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Authorized Distributor, Integrator, and Value-Added Reseller

GENE-BT05

3.5" Subcompact Board

User's Manual 10th Ed

Last Updated: October 5, 2021

Copyright Notice

Acknowledgements

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- Microsoft Windows is a registered trademark of Microsoft Corp.
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- IBM, PC/AT, PS/2, and VGA are trademarks of International Business Machines Corporation.

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

Packing List

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

Item	Quantity
GENE-BT05 MB	1
Heatsink	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

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	
Form Factor	3.5'' Subcompact Board
Processor	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 6.0W
Chipset	Integrated with Intel® SoC
Memory Type	DDR3L up to 1333MHz, SODIMM x 1
ECC Support	Non-ECC
Max Memory Capacity	8GB
BIOS	UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Security	TPM 1.2 (Optional)
RTC Battery	Lithium Battery 3V/240mAH

Power	
Power Requirement	+12V Only
Power Supply Type	AT/ATX
Connector	Phoenix 2-pin Connector
Power Consumption (Typical)	1.73A at +12V with Intel® Celeron® J1900, DDR3L 1600MHz 8GB memory
Power Consumption (Max)	1.88A at +12V with Intel® Celeron® J1900, DDR3L 1600MHz 8GM memory

Display	
Controller	Intel® HD Graphics for Intel Atom® Processor Z3700 Series
LVDS/eDP	LVDS Dual Channel 18/24bit x 1
Display Interface	HDMI 1.4a x 1 VGA x 1
Multiple Display Support	Up to 3 Simultaneous Displays

Audio	
Codec	Realtek ALC897/892
Audio Interface	Line-in/ Line-out/ Mic
Speaker	-

External I/O	
Ethernet	Intel® i210/i211, 10/100/1000Base, RJ-45 x 2
USB	USB3.2 Gen 1 x 1 USB2.0 x 1
Serial Port	COM1 (RS232)
Video	HDMI 1.4a x 1 VGA x 1
Power Input	Phoenix 2-pin Connector

Internal I/O	
USB	USB2.0 x 2
Serial Port	COM2, COM3 (RS232/422/485, supports 5V/12V/RI) COM4 (RS232)
Video	LVDS x 1
SATA	SATA II x 1 +5V SATA Power Connector x 1
Audio	Audio Header x 1
DIO/GPIO	8-bit
SMBus/I2C	I2C/SMBus x 1 (Default SMBus)
Touch	4/5/8-wire Touch Controller x 1 (optional)
Fan	DC Fan x 1 (Optional: Smart Fan)
SIM	SIM x 1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	CFast™ (option with mSATA by BOM, occupies one Mini Card location)

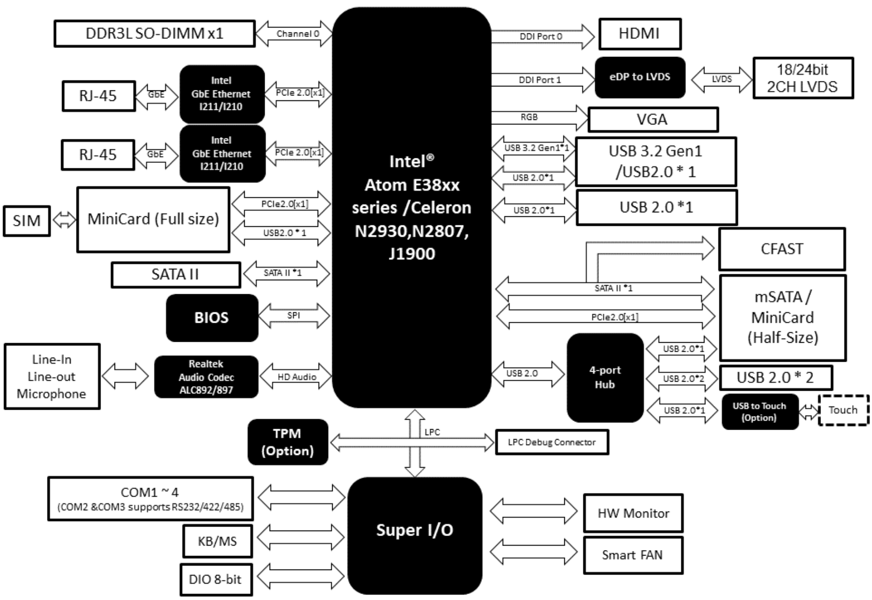
Expansion	
Mini PCIe/ mSATA	Full-Size mPCIe/ USB2.0 x 1 Half-Size mSATA/ mPCIe x 1 (Optional)
M.2	-
BIO	-

Mechanical	
Dimensions (L x W)	5.75" x 4" (146mm x 101.7mm)

Environment	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	344,859

Certification	
EMC	CE/FCC Class A

1.2 Block Diagram

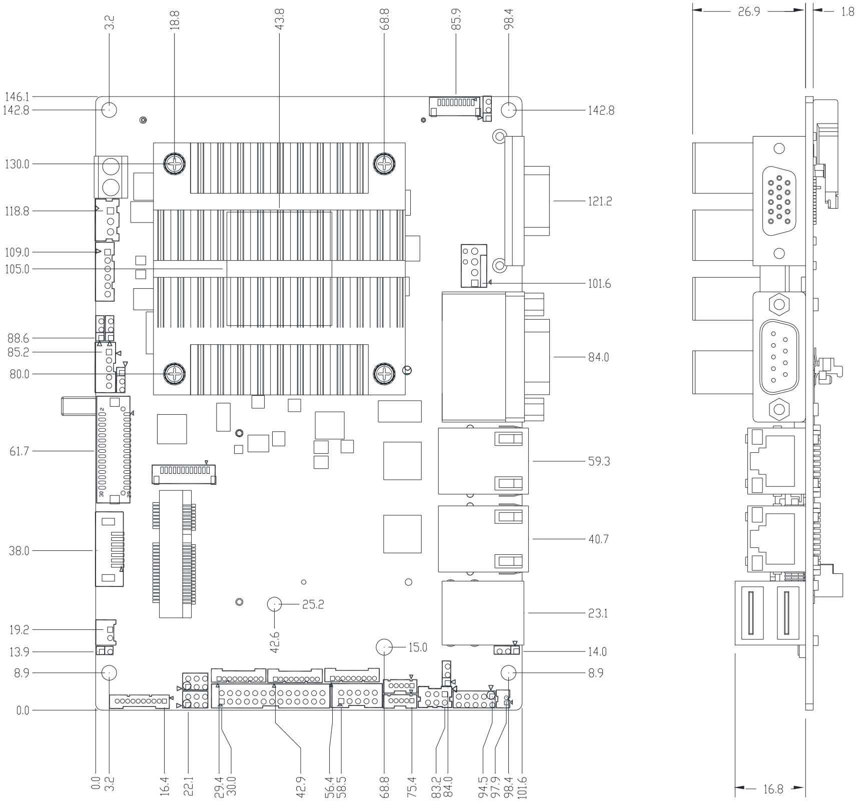


Chapter 2

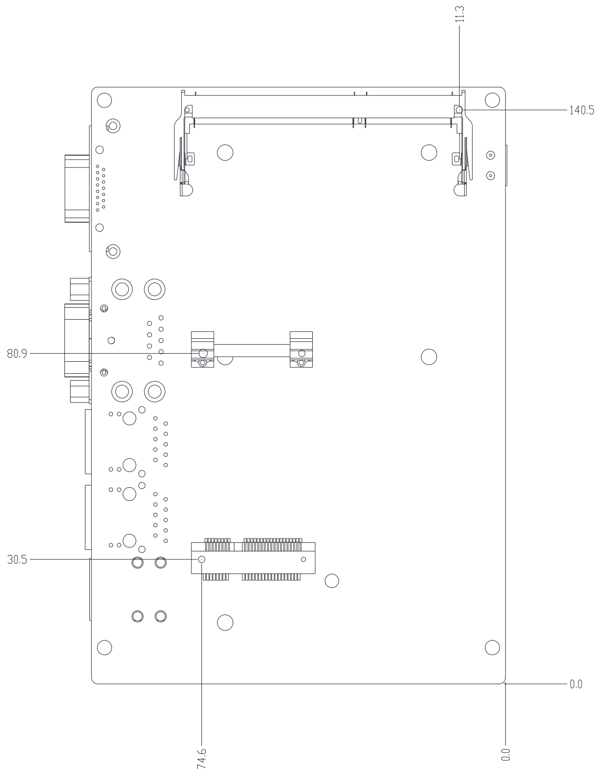
Hardware Information

2.1 Dimensions

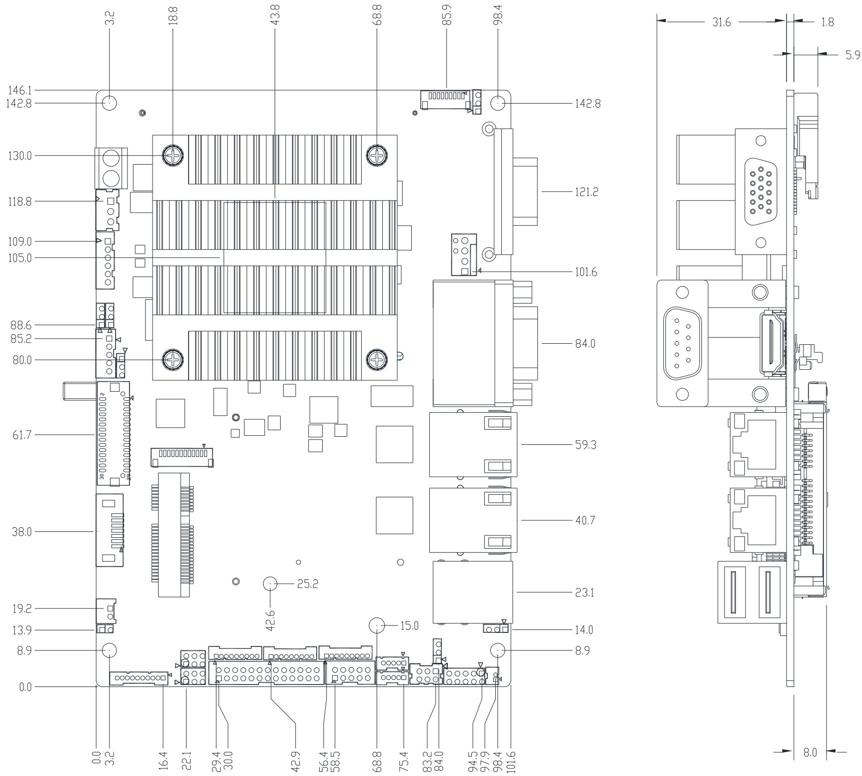
Standard Version (Component Side)



Standard Version (Solder Side)



Advanced Version (Component Side)



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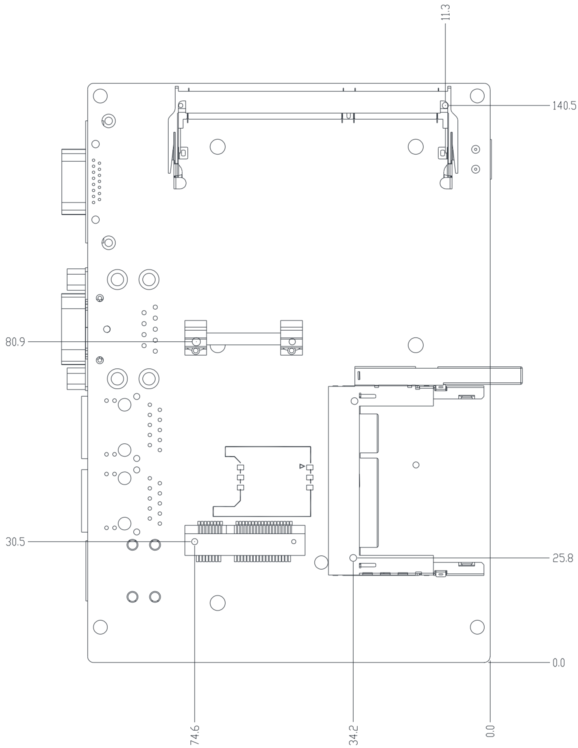
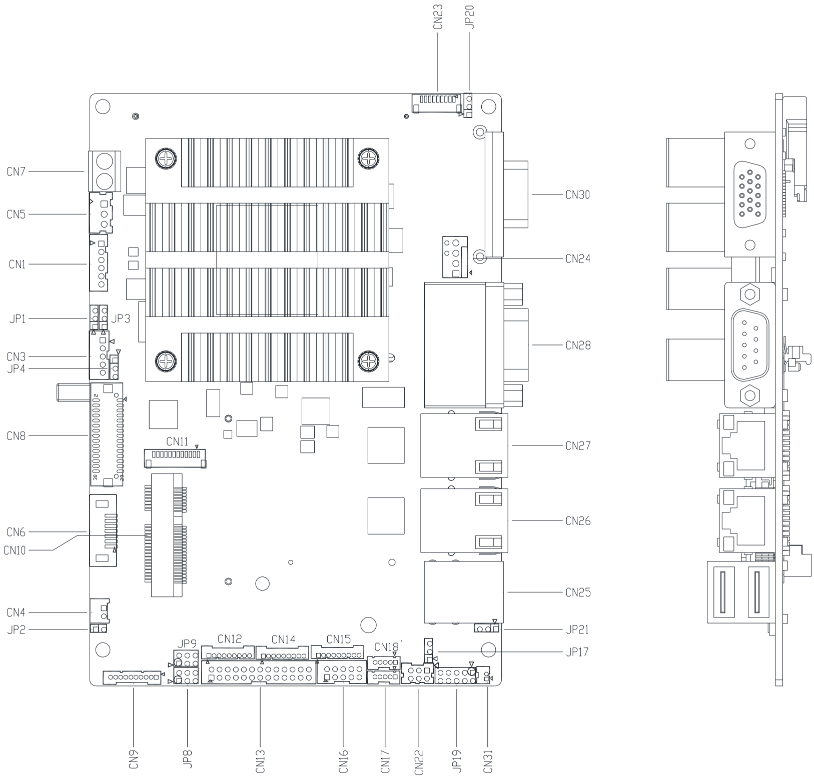
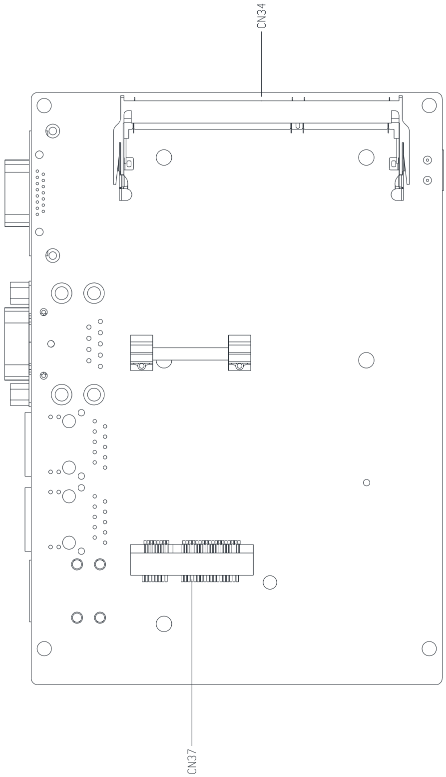


