenu: Main

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.	
Main Advanced Chipset Security Boot Save & Exit	
BIOS Information	Set the Date. Use Tab to switch between Date elements.
FWS-2250 R1.0 (K225AM10) (06/16/2014) x64	
BIOS Vendor	American Megatrends
Compliance	UEFI 2.3; PI 1.2
System Date	[Thu 07/03/2014]
System Time	[13:14:49]
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 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.	

Setup submenu: Advanced



CPU Configuration

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.

Advanced

CPU Configuration		When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology
Intel(R) Atom(TM) CPU E3826 @ 1.46GHz		
CPU Signature	30673	
Microcode Patch	31e	
BayTrail SoC	B3 Stepping	
Max CPU Speed	1460 MHz	
Min CPU Speed	533 MHz	
Processor Cores	2	
Intel HT Technology	Not Supported	
Intel VT-x Technology	Supported	
L1 Data Cache	24 KB x 2	
L1 Code Cache	32 KB x 2	
L2 Cache	512 KB x 1	
L3 Cache	Not Present	
Intel Virtualization Technology	[Enabled]	
EIST	[Enabled]	

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

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

Options summary:

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

IDE Configuration (IDE)

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.

Advanced

<p>IDE Configuration</p> <p>SATA Mode [AHCI Mode]</p> <p>SATA Port0 Not Present</p> <p>Compact Flash Not Present</p>	<p>Select IDE / AHCI</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>
--	--

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

Options summary:

SATA Mode	IDE Mode	
	AHCI Mode	Optimal Default, Failsafe Default

USB Configuration

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.

Advanced

USB Configuration USB Devices: 1 Drive, 1 Keyboard, 1 Mouse, 1 Hub Legacy USB Support [Enabled]	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.
---	---

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

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

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		
Device Name (Emulation Type)	Auto	Optimal Default, Failsafe Default
	Floppy	
	Forced FDD	
	Hard Disk	
	CDROM	
If Auto. USB devices less than 530MB will be emulated as Floppy and remaining as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD(Ex. ZIP drive)		
USB Port 0/1 function routing	FCH USB port 8/9	Optimal Default, Failsafe Default
	FCH USB port 0/1	

Hardware Monitor

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.

Advanced

Pc Health Status CPU Temperature : +40 °C SYS Temperature : +39 °C CPU FAN : N/A VCORE : +0.792 V 1.35V : +1.368 V 12V : +11.856 V 5V : +4.980 V 1.8V : +1.812 V 5VSB : +4.968 V VBAT : +3.096 V CPU_FAN Smart Control [Disabled]		For En/Disable CPU FAN1 Smart Control Enabled: FAN is running in accordance with user settings Disabled: FAN is always running with full speed ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
---	--	--

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

Options summary:

CPU_FAN Smart Control	Disabled	Optimal Default, Failsafe Default
	Enabled	

Power Management

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.

Advanced

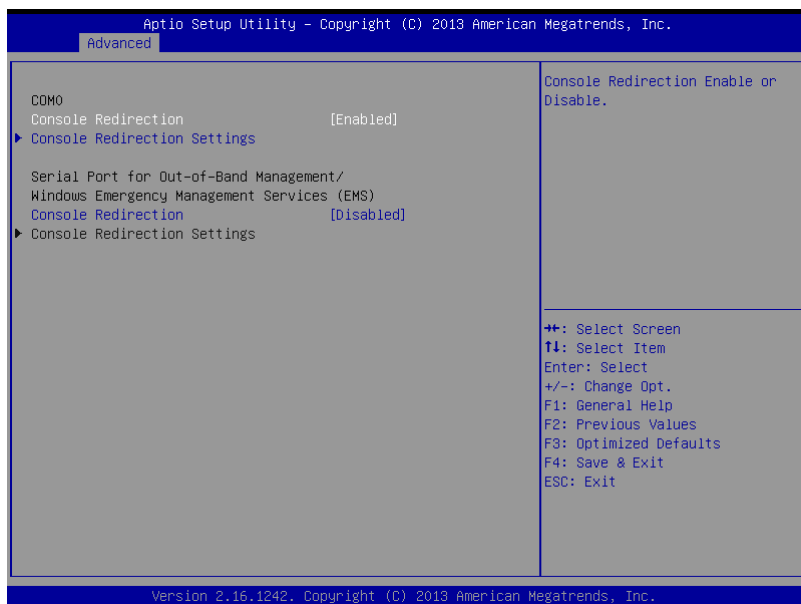
Power Management Power Mode [ATX Type] Restore AC Power Loss [Last State] Wake Configuration	Select power supply mode. ++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
---	---

