FWB-7250

Networking Motherboard

User's Manual 2nd Ed

Last Updated: June 3, 2016

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Packing List

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

Item	Quantity
● FWB-7520 networking motherboard	1
● Product CD with User's Manual (in pdf) and drivers	1

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

Optional cables are also available for purchase. Please only purchase cables with the following item number.

- 1700160150 VGA cable (must be used with two S21D305011 screws)
- 1700091805 Console cable

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 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. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. 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.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. 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.

17. 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
18. 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

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 Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板及其电子组件	O	O	O	O	O	O
外部信号连接器及线材	O	O	O	O	O	O

O：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。

备注：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。

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products

AAEON Main Board/ Daughter Board/ Backplane

Component	Poisonous or Hazardous Substances or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
PCB & Other Components	O	O	O	O	O	O
Wires & Connectors for External Connections	O	O	O	O	O	O

O：The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.

X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.

Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only

Table of Contents

Chapter 1

Product Specifications

1.1 Specifications

System	
Processor	Intel® Celeron® J1900 2.0 GHz (Quad-core) Intel® Atom™ E3845 1.91 GHz (Quad-core)
System Memory	204-pin DDR3L 1333MHz SODIMM x 2, up to 8GB
Chipset	-
Ethernet	Intel® I210-AT (shared with Intel® I211-AT), Gigabit Ethernet x 4 (2 pairs bypass, optional)
BIOS	AMI BIOS
Serial ATA	CompactFlash™ Socket x 1 SATA 3.0 connector x 1
Expansion Interface	MiniCard socket x 1 w/ SIM card socket
Power Requirement	ATX 100W PSU
Power Consumption	Intel® Celeron® J1900 2.4GHz, DDR3L 1600 4GB - 0.26A@100VAC
Board Size	170mm x 170mm
Watchdog Timer	1~255 steps by software programming
MTBF (Hours)	110,000
OS Support	Windows® 7 or above, Linux

Display	
Chipset	Intel® Celeron® J1900 Intel® Atom™ E3845
Graphic Engine	Intel® HD Graphics
Resolution	2560 x 1600

● Output Interface	Reserved pin header for graphic integrated Processor

I/O

● LAN Port	RJ-45 x 4
● Serial Port	RJ-45 console x 1
● Keyboard & Mouse	Reserved pin header
● USB	USB 2.0 x 2
● LED	Power LED x 1
	Status LED x 1
	HDD active x 1
	LAN LED x 8
	Bypass LED x 1 (Optional)
● Others	Power on/off x 1
	Software programmable reset x 1

Environmental

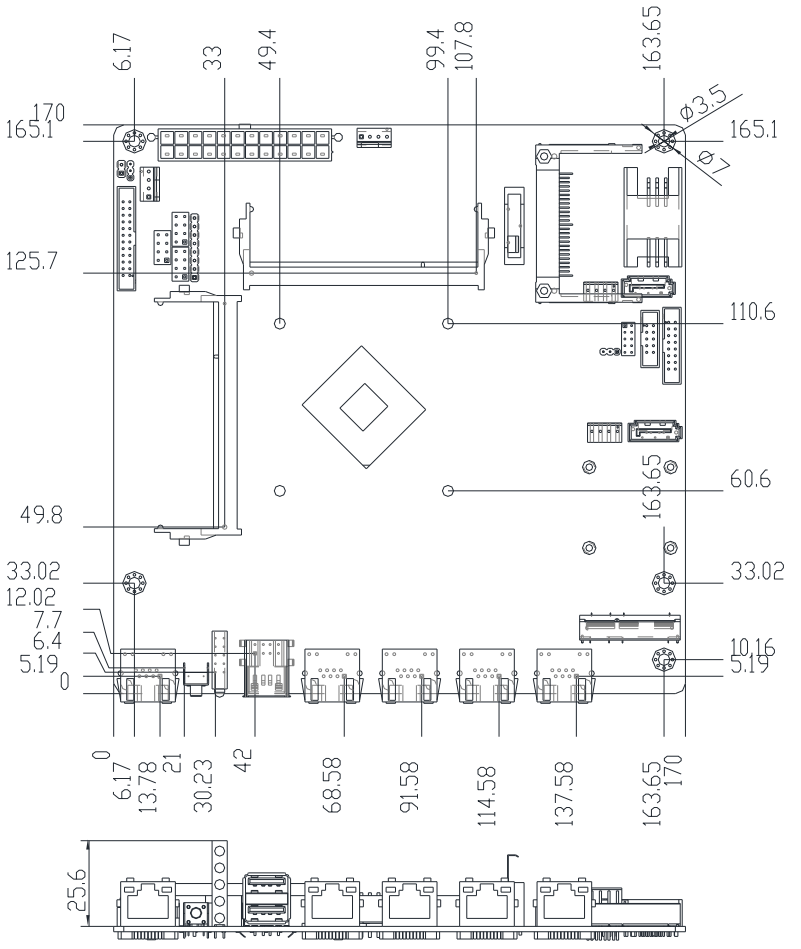
● Operating Temperature	0 ~60°C (32 ~ 140°F)
● Storage Temperature	-40 ~ 85°C (-40 ~185°F)
● Operating Humidity	0 ~ 90% relative humidity, non-condensing

