

**FWS-2160**

Desktop

Network Appliance Platform

1 2.5" Internal Disk Drive bay

2 SATA II

6 LAN Ports

2 Type A USB 2.0 Ports

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## Packing List

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

- FWS-2160
- CD-ROM for User Manual (in PDF format) and drivers
- Rubber Feet
- 60W Power Adapter
- 2.5" IDE Hard Disk Driver Cable

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

**Note:**

Serial ATA Cables are optional accessories. Please purchase those cables according to the following item numbers.

- |                   |                  |
|-------------------|------------------|
| <b>1702151201</b> | SATA Power Cable |
| <b>1709070050</b> | SATA Cable       |

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Chapter

1

**General  
Information**

## 1.1 Introduction

---

FWS-2160 adopts the AMD G-series T24L Processor and combines with AMD A50M FCH chipset. The system memory features two 240-pin DDR3 1066MHz DIMM socket total up to 8GB. It deploys six LAN ports that consist of six 10/100/1000Base-TX Ethernet ports with 2 pair LAN bypass function. FWS-2160's condensed appearance features desktop form factor that fits nicely into a space-limited environment.

This compact FWS-2160 is equipped with two SATA II and CompactFlash™ Type II connector with ATA mode. In addition, it offers flexible expansion with network products and features two Mini-PCIe expansion socket, two USB2.0 ports and one RS-232 console port on the rear panel. 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

---

- Desktop 6 LAN Ports Network Appliance Platform
- Onboard AMD G-series T24L 1 GHz Processor
- AMD A50M Chipset
- 2 x 240-pin single channel DDRIII 1066MHz DIMM, up to 8GB
- 6 x 10/100/1000Base-TX ethernet port with 2 pair LAN bypass function
- 1 x 2.5" SATA HDD and 1 x CF-SATA socket
- USB2.0 Port x 2 & RS-232 Console x 1 in the Real Panel
- DC 12V power input requirement
- Watchdog Function 1~255 Sec.
- Mini-PCIe slot x 2

## 1.3 Specifications

---

### *System*

<b>Form Factor</b>	Desktop 6 LAN ports Network Appliance
<b>Processor</b>	Onboard AMD G-series T24L 1 GHz Processor
<b>System Memory</b>	2 x 240-pin DDR3 1066MHz DIMM up to 8GB
<b>Chipset</b>	AMD A50M Chipset
<b>LAN</b>	Realtek RTL8111E controller, Gigabit Ethernet x 6
<b>BIOS</b>	AMI BIOS ROM
<b>IDE</b>	N/A
<b>SATA Interface</b>	1 x SATA II port on board (Optional extra 2nd SATA II port)
<b>Expansion Interface</b>	2 x Mini-PCIe slot
<b>Watchdog Timer</b>	1~255 step by software programmable
<b>RTC</b>	Internal RTC
<b>Storage</b>	2.5" SATA HDD x 1 and CompactFlash™ socket
<b>FAN Cooling</b>	1 x Cooling Fan
<b>Front I/O Panel</b>	1 x Power LED 1 x Status Led 1 x HDD Active LED 12 X LAN LEDs

<b>Color</b>	Black
<b>LCM</b>	N/A
<b>Power Supply</b>	12V DC input
<b>Dimension</b>	7"(W) x 9.84" (D) x 1.73" (H) (178mm x 250mm x 44mm)—Chassis 8.46 (L) x 6.77" (W) (215mm x 172mm)—Board

### *Display*

<b>VGA Controller</b>	N/A
-----------------------	-----

### *I/O*

<b>Serial Port</b>	One 5x2 Box Header (2.0mm)
<b>Keyboard &amp; Mouse</b>	Reserve pin-header
<b>Universal Serial Bus</b>	4 x USB 2.0 - 2 x USB for internal pin-header (optional) - 2 x USB 2.0 Type A on I/O side
<b>Front I/O Panel</b>	1 x Power LED 1 x Status Led 1 x HDD Active LED 12 X LAN LEDs

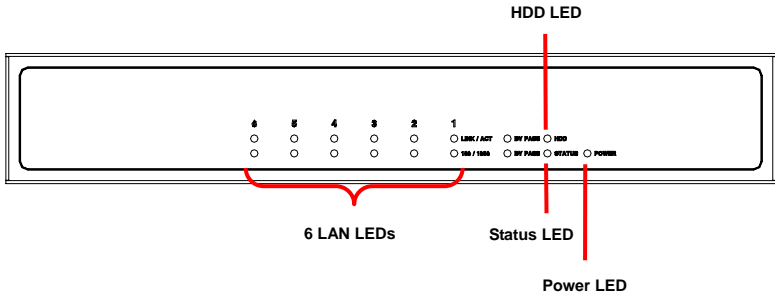
<b>Rear I/O panel</b>	2 x USB Ports
	6 x RJ-45 Ports
	1 x RS-232 Console
	1 x 12V DC Power Input
	1 x Software Reset Switch

### *Environmental*

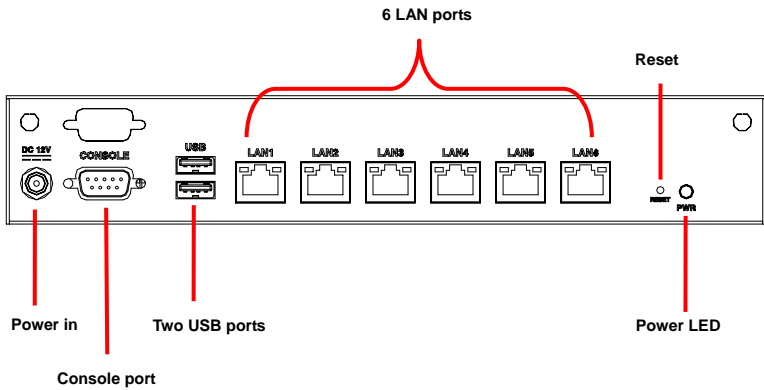
<b>Operating Temp.</b>	32°F ~ 104°F (0°C ~ 40°C)
<b>Storage Temp.</b>	-4°F ~ 140°F (-20°C ~ 60°C)
<b>Operating humidity:</b>	10 ~ 80%
<b>Storage humidity:</b>	10 ~ 80% @ 40°C, non-condensing
<b>Vibration</b>	0.5G / 5 ~ 500Hz / operation (2.5" Hard Disk Drive) 1.5G / 5 ~ 500Hz / non operation
<b>Shock</b>	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non operation

## 1.4 General System Information

### Front Panel



### Rear Panel



## Chapter

# 2

## FWS-2160 Quick Installation Guide

*Notice:*

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



## 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!**



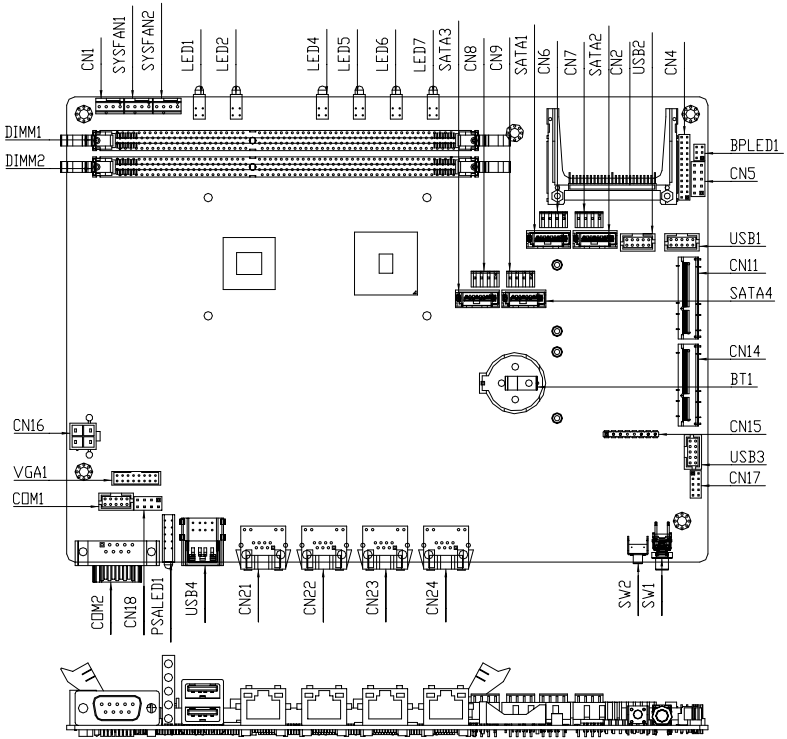
*Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.*