2.2 Jumpers and Connectors

Standard Version (Component Side)



Standard Version (Solder Side)



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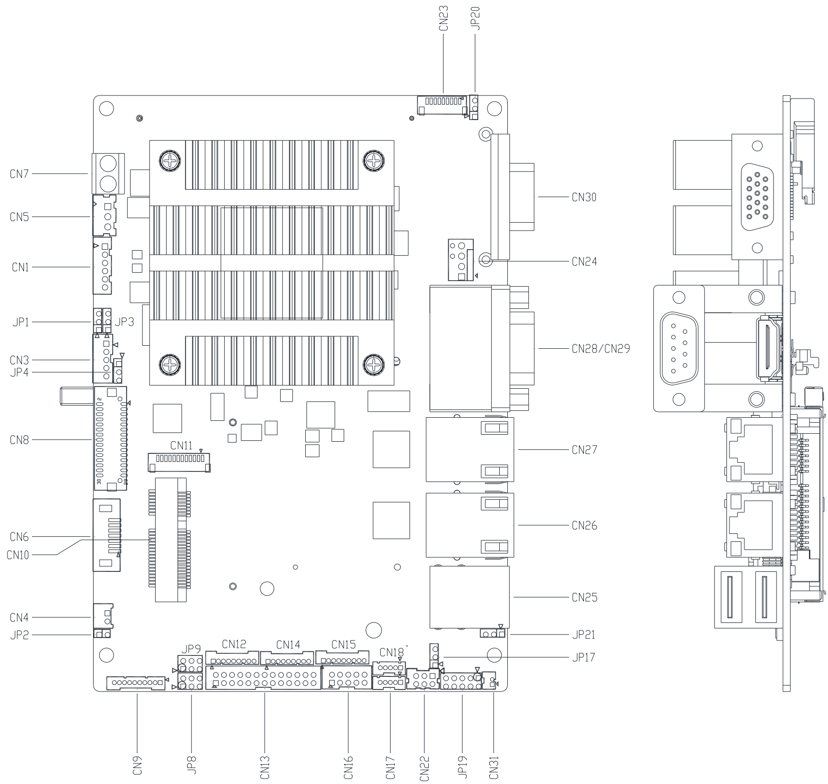
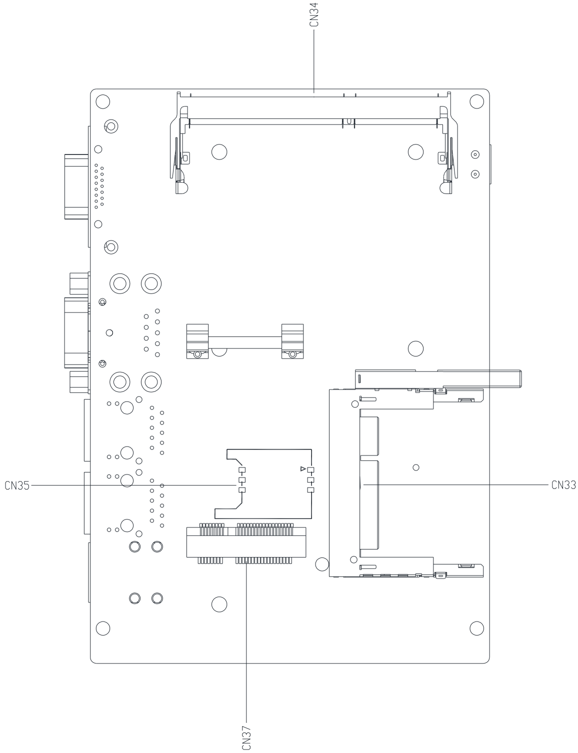


Advanced Version (Solder Side)

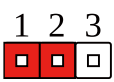


2.3 List of Jumpers

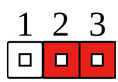
Please refer to the table below for all of the board's jumpers that you can configure for your application

Label	Function
JP1	LVDS Port Backlight Inverter VCC Selection
JP3	LVDS Port Backlight Lightness Control Mode Selection
JP4	LVDS Port Operating VDD Selection
JP8	COM3 Pin8 Function Selection
JP9	COM2 Pin8 Function Selection
JP17	Auto Power Button Enable/ Disable Selection
JP19	Front Panel Connector
JP20	Touch Screen 4/5/8-wire Mode Selection
JP21	Clear CMOS Jumper

2.3.1 LVDS Port Backlight Inverter VCC Selection (JP1)

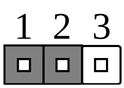


+12V

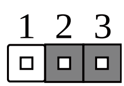


+5V (**Default**)

2.3.2 LVDS Port Backlight Lightness Control Mode Selection (JP3)

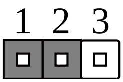


VR Mode (**Default**)

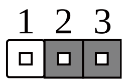


PWM Mode

2.3.3 LVDS Port Operating VDD Selection (JP4)

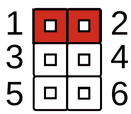


+5V

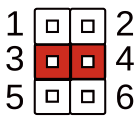


+3.3V (**Default**)

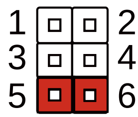
2.3.4 COM3 Pin8 Function Selection (JP8)



+12V

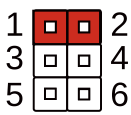


Ring (**Default**)

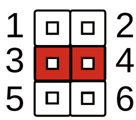


+5V

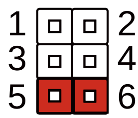
2.3.5 COM2 Pin8 Function Selection (JP9)



+12V

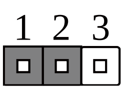


Ring (**Default**)

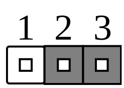


+5V

2.3.6 Auto Power Button Enable/Disable Selection (JP17)

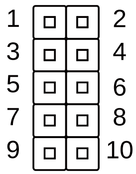


Disable



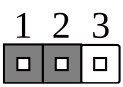
Enable (Default)

2.3.7 Front Panel Connector (JP19)

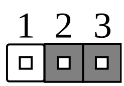


Pin	Function	Pin	Function
1	PWR_BTN-	2	PWR_BTN+
3	HDD_LED-	4	HDD_LED+
5	SPEAKER-	6	SPEAKER+
7	PWR_LED	8	PWR_LED+
9	H/W RESET-	10	H/W RESET+

2.3.8 Touchscreen 4/ 5/ 8-Wire Selection (JP20)

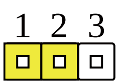


4/8-Wire Mode (**Default**)

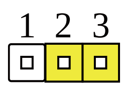


5-Wire Mode

2.3.9 Clear CMOS Jumper (JP21)



Normal (**Default**)



Clear CMOS

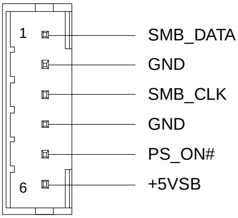
2.4 List of Connectors

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
CN3	LVDS Port Inverter / Backlight Connector
CN4	+5V Output for SATA HDD
CN5	External +5VSB Input
CN6	SATA Port
CN7	External +12V Input
CN8	LVDS Port
CN9	Audio I/O Port
CN10	Mini Card Slot (Half-Size Mini Card)
CN11	LPC Port
CN12	COM Port 2
CN14	COM Port 3
CN15	COM Port 4
CN16	Digital IO Port
CN17	USB 2.0 Port 3
CN18	USB 2.0 Port 2
CN19	SPI Debug Port
CN22	PS/2 Keyboard/Mouse Combo Port
CN23	Touchscreen Connector
CN24	CPU FAN (Optional)
CN25	USB Ports 0 and 1
CN26	LAN (RJ-45) Port2
CN27	LAN (RJ-45) Port1

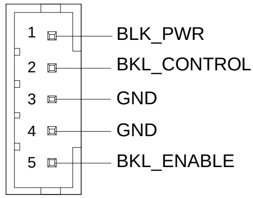
Label	Function
CN28	COM Port 1 (D-SUB 9)
CN29	HDMI Port
CN30	VGA Port
CN31	Battery
CN33	CFast Slot
CN34	DDR3L SO-DIMM Slot
CN35	UIM Card Socket
CN37	Mini Card Slot (Full-Size Mini Card)

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 LVDS Port Inverter / Backlight Connector (CN3)



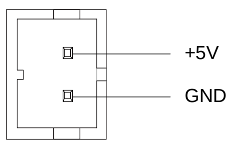
Pin	Pin Name	Signal Type	Signal Level
1	BKL_PWR	PWR	+5V / +12V
2	BKL_CONTROL	OUT	
3	GND	GND	
4	GND	GND	
5	BKL_ENABLE	OUT	+3.3V

Note 1: LVDS BKL_PWR can be set to +5V or +12V by JP1.

Note 2: LVDS BKL_CONTROL can be set by JP3.

Note 3: Driving current of Pin 1/BKL_PWR supports up to 1.5A.

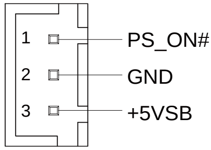
2.4.3 +5V Output for SATA HDD (CN4)



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

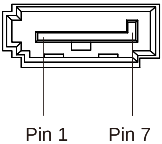
2.4.4 External +5VSB Input (CN5)



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

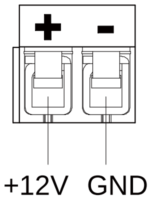
Note: Since every power supply discharge design is different, it is recommended to wait at least 3 seconds before restarting after shutting down to ensure ATX power is fully discharged; or make sure 5V standby power has been discharged to below 2V.

2.4.5 SATA Port (CN6)



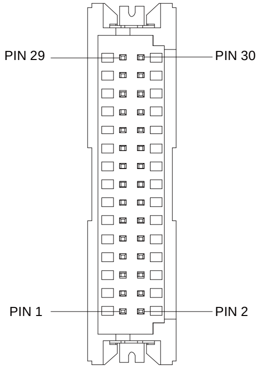
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TX+	DIFF	
3	SATA_TX-	DIFF	
4	GND	GND	
5	SATA_RX-	DIFF	
6	SATA_RX+	DIFF	
7	GND	GND	

2.4.6 External +12V Input (CN7)



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

2.4.7 LVDS Port (CN8)



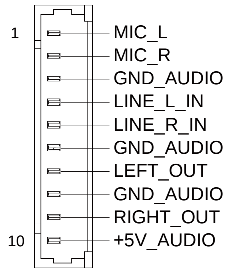
Pin	Pin Name	Signal Type	Signal Level
1	BKL_ENABLE	OUT	
2	BKL_CONTROL	OUT	
3	LCD_PWR	PWR	+3.3V/+5V
4	GND	GND	
5	LVDS_A_CLK-	DIFF	
6	LVDS_A_CLK+	DIFF	
7	LCD_PWR	PWR	+3.3V/+5V
8	GND	GND	
9	LVDS_DA0-	DIFF	
10	LVDS_DA0+	DIFF	
11	LVDS_DA1-	DIFF	
12	LVDS_DA1+	DIFF	
13	LVDS_DA2-	DIFF	
14	LVDS_DA2+	DIFF	
15	LVDS_DA3-	DIFF	

Pin	Pin Name	Signal Type	Signal Level
16	LVDS_DA3+	DIFF	
17	DDC_DATA	I/O	+3.3V
18	DDC_CLK	I/O	+3.3V
19	LVDS_DB0-	DIFF	
20	LVDS_DB0+	DIFF	
21	LVDS_DB1-	DIFF	
22	LVDS_DB1+	DIFF	
23	LVDS_DB2-	DIFF	
24	LVDS_DB2+	DIFF	
25	LVDS_DB3-	DIFF	
26	LVDS_DB3+	DIFF	
27	LCD_PWR	PWR	+3.3V/+5V
28	GND	GND	
29	LVDS_B_CLK-	DIFF	
30	LVDS_B_CLK+	DIFF	

Note 1: LVDS LCD_PWR can be set to +3.3V or +5V by JP4.