Chapter 2

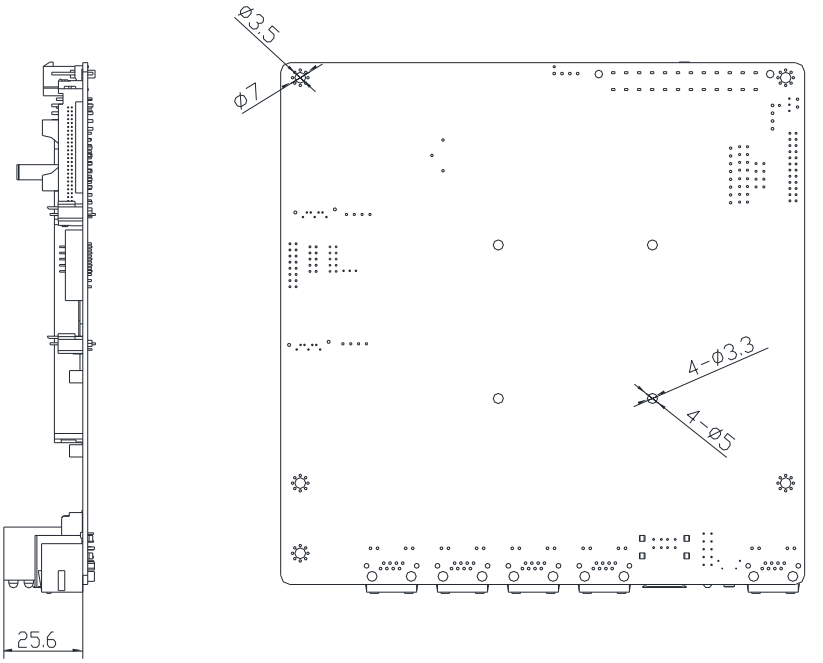
Hardware Information

2.1 Dimensions

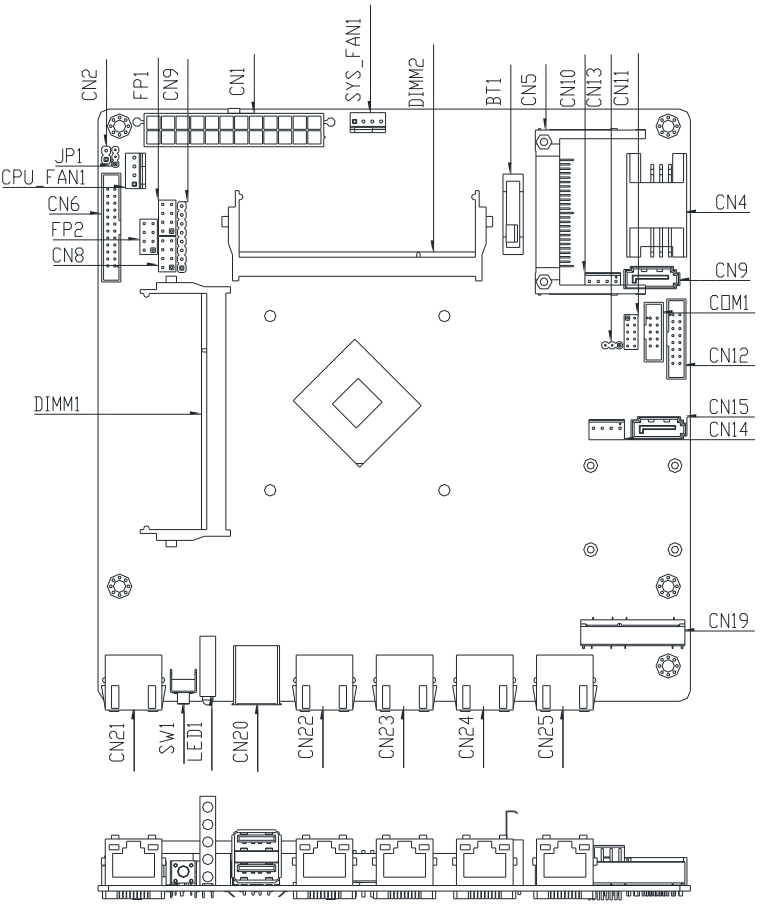
Component Side



Solder Side



2.2 Jumpers and Connectors

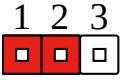


2.3 List of Jumpers

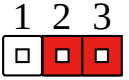
Please refer to the table below for all of the board's jumpers that you can configure for your application

Label	Function
JP1	Auto Power Button
CN13	CF Power Selection
CN16	CMOS Setting Selection
CN17	RTC Test Setting Selection

2.3.1 Auto Power Button (JP1)

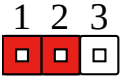


Disabled

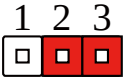


Enabled

2.3.2 CF Power Selection (CN13)

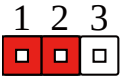


+5 V

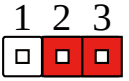


+3.3 V

2.3.3 CMOS Setting Selection (CN16)

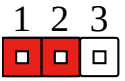


Clear CMOS

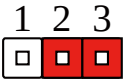


Norma;

2.3.4 RTC Test Setting Selection (CN17)



RTC test



Normal

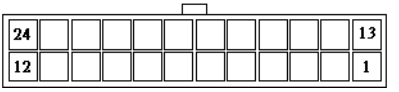
2.4 List of Connectors

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

Label	Function
CN1	24-Pin ATX Power Connector
CN2	Power Button
CN4	SIM Card Socket
CN5	CompactFlash Socket
CN6	LCM Connector
CN8	PS/2 Keyboard/Mouse Pin Header
CN9	SATA Port Connector
CN10	SATA Power Connector
CN11	USB2.0 Port 1 Pin Header
CN12	VGA Pin Header
CN14	SATA Power Connector
CN15	SATA Port Connector
CN19	Mini PCI-E Slot
CN20	USB2.0 Type-A Connector
CN21	Console Port Connector
CN22	Giga LAN Port Connector
CN23	Giga LAN Port Connector
CN24	Giga LAN Port Connector
CN25	Giga LAN Port Connector
BT1	Battery
COM1	COM Port Connector
CPU_FAN1	4-Pin Fan Connector
DIMM1	DDR3L SODIMM Slot

DIMM2	DDR3L SODIMM Slot
FP1	Front Panel Connector 1
FP2	Front Panel Connector 2
SW1	Reset Switch (Controlled by apps)
SYS_FAN1	4-Pin Fan Connector

2.4.1 24-Pin ATX Power Connector (CN1)

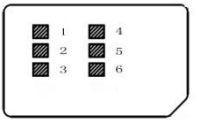


Pin	Pin Name	Signal Type	Signal level
1	+3.3V	PWR	+3.3V
2	+3.3V	PWR	+3.3V
3	GND	GND	
4	+5V	PWR	+5V
5	GND	GND	
6	+5V	PWR	+5V
7	GND	GND	
8	PWROK	Input	+5V
9	+5VSB	PWR	+5V
10	+12V	PWR	+12V
11	+12V	PWR	+12V
12	+3.3V	PWR	+3.3V
13	+3.3V	PWR	+3.3V
14	-12V	PWR	-12V
15	GND	GND	
16	PS_ON#	Output	By SIO Level
17	GND	GND	
18	GND	GND	
19	GND	GND	
20	NC		
21	+5V	PWR	+5V
22	+5V	PWR	+5V
23	+5V	PWR	+5V
24	GND	GND	

2.4.2 Power Button (CN2)

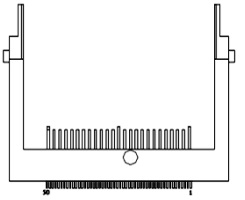
Pin	Pin Name	Signal Type	Signal Level
1	Power On Button (+)	Input	
2	Power On Button (-)	Input	

2.4.3 SIM Card Socket (CN4)



Pin	Pin Name	Signal Type	Signal Level
1	UIM _PWR	PWR	
2	UIM _RST	Input	
3	UIM _CLK	Input	
4	GND	GND	
5	UIM _VPP	PWR	
6	UIM _DATA	I/O	

2.4.4 CompactFlash Socket (CN5)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	D3	Input / Output	

3	D4	Input / Output	
4	D5	Input / Output	
5	D6	Input / Output	
6	D7	Input / Output	
7	CS1#	Output	
8	A10	Output	
9	ATA_SEL	Output	
10	A9	Output	
11	A8	Output	
12	A7	Output	
13	VCC_CFD	PWR	+5V(Default)/ +3.3V
14	A6	Output	
15	A5	Output	
16	A4	Output	
17	A3	Output	
18	A2	Output	
19	A1	Output	
20	A0	Output	
21	D0	Input / Output	
22	D1	Input / Output	
23	D2	Input / Output	
24	IOSC16#	Output	
25	CD2#	Input	
26	CD1#	Input	
27	D11	Input / Output	
28	D12	Input / Output	
29	D13	Input / Output	

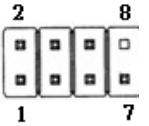
30	D14	Input / Output	
31	D15	Input / Output	
32	CS1#	Output	
33	VS1#	Input	
34	IORD#	Output	
35	IOWR#	Output	
36	WE#	Output	
37	INTRQ	Input	
38	VCC_CFD	PWR	+5V(Default)/ +3.3V
39	CSEL#	Output	
40	VS2#	Input	
41	RESET	Output	
42	IORDY	Input	
43	DMARQ#	Input	
44	DMACK#	Output	
45	DASP#	Input / Output	
46	PDIAG#	Input / Output	
47	D8	Input / Output	
48	D9	Input / Output	
49	D10	Input / Output	
50	GND	GND	

2.4.5 LCM Connector (CN6)

Pin	Pin Name	Signal Type	Signal level
1	LCMVCC	PWR	+5V

2	LCMGND	GND	
3	SLIN#	Output	
4	VEE	PWR	
5	AFD#	Output	
6	INIT#	Output	
7	DATA1	Input / Output	
8	DATA0	Input / Output	
9	DATA3	Input / Output	
10	DATA2	Input / Output	
11	DATA5	Input / Output	
12	DATA4	Input / Output	
13	DATA7	Input / Output	+5V(Default)/ +3.3V
14	DATA6	Input / Output	
15	LCD#	Output	
16	+5V	PWR	+5V
17	KEY PAD Up	Input	+3.3V
18	KEY PAD Right	Input	+3.3V
19	KEY PAD Left	Input	+3.3V
20	KEY PAD Down	Input	+3.3V
21	RSTSW#	Input	+3.3V
22	NC		
23	NC		
24	NC		

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



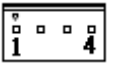
Pin	Pin Name	Signal Type	Signal Level
1	KB_DATA	Input / Output	
2	KB_CLK	Output	
3	GND	GND	
4	+5V_KB	PWR	+5V
5	MS_DATA	Input / Output	
6	MS_CLK	Output	
7	Key	N/A	
8	N.C.		

