

FWS-7821

Network Appliance

User's Manual 5th Ed

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Packing List

Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
● FWS-7821	1
● EAR bracket kit	1
● Console cable	1

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

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the product page on AAEON.com for the latest version of this document.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. All cables and adapters supplied by AAEON are certified and in accordance with the material safety laws and regulations of the country of sale. Do not use any cables or adapters not supplied by AAEON to prevent system malfunction or fires.
3. Make sure the power source matches the power rating of the device.
4. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
5. Always completely disconnect the power before working on the system's hardware.
6. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
7. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
8. Always disconnect this device from any AC supply before cleaning.
9. While cleaning, use a damp cloth instead of liquid or spray detergents.
10. Make sure the device is installed near a power outlet and is easily accessible.
11. Keep this device away from humidity.
12. Place the device on a solid surface during installation to prevent falls
13. Do not cover the openings on the device to ensure optimal heat dissipation.
14. Watch out for high temperatures when the system is running.
15. Do not touch the heat sink or heat spreader when the system is running
16. Never pour any liquid into the openings. This could cause fire or electric shock.

17. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
18. If any of the following situations arises, please the contact our service personnel:
 - i. Damaged power cord or plug
 - ii. Liquid intrusion to the device
 - iii. Exposure to moisture
 - iv. Device is not working as expected or in a manner as described in this manual
 - v. The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device
19. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.**

FCC Statement

Warning!



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

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.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON System

QO4-381 Rev.A2

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	×	○	○	○	○	○
液晶模块	×	○	○	○	○	○
光驱	×	○	○	○	○	○
触控模块	×	○	○	○	○	○
电源	×	○	○	○	○	○
电池	×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。
○：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 GB/T 26572 标准规定的限量要求以下。
×：表示该有害物质的某一均质材料超出了 GB/T 26572 的限量要求，然而该部件仍符合欧盟指令 2011/65/EU 的规范。
环保使用期限(EFUP (Environmental Friendly Use Period))：10 年
备注：
一、此产品所标示之环保使用期限，系指在一般正常使用状况下。
二、上述部件物质中央处理器、内存、硬盘、光驱、电源为选购品。
三、上述部件物质液晶模块、触控模块仅一体机产品适用。

China RoHS Requirement (EN)

Name and content of hazardous substances in product

AAEON System

QO4-381 Rev.A2

Part Name	Hazardous Substances					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
PCB Assemblies	×	○	○	○	○	○
Connector and Cable	×	○	○	○	○	○
Chassis	○	○	○	○	○	○
CPU and Memory	×	○	○	○	○	○
Hard Disk	×	○	○	○	○	○
LCD Modules	×	○	○	○	○	○
CD-ROM/DVD-ROM	×	○	○	○	○	○
Touch Modules	×	○	○	○	○	○
Power	×	○	○	○	○	○
Battery	×	○	○	○	○	○
The table is prepared in accordance with the provisions of SJ/T 11364. ○ : Indicates that said hazardous substance contained in all of the homogenous materials for this product is below the limit requirement of GB/T 26572. × : Indicates that said hazardous substance contained in at least one of the homogenous materials used for this part is above the limit requirement of GB/T 26572. But this product still be compliance with 2011/65/EU Directive (allowed with 2011/65/EU Annex III of RoHS exemption with number 6(c),7(a),7(c)-1). EFUP (Environment Friendly Use Period) value: 10 years. Notes: 1. This product defined period of use is under normal condition. 2. In above part, CPU/Memory/ Hard Disk/CD-ROM/DVD-ROM/ Power are optional. 3. In above part, LCD Modules/ Touch Modules are for all-in-one product model.						

Table of Contents

Chapter 1 - Product Specifications.....	1
1.1 Specifications	2
Chapter 2 – Hardware Information	6
2.1 Dimensions	7
2.2 Jumpers and Connectors.....	13
2.3 List of Jumpers	18
2.3.1 Auto PWR Button (JP1).....	18
2.3.2 Clear CMOS (CN14)	18
2.3.3 CF Voltage Select (CN27).....	18
2.4 List of Connectors.....	19
2.4.1 Front Panel (FP1)	21
2.4.2 COM Port 2 (Only RS232) (COM1)	21
2.4.3 PS2 Connector (CN31).....	22
2.4.4 DIO Connector (CN32)	22
2.5 Installing 2.5" Hard Disk Drives (2 Pieces)	23
2.6 Installing 2.5" Hard Disk Drives (4 Pieces)	28
2.7 Installing 3.5" Hard Disk (1 Piece)	35
2.8 Installing Expansion Card	38
2.9 Installing Network Interface Module	40
Chapter 3 - AMI BIOS Setup	42
3.1 System Test and Initialization	43
3.2 AMI BIOS Setup	44
3.3 Main.....	45
3.4 Advanced	46
3.4.1 Advanced: CPU Configuration	47
3.4.2 Advanced: SATA Configuration	48

3.4.3	Advanced: Trusted Computing.....	49
3.4.4	Advanced: Hardware Monitor	51
3.4.4.1	Smart Fan Function.....	52
3.4.5	Advanced: SIO Configuration.....	54
3.4.5.1	Serial Port 1 Configuration	55
3.4.5.2	Serial Port 2 Configuration.....	56
3.4.5.3	Parallel Port Configuration	57
3.4.6	Advanced: LAN Bypass Configuration.....	58
3.4.7	Advanced: Serial Port Console Redirection	59
3.4.7.1	COM0 Console Redirection Settings.....	60
3.4.7.2	Legacy Console Redirection Settings.....	63
3.4.7.3	Serial Port for Out-of-Band Management/Windows EMS.....	64
3.4.8	Advanced: Digital IO Port Configuration	66
3.4.9	Advanced: Power Management.....	67
3.5	Chipset.....	69
3.5.1	Chipset: System Agent (SA) Configuration.....	70
3.5.1.1	Graphics Configuration	71
3.7	Security	72
3.8	Boot.....	73
3.9	Save & Exit	74
Chapter 4	– Drivers Installation.....	75
4.1	Drivers Installation	76
Appendix A	- Watchdog Timer Programming.....	78
A.1	Watchdog Timer Initial Program	79
Appendix B	- I/O Information	85
B.1	I/O Address Map	86
B.2	Memory Address Map	88
B.3	IRQ Mapping Chart.....	90

Appendix C - Standard LAN Bypass Platform Setting	104
C.1 Status LED	105
C.1.2 Status LED Configuration.....	105
C.1.3 Satus LED Sample Code	106
C.2 LAN Bypass.....	108
C.2.1 LAN Bypass Configuration	108
C.2.2 LAN Bypass Sample Code.....	110
C.3 Software Reset Button (General Propose Input)	112
C.3.1 Software Reset Button.....	112
C.3.2 Software Reset Button Sample Code	113

Chapter 1

Product Specifications

1.1 Specifications

Platform

Form Factor	1U Rackmount Network Platform
Processor	Intel® 6th/7th Generation Core™/ Xeon Processors
Chipset	Intel® C236
System Memory	DDR4 1866/2133/2400 UDIMM/ECC Up to 64GB 288-pin DIMM x 4

Network

Ethernet	Intel® i211 GbE x 6 + Intel® i210 GbE x 2 (SFP) NIM x 1 (Or i211 GbE x8 +NIMx1) UDIMM/ECC
Bypass	Onboard 2 pairs bypass, others depend on NIM module
NIM Slot	1

Display

Graphic Controller	Intel® Integrated
Connector	VGA cable (Optional)

Storage

HDDs	Internal 2.5" SATA HDD x 2 or 3.5" SATA HDD x 1 (optional)
CF/CFast/mSATA	Optional BOM CFast™ socket or mSATA slot or CF™ socket (optional)

Expansion/Internal Interface

PCIe slot	Up to PCIe x 2 [x8] slots
Mini-PCIe slot	Mini Card x 1
Keyboard and Mouse	Pin-header
Universal Serial Bus	USB 3.0 x 2, Box Header (2.0mm)

Miscellaneous

RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable, 1 sec per step
Software Button	GPIO Programmable push button x 1
TPM	TPM v1.2 9660 (TPM2.0 9665 optional)
GPIO	4 bits input, 4bits output
FAN	2
MTBF (Hours)	94,241
Color	Black

Environmental Parameters and Dimension

Power Requirement	250W ATX PSU
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10% ~ 80% relative humidity, non-condensing
Storage Humidity	10% ~ 80% @ 40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)

I/O Interfaces

Front Panel	Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.0 Ports x 2 RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 (Optional w/ NIM slot) Software Programmable Switch x 1 Bypass LED X2 RJ45 X8 or RJ45 X6+SFPX 2
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I/O Interfaces

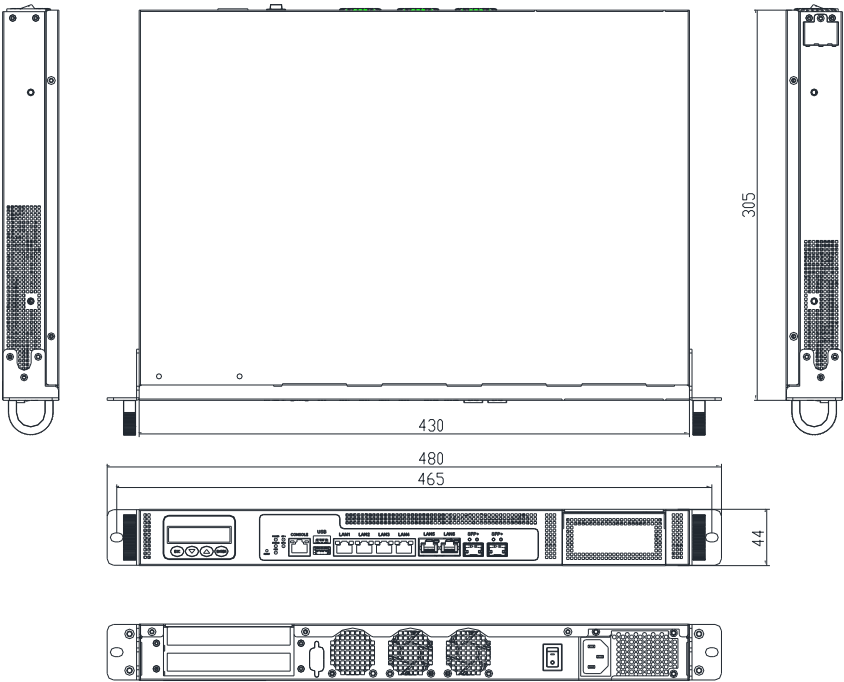
Rear Panel	AC Power Input x 1
	Power Switch x 1
	VGA port (Optional)
	Rear Expansion Slot x 2 (2 x PCIe [x8] slots, NIM slot will be disabled if PCIe Riser supported)