#### **Caution!**

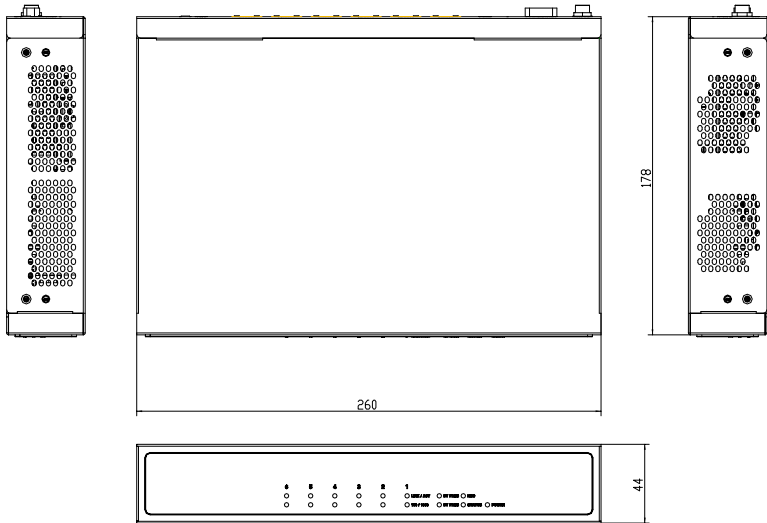


*Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

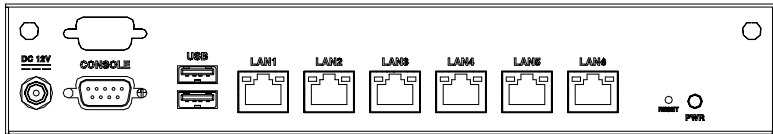
## 2.2 Location of Connectors



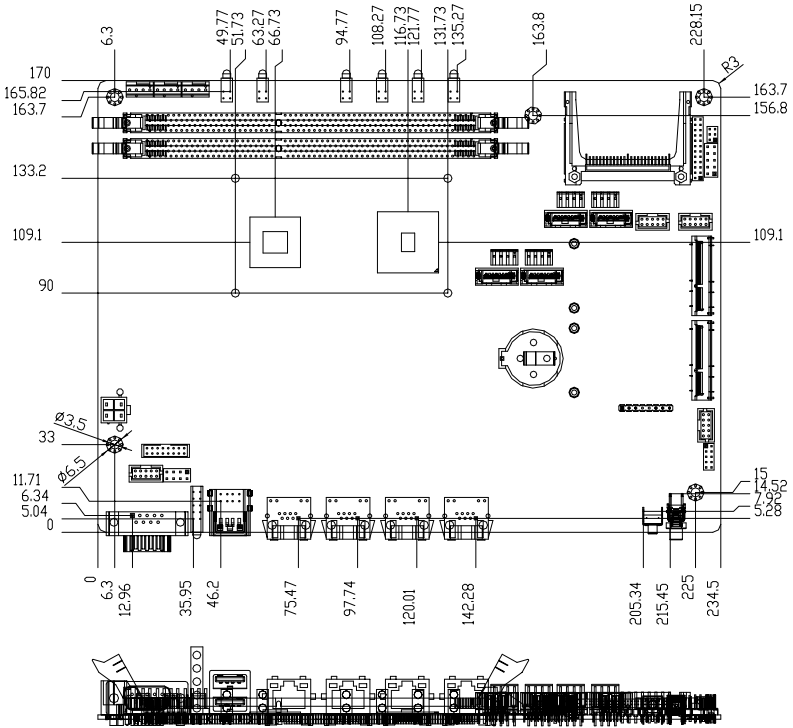


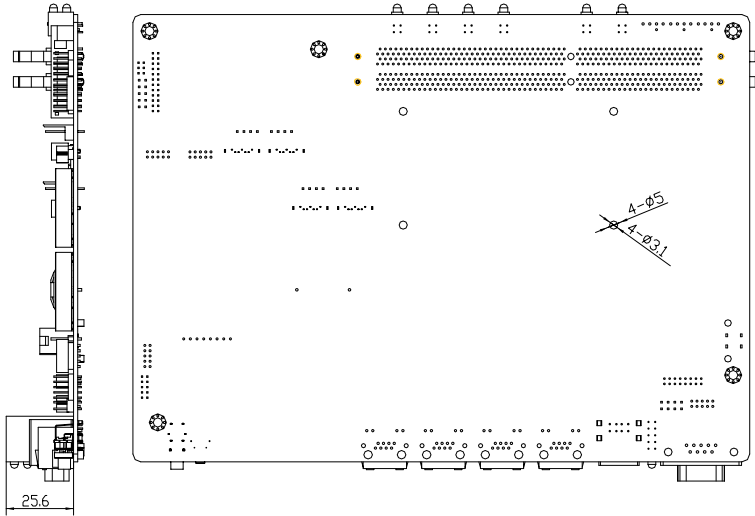


### Connectors on Rear Panel of FWS-2160



### 2.3 Mechanical Drawing





## 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:

<b>Label</b>	<b>Function</b>
CN13	CMOS Setting Selection
CN20	Auto PWRBTN Selection
CN3	CF POWER 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:

<b>Label</b>	<b>Function</b>
DIMM1	DDR3 U-DIMM SOCKET
DIMM2	DDR3 U-DIMM SOCKET
CN16	4P ATX POWER SUPPLY INPUT
CN1	4P SMART FAN
SYSFAN1	4P SMART FAN
SYSFAN2	4P SMART FAN
CN18	KB/MS
COM1	COM PORT
COM2	COM PORT
VGA1	Analog Display
USB1	USB 2.0 *2
USB2	USB 2.0 *2
USB3	USB 2.0 *2
USB4	USB 2.0 *2
CN5	Front Panel Pinheader
SATA1.2.3.4	SATA INTERFACE
CN6.7.8.9	SATA POWER
CN11.14	Mini Pci-E socket
CN19	LPC debug port

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CN10	SIM socket
CN17	HD Audio interface
CN2	CF-SATA CARD SOCKET
CN4	LAN LED Pinheader
BPLED1	Bypass LED Pinheader

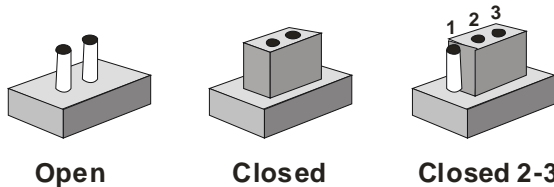
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## 2.6 Setting Jumpers

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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 CMOS Setting Selection (CN13)

CN13	Function
1-2	Normal (Default)
2-3	Clear CMOS

## 2.8 Auto PWRBTN Selection (CN3)

CN3	Function
1-2	Don't use Auto PWRBTN (Default)
2-3	Use Auto PWRBTN

## 2.9 CF POWER Selection (CN20)

CN20	Function
1-2	+5V
2-3	+3.3V (Default)

## 2.10 Front Panel Connector (CN5)

Pin	Signal	Pin	Signal
1	Power On Button (-)	2	Power On Button (+)
3	HDD LED(-)	4	HDD LED(+)
5	External Speaker (-)	6	External Speaker (+)
7	Power LED (-)	8	Power LED (+)
9	Reset Switch (-)	10	Reset Switch (+)

## 2.11 BOX Header (USB1.2.3)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD1-	4	GND



5	USBD1+	6	USBD2+
7	GND	8	USBD2-
9	GND	10	+5V
11	CD-L		

## 2.12 RS232 Pin Header (COM2)

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N.C

## 2.13 SATA Power Connector (CN6.7.8.9)

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

## 2.14 4 pin ATX Power Connector (CN16)

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

## 2.15 SATA Connector (SATA 1.2.3.4)

Pin	Signal	Pin	Signal
1	GND	2	TXP
3	TXN	4	GND
5	RXN	6	RXP

---

7 GND

---

## 2.16 CF-SATA Connector (CN2)

Pin	Signal	Pin	Signal
1	GND	26	GND
2	PDD3	27	PDD11
3	PDD4	28	PDD12
4	PDD5	29	PDD13
5	PDD6	30	PDD14
6	PDD7	31	PDD15
7	CS1	32	CS#3
8	GND	33	GND
9	GND	34	PDIOR
10	SATA_RXP	35	PDIOW
11	SATA_RXN	36	WE#
12	GND	37	INTRQ
13	VCC	38	VCC
14	GND	39	CSEL
15	SATA_TXN	40	CF-SATA_WE
16	SATA_TXP	41	RESET
17	GND	42	PDIORDY
18	PDA2	43	PDDREQ
19	PDA1	44	PDDACK
20	PDA0	45	DASP

---

21	PDD0	46	PDIAG
22	PDD1	47	PDD8
23	PDD2	48	PDD9
24	NC	49	PDD10
25	GND	50	GND

### 2.17 LAN LED Connector (CN4)

Pin	Signal	Pin	Signal
1	L1_ACT#	2	L1_1K
3	L1_ACT	4	L1_100
5	L2_ACT#	6	L2_1K
7	L2_ACT	8	L2_100
9	L3_ACT#	10	L3_1K
11	L3_ACT	12	L3_100
13	L4_ACT#	14	L4_1K
15	L4_ACT	16	L4_100
17	L5_ACT#	18	L5_1K
19	L5_ACT	20	L5_100
21	L6_ACT#	22	L6_1K
23	L6_ACT	24	L6_100

### 2.18 LAN Bypass LED Connector (BPLED1)

Pin	Signal	Pin	Signal
1	BPLED1-	2	BPLED1+

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3	BPLED2-	4	BPLED2+
5	STLED-R	6	STLED-G

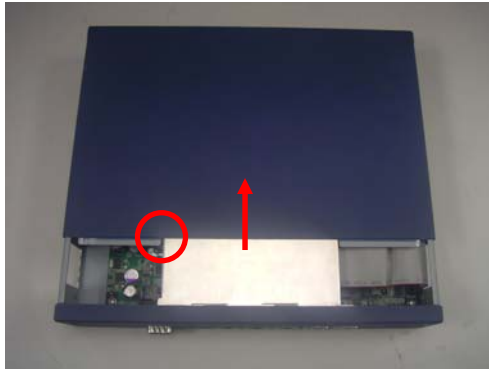
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## 2.19 Installing the Hard Disk Drive

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**Step 1:** Unscrew the upper cover and isolate the cover from the chassis.

**Note:** Push and remove the upper cover until see the screw on the HDD box.



**Step 2:** Take out the Hard Disk Drive Case from the chassis.



**Step 3:** Turn the screw to open the HDD case.



Step 4: Fasten the four rubber feet.



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



Step 6: Put the HDD with cable onto the HDD Bracket.



Step 7: Close the upper bracket of the HDD case and make sure the rubber feet are locked by the flutes on the brackets.



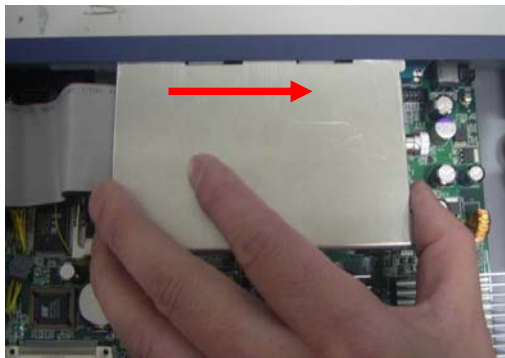
Step 8: Fasten the screw conversely to lock the HDD.



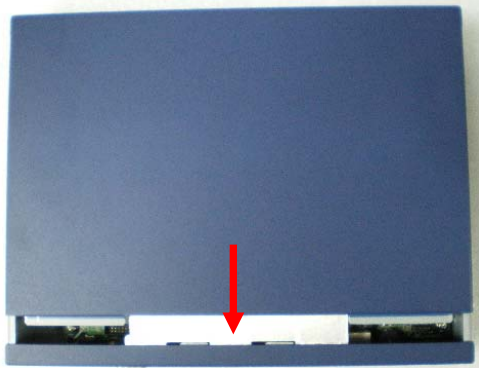
Step 9: Plug the IDE or SATA cable in the IDE or SATA socket on the Mainboard.



Step 10: Insert the HDD to the chassis horizontally and lock the HDD case.



Step 11: Close and screw the upper cover of the chassis.





## Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

## AAEON Boxer/ Industrial System

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
外壳	×	○	○	○	○	○
中央处理器 与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
电源	×	○	○	○	○	○
<p><b>O:</b> 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 <b>SJ/T 11363-2006</b> 标准规定的限量要求以下。</p> <p><b>X:</b> 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 <b>SJ/T 11363-2006</b> 标准规定的限量要求。</p> <p><b>备注:</b> 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-2160 CMOS memory has an integral lithium battery backup for data retention. You have to replace the battery 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 <Del> or <F2> 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

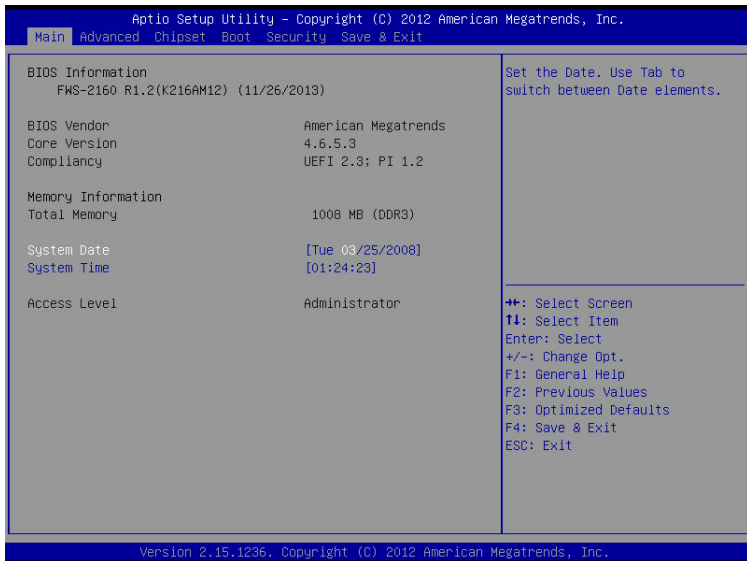
Set setup administrator password.