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

2.4.7 SATA Port Connector (CN9)

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

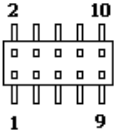
2.4.8 SATA Power Connector (CN10 & CN14)



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

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

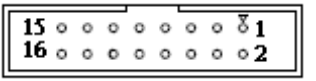
2.4.9 USB2.0 Port 1 Pin Header (CN11)



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

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

2.4.10 VGA Pin Header (CN12)



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

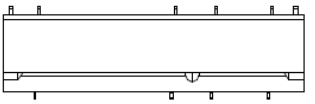
Note: Max rating for pin 2 is 1.5A at 5V

2.4.11 SATA Port Connector (CN15)

Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	

2	SATA_TXP1	DIFF	
3	SATA_TXN1	DIFF	
4	GND	GND	
5	SATA_RXN1	DIFF	
6	SATA_RXP1	DIFF	
7	GND	GND	

2.4.12 Mini PCI-E Slot (CN19)



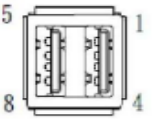
Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	Input	
2	+3.3VDUAL	PWR	+3.3V
3	N.C.		
4	GND	GND	
5	N.C.		
6	+1.5V	PWR	+1.5V
7	PCIE_ REQ	Input	
8	UIM_PWR	Input	
9	GND	GND	
10	UIM_DATA	Input / Output	
11	PCIE_CLK#	DIFF	
12	UIM_CLK	Input	
13	PCIE_CLK	DIFF	
14	UIM_RESET	Input	
15	GND	GND	

16	UIM_VPP	Input	
17	N.C.		
18	GND	GND	
19	N.C.		
20	WLAN_EN	Output	
21	GND	GND	
22	PLT_RST#	Output	
23	PER_N	DIFF	
24	+3.3VDUAL	PWR	+3.3V
25	PER_P	DIFF	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V
29	GND	GND	
30	SMB1_CLK	Output	
31	PET_N	DIFF	
32	SMB1_DAT	Input / Output	
33	PET_P	DIFF	
34	GND	GND	
35	GND	GND	
36	USB_DN	DIFF	
37	GND	GND	
38	USB_DP	DIFF	
39	+3.3VDUAL	PWR	+3.3V
40	GND	GND	
41	+3.3VDUAL	PWR	+3.3V
42	LED_WWAN#	Output	

43	GND	GND	
44	LED_WLAN#	Output	
45	Reserved	N/A	
46	LED_WPAN#	Output	
47	Reserved	N/A	
48	+1.5V	PWR	+1.5V
49	Reserved	N/A	
50	GND	GND	
51	Reserved	N/A	
52	+3.3VDUAL	PWR	+3.3V

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

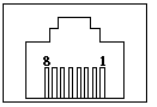
2.4.13 USB2.0 Type-A Connector (CN20)



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

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

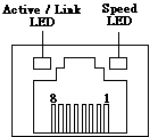
2.4.14 Console Port Connector (CN21)



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

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

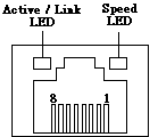
2.4.15 Giga LAN Port Connector (CN22)



Pin	Pin Name	Signal Type	Signal Level
1	LAN1_MDI0P	DIFF	
2	LAN1_MDI0N	DIFF	
3	LAN1_MDI1P	DIFF	
4	LAN1_MDI2P	DIFF	
5	LAN1_MDI2N	DIFF	
6	LAN1_MDI1N	DIFF	

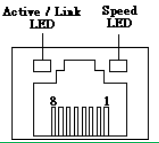
7	LAN1_MDI3P	DIFF	
8	LAN1_MDI3N	DIFF	

2.4.16 Giga LAN Port Connector (CN23)



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

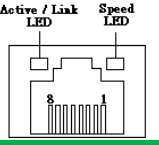
2.4.17 Giga LAN Port Connector (CN24)



Pin	Pin Name	Signal Type	Signal Level
1	LAN3_MDI0P	DIFF	
2	LAN3_MDI0N	DIFF	
3	LAN3_MDI1P	DIFF	
4	LAN3_MDI2P	DIFF	
5	LAN3_MDI2N	DIFF	

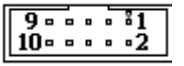
6	LAN3_MDI1N	DIFF	
7	LAN3_MDI3P	DIFF	
8	LAN3_MDI3N	DIFF	

2.4.18 Giga LAN Port Connector (CN25)



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

2.4.19 COM Port Connector (COM1)



RS-232			
Pin	Pin Name	Signal Type	Signal Level
1	DCD1	Input	
2	RXD1	Input	
3	TXD1	Output	±9V
4	DTR1	Output	±9V

5	GND	GND	
6	DSR1	Input	
7	RTS1	Output	±9V
8	CTS1	Input	
9	RI1 / +5V / +12V	Input / PWR	By Jumper Selection
10	N.C.		

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

RS-422			
Pin	Pin Name	Signal Type	Signal Level
1	RS422_TX-	DIFF	
2	RS422_RX+	DIFF	
3	RS422_TX+	DIFF	
4	RS422_RX-	DIFF	
5	GND	GND	
6	NC		
7	NC		
8	NC		
9	NC / +5V / +12V	PWR	By Jumper Selection
10	N.C.		

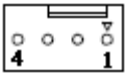
Note: Max rating for pin 9 is 1A at 5V& 12V

RS-485			
Pin	Pin Name	Signal Type	Signal Level
1	RS485_D-	DIFF	
2	NC		
3	RS485_D+	DIFF	

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

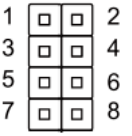
Note: Max rating for pin 9 is 1A at 5V& 12V

2.4.20 4-pin Fan Connector (CPU_FAN1)



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

2.4.21 Front Panel Connector (FP1)

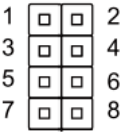


Pin	Pin Name	Signal Type	Signal Level
1	External Speaker (+)	Output	
2	Key Board Lock (+)	Output	
3	NC	Floting	
4	GND	POWER	

5	External Speaker (-)	Output
6	I2C Bus SMB Clock	Input / Output
7	External Speaker (-)	Output
8	I2C Bus SMB Data	Input / Output

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

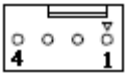
2.4.22 Front Panel Connector (FP2)



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

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

2.4.23 4-pin Fan Connector (SYS_FAN1)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	FAN_PWR	PWR	+12V

3	FAN_TAC	Input
4	FAN_CTL	Output

Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

The board uses certain routines to perform testing and initialization. If an error, fatal or non-fatal, is encountered, a few short beeps or an error message will be outputted. The board can usually continue the boot up sequence with non-fatal errors.

The system configuration verification routines check the current system configuration against the values stored in the CMOS memory. If they do not match, an error message will be outputted, in which case you will need to run the BIOS setup program to set the configuration information in memory.

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

- You are starting your system for the first time
- You have changed your system's hardware
- 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 is to be replaced once emptied.

3.2 AMI BIOS Setup

The AMI BIOS ROM has a pre-installed Setup program that allows users to modify basic system configurations, which is 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 <Del> or <F2> immediately while your computer is powering up.

The function for each interface can be found below.

