

GENESYS-BT05

GENESYS Compact Embedded System

User's Manual 1st Ed

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Packing List

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

Item	Quantity
GENESYS-BT05	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 at 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

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.

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Chapter 1

Product Specifications

1.1 Specifications

System

FORM FACTOR	3.5" SubCompact Board System
CPU	Intel® Atom™/ Celeron® Processor: Celeron® J1900 (4C/4T, 2.00GHz, up to 2.42GHz) Celeron® N2930 (4C/4T, 1.83GHz, up to 2.16GHz) Celeron® N2807 (2C/2T, 1.58GHz, up to 2.16GHz) Atom™ E3845 (4C/4T, 1.91 GHz) Atom™ E3825 (2C/2T, 1.33 GHz)
CPU TDP	Celeron® J1900 10W Celeron® N2930 7.5W Celeron® N2807 4.3W Atom™ E3845 10W Atom™ E3825 6W
CHIPSET	Integrated with Intel® SoC
MEMORY TYPE	DDR3L up to 1333MHz, SODIMM x 1, up to 8GB, Non-ECC
BIOS	UEFI
WAKE ON LAN	Yes
WATCHDOG TIMER	255 Levels
SECURITY	TPM 1.2(Optional)
RTC Battery	Lithium Battery 3V/240mAh
DIMENSION (L X W)	178mm x 134mm x 65mm

Power

POWER REQUIREMENT	+12V Only
POWER SUPPLY TYPE	ATX
CONNECTOR	DC Jack Connector
POWER CONSUMPTION	Intel® J1900, DDR3L 1600MHz 8GB,1.73A @ +12V(TYPICAL) Intel® J1900, DDR3L 1600MHz 8GB,1.88A @ +12V(MAX)

Display

CONTROLLER	Intel® HD Graphics for Intel Atom® Processor Z3700 Series
LVDS/eDP	—
Display Interface	HDMI 1.4a x 1 VGA x 1
Multiple Display	Up to 2 Simultaneous Displays

External I/O

ETHERNET	Intel® i210, 10/100/1000Base, RJ-45 x 2
USB	USB 3.2 Gen 1 x 1 USB 2.0 x 1
SERIAL PORT	COM1 (RS232)
VIDEO	VGA x 1 HDMI 1.4a x 1 (Optional)

Internal I/O

USB	USB2.0 x 2
SERIAL PORT	COM2, COM3 (RS232/422/485, supports 5V/12V/RI), (Optional)
VIDEO	—

Internal I/O

SATA	SATA III x 1 +5V SATA Power Connector x 1
AUDIO	—
DIO/GPIO	—
SMBus/I2C	I2C/SMBus x1 (Optional)
Touch	—
FAN	Heatsink x 1 (Optional : DC Fan)
SIM	SIM X1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	—

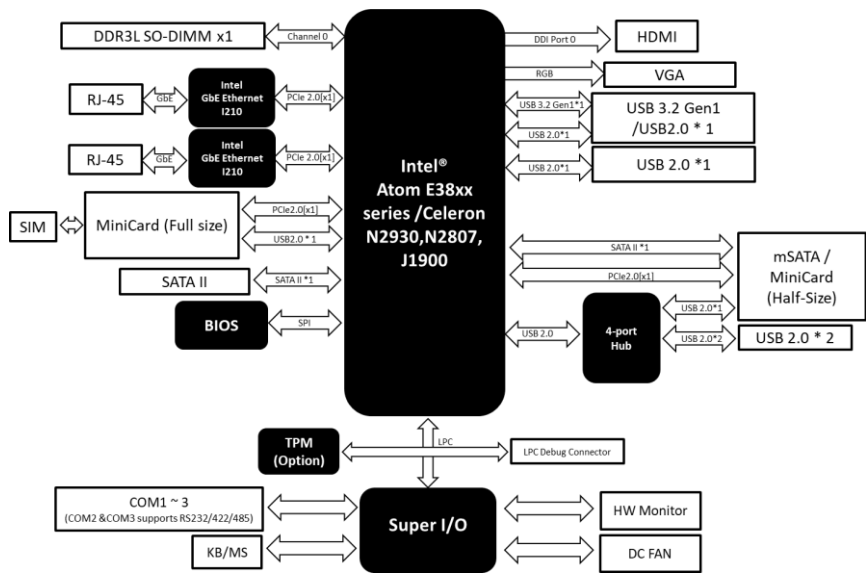
Expansion

Mini PCI-E/mSATA	Full-Size mPCle x 1 Half-Size mSATA/ mPCle x 1
M.2	—
Others	CFast™ (Optional)

Environment

OPERATING TEMPERATURE	32°F ~ 122°F (0°C ~ 50°C)
STORAGE TEMPERATURE	-40°F ~ 176°F (-40°C ~ 80°C)
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing
MTBF (HOURS)	344,859
EMC	CE/FCC Class A

1.2 Block Diagram

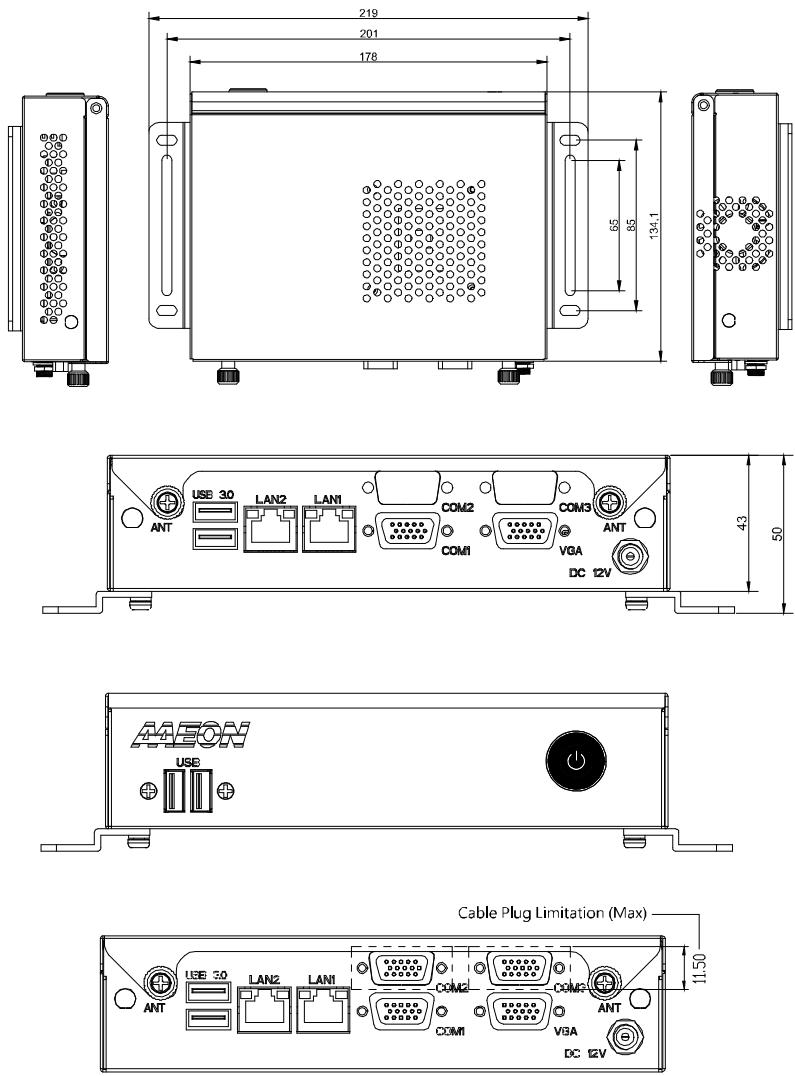


Chapter 2

Hardware Information

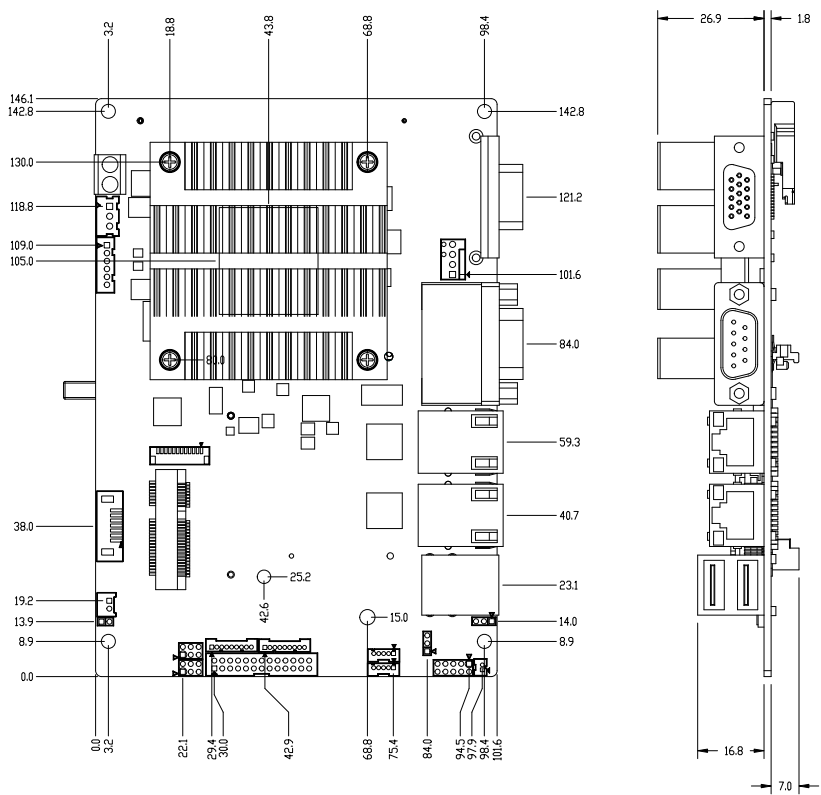
2.1 Dimensions

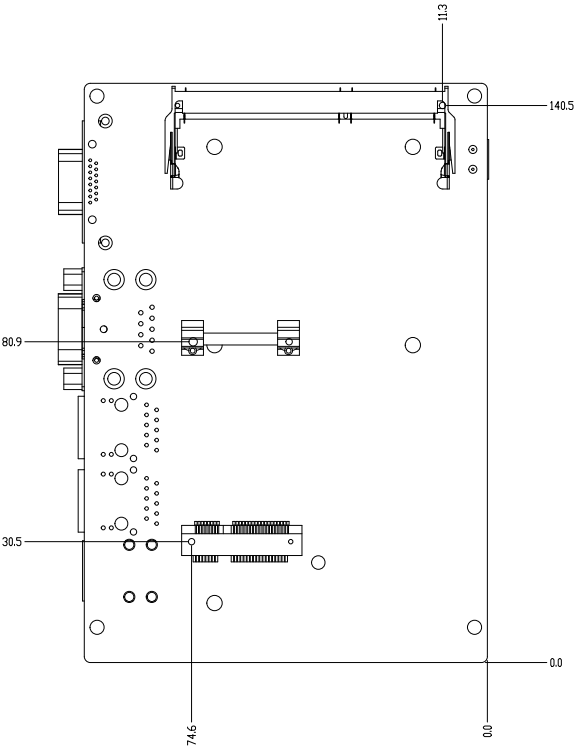
System



Note: Maximum COM Port plug height is 11.50mm.

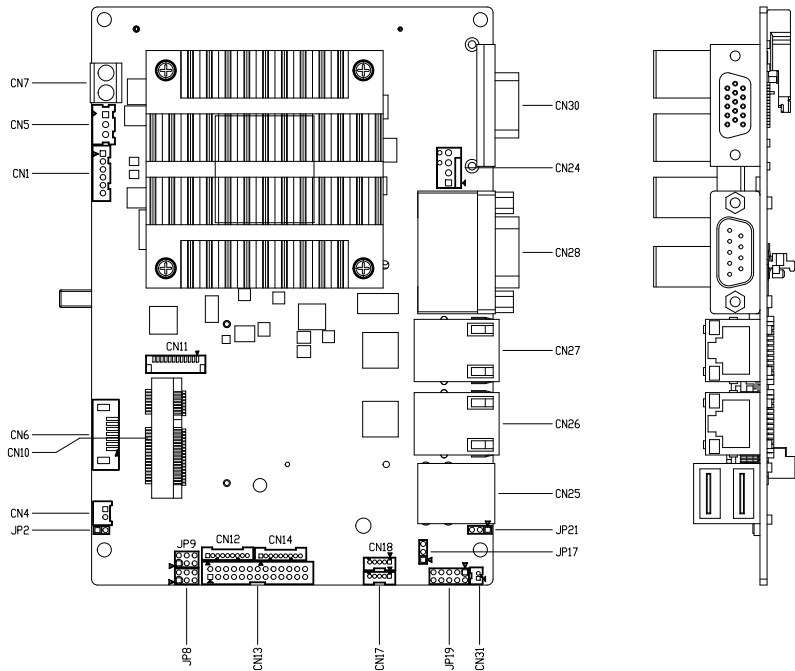
Board



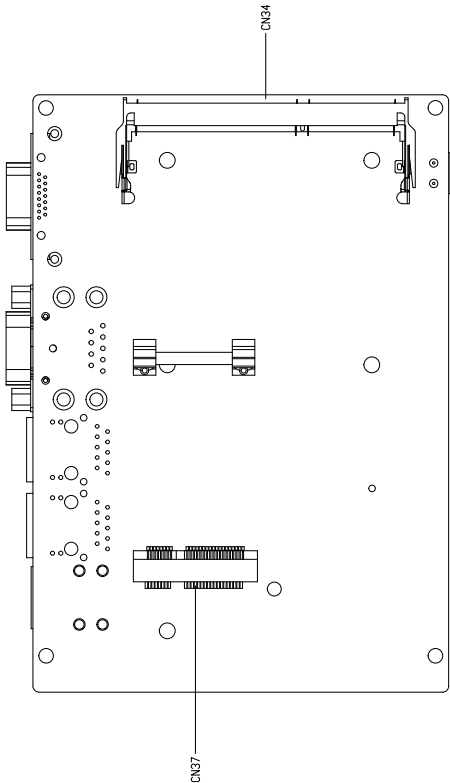


2.2 Jumpers and Connectors

Standard Version (Component Side)



