XTX-BSW

XTX CPU Module

User's Manual 1st Ed

Last Updated: June 17, 2016

Copyright Notice

Acknowledgement

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Packing List

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

Item	Quantity
● XTX-BSW	1
● M2.5 screw	4
● Product DVD with User's Manual (in pdf) and drivers	1

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

About this Document

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

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

Safety Precautions

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

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

17. If any of the following situations arises, please the contact our service personnel:
    i. Damaged power cord or plug
    ii. Liquid intrusion to the device
    iii. Exposure to moisture
    iv. Device is not working as expected or in a manner as described in this manual
    v. The device is dropped or damaged
    vi. Any obvious signs of damage displayed on the device
18. DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.

FCC Statement

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

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte.
Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

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

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

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

备注：此产品所标示之环保使用期限，系指在一般正常使用状况下。

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products

AAEON Main Board/ Daughter Board/ Backplane

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

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

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

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

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Chapter 1

Product Specifications

1.1 Specifications

System

Form Factor	XTX
CPU	Onboard Intel® Pentium®/ Celeron® N3000 processor SoC, D1 stepping
CPU Frequency	Up to 1.86 GHz
Chipset	Onboard Intel® Pentium®/ Celeron® N3000 processor SoC, D1 stepping
Memory Type	DDR3L 1333-1600 MHz SODIMM x 1
Max Memory Capacity	8 GB
BIOS	AMI BIOS
Wake On LAN	Yes
Watchdog Timer	255 levels
Power Requirement	+5 V
Power Supply Type	AT/ATX
Power Consumption (Typical)	At full loading: 0.43A@12V, 3.34A@5V
Dimensions (L x W)	114 x 95 mm (4.5 x 3.74")
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-40 ~ 80°C (-40 ~ 176°F)
Operation Humidity	0 ~ 90% relative humidity, non-condensing
MTBF	80,000

Certification	CE/FCC

Display

VGA/LCD Controller	Processor integrated
Video Output	CRT
	LVDS LCD
	DP (onboard connector)

I/O

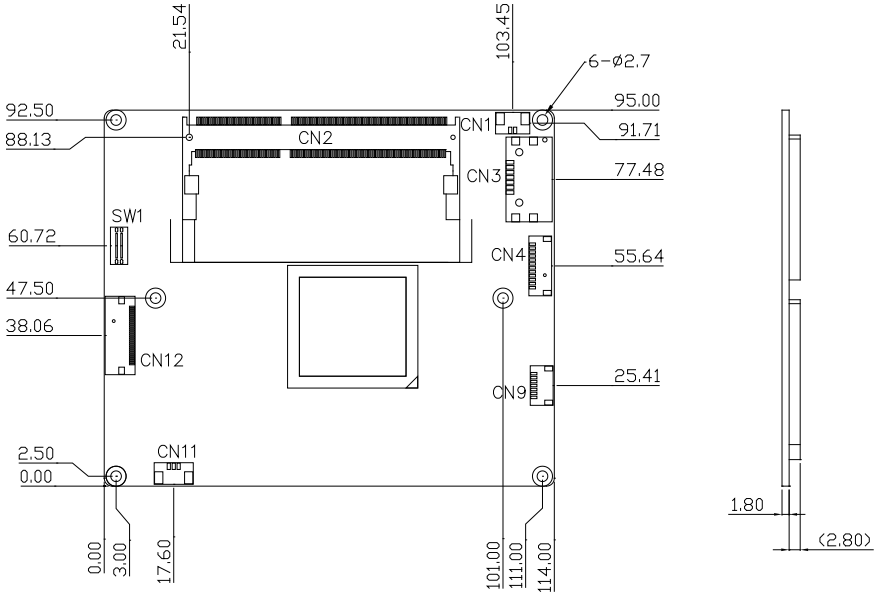
Ethernet	Realtek 8105E, 10/100Base-TX
Audio	Realtek ALC886
USB	USB 2.0 x 5
Serial Port	2
Parallel Port	1
HDD Interface	SATA x 2 (one shared with onboard SATA port)
	PATA x 1 (up to 2)
Onboard SSD	-
Expansion Slot	PCIe [x1] x 3
	PCI
DI/O	-
TPM	-