Main – Date and time can be set here. Press <Tab> to switch between date elements

Advanced – Enable/ Disable boot option for legacy network devices

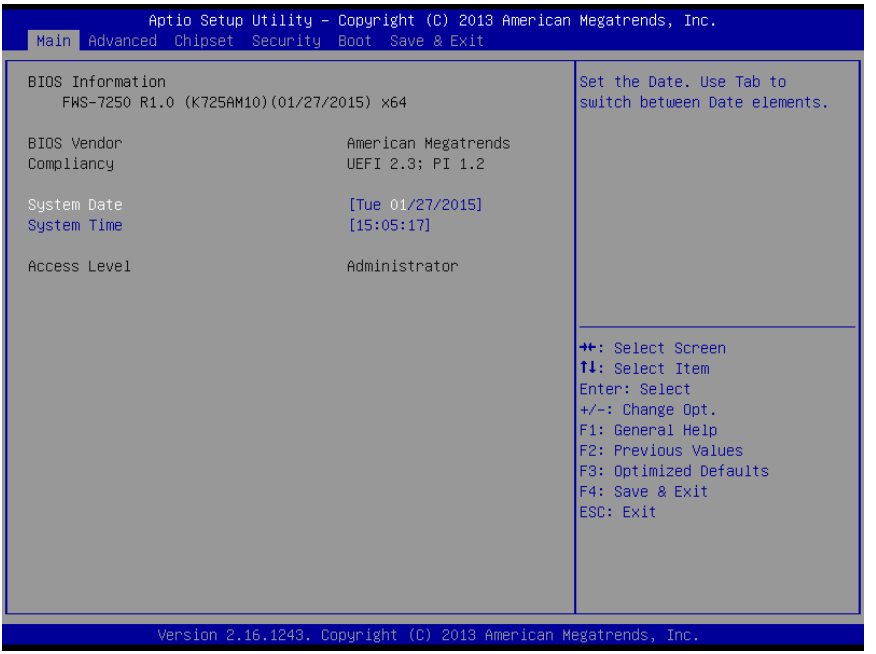
Chipset – For hosting bridge parameters

Boot – Enable/ Disable quiet Boot Option

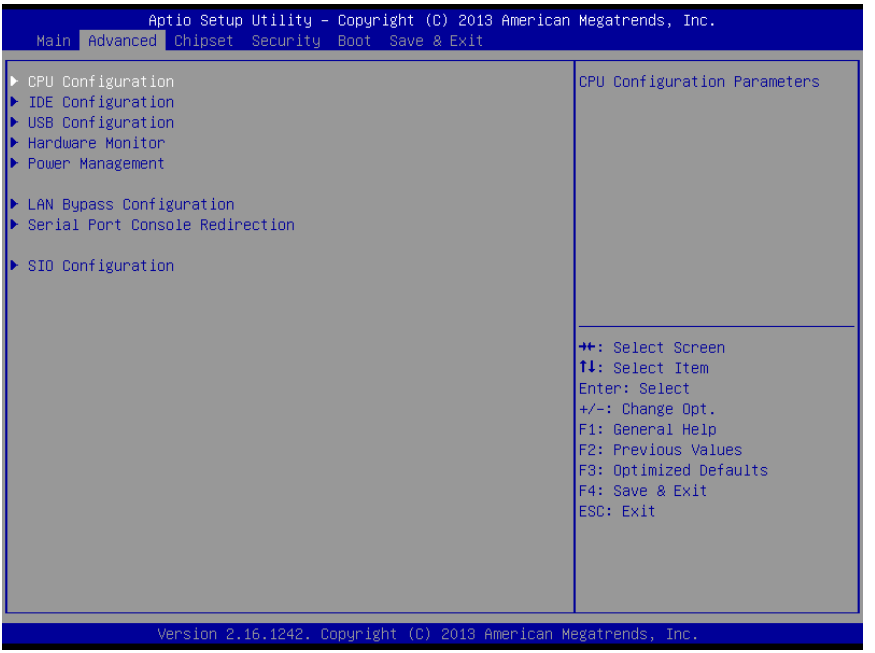
Security – The setup administrator password can be set here

Save & Exit –Save your changes and exit the program

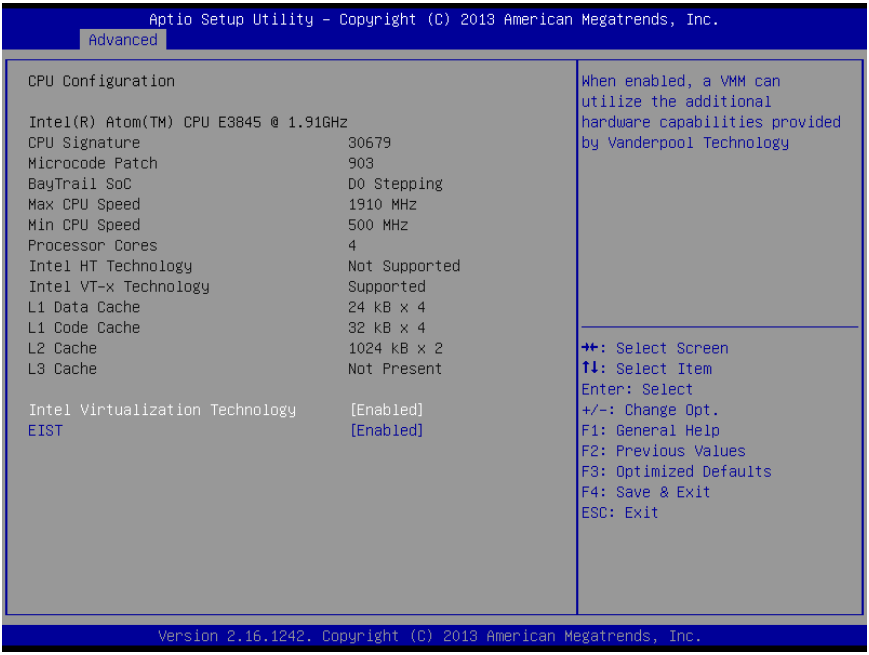
3.3 Setup submenu: Main



3.4 Setup submenu: Advanced



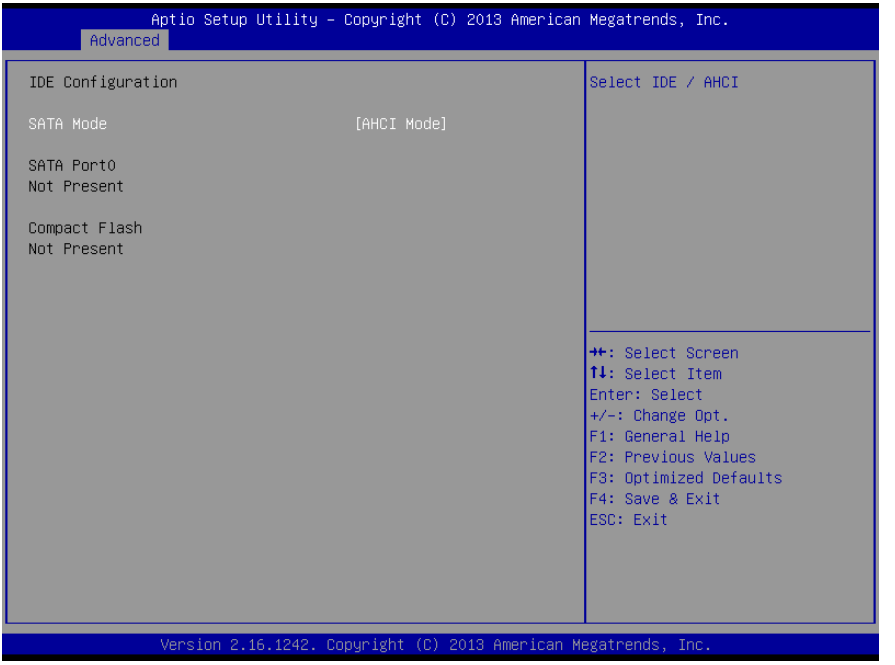
3.4.1 Advanced: CPU Configuration



Options summary:

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

3.4.2 Advanced: IDE Configuration



Options summary:

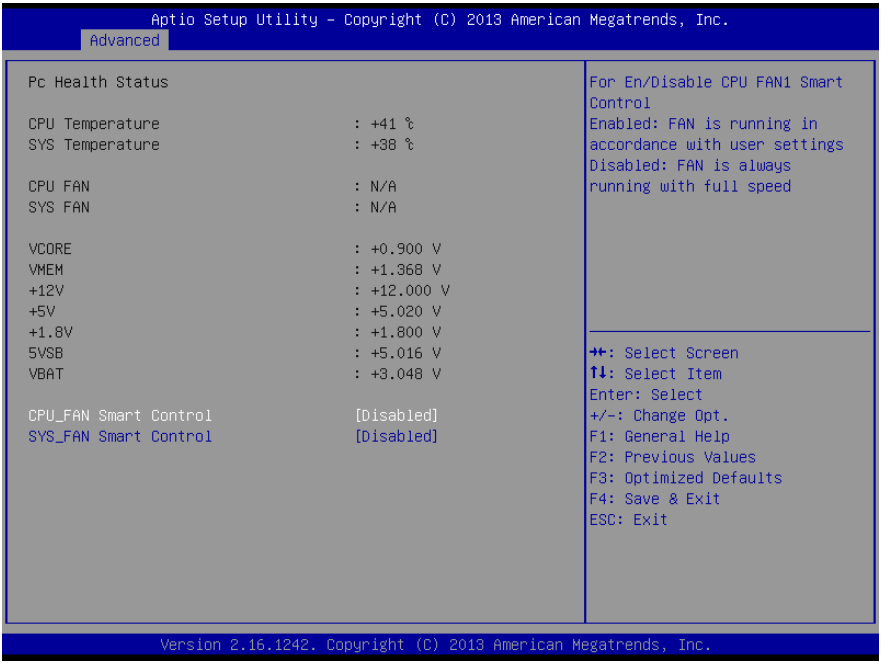
SATA Mode	IDE Mode	Optimal Default, Failsafe Default
	AHCI Mode	

3.4.3 Advanced: 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		

3.4.4 Advanced: Hardware Monitor



Options summary:

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

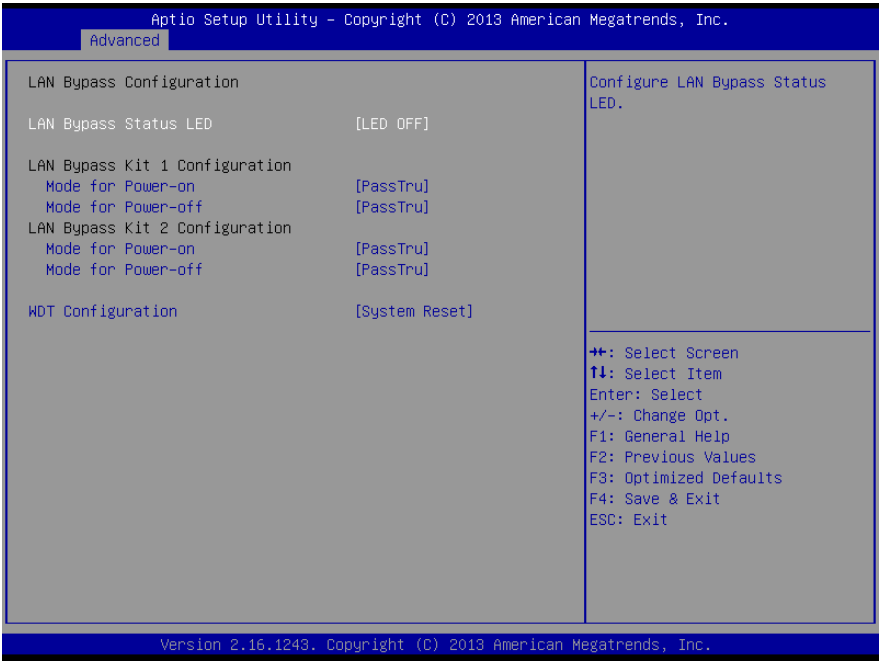
	Enabled	
SYS_FAN Smart Control Enable		
FAN Control Mode	Manual Mode	Optimal Default, Failsafe Default
	Automatic Mode	
Manual Mode		
PWM Duty	0-255	
Automatic Mode		
Spin PWM	0-255	
Off Control Temperature	0-127	
Start Control Temperature	0-127	
Full Speed Temperature	0-127	
PWM Slope	1-15	

3.4.5 Advanced: Power Management

Options summary:

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

3.4.6 Advanced: LAN Bypass Configuration

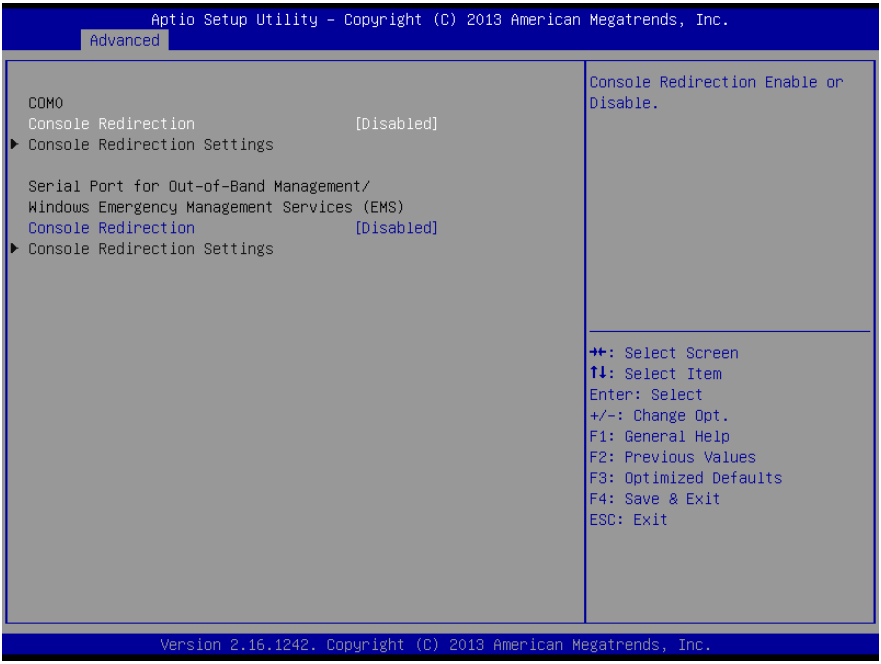


Options summary: (**default setting**)

LAN Bypass Status LED Configuration	LED OFF	Optimal Default, Failsafe Default
	RED LED ON	
	RED LED BLINK	
	RED LED FAST BLINK	
	GREEN LED ON	
	GREEN LED BLINK	
	GREEN LED FAST BLINK	
LAN Bypass Kit 1 Configuration		
Mode for power-on	PassTru	Optimal Default, Failsafe Default
	Bypass	
Mode for power-off	PassTru	Optimal Default, Failsafe Default
	Bypass	
LAN Bypass Kit 2 Configuration		
Mode for power-on	PassTru	Optimal Default, Failsafe Default
	Bypass	

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

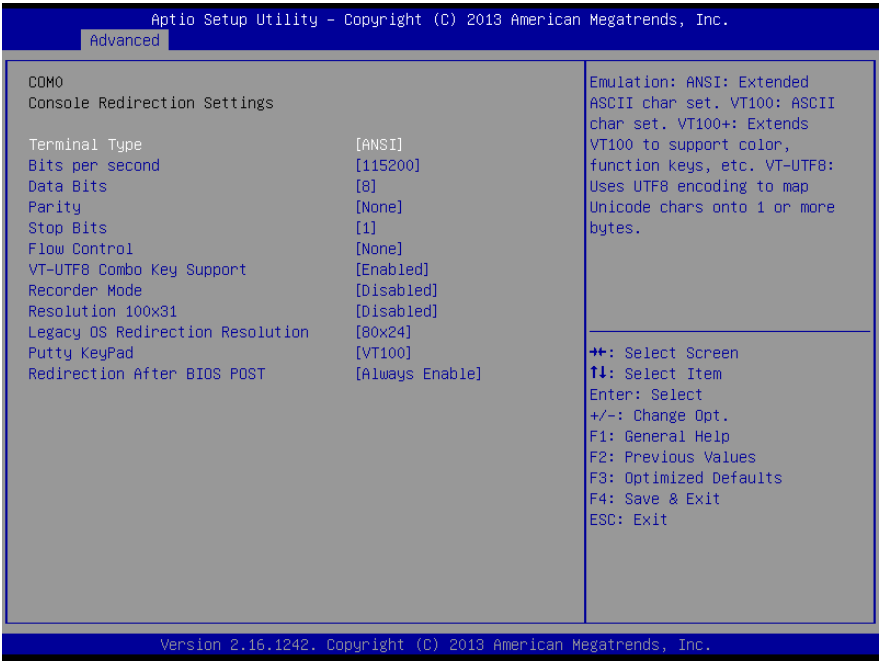
3.4.7 Advanced: Serial Port Console Redirection