Standard Version (Solder Side)

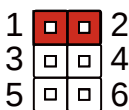


2.3 List of Jumpers

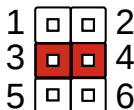
Please refer to the table below for all of the board's jumpers that you can configure for your application

Label	Function
JP8	COM3 Pin8 Function Selection
JP9	COM2 Pin8 Function Selection
JP17	Auto Power Button Enable/ Disable Selection
JP19	Front Panel Connector
JP21	Clear CMOS Jumper

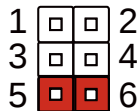
2.3.1 COM3 Pin8 Function Selection (JP8)



+12V

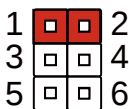


Ring (Default)

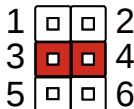


+5V

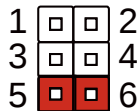
2.3.2 COM2 Pin8 Function Selection (JP9)



+12V



Ring (Default)



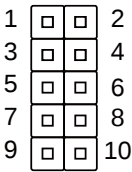
+5V

2.3.3 Auto Power Button Enable/Disable Selection (JP17)



Note: When disabled, use Power Button JP17 (pins 1-2) to power on the system.

2.3.4 Front Panel Connector (JP19)



Pin	Function	Pin	Function
1	PWR_BTN-	2	PWR_BTN+
3	HDD_LED-	4	HDD_LED+
5	SPEAKER-	6	SPEAKER+
7	PWR_LED	8	PWR_LED+
9	H/W RESET-	10	H/W RESET+

2.3.5 Clear CMOS Jumper (JP21)



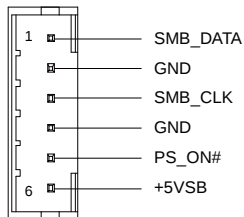
2.4 List of Connectors

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

Label	Function
CN1	+5VSB Output w/SMBus
CN4	+5V Output for SATA HDD
CN5	External +5VSB Input
CN6	SATA Port
CN7	External +12V Input
CN10	Mini Card Slot (Half-Size Mini Card)
CN11	LPC Port
CN12	COM Port 2
CN14	COM Port 3
CN17	USB 2.0 Port 3
CN18	USB 2.0 Port 2
CN19	SPI Debug Port
CN24	CPU FAN (Optional)
CN25	USB Ports 0 and 1
CN26	LAN (RJ-45) Port2
CN27	LAN (RJ-45) Port1
CN28	COM Port 1 (D-SUB 9)
CN29	HDMI Port
CN30	VGA Port
CN31	Battery
CN33	CFast Slot
CN34	DDR3L SO-DIMM Slot
CN35	UIM Card Socket

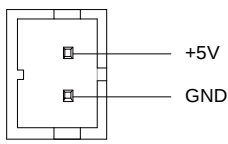
Label	Function
CN37	Mini Card Slot (Full-Size Mini Card)

2.4.1 +5VSB Output w/SMBus (CN1)



Pin	Pin Name	Signal Type	Signal Level
1	SMB_DATA	I/O	+3.3V
2	GND	GND	
3	SMB_CLK	I/O	+3.3V
4	GND	GND	
5	PS_ON#	OUT	+5V
6	+5VSB	PWR	+5V

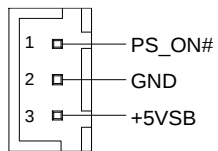
2.4.2 +5V Output for SATA HDD (CN4)



Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	GND	GND	

Note: Maximum current rating of Pin 1/+5V is 1.0A

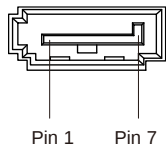
2.4.3 External +5VSB Input (CN5)



Pin	Pin Name	Signal Type	Signal Level
1	PS_ON#	OUT	+3.3V
2	GND	GND	
3	+5VSB	PWR	+5V

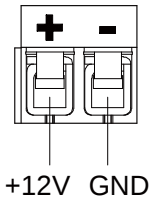
Note: Since every power supply discharge design is different, it is recommended to wait at least 3 seconds before restarting after shutting down to ensure ATX power is fully discharged; or make sure 5V standby power has been discharged to below 2V.

2.4.4 SATA Port (CN6)



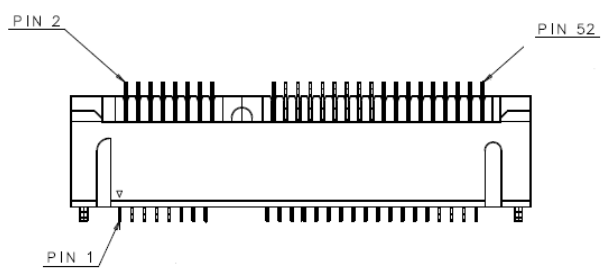
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TX+	DIFF	
3	SATA_TX-	DIFF	
4	GND	GND	
5	SATA_RX-	DIFF	
6	SATA_RX+	DIFF	
7	GND	GND	

2.4.5 External +12V Input (CN7)



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

2.4.6 Mini-Card Slot (Half Mini-Card) (CN10)



Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	IN	
2	+3.3VSB/+3.3V	PWR	+3.3V
3	NC		
4	GND	GND	
5	NC		
6	+1.5V	PWR	+1.5V
7	PCIE_CLK_REQ#	IN	
8	NC		
9	GND	GND	
10	NC		
11	PCIE_REF_CLK-	DIFF	
12	NC		
13	PCIE_REF_CLK+	DIFF	
14	NC		
15	GND	GND	
16	NC		
17	NC		

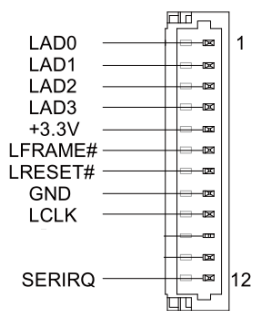
Pin	Pin Name	Signal Type	Signal Level
18	GND	GND	
19	NC		
20	W_DISABLE#	OUT	+3.3V
21	GND	GND	
22	PCIE_RST#	OUT	+3.3V
23	PCIE_RX-/mSATARX+	DIFF	
24	+3.3VSB/+3.3V	PWR	+3.3V
25	PCIE_RX+/mSATARX-	DIFF	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V
29	GND	GND	
30	SMB_CLK	I/O	+3.3V
31	PCIE_TX-/mSATATX-	DIFF	
32	SMB_DATA	I/O	+3.3V
33	PCIE_TX+/mSATATX+	DIFF	
34	GND	GND	
35	GND	GND	
36	USB_D-	DIFF	
37	GND	GND	
38	USB_D+	DIFF	
39	+3.3VSB/+3.3V	PWR	+3.3V
40	GND	GND	
41	+3.3VSB/+3.3V	PWR	+3.3V
42	NC		
43	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
44	NC		
45	NC		
46	NC		
47	NC		
48	+1.5V	PWR	+1.5V
49	NC		
50	GND	GND	
51	NC		
52	+3.3VSB/+3.3V	PWR	+3.3V

Note 1: CN10 can be set for Mini Card or mSATA by through BOM Option.

Note 2: You can choose the function either from mSATA or from CFast on the motherboard.

2.4.7 LPC Port (CN11)



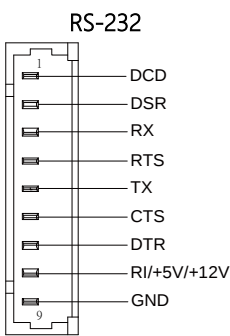
Pin	Pin Name	Signal Type	Signal Level
1	LAD0	I/O	+3.3V
2	LAD1	I/O	+3.3V
3	LAD2	I/O	+3.3V
4	LAD3	I/O	+3.3V
5	+3.3V	PWR	+3.3V
6	LFRAME#	IN	
7	LRESET#	OUT	+3.3V
8	GND	GND	
9	LCLK	OUT	
10	NC		
11	NC		
12	SERIRQ	I/O	+3.3V

2.4.8 COM Port 2 (CN12)

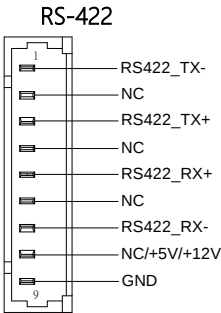
Note 1: COM2 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

Note 2: Pin 8 function can be set by JP9.

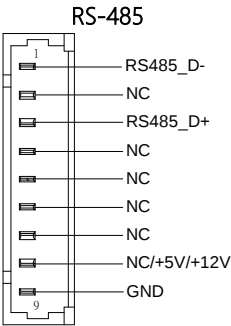
Note 3: The maximum current rating of Pin 8 is 1.0A



Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	DSR	IN	
3	RX	IN	
4	RTS	OUT	±5V
5	TX	OUT	±5V
6	CTS	IN	
7	DTR	OUT	±5V
8	RI/+5V/+12V	IN/ PWR	+5V/+12V
9	GND	GND	



Pin	Pin Name	Signal Type	Signal Level
1	RS422_TX-	OUT	±5V
2	NC		
3	RS422_TX+	OUT	±5V
4	NC		
5	RS422_RX+	IN	
6	NC		
7	RS422_RX-	IN	
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	



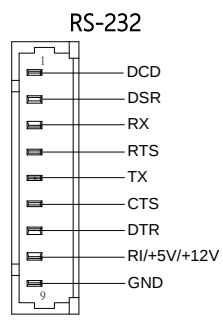
Pin	Pin Name	Signal Type	Signal Level
1	RS485_D-	I/O	±5V
2	NC		
3	RS485_D+	I/O	±5V
4	NC		
5	NC		
6	NC		
7	NC		
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

2.4.9 COM Port 3 (CN14)

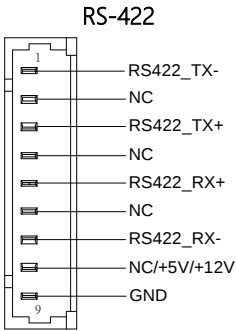
Note 1: COM3 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

Note 2: Pin 8 function can be set by JP8.

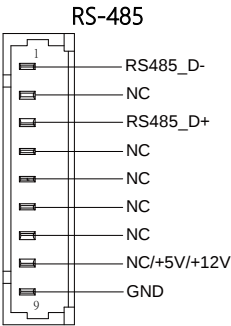
Note 3: Maximum current rating of Pin 8 is 1.0A



Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	DSR	IN	
3	RX	IN	
4	RTS	OUT	±5V
5	TX	OUT	±5V
6	CTS	IN	
7	DTR	OUT	±5V
8	RI/+5V/+12V	IN/ PWR	+5V/+12V
9	GND	GND	

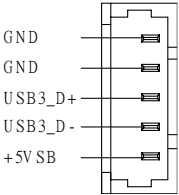


Pin	Pin Name	Signal Type	Signal Level
1	RS422_TX-	OUT	±5V
2	NC		
3	RS422_TX+	OUT	±5V
4	NC		
5	RS422_RX+	IN	
6	NC		
7	RS422_RX-	IN	
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	



Pin	Pin Name	Signal Type	Signal Level
1	RS485_D-	I/O	±5V
2	NC		
3	RS485_D+	I/O	±5V
4	NC		
5	NC		
6	NC		
7	NC		
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

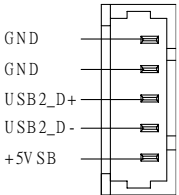
2.4.10 USB 2.0 Port 3 (CN17)



Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB3_D-	DIFF	
3	USB3_D+	DIFF	
4	GND	GND	
5	GND	GND	

Note: Maximum current rating of Pin 1/+5V is 0.5A

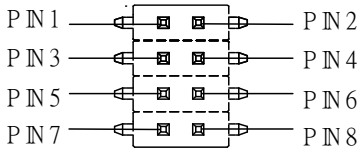
2.4.11 USB 2.0 Port 2 (CN18)



Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB2_D-	DIFF	
3	USB2_D+	DIFF	
4	GND	GND	
5	GND	GND	

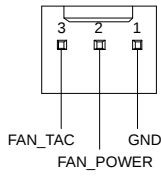
Note: Maximum current rating of Pin 1/+5V is 0.5A.