Chapter 2

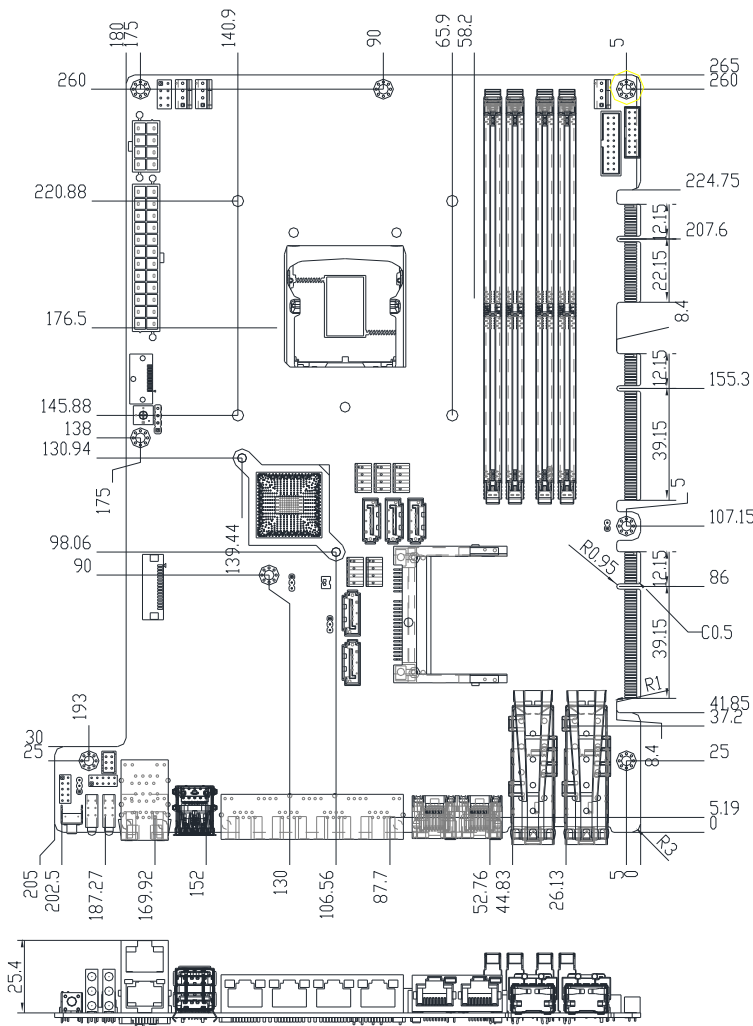
Hardware Information

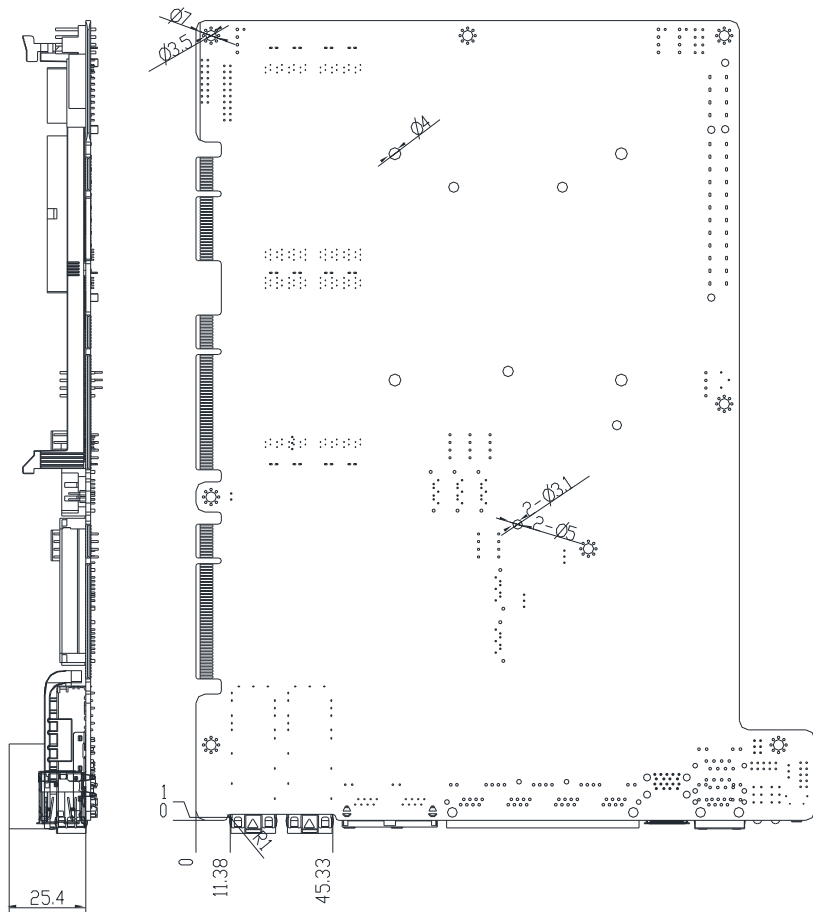
2.1 Dimensions

System

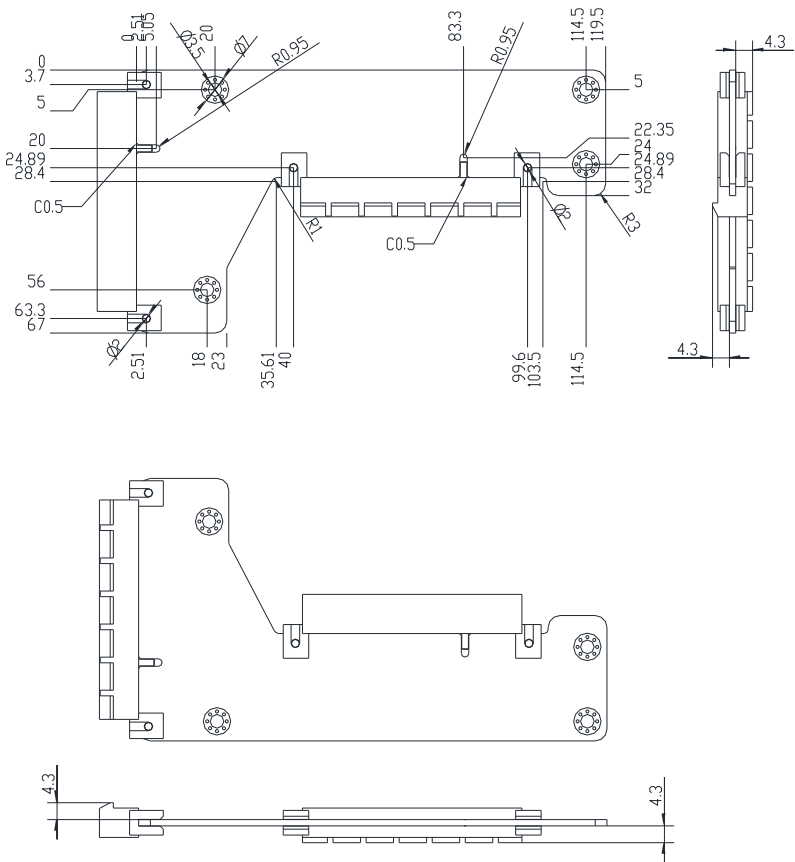


Board

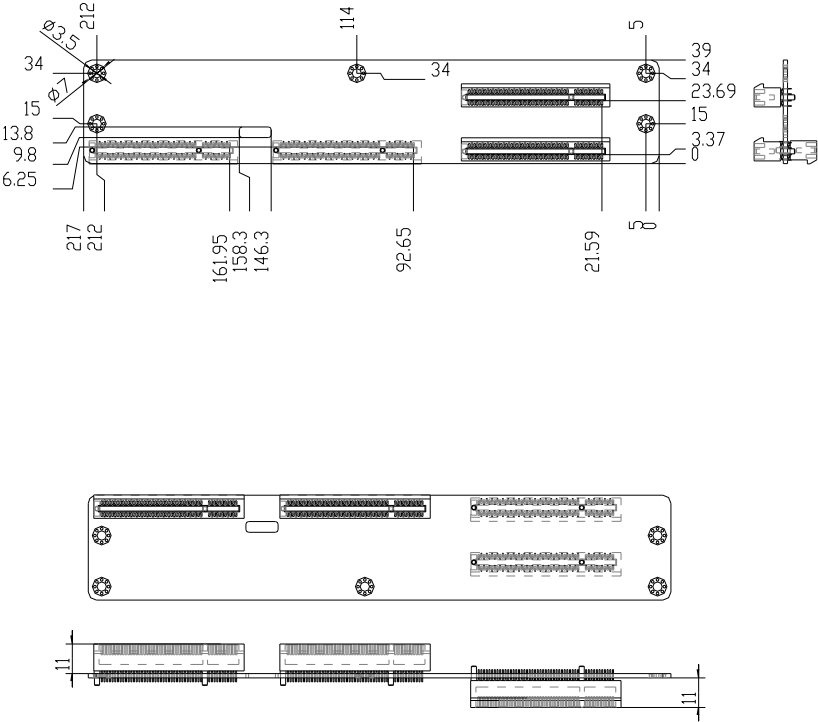




PER-R40X NIM LAN Riser Card



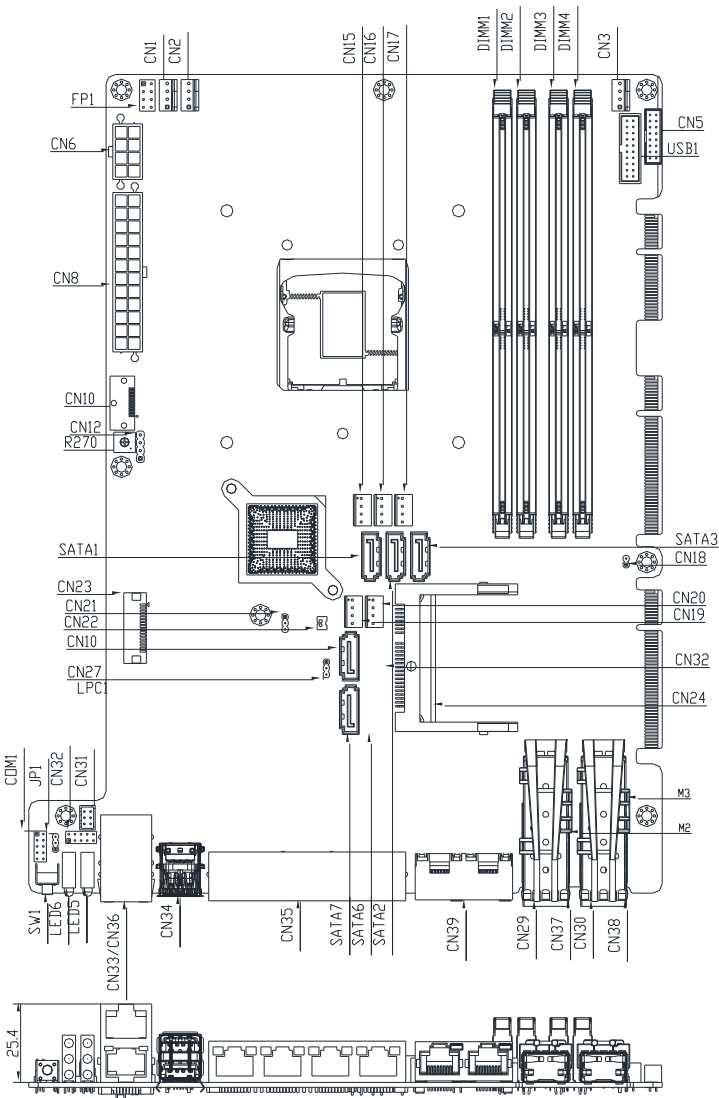
PER-R44X Two Slot Rear PCIe Riser Card



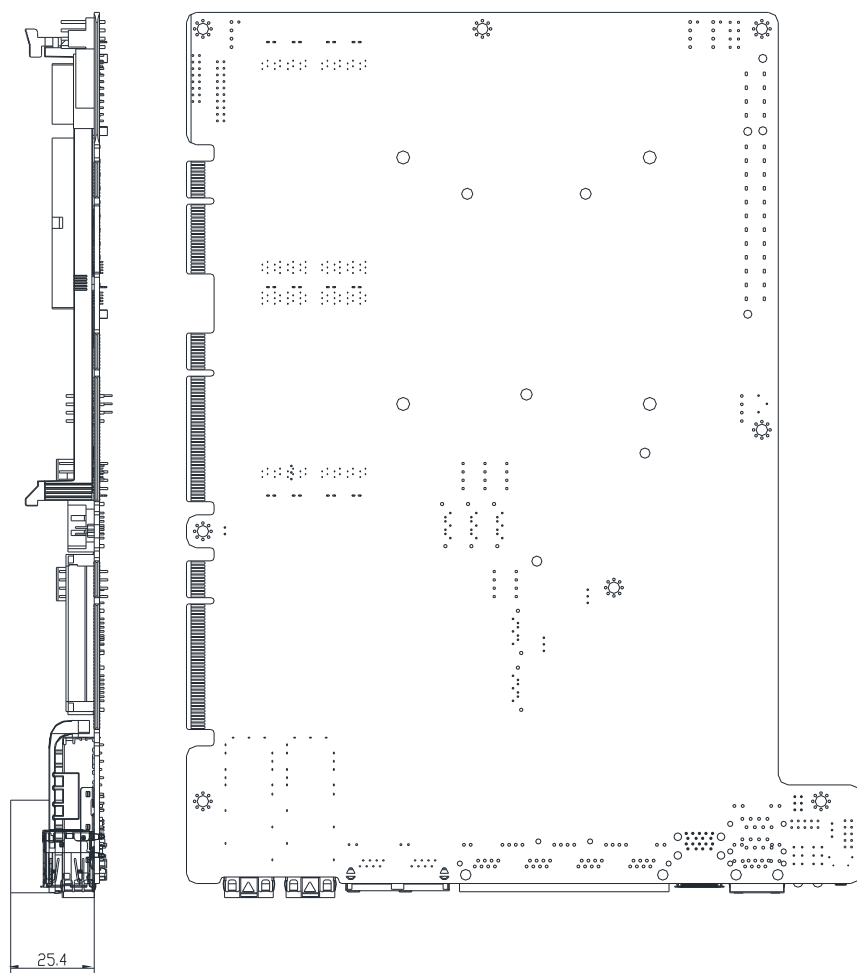


2.2 Jumpers and Connectors

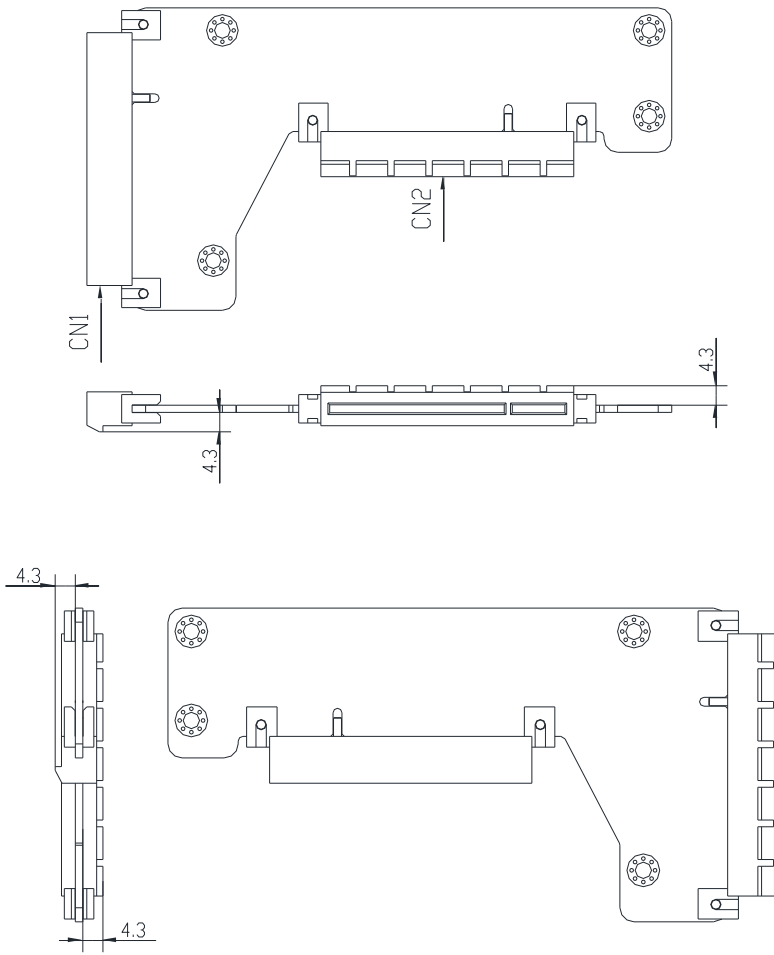
Board Component Side



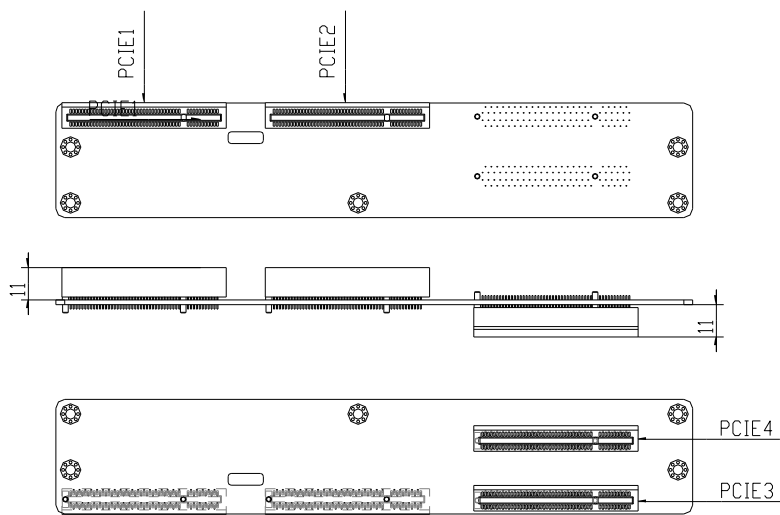
Board Solder Side



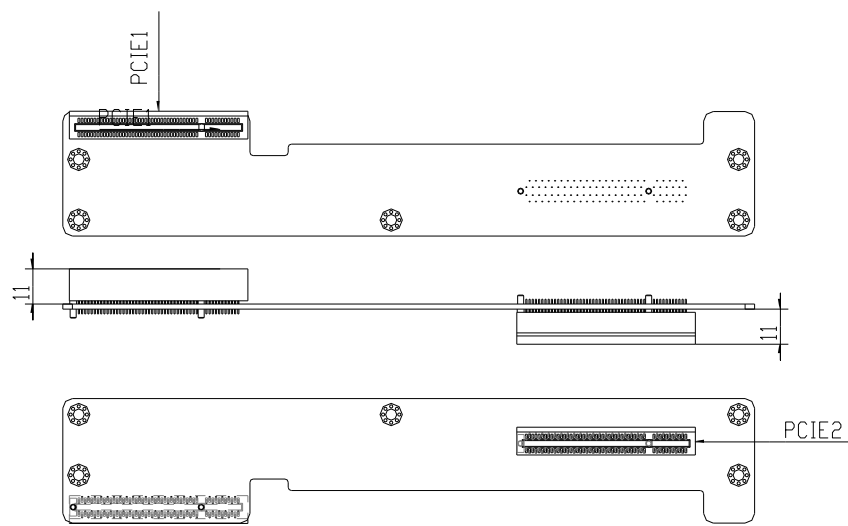
PER-R40X NIM LAN Riser Card



PER-R44X Two Slot Rear PCIe Riser Card



PER-T354 One Slot Rear PCIe Riser Card



2.3 List of Jumpers

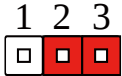
Please refer to the table below for all of the board's jumpers that you can configure for your application

Label	Function
JP1	Auto PWR Button
CN14	Clear CMOS
CN27	CF Voltage SEL

2.3.1 Auto PWR Button (JP1)



Auto PWR Off (Default)

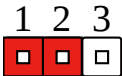


Auto PWR On

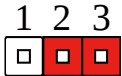
2.3.2 Clear CMOS (CN14)

Normal (Default)	1-3, 2-4
Clear CMOS	3-5, 4-6

2.3.3 CF Voltage Select (CN27)



5V (Default)



3.3V

2.4 List of Connectors

Please refer to the table below for all of the board's connectors that you can configure for your application

Label	Function
FP1	Front Panel
DIMM1	DDR4 UDIMM
DIMM2	
DIMM3	
DIMM4	
USB1	USB3.0 EXT CON
CN1	CPU FAN, SYS FAN 1 & 2
CN2	
CN3	
CN5	VGA CON
CN6	ATX 8PIN CON
CN7	Expansion slot For IPMI(Optional)
CN8	ATX 24PIN CON
CN10	HDMI CON
CN13	PCIe Expansion slot
	Use with:
	PER-R40X For NIM
	PER-R44X For 2 x STD PCIe x8 Slot
CN12	KAYPAD Header
CN15	SATA 4P POWER
CN16	
CN17	
CN19	
CN20	

Label	Function
CN23	LCM CON
CN24	CF
CN25	CFAST
CN28	PCIe Expansion slot Use with: PER-R44X For 2 x STD PCIe x8 Slot PER-T354 For 1 x STD PCIe x8 Slot
CN31	PS2 CON
CN32	DIO CON
CN34	USB3.0 x2
CN35	LAN1~LAN4
CN36	CONSOLE Port (COM Port1)
CN37	LAN7
CN38	LAN8
CN39	LAN5~LAN6
COM1	COM Port2
LED5	LED indicate
LED6	LED indicate
M2	SFP Port1.2
M3	
SATA1	SATA CON
SATA2	
SATA3	
SATA4	
SATA5	
SATA6	
SATA7	

Label	Function
MSATA1	MSATA CON
SW1	Software Reset

2.4.1 Front Panel (FP1)

Pin	Signal	Pin	Signal
1	PWR_SW#	2	GND
3	RESET	4	GND
5	PWR LED+	6	PWR LED-
7	HDD LED+	8	HDD LED-

2.4.2 COM Port 2 (Only RS232) (COM1)

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

2.4.3 PS2 Connector (CN31)

Pin	Signal	Pin	Signal
1	PS2_KDAT	2	PS2_KCLK
3	GND	4	+V5S
5	PS2_MDAT	6	PS2_MCLK

2.4.4 DIO Connector (CN32)

Pin	Signal	Pin	Signal
1	DIO1	2	DIO2
3	DIO3	4	DIO4
5	DIO5	6	DIO6
7	DIO7	8	DIO8
9	3.3V	10	GND