Chapter 2

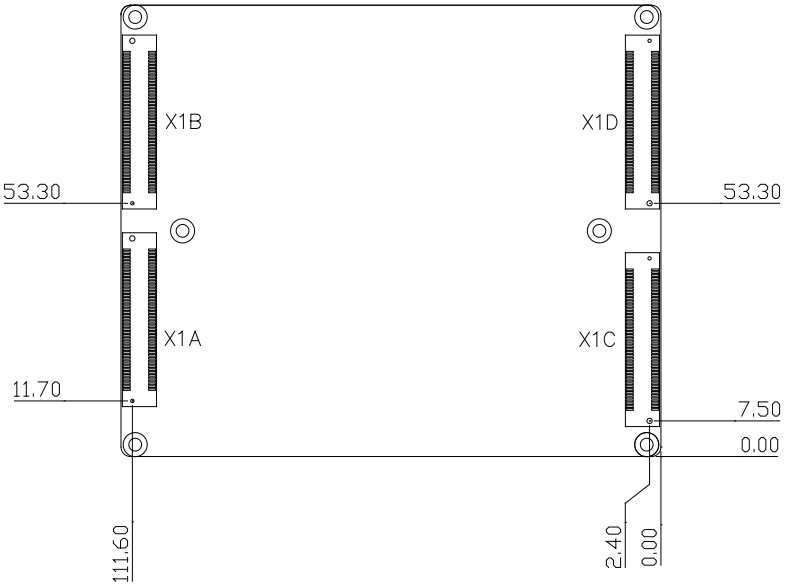
Hardware Information

2.1 Dimensions, Jumpers and Connectors

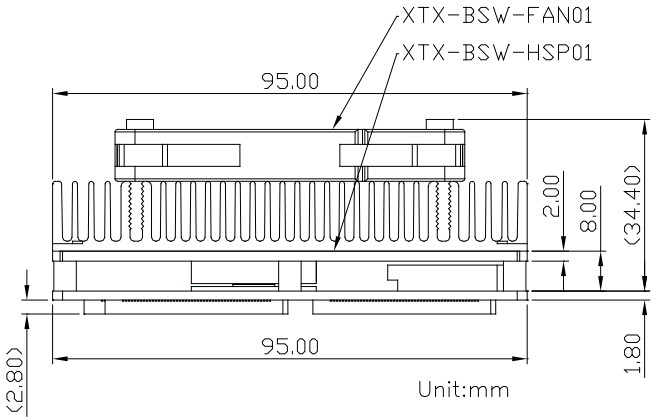
Component Side



Solder Side



With fan and heat spreader



2.2 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
CN1	Battery
CN2	DDR3L SO-DIMM Slot
CN3	SATA Port (Optional)
CN4	LPC Port
CN9	BIOS Programming Connector
CN11	Fan
CN12	FPC/FFC DP Port
X1A	X1 Connector
X1B	X2 Connector
X1C	X3 Connector
X1D	X4 Connector
SW1	Auto Power Button & Clear CMOS

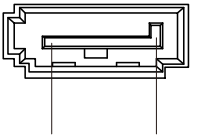
2.2.1 Battery (CN1)

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

2.2.2 DDR3L SO-DIMM Slot (CN2)

Standard specification

2.2.3 SATA Port (CN3, optional)

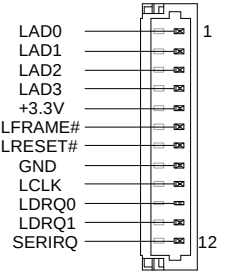


Pin	Pin Name	Signal Type	Signal level
1	GND	GND	
2	SATA_TX+	DIFF	
3	SATA_TX-	DIFF	
4	GND	GND	
5	SATA_RX-	DIFF	
6	SATA_RX+	DIFF	
7	GND	GND	

* CN3 SATA function can be enabled by BIOS setting.