2.4.12 BIOS Debug Port (CN19)



Pin	Pin Name	Signal Type	Signal Level
1	+3.3VSB	PWR	+3.3V
2	GND	GND	
3	SPI_CS	IN	
4	SPI_CLK	IN	
5	SPI_MISO	OUT	
6	SPI_MOSI	IN	
7	NC		
8	NC		

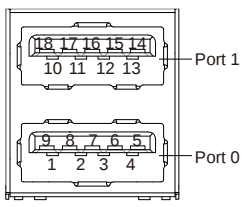
2.4.13 CPU FAN (Optional) (CN24)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	FAN_POWER	PWR	+12V
3	FAN_TAC	IN	

Note: Maximum current rating of Pin 2/FAN_POWER is 1.0A

2.4.14 USB Ports 0 and 1 (CN25)



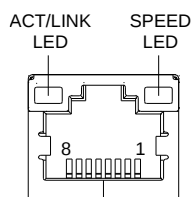
Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB0_D-	DIFF	
3	USB0_D+	DIFF	
4	GND	GND	
5	USB0_SSRX-	DIFF	
6	USB0_SSRX+	DIFF	
7	GND	GND	
8	USB0_SSTX-	DIFF	
9	USB0_SSTX+	DIFF	

Pin	Pin Name	Signal Type	Signal Level
10	+5VSB	PWR	+5V
11	USB1_D-	DIFF	
12	USB1_D+	DIFF	
13	GND	GND	
14	NC		
15	NC		
16	GND	GND	
17	NC		
18	NC		

Note 1: Only Port0 supports USB3.2 Gen 1.

Note 2: Maximum current rating of USB3.2 GEN1/+5V is 0.9A. Maximum current rating of USB2.0/+5V is 0.5A.

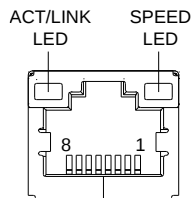
2.4.15 LAN (RJ-45) Port2 (CN26)



Pin	Pin Name	Signal Type	Signal Level
1	MDI0+	DIFF	
2	MDI0-	DIFF	
3	MDI1+	DIFF	
4	MDI2+	DIFF	
5	MDI2-	DIFF	
6	MDI1-	DIFF	

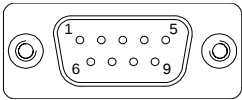
Pin	Pin Name	Signal Type	Signal Level
7	MDI3+	DIFF	
8	MDI3-	DIFF	

2.4.16 LAN (RJ-45) Port1 (CN27)



Pin	Pin Name	Signal Type	Signal Level
1	MDI0+	DIFF	
2	MDI0-	DIFF	
3	MDI1+	DIFF	
4	MDI2+	DIFF	
5	MDI2-	DIFF	
6	MDI1-	DIFF	
7	MDI3+	DIFF	
8	MDI3-	DIFF	

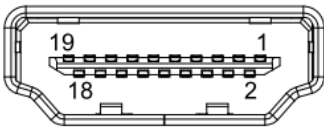
2.4.17 COM Port 1 (D-SUB 9) (CN28)



Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	RX	IN	
3	TX	OUT	±9V
4	DTR	OUT	±9V
5	GND	GND	
6	DSR	IN	
7	RTS	OUT	±9V
8	CTS	IN	
9	RI	IN	

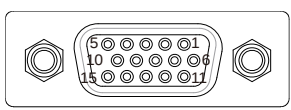
Note: COM Port 1 can be optioned for D-SUB9 or Wafer Box connector (CN20).

2.4.18 HDMI Port (CN29)



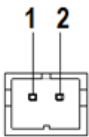
Pin	Pin Name	Signal Type	Signal Level
1	TMDS_DAT2+	DIFF	
2	GND	GND	
3	TMDS_DAT2-	DIFF	
4	TMDS_DAT1+	DIFF	
5	GND	GND	
6	TMDS_DAT1-	DIFF	
7	TMDS_DAT0+	DIFF	
8	GND	GND	
9	TMDS_DAT0-	DIFF	
10	TMDS_CLK+	DIFF	
11	GND	GND	
12	TMDS_CLK-	DIFF	
13	NC		
14	NC		
15	DDC_CLK	I/O	+5V
16	DDC_DATA	I/O	+5V
17	GND	GND	
18	+5V	PWR	+5V
19	HPLG_DETECT	IN	

2.4.19 VGA Port (CN30)



Pin	Pin Name	Signal Type	Signal Level
1	RED	OUT	
2	GREEN	OUT	
3	BLUE	OUT	
4	NC		
5	GND	GND	
6	RED_GND_RTN	GND	
7	GREEN_GND_RTN	GND	
8	BLUE_GND_RTN	GND	
9	+5V	PWR	+5V
10	CRT_PLUG#		
11	NC		
12	DDC_DATA	I/O	+5V
13	HSYNC	OUT	
14	VSYNC	OUT	
15	DDC_CLK	I/O	+5V

2.4.20 Battery (CN31)



Pin	Pin Name	Signal Type	Signal Level
1	+3.3V	PWR	+3.3V
2	GND	GND	

2.4.21 CFast Slot (CN33)

Pin	Pin Name	Signal Type	Signal Level
S1	GND	GND	
S2	SATA_TX+	DIFF	
S3	SATA_TX-	DIFF	
S4	GND	GND	
S5	SATA_RX-	DIFF	
S6	SATA_RX+	DIFF	
S7	GND	GND	
PC1	NC		
PC2	GND	GND	
PC3	NC		
PC4	NC		
PC5	NC		
PC6	NC		
PC7	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
PC8	NC		
PC9	NC		
PC10	NC		
PC11	NC		
PC12	NC		
PC13	+3.3V	PWR	+3.3V
PC14	+3.3V	PWR	+3.3V
PC15	GND	GND	
PC16	GND	GND	
PC17	NC		

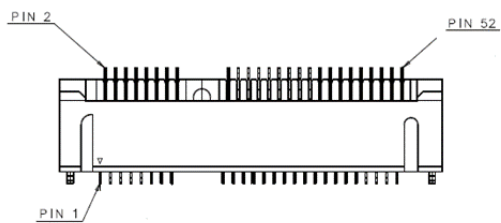
2.4.22 DDR3L SO-DIMM Slot (CN34)

Standard Specifications

2.4.23 UIM Card Socket (CN35)

Pin	Pin Name	Signal Type	Signal Level
1	UIM_PWR	PWR	
2	UIM_RST	IN	
3	UIM_CLK	IN	
4	GND	GND	
5	UIM_VPP	PWR	
6	UIM_DATA	I/O	

2.4.24 Mini-Card Slot (Full Mini-Card) (CN37)



Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	IN	
2	+3.3VSB	PWR	+3.3V
3	NC		
4	GND	GND	
5	NC		
6	+1.5V	PWR	+1.5V
7	PCIE_CLK_REQ#	IN	
8	UIM_PWR	PWR	
9	GND	GND	
10	UIM_DATA	I/O	
11	PCIE_REF_CLK-	DIFF	
12	UIM_CLK	IN	
13	PCIE_REF_CLK+	DIFF	
14	UIM_RST	IN	
15	GND	GND	
16	UIM_VPP	PWR	
17	NC		
18	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
19	NC		
20	W_DISABLE#	OUT	+3.3V
21	GND	GND	
22	PCIE_RST#	OUT	+3.3V
23	PCIE_RX-	DIFF	
24	+3.3VSB	PWR	+3.3V
25	PCIE_RX+	DIFF	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V
29	GND	GND	
30	SMB_CLK	I/O	+3.3V
31	PCIE_TX-	DIFF	
32	SMB_DATA	I/O	+3.3V
33	PCIE_TX+	DIFF	
34	GND	GND	
35	GND	GND	
36	USB_D-	DIFF	
37	GND	GND	
38	USB_D+	DIFF	
39	+3.3VSB	PWR	+3.3V
40	GND	GND	
41	+3.3VSB	PWR	+3.3V
42	NC		
43	GND	GND	
44	NC		

Pin	Pin Name	Signal Type	Signal Level
45	NC		
46	NC		
47	NC		
48	+1.5V	PWR	+1.5V
49	NC		
50	GND	GND	
51	NC		
52	+3.3VSB	PWR	+3.3V

Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

The system uses certain routines to perform testing and initialization during the boot up sequence. If an error, fatal or non-fatal, is encountered, the system will output a few short beeps or an error message. 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 output, and the BIOS setup program will need to be run to set the configuration information in memory.

There are three situations in which the CMOS settings will need to be set or changed:

- Starting the system for the first time

- The system hardware has been changed

- The CMOS memory has lost power and the configuration information is erased

The system's CMOS memory uses a backup battery for data retention. The battery 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, 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 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 elements

Advanced – Access advanced hardware settings and options

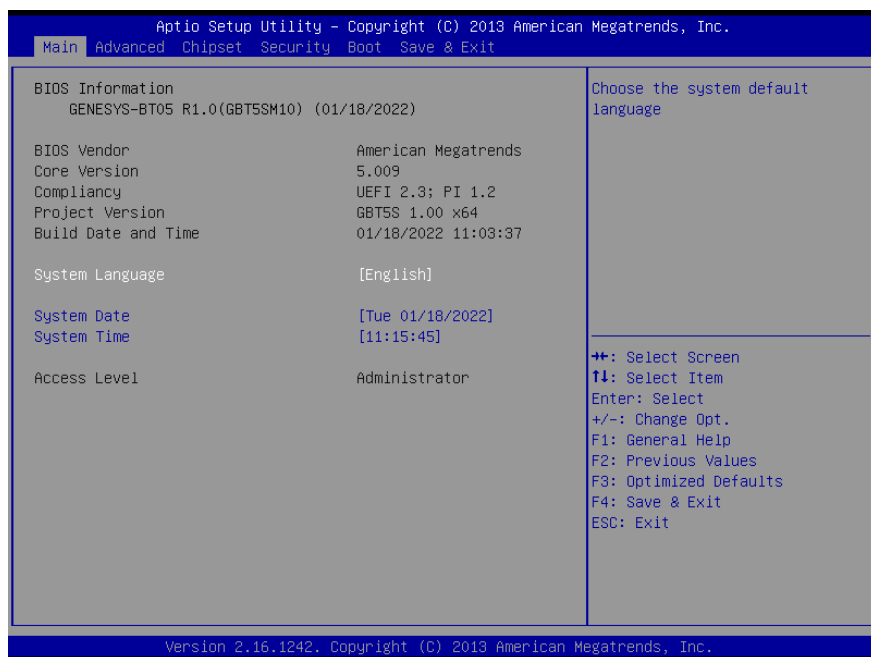
Chipset – Chipset settings and options including North Bridge and South Bridge settings.

Security – The setup administrator password can be set here

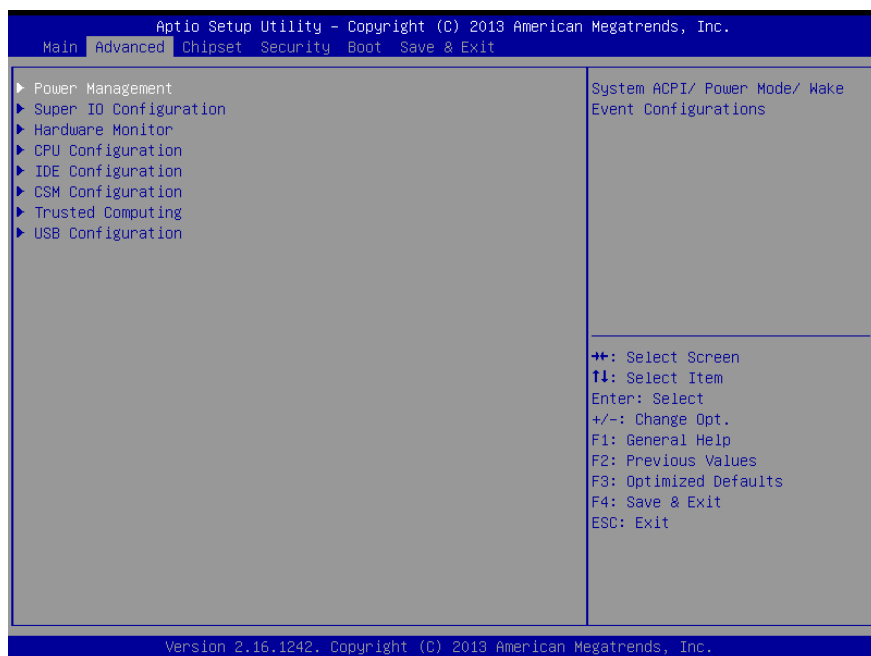
Boot – Boot options including BBS priority and Quiet Boot options