2.5 Installing 2.5" Hard Disk Drives (2 Pieces)

1. Remove the highlighted screws

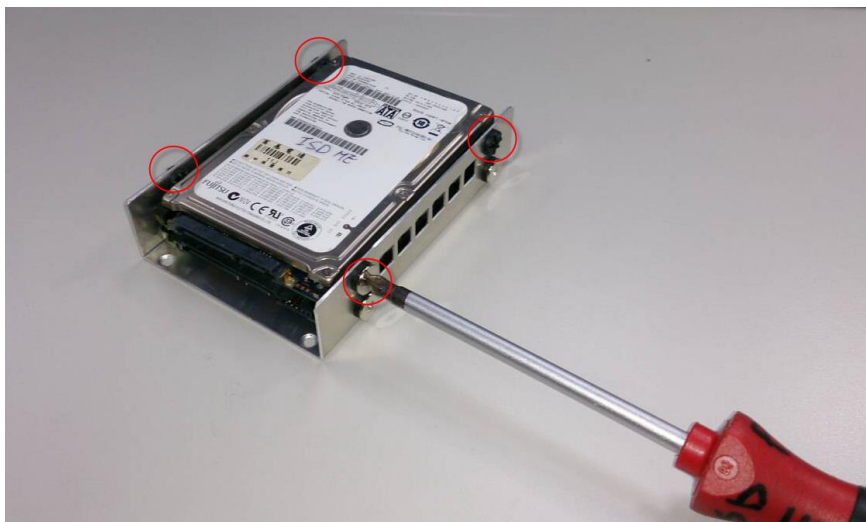


2. From the front of the system, slide it upwards to remove



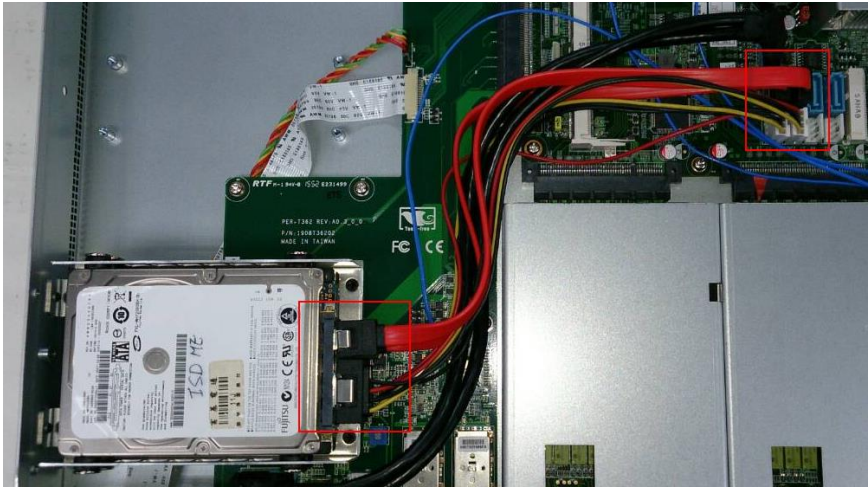
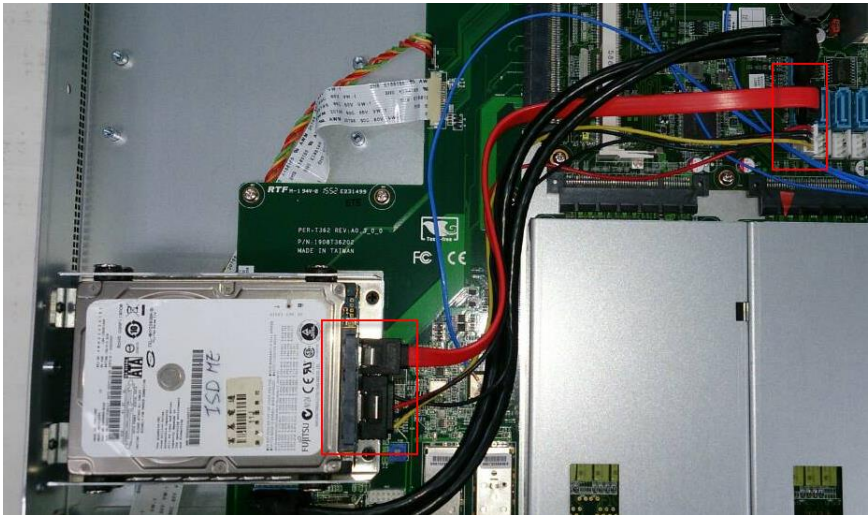
-

4. Place the HDDs into the bracket, tighten the screws to secure



5. Place the assembled HDDs back into the system, secure with screws and reattach the SATA and power cables.





2.6 Installing 2.5" Hard Disk Drives (4 Pieces)

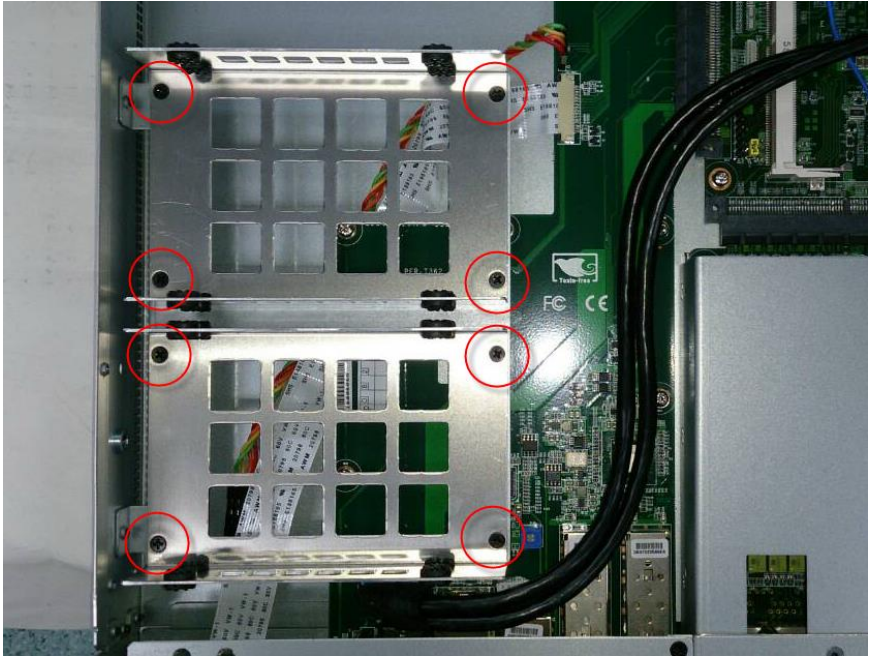
1. Remove the highlighted screws



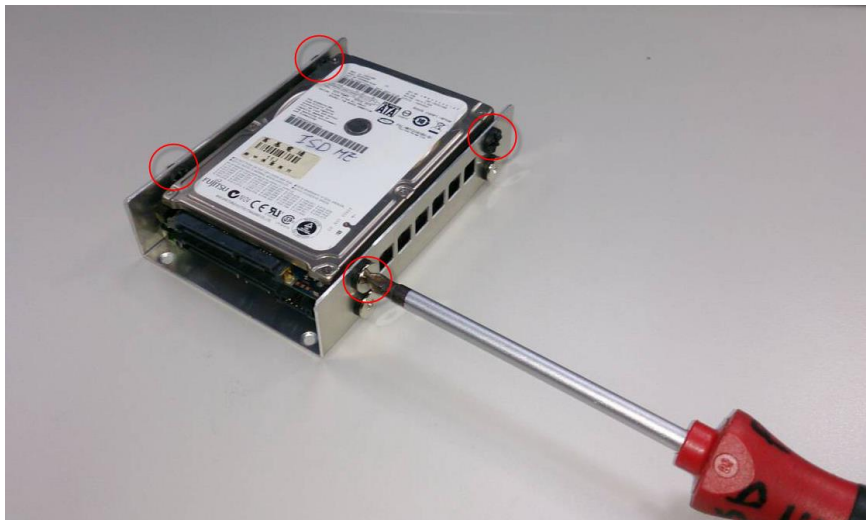
2. From the front of the system, slide it upwards to remove



3. Remove the eight highlighted screws to remove the HDD brackets



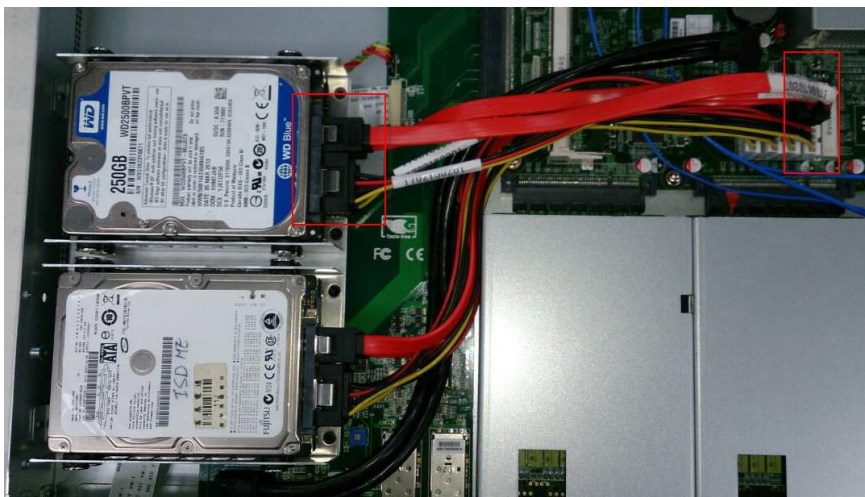
4. Place the HDDs into the bracket, tighten the screws to secure



- [illegible]







2.7 Installing 3.5" Hard Disk (1 Piece)

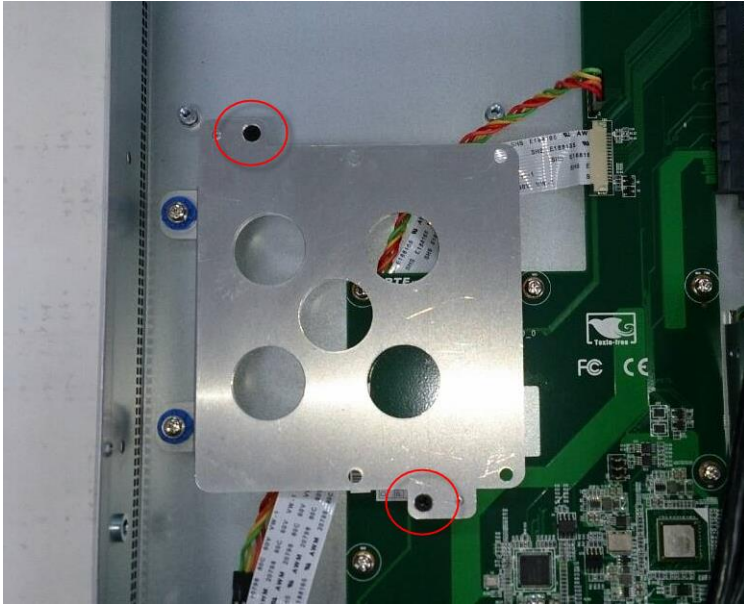
1. Remove the highlighted screws



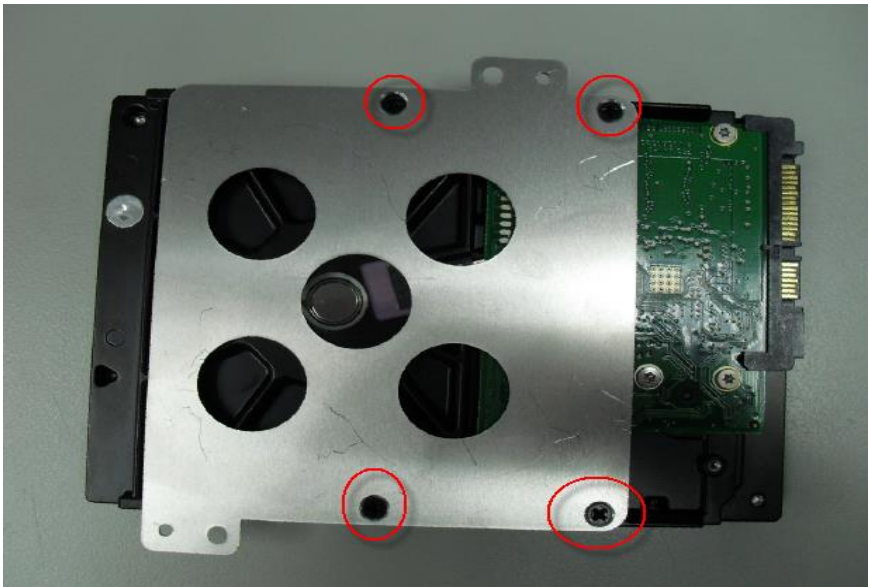
2. From the front of the system, slide it upwards to remove



3. Remove the screws to remove the bracket



4. Place the 3.5" HDD on the bracket, secure with screws on the underside



- Put the assembled HDD on the HDD bay, secure with screws and reattach the SATA and power cables



2.8 Installing Expansion Card

1. Remove the highlighted screws



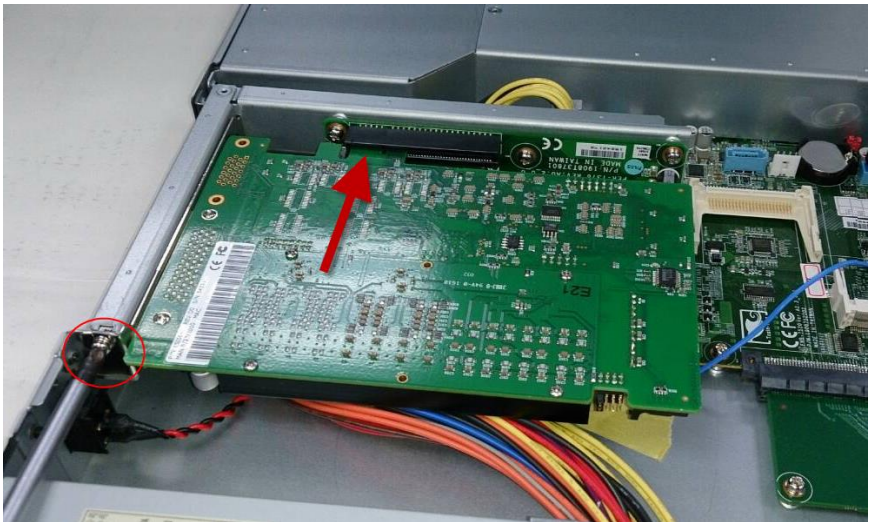
2. From the front of the system, slide it upwards to remove



3. Remove the screw to remove the cover bracket



4. Firmly insert the expansion card into the slot and secure the screw.



2.9 Installing Network Interface Module

1. Remove the highlighted screws to remove the NIM cover



2. Remove the highlighted screws to remove the NIM



3. Insert the NIM and secure with screws



4. Close the NIM cover and secure with screws



Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

The system uses certain routines to perform testing and initialization. If the routines encounter an error, it will notify the user with either a few short beeps or by displaying an error message. There are two kinds of errors, fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

The system configuration verification routines check the current system configuration stored in the CMOS memory and BIOS NVRAM. If a system configuration is not found, or if an error is encountered, the system will load the default system configuration settings and reboot automatically.

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

- You are starting your system for the first time
- You have changed your system's hardware
- The system configuration has been reset by the Clear CMOS jumper
- The CMOS memory has lost power and the configuration information is erased

The system's CMOS memory uses a backup battery for data retention, which must be replaced when it runs down.

3.2 AMI BIOS Setup

The AMI BIOS ROM has a pre-installed Setup program that allows users to modify basic system configurations. The configuration settings are stored in the battery-backed CMOS RAM and BIOS NVRAM so that the information is retained when the power is turned off.

To enter BIOS Setup, press or <Esc> immediately while your computer is powering up.