### Save & Exit

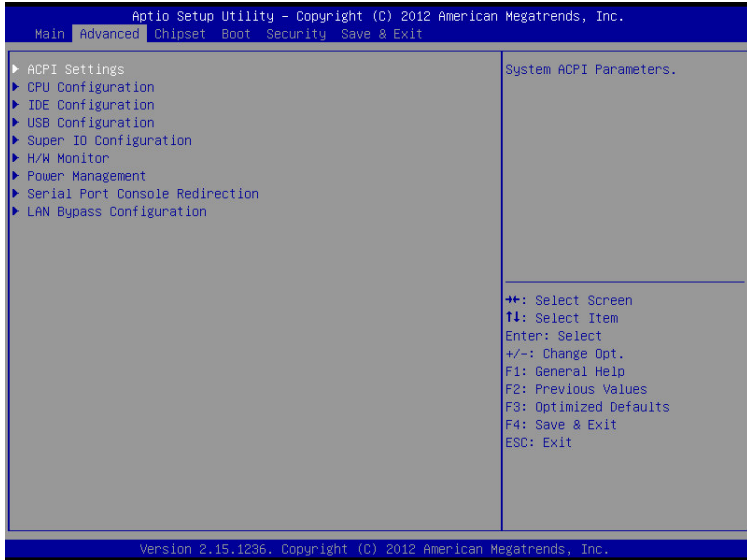
Exit system setup after saving the changes.

## Setup Menu

### Setup submenu: Main



## Setup submenu: Advanced



## ACPI Settings



### Options summary:

ACPI Sleep State	Suspend Disabled	Optimal Default, Failsafe Default
	S1 only CPU Stop Clock)	
	S3 only (Suspend to RAM)	
Select the ACPI state used for System Suspend		