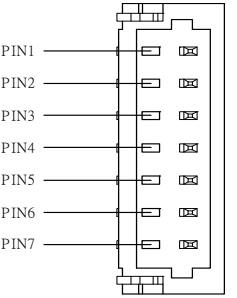
* If CN3 function is enabled, there will be no SATA signals from X1B SATA port2.

2.2.4 LPC Port (CN4)



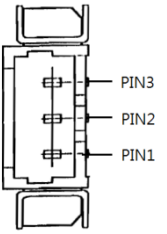
Pin	Pin Name	Signal Type	Signal level
1	LAD0	I/O	+3.3V
2	LAD1	I/O	+3.3V
3	LAD2	I/O	+3.3V
4	LAD3	I/O	+3.3V
5	+3.3V	PWR	+3.3V
6	LFRAME#	IN	
7	LRESET#	OUT	+3.3V
8	GND	GND	
9	LCLK	OUT	
10	LDRQ0	IN	
11	LDRQ1	IN	
12	SERIRQ	I/O	+3.3V

2.2.5 BIOS Programming Connector (CN9)



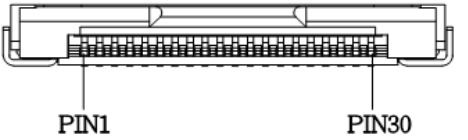
Pin	Pin Name	Signal Type	Signal level
1	SPI_MISO	IN	
2	GND	GND	
3	SPI_CLK	OUT	
4	+3.3VSB	PWR	+3.3V
5	SPI_MOSI	OUT	
6	SPI_CS	OUT	
7	NC		

2.2.6 Fan (CN11)



Pin	Pin Name	Signal Type	Signal level
1	GND	GND	
2	FAN_POWER	PWR	+5 V
3	FAN_TAC	IN	

2.2.7 FPC/FFC DP Port (CN12)



Pin	Pin Name	Signal Type	Signal level
1	+3.3V	PWR	+3.3V
2	+3.3V	PWR	+3.3V
3	+3.3V	PWR	+3.3V
4	+3.3V	PWR	+3.3V
5	GND	GND	
6	GND	GND	
7	DDI_TXN_2	I/O	
8	DDI_TXP_2	I/O	
9	GND	GND	
10	DDI_TXN_1	I/O	
11	DDI_TXP_1	I/O	
12	GND	GND	
13	DDI_TXN_0	I/O	
14	DDI_TXP_0	I/O	
15	GND	GND	
16	DDI_TXN_3	I/O	
17	DDI_TXP_3	I/O	
18	GND	GND	
19	DDI1_AUXN	I/O	
20	DDI1_AUXP	I/O	
21	GND	GND	

22	NC		
23	NC		
24	HPD		
25	GND	GND	
26	GND	GND	
27	GND	GND	
28	PLT_RST#	OUT	+3.3V
29	SMB_CLK	OUT	+3.3V
30	SMB_DATA	I/O	+3.3V

2.2.8 X1 Connector (X1A)

Pin	Pin Name	Pin	Pin Name
1	GND	2	GND
3	PCICLK3	4	PCICLK4
5	GND	6	GND
7	PCICKL1	8	PCICLK2
9	PCI_REQ#3	10	PCI_GNT#3
11	PCI_GNT#2	12	N/C
13	PCI_REQ#2	14	PCI_GNT#1
15	PCI_REQ#1	16	N/C
17	PCI_GNT#0	18	N/C
19	+5V_EXT	20	+5V_EXT
21	SERIRQ	22	PCI_REQ#0
23	PCI_AD0	24	N/C
25	PCI_AD1	26	PCI_AD2
27	PCI_AD4	28	PCI_AD3