Options summary:

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

3.4.7.1 Serial Port Console Redirection: COM0 Console Redirection Settings

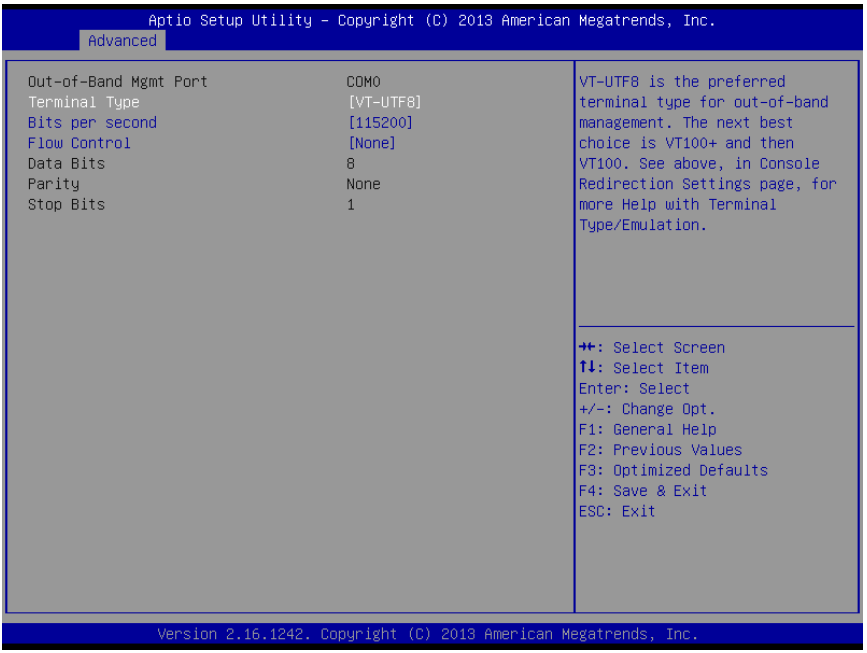


Options summary:

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

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

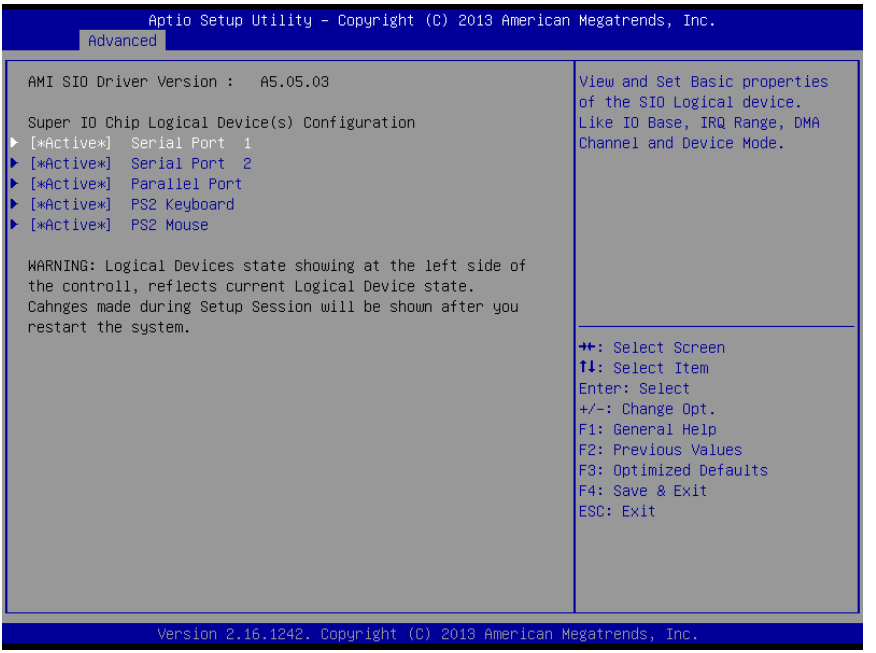
3.4.7.2 Serial Port Console Redirection: Console Redirection Settings



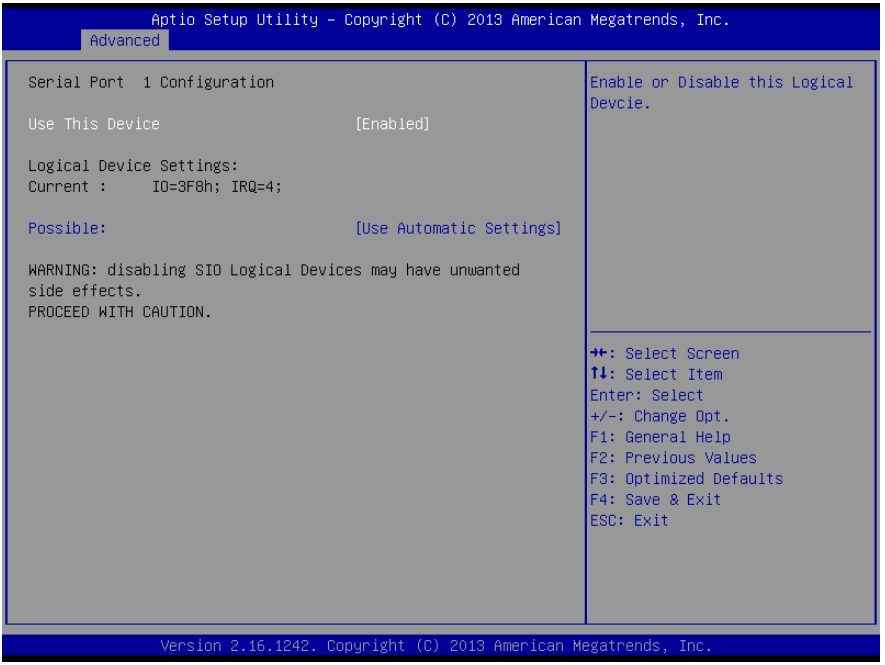
Options summary:

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

3.4.8 Advanced: SIO Configuration



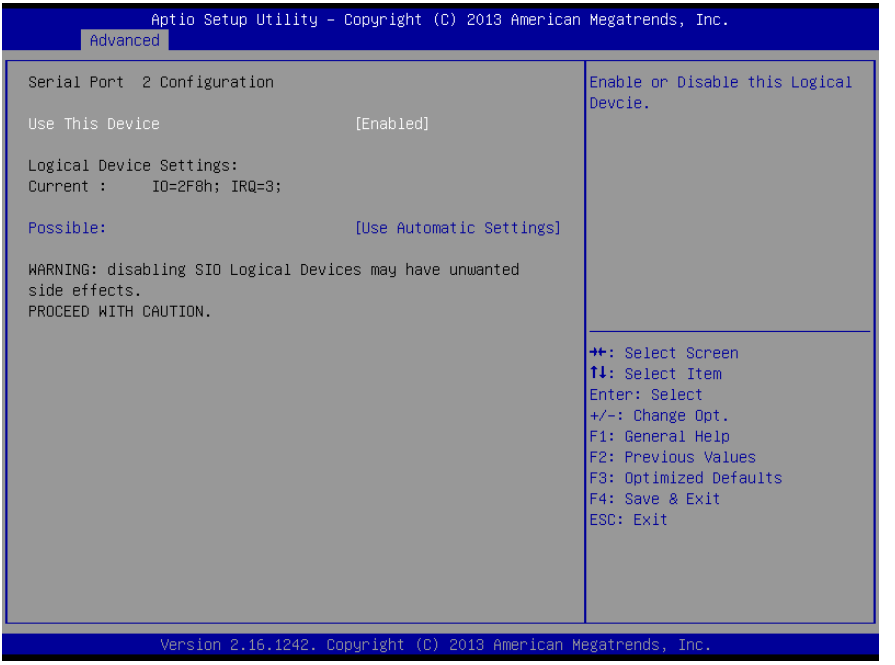
3.4.8.1 SIO Configuration: Serial Port 1 Configuration



Options summary:

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

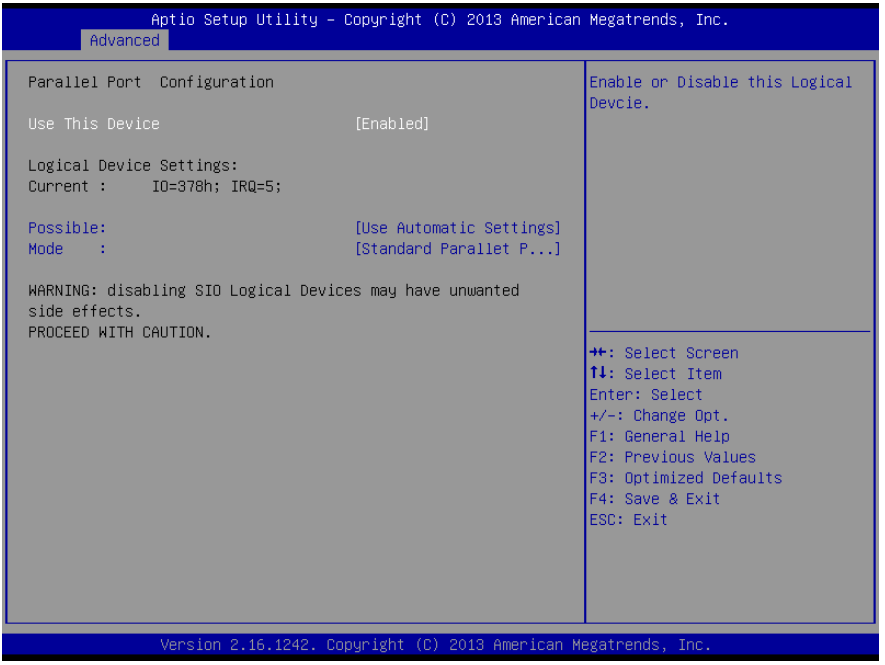
3.4.8.2 SIO Configuration: Serial Port 2 Configuration



Options summary:

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

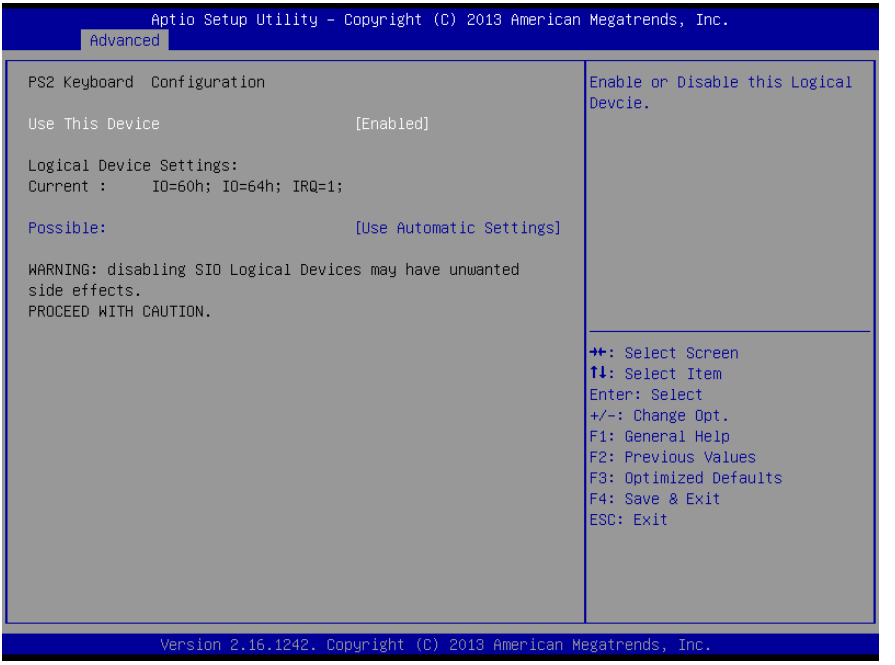
3.4.8.3 SIO Configuration: Parallel Port Configuration



Options summary:

Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=378; IRQ=5;	
	IO=378; IRQ=5,6,7,9,10,11,12	
	IO=278; IRQ=5,6,7,9,10,11,12	
	IO=3BC; IRQ=5,6,7,9,10,11,12	
Select an optimal setting for IO device		
Mode	Standard Parallel Port mode (SPP)	
	EPP Mode	
	ECP Mode	
	EPP mode & ECP mode	

3.4.8.4 SIO Configuration: PS2 Keyboard Configuration



Options summary:

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

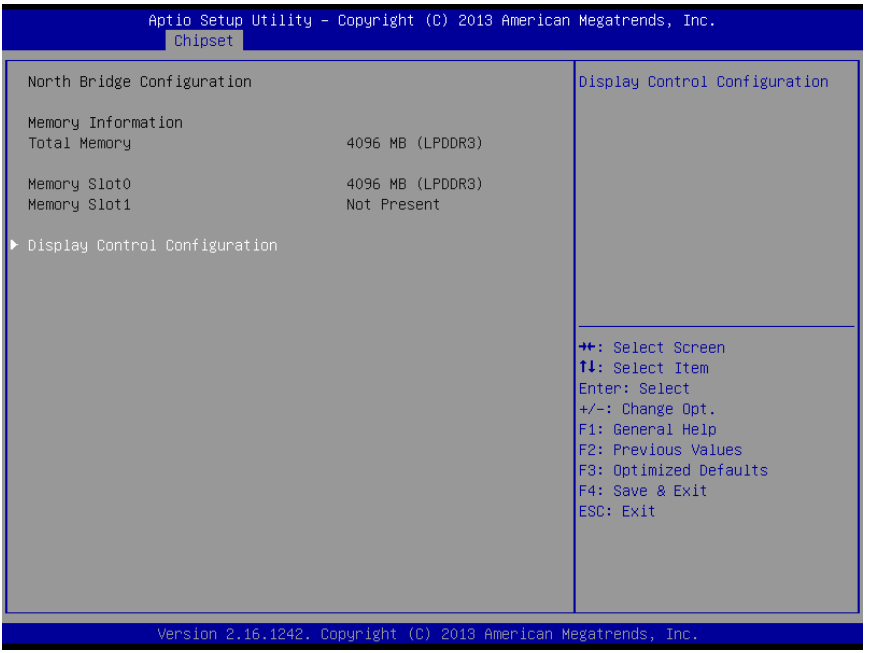
3.4.8.5 SIO Configuration: PS2 Mouse Configuration

Options summary:

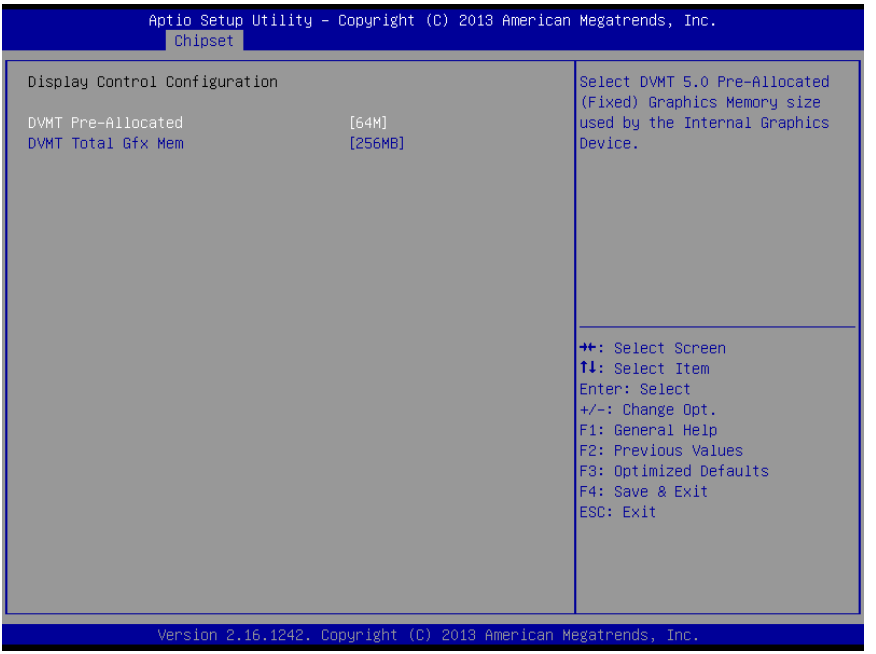
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IRQ=12;	
Select an optimal setting for IO device		