Note 2: Driving current of LCD_PWR supports up to 2.0A

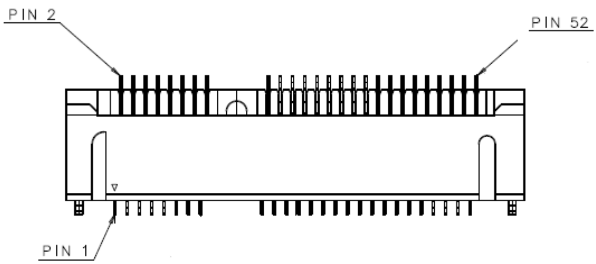
2.4.8 Audio I/O Port (CN9)



Pin	Pin Name	Signal Type	Signal Level
1	MIC_L	IN	
2	MIC_R	IN	
3	GND_AUDIO	GND	
4	LINE_L_IN	IN	
5	LINE_R_IN	IN	
6	GND_AUDIO	GND	
7	LEFT_OUT	OUT	
8	GND_AUDIO	GND	
9	RIGHT_OUT	OUT	
10	+5V_AUDIO	PWR	+5V

Note: Maximum current rating of Pin 10/ +5V is 1.0A.

2.4.9 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		

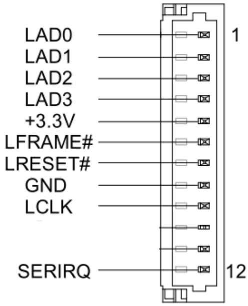
Pin	Pin Name	Signal Type	Signal Level
18	GND	GND	
19	NC		
20	W_DISABLE#	OUT	+3.3V
21	GND	GND	
22	PCIE_RST#	OUT	+3.3V
23	PCIE_RX-/mSATARX+	DIFF	
24	+3.3VSB/+3.3V	PWR	+3.3V
25	PCIE_RX+/mSATARX-	DIFF	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V
29	GND	GND	
30	SMB_CLK	I/O	+3.3V
31	PCIE_TX-/mSATATX-	DIFF	
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.

2.4.10 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

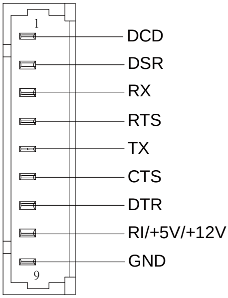
2.4.11 COM Port 2 (CN12)

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

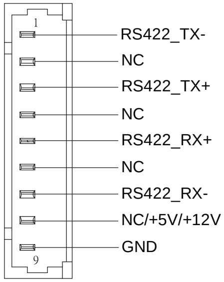
Note 2: Pin 8 function can be set by JP9.

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

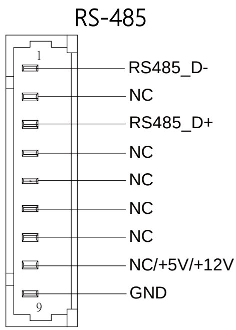
RS-232



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	



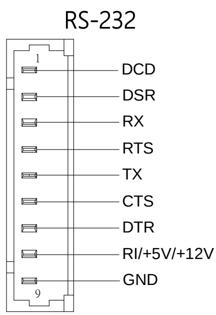
Pin	Pin Name	Signal Type	Signal Level
1	RS485_D-	I/O	±5V
2	NC		
3	RS485_D+	I/O	±5V
4	NC		
5	NC		
6	NC		
7	NC		
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

2.4.12 COM Port 3 (CN14)

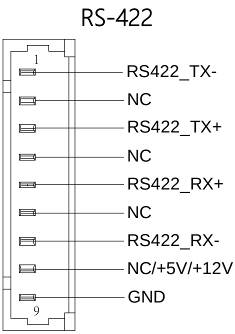
Note 1: COM3 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

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

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

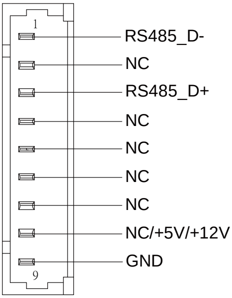


Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	DSR	IN	
3	RX	IN	
4	RTS	OUT	±5V
5	TX	OUT	±5V
6	CTS	IN	
7	DTR	OUT	±5V
8	RI/+5V/+12V	IN/ PWR	+5V/+12V
9	GND	GND	



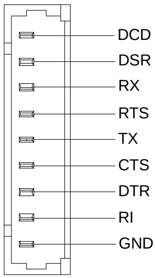
Pin	Pin Name	Signal Type	Signal Level
1	RS422_TX-	OUT	±5V
2	NC		
3	RS422_TX+	OUT	±5V
4	NC		
5	RS422_RX+	IN	
6	NC		
7	RS422_RX-	IN	
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

RS-485



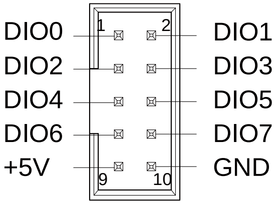
Pin	Pin Name	Signal Type	Signal Level
1	RS485_D-	I/O	±5V
2	NC		
3	RS485_D+	I/O	±5V
4	NC		
5	NC		
6	NC		
7	NC		
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

2.4.13 COM Port 4 (CN15)



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

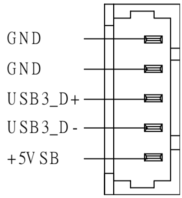
2.4.14 Digital I/O Port (CN16)



Pin	Pin Name	Signal Type	Signal Level
1	DIO0	I/O	+5V
2	DIO1	I/O	+5V
3	DIO2	I/O	+5V
4	DIO3	I/O	+5V
5	DIO4	I/O	+5V
6	DIO5	I/O	+5V
7	DIO6	I/O	+5V
8	DIO7	I/O	+5V
9	+5V	PWR	+5V
10	GND	GND	

Note: Maximum current rating of Pin 9/+5V is 1.0A.

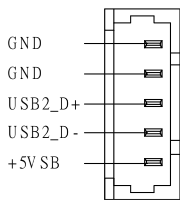
2.4.15 USB 2.0 Port 3 (CN17)



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

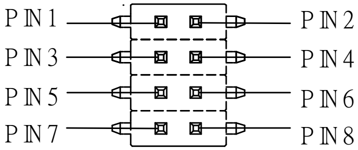
2.4.16 USB 2.0 Port 2 (CN18)



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	

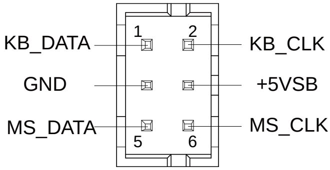
Note: Maximum current rating of Pin 1/+5V is 0.5A.

2.4.17 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		

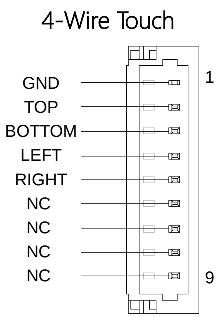
2.4.18 PS/2 Keyboard/Mouse Combo Port (CN22)



Pin	Pin Name	Signal Type	Signal Level
1	KB_ DATA	I/O	+5V
2	KB_CLK	I/O	+5V
3	GND	GND	
4	+5VSB	PWR	+5V
5	MS_DATA	I/O	+5V
6	MS_CLK	I/O	+5V

Note: Maximum current rating of Pin 4/+5V is 0.5A

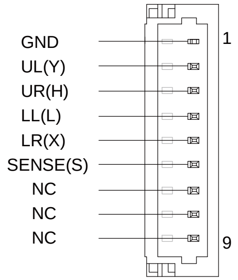
2.4.19 Touchscreen Connector (CN23)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	TOP	IN	
3	BOTTOM	IN	

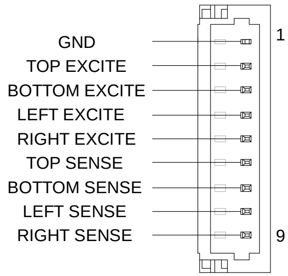
Pin	Pin Name	Signal Type	Signal Level
4	LEFT	IN	
5	RIGHT	IN	
6	NC		
7	NC		
8	NC		
9	NC		

5-Wire Touch



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	UL(Y)	IN	
3	UR(H)	IN	
4	LL(L)	IN	
5	LR(X)	IN	
6	SENSE(S)	IN	
7	NC		
8	NC		
9	NC		

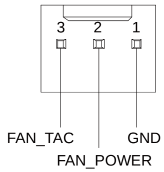
8-Wire Touch



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	TOP EXCITE	IN	
3	BOTTOM EXCITE	IN	
4	LEFT EXCITE	IN	
5	RIGHT EXCITE	IN	
6	TOP SENSE	IN	
7	BOTTOM SENSE	IN	
8	LEFT SENSE	IN	
9	RIGHT SENSE	IN	

Note: Touch mode can be set by JP20

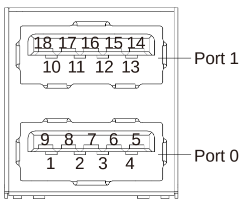
2.4.20 CPU FAN (Optional) (CN24)



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

2.4.21 USB Ports 0 and 1 (CN25)



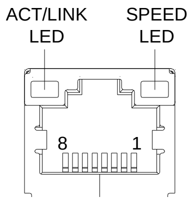
Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB0_D-	DIFF	
3	USB0_D+	DIFF	
4	GND	GND	
5	USB0_SSRX–	DIFF	
6	USB0_SSRX+	DIFF	
7	GND	GND	
8	USB0_SSTX–	DIFF	
9	USB0_SSTX+	DIFF	

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.

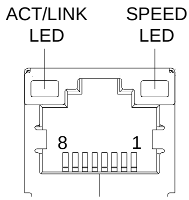
2.4.22 LAN (RJ-45) Port2 (CN26)



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	

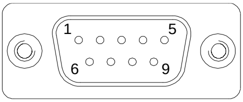
Pin	Pin Name	Signal Type	Signal Level
7	MDI3+	DIFF	
8	MDI3-	DIFF	

2.4.23 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	

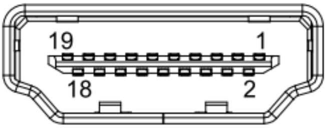
2.4.24 COM Port 1 (D-SUB 9) (CN28)



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).

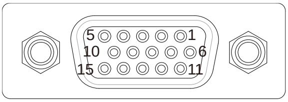
2.4.25 HDMI Port (CN29)



Pin	Pin Name	Signal Type	Signal Level
1	TMDS_DAT2+	DIFF	
2	GND	GND	
3	TMDS_DAT2-	DIFF	

Pin	Pin Name	Signal Type	Signal Level
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	

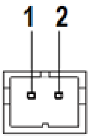
2.4.26 VGA Port (CN30)



Pin	Pin Name	Signal Type	Signal Level
1	RED	OUT	
2	GREEN	OUT	
3	BLUE	OUT	

Pin	Pin Name	Signal Type	Signal Level
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

2.4.27 Battery (CN31)



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

2.4.28 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	
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		

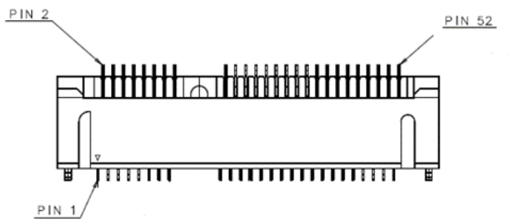
2.4.29 DDR3L SO-DIMM Slot (CN34)

Standard Specifications

2.4.30 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	

2.4.31 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	

Pin	Pin Name	Signal Type	Signal Level
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	
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

Pin	Pin Name	Signal Type	Signal Level
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		
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 <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 elements

Advanced – Access advanced hardware settings and options

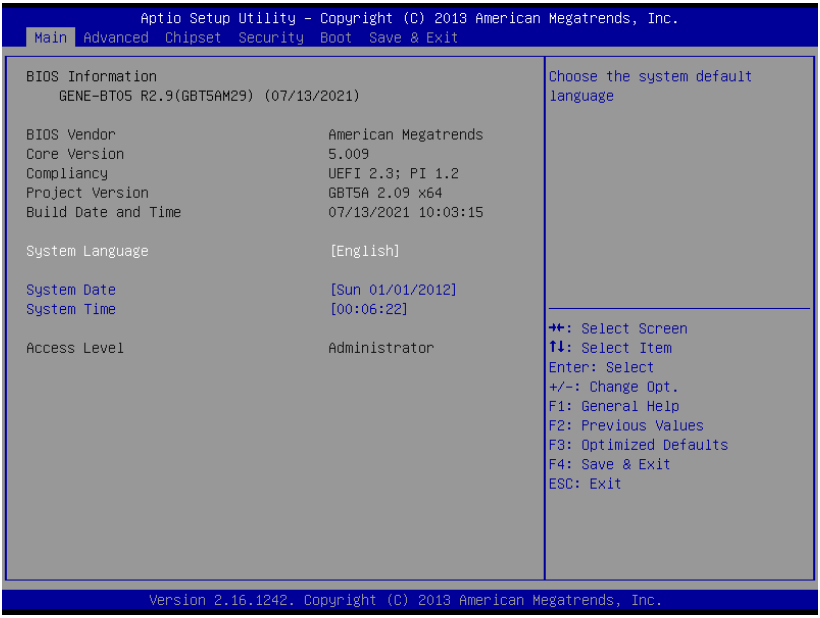
Chipset – Chipset settings and options including North Bridge and South Bridge settings.