Pin	Pin Name	Pin	Pin Name
29	PCI_AD6	30	PCI_AD5
31	PCI_C/BE#0	32	PCI_AD7
33	PCI_AD8	34	PCI_AD9
35	GND	36	GND
37	PCI_AD10	38	LIN_L
39	PCI_AD11	40	MIC_IN
41	PCI_AD12	42	LIN_R
43	PCI_AD13	44	ASVCC
45	PCI_AD14	46	LOUT_L
47	PCI_AD15	48	ASGND
49	PCI_C/BE#1	50	LOUT_R
51	+5V_EXT	52	+5V_EXT
53	PCI_PAR	54	PCI_SERR#
55	PCI_PERR#	56	N/C
57	PCI_PME#	58	USBP2N
59	PCI_LOCK#	60	PCI_DEVSEL#
61	PCI_TRDY#	62	USBP3N
63	PCI_IRDY#	64	PCI_STOP#
65	PCI_FRAME#	66	USBP2P
67	GND	68	GND
69	PCI_AD16	70	PCI_C/BE#2
71	PCI_AD17	72	USBP3P
73	PCI_AD19	74	PCI_AD18
75	PCI_AD20	76	USBP0N
77	PCI_AD22	78	PCI_AD21
79	PCI_AD23	80	USBP1N

Pin	Pin Name	Pin	Pin Name
81	PCI_AD24	82	PCI_C/BE#3
83	+5V_EXT	84	+5V_EXT
85	PCI_AD25	86	PCI_AD26
87	PCI_AD28	88	USBP0P
89	PCI_AD27	90	PCI_AD29
91	PCI_AD30	92	USBP1P
93	PCIRST#	94	PCI_AD31
95	INT_PIRQ#C	96	INT_PIRQ#D
97	INT_PIRQ#A	98	INT_PIRQ#B
99	GND	100	GND

2.2.9 X2 Connector (X1B)

Pin	Pin Name	Pin	Pin Name
1	GND	2	GND
3	PCIE_CLK	4	SATA0_RXP
5	PCIE_CLK#	6	SATA0_RXN
7	GND	8	GND
9	NC	10	SATA0_TXN
11	NC	12	SATA0_TXP
13	GND	14	+5VSB_EXT
15	NC	16	SATA1_RXP
17	NC	18	SATA1_RXN
19	+5V_EXT	20	+5VSB_EXT
21	EXC1_CPPE#	22	SATA1_TXN
23	EXC1_RST#	24	SATA1_TXP

Pin	Pin Name	Pin	Pin Name
25	NC	26	GND
27	NC	28	NC
29	GND	30	NC
31	PCIE_TXP2	32	SUS_STAT#
33	PCIE_TXN2	34	CLKRUN#
35	GND	36	GND
37	PCIE_RXP2	38	NC
39	PCIE_RXN2	40	NC
41	EXC0_CPPE#	42	GND
43	EXC0_RST#	44	NC
45	USBP4P	46	NC
47	USBP4N	48	NC
49	SLP_S3#	50	SATA_LED#
51	+5V_EXT	52	+5V_EXT
53	PCIE_RXN1	54	NC
55	PCIE_RXP1	56	NC
57	GND	58	IL_SATA#
59	PCIE_TXN1	60	NC
61	PCIE_TXP1	62	NC
63	WAKE#	64	NC
65	SLP_S5#	66	NC
67	GND	68	GND
69	PCIE_RXN0	70	NC
71	PCIE_RXP0	72	NC
73	GND	74	+5V_EXT
75	PCIE_TXN0	76	NC

Pin	Pin Name	Pin	Pin Name
77	PCIE_TXP0	78	NC
79	NC	80	+5V_EXT
81	HDA_RST#	82	HDA_SDOUT
83	+5V_EXT	84	+5V_EXT
85	HDA_SYNC	86	HDA_SDIN0
87	HDA_SDIN1	88	NC
89	HDA_BIT_CLK	90	FAN_TAC
91	LPC_AD0	92	FAN_CTL
93	LPC_AD1	94	LPC_FRAME#
95	LPC_AD2	96	NC
97	LPC_AD3	98	NC
99	GND	100	GND