3.5 Setup submenu: Chipset

3.5.1 Chipset: North Bridge



3.5.1.1 North Bridge: Display Control Configuration

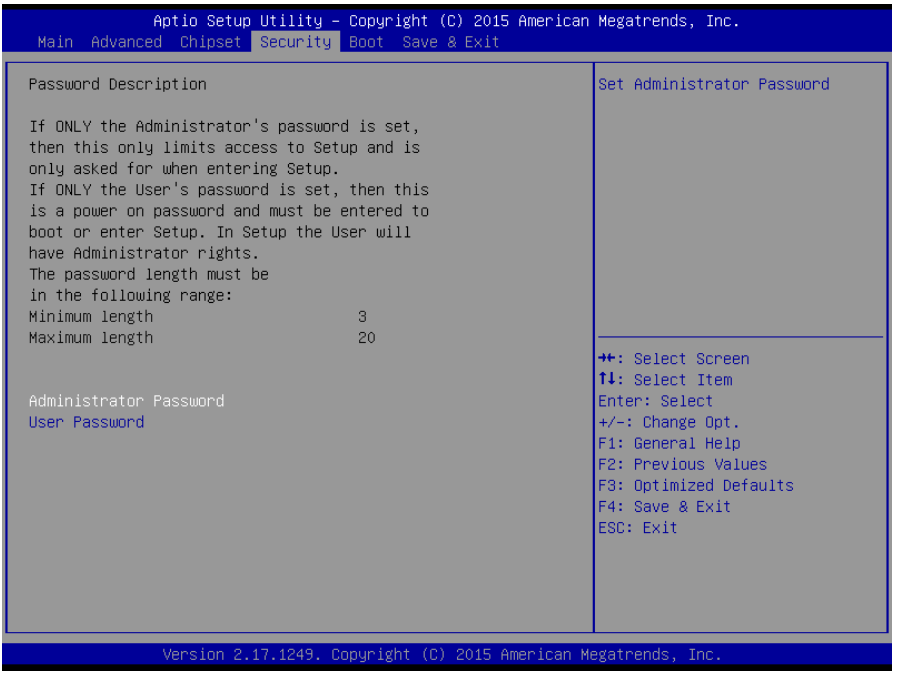


Options summary:

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

	256MB	Optimal Default, Failsafe Default
	Max	

3.6 Setup submenu: Security



Change User/Administrator Password

If an Administrator Password is set, it will be required during boot up, or when the user enters the Setup utility. Please Note that a User Password does not provide access to many of the features in the Setup utility.

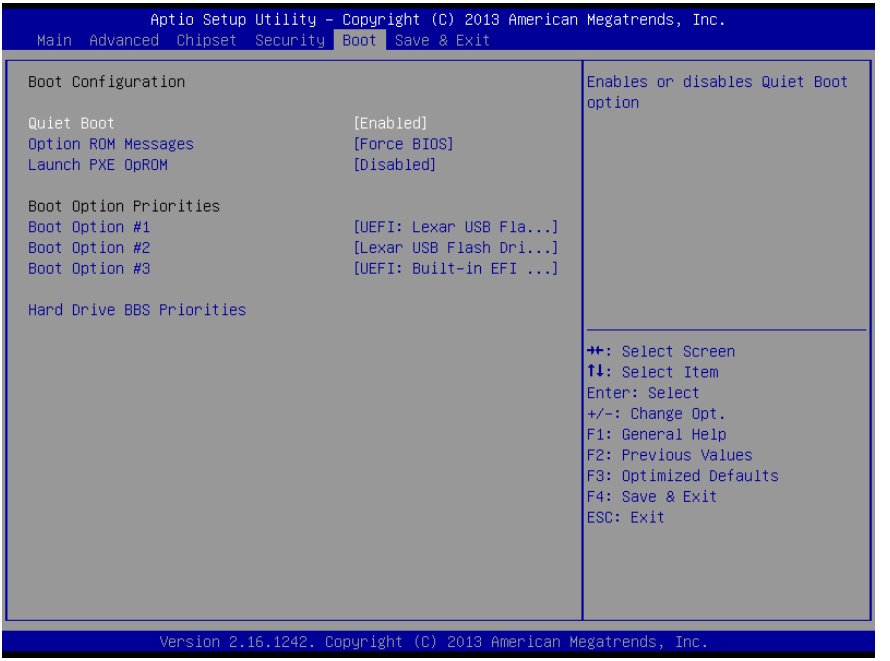
Select the password you wish to set, press Enter to open a dialog box to enter your password (you can enter no more than six letters or numbers). Press Enter to confirm your entry, after which you will be prompted to retype your password for a final confirmation. Press Enter again after you have retyped it

correctly.

Removing the Password

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

3.7 Setup submenu: Boot

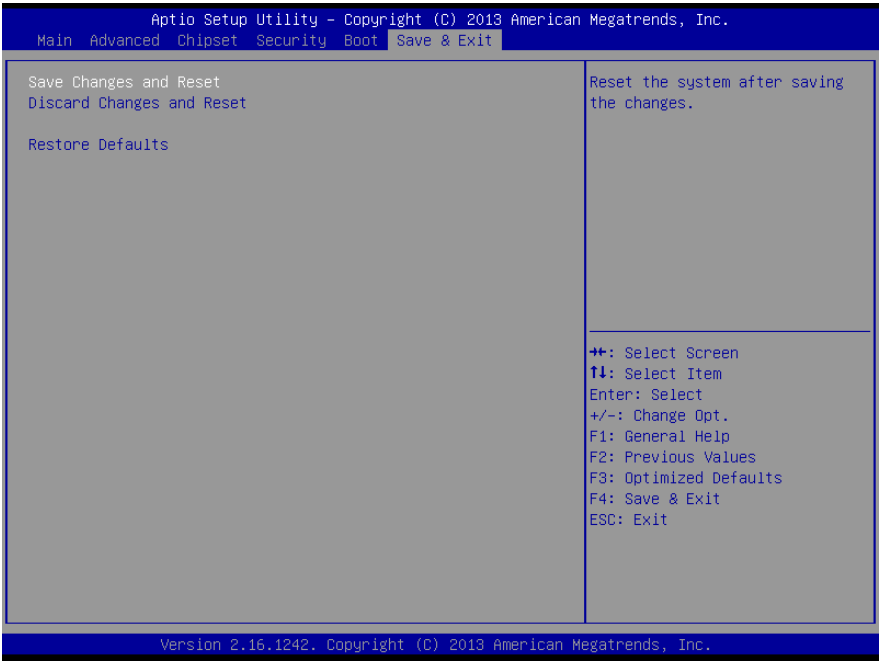


Options summary:

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

3.7.1 Boot: BBS Priorities

3.8 Setup submenu: Save & Exit



Chapter 4

Drivers Installation

4.1 Product CD/DVD

The FWB-7250 comes with a product CD that contains all the drivers and utilities you need to setup your product. Insert the CD and follow the steps in the autorun program to install the drivers.

In case the program does not start, follow the sequence below to install the drivers.

Step 1 – Install Chipset Drivers

1. Open the **Step1 - Chipset** folder followed by **SetupChipset.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 2 – Install Graphics Drivers

1. Open the **Step2 - Graphics** folder and select your OS
2. Open the **Setup.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 3 – Install LAN Drivers

1. Click on the **Step3 - Network** folder and select your OS
2. Open the**.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 4 – Install xHCI Drivers

1. Open the **Step4 - xHCI** folder followed by **Setup.exe**
2. Follow the instructions

3. Drivers will be installed automatically

Step 5 – Install Intel Sideband Fabric Device Driver

1. Open the **Step5 - Intel Sideband Fabric Device** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Appendix A

Watchdog Timer Programming

A.1 Watchdog Timer Registers

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

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

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

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

        // Procedure : AaeonWDTEnable
         // This procudure 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();
}
*****************************************************************************
```