Security – The setup administrator password can be set here

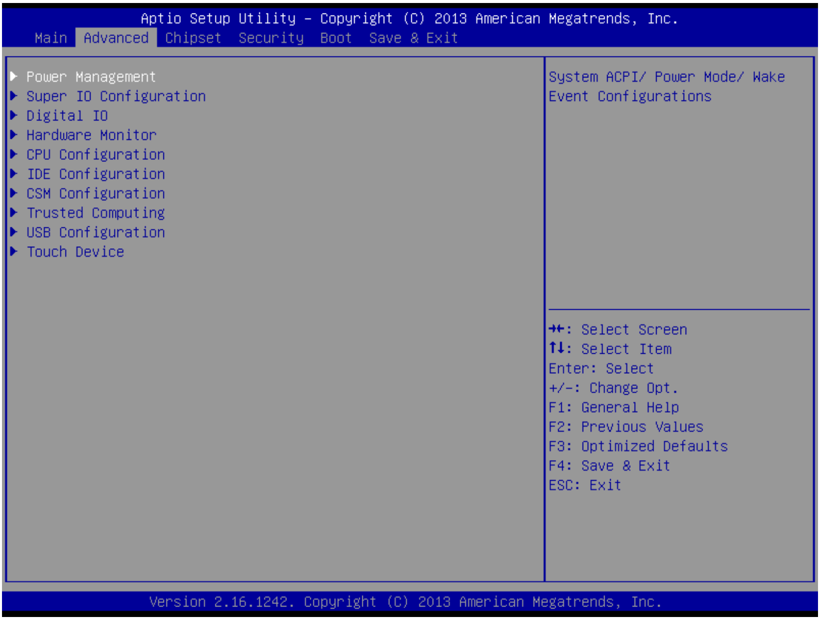
Boot – Boot options including BBS priority and Quiet Boot options

Save & Exit –Save your changes and exit the program

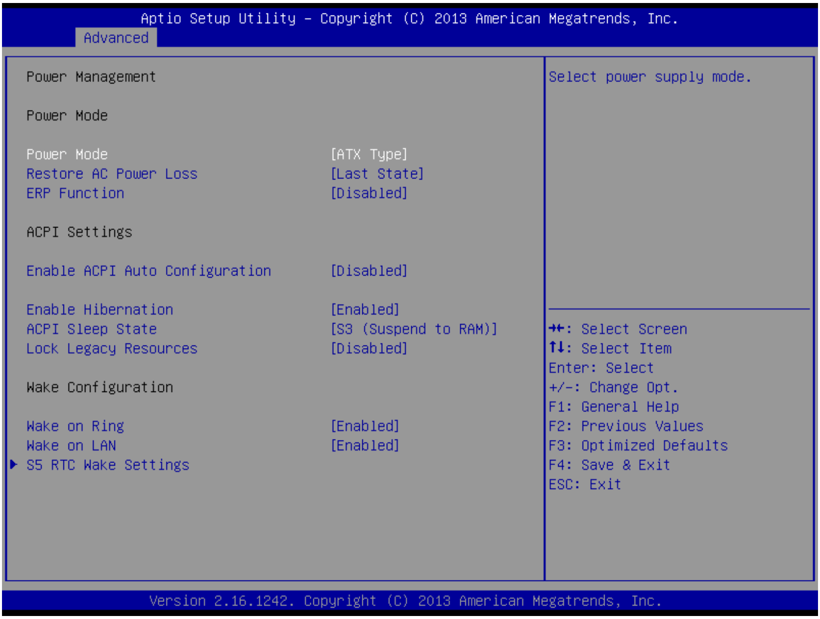
3.3 Setup Submenu: Main



3.4 Setup Submenu: Advanced



3.4.1 Power Management

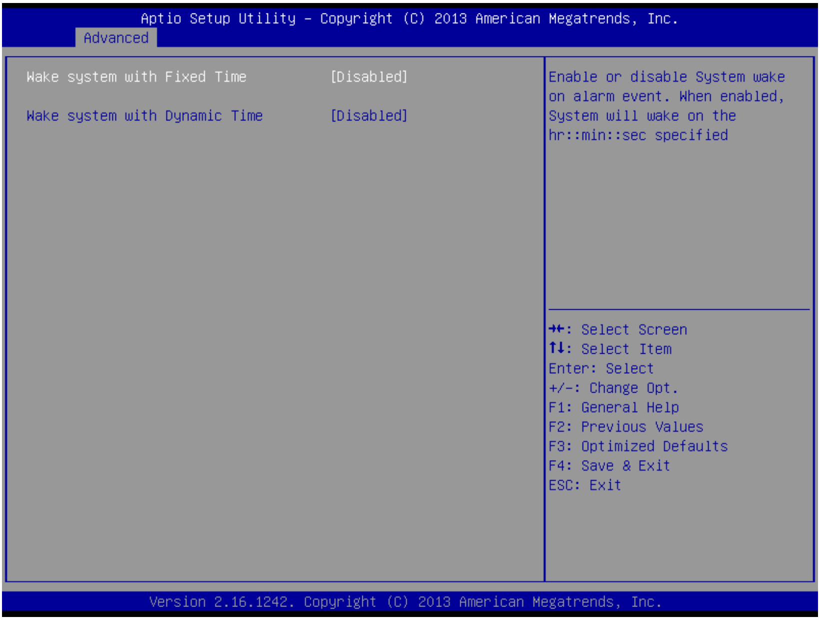


Options Summary		
Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
Select power supply mode		
Restore AC Power Loss	Last State	Optimal Default, Failsafe Default
	Power On	
	Power Off	
Select AC power state when power is re-applied after a power failure		
ERP Function	Disabled	Optimal Default, 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…

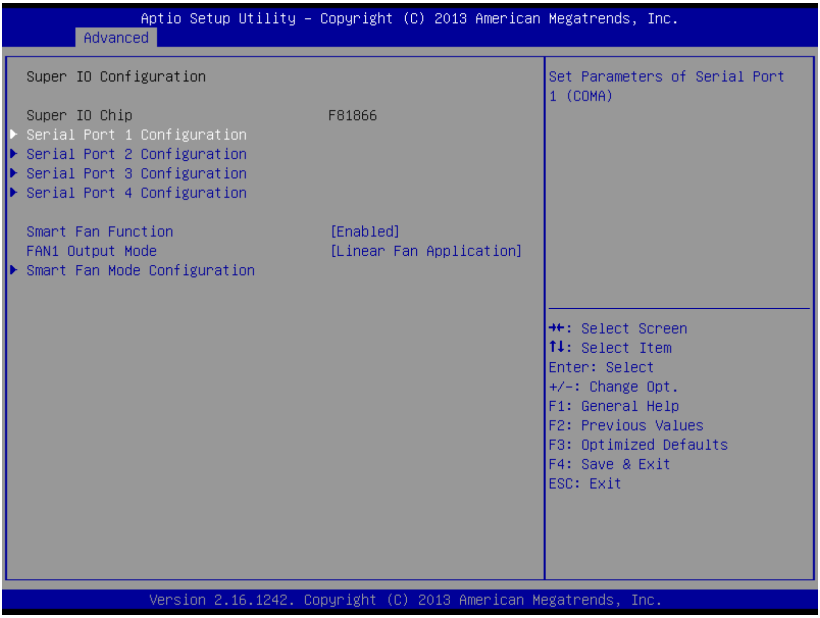
Options Summary		
Enable Hibernation	Disabled	Optimal Default, Failsafe Default
	Enable	
Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS		
ACPI Sleep State	Suspend Disabled	
	S3 (Suspend to RAM)	Optimal Default, Failsafe Default
Select 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



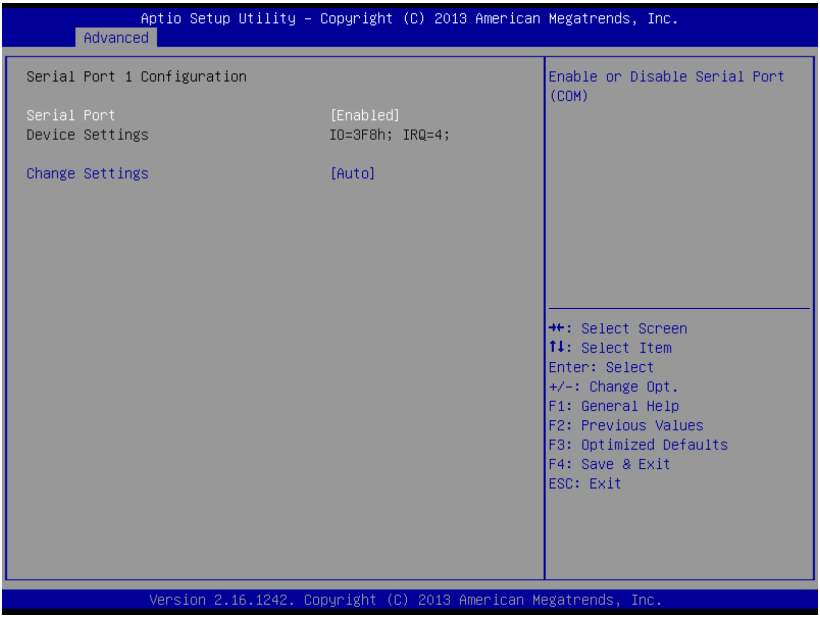
Options Summary		
Wake system with Fixed Time	Enable	
	Disable	Optimal Default, Failsafe Default
	Wake up day	0
	Wake up hour	0
	Wake up minute	0
	Wake up second	0
Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified		
Wake system with Dynamic Time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



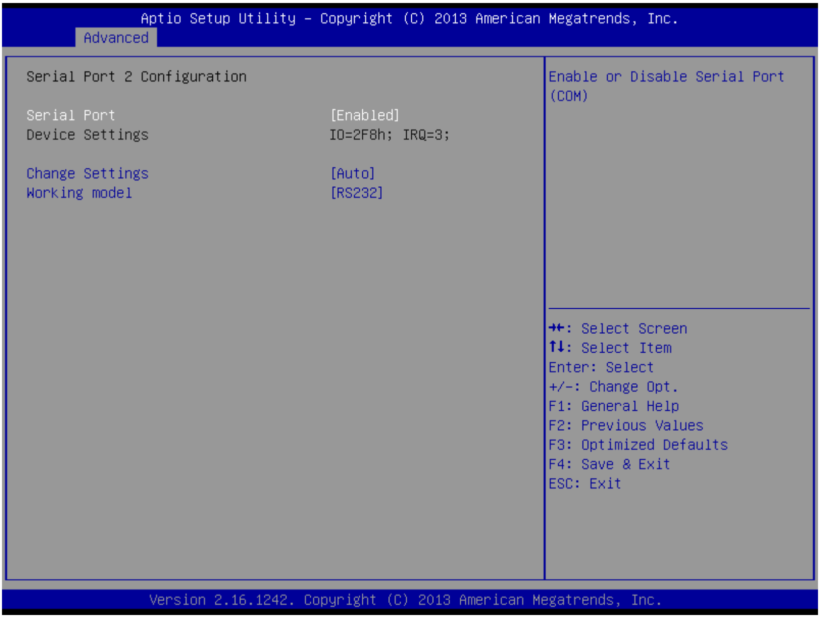
Options Summary		
Smart Fan Function	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable or Disable Smart Fan		
FAN1 Output Mode	Output PWM mode (open drain)	
	Linear Fan Application	Optimal Default, Failsafe Default
	Output PWM mode (push pull)	
Output PWM mode (push pull) to control 4-wire 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



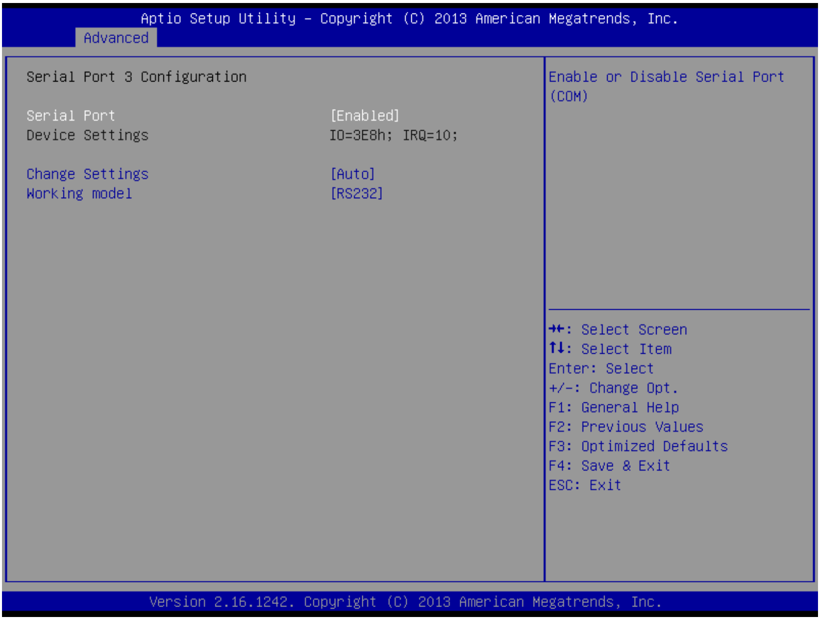
Options Summary		
Serial Port	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Optimal Default, Failsafe Default
	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2F8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=3E8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2F8h;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



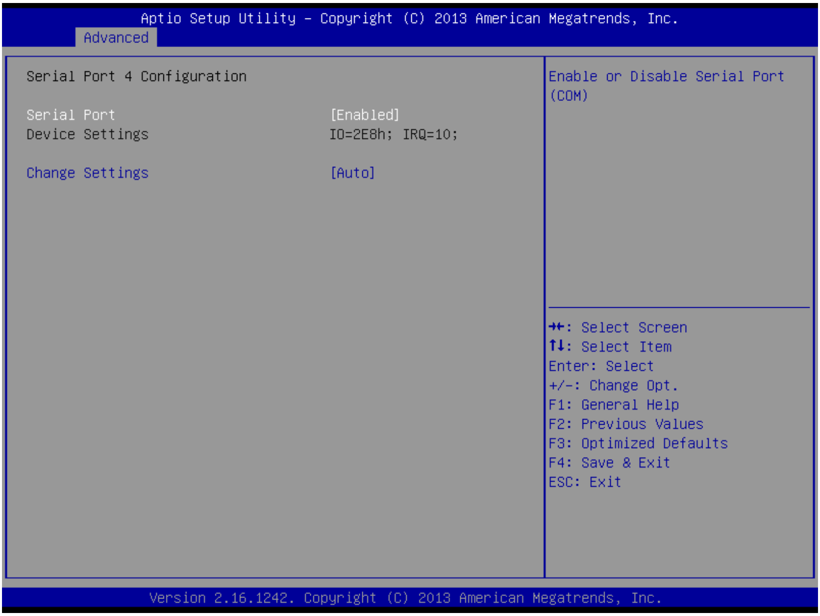
Options Summary		
Serial Port	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Optimal Default, Failsafe Default
	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2F8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=3E8h; IRQ=3,4,5,7,9,10,11,12;	
	IO=2F8h;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