Save & Exit – Save your changes and exit the program

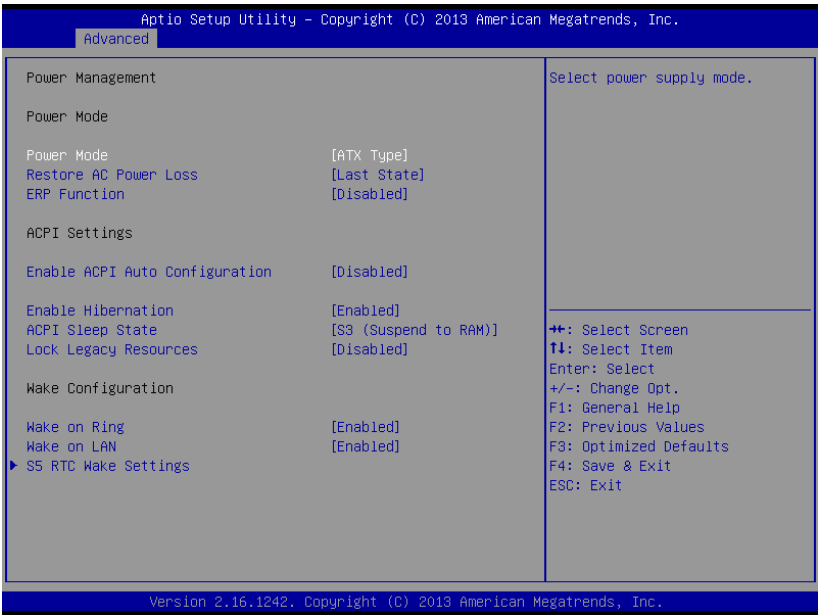
3.3 Setup Submenu: Main



3.4 Setup Submenu: Advanced



3.4.1 Power Management

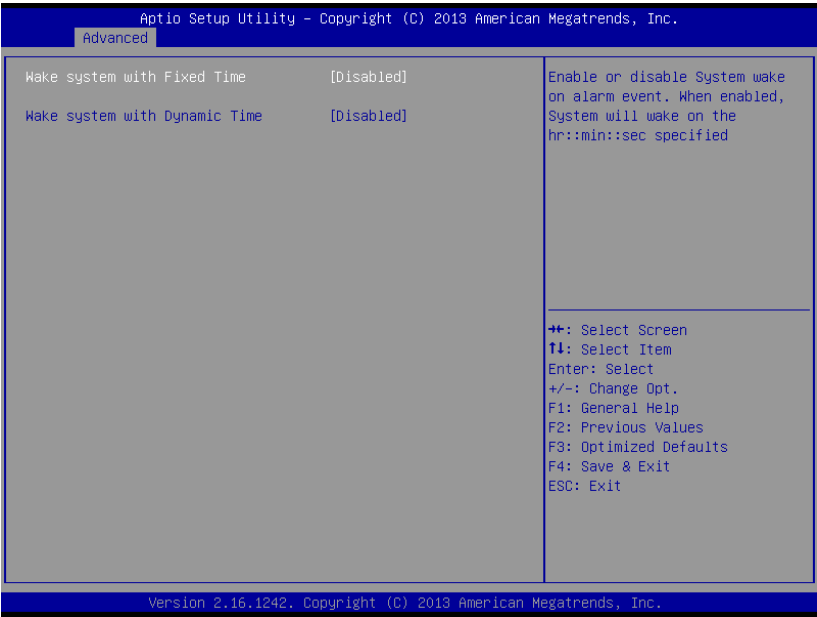


Options Summary		
Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
Select power supply mode		
Restore AC Power Loss	Last State	Optimal Default, Failsafe Default
	Power On	
	Power Off	
Select AC power state when power is re-applied after a power failure		
ERP Function	Disabled	Optimal Default, Failsafe Default
	Enabled	
Please set Auto Power Button as disable to use this item.		
Enable ACPI Auto Configuration	Disabled	Optimal Default, Failsafe Default
	Enable	
Enables or Disables BIOS ACPI Auto Configuration		

Table Continues on Next Page...

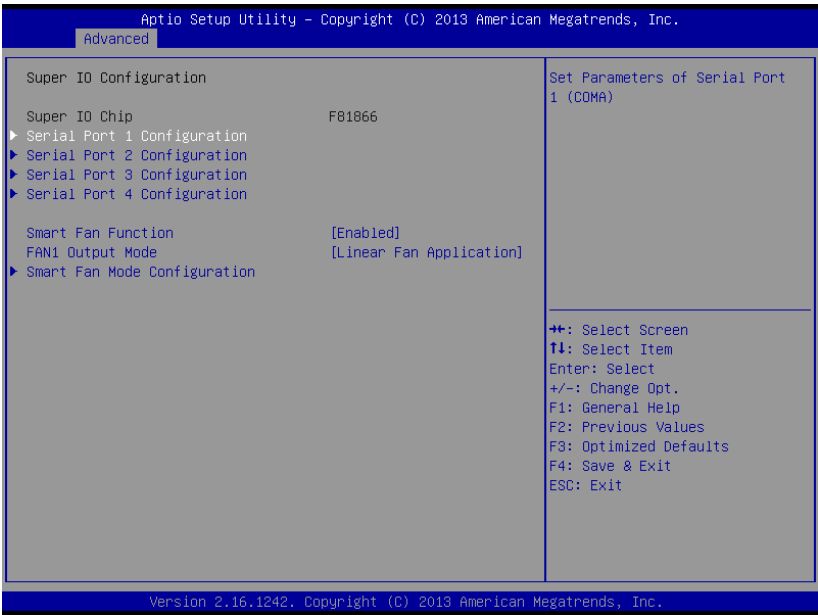
Options Summary		
Enable Hibernation	Disabled	Optimal Default, Failsafe Default
	Enable	
Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS		
ACPI Sleep State	Suspend Disabled	
	S3 (Suspend to RAM)	Optimal Default, Failsafe Default
Select the highest ACPI sleep state the system will enter when the SUSOEND button is pressed.		
Lock Legacy Resources	Disabled	Optimal Default, Failsafe Default
	Enable	
Enables or Disables Lock of Legacy Resources		
Wake on Ring	Enable	Optimal Default, Failsafe Default
	Disable	
Enabled/Disabled wake from Ring		
Wake on LAN	Enable	Optimal Default, Failsafe Default
	Disable	
Enabled/Disabled wake from LAN		

3.4.1.1 S5 RTC Wake Settings



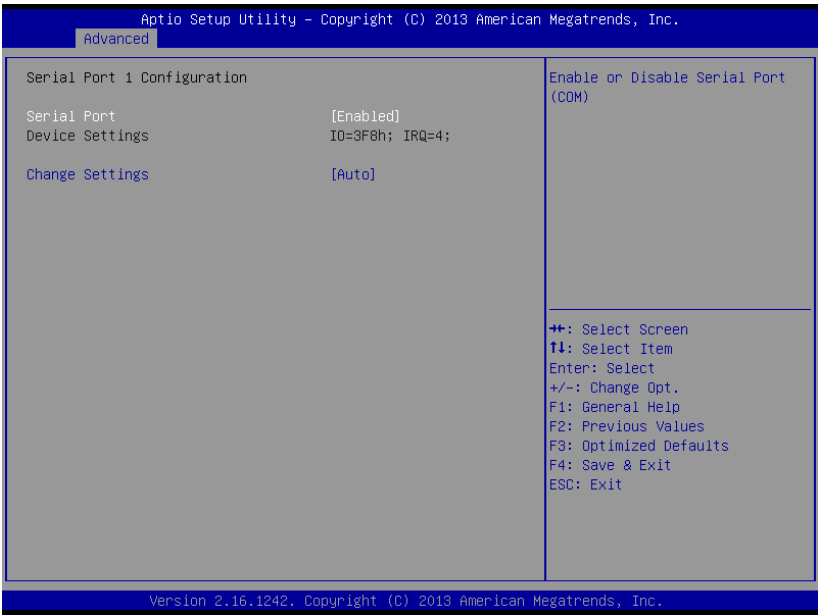
Options Summary		
Wake system with Fixed Time	Enable	
	Disable	Optimal Default, Failsafe Default
	Wake up day	0
	Wake up hour	0
	Wake up minute	0
	Wake up second	0
Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified		
Wake system with Dynamic Time	Enable	
	Disable	Optimal Default, Failsafe Default
	Wake up minute increase	1
Enable or disable System wake on alarm event. When enabled, System will wake on the current time + Increase minute(s)		

3.4.2 Super IO Configuration



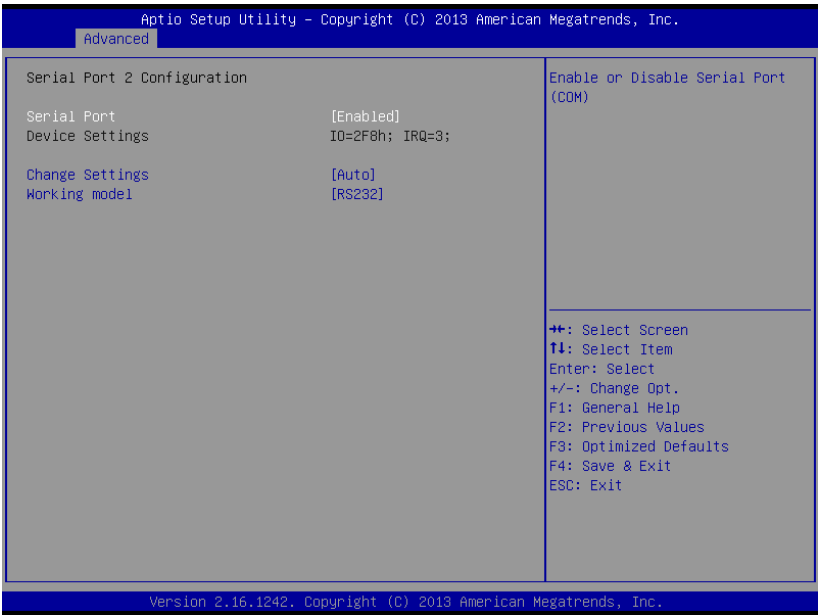
Options Summary		
Smart Fan Function	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable or Disable Smart Fan		
FAN1 Output Mode	Output PWM mode (open drain)	
	Linear Fan Application	Optimal Default, Failsafe Default
	Output PWM mode (push pull)	
Output PWM mode (push pull) to control 4-wire fans. Linear fan application circuit to control 3-wire fan speed by fan's power terminal. Output PWM mode (open drain) to control Intel 4-wire fans.		

3.4.2.1 Serial Port 1 Configuration



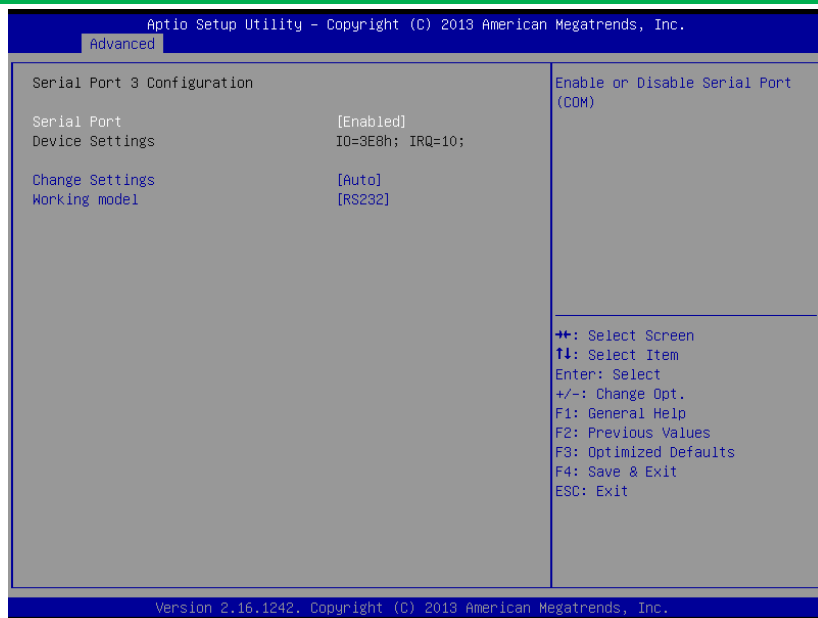
Options Summary		
Serial Port	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Optimal Default, Failsafe Default
	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2F8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=3E8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2F8h; IRQ=3,4,5,7,9,10,11,12;	
Select an optimal setting for Super IO Device		

3.4.2.2 Serial Port 2 Configuration



Options Summary		
Serial Port	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Optimal Default, Failsafe Default
	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2F8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=3E8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2F8h; IRQ=3,4,5,7,9,10,11,12;	
Select an optimal setting for Super IO Device		
Working model	RS422	
	RS232	Optimal Default, Failsafe Default
	RS485	
Select working model		

3.4.2.3 Serial Port 3 Configuration



Options Summary		
Serial Port	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Optimal Default, Failsafe Default
	IO=3E8h; IRQ=10;	
	IO=3E8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2E8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2D0h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2D8h; IRQ=3,4,5,7,9,10,11,12;	
Select an optimal setting for Super IO Device		
Working model	RS422	
	RS232	Optimal Default, Failsafe Default
	RS485	
Select working model		

Note: Only Standard Version supports Serial Port 3

3.4.2.4 Smart Fan Mod Configuration

Manual Duty Mode



Options Summary		
Fan 1 Smart Fan Control	Manual Duty Mode	Optimal Default, Failsafe Default
	Auto Duty-Cycle Mode	
Smart Fan Mode Select		
Manual Duty Mode	60	Optimal Default, Failsafe Default
Manual mode fan control, user can write expected duty cycle (PWM fan type) 1-100		