## CPU Configuration

```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
Advanced

CPU Configuration

Module Version: 4.6.3.7 OntarioPI 033
AGESA Version : 1.2.0.1

Socket0: AMD G-T16R Processor
Single Core Running @ 628 MHz  987 mV
Max Speed:615 MHZ   Intended Speed:615 MHZ
Min Speed:615 MHZ
Microcode Patch Level: 500010d

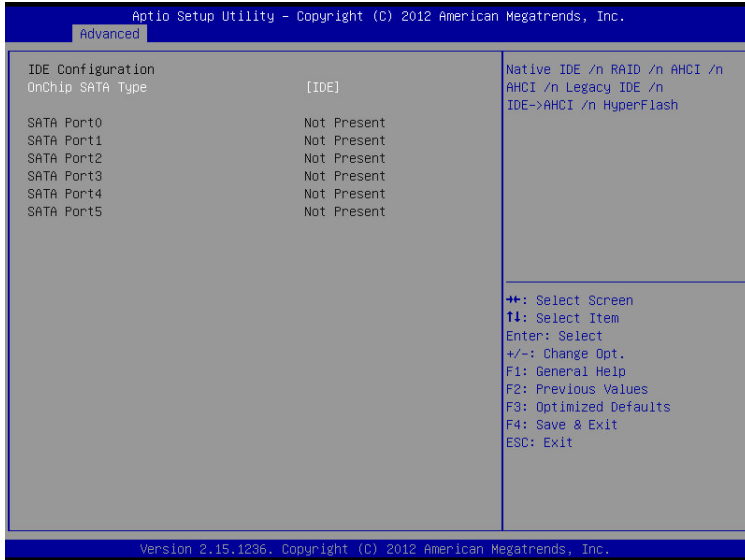
----- Cache per Core -----
L1 Instruction Cache: 32 KB/2-way
  L1 Data Cache: 32 KB/8-way
  L2 Cache: 512 KB/16-way
No L3 Cache Present

+-: Select Screen
t1: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
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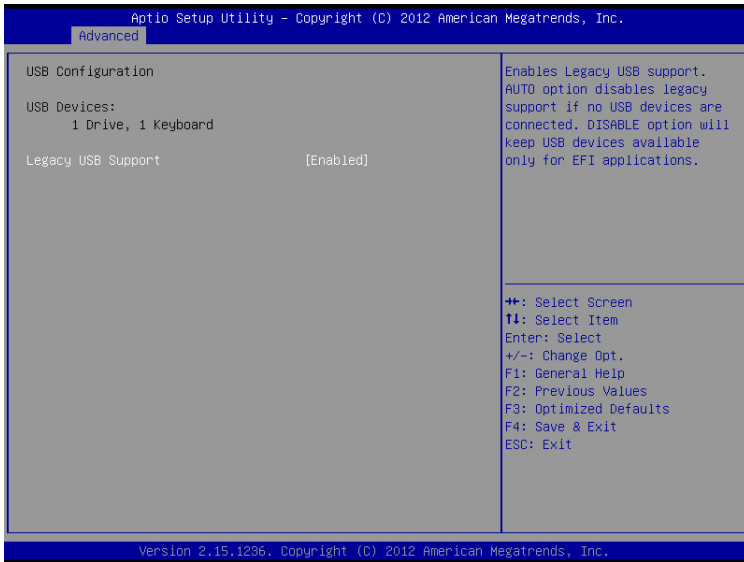
## IDE Configuration (IDE)



### Options summary:

OnChip SATA	AHCI	
Type	IDE	Optimal Default, Failsafe Default
OnChip SATA Type select		

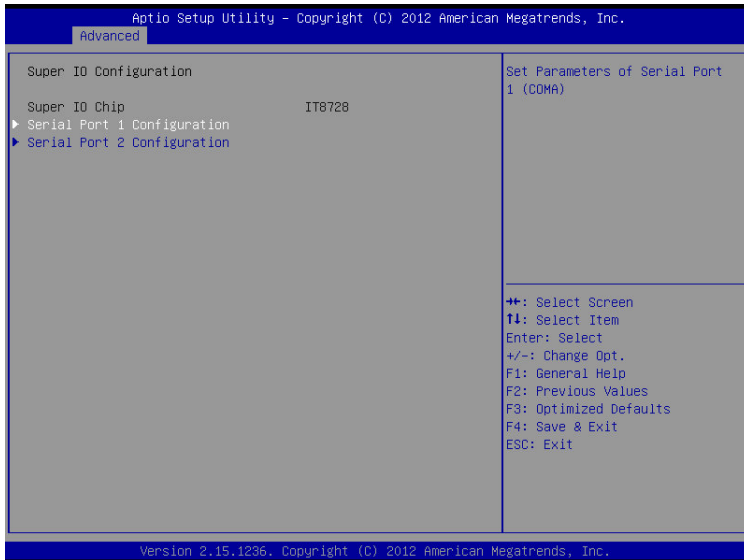
## USB Configuration



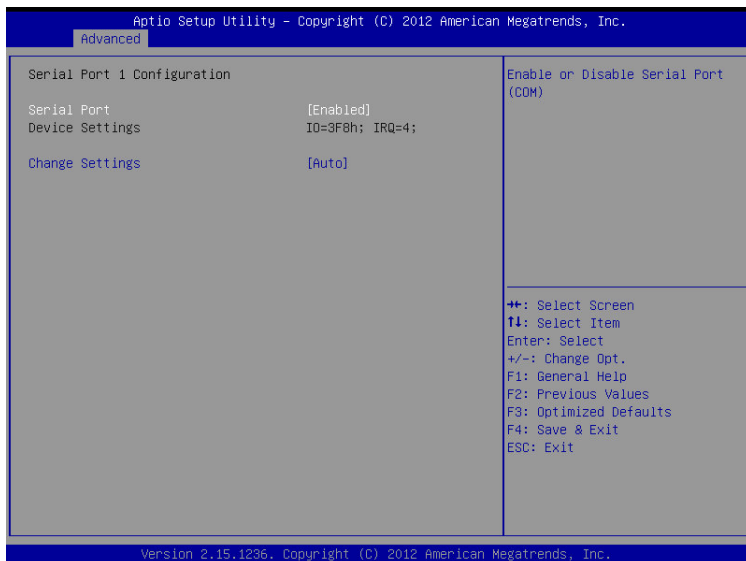
### Options summary:

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)		

## Super IO Configuration



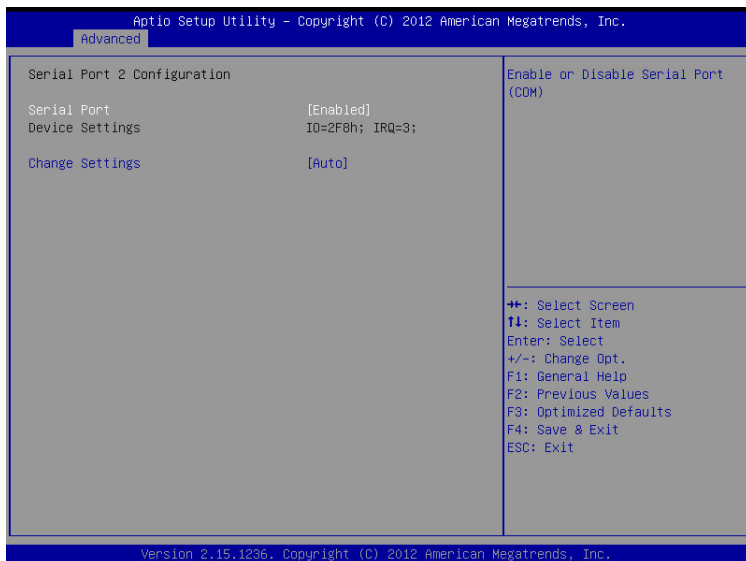
## Serial Port 1 Configuration



### Options summary:

Serial Port	Disabled	Optimal Default, Failsafe Default
	Enabled	
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Optimal Default, Failsafe Default
	IO=3F8h;IRQ=4;	
	IO=2F8h;IRQ=3;	
Allows BIOS to Select Serial Port resource.		

## Serial Port 2 Configuration



### Options summary:

Serial Port	Disabled	Optimal Default, Failsafe Default
	Enabled	
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Optimal Default, Failsafe Default
	IO=3F8h;IRQ=4;	
	IO=2F8h;IRQ=3;	
Allows BIOS to Select Serial Port resource.		

## H/W Monitor

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

Advanced

Pc Health Status		For En/Disable SYS FAN1 Smart Control
SYS_FAN Smart Control		[Disabled]
CPU temperature	: +84 ℃	Enabled: FAN is running in accordance with user settings
System temperature 1	: +36 ℃	Disabled: FAN is always running with full speed
System temperature 2	: +39 ℃	
Fan1 Speed	: N/A	
Fan2 Speed	: N/A	
VCORE CPU	: +0.984 V	
DDR 1.5V	: +1.512 V	
+12V	: +10.752 V	
+5V	: +5.080 V	
+3.3V	: +3.265 V	
VBAT	: +3.288 V	

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

Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

## Smart Fan Mode Configuration (Manual Mode)

Agptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

Advanced

Pc Health Status		For En/Disable SYS FAN1 Smart Control
SYS_FAN Smart Control	[Enabled]	Enabled: FAN is running in accordance with user settings
FAN Control Mode	[Manual Mode]	Disabled: FAN is always running with full speed
PWM Duty	200	
CPU temperature	: +62 %	
System temperature 1	: +26 %	
System temperature 2	: +29 %	
Fan1 Speed	: N/A	
Fan2 Speed	: N/A	
VDDRE CPU	: +0.996 V	
DDR 1.5V	: +1.512 V	
+12V	: +10.704 V	
+5V	: +5.060 V	
+3.3V	: +3.265 V	
VBAT	: +3.264 V	

++: 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 :

SYS_Fan Smart Control	Disabled	Default
	Enabled	
For En/Disable CPU(SYS) Fan1 Control Enabled: Fan is running in accordance with user settings Disabled: Fan is always running with full speed		
Fan Control Mode	Manual Mode	Default
	Automatic Mode	
Manual Mode: Depends on PWM Duty Automatic Mode: Fan Speed is depends on CPU Temperature		
PWM Duty	200	Default
	0~255	
Manual Mode PWM Duty value		

## Smart Fan Mode Configuration (Thermal Cruise Mode)

Agptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

Advanced

Pc Health Status		Manual Mode: Depends on PWM Duty
SYS_FAN Smart Control	[Enabled]	Automatic Mode: FAN Speed is depends on System Temperature
FAN Control Mode	[Automatic Mode]	
Spin PWM	100	
Off Control Temperature	30	
Start Control Temperature	50	
Full Speed Temperature	80	
PWM Slope	5	
CPU temperature	: +63 %	
System temperature 1	: +26 %	
System temperature 2	: +29 %	
Fan1 Speed	: N/A	
Fan2 Speed	: N/A	
VDDRE CPU	: +0.996 V	
DDR 1.5V	: +1.512 V	
+12V	: +10.704 V	
+5V	: +5.060 V	
+3.3V	: +3.265 V	
VBAT	: +3.264 V	

++: 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:

Spin PWM	100	Default
	255	
The PWM Duty of Fan Spin		
Off Control Temperature	30	Default
Temperature Limit Value of Fan Off. Note: Some fans have the minimum speed even if the PWM value is 0		
Start Control Temperature	50	Default
Temperature Limit Value of Fan Start Control		
Full Speed Temperature	80	Default
Temperature Limit Value of Fan Full Speed		
PWM Slope	5	Default
Slope PWM value/degree C for FAN speed control		



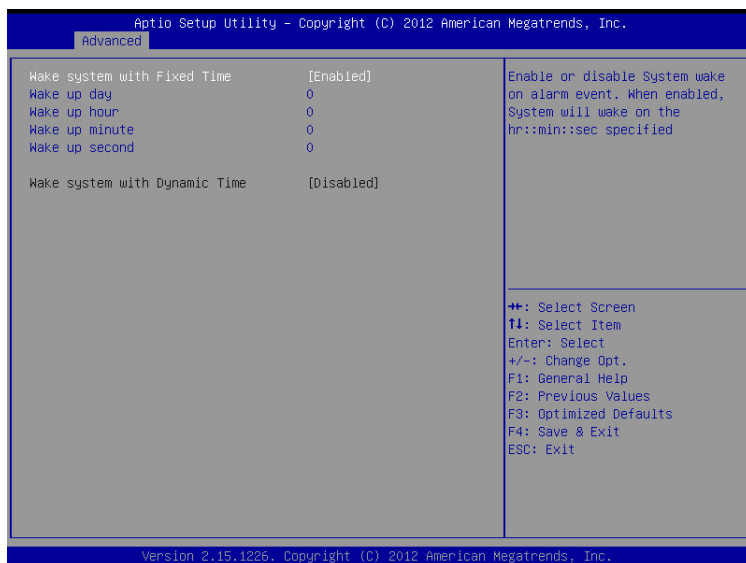
## Power Management



### Options summary:

Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
Select power supply mode.		
Power Failure	Last State	Optimal Default, Failsafe Default
	Always On	
	Always Off	
IT8728 Power Failure Feature		
Resume from RI	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable Resume from RI		

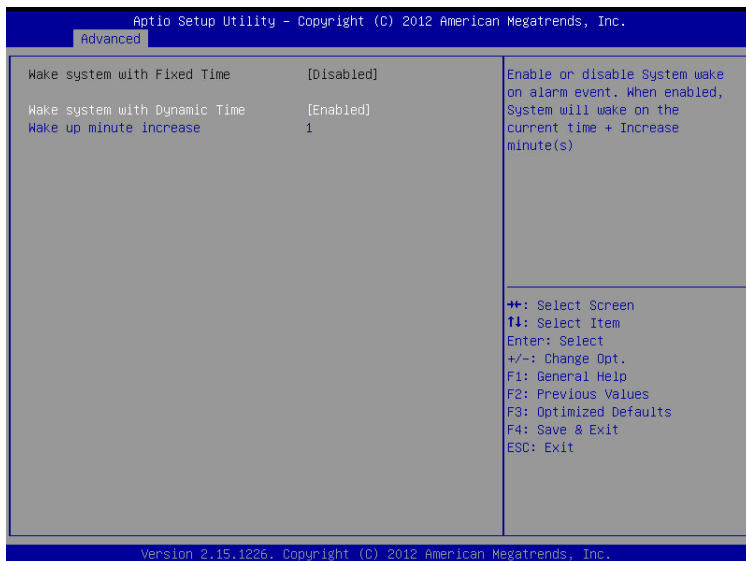
## S5 RTC Wake Settings (Fixed Time)



### Options summary:

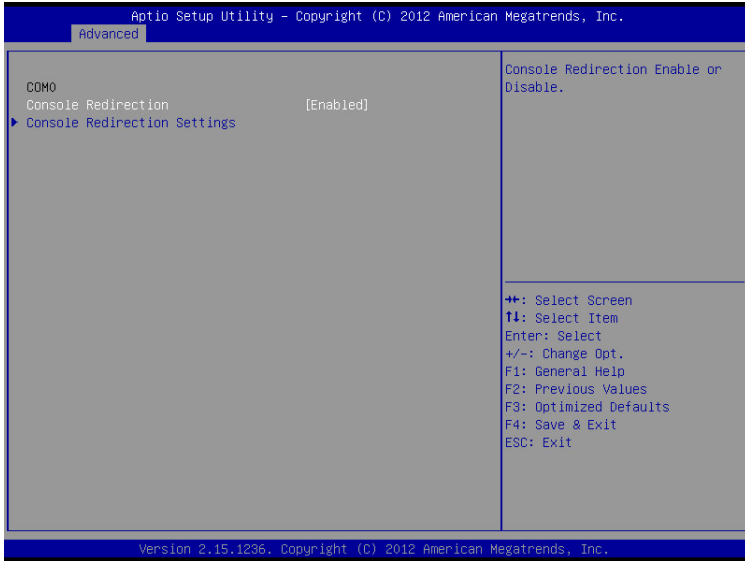
Wake system with Fixed Time	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable System wake on alarm event. When enabled, System will wake on the hr:min:sec specified		
Wake up day	0-31	Default 0
Select 0 for daily system wake up, 1-31 for witch day of the moth that you would like the system to wake up.		
Wake up day	0-23	Default 0
Select 0-23 For example enter 3 for 3am and 15 for 3pm		
Wake up day	0-59	Default 0
Select 0-59		
Wake up day	0-59	Default 0
Select 0-59		

## S5 RTC Wake Settings (Dynamic Time)



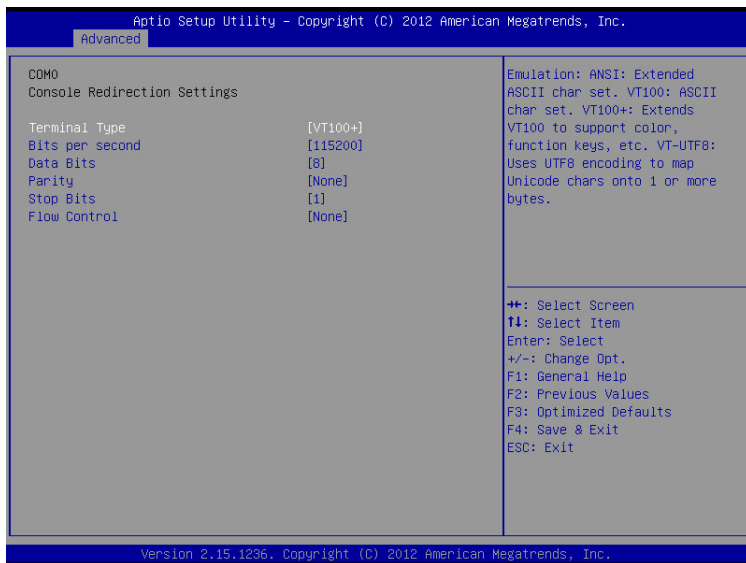
### Options summary:

Wake system with	Disabled	Optimal Default, Failsafe Default
Dynamic Time	Enabled	
En/Disable System wake on alarm event. When enabled, System will wake on current time + Increases minutese(s)		
Wake up day	1-5	Default 1
Select 1-5		



Options summary:

Console Redirection	Disabled	Optimal Default, Failsafe Default
	Enabled	
Console Redirection Enable or Disable		



Options summary:

Terminal Type	VT100	Optimal Default, Failsafe Default
	VT100+	
	VT-UTF8	
	ANSI	
Emulation: ANSI, VT100, VT100+, VT-UTF8		
Bit per second	9600	Optimal Default, Failsafe Default
	19200	
	38400	
	57600	
	115200	
Selects serial port transmission speed		
Data Bits	7	Optimal Default, Failsafe Default
	8	
Data Bits		
Parity	None	Optimal Default, Failsafe Default
	Even	
	Odd	
	Space	
A parity bit can be sent with the data bits to detect some transmission errors.		
Stop Bits	1	Optimal Default, Failsafe Default
	2	

Stop bits indicate the end of a serial data packet.

Flow Control	None	Optimal Default, Failsafe Default
	Hardware RTS/CTS	

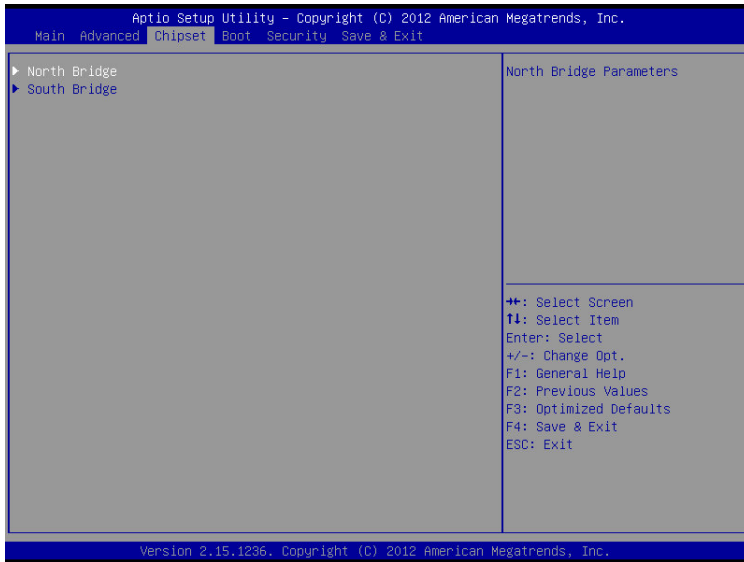
Flow control can prevent data loss from buffer overflow.



Options summary:

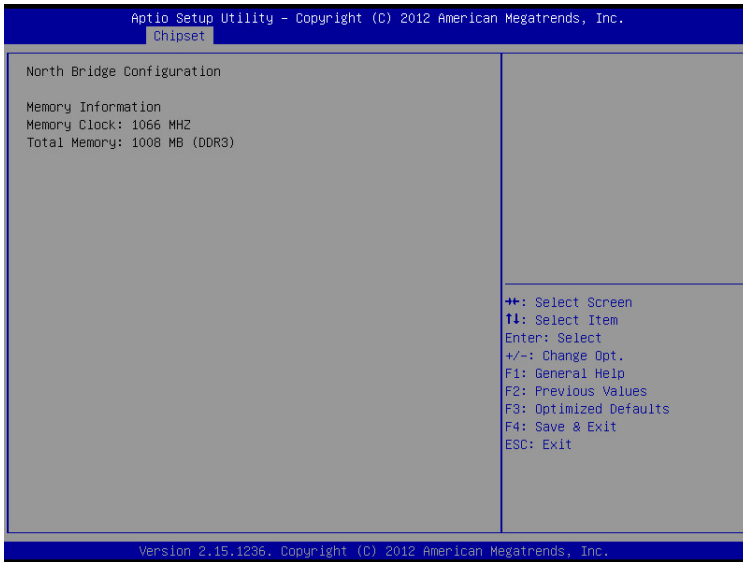
LAN1_2 Power ON	ByPass	Optimal Default, Failsafe Default
	PassTru	
Select LAN1 / 2 operation mode when system is Power On.		
LAN1_2 Power OFF	ByPass	Optimal Default, Failsafe Default
	PassTru	
Select LAN1 / 2 operation mode when system is Power Off.		
LAN3_4 Power ON	ByPass	Optimal Default, Failsafe Default
	PassTru	
Select LAN3 / 4 operation mode when system is Power On.		
LAN3_4 Power OFF	ByPass	Optimal Default, Failsafe Default
	PassTru	
Select LAN3 / 4 operation mode when system is Power Off.		
WDT	ByPass	Optimal Default, Failsafe Default
	Reset	
Select Watch Dog function as normal system reset or LAN ByPass.		
WDT BYPASS SELECT	LAN1_2	Optimal Default, Failsafe Default
	LAN3_4	
	LAN1_2 AND LAN3_4	
Select which pair LAN ByPass control by WDT.		

## Setup submenu: Chipset

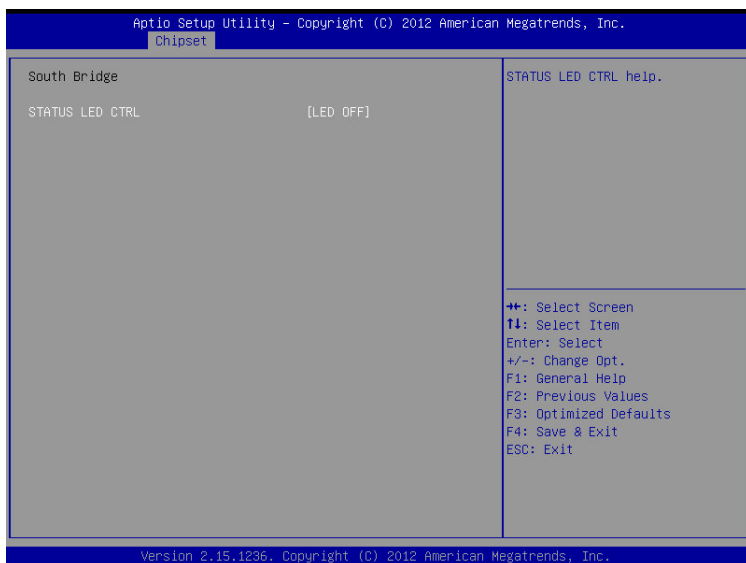