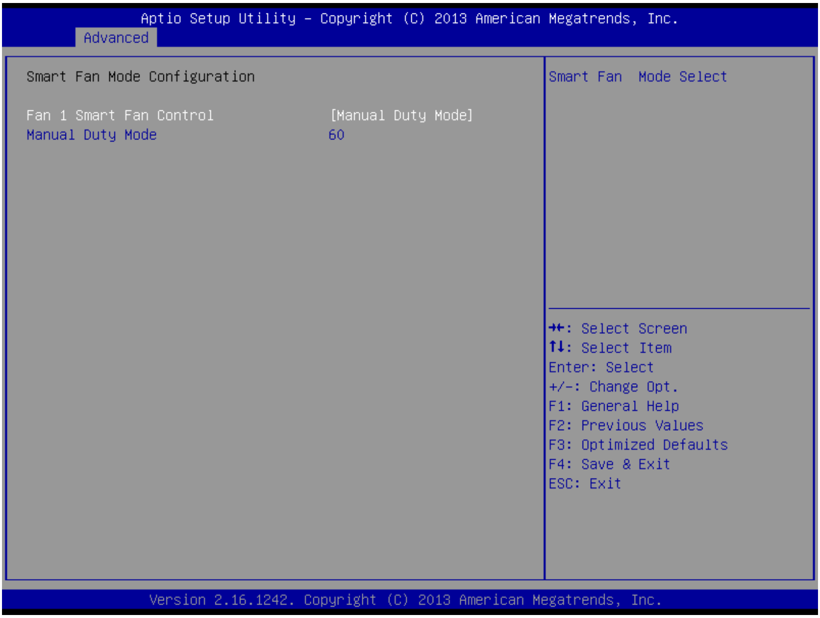
3.4.2.4 Serial Port 4 Configuration



Options Summary		
Serial Port	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Optimal Default, Failsafe Default
	IO=2E8h; 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		

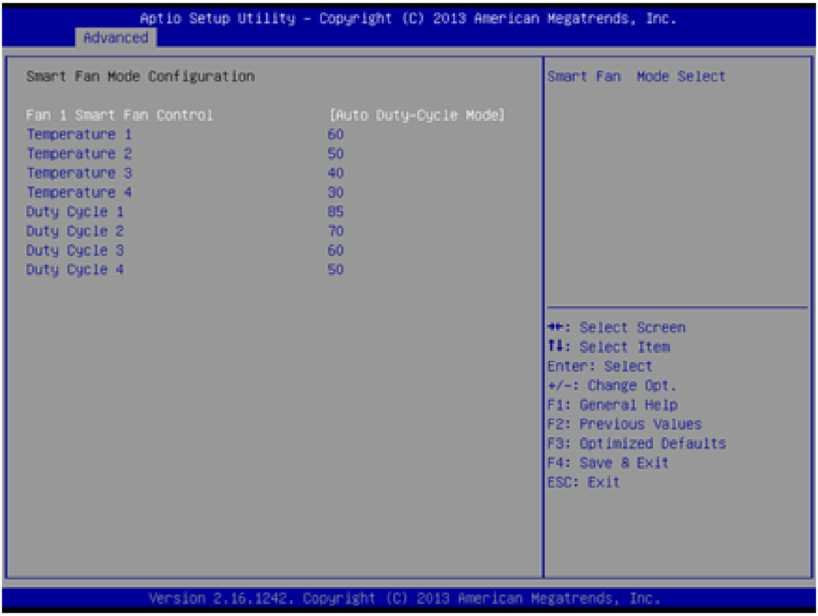
3.4.2.5 Smart Fan Mod Configuration

Manual Duty Mode



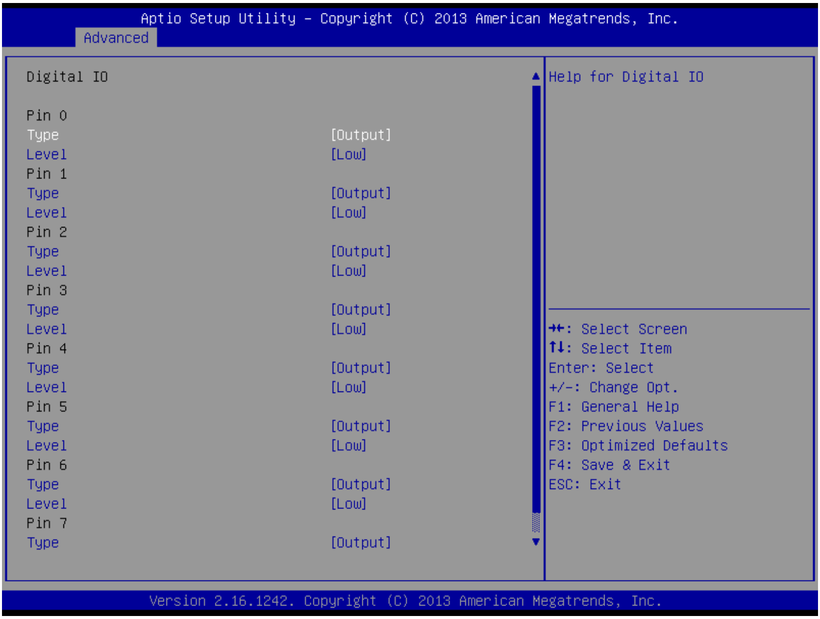
Options Summary		
Fan 1 Smart Fan Control	Manual Duty Mode	Optimal Default, Failsafe Default
	Auto Duty-Cycle Mode	
Smart Fan Mode Select		
Manual Duty Mode	60	Optimal Default, Failsafe Default
Manual mode fan control, user can write expected duty cycle (PWM fan type) 1-100		

Auto Duty-Cycle Mode



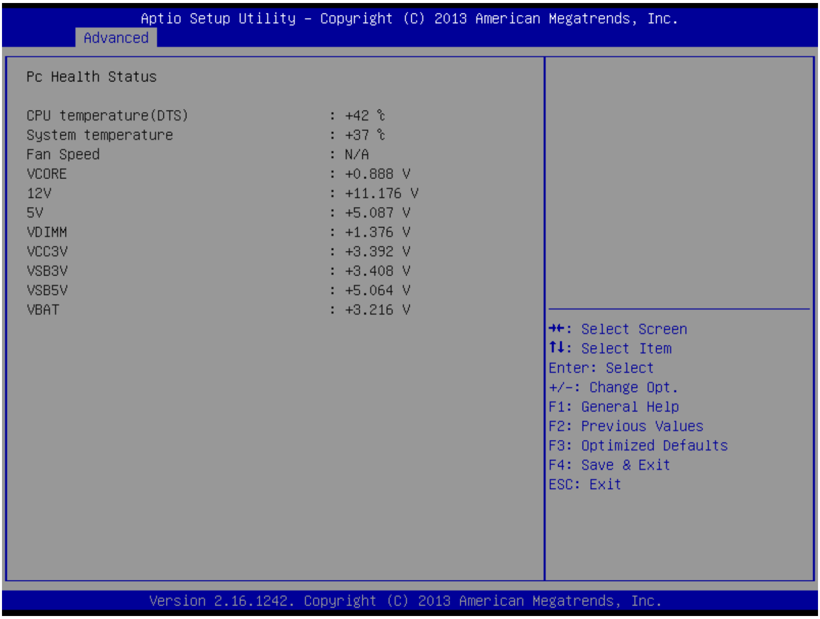
<table>
<tr><th colspan="3">Options Summary</th></tr>
<tr><td>Temperature 1</td><td>60</td><td rowspan="8">The values shown in this table are the Optimal Default, Failsafe Default settings for each field.</td></tr>
<tr><td>Temperature 2</td><td>50</td></tr>
<tr><td>Temperature 3</td><td>40</td></tr>
<tr><td>Temperature 4</td><td>30</td></tr>
<tr><td>Duty Cycle 1</td><td>85</td></tr>
<tr><td>Duty Cycle 2</td><td>70</td></tr>
<tr><td>Duty Cycle 3</td><td>60</td></tr>
<tr><td>Duty Cycle 4</td><td>50</td></tr>
<tr><td colspan="3">Auto fan speed control. Fan speed will follow different temperature by different duty cycle 1-100</td></tr>
</table>

3.4.3 Digital IO

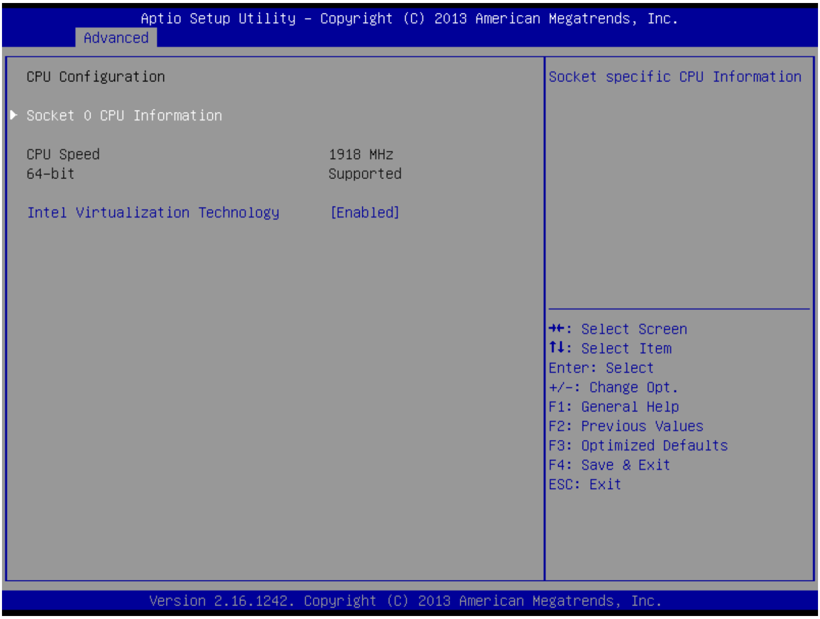


Options Summary		
Type	Output	Optimal Default, Failsafe Default
	Input	
Help for Digital IO		
Level	Low	Optimal Default, Failsafe Default
	High	
Help for Digital IO		

3.4.4 Hardware Monitor

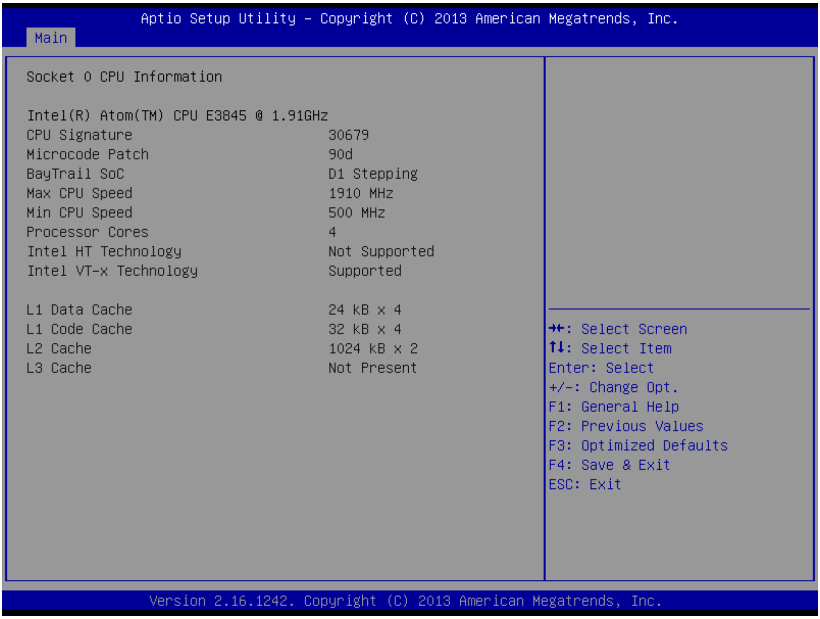


3.4.5 CPU Configuration

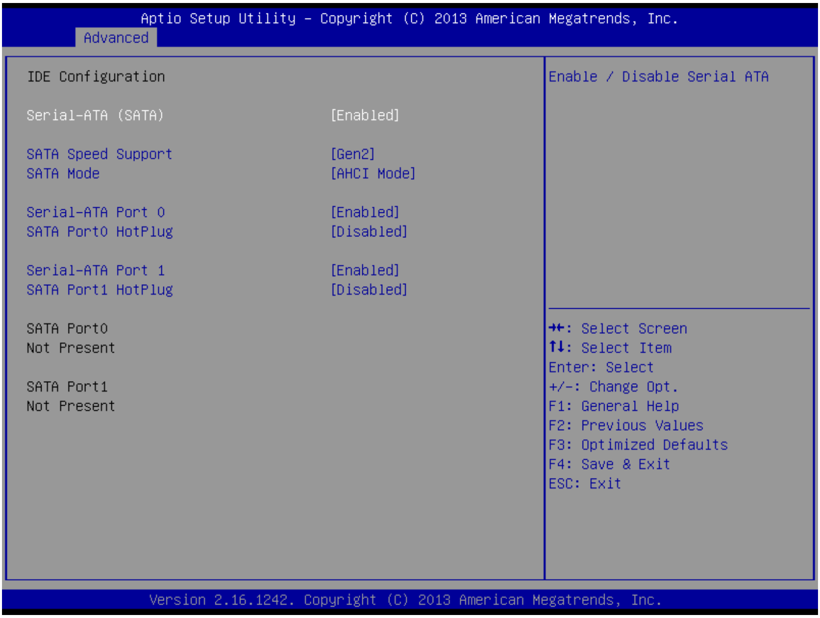


Options Summary		
Intel Virtualization Technology	Disabled	
	Enabled	Optimal Default, Failsafe Default
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology		