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

Options summary:

Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
Select power supply mode.		
Restore on Power Loss	Last State	Optimal Default, Failsafe Default
	Power On	
	Power Off	
Select power state when power is re-applied after a power failure.		

Serial Port Console Redirection



Options summary:

Console Redirection	Disabled	Optimal Default, Failsafe Default
	Enabled	

SIO Configuration



Serial Port Configuration

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.

Advanced

<p>Serial Port 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 Devcie.</p>
---	---

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

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

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		

PS2 Keyboard

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.

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 Devcie.</p>
---	---

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

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

Options summary:

Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=60h; IO=64h; IRQ=1;	

PS2 Mouse

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.

Advanced

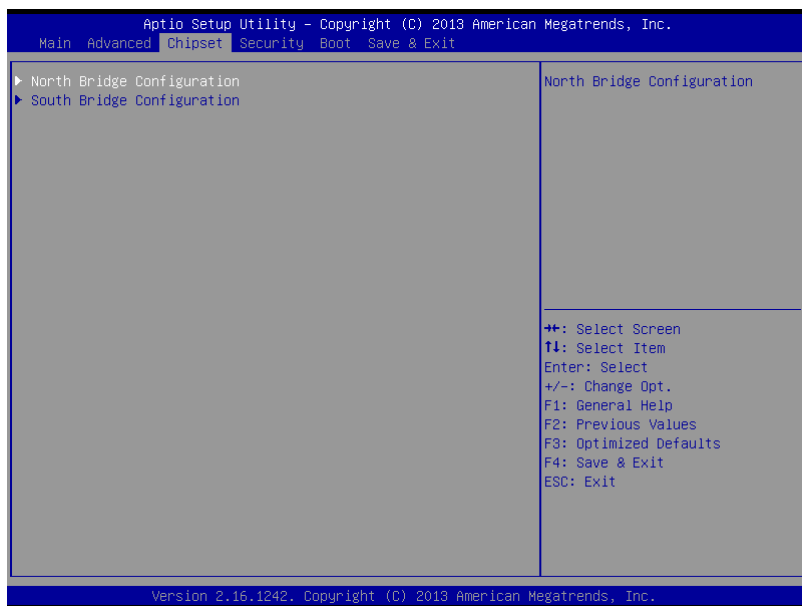
<p>PS2 Mouse Configuration</p> <p>Use This Device [Enabled]</p> <p>Logical Device Settings: Current : IRQ=12;</p> <p>Possible: [Use Automatic Settings]</p> <p>WARNING: disabling SIO Logical Devices may have unwanted side effects. PROCEED WITH CAUTION.</p>	<p>Enable or Disable this Logical Device.</p>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

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

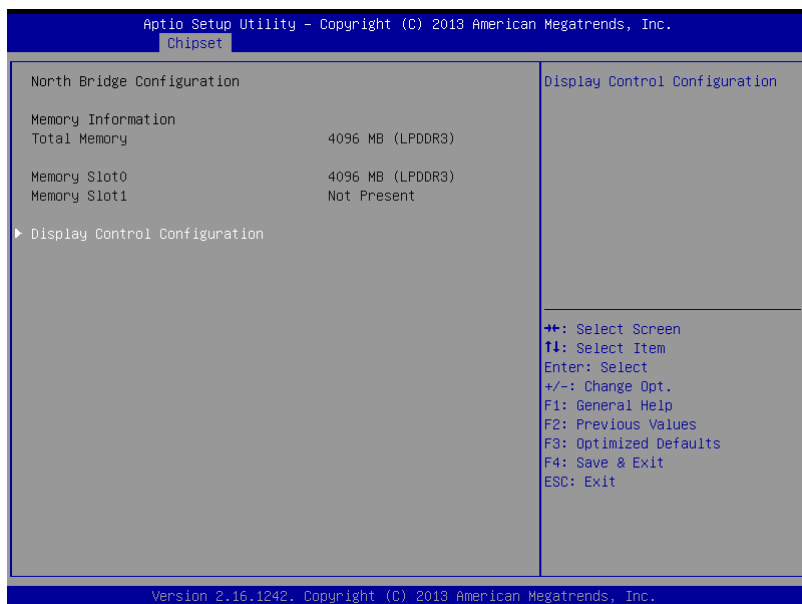
Options summary:

Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IRQ=12;	

Setup submenu: Chipset



North Bridge



Display Control Configuration

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.	
Chipset	
Display Control Configuration	
DVMT Pre-Allocated	[64M]
DVMT Total Gfx Mem	[256MB]
Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.	
++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.	

Options summary:

DVMT Pre-Allocated	64M	Optimal Default, Failsafe Default
	96M	
	128M	
	160M ...	
	512M	
DVMT Total Gfx Mem	128MB	Optimal Default, Failsafe Default
	256MB	
	Max	

South Bridge

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.

Chipset

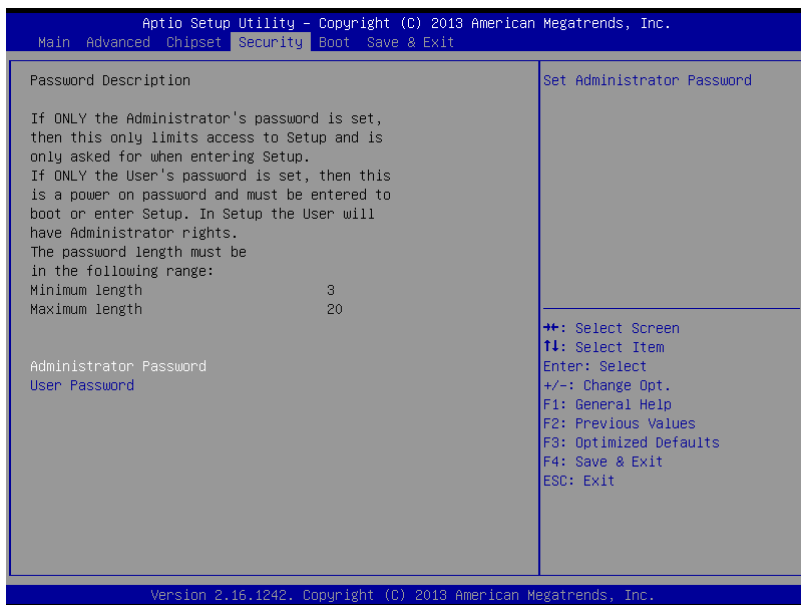
South Bridge Configuration		Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled. Enabled = Azalia will be unconditionally Enabled. Auto = Azalia will be enabled if present disabled otherwise.
Audio Controller	[Enabled]	
XHCI Mode	[Disabled]	++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
USB 2.0(EHCI) Support	[Enabled]	

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

Options summary:

Audio Controller	Enabled	Optimal Default, Failsafe Default
	Disabled	
XHCI Mode	Disabled	Optimal Default, Failsafe Default
	Enabled	
EHCI Mode	Disabled	Optimal Default, Failsafe Default
	Enabled	

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

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.