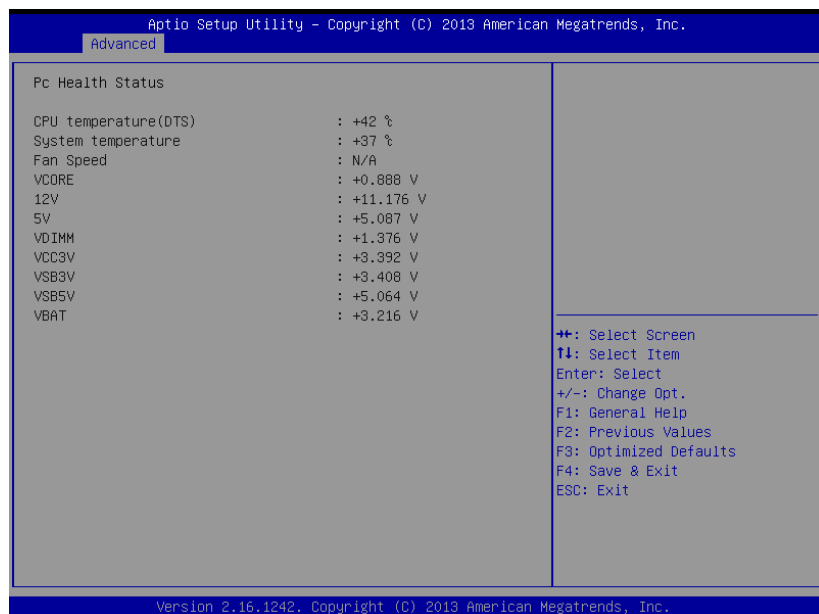
Auto Duty-Cycle Mode



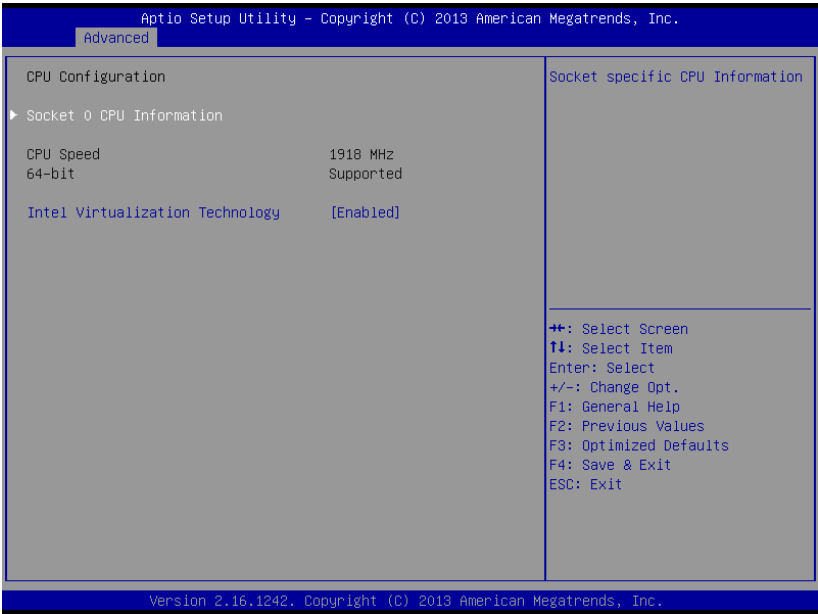
Options Summary

Temperature 1	60	The values shown in this table are the Optimal Default, Failsafe Default settings for each field.
Temperature 2	50	
Temperature 3	40	
Temperature 4	30	
Duty Cycle 1	85	
Duty Cycle 2	70	
Duty Cycle 3	60	
Duty Cycle 4	50	
Auto fan speed control. Fan speed will follow different temperature by different duty cycle 1-100		

3.4.3 Hardware Monitor

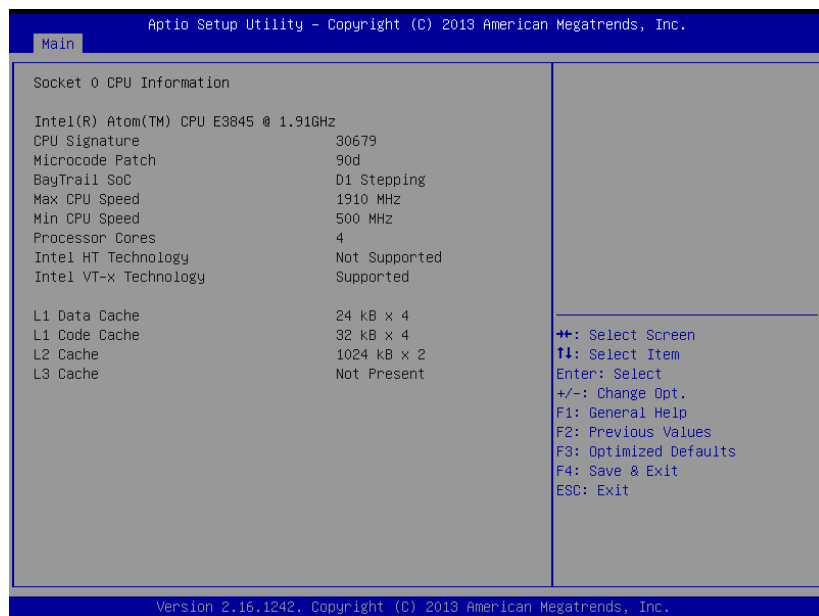


3.4.4 CPU Configuration

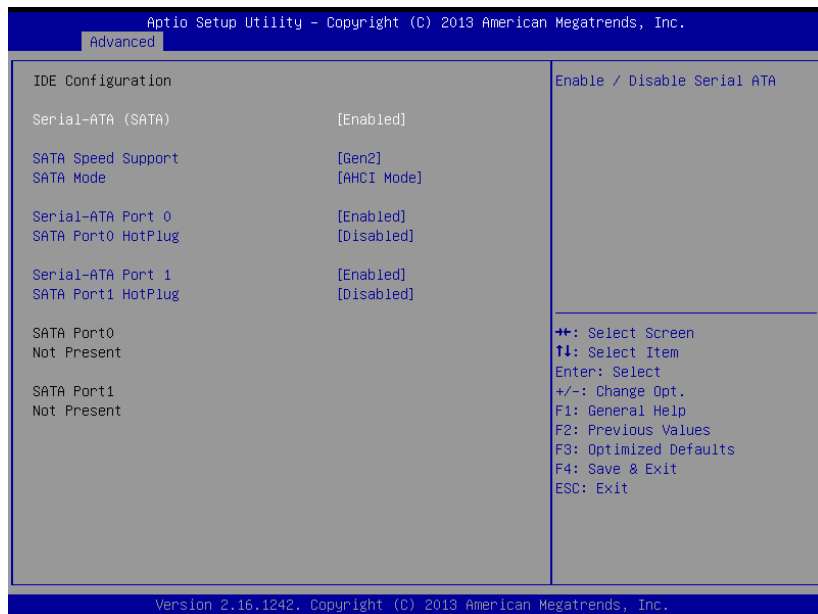


Options Summary		
Intel Virtualization Technology	Disabled	Optimal Default, Failsafe Default
	Enabled	
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology		

3.4.4.1 Socket 0 CPU Information



3.4.5 IDE Configuration

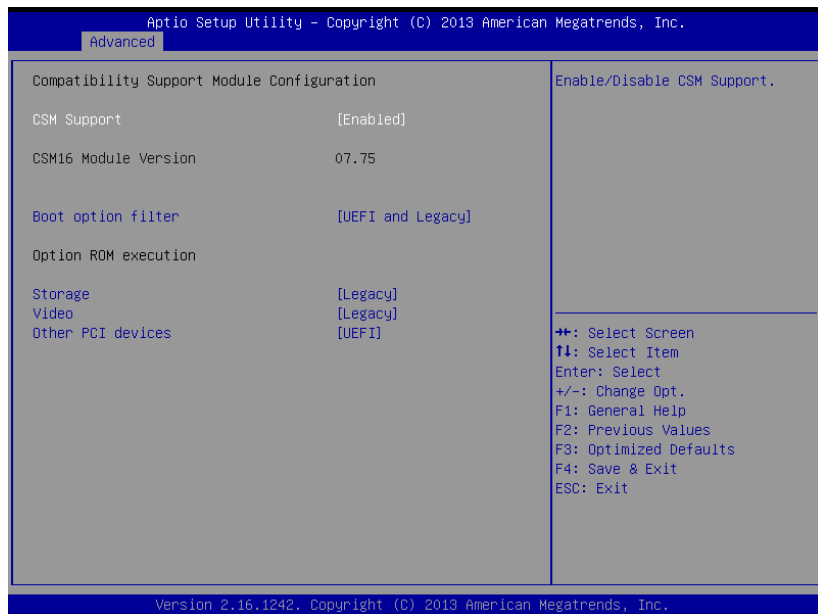


Options Summary		
Serial-ATA (SATA)	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable / Disable Serial ATA		
SATA Speed Support	Gen1	
	Gen2	Optimal Default, Failsafe Default
SATA Speed Support Gen1 or Gen2		
SATA Mode	IDE Mode	
	AHCI Mode	Optimal Default, Failsafe Default
Enable/ Disable SATA Port		
IDE: Configure SATA controllers as legacy IDE		
AHCI: Configure SATA controllers to operate in AHCI mode		
Serial-ATA Port 0	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable / Disable Serial ATA Port 0		

Table Continues on Next Page...

Options Summary		
SATA Port0 HotPlug	Enabled	
	Disabled	Optimal Default, Failsafe Default
Enable / Disable SATA Port0 HotPlug		
Serial-ATA Port 1	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable / Disable Serial ATA Port 1		
SATA Port1 HotPlug	Enabled	
	Disabled	Optimal Default, Failsafe Default
Enable / Disable SATA Port1 HotPlug		

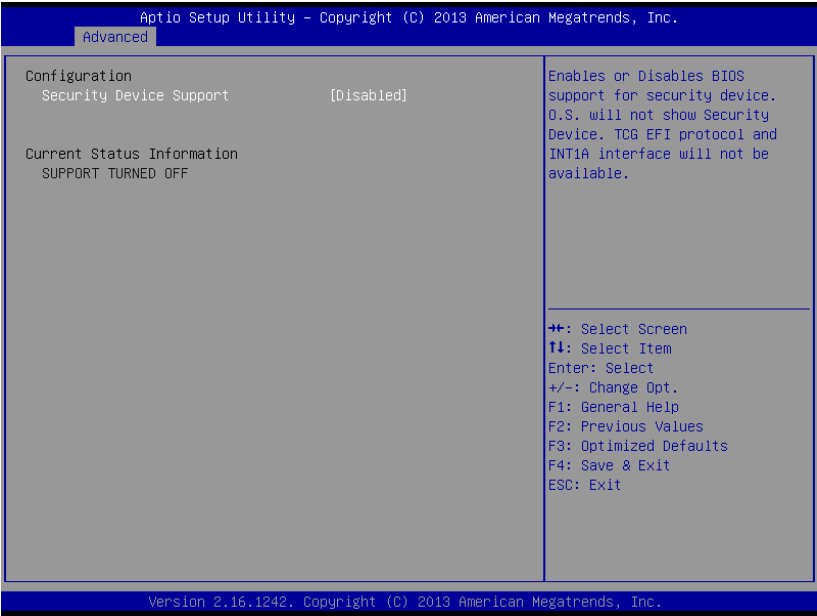
3.4.6 CSM Configuration



Options Summary		
CSM Support	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/ Disable CSM Support		
Boot option filter	UEFI and Legacy	Optimal Default, Failsafe Default
	Legacy only	
	UEFI only	
This option controls Legacy/ UEFI ROMs priority		
Storage	Do not launch	Optimal Default, Failsafe Default
	UEFI	
	Legacy	
Controls the execution of UEFI and Legacy Storage OpROM		
Video	Do not launch	Optimal Default, Failsafe Default
	UEFI	
	Legacy	
Controls the execution of UEFI and Legacy Video OpROM		

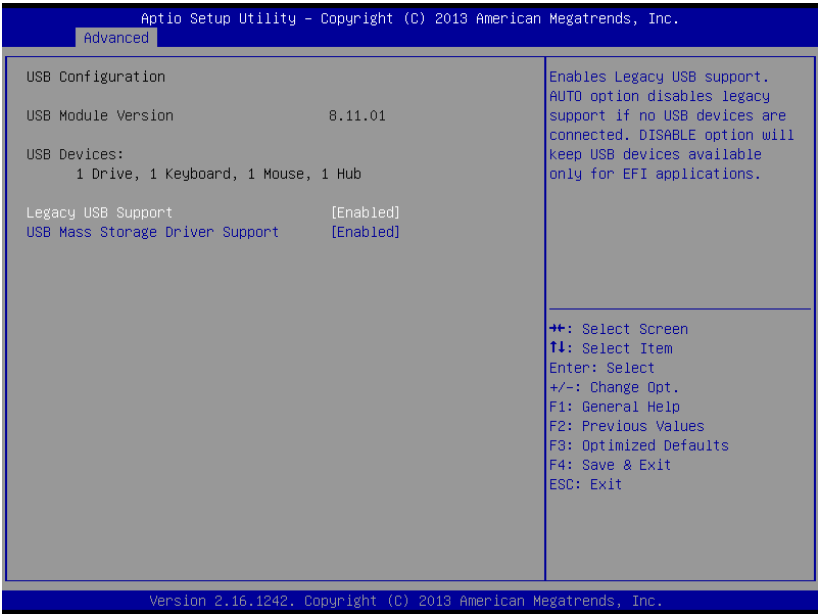
Options Summary		
Other PCI devices	UEFI	Optimal Default, Failsafe Default
	Legacy	
Determines OpROM execution policy for devices other than Network, Storage or Video		

3.4.7 Trusted Computing



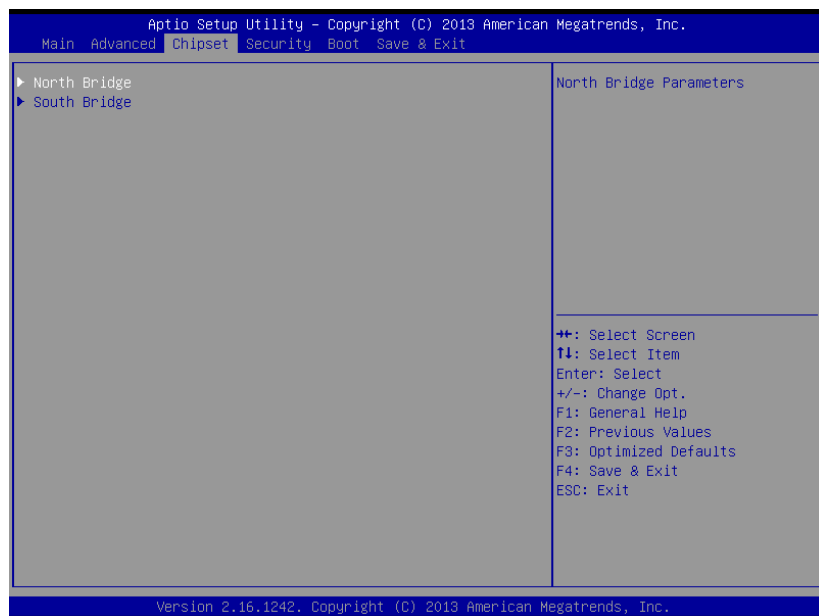
Options Summary		
Security Device Support	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.		