## HOST Bridge



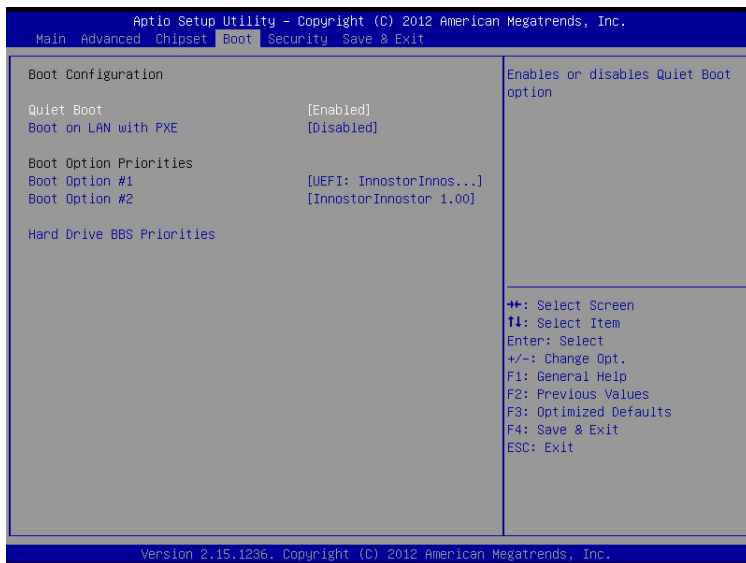
## South Bridge



### Options summary:

STATUS LED CTRL	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	
Select the Status LED default action		

### Setup submenu: Boot



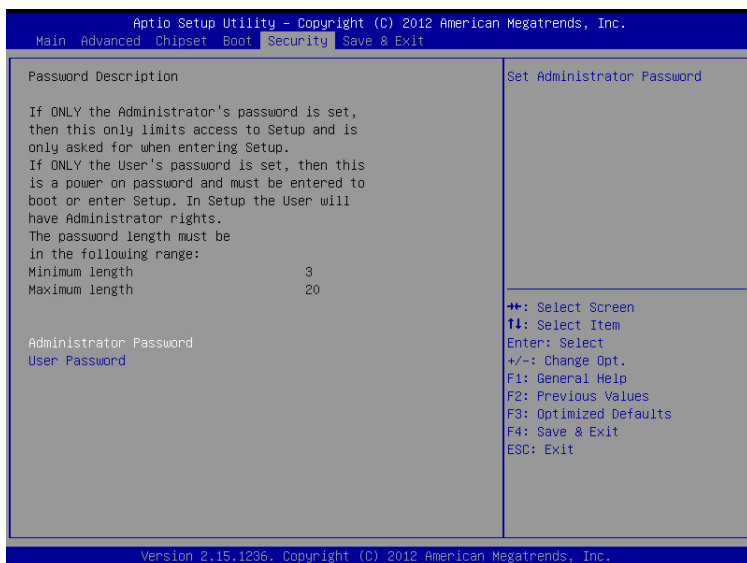
### Options summary:

Quiet Boot	Disabled	Default
	Enabled	
En/Disable showing boot logo.		
Boot on LAN with PXE	Disabled	Default
	Enabled	
En/Disable boot from on board LAN		

## BBS Priorities



## Security



### Change User/Supervisor Password

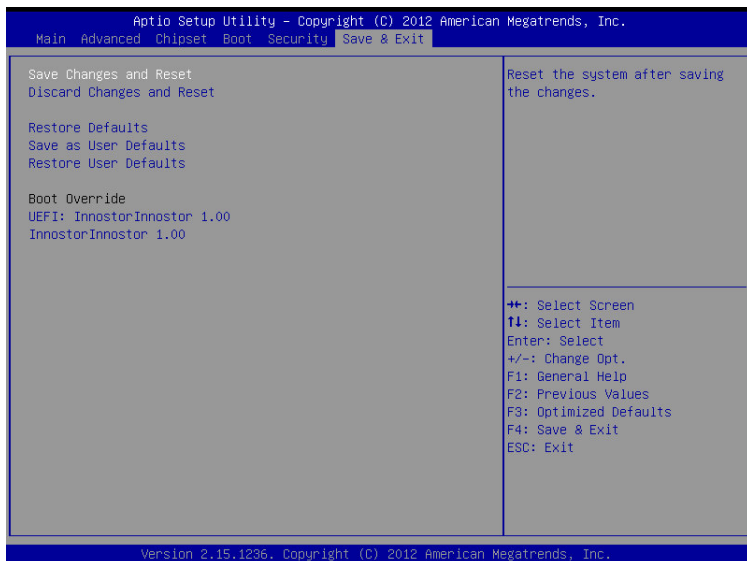
You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

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: Exit



Chapter

4

**Driver  
Installation**

The FWS-2160 comes with an AutoRun DVD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

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

***Follow the sequence below to install the drivers:***

Step 1 – Install Chipset Driver

Step 2 – Install LAN Driver

Step 3 – Install AHCI Driver



## 4.1 Installation:

---

Insert the FWS-2160 DVD-ROM into the DVD-ROM drive and install the drivers from Step 1 to Step 3 in order.

### Step 1 – Install Chipset Driver

1. Click on the **Step 1-Chipset** folder and select the OS folder your system is.
2. Double click on the **Setup.exe**.
3. Follow the instructions that the window shows.
4. The system will help you install the driver automatically.

### Step 2 –Install LAN Driver

1. Click on the **Step 2 –LAN** folder and select the OS folder your system is.
2. Double click on **Setup.exe**.
3. Follow the instructions that the window shows.
4. The system will help you install the driver automatically.

### Step 3 –Install AHCI Driver

Please refer to Appendix D AHCI Setting

Appendix

**A**

**Programming the  
Watchdog Timer**

## A.1 Watchdog Timer Initial Program

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

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

}

\*\*\*\*\*



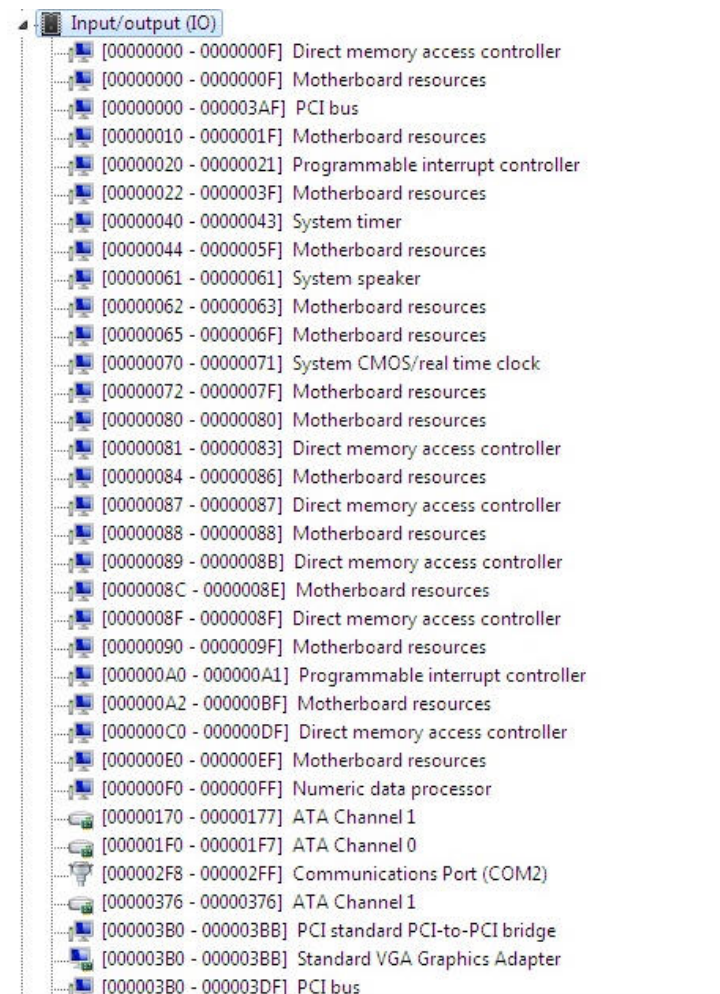
Appendix

**B**




































# I/O Information

































## B.1 I/O Address Map

---



Address Range	Description
[00000000 - 0000000F]	Direct memory access controller
[00000000 - 0000000F]	Motherboard resources
[00000000 - 000003AF]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[00000061 - 00000061]	System speaker
[00000062 - 00000063]	Motherboard resources
[00000065 - 0000006F]	Motherboard resources
[00000070 - 00000071]	System CMOS/real time clock
[00000072 - 0000007F]	Motherboard resources
[00000080 - 00000080]	Motherboard resources
[00000081 - 00000083]	Direct memory access controller
[00000084 - 00000086]	Motherboard resources
[00000087 - 00000087]	Direct memory access controller
[00000088 - 00000088]	Motherboard resources
[00000089 - 0000008B]	Direct memory access controller
[0000008C - 0000008E]	Motherboard resources
[0000008F - 0000008F]	Direct memory access controller
[00000090 - 0000009F]	Motherboard resources
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	Motherboard resources
[000000C0 - 000000DF]	Direct memory access controller
[000000E0 - 000000EF]	Motherboard resources
[000000F0 - 000000FF]	Numeric data processor
[00000170 - 00000177]	ATA Channel 1
[000001F0 - 000001F7]	ATA Channel 0
[000002F8 - 000002FF]	Communications Port (COM2)
[00000376 - 00000376]	ATA Channel 1
[000003B0 - 000003BB]	PCI standard PCI-to-PCI bridge
[000003B0 - 000003BB]	Standard VGA Graphics Adapter
[000003B0 - 000003DF]	PCI bus



































	[000003B0 - 000003DF]	PCI bus
	[000003C0 - 000003DF]	PCI standard PCI-to-PCI bridge
	[000003C0 - 000003DF]	Standard VGA Graphics Adapter
	[000003E0 - 00000CF7]	PCI bus
	[000003F6 - 000003F6]	ATA Channel 0
	[000003F8 - 000003FF]	Communications Port (COM1)
	[0000040B - 0000040B]	Motherboard resources
	[000004D0 - 000004D1]	Motherboard resources
	[000004D6 - 000004D6]	Motherboard resources
	[00000500 - 0000051F]	Motherboard resources
	[00000520 - 0000052F]	Motherboard resources
	[00000530 - 0000053F]	Motherboard resources
	[00000800 - 0000089F]	Motherboard resources
	[00000900 - 0000090F]	Motherboard resources
	[00000910 - 0000091F]	Motherboard resources
	[00000B20 - 00000B3F]	Motherboard resources
	[00000C00 - 00000C01]	Motherboard resources
	[00000C14 - 00000C14]	Motherboard resources
	[00000C50 - 00000C51]	Motherboard resources
	[00000C52 - 00000C52]	Motherboard resources
	[00000C6C - 00000C6C]	Motherboard resources
	[00000C6F - 00000C6F]	Motherboard resources
	[00000CD0 - 00000CD1]	Motherboard resources
	[00000CD2 - 00000CD3]	Motherboard resources
	[00000CD4 - 00000CD5]	Motherboard resources
	[00000CD6 - 00000CD7]	Motherboard resources
	[00000CD8 - 00000CDF]	Motherboard resources
	[00000D00 - 0000FFFF]	PCI bus
	[00009000 - 000090FF]	Realtek PCIe GBE Family Controller #4
	[00009000 - 00009FFF]	PCI standard PCI-to-PCI bridge
	[0000A000 - 0000A0FF]	Realtek PCIe GBE Family Controller
	[0000A000 - 0000AFFF]	PCI standard PCI-to-PCI bridge
	[0000B000 - 0000B0FF]	Realtek PCIe GBE Family Controller #6
	[0000B000 - 0000BFFF]	PCI standard PCI-to-PCI bridge
	[0000C000 - 0000C0FF]	Realtek PCIe GBE Family Controller #5

	[00000B20 - 00000B3F]	Motherboard resources
	[00000C00 - 00000C01]	Motherboard resources
	[00000C14 - 00000C14]	Motherboard resources
	[00000C50 - 00000C51]	Motherboard resources
	[00000C52 - 00000C52]	Motherboard resources
	[00000C6C - 00000C6C]	Motherboard resources
	[00000C6F - 00000C6F]	Motherboard resources
	[00000CD0 - 00000CD1]	Motherboard resources
	[00000CD2 - 00000CD3]	Motherboard resources
	[00000CD4 - 00000CD5]	Motherboard resources
	[00000CD6 - 00000CD7]	Motherboard resources
	[00000CD8 - 00000CDF]	Motherboard resources
	[00000D00 - 0000FFFF]	PCI bus
	[00009000 - 000090FF]	Realtek PCIe GBE Family Controller #4
	[00009000 - 00009FFF]	PCI standard PCI-to-PCI bridge
	[0000A000 - 0000A0FF]	Realtek PCIe GBE Family Controller
	[0000A000 - 0000AFFF]	PCI standard PCI-to-PCI bridge
	[0000B000 - 0000B0FF]	Realtek PCIe GBE Family Controller #6
	[0000B000 - 0000BFFF]	PCI standard PCI-to-PCI bridge
	[0000C000 - 0000C0FF]	Realtek PCIe GBE Family Controller #5
	[0000C000 - 0000CFFF]	PCI standard PCI-to-PCI bridge
	[0000D000 - 0000D0FF]	Realtek PCIe GBE Family Controller #3
	[0000D000 - 0000DFFF]	PCI standard PCI-to-PCI bridge
	[0000E000 - 0000E0FF]	Realtek PCIe GBE Family Controller #2
	[0000E000 - 0000EFFF]	PCI standard PCI-to-PCI bridge
	[0000F000 - 0000F00F]	Standard Dual Channel PCI IDE Controller
	[0000F050 - 0000F05F]	Standard Dual Channel PCI IDE Controller
	[0000F060 - 0000F063]	Standard Dual Channel PCI IDE Controller
	[0000F070 - 0000F077]	Standard Dual Channel PCI IDE Controller
	[0000F080 - 0000F083]	Standard Dual Channel PCI IDE Controller
	[0000F090 - 0000F097]	Standard Dual Channel PCI IDE Controller
	[0000FE00 - 0000FEFE]	Motherboard resources

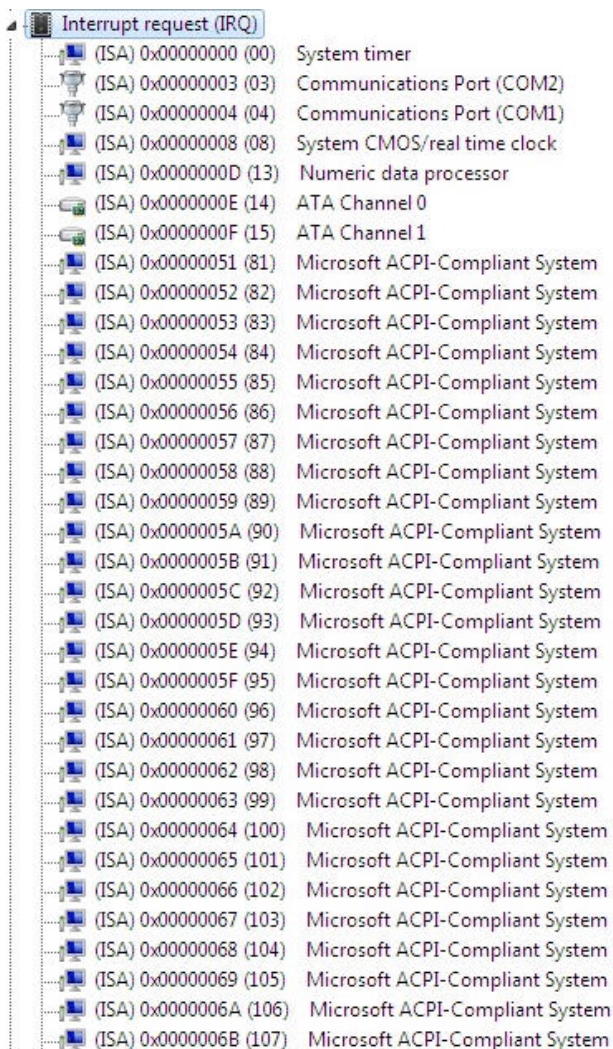
## B.2 Memory Address Map

Memory	
[000A0000 - 000BFFFF]	PCI bus
[000A0000 - 000BFFFF]	PCI standard PCI-to-PCI bridge
[000A0000 - 000BFFFF]	Standard VGA Graphics Adapter
[000C0000 - 000DFFFF]	PCI bus
[E0000000 - EFFFFFFF]	System board
[F0000000 - FFFFFFFF]	PCI bus
[F8000000 - FBFFFFFF]	PCI standard PCI-to-PCI bridge
[F8000000 - FBFFFFFF]	Standard VGA Graphics Adapter
[FC000000 - FC003FFF]	Realtek PCIe GBE Family Controller #4
[FC000000 - FC00FFFF]	PCI standard PCI-to-PCI bridge
[FC100000 - FC103FFF]	Realtek PCIe GBE Family Controller
[FC100000 - FC10FFFF]	PCI standard PCI-to-PCI bridge
[FC200000 - FC203FFF]	Realtek PCIe GBE Family Controller #6
[FC200000 - FC20FFFF]	PCI standard PCI-to-PCI bridge