Main Advanced Chipset Security Boot Save & Exit

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

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

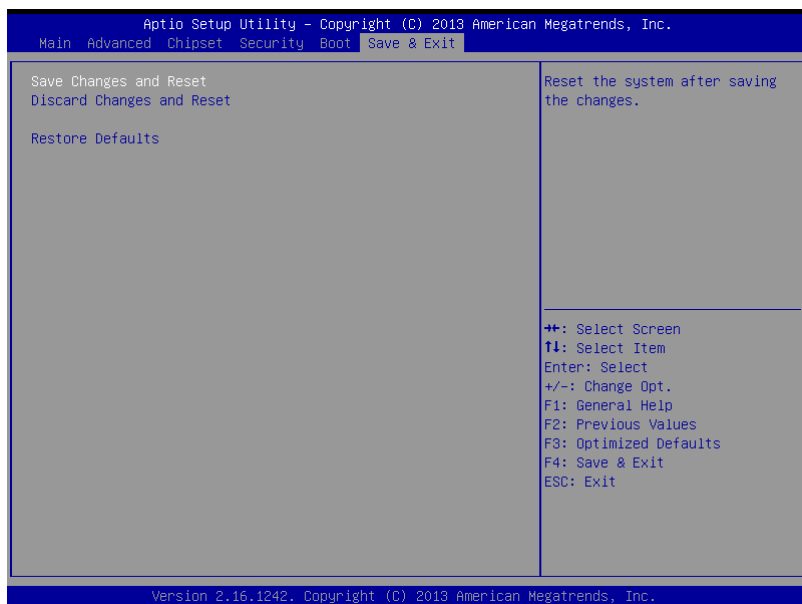
Options summary:

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

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.		
Boot		
Boot Option #1	[Generic Flash Disk ...]	Sets the system boot order
		++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.		

Setup submenu: Exit



Chapter

4

Driver Installation

The FWB-2250 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 VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install xHCI Driver (Windows 7 only)

Step 5 – Install Intel® Sideband Fabric Device Driver
(Windows 8.1 only)

Please read instructions below for further detailed installations.

4.1 Installation

Insert the FWS-2250 driver disk into the disk 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 Graphics Driver

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

Step 3 – Install LAN Driver

1. Open the **Step 3 - Network** folder and select your OS
2. Open the **19.1_20140410.exe** file located in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 4 – Install xHCI Driver (Windows 7 only)

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

Step 5 – Install Intel® Sideband Fabric Device Driver (Windows 8.1 only)

1. Open the **Step 5 – Intel Sideband Fabric Device Driver** folder followed by **Setup.exe**
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();

}

Appendix

B

I/O Information





















































B.1 I/O Address Map



























































Input/output (I/O)	
[0000000000000000 - 000000000000006F]	PCI bus
[0000000000000020 - 0000000000000021]	Programmable interrupt controller
[0000000000000024 - 0000000000000025]	Programmable interrupt controller
[0000000000000028 - 0000000000000029]	Programmable interrupt controller
[000000000000002C - 000000000000002D]	Programmable interrupt controller
[000000000000002E - 000000000000002F]	Motherboard resources
[0000000000000030 - 0000000000000031]	Programmable interrupt controller
[0000000000000034 - 0000000000000035]	Programmable interrupt controller
[0000000000000038 - 0000000000000039]	Programmable interrupt controller
[000000000000003C - 000000000000003D]	Programmable interrupt controller
[0000000000000040 - 0000000000000043]	System timer
[000000000000004E - 000000000000004F]	Motherboard resources
[0000000000000050 - 0000000000000053]	System timer
[0000000000000060 - 0000000000000060]	Standard PS/2 Keyboard
[0000000000000061 - 0000000000000061]	Motherboard resources
[0000000000000063 - 0000000000000063]	Motherboard resources
[0000000000000064 - 0000000000000064]	Standard PS/2 Keyboard
[0000000000000065 - 0000000000000065]	Motherboard resources
[0000000000000067 - 0000000000000067]	Motherboard resources
[0000000000000070 - 0000000000000070]	Motherboard resources
[0000000000000070 - 0000000000000077]	System CMOS/real time clock
[0000000000000078 - 000000000000007F]	PCI bus
[0000000000000080 - 000000000000008F]	Motherboard resources
[0000000000000092 - 0000000000000092]	Motherboard resources
[00000000000000A0 - 00000000000000A1]	Programmable interrupt controller
[00000000000000A4 - 00000000000000A5]	Programmable interrupt controller
[00000000000000A8 - 00000000000000A9]	Programmable interrupt controller
[00000000000000AC - 00000000000000AD]	Programmable interrupt controller
[00000000000000B0 - 00000000000000B1]	Programmable interrupt controller
[00000000000000B2 - 00000000000000B3]	Motherboard resources
[00000000000000B4 - 00000000000000B5]	Programmable interrupt controller
[00000000000000B8 - 00000000000000B9]	Programmable interrupt controller
[00000000000000BC - 00000000000000BD]	Programmable interrupt controller
[00000000000000B0 - 000000000000003BB]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
[000000000000003C0 - 000000000000003DF]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
[000000000000003F8 - 000000000000003FF]	Communications Port (COM1)
[00000000000000400 - 0000000000000047F]	Motherboard resources
[000000000000004D0 - 000000000000004D1]	Programmable interrupt controller
[00000000000000500 - 000000000000005FE]	Motherboard resources
[00000000000000600 - 0000000000000061F]	Motherboard resources
[00000000000000680 - 0000000000000069F]	Motherboard resources
[00000000000000A00 - 00000000000000A2F]	Motherboard resources
[00000000000000A30 - 00000000000000A3F]	Motherboard resources
[00000000000000A40 - 00000000000000A4F]	Motherboard resources
[00000000000000D00 - 00000000000000FFF]	PCI bus
[00000000000000A00 - 00000000000000AFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 4 - 0F4E
[00000000000000B00 - 00000000000000BFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 3 - 0F4C
[00000000000000C00 - 00000000000000CFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 2 - 0F4A
[00000000000000D00 - 00000000000000DFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 1 - 0F48
[00000000000000E00 - 00000000000000E1F]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12
[00000000000000E20 - 00000000000000E3F]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[00000000000000E40 - 00000000000000E43]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[00000000000000E50 - 00000000000000E57]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[00000000000000E60 - 00000000000000E63]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[00000000000000E70 - 00000000000000E77]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
