3.4.5.1 Socket 0 CPU Information



3.4.6 IDE Configuration

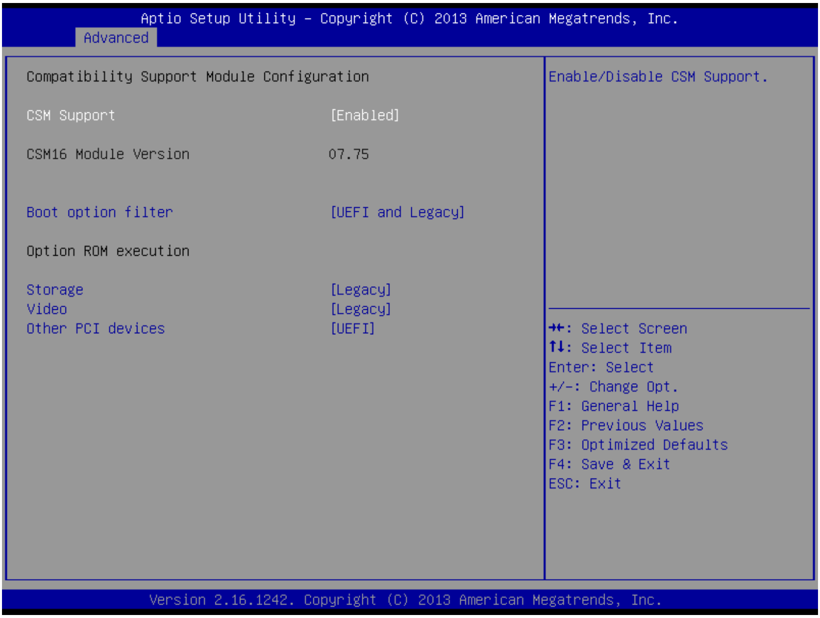


Options Summary		
Serial-ATA (SATA)	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable / Disable Serial ATA		
SATA Speed Support	Gen1	
	Gen2	Optimal Default, Failsafe Default
SATA Speed Support Gen1 or Gen2		
SATA Mode	IDE Mode	
	AHCI Mode	Optimal Default, Failsafe Default
Enable/ Disable SATA 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		

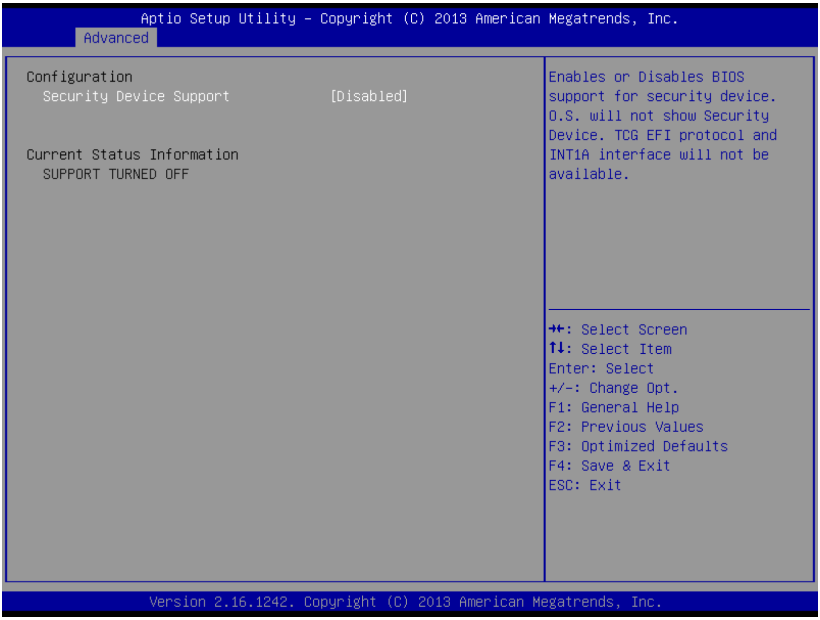
3.4.7 CSM Configuration



Options Summary		
CSM Support	Disabled	
	Enabled	Optimal Default, Failsafe Default
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	
	UEFI	
	Legacy	Optimal Default, Failsafe Default
Controls the execution of UEFI and Legacy Storage OpROM		
Video	Do not launch	
	UEFI	
	Legacy	Optimal Default, Failsafe Default
Controls the execution of UEFI and Legacy Video OpROM		

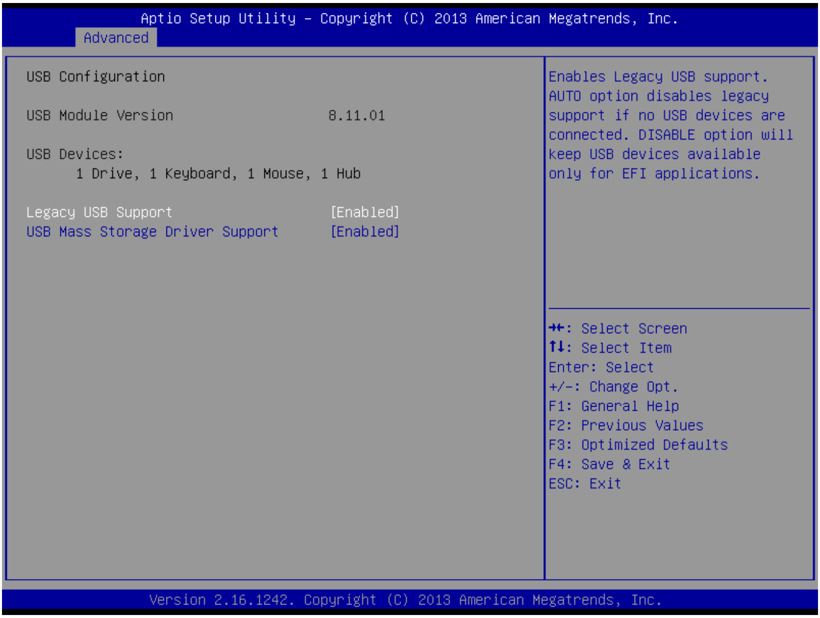
Options Summary		
Other PCI devices	UEFI	Optimal Default, Failsafe Default
	Legacy	
Determines OpROM execution policy for devices other than Network, Storage or Video		

3.4.8 Trusted Computing



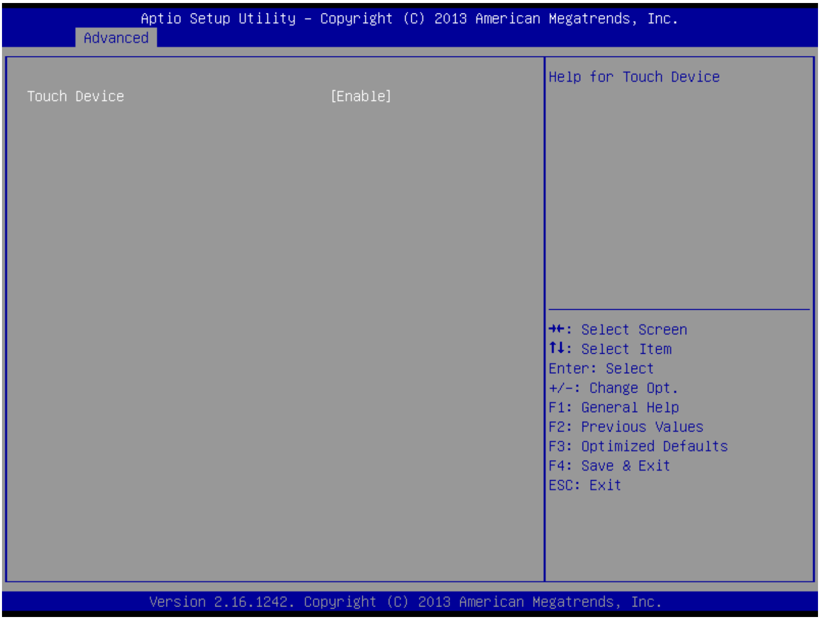
Options Summary		
Security Device Support	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.		

3.4.9 USB Configuration



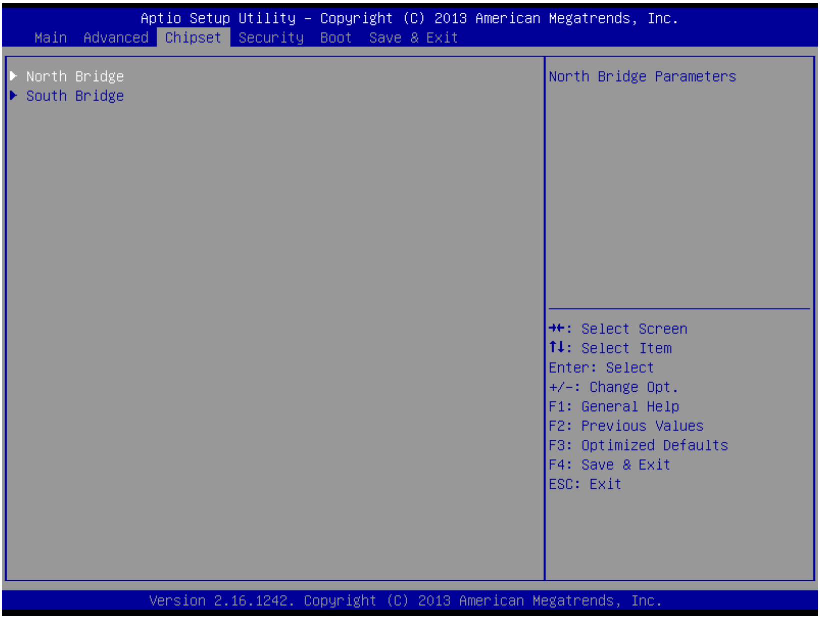
Options Summary		
Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.		
USB Mass Storage Driver Support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

3.4.10 Touch Device

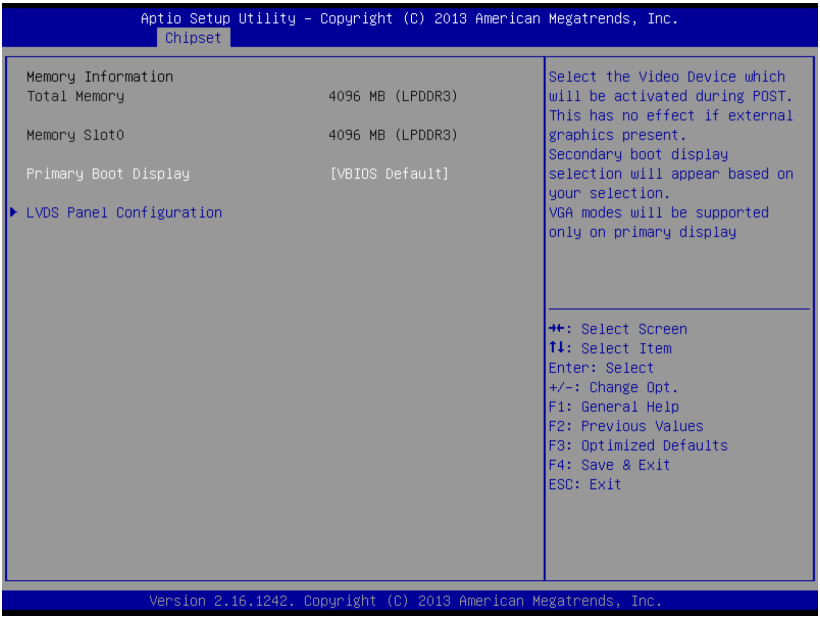


Options Summary		
Touch Device	Enable	Optimal Default, Failsafe Default
	Disable	
Help for Touch Device		

3.5 Setup Submenu: Chipset

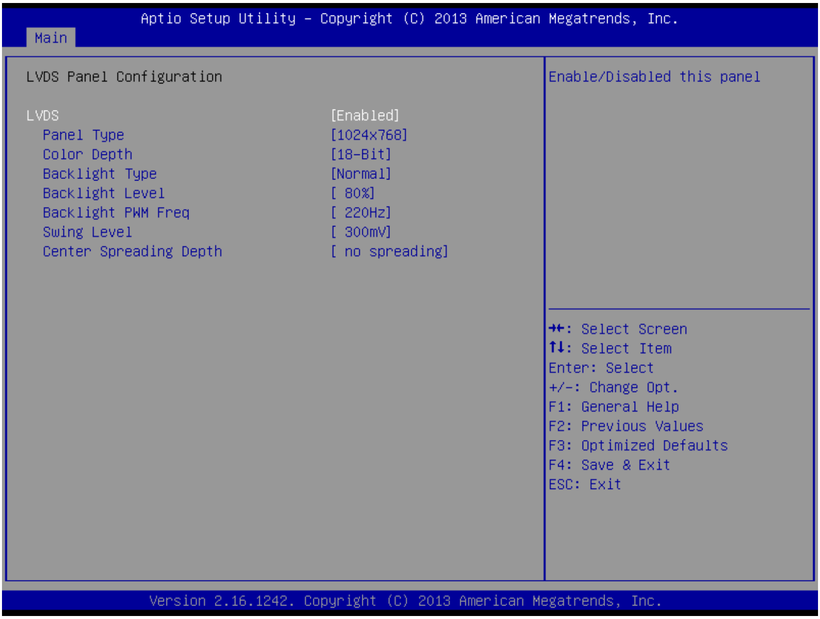


3.5.1 North Bridge



Options Summary		
Primary Boot Display	VBIOS Default	Optimal Default, Failsafe Default
	CRT	
	HDMI	
	LVDS	
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		