3.4.8 USB Configuration

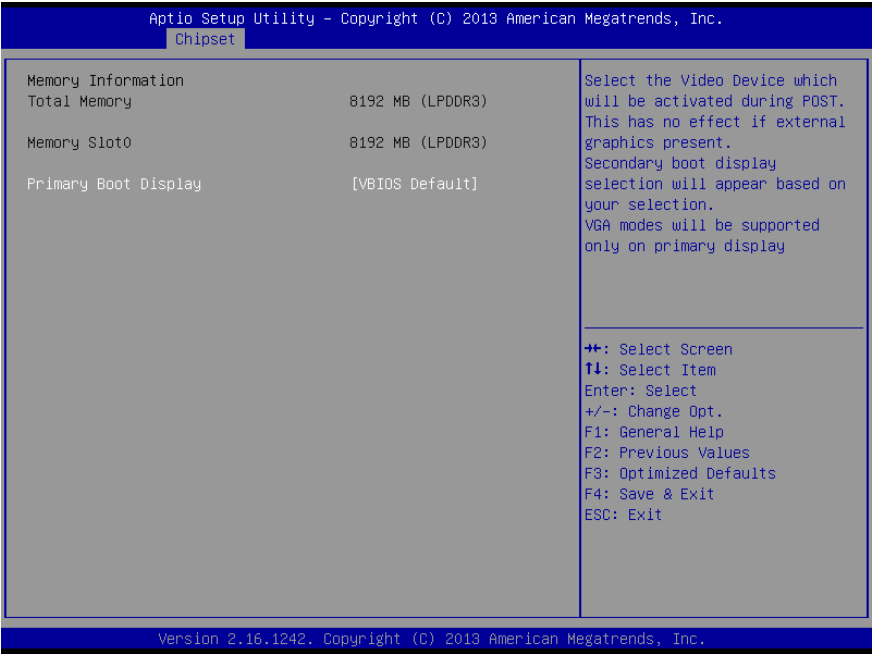


Options Summary		
Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.		
USB Mass Storage Driver Support	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable USB Mass Storage Driver Support.		

3.5 Setup Submenu: Chipset

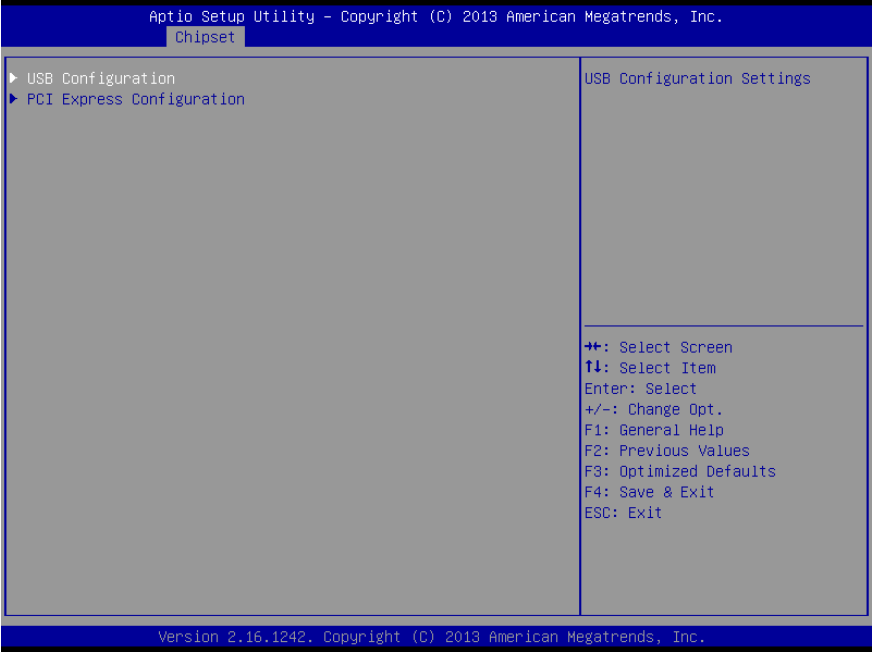


3.5.1 North Bridge

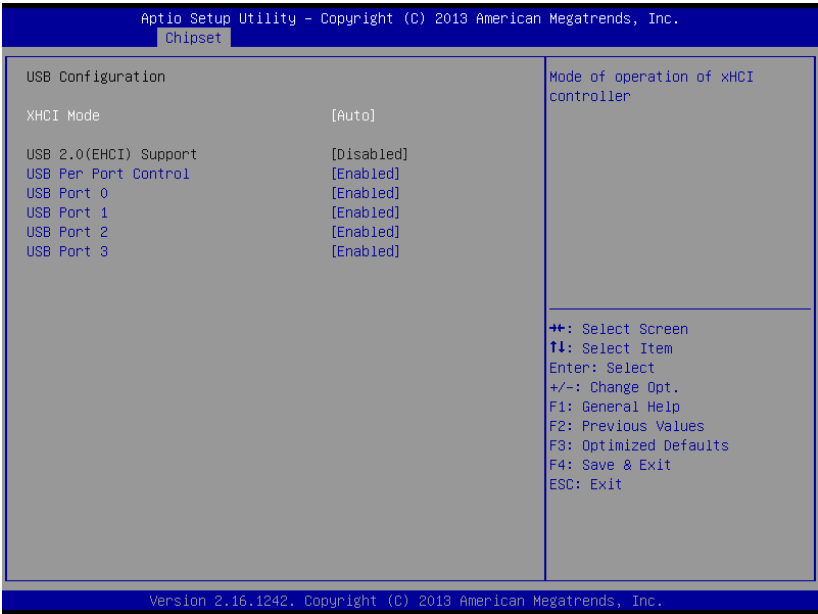


Options Summary		
Primary Boot Display	VBIOS Default	Optimal Default, Failsafe Default
	CRT	
	HDMI	
Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display		

3.5.2 South Bridge

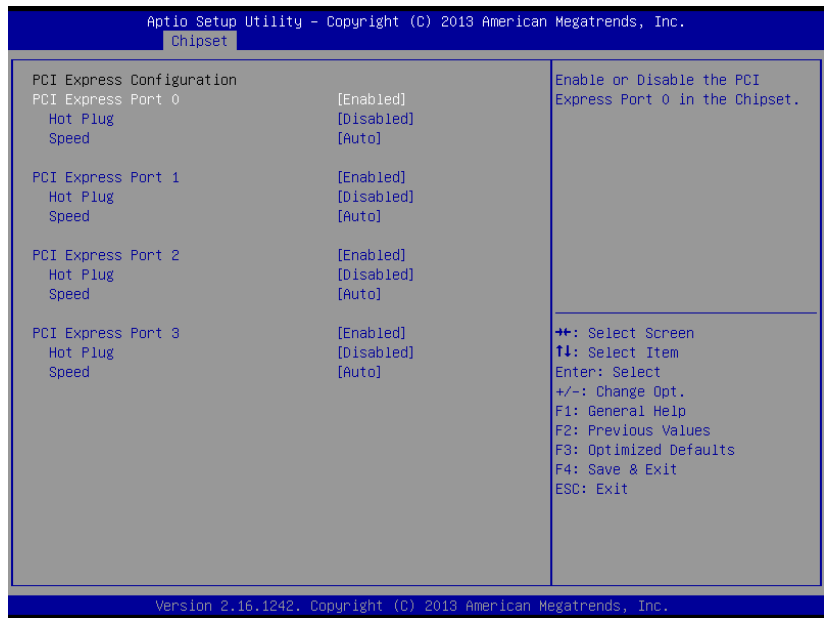


3.5.2.1 USB Configuration



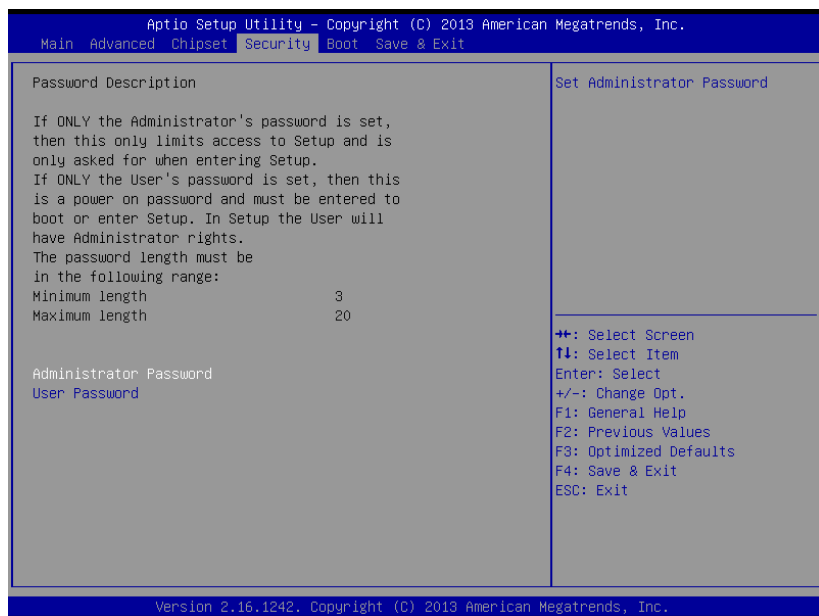
Options Summary		
XHCI Mode	Enabled	
	Disabled	
	Auto	Optimal Default, Failsafe Default
	Smart Auto	
Mode of operation of xHCI controller		
USB Per Port Control	Enabled	Optimal Default, Failsafe Default
	Disabled	
Control each of the USB ports (0~3). Enable: Enable USB per port; Disable: Use USB Port X settings		
USB Port X	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable / Disable USB port X		

3.5.2.2 PCI Express Configuration



Options Summary		
PCI Express Root Port X	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable or Disable the PCI Express Port X in the Chipset.		
Hot Plug	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or disable PCI Express Hot Plug.		
Speed	Auto	Optimal Default, Failsafe Default
	Gen 2	
	Gen 1	
Configure PCIe Port Speed		

3.6 Setup Submenu: Security



Change User/Administrator Password

You can set an Administrator Password or 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. A User Password does not provide access to many of the features in the Setup utility.

Select the password you wish to set, and press Enter. In the dialog box, enter your password (must be between 3 and 20 letters or numbers). Press Enter and retype your password to confirm. Press Enter again to set the password.

Removing the Password

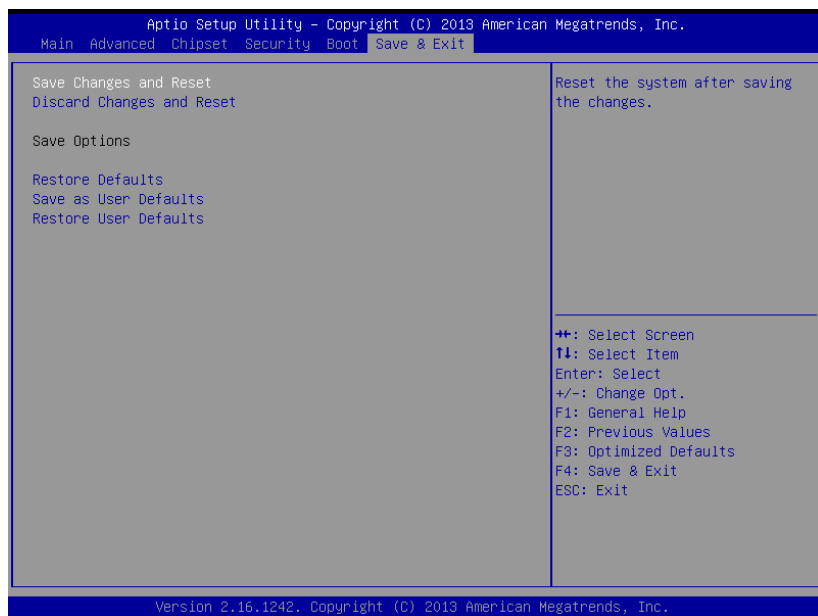
Select the password you want to remove and enter the current password. At the next dialog box press Enter to disable password protection.