B.2 Memory Address Map

Memory		
[0000000000A0000 - 0000000000BFFFF]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900	
[0000000000A0000 - 0000000000BFFFF]	PCI bus	
[0000000000C0000 - 0000000000DFFFF]	PCI bus	
[0000000000E0000 - 0000000000FFFFFF]	PCI bus	
[0000000000A000000 - 0000000000AFFFFFFF]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900	
[0000000000A000000 - 0000000000B0A6FFE]	PCI bus	
[0000000000B000000 - 0000000000B3FFFFFF]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900	
[0000000000B040000 - 0000000000B4FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution Engine Interface - 0F18	
[0000000000B050000 - 0000000000B5FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution Engine Interface - 0F18	
[0000000000B060000 - 0000000000B61FFFF]	Intel(R) I211 Gigabit Network Connection #4	
[0000000000B060000 - 0000000000B6FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 4 - 0F4E	
[0000000000B062000 - 0000000000B623FFF]	Intel(R) I211 Gigabit Network Connection #4	
[0000000000B070000 - 0000000000B71FFFF]	Intel(R) I211 Gigabit Network Connection #3	
[0000000000B070000 - 0000000000B7FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 3 - 0F4C	
[0000000000B072000 - 0000000000B723FFF]	Intel(R) I211 Gigabit Network Connection #3	
[0000000000B080000 - 0000000000B81FFFF]	Intel(R) I211 Gigabit Network Connection #2	
[0000000000B080000 - 0000000000B8FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 2 - 0F4A	
[0000000000B082000 - 0000000000B823FFF]	Intel(R) I211 Gigabit Network Connection #2	
[0000000000B090000 - 0000000000B91FFFF]	Intel(R) I211 Gigabit Network Connection	
[0000000000B090000 - 0000000000B9FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 1 - 0F48	
[0000000000B092000 - 0000000000B923FFF]	Intel(R) I211 Gigabit Network Connection	
[0000000000B0A0000 - 0000000000B0A03FFF]	High Definition Audio Controller	
[0000000000B0A0000 - 0000000000B0A0401F]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12	
[0000000000B0A05000 - 0000000000B0A053FF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor EHCI USB - 0F34	
[0000000000B0A06000 - 0000000000B0A067FF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23	
[0000000000E000000 - 0000000000EFFFFFFF]	Motherboard resources	
[0000000000FED0000 - 0000000000FED003FF]	High precision event timer	
[0000000000FED0100 - 0000000000FED01FFF]	Motherboard resources	
[0000000000FED0300 - 0000000000FED03FFF]	Motherboard resources	
[0000000000FED0400 - 0000000000FED04FFF]	Motherboard resources	
[0000000000FED0800 - 0000000000FED08FFF]	Motherboard resources	
[0000000000FED1C00 - 0000000000FED1CFFF]	Motherboard resources	
[0000000000FEE0000 - 0000000000FEEFFFFFFF]	Motherboard resources	
[0000000000FEF0000 - 0000000000FEFFFFFFF]	Motherboard resources	
[0000000000FF00000 - 0000000000FFFFFFFF]	Intel(R) 82802 Firmware Hub Device	