[FC300000 - FC303FFF]	Realtek PCIe GBE Family Controller #5
[FC300000 - FC30FFFF]	PCI standard PCI-to-PCI bridge
[FC400000 - FC403FFF]	Realtek PCIe GBE Family Controller #3
[FC400000 - FC40FFFF]	PCI standard PCI-to-PCI bridge
[FC500000 - FC503FFF]	Realtek PCIe GBE Family Controller #2
[FC500000 - FC50FFFF]	PCI standard PCI-to-PCI bridge
[FE200000 - FE30FFFF]	Standard VGA Graphics Adapter
[FE200000 - FE40FFFF]	PCI standard PCI-to-PCI bridge
[FE500000 - FE500FFF]	Realtek PCIe GBE Family Controller #4
[FE500000 - FE50FFFF]	PCI standard PCI-to-PCI bridge
[FE600000 - FE600FFF]	Realtek PCIe GBE Family Controller
[FE600000 - FE60FFFF]	PCI standard PCI-to-PCI bridge
[FE700000 - FE700FFF]	Realtek PCIe GBE Family Controller #6
[FE700000 - FE70FFFF]	PCI standard PCI-to-PCI bridge
[FE800000 - FE800FFF]	Realtek PCIe GBE Family Controller #5
[FE800000 - FE80FFFF]	PCI standard PCI-to-PCI bridge
[FE900000 - FE900FFF]	Realtek PCIe GBE Family Controller #3
[FE900000 - FE90FFFF]	PCI standard PCI-to-PCI bridge
[FEA00000 - FEA00FFF]	Realtek PCIe GBE Family Controller #2
[FEA00000 - FEA0FFFF]	PCI standard PCI-to-PCI bridge






































	[FC400000 - FC403FFF] Realtek PCIe GBE Family Controller #3
	[FC400000 - FC4FFFFF] PCI standard PCI-to-PCI bridge
	[FC500000 - FC503FFF] Realtek PCIe GBE Family Controller #2
	[FC500000 - FC5FFFFF] PCI standard PCI-to-PCI bridge
	[FE200000 - FE3FFFFF] Standard VGA Graphics Adapter
	[FE200000 - FE4FFFFF] PCI standard PCI-to-PCI bridge
	[FE500000 - FE500FFF] Realtek PCIe GBE Family Controller #4
	[FE500000 - FE5FFFFF] PCI standard PCI-to-PCI bridge
	[FE600000 - FE600FFF] Realtek PCIe GBE Family Controller
	[FE600000 - FE6FFFFF] PCI standard PCI-to-PCI bridge
	[FE700000 - FE700FFF] Realtek PCIe GBE Family Controller #6
	[FE700000 - FE7FFFFF] PCI standard PCI-to-PCI bridge
	[FE800000 - FE800FFF] Realtek PCIe GBE Family Controller #5
	[FE800000 - FE8FFFFF] PCI standard PCI-to-PCI bridge
	[FE900000 - FE900FFF] Realtek PCIe GBE Family Controller #3
	[FE900000 - FE9FFFFF] PCI standard PCI-to-PCI bridge
	[FEA00000 - FEA00FFF] Realtek PCIe GBE Family Controller #2
	[FEA00000 - FEAFFFFF] PCI standard PCI-to-PCI bridge
	[FEB00000 - FEB00FFF] Standard Enhanced PCI to USB Host Controller
	[FEB01000 - FEB01FFF] Standard OpenHCD USB Host Controller
	[FEB02000 - FEB02FFF] Standard OpenHCD USB Host Controller
	[FEB03000 - FEB030FF] Standard Enhanced PCI to USB Host Controller
	[FEB04000 - FEB04FFF] Standard OpenHCD USB Host Controller
	[FEB05000 - FEB050FF] Standard Enhanced PCI to USB Host Controller
	[FEB06000 - FEB06FFF] Standard OpenHCD USB Host Controller
	[FEB07000 - FEB073FF] Standard Dual Channel PCI IDE Controller
	[FEC00000 - FEC00FFF] Motherboard resources
	[FEC10000 - FEC10FFF] Motherboard resources
	[FED00000 - FED003FF] High precision event timer
	[FED00000 - FED00FFF] Motherboard resources
	[FED61000 - FED70FFF] Motherboard resources
	[FED80000 - FED8FFFF] Motherboard resources
	[FEE00000 - FEE00FFF] Motherboard resources
	[FFC00000 - FFFFFFFF] Motherboard resources

### B.3 IRQ Mapping Chart









































































The image shows a screenshot of the Windows Device Manager, specifically the 'Interrupt request (IRQ)' section. The list displays various hardware components and their corresponding IRQ numbers. The first few entries include System timer, Communications Port (COM2), Communications Port (COM1), System CMOS/real time clock, Numeric data processor, ATA Channel 0, and ATA Channel 1. The remaining entries are all 'Microsoft ACPI-Compliant System' devices, each assigned a unique IRQ number from 81 to 107.



































Device	IRQ
System timer	(ISA) 0x00000000 (00)
Communications Port (COM2)	(ISA) 0x00000003 (03)
Communications Port (COM1)	(ISA) 0x00000004 (04)
System CMOS/real time clock	(ISA) 0x00000008 (08)
Numeric data processor	(ISA) 0x0000000D (13)
ATA Channel 0	(ISA) 0x0000000E (14)
ATA Channel 1	(ISA) 0x0000000F (15)
Microsoft ACPI-Compliant System	(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)

 (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



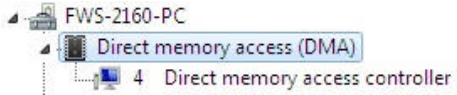
 (ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
 (ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
 (ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
 (ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
 (ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
 (ISA) 0x00000092 (146)	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) 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) 0x00000010 (16)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000010 (16)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000010 (16)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000010 (16)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000011 (17)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000011 (17)	Standard Enhanced PCI to USB Host Controller
	(PCI) 0x00000011 (17)	Standard Enhanced PCI to USB Host Controller
	(PCI) 0x00000011 (17)	Standard Enhanced PCI to USB Host Controller
	(PCI) 0x00000012 (18)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000013 (19)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000013 (19)	Standard Dual Channel PCI IDE Controller
	(PCI) 0xFFFFFFF9 (-7)	Realtek PCIe GBE Family Controller #6
	(PCI) 0xFFFFFFFA (-6)	Realtek PCIe GBE Family Controller #5
	(PCI) 0xFFFFFFF8 (-5)	Realtek PCIe GBE Family Controller #3
	(PCI) 0xFFFFFFF8 (-4)	Realtek PCIe GBE Family Controller #2

	(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) 0x00000010 (16)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000010 (16)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000010 (16)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000010 (16)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000011 (17)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000011 (17)	Standard Enhanced PCI to USB Host Controller
	(PCI) 0x00000011 (17)	Standard Enhanced PCI to USB Host Controller
	(PCI) 0x00000011 (17)	Standard Enhanced PCI to USB Host Controller
	(PCI) 0x00000012 (18)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000013 (19)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000013 (19)	Standard Dual Channel PCI IDE Controller
	(PCI) 0xFFFFFFF9 (-7)	Realtek PCIe GBE Family Controller #6
	(PCI) 0xFFFFFFF8 (-6)	Realtek PCIe GBE Family Controller #5
	(PCI) 0xFFFFFFF7 (-5)	Realtek PCIe GBE Family Controller #3
	(PCI) 0xFFFFFFF6 (-4)	Realtek PCIe GBE Family Controller #2
	(PCI) 0xFFFFFFF5 (-3)	Realtek PCIe GBE Family Controller
	(PCI) 0xFFFFFFF4 (-2)	Realtek PCIe GBE Family Controller #4

## B.4 DMA Channel Assignments

---



Appendix

C

# Standard Firewall Platform Setting

## C.1 Standard Firewall Platform Setting

Status LED	Disable	I/O PORT B2h I/O PORT FAh	set bit 2 and bit 3 to 0, set bit 0-7 to 0
	Red LED ON	I/O PORT B2h I/O PORT FAh	set bit 2 to 1, set bit 0-7 to 0
	Red LED Blink	I/O PORT B2h I/O PORT FAh	set bit 2 to 1, set bit1,bit3,bit4 to 1
	Green LED ON	I/O PORT B2h I/O PORT FAh	set bit 3 to 1, set bit 0-7 to 0
	Green LED Blink	I/O PORT B2h I/O PORT FAh	set bit 3 to 1, set bit0,bit1,bit3,bit4 to 1
LAN Bypass	Disable	I/O PORT B2h I/O PORT B2h	set bit 0 to 1, set bit 1 to 0
	Force Mode	I/O PORT B2h	set bit 0 to 1
	Watch Dog Mode	I/O PORT B2h I/O PORT B2h	set bit 0 to 1, set bit 1 to 1
Software Reset		Press Software Reset button I/O PORT: B2h bit 7 will be set 1	

## C.2 Status LED Sample Code

Status LED Sample code

[Disabled LED Function]