3.7 Setup Submenu: Boot



Options Summary		
Launch i210/i211 PXE OpROM	Disabled	Default
	Enabled	
Launch PXE Option Rom		
Quiet Boot	Disabled	
	Enabled	Default
Enables or disables Quiet Boot option		

3.8 Setup Submenu: Save & Exit



Chapter 4

Drivers Installation

4.1 Driver Download/Installation

Drivers for the GENE-BT05 can be downloaded from the product page on the AAEON website by following this link:

<https://www.aaeon.com/en/p/3-and-half-inches-subcompact-boards-gene-bt05>

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

Step 1 – Install Chipset Drivers

1. Open the **Step1 - Chipset** folder and select your OS
2. Open the **.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 2 – Install Graphics Driver

1. Open the **Step2 - Graphic** 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 Driver

1. Click on the **Step3 - LAN** 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 TXE Drivers

1. Open the **Step5 - TXE** folder select your OS
2. Open the **.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 5 – Install PenMount Touch 6000 Driver

1. Open the **Step6 - PenMount Touch 6000** 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 6 – Install TPM Driver

1. Open the **Step7 - TPM** folder followed by the **Atmel TPM Driver Installer 3.0.3.15.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

Step 7 – Install MBI Driver

1. Open the **Step8 - MBI** folder and select your OS
2. Open the **Setup.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

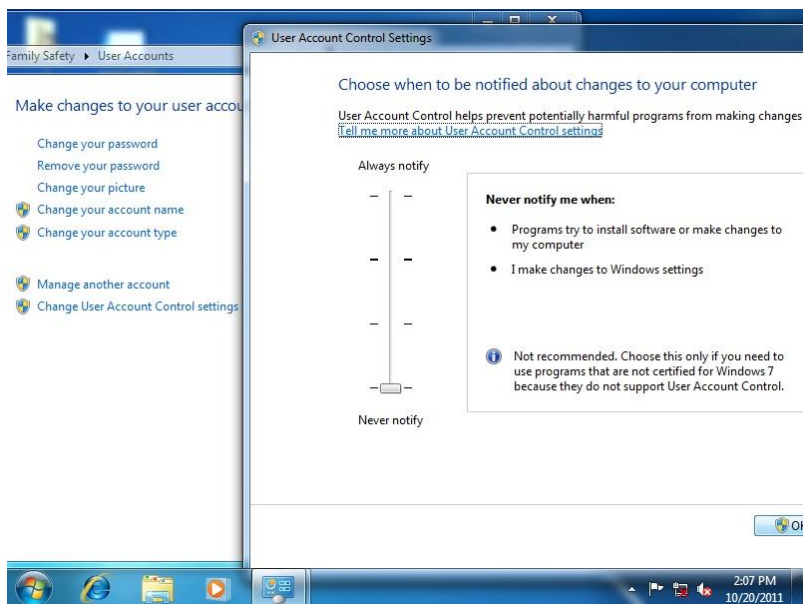
Step 8 – Install USB 3.0 Driver (Windows 7 only)

1. Open the **Step9 - USB3.0** folder followed by the **Setup.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

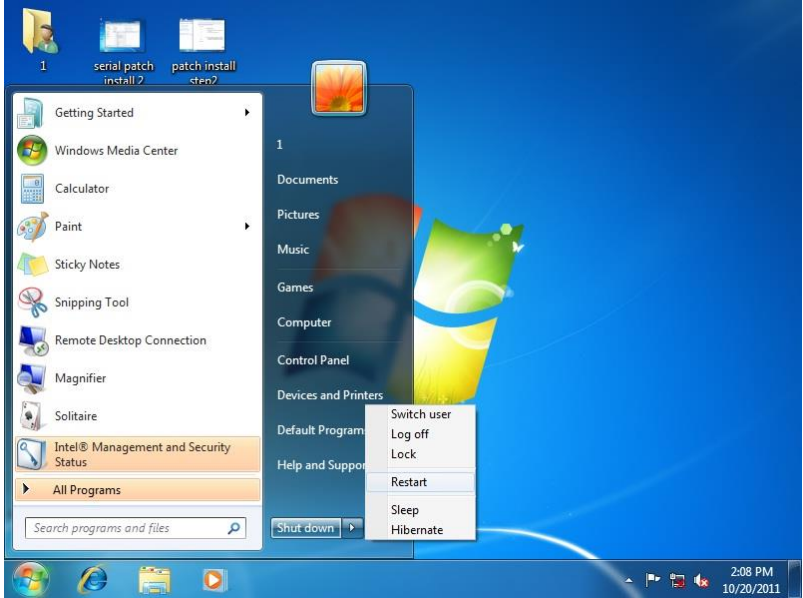
Step 9 – Install Serial Port Driver (Optional)

For Windows 7:

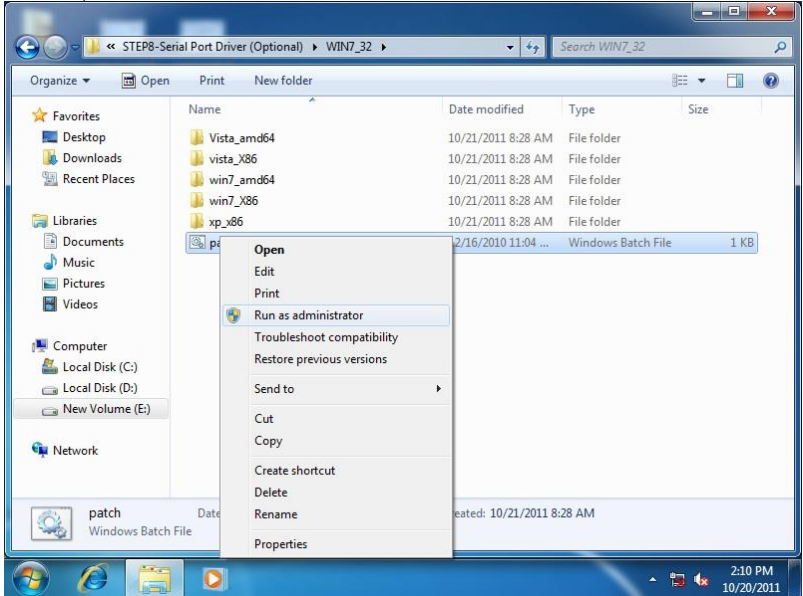
1. Change User Account Control settings to **Never notify**



2. Reboot and log in as administrator

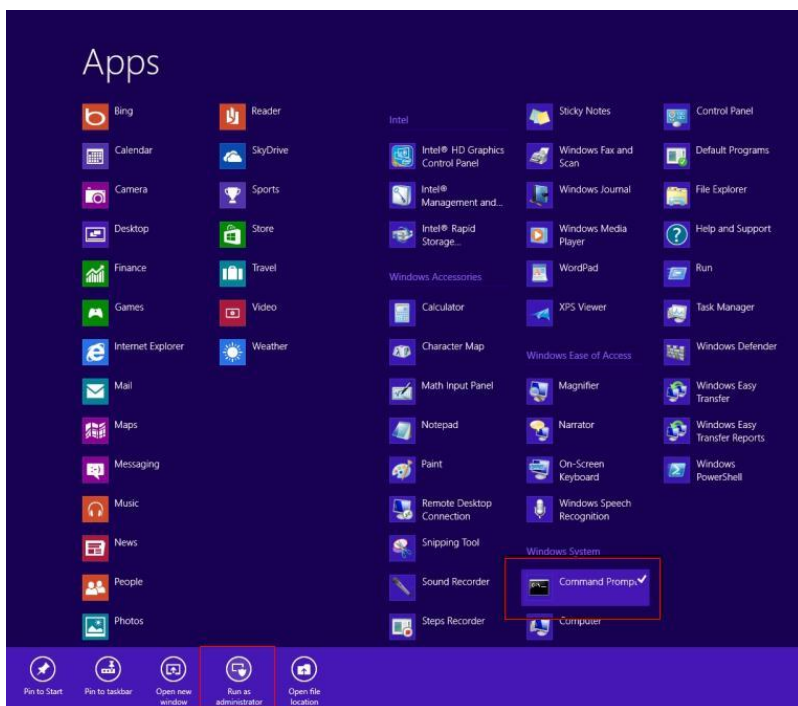


3. Run patch.bat as administrator

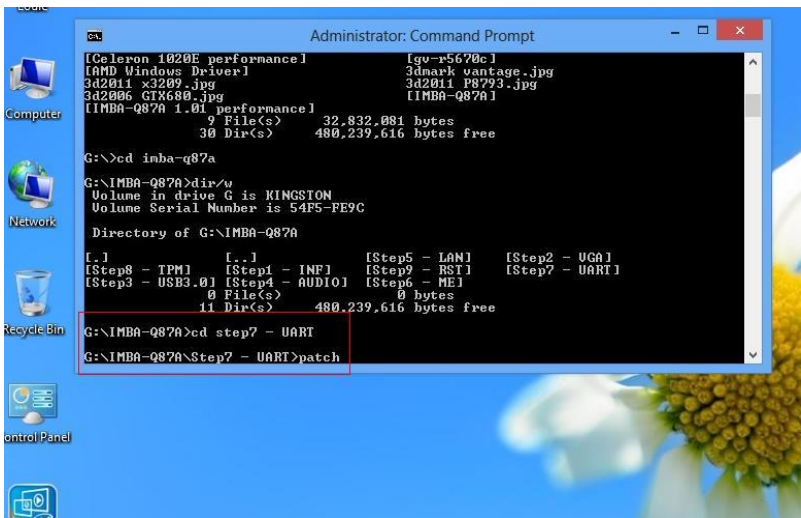


For Windows 8/ Windows 10:

1. Open the Apps Screen, right click on the **Command Prompt** tile and select **Run as Administrator**

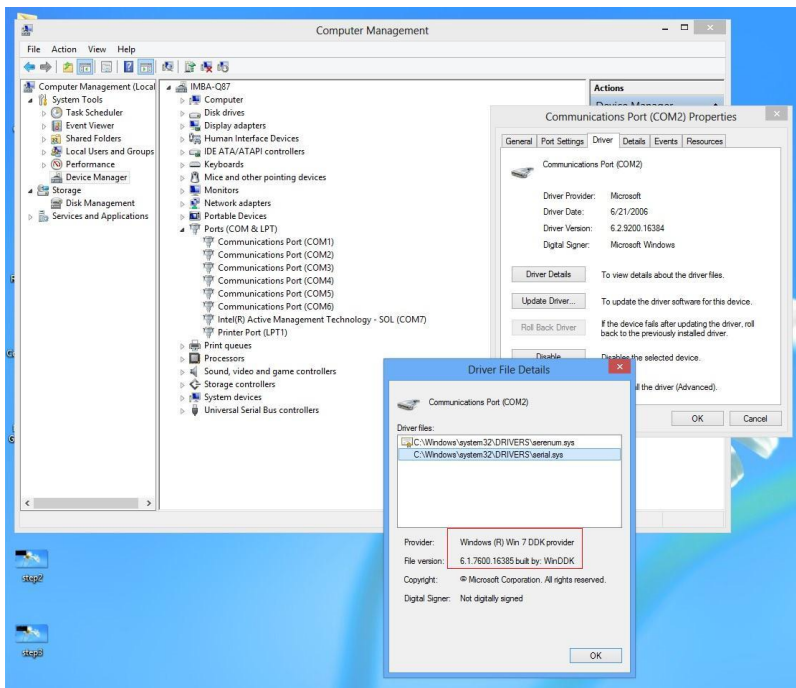


2. To install the driver (patch.bat), you will first have to locate the file in command prompt. To do that, first go to the directory which contains the file by entering **<drive letter>:** eg. if the driver is in D drive, enter **D:**
3. You are now at the directory containing the installation file. Next, go to the folder in which the file resides by entering **cd <folder>** eg: if the file is in a folder named abc, enter **cd <abc>**.
4. You are now at the folder where the file is located. Enter the **patch.bat** to open and install the drivers. If your file is in a subfolder, enter the **cd <folder>** command again to access the subfolder (screenshot below is for reference only).



5. Reboot after installation completes.

6. To confirm the installation, go to Device Manager, expand the Ports (COM & LPT) tree and double click on any of the COM ports to open its properties. Go to the Driver tab, select Driver Details and click on **serial.sys**, you should see its provider as **Windows (R) Win 7 DDK Provider**.



Appendix A

Watchdog Timer Programming

A.1 Watchdog Timer Registers

Table 1 : Watch dog relative IO address

I/O Base Address	Default Value	Note
	0xA00	I/O Base address for Watchdog operation. This address is assigned by SIO LDN7, register 0x60-0x61.