The following is a summary of each submenu:

Main – Basic information and set system Date/Time

Advanced – Advanced configuration settings for major features and hardware

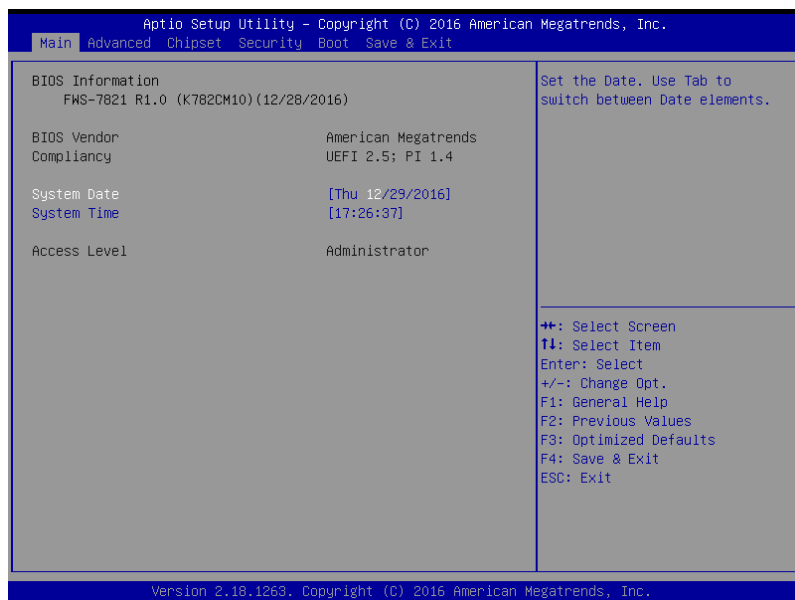
Chipset – Configure chipset features and settings

Security – Set BIOS Administrator and User passwords

Boot – Configure Boot settings and priorities

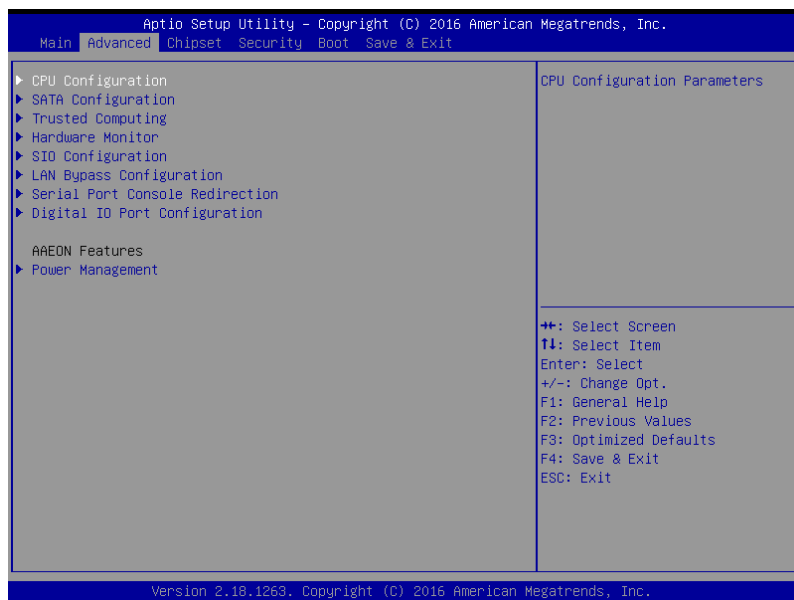
Save & Exit – Save changes/restore defaults and exit the program

3.3 Main



To set Date/Time, use <Tab> to switch between elements.

3.4 Advanced

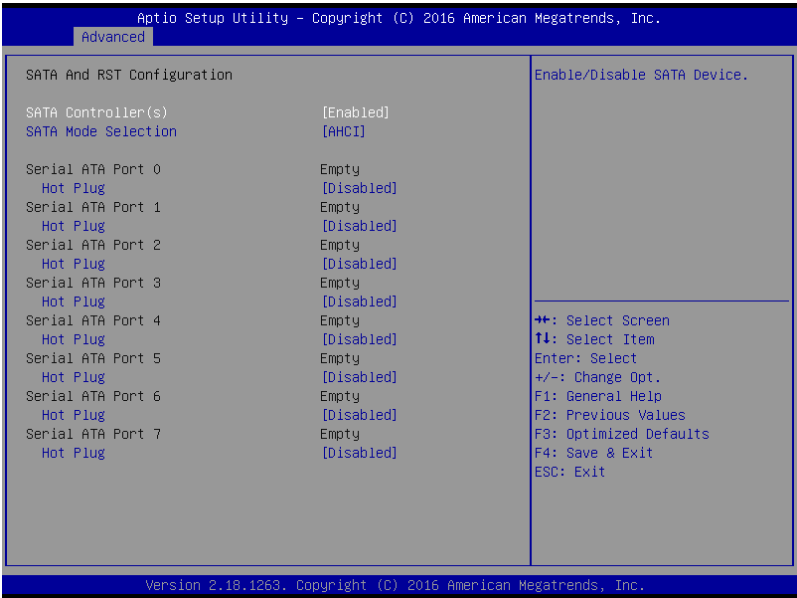


3.4.1 Advanced: CPU Configuration



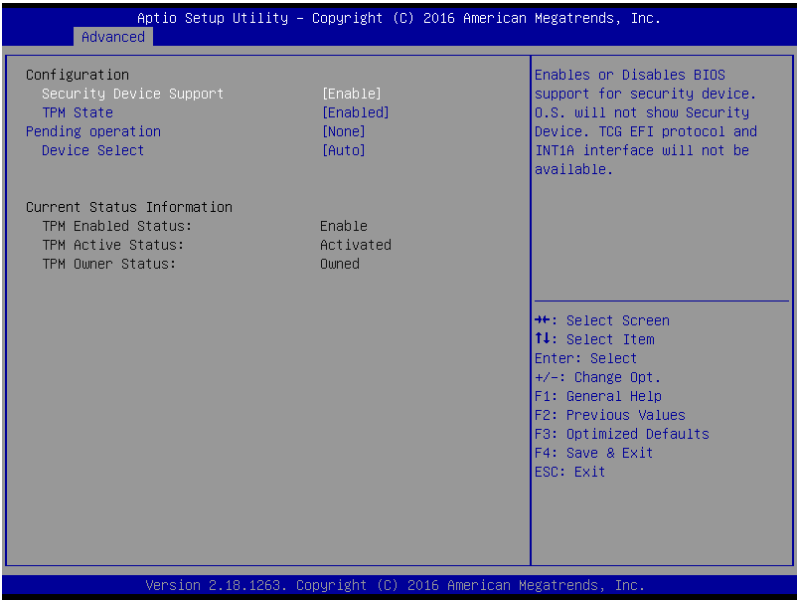
Options Summary	
Active Processor Cores	All (Default)
	1
Number of cores to enable in each processor package.	
Hyper-threading	Disabled
	Enabled (Default)
Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology).	

3.4.2 Advanced: SATA Configuration



Options Summary	
SATA Controller Speed	Disabled
	Enabled (Default)
Enable or disable SATA Device.	
SATA Mode Selection	AHCI (Default)
	Intel RST Premium
Determines how SATA controller(s) operate.	
Hot Plug	Disabled (Default)
	Enabled
Designates this port as Hot Pluggable.	

3.4.3 Advanced: Trusted Computing

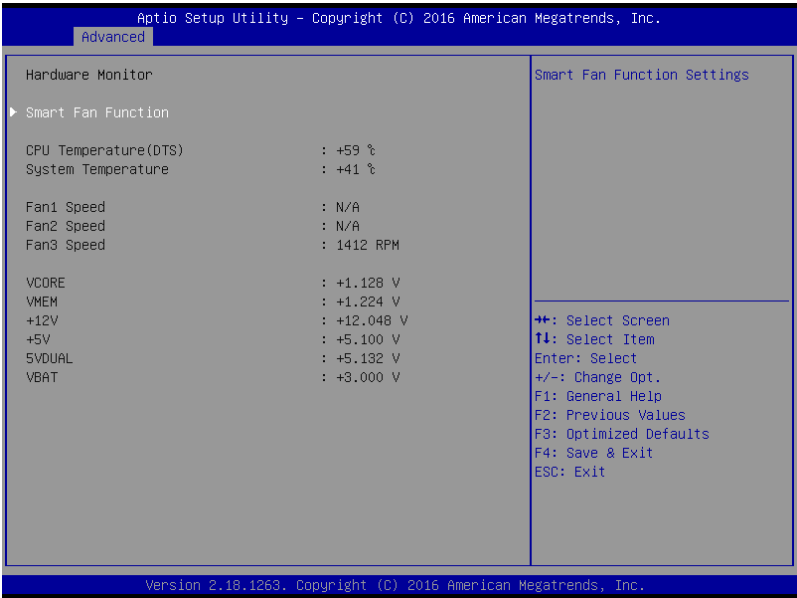


Options Summary	
Security Device Support	Disabled
	Enabled (Default)
Enables or Disables BIOS support for security device. OS will not show Security Device. TCG EFI protocol and INT1A interface will not be available.	
TPM State	Disabled
	Enabled (Default)
Enable/Disable Security Device. NOTE: Your Computer will reboot during restart in order to change State of the Device.	
Pending operation	None (Default)
	TPM Clear
Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.	

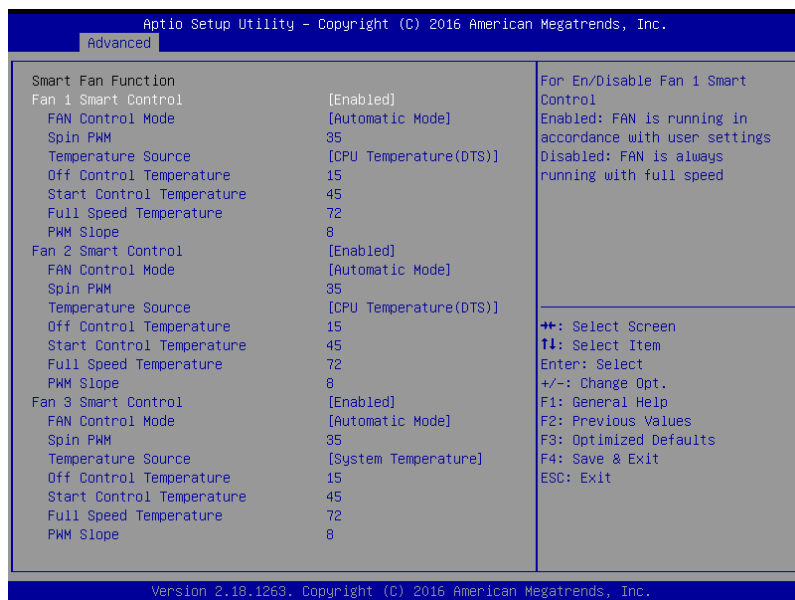
Table Continues on Next Page

Options Summary	
Device Select	TPM 1.2
	TPM 2.0
	Auto (Default)
TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 will restrict support to TPM 2.0 devices, Auto will support both with the default set to TPM 2.0 devices if not found, TPM 1.2 devices will be enumerated	

3.4.4 Advanced: Hardware Monitor



3.4.4.1 Smart Fan Function

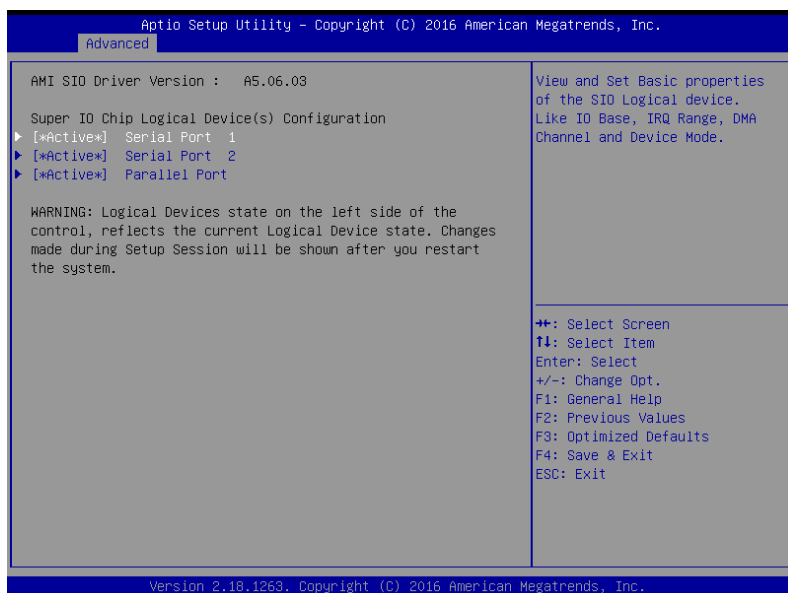


Options Summary

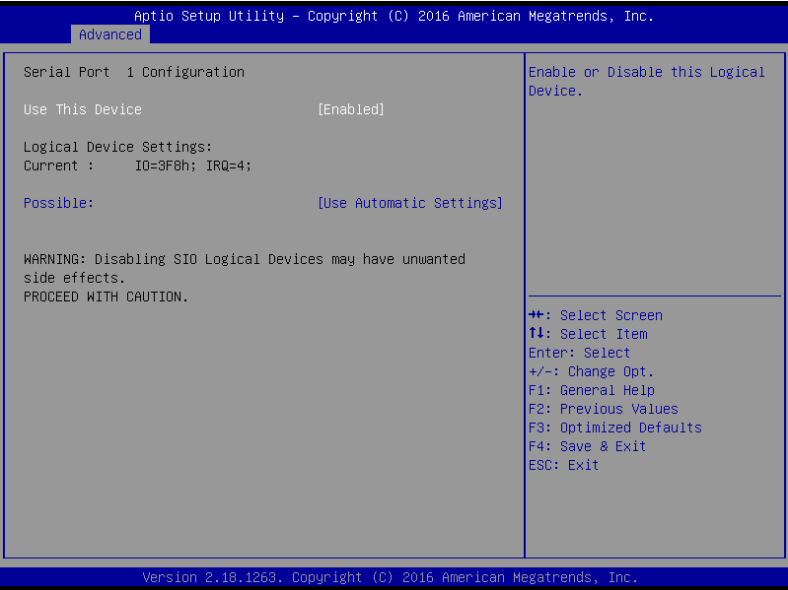
Fan 1 Smart Control	Disabled
	Enabled (Default)
Fan 2 Smart Control	Disabled
	Enabled (Default)
Fan 3 Smart Control	Disabled
	Enabled (Default)
Enable/Disable Fan Smart Control. Enabled: FAN is running in accordance with user settings. Disabled: FAN is always running with full speed	
Smart Fan Mode	Full on Mode
	Automatic Mode (Default)
	Manual Mode
Manual Mode: Depends on PWM Duty. Automatic Mode: FAN Speed is dependent on System Temperature	
Spin PWM	35 (0-255)

Options Summary	
The PWM Duty of FAN Spin Range:[0 - 255] Default: 35	
Temperature Source	CPU Temperature(DTS) (Default)
	System Temperature
Reference Temperature Input Selection.	
Off Control Temperature	15 (0-127)
Temperature Limit Value of Fan Off. Note: Some fans have a minimum speed even if the PWM value is 0 Default: 15	
Start Control Temperature	45 (0-127)
Temperature Limit Value of FAN Start Control Default: 45	
Full Speed Temperature	72
Temperature Limit Value of FAN Full Speed Default: 72	
PWM Slope	8 (1-15)
Slope PWM value/Degree C for FAN Speed Control Range:[1-15] Default: 8	

3.4.5 Advanced: SIO Configuration



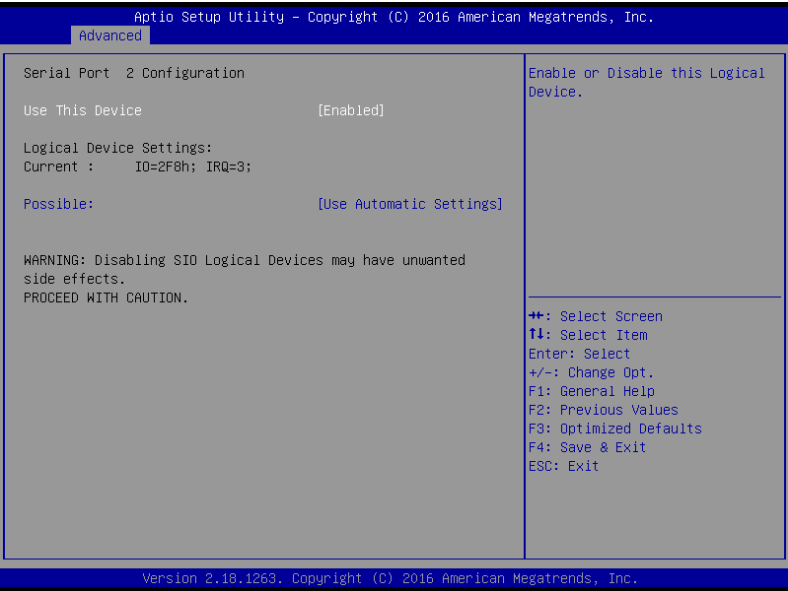
3.4.5.1 Serial Port 1 Configuration



Options Summary

Use This Device	Disabled
	Enabled (Default)
Enable or Disable this Logical Device.	
Possible:	Use Automatic Settings (Default)
	IO=2F8h; IRQ=3;
	IO=3F8h; IRQ=4;
Allows user to change Device's Resource settings. New settings will be reflected on this Setup page after System restarts.	