```

mov dx,B2h          ;( IO_PORT = B2h)
in  al,dx
and  al,11110011b  ;Clear GPIO32&GPIO33
out dx,al

mov dx,FAh         ;( IO_PORT = FAh)
in  al,dx
mov  al,00000000b  ;Clear GPIO32&GPIO33

```

blink

```
out dx,al
```

[RED LED ON]

```
mov dx,B2h          ;( IO_PORT = B2h)
```

```
in al,dx
```

```
or al,00000100b ;GPIO32 bit2
```

```
out dx,al
```

```
mov dx,FAh          ;( IO_PORT = FAh)
```

```
in al,dx
```

```
mov al,00000000b   ;Clear GPIO32&GPIO33
```

blink

```
out dx,al
```

[RED LED BLINK]

```
mov dx,B2h          ;( IO_PORT = B2h)
```

```
in al,dx
```

```
or al,00000100b ;GPIO32 bit2
```

```
out dx,al
```

```
mov dx,FAh          ;( IO_PORT = FAh)
```

```
in al,dx
```

```
mov al,00011010b ;GPIO32 blink
```

```
out dx,al
```

## [GREEN LED ON]

```
mov dx,B2h          ;( IO_PORT = B2h)
in  al,dx
or  al,00001000b   ;GPIO33 bit3
out dx,al
```

```
mov dx,FAh          ;( IO_PORT = FAh)
in  al,dx
mov  al,00000000b   ;Clear GPIO32&GPIO33 blink
out dx,al
```

## [GRN LED BLINK]

```
mov dx,B2h          ;( IO_PORT = B2h)
in  al,dx
or  al,00001000b   ;GPIO33 bit3
out dx,al
```

```
mov dx,FAh          ;( IO_PORT = FAh)
in  al,dx
mov  al,00011011b   ;GPIO33 blink
out dx,al
```



### C.3 LAN Bypass Mode Sample Code

---

#### LAN BYPASS MODE Sample code

##### [Disable Function]

```
mov dx,B2h      ;( IO_PORT = B2h)
in  al,dx
or  al,00000001b ;set bit 0-->Low
out dx,al
```

```
mov dx,B2h      ;( IO_PORT = B2h)
in  al,dx
and al,11111101b ;set bit 1-->High
out dx,al
```

##### [Force Mode]

```
mov dx,B2h      ;( IO_PORT = B2h)
in  al,dx
and al,11111110b ;set bit 0-->High
out dx,al
```

##### [Watch Dog Mode]