B.3 IRQ Mapping Chart

Interrupt request (IRQ)		
	(ISA) 0x00000000 (00)	System timer
	(ISA) 0x00000001 (01)	Standard PS/2 Keyboard
	(ISA) 0x00000004 (04)	Communications Port (COM1)
	(ISA) 0x00000008 (08)	High precision event timer
	(ISA) 0x0000000C (12)	PS/2 Compatible Mouse
	(ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
	(ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
	(ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
	(ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
	(ISA) 0x00000055 (85)	Microsoft ACPI-Compliant System
	(ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
	(ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
	(ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
	(ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
	(ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
	(ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
	(ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
	(ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System
	(ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
	(ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
	(ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
	(ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
	(ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
	(ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
	(ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
	(ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
	(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
	(ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
	(ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
	(ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
	(ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System
	(ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
	(ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
	(ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007A (122)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System

	(ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
	(ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
	(ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System
	(ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
	(ISA) 0x00000084 (132)	Microsoft ACPI-Compliant System
	(ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System
	(ISA) 0x00000086 (134)	Microsoft ACPI-Compliant System
	(ISA) 0x00000087 (135)	Microsoft ACPI-Compliant System
	(ISA) 0x00000088 (136)	Microsoft ACPI-Compliant System
	(ISA) 0x00000089 (137)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008A (138)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008B (139)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008C (140)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
	(ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
	(ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
	(ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
	(ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System
	(ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
	(ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System
	(ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
	(ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
	(ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System
	(ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System

	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x00000005 (05)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution Engine Interface - 0F18
	(PCI) 0x0000000A (10)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12
	(PCI) 0x00000010 (16)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 1 - 0F48
	(PCI) 0x00000011 (17)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 2 - 0F4A
	(PCI) 0x00000012 (18)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 3 - 0F4C
	(PCI) 0x00000013 (19)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
	(PCI) 0x00000013 (19)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 4 - 0F4E
	(PCI) 0x00000016 (22)	High Definition Audio Controller
	(PCI) 0x00000017 (23)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor EHCI USB - 0F34
	(PCI) 0xFFFFFEE (-18)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFEF (-17)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFFF0 (-16)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFFF1 (-15)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFFF2 (-14)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFFF3 (-13)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFFF4 (-12)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFFF5 (-11)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFFF6 (-10)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFF7 (-9)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFF8 (-8)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFF9 (-7)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFFA (-6)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFFB (-5)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFFC (-4)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFFD (-3)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFE (-2)	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900

Appendix

C

Standard Firewall Platform Setting

C.1 Standard Firewall Platform Setting

Status LED Control Table.

	IO 0XA04 BIT4	IO 0XA03 BIT0	IO 0XA01 BIT2
LED Off	0	0	0
Red LED On	0	0	1
Red LED Blink	0	1	0
Red LED Fast Blink	0	1	1
Green LED Blink	1	0	1
Green LED Fast Blink	1	1	0
Green LED On	1	1	1

LAN ByPass Config Table

Item			IO 0XA00 BIT5	IO 0XA00 BIT6	IO 0XA00 BIT4	IO 0XA00 BIT2	IO 0XA00 BIT1
LAN1~2	Power On	Bypass	Negedge	0	1		0(WDT_RESET) 1(BYPASS)
		Pass Through	Negedge	0	0		
LAN1~2	Power Off	Bypass	Negedge	0		1	
		Pass Through	Negedge	0		0	

Note : “IO 0XA00 BIT5” will be activated when “0XA00 BIT6.4.2.1” is ready.