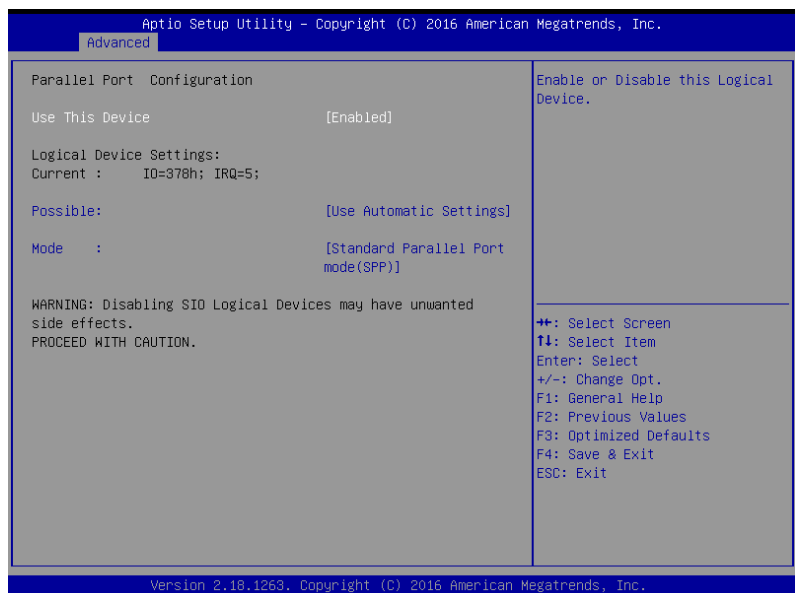
3.4.5.2 Serial Port 2 Configuration



Options Summary

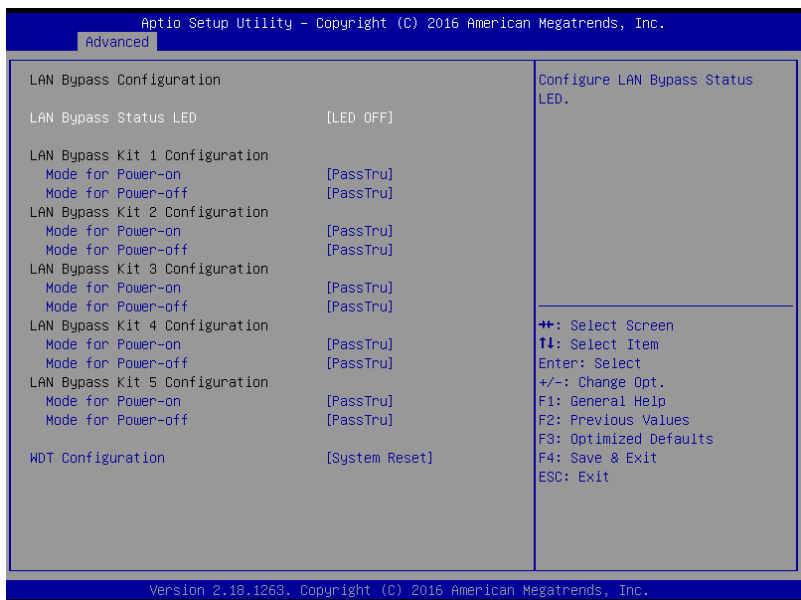
Use This Device	Disabled
	Enabled (Default)
Enable or Disable this Logical Device.	
Possible:	Use Automatic Settings (Default)
	IO=2F8h; IRQ=3;
	IO=3F8h; IRQ=4;
Allows user to change Device's Resource settings. New settings will be reflected on this Setup page after System restarts.	

3.4.5.3 Parallel Port Configuration



Options Summary	
Use This Device	Disabled Enabled (Default)
Enable or Disable this Logical Device.	
Possible:	Use Automatic Settings (Default) IO=378h; IRQ=5; IO=378h; IRQ=5,6,7,9,10,11,12; IO=278h; IRQ=5,6,7,9,10,11,12; IO=3BCh;IRQ=5,6,7,9,10,11,12;
Allows user to change Device's Resource settings. New settings will be reflected on this Setup page after System restarts.	
Mode	Standard Parallel Port Mode (Default) EPP Mode ECP Mode EPP Mode & ECP Mode
Change the Printer Port mode.	

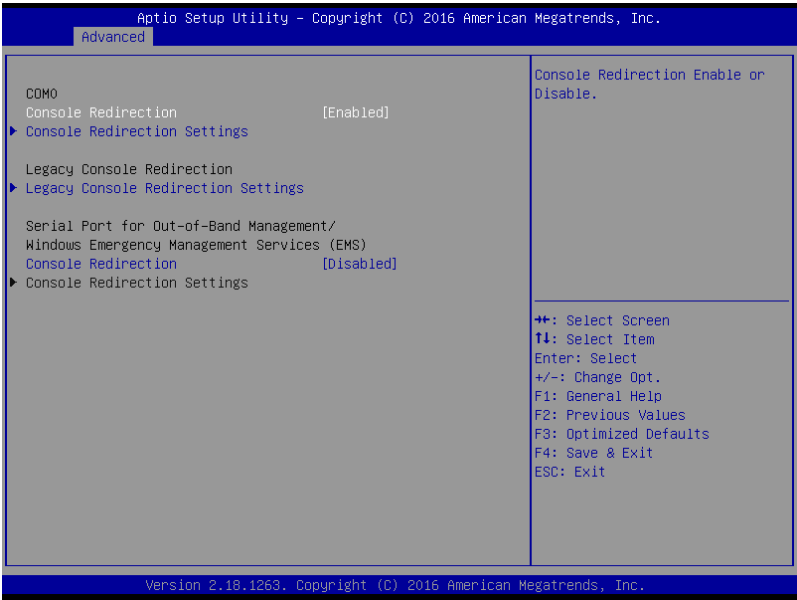
3.4.6 Advanced: LAN Bypass Configuration



Options Summary

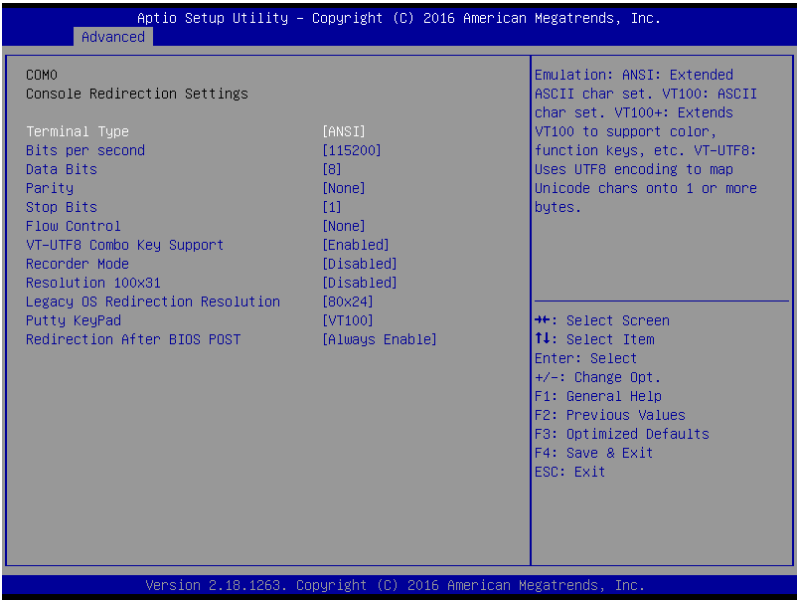
STATUS LED CTRL	LED OFF (Default)
	RED LED ON
	RED LED BLINK
	RED LED FAST BLINK
	GREEN LED ON
	GREEN LED BLINK
	GREEN LED FAST BLINK
Configure LAN Bypass Status LED.	
LAN kit Power ON	Bypass
	PassTru (Default)
Set LAN kit function behavior when power on.(Bypass/Pass Through)	
LAN kit Power Off	Bypass
	PassTru (Default)
Set LAN kit function behavior when power off.(Bypass/Pass Through)	
WDT configuration	Force Bypass
	System Reset (Default)
Configure WDT behavior	

3.4.7 Advanced: Serial Port Console Redirection



Options Summary	
Console Redirection	Disabled
	Enabled (Default)
Console Redirection Enabled or Disabled.	

3.4.7.1 COM0 Console Redirection Settings



Options Summary

Terminal Type	VT100
	VT100+
	VT-UTF8
	ANSI (Default)
Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.	
Bits per second	9600
	19200
	38400
	57600
	115200 (Default)
Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.	

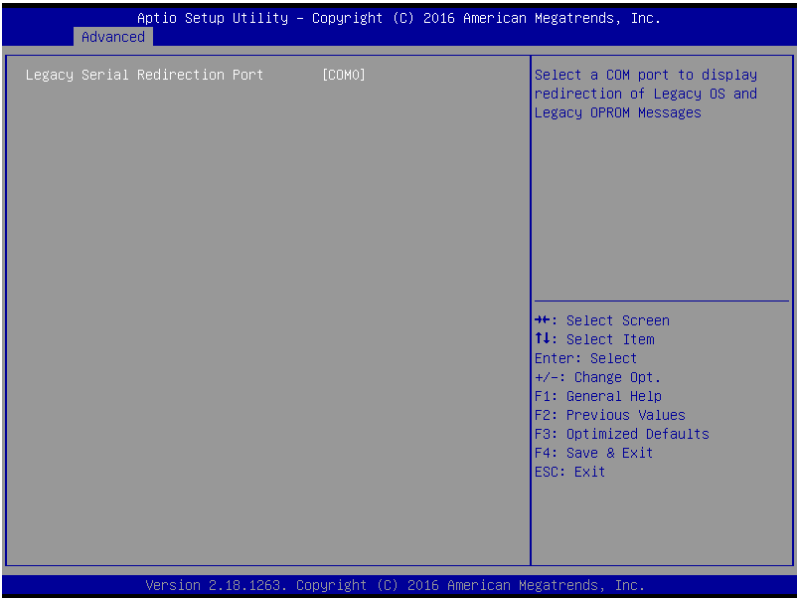
Table Continues on Next Page

Options Summary	
Data Bits	7
	8 (Default)
Data Bits	
Parity	None (Default)
	Even
	Odd
	Mark
	Space
A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the number of 1's in the data bits is even Odd: parity bit is 0 if number of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Note: Mark and Space Parity do not allow for error detection.	
Stop Bits	1 (Default)
	2
Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.	
Flow Control	None (Default)
	Hardware RTS/CTS
Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.	
VT-UTF8 Combo Key Support	Disabled
	Enabled (Default)
Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals	
Recorder Mode	Disabled (Default)
	Enabled
On this mode enabled only text will be send. This is to capture Terminal data.	
Resolution 100x31	Disabled (Default)
	Enabled
Enables or disables extended terminal resolution	
Legacy OS Redirection Resolution	80x24 (Default)
	80x25
On Legacy OS, the Number of Rows and Columns supported redirection	

Table Continues on Next Page

Options Summary	
Putty KeyPad	VT100 (Default)
	LINUX
	XTERMR6
	SCO
	ESCN
	VT400
Select FunctionKey and KeyPad on Putty.	
Redirection After BIOS POST	Always Enable (Default)
	BootLoader
BootLoader: Legacy console redirection is disabled before booting to Legacy OS. Always Enable: Legacy console redirection is enabled for Legacy OS.	

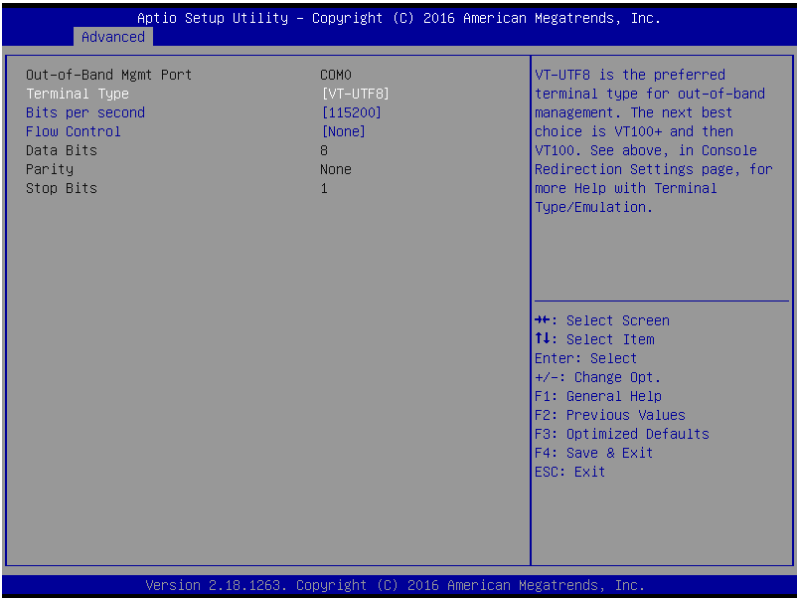
3.4.7.2 Legacy Console Redirection Settings



Options Summary

Legacy Serial Redirection Port	COM0 (Default)
Select a COM port to display redirection of Legacy OS and Legacy OPRM Messages	

3.4.7.3 Serial Port for Out-of-Band Management/Windows EMS



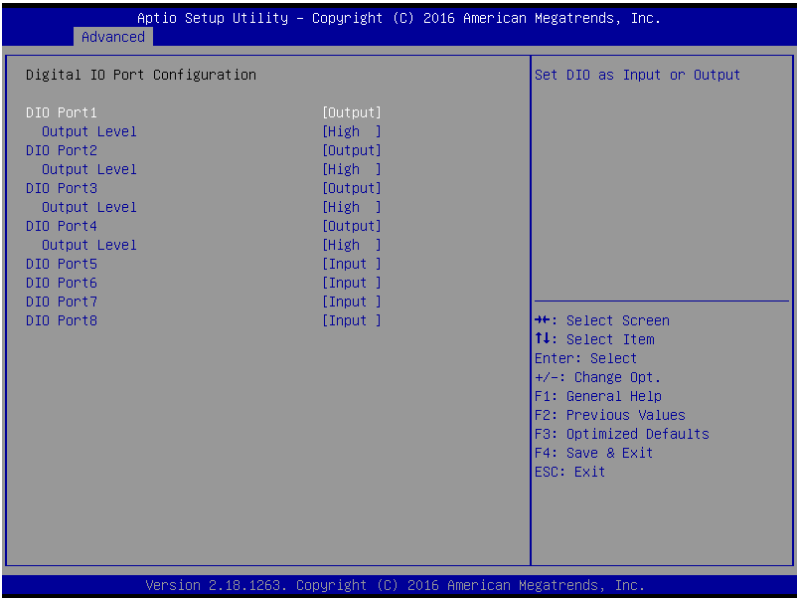
Options Summary

Terminal Type	VT100
	VT100+
	VT-UTF8 (Default)
	ANSI
VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See Section 3.4.7.1 Console Redirection Settings for more Help with Terminal Type/Emulation.	
Bits per second	9600
	19200
	57600
	115200 (Default)
Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.	

Table Continues on Next Page

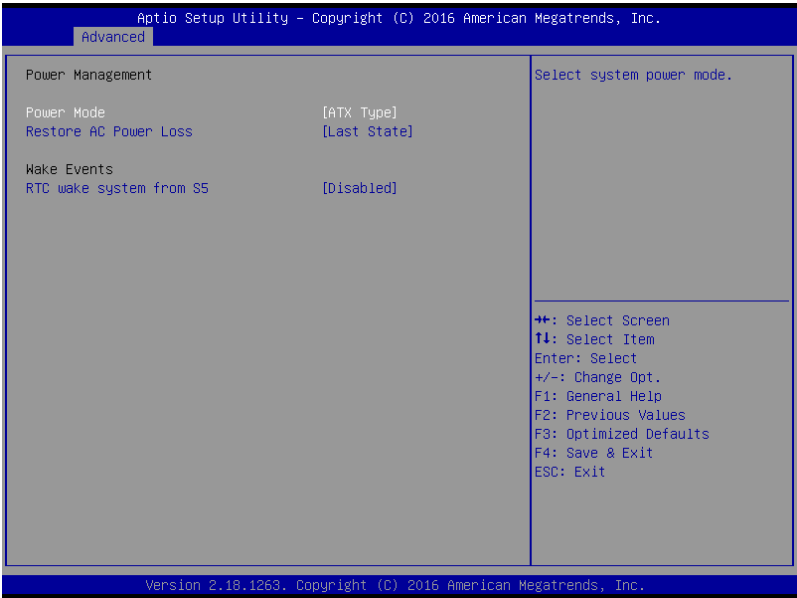
Options Summary	
Flow Control	None (Default)
	Hardware RTS/CTS
	Software Xon/Xoff
Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.	
Data Bits	7
	8 (Default)
Data Bits	
Parity	None (Default)
	Even
	Odd
	Mark
	Space
A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the number of 1's in the data bits is even Odd: parity bit is 0 if number of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Note: Mark and Space Parity do not allow for error detection.	
Stop Bits	1 (Default)
	2
Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.	