Table 2 : Watchdog relative register table

Register	Offset	BitNum	Value	Note
Watchdog WDTRST# Enable	0x00	7	1	Enable/Disable time out output via WDTRST# 0: Disable 1: Enable
Pulse Width	0x05	0:1	01	Width of Pulse signal 00: 1ms (do not use) 01: 25ms 10: 125ms 11: 5s <i>Pulse width is must longer than 16ms.</i>
Signal Polarity	0x05	2	0	0: low active 1: high active <i>Must set this bit to 0</i>
Counting Unit	0x05	3	0	Select time unit. 0: second 1: minute
Output Signal Type	0x05	4	1	0: Level 1: Pulse <i>Must set this bit to 1</i>
Watchdog Timer Enable	0x05	5	1	0: Disable 1: Enable
Timeout Status	0x05	6	1	1: timeout occurred. Write a 1 to clear timeout status
Timer Counter	0x06			Time of watchdog timer (0~255)

A.2 Watchdog Sample Program

```
*****// WDT I/O

operation relative definition (Please reference to Table 1)

#define WDTAddr 0xA00 // WDT I/O base address

Void WDTWriteByte(byte Register, byte Value);

byte WDTReadByte(byte Register);

Void WDTSetReg(byte Register, byte Bit, byte Val);

// Watch Dog relative definition (Please reference to Table 2)

#define DevReg 0x00 // Device configuration register

#define WDTRstBit 0x80 // Watchdog WDTRST# (Bit7)

#define WDTRstVal 0x80 // Enabled WDTRST#

#define TimerReg 0x05 // Timer register

#define PSWidthBit 0x00 // WDTRST# Pulse width (Bit0:1)

#define PSWidthVal 0x01 // 25ms for WDTRST# pulse

#define PolarityBit 0x02 // WDTRST# Signal polarity (Bit2)

#define PolarityVal 0x00 // Low active for WDTRST#

#define UnitBit 0x03 // Unit for timer (Bit3)

#define ModeBit 0x04 // WDTRST# mode (Bit4)

#define ModeVal 0x01 // 0:level 1: pulse

#define EnableBit 0x05 // WDT timer enable (Bit5)

#define EnableVal 0x01 // 1: enable

#define StatusBit 0x06 // WDT timer status (Bit6)

#define CounterReg 0x06 // Timer counter register

*****
```

```
*****
VOID Main(){
// Procedure : AaeonWDTConfig
// (byte)Timer : Counter of WDT timer.(0x00~0xFF)
// (boolean)Unit : Select time unit(0: second, 1: minute).
AaeonWDTConfig(Counter, Unit);
// Procedure : AaeonWDTEnable
// This procedure will enable the WDT counting.
WDTSetBit(TimerReg, PSWidthBit, PSWidthVal);
// Watchdog WDTRST# Enable
WDTSetBit(DevReg, WDTRstBit, WDTRstVal);
}
VOID WDTClearTimeoutStatus(){
WDTSetBit(TimerReg, StatusBit, 1);
}
*****
```

```
*****
VOID WDTWriteByte(byte Register, byte Value){
    IOWriteByte(WDTAddr+Register, Value);
}

byte WDTReadByte(byte Register){
    return IOReadByte(WDTAddr+Register);
}

VOID WDTSetBit(byte Register, byte Bit, byte Val){
    byte TmpValue;

    TmpValue = WDTReadByte(Register);

    TmpValue &= ~(1 << Bit);

    TmpValue |= Val << Bit;

    WDTWriteByte(Register, TmpValue);
}
*****
```

Appendix B

I/O Information

B.1 I/O Address Map

Input/output (IO)	
[0000000000000000 - 000000000000006F]	PCI bus
[0000000000000020 - 0000000000000021]	Programmable interrupt controller
[0000000000000024 - 0000000000000025]	Programmable interrupt controller
[0000000000000028 - 0000000000000029]	Programmable interrupt controller
[000000000000002C - 000000000000002D]	Programmable interrupt controller
[000000000000002E - 000000000000002F]	Motherboard resources
[0000000000000030 - 0000000000000031]	Programmable interrupt controller
[0000000000000034 - 0000000000000035]	Programmable interrupt controller
[0000000000000038 - 0000000000000039]	Programmable interrupt controller
[000000000000003C - 000000000000003D]	Programmable interrupt controller
[0000000000000040 - 0000000000000043]	System timer
[000000000000004E - 000000000000004F]	Motherboard resources
[0000000000000050 - 0000000000000053]	System timer
[0000000000000061 - 0000000000000061]	Motherboard resources
[0000000000000063 - 0000000000000063]	Motherboard resources
[0000000000000065 - 0000000000000065]	Motherboard resources
[0000000000000067 - 0000000000000067]	Motherboard resources
[0000000000000070 - 0000000000000070]	Motherboard resources
[0000000000000070 - 0000000000000077]	System CMOS/real time clock
[0000000000000078 - 00000000000000CF]	PCI bus
[0000000000000080 - 000000000000008F]	Motherboard resources
[0000000000000092 - 0000000000000092]	Motherboard resources
[00000000000000A0 - 00000000000000A1]	Programmable interrupt controller
[00000000000000A4 - 00000000000000A5]	Programmable interrupt controller
[00000000000000A8 - 00000000000000A9]	Programmable interrupt controller
[00000000000000AC - 00000000000000AD]	Programmable interrupt controller
[00000000000000B0 - 00000000000000B1]	Programmable interrupt controller
[00000000000000B2 - 00000000000000B3]	Motherboard resources
[00000000000000B4 - 00000000000000B5]	Programmable interrupt controller
[00000000000000B8 - 00000000000000B9]	Programmable interrupt controller
[00000000000000BC - 00000000000000BD]	Programmable interrupt controller
[000000000000002E8 - 000000000000002EF]	Communications Port (COM4)
[000000000000002F8 - 000000000000002FF]	Communications Port (COM2)
[00000000000000378 - 0000000000000037F]	Printer Port (LPT1)
[000000000000003B0 - 000000000000003BB]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
[000000000000003C0 - 000000000000003DF]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
[000000000000D000 - 000000000000DFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 2 - 0F4A
[000000000000E000 - 000000000000EFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 1 - 0F48
[000000000000F000 - 000000000000F01F]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port
[000000000000F020 - 000000000000F03F]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[000000000000F040 - 000000000000F043]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[000000000000F050 - 000000000000F057]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[000000000000F060 - 000000000000F063]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[000000000000F070 - 000000000000F077]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[000000000000F080 - 000000000000F087]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900

B.2 Memory Address Map

Memory	
[000000000000A0000 - 000000000000BFFFFF]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
[000000000000A0000 - 000000000000BFFFFF]	PCI bus
[000000000000C0000 - 000000000000DFFFFF]	PCI bus
[000000000000E0000 - 000000000000FFFFFF]	PCI bus
[00000000000000000 - 00000000000000000]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
[00000000000000000 - 00000000000000000]	PCI bus
[00000000000000000 - 00000000000000000]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
[00000000000000000 - 00000000000000000]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution Engine Interface -
[00000000000000000 - 00000000000000000]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution Engine Interface -
[00000000000000000 - 00000000000000000]	Intel(R) I211 Gigabit Network Connection
[00000000000000000 - 00000000000000000]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 2 - 0F4A
[00000000000000000 - 00000000000000000]	Intel(R) I211 Gigabit Network Connection
[00000000000000000 - 00000000000000000]	Intel(R) I211 Gigabit Network Connection #2
[00000000000000000 - 00000000000000000]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 1 - 0F48
[00000000000000000 - 00000000000000000]	Intel(R) I211 Gigabit Network Connection #2
[00000000000000000 - 00000000000000000]	Intel(R) USB 3.0 eXtensible Host Controller
[00000000000000000 - 00000000000000000]	High Definition Audio Controller
[00000000000000000 - 00000000000000000]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port
[00000000000000000 - 00000000000000000]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[00000000000000000 - 00000000000000000]	Motherboard resources
[00000000000000000 - 00000000000000000]	High precision event timer
[00000000000000000 - 00000000000000000]	Motherboard resources
[00000000000000000 - 00000000000000000]	Motherboard resources
[00000000000000000 - 00000000000000000]	Motherboard resources
[00000000000000000 - 00000000000000000]	Motherboard resources
[00000000000000000 - 00000000000000000]	Motherboard resources
[00000000000000000 - 00000000000000000]	Motherboard resources
[00000000000000000 - 00000000000000000]	Motherboard resources
[00000000000000000 - 00000000000000000]	Motherboard resources
[00000000000000000 - 00000000000000000]	Motherboard resources
[00000000000000000 - 00000000000000000]	Intel(R) 82802 Firmware Hub Device

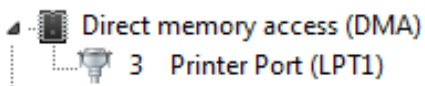
B.3 IRQ Mapping Chart

Interrupt request (IRQ)		
	(ISA) 0x00000000 (00)	System timer
	(ISA) 0x00000003 (03)	Communications Port (COM2)
	(ISA) 0x00000004 (04)	Communications Port (COM1)
	(ISA) 0x00000008 (08)	High precision event timer
	(ISA) 0x0000000A (10)	Communications Port (COM3)
	(ISA) 0x0000000A (10)	Communications Port (COM4)
	(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) 0x0000007E (126)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
	(ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
	(ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
	(ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System
	(ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
	(ISA) 0x00000084 (132)	Microsoft ACPI-Compliant System
	(ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System
	(ISA) 0x00000086 (134)	Microsoft ACPI-Compliant System
	(ISA) 0x00000087 (135)	Microsoft ACPI-Compliant System
	(ISA) 0x00000088 (136)	Microsoft ACPI-Compliant System
	(ISA) 0x00000089 (137)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008A (138)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008B (139)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008C (140)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
	(ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
	(ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
	(ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
	(ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System
	(ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
	(ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System
	(ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
	(ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
	(ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System
	(ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System

	(ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x0000000B (11)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12
	(PCI) 0x00000010 (16)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 1 - 0F48
	(PCI) 0x00000011 (17)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 2 - 0F4A
	(PCI) 0x00000013 (19)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
	(PCI) 0x00000016 (22)	High Definition Audio Controller
	(PCI) 0xFFFFFFF1 (-15)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFF2 (-14)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFF3 (-13)	Intel(R) I211 Gigabit Network Connection
	(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 #2
	(PCI) 0xFFFFFFF8 (-8)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFF9 (-7)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFFA (-6)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFFB (-5)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFFC (-4)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFFDD (-3)	Intel(R) USB 3.0 eXtensible Host Controller
	(PCI) 0xFFFFFFFEE (-2)	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900

B.4 DMA Channel Assignments



Appendix C

Mating Connectors

C.1 List of Mating Connectors and Cables

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
CN1	External AUX Power and PS_ON#	JST	PHR-6	N/A	N/A
CN4	+5Vout Connector	JST	PHR-2	2 Pins For SATA HDD Power	1702150155
CN5	External +5VSB Power Input and PS_ON#	JST	XHP-3	ATX Cable	170220020B
CN6	SATA Connector	Molex	887505318	SATA Cable	1709070500
CN7	+12V Vin Connector	Molex	19211-0003	Power Cable	170204010R
CN11	LPC Connector	JST	SHR-12V-S-B	AAEON LPC Cable	1703120130
CN12	COM Port #2 Connector	Molex	51021-0900	Serial Port Cable	1701090150
CN14	COM Port #3 Connector	Molex	51021-0900	Serial Port Cable	1701090150
CN15	COM Port #4 Connector	Molex	51021-0900	Serial Port Cable	1701090150
CN17	USB Port #3 Connector	Molex	51021-0500	USB Cable	1700050207
CN18	USB Port #2 Connector	Molex	51021-0500	USB Cable	1700050207
CN22	PS/2 KB/MS Connector	JST	PHDR-06VS	PS/2 KB/MS Cable	1700060152

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
CN23	Touch Screen Connector	JST	SHR-9V-S-B	N/A	N/A
CN24	CPU Fan Connector	Molex	22-01-2035	N/A	N/A
CN31	External RTC Connector	Molex	51021-0200	Battery Cable	175011901M

Appendix D

Electrical Specifications for I/O Ports

D.1 Electrical Specifications for I/O Ports

I/O	Reference	Signal Name	Voltage/Current Output
+5V Output for SATA HDD	CN4	+5V	+5V/1A
Mini-Card Slot (Half-Mini Card)	CN10	+3.3VSB +1.5V	+3.3V/1.1A +1.5V/0.375A
LPC Port	CN11	+3.3V	+3.3V/0.5A
COM Port 2	CN12	+5V/+12V	+5V/1A or +12V/1A
COM Port 3	CN14	+5V/+12V	+5V/1A or +12V/1A
USB 2.0 Ports 3	CN17	+5VSB	+5V/0.5A (per channel)
USB 2.0 Ports 2	CN18	+5VSB	
CPU FAN	CN24	+12V	+12V/1A
USB Ports 0 and 1	CN25	+5VSB	+5V/0.9A for USB3.2 +5V/0.5A for USB2.0
HDMI Port	CN29	+5V	+5V/1A
VGA Port	CN30	+5V	+5V/1A (reserved)
CFast Slot	CN33	+3.3V	+3.3V/0.5A
Mini-Card Slot (Full-Mini Card)	CN37	+3.3VSB +1.5V	+3.3V/1.1A +1.5V/0.375A