3.5.1.1 LVDS Panel Configuration



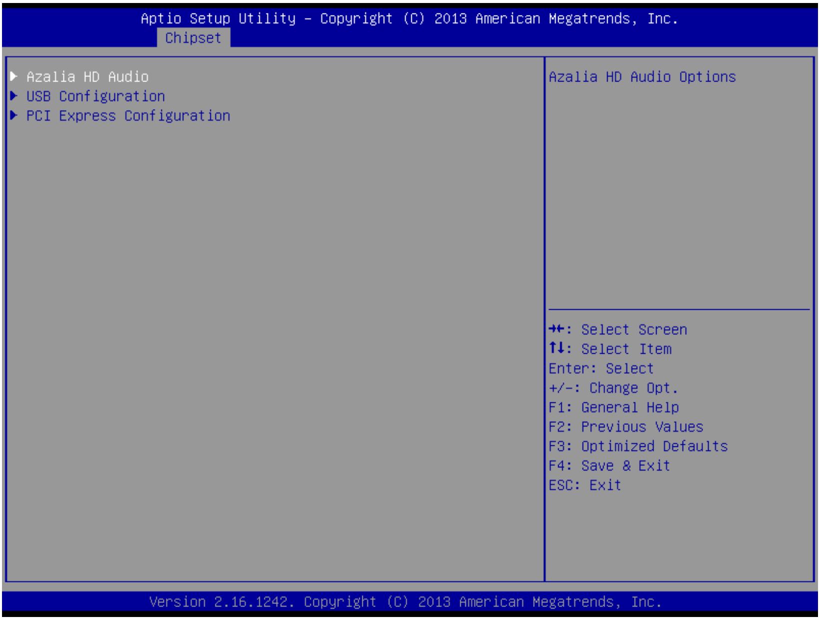
Options Summary		
LVDS	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/ Disabled this panel		
Panel Type	640x480	
	800x480	
	800x600	
	1024x600	
	1024x768	Optimal Default, Failsafe Default
	1280x768	
	1280x800	
	1280x1024	
	1366x768	
	1440x900	
	1600x1200	
	1920x1080	
	1920x1200	
Select Panel Type		

Options Summary		
Color Depth	18-Bit	Optimal Default, Failsafe Default
	24-Bit	
	36-Bit	
	48-Bit	
Select Color Depth		
Backlight Type	Normal	Optimal Default, Failsafe Default
	Inverted	
Select backlight control signal type		
Backlight Level	0%	
	10%	
	20%	
	30%	
	40%	
	50%	
	60%	
	70%	
	80%	Optimal Default, Failsafe Default
	90%	
	100%	
Select backlight control level		
Backlight PWM Freq	100Hz	
	200Hz	
	220Hz	Optimal Default, Failsafe Default
	500Hz	
	1kHz	
	2.2kHz	
	6.5kHz	
Select PWM frequency of backlight control signal		
Swing Level	150mV	
	200mV	
	250mV	
	300mV	Optimal Default, Failsafe Default
	350mV	
	400mV	
	450mV	
Select Swing Level		

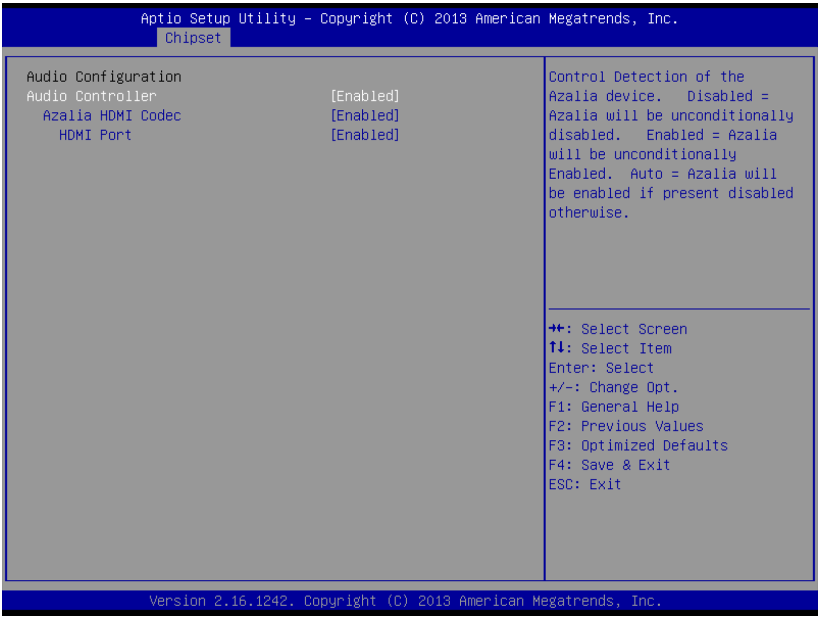
Table Continues on Next Page…

Options Summary		
Center Spreading Depth	no spreading	Optimal Default, Failsafe Default
	0.5%	
	1.0%	
	1.5%	
	2.0%	
	2.5%	
Select Center Spreading Depth		

3.5.2 South Bridge

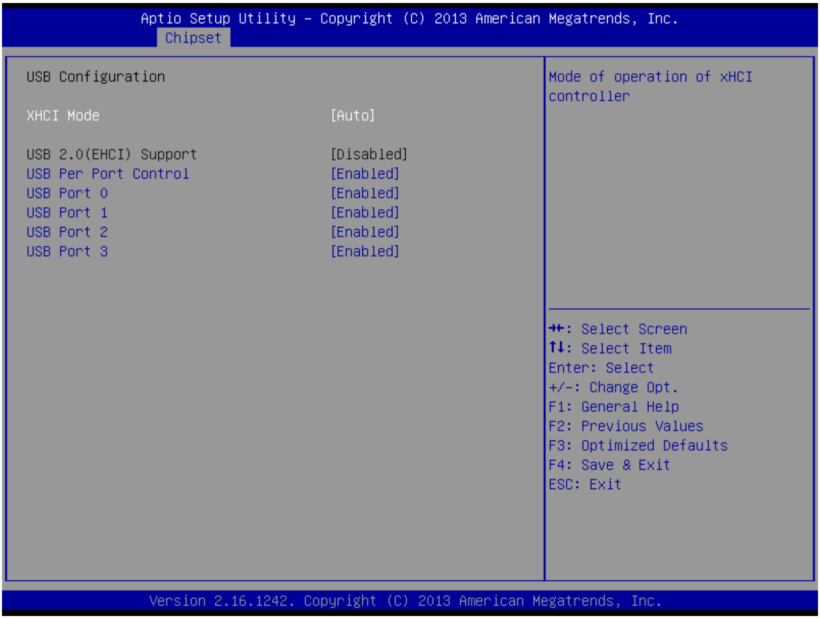


3.5.2.1 Azalia HD Audio



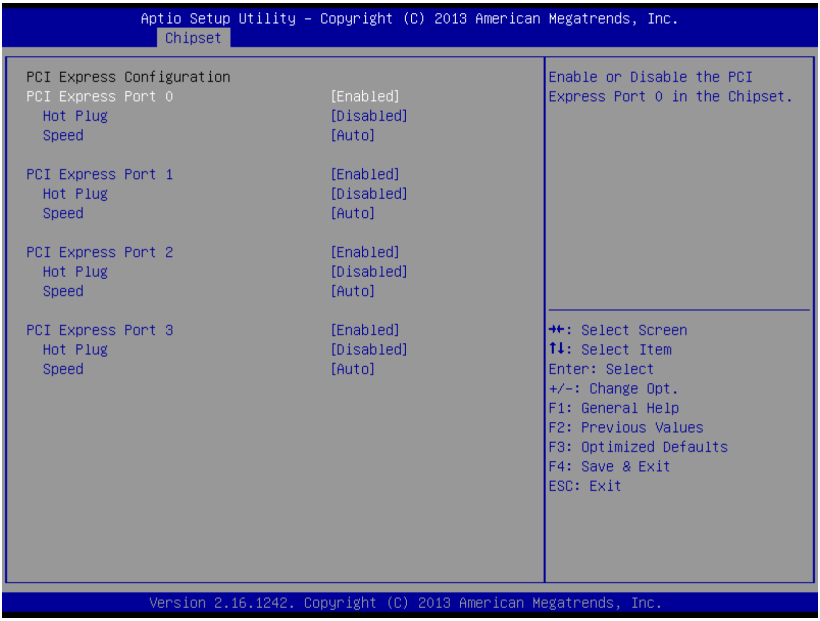
Options Summary		
Audio Controller	Disabled	
	Enabled	Optimal Default, Failsafe Default
Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled. Enable = Azalia will be unconditionally Enabled.		
Azalia HDMI Codec	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable internal HDMI Codec for Azalia		
HDMI Port	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable HDMI Port		

3.5.2.2 USB Configuration



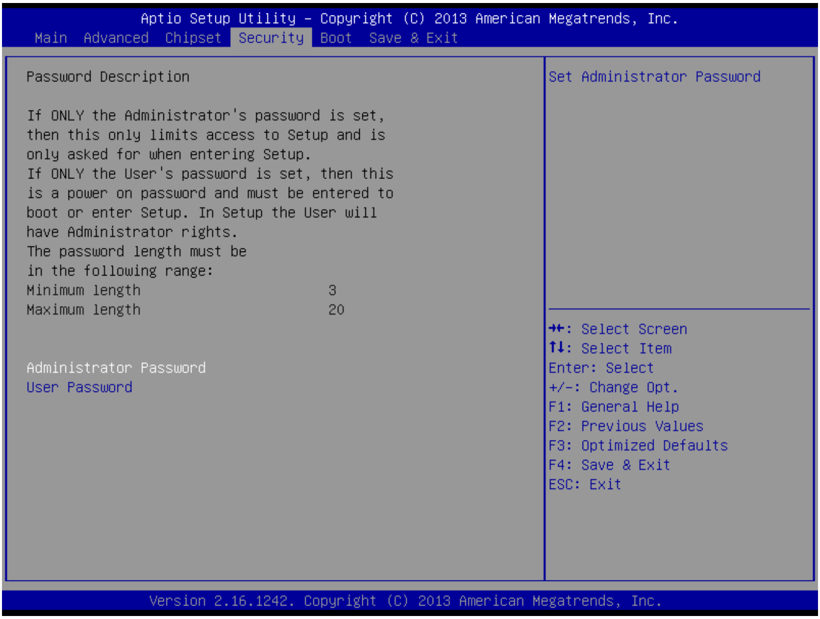
Options Summary		
XHCI Mode	Enabled	
	Disabled	
	Auto	Optimal Default, Failsafe Default
	Smart Auto	
Mode of operation of xHCI controller		
USB Per Port Control	Enabled	Optimal Default, Failsafe Default
	Disabled	
Control each of the USB ports (0~3). Enable: Enable USB per port; Disable: Use USB Port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

3.5.2.3 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.

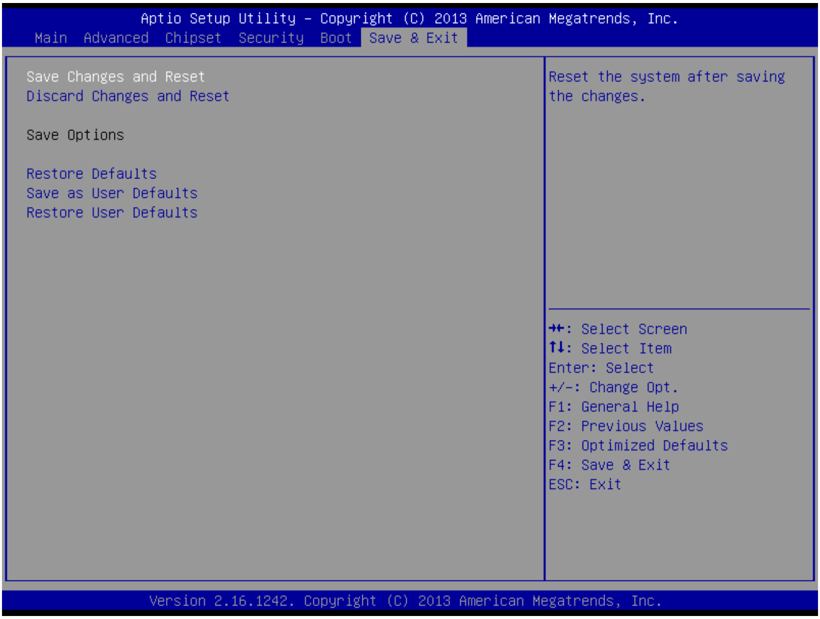
Removing the Password

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 Audio Driver (Windows 8 only)

1. Open the Step4 - Audio folder and select your OS
2. Open the .exe file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 5 – 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 6 – 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 7 – 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 8 – 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

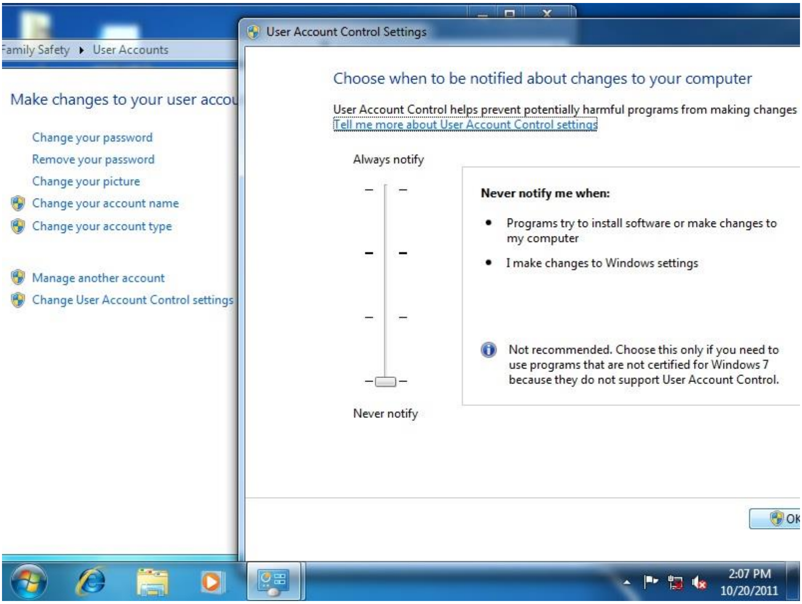
Step 9 – Install USB 3.0 Driver (Windows 7 only)