3.4.8 Advanced: Digital IO Port Configuration



Options Summary	
DIO_P#1~4	Input
	Output (Default)
Set DIO as Input or Output	
DIO_P#5~8	Input (Default)
	Output
Set DIO as Input or Output	
Output Level	Low
	High (Default)
Set output level when DIO pin is output	

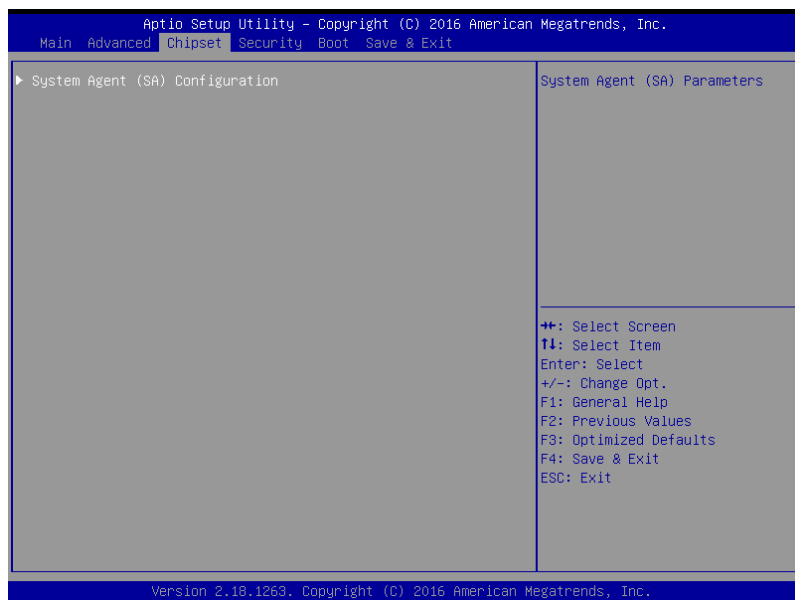
3.4.9 Advanced: Power Management



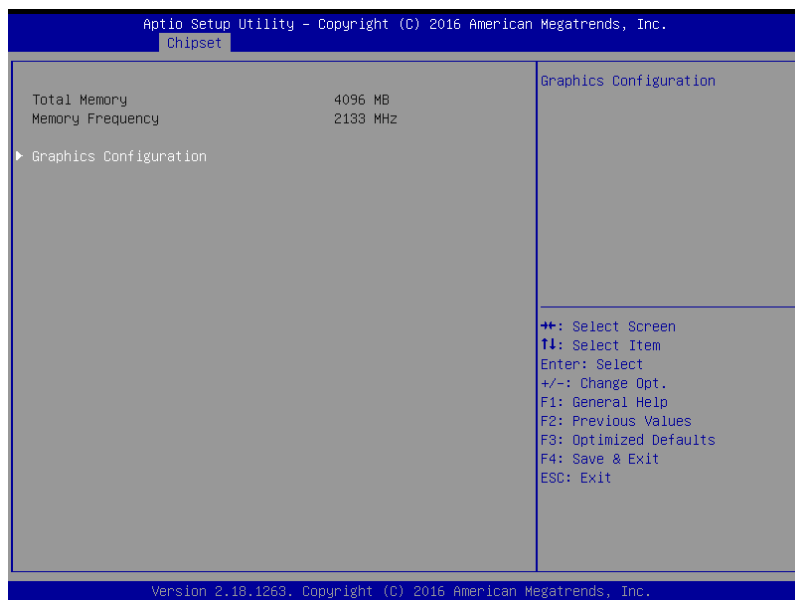
Options Summary	
Power Mode	ATX Type (Default)
	AT Type
Select Power Supply Mode.	
Restore AC Power Loss	Power Off
	Power On
	Last State (Default)
Select AC power state when power is re-applied after a power failure.	
RTC Wake system from S5	Disabled (Default)
	Fixed time
	Dynamic time
Fixed Time: System will wake on the hr::min::sec specified.	
Dynamic Time: System will wake on the current time + Increase minute(s)	
Wake up day (Fixed time option)	0 (Default)
Select 0 for daily system wake up, 1-31 for which day of month that you would like the system to wake up.	

Options Summary	
Wake up hour (Fixed time option)	0 (Default)
Select 0-23 For example enter 3 for 3am and 15 for 3pm.	
Wake up minute (Fixed time option)	0 (Default)
0-59	
Wake up second (Fixed time option)	0 (Default)
0-59	
Wake up minute increase (Dynamic time option)	1 (Default)
1-5	

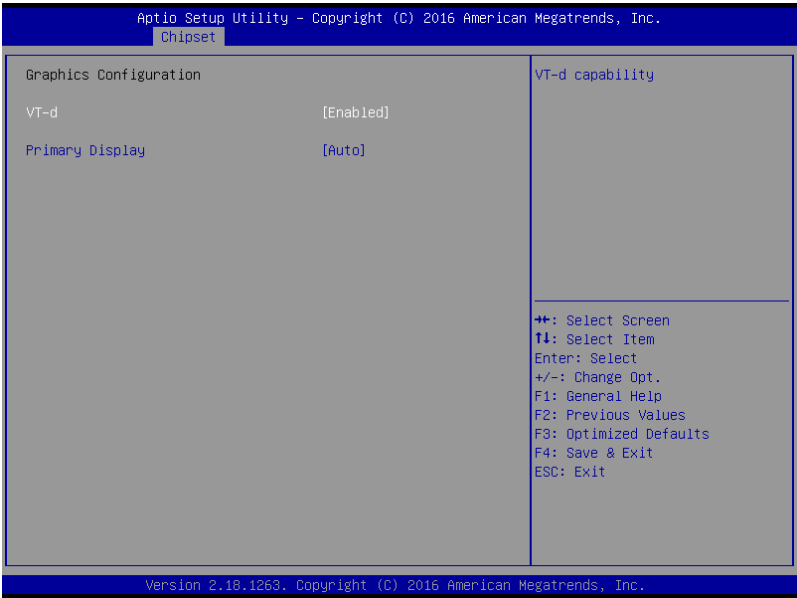
3.5 Chipset



3.5.1 Chipset: System Agent (SA) Configuration

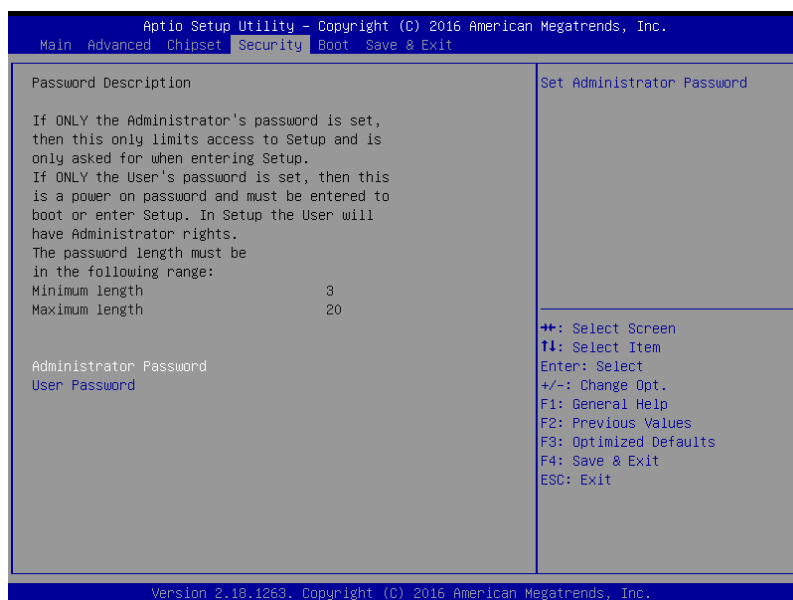


3.5.1.1 Graphics Configuration



Options Summary	
VT-d	Enabled (Default)
	Disabled
VT-d capability	
Primary Display	Auto (Default)
	IGFX
	PEG
Select which of Auto/IGFX/PEG/PCIE Graphics device should be Primary Display or select SG for Switchable Graphics.	

3.7 Security



Set User/Administrator Password

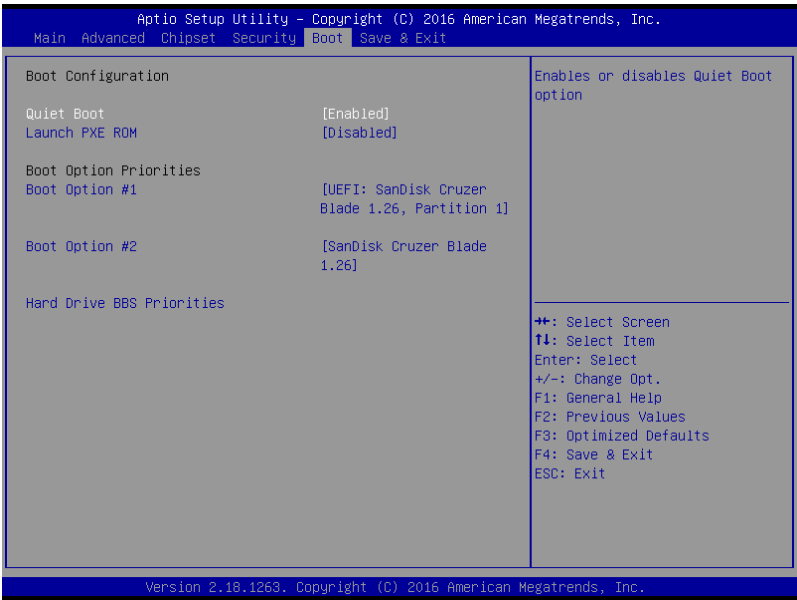
Here you can setup an Administrator Password and a User Password. An Administrator Password must be set before you can set a User Password. The password will be required during boot up, or when the User enters the Setup utility. **Note:** A User Password does not provide access to many of the features in the Setup utility.

To set a password, select the password you wish to set and press Enter. Type the password into the dialog box that appears. Password length must be between 3 and 20 numbers and/or letters. Press enter and re-type the password into the dialog box. Press Enter again to confirm. The password is now set.

Remove Password

Select the password you wish to remove and press Enter. Type the current password into the dialog box that appears and press Enter. In the next dialog box, press enter to disable password protection.

3.8 Boot



Options Summary	
Quiet Boot	Disabled
	Enabled (Default)
Enables/Disables Quiet Boot option.	
Launch PXE ROM	Disabled (Default)
	Enabled
Controls the execution of UEFI and Legacy PXE OpROM	

3.9 Save & Exit



Chapter 4

Drivers Installation

4.1 Drivers Installation

Drivers for the FWS-7821 can be downloaded from the product page on the AAEON website by following this link:

<https://www.aaeon.com/en/p/rackmount-network-appliance-fws-7821>

Download the driver(s) you need and follow the steps below to install them.

Step 1 – Install Chipset Drivers

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

Step 2 – Install Graphics Driver

1. Open the **Step 2 - Graphic** folder and then the **win10_64** folder
2. Open the **Setup.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 3 – Install LAN Driver

1. Open the **Step 3 – USB3.0** folder and choose your operating system
2. **For Windows:**
3. Open the **.exe** file
4. Follow the instructions
5. Drivers will be installed automatically
6. **For Linux:**
7. Open **igb-5.3.3.5.tar.gz**
8. Open **README** and follow instructions

Step 4 – Install ME Driver

1. Open the **Step 4 – ME** folder followed by the **MEISetup.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

Step 5 – Install Intel RST Driver

1. Open the **Step 5 – Intel RST** folder followed by the **SetupRST.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

Appendix A

Watchdog Timer Programming

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  SIODData  //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 - 000000000000CF7] PCI Express Root Complex
	[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
	[0000000000000080 - 0000000000000080] 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

	[00000000000000F0 - 00000000000000F0]	Numeric data processor
	[00000000000002F8 - 00000000000002FF]	Communications Port (COM2)
	[0000000000000378 - 000000000000037F]	Printer Port (LPT1)
	[00000000000003B0 - 00000000000003BB]	Intel(R) HD Graphics 630
	[00000000000003C0 - 00000000000003DF]	Intel(R) HD Graphics 630
	[00000000000003F8 - 00000000000003FF]	Communications Port (COM1)
	[00000000000004D0 - 00000000000004D1]	Programmable interrupt controller
	[0000000000000680 - 000000000000069F]	Motherboard resources
	[0000000000000800 - 000000000000087F]	Motherboard resources
	[0000000000000A00 - 0000000000000A2F]	Motherboard resources
	[0000000000000A30 - 0000000000000A3F]	Motherboard resources
	[0000000000000A40 - 0000000000000A4F]	Motherboard resources
	[0000000000000D00 - 0000000000000FFF]	PCI Express Root Complex
	[0000000000000164E - 0000000000000164F]	Motherboard resources
	[00000000000001800 - 000000000000018FE]	Motherboard resources
	[00000000000001854 - 00000000000001857]	Motherboard resources
	[00000000000007000 - 00000000000007FFF]	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #12 - A118
	[00000000000008000 - 00000000000008FFF]	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #11 - A11A
	[00000000000009000 - 00000000000009FFF]	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #10 - A119
	[0000000000000A000 - 0000000000000AFF]	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #9 - A118
	[0000000000000B000 - 0000000000000BFFF]	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #8 - A117
	[0000000000000C000 - 0000000000000CFFF]	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #7 - A116
	[0000000000000D000 - 0000000000000DFFF]	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #6 - A115
	[0000000000000E000 - 0000000000000EFFF]	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #5 - A114
	[0000000000000F000 - 0000000000000F03F]	Intel(R) HD Graphics 630
	[0000000000000F040 - 0000000000000F05F]	Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
	[0000000000000F060 - 0000000000000F07F]	Intel(R) 100 Series/C230 Chipset Family SATA AHCI Controller
	[0000000000000F080 - 0000000000000F083]	Intel(R) 100 Series/C230 Chipset Family SATA AHCI Controller
	[0000000000000F090 - 0000000000000F097]	Intel(R) 100 Series/C230 Chipset Family SATA AHCI Controller
	[0000000000000FF00 - 0000000000000FFFE]	Motherboard resources
	[0000000000000FFFF - 0000000000000FFFF]	Motherboard resources
	[0000000000000FFFF - 0000000000000FFFF]	Motherboard resources
	[0000000000000FFFF - 0000000000000FFFF]	Motherboard resources

B.2 Memory Address Map

▼ Memory	
	[0000000000A0000 - 0000000000BFFFF] Intel(R) HD Graphics 630
	[0000000000A0000 - 0000000000BFFFF] PCI Express Root Complex
	[00000000009000000 - 00000000DFFFFF] PCI Express Root Complex
	[00000000C0000000 - 00000000CFFFFFFF] Intel(R) HD Graphics 630
	[00000000DE000000 - 00000000DEFFFFFF] Intel(R) HD Graphics 630
	[00000000DF000000 - 00000000DF2FFFFF] Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #12 - A11B
	[00000000DF100000 - 00000000DF1FFFFF] Intel(R) I210 Gigabit Fiber Network Connection
	[00000000DF200000 - 00000000DF203FFF] Intel(R) I210 Gigabit Fiber Network Connection
	[00000000DF300000 - 00000000DF5FFFFF] Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #11 - A11A
	[00000000DF400000 - 00000000DF4FFFFF] Intel(R) I210 Gigabit Fiber Network Connection #2
	[00000000DF500000 - 00000000DF503FFF] Intel(R) I210 Gigabit Fiber Network Connection #2
	[00000000DF600000 - 00000000DF61FFFF] Intel(R) I211 Gigabit Network Connection #6
	[00000000DF600000 - 00000000DF6FFFFF] Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #10 - A119
	[00000000DF620000 - 00000000DF623FFF] Intel(R) I211 Gigabit Network Connection #6
	[00000000DF700000 - 00000000DF71FFFF] Intel(R) I211 Gigabit Network Connection #5
	[00000000DF700000 - 00000000DF7FFFFF] Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #9 - A118
	[00000000DF720000 - 00000000DF723FFF] Intel(R) I211 Gigabit Network Connection #5
	[00000000DF800000 - 00000000DF81FFFF] Intel(R) I211 Gigabit Network Connection #4
	[00000000DF800000 - 00000000DF8FFFFF] Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #8 - A117
	[00000000DF820000 - 00000000DF823FFF] Intel(R) I211 Gigabit Network Connection #4
	[00000000DF900000 - 00000000DF91FFFF] Intel(R) I211 Gigabit Network Connection #3
	[00000000DF900000 - 00000000DF9FFFFF] Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #7 - A116
	[00000000DF920000 - 00000000DF923FFF] Intel(R) I211 Gigabit Network Connection #3
	[00000000DFA00000 - 00000000DFA1FFFF] Intel(R) I211 Gigabit Network Connection
	[00000000DFA00000 - 00000000DFAFFFFF] Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #6 - A115
	[00000000DFA20000 - 00000000DFA23FFF] Intel(R) I211 Gigabit Network Connection
	[00000000DFB00000 - 00000000DFB1FFFF] Intel(R) I211 Gigabit Network Connection #2
	[00000000DFB00000 - 00000000DFBFFFFF] Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #5 - A114
	[00000000DFB20000 - 00000000DFB23FFF] Intel(R) I211 Gigabit Network Connection #2
	[00000000DFC00000 - 00000000DFC0FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
	[00000000DFC10000 - 00000000DFC13FFF] Intel(R) 100 Series/C230 Series Chipset Family PMC - A121
	[00000000DFC14000 - 00000000DFC15FFF] Intel(R) 100 Series/C230 Series Chipset Family SATA AHCI Controller
	[00000000DFC16000 - 00000000DFC160FF] Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123