C.2 Status LED Sample Code

```
#define LED_BASE_ADDR    0x48E

// LED Off
VOID LED_OFF()
{
    UINT16    TEMP16;

    TEMP16 = IoIn16(LED_BASE_ADDR) & 0xF7ED;
    IoOut16(LED_BASE_ADDR, TEMP16);
}

// Red LED On
VOID RED_LED_ON()
{
    UINT16    TEMP16;

    TEMP16 = IoIn16(LED_BASE_ADDR) & 0xF7ED;
    TEMP16 |= 0x0002;
    IoOut16(LED_BASE_ADDR, TEMP16);
}

// Red LED Blink
VOID RED_LED_BLINK()
```

```
{  
    UINT16    TEMP16;  
  
    TEMP16 = IoIn16(LED_BASE_ADDR) & 0xF7ED;  
    TEMP16 |= 0x0800;  
    IoOut16(LED_BASE_ADDR, TEMP16);  
}
```

// Red LED Fast Blink

VOID RED_LED_FBLINK()

```
{  
    UINT16    TEMP16;  
  
    TEMP16 = IoIn16(LED_BASE_ADDR) & 0xF7ED;  
    TEMP16 |= 0x0802;  
    IoOut16(LED_BASE_ADDR, TEMP16);  
}
```

// Green LED On

VOID GREEN_LED_ON()

```
{  
    UINT16    TEMP16;  
  
    TEMP16 = IoIn16(LED_BASE_ADDR) & 0xF7ED;  
    TEMP16 |= 0x0812;
```

```
    IoOut16(LED_BASE_ADDR, TEMP16);
}

// Green LED Blink
VOID GREEN_LED_BLINK()
{
    UINT16    TEMP16;

    TEMP16 = IoIn16(LED_BASE_ADDR) & 0xF7ED;
    TEMP16 |= 0x0012;
    IoOut16(LED_BASE_ADDR, TEMP16);
}

// Green LED Fast Blink
VOID GREEN_LED_FBLINK()
{
    UINT16    TEMP16;

    TEMP16 = IoIn16(LED_BASE_ADDR) & 0xF7ED;
    TEMP16 |= 0x0810;
    IoOut16(LED_BASE_ADDR, TEMP16);
}
```

C.3 LAN Bypass Mode Sample Code

```
#define LANBP_BASE_ADDR      0x48C
#define PAIR_SEL_BASE_ADDR   0x4B8

/*
Select LAN Pair I or II
PAIR_NUM =      0x00 - PAIR I
               0x01 - PAIR II
*/
VOID SEL_PAIR(
    IN  UINT8    PAIR_NUM;
)
{
    UINT8    TEMP8;

    PAIR_NUM = PAIR_NUM << 5;
    TEMP8 = IoIn8(PAIR_SEL_BASE_ADDR) & 0xDF;
    TEMP8 |= PAIR_NUM;
    IoOut8(PAIR_SEL_BASE_ADDR, TEMP8);
}

/*
Execute LAN ByPass Settings
*/
```

```
*/
```

```
VOID EXE_SET()
```

```
{
```

```
    UINT8    TEMP8;
```

```
    TEMP8 = IoIn8(LANBP_BASE_ADDR + 3) | 0x10;
```

```
    IoOut8(LANBP_BASE_ADDR + 3, TEMP8);
```

```
    Sleep(500);
```

```
    IoOut8(LANBP_BASE_ADDR + 3, TEMP8 & 0xEF);
```

```
}
```

```
/*
```

```
LAN1 & 2 Power On ByPass Mode Set
```

```
BP_MODE = 0x00 - Pass Through Mode
```

```
           = 0x01 - By Pass Mode
```

```
*/
```

```
VOID LAN12_PWRON_BP()
```

```
{
```

```
    UINT8    TEMP8;
```

```
    SEL_PAIR(0x00) ;           // Select Pair I
```

```
    TEMP8 = IoIn8(LANBP_BASE_ADDR + 1) & 0xFE;
```

```
    TEMP8 |= BP_MODE;
```



```
IoOut8(LANBP_BASE_ADDR + 1, TEMP8);

EXE_SET();                // Execute Set
}

/*
LAN1 & 2 Power Off ByPass Mode Set
BP_MODE = 0x00 - Pass Through Mode
          = 0x01 - By Pass Mode
*/
VOID LAN12_PWROFF_BP()
{
    UINT8    TEMP8;

    SEL_PAIR(0x00) ;       // Select Pair I
    TEMP8 = IoIn8(LANBP_BASE_ADDR) & 0x7F;
    TEMP8 |= BP_MODE << 7;
    IoOut8(LANBP_BASE_ADDR, TEMP8);

    EXE_SET();             // Execute Set
}

/*
```