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

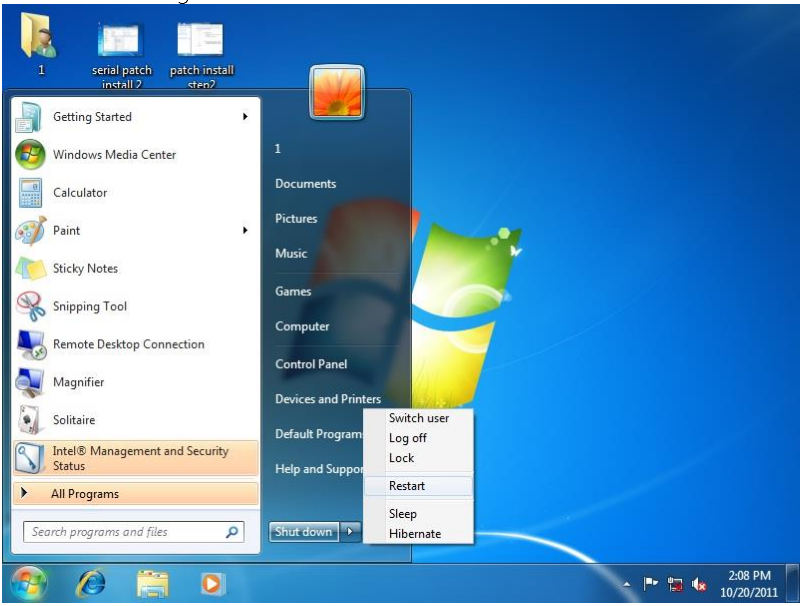
Step 10 – Install Serial Port Driver (Optional)

For Windows 7:

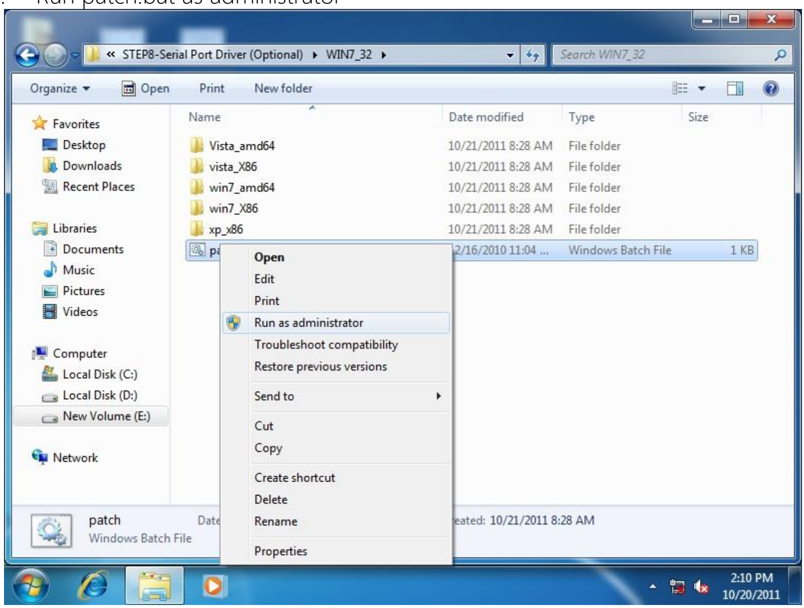
1. Change User Account Control settings to **Never notify**



2. Reboot and log in as administrator

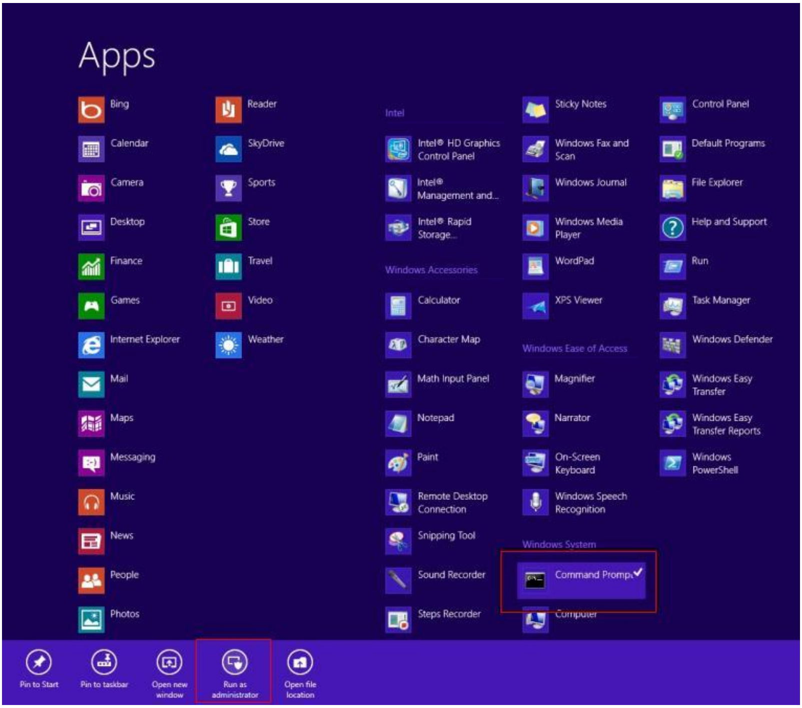


3. Run patch.bat as administrator



For Windows 8/ Windows 10:

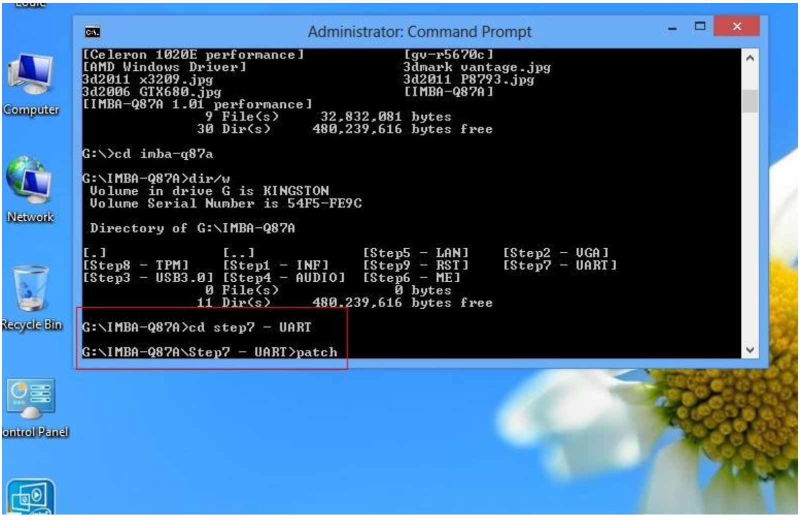
1. Open the Apps Screen, right click on the **Command Prompt** tile and select **Run as Administrator**



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:**

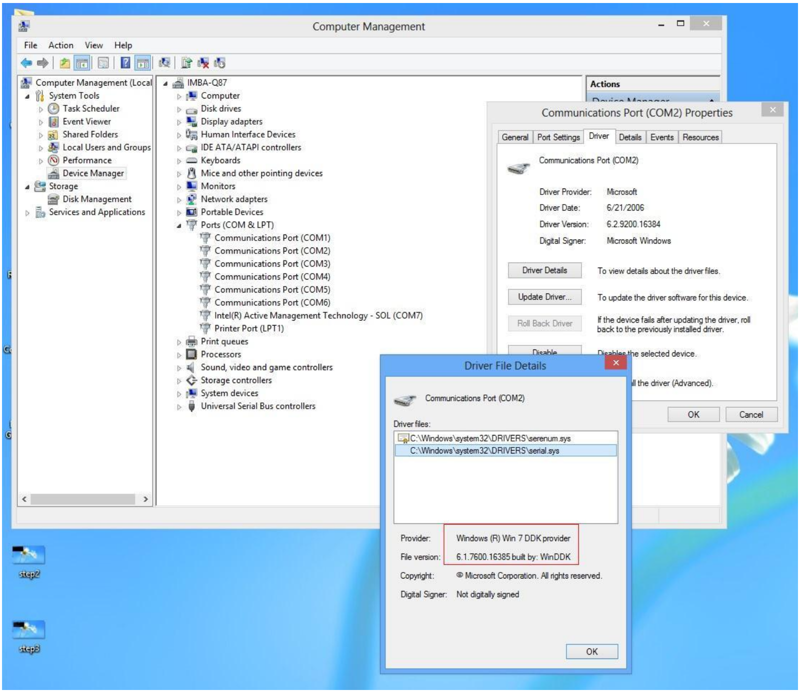
3. You are now at the directory containing the installation file. Next, go to the folder in which the file resides by entering **cd <folder>** eg: if the file is in a folder named abc, enter cd <abc>.

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 *Pulse width is must longer than 16ms.*
Signal Polarity	0x05	2	0	0: low active 1: high active *Must set this bit to 0*
Counting Unit	0x05	3	0	Select time unit. 0: second 1: minute
Output Signal Type	0x05	4	1	0: Level 1: Pulse *Must set this bit to 1*
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 procudure 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 - 0000000000000CF7] 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
- [00000000000002E8 - 00000000000002EF] Communications Port (COM4)
- [00000000000002F8 - 00000000000002FF] Communications Port (COM2)
- [0000000000000378 - 000000000000037F] Printer Port (LPT1)
- [00000000000003B0 - 00000000000003BB] Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
- [00000000000003C0 - 00000000000003DF] 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
  - [00000000000A0000 - 00000000000BFFFF] Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
  - [00000000000A0000 - 00000000000BFFFF] PCI bus
  - [00000000000C0000 - 00000000000DFFFF] PCI bus
  - [00000000000E0000 - 00000000000FFFFF] PCI bus
  - [00000000C0000000 - 00000000CFFFFFFF] Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
  - [00000000C0000000 - 00000000D0816FFF] PCI bus
  - [00000000D0000000 - 00000000D03FFFFF] Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor N2920/J1900
  - [00000000D0400000 - 00000000D04FFFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution Engine Interface -
  - [00000000D0500000 - 00000000D05FFFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution Engine Interface -
  - [00000000D0600000 - 00000000D061FFFF] Intel(R) I211 Gigabit Network Connection
  - [00000000D0600000 - 00000000D06FFFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 2 - 0F4A
  - [00000000D0620000 - 00000000D0623FFF] Intel(R) I211 Gigabit Network Connection
  - [00000000D0700000 - 00000000D071FFFF] Intel(R) I211 Gigabit Network Connection #2
  - [00000000D0700000 - 00000000D07FFFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 1 - 0F48
  - [00000000D0720000 - 00000000D0723FFF] Intel(R) I211 Gigabit Network Connection #2
  - [00000000D0800000 - 00000000D080FFFF] Intel(R) USB 3.0 eXtensible Host Controller
  - [00000000D0810000 - 00000000D0813FFF] High Definition Audio Controller
  - [00000000D0814000 - 00000000D081401F] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port
  - [00000000D0816000 - 00000000D08167FF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
  - [00000000E0000000 - 00000000EFFFFFFF] Motherboard resources
  - [00000000FED00000 - 00000000FED003FF] High precision event timer
  - [00000000FED01000 - 00000000FED01FFF] Motherboard resources
  - [00000000FED03000 - 00000000FED03FFF] Motherboard resources
  - [00000000FED04000 - 00000000FED04FFF] Motherboard resources
  - [00000000FED08000 - 00000000FED08FFF] Motherboard resources
  - [00000000FED0C000 - 00000000FED0FFFF] Motherboard resources
  - [00000000FED1C000 - 00000000FED1CFFF] Motherboard resources
  - [00000000FEE00000 - 00000000FEEFFFFF] Motherboard resources
  - [00000000FEF00000 - 00000000FEFFFFFF] Motherboard resources
  - [00000000FF000000 - 00000000FFFFFFFF] Intel(R) 82802 Firmware Hub Device

B.3 IRQ Mapping Chart

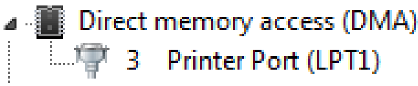
Interrupt request (IRQ)

(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) 0xFFFFFFFD (-3)	Intel(R) USB 3.0 eXtensible Host Controller
(PCI) 0xFFFFFFFE (-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
CN3	LVDS Inverter Connector	JST	PHR-5	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
CN8	LVDS Connector	HIROSE	DF13-30DS-1.25C	N/A	N/A
CN9	Audio Connector	Molex	51021-1000	Audio Cable	1709100254
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

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
CN16	Digital IO Connector	Molex	51110-1050	N/A	N/A
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
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
LVDS Port Inverter / Backlight Connector	CN3	+5V/+12V	+5V/1.5A or +12V/1.5A
+5V Output for SATA HDD	CN4	+5V	+5V/1A
LVDS Port	CN8	+3.3V/+5V	+3.3V/2A or +5V/2A
Audio I/O Port	CN9	+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
Digital IO Port	CN16	+5V	+5V/1A
USB 2.0 Ports 3	CN17	+5VSB	+5V/0.5A (per channel)
USB 2.0 Ports 2	CN18	+5VSB	
PS/2 Keyboard/Mouse Combo Port	CN22	+5VSB	+5V/0.5A
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