	[00000000DFC17000 - 00000000DFC177FF] Intel(R) 100 Series/C230 Chipset Family SATA AHCI Controller
	[00000000DFC18000 - 00000000DFC180FF] Intel(R) 100 Series/C230 Chipset Family SATA AHCI Controller
	[00000000DFC1A000 - 00000000DFC1AFFF] Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131
	[00000000DFFE0000 - 00000000DFFFFFFF] Motherboard resources
	[00000000E0000000 - 00000000EFFFFFFF] Motherboard resources
	[00000000FD000000 - 00000000FDABFFFF] Motherboard resources
	[00000000FD000000 - 00000000FE7FFFFF] PCI Express Root Complex
	[00000000FDAC0000 - 00000000FDACFFFF] Motherboard resources
	[00000000FDAD0000 - 00000000FDADFFFF] Motherboard resources
	[00000000FDAE0000 - 00000000FDAEFFFF] Motherboard resources
	[00000000FDAF0000 - 00000000FDAFFFFF] Motherboard resources
	[00000000FDB00000 - 00000000FDBFFFFF] Motherboard resources
	[00000000FE000000 - 00000000FE01FFFF] Motherboard resources
	[00000000FE036000 - 00000000FE03BFFF] Motherboard resources
	[00000000FE03D000 - 00000000FE3FFFFF] Motherboard resources
	[00000000FE40F000 - 00000000FE40FFFF] Intel(R) Management Engine Interface
	[00000000FE410000 - 00000000FE7FFFFF] Motherboard resources
	[00000000FED00000 - 00000000FED003FF] High precision event timer
	[00000000FED10000 - 00000000FED17FFF] Motherboard resources
	[00000000FED18000 - 00000000FED18FFF] Motherboard resources
	[00000000FED19000 - 00000000FED19FFF] Motherboard resources
	[00000000FED20000 - 00000000FED3FFFF] Motherboard resources
	[00000000FED40000 - 00000000FED40FFF] Trusted Platform Module 1.2
	[00000000FED45000 - 00000000FED8FFFF] Motherboard resources
	[00000000FED90000 - 00000000FED93FFF] Motherboard resources
	[00000000FEE00000 - 00000000FEEFFFFF] Motherboard resources
	[00000000FF000000 - 00000000FFFFFFFF] Legacy device
	[00000000FF000000 - 00000000FFFFFFFF] Motherboard resources

B.3 IRQ Mapping Chart

✓		FWS-7821	
>		Input/output (IO)	
✓		Interrupt request (IRQ)	
	(ISA) 0x00000000 (00)	System timer	
	(ISA) 0x00000001 (01)	Standard PS/2 Keyboard	
	(ISA) 0x00000003 (03)	Communications Port (COM2)	
	(ISA) 0x00000004 (04)	Communications Port (COM1)	
	(ISA) 0x00000008 (08)	System CMOS/real time clock	
	(ISA) 0x0000000C (12)	PS/2 Port Compatible Pointing Device	
	(ISA) 0x0000000D (13)	Numeric data processor	
	(ISA) 0x0000000E (14)	Motherboard resources	
	(ISA) 0x00000036 (54)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000037 (55)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000038 (56)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000039 (57)	Microsoft ACPI-Compliant System	
	(ISA) 0x0000003A (58)	Microsoft ACPI-Compliant System	
	(ISA) 0x0000003B (59)	Microsoft ACPI-Compliant System	
	(ISA) 0x0000003C (60)	Microsoft ACPI-Compliant System	
	(ISA) 0x0000003D (61)	Microsoft ACPI-Compliant System	
	(ISA) 0x0000003E (62)	Microsoft ACPI-Compliant System	
	(ISA) 0x0000003F (63)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000040 (64)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000041 (65)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000042 (66)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000043 (67)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000044 (68)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000045 (69)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000046 (70)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000047 (71)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000048 (72)	Microsoft ACPI-Compliant System	
	(ISA) 0x00000049 (73)	Microsoft ACPI-Compliant System	
	(ISA) 0x0000004A (74)	Microsoft ACPI-Compliant System	
	(ISA) 0x0000004B (75)	Microsoft ACPI-Compliant System	
	(ISA) 0x0000004C (76)	Microsoft ACPI-Compliant System	

	(ISA) 0x0000004D (77)	Microsoft ACPI-Compliant System
	(ISA) 0x0000004E (78)	Microsoft ACPI-Compliant System
	(ISA) 0x0000004F (79)	Microsoft ACPI-Compliant System
	(ISA) 0x00000050 (80)	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)	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
	(ISA) 0x000000BF (191)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C0 (192)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C1 (193)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C2 (194)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C3 (195)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C4 (196)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C5 (197)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C6 (198)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C7 (199)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C8 (200)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C9 (201)	Microsoft ACPI-Compliant System
	(ISA) 0x000000CA (202)	Microsoft ACPI-Compliant System
	(ISA) 0x000000CB (203)	Microsoft ACPI-Compliant System
	(ISA) 0x000000CC (204)	Microsoft ACPI-Compliant System
	(ISA) 0x00000100 (256)	Microsoft ACPI-Compliant System
	(ISA) 0x00000101 (257)	Microsoft ACPI-Compliant System
	(ISA) 0x00000102 (258)	Microsoft ACPI-Compliant System
	(ISA) 0x00000103 (259)	Microsoft ACPI-Compliant System

	(ISA) 0x00000104 (260)	Microsoft ACPI-Compliant System
	(ISA) 0x00000105 (261)	Microsoft ACPI-Compliant System
	(ISA) 0x00000106 (262)	Microsoft ACPI-Compliant System
	(ISA) 0x00000107 (263)	Microsoft ACPI-Compliant System
	(ISA) 0x00000108 (264)	Microsoft ACPI-Compliant System
	(ISA) 0x00000109 (265)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010A (266)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010B (267)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010C (268)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010D (269)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010E (270)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010F (271)	Microsoft ACPI-Compliant System
	(ISA) 0x00000110 (272)	Microsoft ACPI-Compliant System
	(ISA) 0x00000111 (273)	Microsoft ACPI-Compliant System
	(ISA) 0x00000112 (274)	Microsoft ACPI-Compliant System
	(ISA) 0x00000113 (275)	Microsoft ACPI-Compliant System
	(ISA) 0x00000114 (276)	Microsoft ACPI-Compliant System
	(ISA) 0x00000115 (277)	Microsoft ACPI-Compliant System
	(ISA) 0x00000116 (278)	Microsoft ACPI-Compliant System
	(ISA) 0x00000117 (279)	Microsoft ACPI-Compliant System
	(ISA) 0x00000118 (280)	Microsoft ACPI-Compliant System
	(ISA) 0x00000119 (281)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011A (282)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011B (283)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011C (284)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011D (285)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011E (286)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011F (287)	Microsoft ACPI-Compliant System
	(ISA) 0x00000120 (288)	Microsoft ACPI-Compliant System
	(ISA) 0x00000121 (289)	Microsoft ACPI-Compliant System
	(ISA) 0x00000122 (290)	Microsoft ACPI-Compliant System
	(ISA) 0x00000123 (291)	Microsoft ACPI-Compliant System
	(ISA) 0x00000124 (292)	Microsoft ACPI-Compliant System

	(ISA) 0x00000125 (293)	Microsoft ACPI-Compliant System
	(ISA) 0x00000126 (294)	Microsoft ACPI-Compliant System
	(ISA) 0x00000127 (295)	Microsoft ACPI-Compliant System
	(ISA) 0x00000128 (296)	Microsoft ACPI-Compliant System
	(ISA) 0x00000129 (297)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012A (298)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012B (299)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012C (300)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012D (301)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012E (302)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012F (303)	Microsoft ACPI-Compliant System
	(ISA) 0x00000130 (304)	Microsoft ACPI-Compliant System
	(ISA) 0x00000131 (305)	Microsoft ACPI-Compliant System
	(ISA) 0x00000132 (306)	Microsoft ACPI-Compliant System
	(ISA) 0x00000133 (307)	Microsoft ACPI-Compliant System
	(ISA) 0x00000134 (308)	Microsoft ACPI-Compliant System
	(ISA) 0x00000135 (309)	Microsoft ACPI-Compliant System
	(ISA) 0x00000136 (310)	Microsoft ACPI-Compliant System
	(ISA) 0x00000137 (311)	Microsoft ACPI-Compliant System
	(ISA) 0x00000138 (312)	Microsoft ACPI-Compliant System
	(ISA) 0x00000139 (313)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013A (314)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013B (315)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013C (316)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013D (317)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013E (318)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013F (319)	Microsoft ACPI-Compliant System
	(ISA) 0x00000140 (320)	Microsoft ACPI-Compliant System
	(ISA) 0x00000141 (321)	Microsoft ACPI-Compliant System
	(ISA) 0x00000142 (322)	Microsoft ACPI-Compliant System
	(ISA) 0x00000143 (323)	Microsoft ACPI-Compliant System
	(ISA) 0x00000144 (324)	Microsoft ACPI-Compliant System
	(ISA) 0x00000145 (325)	Microsoft ACPI-Compliant System

	(ISA) 0x00000146 (326)	Microsoft ACPI-Compliant System
	(ISA) 0x00000147 (327)	Microsoft ACPI-Compliant System
	(ISA) 0x00000148 (328)	Microsoft ACPI-Compliant System
	(ISA) 0x00000149 (329)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014A (330)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014B (331)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014C (332)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014D (333)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014E (334)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014F (335)	Microsoft ACPI-Compliant System
	(ISA) 0x00000150 (336)	Microsoft ACPI-Compliant System
	(ISA) 0x00000151 (337)	Microsoft ACPI-Compliant System
	(ISA) 0x00000152 (338)	Microsoft ACPI-Compliant System
	(ISA) 0x00000153 (339)	Microsoft ACPI-Compliant System
	(ISA) 0x00000154 (340)	Microsoft ACPI-Compliant System
	(ISA) 0x00000155 (341)	Microsoft ACPI-Compliant System
	(ISA) 0x00000156 (342)	Microsoft ACPI-Compliant System
	(ISA) 0x00000157 (343)	Microsoft ACPI-Compliant System
	(ISA) 0x00000158 (344)	Microsoft ACPI-Compliant System
	(ISA) 0x00000159 (345)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015A (346)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015B (347)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015C (348)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015D (349)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015E (350)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015F (351)	Microsoft ACPI-Compliant System
	(ISA) 0x00000160 (352)	Microsoft ACPI-Compliant System
	(ISA) 0x00000161 (353)	Microsoft ACPI-Compliant System
	(ISA) 0x00000162 (354)	Microsoft ACPI-Compliant System
	(ISA) 0x00000163 (355)	Microsoft ACPI-Compliant System
	(ISA) 0x00000164 (356)	Microsoft ACPI-Compliant System
	(ISA) 0x00000165 (357)	Microsoft ACPI-Compliant System
	(ISA) 0x00000166 (358)	Microsoft ACPI-Compliant System
	(ISA) 0x00000167 (359)	Microsoft ACPI-Compliant System

	(ISA) 0x00000168 (360)	Microsoft ACPI-Compliant System
	(ISA) 0x00000169 (361)	Microsoft ACPI-Compliant System
	(ISA) 0x0000016A (362)	Microsoft ACPI-Compliant System
	(ISA) 0x0000016B (363)	Microsoft ACPI-Compliant System
	(ISA) 0x0000016C (364)	Microsoft ACPI-Compliant System
	(ISA) 0x0000016D (365)	Microsoft ACPI-Compliant System
	(ISA) 0x0000016E (366)	Microsoft ACPI-Compliant System
	(ISA) 0x0000016F (367)	Microsoft ACPI-Compliant System
	(ISA) 0x00000170 (368)	Microsoft ACPI-Compliant System
	(ISA) 0x00000171 (369)	Microsoft ACPI-Compliant System
	(ISA) 0x00000172 (370)	Microsoft ACPI-Compliant System
	(ISA) 0x00000173 (371)	Microsoft ACPI-Compliant System
	(ISA) 0x00000174 (372)	Microsoft ACPI-Compliant System
	(ISA) 0x00000175 (373)	Microsoft ACPI-Compliant System
	(ISA) 0x00000176 (374)	Microsoft ACPI-Compliant System
	(ISA) 0x00000177 (375)	Microsoft ACPI-Compliant System
	(ISA) 0x00000178 (376)	Microsoft ACPI-Compliant System
	(ISA) 0x00000179 (377)	Microsoft ACPI-Compliant System
	(ISA) 0x0000017A (378)	Microsoft ACPI-Compliant System
	(ISA) 0x0000017B (379)	Microsoft ACPI-Compliant System
	(ISA) 0x0000017C (380)	Microsoft ACPI-Compliant System
	(ISA) 0x0000017D (381)	Microsoft ACPI-Compliant System
	(ISA) 0x0000017E (382)	Microsoft ACPI-Compliant System
	(ISA) 0x0000017F (383)	Microsoft ACPI-Compliant System
	(ISA) 0x00000180 (384)	Microsoft ACPI-Compliant System
	(ISA) 0x00000181 (385)	Microsoft ACPI-Compliant System
	(ISA) 0x00000182 (386)	Microsoft ACPI-Compliant System
	(ISA) 0x00000183 (387)	Microsoft ACPI-Compliant System
	(ISA) 0x00000184 (388)	Microsoft ACPI-Compliant System
	(ISA) 0x00000185 (389)	Microsoft ACPI-Compliant System
	(ISA) 0x00000186 (390)	Microsoft ACPI-Compliant System
	(ISA) 0x00000187 (391)	Microsoft ACPI-Compliant System
	(ISA) 0x00000188 (392)	Microsoft ACPI-Compliant System

	(ISA) 0x00000189 (393)	Microsoft ACPI-Compliant System
	(ISA) 0x0000018A (394)	Microsoft ACPI-Compliant System
	(ISA) 0x0000018B (395)	Microsoft ACPI-Compliant System
	(ISA) 0x0000018C (396)	Microsoft ACPI-Compliant System
	(ISA) 0x0000018D (397)	Microsoft ACPI-Compliant System
	(ISA) 0x0000018E (398)	Microsoft ACPI-Compliant System
	(ISA) 0x0000018F (399)	Microsoft ACPI-Compliant System
	(ISA) 0x00000190 (400)	Microsoft ACPI-Compliant System
	(ISA) 0x00000191 (401)	Microsoft ACPI-Compliant System
	(ISA) 0x00000192 (402)	Microsoft ACPI-Compliant System
	(ISA) 0x00000193 (403)	Microsoft ACPI-Compliant System
	(ISA) 0x00000194 (404)	Microsoft ACPI-Compliant System
	(ISA) 0x00000195 (405)	Microsoft ACPI-Compliant System
	(ISA) 0x00000196 (406)	Microsoft ACPI-Compliant System
	(ISA) 0x00000197 (407)	Microsoft ACPI-Compliant System
	(ISA) 0x00000198 (408)	Microsoft ACPI-Compliant System
	(ISA) 0x00000199 (409)	Microsoft ACPI-Compliant System
	(ISA) 0x0000019A (410)	Microsoft ACPI-Compliant System
	(ISA) 0x0000019B (411)	Microsoft ACPI-Compliant System
	(ISA) 0x0000019C (412)	Microsoft ACPI-Compliant System
	(ISA) 0x0000019D (413)	Microsoft ACPI-Compliant System
	(ISA) 0x0000019E (414)	Microsoft ACPI-Compliant System
	(ISA) 0x0000019F (415)	Microsoft ACPI-Compliant System
	(ISA) 0x000001A0 (416)	Microsoft ACPI-Compliant System
	(ISA) 0x000001A1 (417)	Microsoft ACPI-Compliant System
	(ISA) 0x000001A2 (418)	Microsoft ACPI-Compliant System
	(ISA) 0x000001A3 (419)	Microsoft ACPI-Compliant System
	(ISA) 0x000001A4 (420)	Microsoft ACPI-Compliant System
	(ISA) 0x000001A5 (421)	Microsoft ACPI-Compliant System
	(ISA) 0x000001A6 (422)	Microsoft ACPI-Compliant System
	(ISA) 0x000001A7 (423)	Microsoft ACPI-Compliant System
	(ISA) 0x000001A8 (424)	Microsoft ACPI-Compliant System
	(ISA) 0x000001A9 (425)	Microsoft ACPI-Compliant System