```
mov dx,B2h      ;( IO_PORT = B2h)
in  al,dx
or  al,00000001b ;set bit 0-->Low
```

```
out dx,al
```

```
mov dx,B2h      ;( IO_PORT = B2h)
```

```
in  al,dx
```

```
or  al,00000010b ;set bit 1-->Low
```

```
out dx,al
```

## 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-2160 and remote client system.

2. Setup BIOS in FWS-2160

BIOS >> advanced BIOS features >> Baud Rate:

19200(Default)

BIOS >> advanced BIOS features >> Console Redirection:

Enable (Default)

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

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

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

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

Step3 - Click OK

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

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

4. Power on FWS-2160 and it will display the BIOS information on the client system.

Appendix

**D**

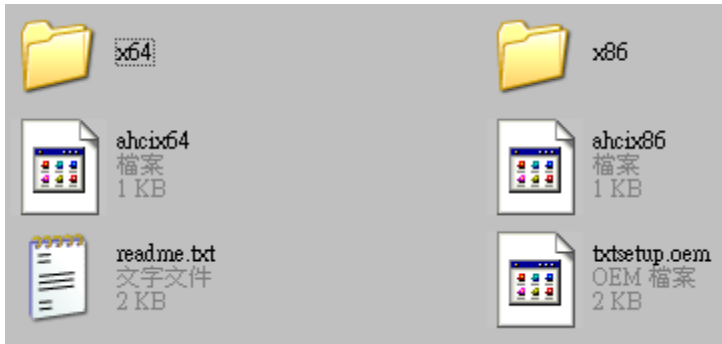
# AHCI Setting

## D.1 Setting AHCI

---

OS installation to setup AHCI Mode

Step 1: Copy the files below from "**Driver CD ->|Step2 - AHCI\_RAID|WinXP|3.3.1540.26**" to Disk

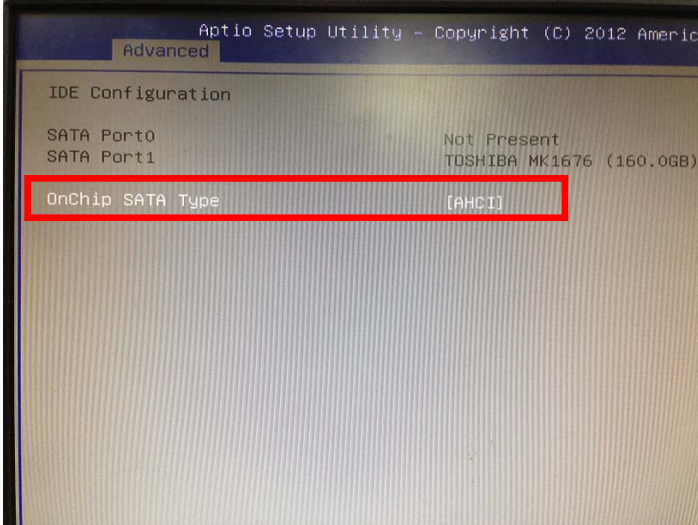


Step 2: Connect the USB Floppy (disk with AHCI files) to the board



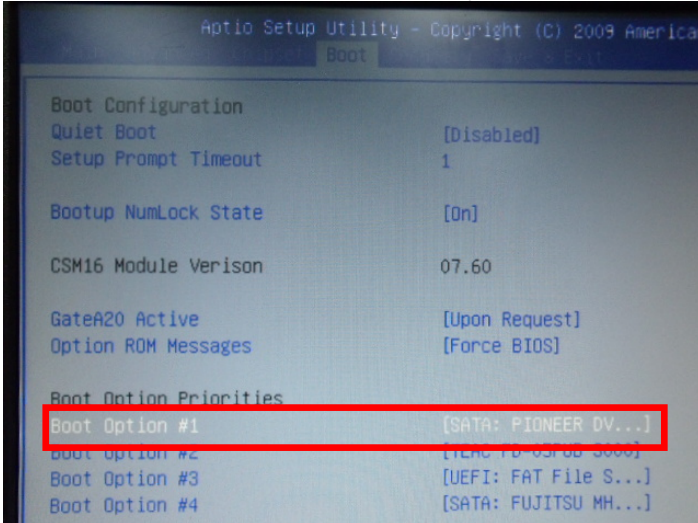
Step 3: The setting procedures “In BIOS Setup Menu”

**A: Advanced -> IDE Configuration -> OnChip SATA Type -> AHCI**



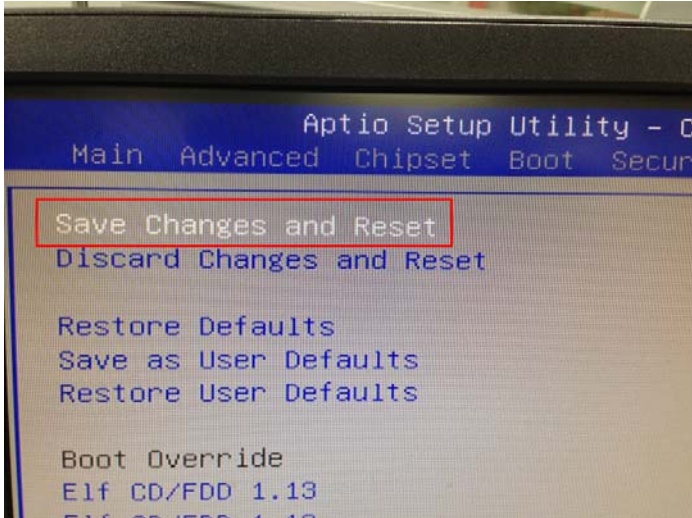
Step 4: The setting procedures “In BIOS Setup Menu”

**B: Boot -> Boot Option #1 -> DVD-ROM Type**

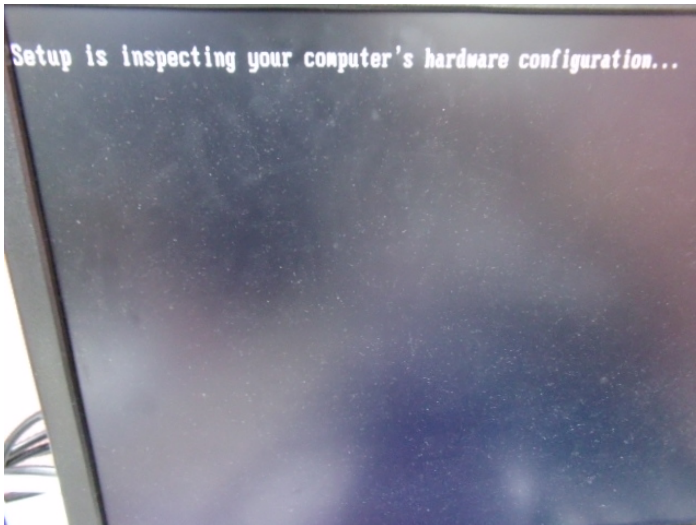


Step 5: The setting procedures "In BIOS Setup Menu"

**C: Save & Exit -> Save Changes and Reset**



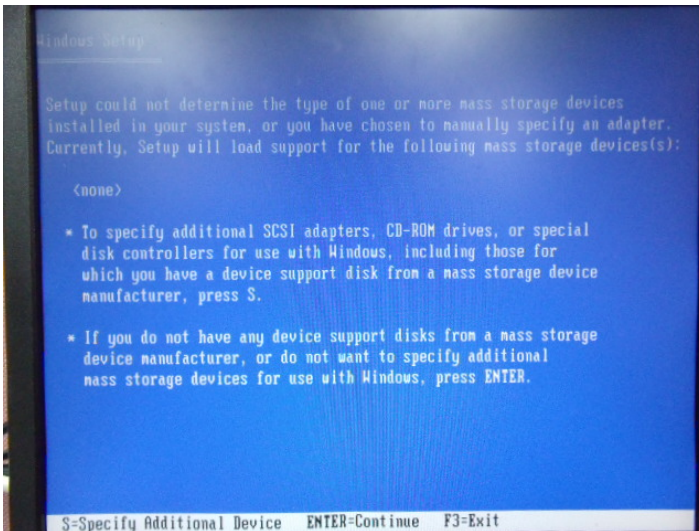
Step 6: Setup OS



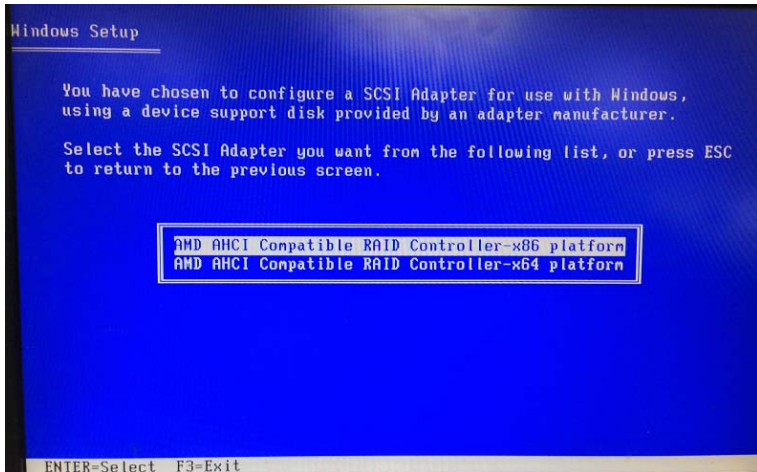
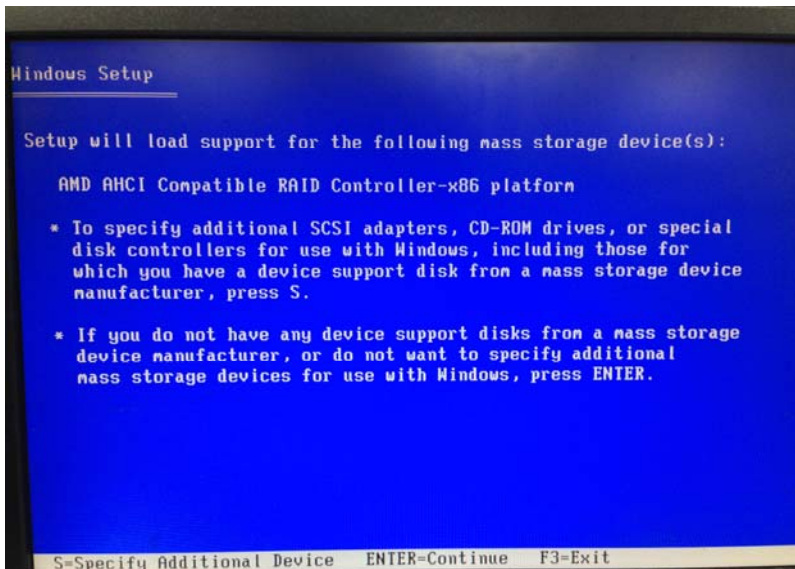
## Step 7: Press "F6"



## Step 8: Choose "S"





**Step 9: Choose “AMD AHCI Compatible RAID Controller-x86/x64 platform”****Step 10: It will show the model number you select and then press “ENTER”**

Step 11: Setup is loading files