LAN3 & 4 Power On ByPass Mode Set

BP_MODE = 0x00 - Pass Through Mode

= 0x01 - By Pass Mode

*/

VOID **LAN34_PWRON_BP()**

{

 UINT8 TEMP8;

 SEL_PAIR(0x01) ; // Select Pair II

 TEMP8 = IoIn8(LANBP_BASE_ADDR + 1) & 0xFE;

 TEMP8 |= BP_MODE;

 IoOut8(LANBP_BASE_ADDR + 1, TEMP8);

 EXE_SET(); // Execute Set

}

/*

LAN3 & 4 Power Off ByPass Mode Set

BP_MODE = 0x00 - Pass Through Mode

= 0x01 - By Pass Mode

*/

VOID **LAN34_PWROFF_BP()**

{

 UINT8 TEMP8;

```
SEL_PAIR(0x01) ;           // Select Pair II
TEMP8 = IoIn8(LANBP_BASE_ADDR) & 0x7F;
TEMP8 |= BP_MODE << 7;
IoOut8(LANBP_BASE_ADDR, TEMP8);

EXE_SET();                  // Execute Set
}

/*
Set Watch Dog as LAN1 & 2 By Pass mode
*/
VOID WDT_LAN12_BP()
{
    UINT8    TEMP8;

    SEL_PAIR(0x00) ;         // Select Pair I
    TEMP8 = IoIn8(LANBP_BASE_ADDR) | 0x40;
    IoOut8(LANBP_BASE_ADDR, TEMP8);

    EXE_SET();               // Execute Set
}
```

```
/*
```

```
Set Watch Dog as LAN3 & 4 By Pass mode
```

```
*/
```

```
VOID WDT_LAN34_BP()
```

```
{
```

```
    UINT8    TEMP8;
```

```
    SEL_PAIR(0x01) ;           // Select Pair II
```

```
    TEMP8 = IoIn8(LANBP_BASE_ADDR) | 0x40;
```

```
    IoOut8(LANBP_BASE_ADDR, TEMP8);
```

```
    EXE_SET();                 // Execute Set
```

```
}
```

```
/*
```

```
Set Watch Dog as system reset mode
```

```
*/
```

```
VOID WDT_RESET()
```

```
{
```

```
    UINT8    TEMP8;
```

```
    SEL_PAIR(0x00) ;           // Select Pair I
```

```
    TEMP8 = IoIn8(LANBP_BASE_ADDR) & 0xBF;
```

```
    IoOut8(LANBP_BASE_ADDR, TEMP8);
```

```
SEL_PAIR(0x00) ;      // Select Pair II
IoOut8(LANBP_BASE_ADDR, TEMP8);

EXE_SET();             // Execute Set
}
```

C.4 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-2250 and remote client system.

2. Setup BIOS in FWS-2250

BIOS >> Advanced >> Serial Port Console Redirection >>

Console Redirection: Enabled (Default)

Enabled Attempt to redirect console via COM port

Disabled Console redirection function

BIOS >> Advanced >> Serial Port Console Redirection >> Serial Redirection Settings >> Bits per second: 115200 (Default)

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-2250 and it will display the BIOS information on the client system.