2.2.10 X3 Connector (X1C)

Pin	Pin Name	Pin	Pin Name
1	GND	2	GND
3	CRT_RED	4	CRT_BLUE
5	HSYNC	6	CRT_GREEN
7	VSYNC	8	CRT_DDC_CLK
9	NC	10	CRT_DDC_DATA
11	LVDS_B_CLKN	12	LVDS_B_DATA#3
13	LVDS_B_CLKP	14	LVDS_B_DATA3
15	GND	16	GND
17	LVDS_B_DATA1	18	LVDS_B_DATA2
19	LVDS_B_DATA#1	20	LVDS_B_DATA#2

Pin	Pin Name	Pin	Pin Name
21	GND	22	GND
23	LVDS_A_DATA#3	24	LVDS_B_DATA0
25	LVDS_A_DATA3	26	LVDS_B_DATA#0
27	GND	28	GND
29	LVDS_A_DATA#2	30	LVDS_A_CLKP
31	LVDS_A_DATA2	32	LVDS_A_CLKN
33	GND	34	GND
35	LVDS_A_DATA 0	36	LVDS_A_DATA1
37	LVDS_A_DATA #0	38	LVDS_A_DATA#1
39	+5V_EXT	40	+5V_EXT
41	LVDS_DDC_DATA	42	NC
43	LVDS_DDC_CLK	44	BLON
45	LVDS_BKLCTL	46	LVDS_VDDEN
47	NC	48	NC
49	NC	50	NC
51	NC	52	NC
53	+5V_EXT	54	GND
55	STB#	56	AFD#
57	NC	58	PD7
59	NC	60	ERR#
61	NC	62	PD6
63	RXDB	64	INIT#
65	GND	66	GND
67	RTSB#	68	PD5
69	DTRB#	70	SLIN#
71	DCDB#	72	PD4

Pin	Pin Name	Pin	Pin Name
73	DSRB#	74	PD3
75	CTSB#	76	PD2
77	TXDB	78	PD1
79	RIB#	80	PD0
81	+5V_EXT	82	+5V_EXT
83	RXDA	84	ACK#
85	RTSA#	86	BUSY
87	DTRA#	88	PE
89	DCDA#	90	SLCT
91	DSRA#	92	MSCLK
93	CTSA#	94	MSDAT
95	TXDA	96	KBCLK
97	RIA#	98	KBDAT
99	GND	100	GND

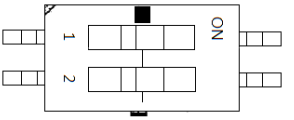
2.2.11 X4 Connector (X1D)

Pin	Pin Name	Pin	Pin Name
1	GND	2	GND
3	+5VSB_EXT	4	HWRST#
5	PSON#	6	SPKR
7	PWRBTN#	8	RTCBAT
9	NC	10	LINK_LED#
11	NC	12	ACT_LED#
13	NC	14	10_100_LED#
15	NC	16	I2CLK

Pin	Pin Name	Pin	Pin Name
17	+5V_EXT	18	+5V_EXT
19	OC#	20	N/C
21	NC	22	I2DAT
23	SMBCLK	24	SMBDATA
25	SIDE_CS3#/NC	26	SMBALERT#
27	SIDE_CS1#/NC	28	DASP_S
29	SIDE_A2/NC	30	PIDE_CS3#
31	SIDE_A0/NC	32	PIDE_CS1#
33	GND	34	GND
35	PDIAG_S	36	PIDE_A2
37	SIDE_A1/NC	38	PIDE_A0
39	SIDE_INTRQ/NC	40	PIDE_A1
41	BATLOW#/NC	42	N/C
43	SIDE_ACK#/NC	44	PIDE_INTRQ
45	SIDE_RDY/NC	46	PIDE_ACK#
47	SIDE_IOR#/NC	48	PIDE_RDY
49	+5V_EXT	50	+5V_EXT
51	SIDE_IOW#/NC	52	PIDE_IOR#
53	SIDE_DRQ/NC	54	PIDE_IOW#
55	SIDE_D15/NC	56	PIDE_DRQ
57	SIDE_D0/NC	58	PIDE_D15
59	SIDE_D14/NC	60	PIDE_D0
61	SIDE_D1/NC	62	IDE_D14
63	SIDE_D13/NC	64	IDE_D1
65	GND	66	GND
67	SIDE_D2/NC	68	IDE_D13