	(ISA) 0x000001AA (426)	Microsoft ACPI-Compliant System
	(ISA) 0x000001AB (427)	Microsoft ACPI-Compliant System
	(ISA) 0x000001AC (428)	Microsoft ACPI-Compliant System
	(ISA) 0x000001AD (429)	Microsoft ACPI-Compliant System
	(ISA) 0x000001AE (430)	Microsoft ACPI-Compliant System
	(ISA) 0x000001AF (431)	Microsoft ACPI-Compliant System
	(ISA) 0x000001B0 (432)	Microsoft ACPI-Compliant System
	(ISA) 0x000001B1 (433)	Microsoft ACPI-Compliant System
	(ISA) 0x000001B2 (434)	Microsoft ACPI-Compliant System
	(ISA) 0x000001B3 (435)	Microsoft ACPI-Compliant System
	(ISA) 0x000001B4 (436)	Microsoft ACPI-Compliant System
	(ISA) 0x000001B5 (437)	Microsoft ACPI-Compliant System
	(ISA) 0x000001B6 (438)	Microsoft ACPI-Compliant System
	(ISA) 0x000001B7 (439)	Microsoft ACPI-Compliant System
	(ISA) 0x000001B8 (440)	Microsoft ACPI-Compliant System
	(ISA) 0x000001B9 (441)	Microsoft ACPI-Compliant System
	(ISA) 0x000001BA (442)	Microsoft ACPI-Compliant System
	(ISA) 0x000001BB (443)	Microsoft ACPI-Compliant System
	(ISA) 0x000001BC (444)	Microsoft ACPI-Compliant System
	(ISA) 0x000001BD (445)	Microsoft ACPI-Compliant System
	(ISA) 0x000001BE (446)	Microsoft ACPI-Compliant System
	(ISA) 0x000001BF (447)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C0 (448)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C1 (449)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C2 (450)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C3 (451)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C4 (452)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C5 (453)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C6 (454)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C7 (455)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C8 (456)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C9 (457)	Microsoft ACPI-Compliant System
	(ISA) 0x000001CA (458)	Microsoft ACPI-Compliant System

	(ISA) 0x000001CB (459)	Microsoft ACPI-Compliant System
	(ISA) 0x000001CC (460)	Microsoft ACPI-Compliant System
	(ISA) 0x000001CD (461)	Microsoft ACPI-Compliant System
	(ISA) 0x000001CE (462)	Microsoft ACPI-Compliant System
	(ISA) 0x000001CF (463)	Microsoft ACPI-Compliant System
	(ISA) 0x000001D0 (464)	Microsoft ACPI-Compliant System
	(ISA) 0x000001D1 (465)	Microsoft ACPI-Compliant System
	(ISA) 0x000001D2 (466)	Microsoft ACPI-Compliant System
	(ISA) 0x000001D3 (467)	Microsoft ACPI-Compliant System
	(ISA) 0x000001D4 (468)	Microsoft ACPI-Compliant System
	(ISA) 0x000001D5 (469)	Microsoft ACPI-Compliant System
	(ISA) 0x000001D6 (470)	Microsoft ACPI-Compliant System
	(ISA) 0x000001D7 (471)	Microsoft ACPI-Compliant System
	(ISA) 0x000001D8 (472)	Microsoft ACPI-Compliant System
	(ISA) 0x000001D9 (473)	Microsoft ACPI-Compliant System
	(ISA) 0x000001DA (474)	Microsoft ACPI-Compliant System
	(ISA) 0x000001DB (475)	Microsoft ACPI-Compliant System
	(ISA) 0x000001DC (476)	Microsoft ACPI-Compliant System
	(ISA) 0x000001DD (477)	Microsoft ACPI-Compliant System
	(ISA) 0x000001DE (478)	Microsoft ACPI-Compliant System
	(ISA) 0x000001DF (479)	Microsoft ACPI-Compliant System
	(ISA) 0x000001E0 (480)	Microsoft ACPI-Compliant System
	(ISA) 0x000001E1 (481)	Microsoft ACPI-Compliant System
	(ISA) 0x000001E2 (482)	Microsoft ACPI-Compliant System
	(ISA) 0x000001E3 (483)	Microsoft ACPI-Compliant System
	(ISA) 0x000001E4 (484)	Microsoft ACPI-Compliant System
	(ISA) 0x000001E5 (485)	Microsoft ACPI-Compliant System
	(ISA) 0x000001E6 (486)	Microsoft ACPI-Compliant System
	(ISA) 0x000001E7 (487)	Microsoft ACPI-Compliant System
	(ISA) 0x000001E8 (488)	Microsoft ACPI-Compliant System
	(ISA) 0x000001E9 (489)	Microsoft ACPI-Compliant System
	(ISA) 0x000001EA (490)	Microsoft ACPI-Compliant System
	(ISA) 0x000001EB (491)	Microsoft ACPI-Compliant System

	(ISA) 0x000001EC (492)	Microsoft ACPI-Compliant System
	(ISA) 0x000001ED (493)	Microsoft ACPI-Compliant System
	(ISA) 0x000001EE (494)	Microsoft ACPI-Compliant System
	(ISA) 0x000001EF (495)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F0 (496)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F1 (497)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F2 (498)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F3 (499)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F4 (500)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F5 (501)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F6 (502)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F7 (503)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F8 (504)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F9 (505)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FA (506)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FB (507)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FC (508)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FD (509)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FE (510)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FF (511)	Microsoft ACPI-Compliant System
	(PCI) 0x0000000B (11)	Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131
	(PCI) 0x0000000B (11)	Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
	(PCI) 0xFFFFFDD7 (-41)	Intel(R) Management Engine Interface
	(PCI) 0xFFFFFDD8 (-40)	Intel(R) I210 Gigabit Fiber Network Connection
	(PCI) 0xFFFFFDD9 (-39)	Intel(R) I210 Gigabit Fiber Network Connection
	(PCI) 0xFFFFFDDA (-38)	Intel(R) I210 Gigabit Fiber Network Connection
	(PCI) 0xFFFFFDDB (-37)	Intel(R) I210 Gigabit Fiber Network Connection
	(PCI) 0xFFFFFDDC (-36)	Intel(R) I210 Gigabit Fiber Network Connection
	(PCI) 0xFFFFFDDDD (-35)	Intel(R) I210 Gigabit Fiber Network Connection
	(PCI) 0xFFFFFDE (-34)	Intel(R) I210 Gigabit Fiber Network Connection #2
	(PCI) 0xFFFFFDDF (-33)	Intel(R) I210 Gigabit Fiber Network Connection #2
	(PCI) 0xFFFFFDE0 (-32)	Intel(R) I210 Gigabit Fiber Network Connection #2
	(PCI) 0xFFFFFDE1 (-31)	Intel(R) I210 Gigabit Fiber Network Connection #2

	(PCI) 0xFFFFFEE2 (-30)	Intel(R) I210 Gigabit Fiber Network Connection #2
	(PCI) 0xFFFFFEE3 (-29)	Intel(R) I210 Gigabit Fiber Network Connection #2
	(PCI) 0xFFFFFEE4 (-28)	Intel(R) I211 Gigabit Network Connection #6
	(PCI) 0xFFFFFEE5 (-27)	Intel(R) I211 Gigabit Network Connection #6
	(PCI) 0xFFFFFEE6 (-26)	Intel(R) I211 Gigabit Network Connection #6
	(PCI) 0xFFFFFEE7 (-25)	Intel(R) I211 Gigabit Network Connection #6
	(PCI) 0xFFFFFEE8 (-24)	Intel(R) I211 Gigabit Network Connection #5
	(PCI) 0xFFFFFEE9 (-23)	Intel(R) I211 Gigabit Network Connection #5
	(PCI) 0xFFFFFEEA (-22)	Intel(R) I211 Gigabit Network Connection #5
	(PCI) 0xFFFFFEEB (-21)	Intel(R) I211 Gigabit Network Connection #5
	(PCI) 0xFFFFFEEC (-20)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFEED (-19)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFEEF (-18)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFEFF (-17)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFFF0 (-16)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFFF1 (-15)	Intel(R) I211 Gigabit Network Connection #3
	(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
	(PCI) 0xFFFFFFF5 (-11)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFF6 (-10)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFF7 (-9)	Intel(R) I211 Gigabit Network Connection
	(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 #2
	(PCI) 0xFFFFFFFB (-5)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFFC (-4)	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
	(PCI) 0xFFFFFFFD (-3)	Intel(R) HD Graphics 630
	(PCI) 0xFFFFFFFE (-2)	Intel(R) 100 Series/C230 Chipset Family SATA AHCI Controller

Appendix C

Standard LAN Bypass Platform Setting

C.1 Status LED

The FWS-7821 features a programmable LED status indicator. Users can program the LED status indicator with the AAEON SDK to express different statuses.

C.1.2 Status LED Configuration

Table 1 : Turth Table of Status LED

STA_LED2	STA_LED1	STA_LED0	LED States
0	0	0	LED Off
0	0	1	Red
0	1	0	Red Blinking (Slowly)
0	1	1	Red Blinking (Quickly)
1	0	0	Reserved
1	0	1	Green Blinking (Slowly)
1	1	0	Green Blinking (Quickly)
1	1	1	Green

Table 2 : Status LED relative register mapping table

CPLD Slave Address 0x90 (Note1)				
	Attribute	Offset(SMBUS)	BitNum	Value
STA_LED2	R/W	0x00 (Note2)	2	(Table 1)
STA_LED1	R/W	0x00 (Note2)	1	(Table 1)
STA_LED0	R/W	0x00 (Note2)	0	(Table 1)

C.1.3 Satus LED Sample Code

```

*****
***
#define Byte CPLD_SLAVE_ADDRESS //This parameter is represented from Note1
#define Byte OFFSET //This parameter is represented from Note2
*****
***

bData = aaeonSmbusReadByte(CPLD_SLAVE_ADDRESS, OFFSET);

switch( LED_FLAG)
{
case 0:
{
//LED Off
//BIT2=0, BIT1=0, BIT0=0
bData = bData & 0xF8;
break;
}
case 1:
{
//Red LED On
//BIT2=0, BIT1=0, BIT0=1
bData = (bData & 0xF8) | 0x01;
break;
}
case 2:
{
//Red LED Blink
//BIT2=0, BIT1=1, BIT0=0
bData = (bData & 0xF8) | 0x02;
break;
}
case 3:
{
//Red LED Fast Blink
//BIT2=0, BIT1=1, BIT0=1
bData = (bData & 0xF8) | 0x03;
break;
}
case 4:

```

```
{
    //Green LED On
    //BIT2=1, BIT1=1, BIT0=1
    bData = (bData & 0xF8) | 0x07;
    break;
}
case 5:
{
    //Green LED Blink
    //BIT2=1, BIT1=0, BIT0=1
    bData = (bData & 0xF8) | 0x05;
    break;
}
case 6:
{
    //Green LED Fast Blink
    //BIT2=1, BIT1=1, BIT0=0
    bData = (bData & 0xF8) | 0x06;
    break;
}
default:
    break;
}
SmbusWriteByte(CPLD_SLAVE_ADDRESS, 0x00, bData);

*****

***
```

C.2 LAN Bypass

The FWS-7821 provides a LAN Bypass kit which allows uninterrupted network traffic, even if a single in-line appliance is shut down or hangs.

C.2.1 LAN Bypass Configuration

Table 1 : ID Select table of LAN kit

LAN_ID2	LAN_ID1	LAN_ID0	LAN kit selected
0	0	0	LAN Kit 1 Selected
0	0	1	LAN Kit 2 Selected
0	1	0	LAN Kit 3 Selected
0	1	1	LAN Kit 4 Selected
1	0	0	LAN Kit 5 Selected

Table 2 : LAN Bypass relative register table

Function	Description
LAN_ID3	Use for selecting which LAN kit will be configured, refer to Table 1 of ID Select table of LAN kit. They should be set before ACT_EN.
LAN_ID2	
LAN_ID1	
LAN_ID0	
PWR_ON	Use for configuring LAN Bypass function behavior to LAN kit, when system power on. 1: Bypass 0: Pass Through
PWR_OFF	Use for configuring LAN Bypass function behavior to LAN kit, when system power off. 1: Bypass 0: Pass Through
WDT_EN	Use for configuring WDT function behavior to LAN kit, when WDT triggered. 0: Normal WDT reset (Default) 1: Force Bypass
ACT_EN	Use for activating programming of LAN kit. It is edge triggering (falling edge 1 to 0) and should be set to high(1) as its normal state.

Table 3 : LAN Bypass relative register mapping table

CPLD Slave Address 0x90 (Note1)				
	Attribute	Offset(SMBUS)	BitNum	Value
LAN_ID3	R/W	0x01(Note2)	3	(Table 1)
LAN_ID2	R/W	0x01(Note2)	2	(Table 1)
LAN_ID1	R/W	0x01(Note2)	1	(Table 1)
LAN_ID0	R/W	0x01(Note2)	0	(Table 1)
PWR_ON	R/W	0x01(Note2)	6	(Table 2)
PWR_OFF	R/W	0x01(Note2)	5	(Table 2)
WDT_EN	R/W	0x01(Note2)	4	(Table 2)
ACT_EN	R/W	0x01(Note2)	7	(Table 2)

C.2.2 LAN Bypass Sample Code

Sample Code

```

*****
***
#define Byte CPLD_SLAVE_ADDRESS    //This parameter is represented from Note1
#define Byte OFFSET                //This parameter is represented from Note2
*****
***

// Select Lan Pair
BYTE bLanSel = LAN_PAIR;

BYTE bData = SmbusReadByte(CPLD_SLAVE_ADDRESS, OFFSET);
// Set Reg01h bit3
if(bLanSel & 0x08)
    bData = bData | 0x08;
else
    bData = bData & 0xF7;
// Set Reg01h bit2
if(bLanSel & 0x04)
    bData = bData | 0x04;
else
    bData = bData & 0xFB;
// Set Reg01h bit1
if(bLanSel & 0x02)
    bData = bData | 0x02;
else
    bData = bData & 0xFD;
// Set Reg01h bit0
if(bLanSel & 0x01)
    bData = bData | 0x01;
else
    bData = bData & 0xFE;

// Power On Action (Reg01h bit6)
if(SET_PASS_THROUGH)    // Pass Through
    bData = bData & 0xBF;
else                    // Bypass
    bData = bData | 0x40;

```

```
// Power Off Action (Reg01h bit5)
if(SET_PASS_THROUGH)    // Pass Through
    bData = bData & 0xDF;
else                    // Bypass
    bData = bData | 0x20;

// WDT Action (Reg01h bit4)
if(SET_WDT_RESET)    // Reset
    bData = bData & 0xEF;
else                // Bypass
    bData = bData | 0x10;

SmbusWriteByte(CPLD_SLAVE_ADDRESS, OFFSET, bData);

// Apply Settings (Reg01h bit7)
bData = SmbusReadByte(CPLD_SLAVE_ADDRESS, OFFSET);
SmbusWriteByte(CPLD_SLAVE_ADDRESS, OFFSET, bData & 0x7F);
Sleep(500);
bData = SmbusReadByte(CPLD_SLAVE_ADDRESS, OFFSET);
SmbusWriteByte(CPLD_SLAVE_ADDRESS, OFFSET, bData | 0x80);
*****
```

C.3 Software Reset Button (General Propose Input)

The FWS-7821 features a general purpose input button. The status of the button can be read by the AAEON SDK.

C.3.1 Software Reset Button

Table 1 : Soft Reset Button register mapping table

	Attribute	Register(I/O)	BitNum	Value
BTN_STS	R	0xA05(Note1)	4(Note2)	(Note3)

Table 2 : LAN Bypass relative register table

Function	Description
BTN_STS	Reading this register returns the pin level status which is normal high active low. 0: Pin Level States Low. 1: Pin Level States High.

C.3.2 Software Reset Button Sample Code

Sample Code:

```
*****
#define Word BTN_STS      //This parameter is represented from Note1
#define Byte  BTN_STS_R   //This parameter is represented from Note2
*****

Byte  GET_Value (Word IoAddr, Byte BitNum,Byte Value){
    BYTE  TmpValue;

    TmpValue = inportb (IoAddr);
    return  (TmpValue & (1 << BitNum))
}
*****
VOID  Main(){
    Byte RstBtn;

    RstBtn = GET_Value (BTN_STS, BTN_STS_R); // Active Low
}
*****
```