Pin	Pin Name	Pin	Pin Name
69	SIDE_D12/NC	70	IDE_D2
71	SIDE_D3/NC	72	IDE_D12
73	SIDE_D11/NC	74	IDE_D3
75	SIDE_D4/NC	76	IDE_D11
77	SIDE_D10/NC	78	IDE_D4
79	SIDE_D5/NC	80	IDE_D10
81	+5V_EXT	82	+5V_EXT
83	SIDE_D9/NC	84	IDE_D5
85	SIDE_D6/NC	86	IDE_D9
87	SIDE_D8/NC	88	IDE_D6
89	NM_RI#	90	CBLID_P#
91	RDN	92	IDE_D8
93	RDP	94	SIDE_D7/NC
95	TDN	96	IDE_D7
97	TDP	98	IDE_RST#
99	GND	100	GND

2.2.12 Auto Power Button Selection & Clear CMOS (SW1)



Label	Function
1(OFF)	Normal (Default)
1(ON)	Clear CMOS
2(OFF)	Auto Power Button Disable (Default)
2(ON)	Auto Power Button Enable

Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

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

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

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

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

The system's CMOS memory uses a backup battery for data retention, which is to be replaced once emptied.

3.2 AMI BIOS Setup

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

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

The function for each interface can be found below.

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

Advanced – Enable/ Disable boot option for legacy network devices

Chipset – For hosting bridge parameters

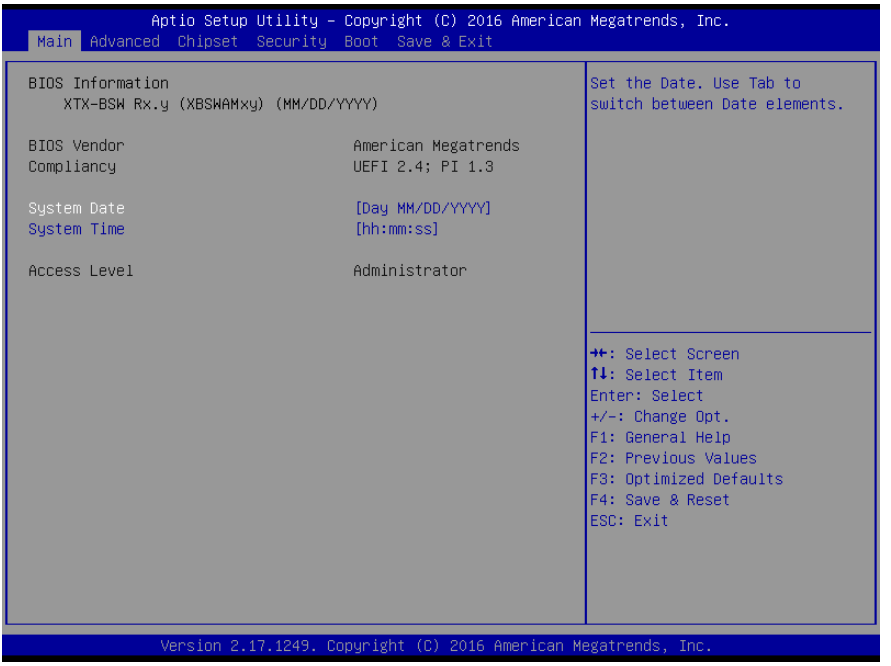
Boot – Enable/ Disable quiet Boot Option

Security – The setup administrator password can be set here

Save & Exit –Save your changes and exit the program

3.3 Setup submenu: Main

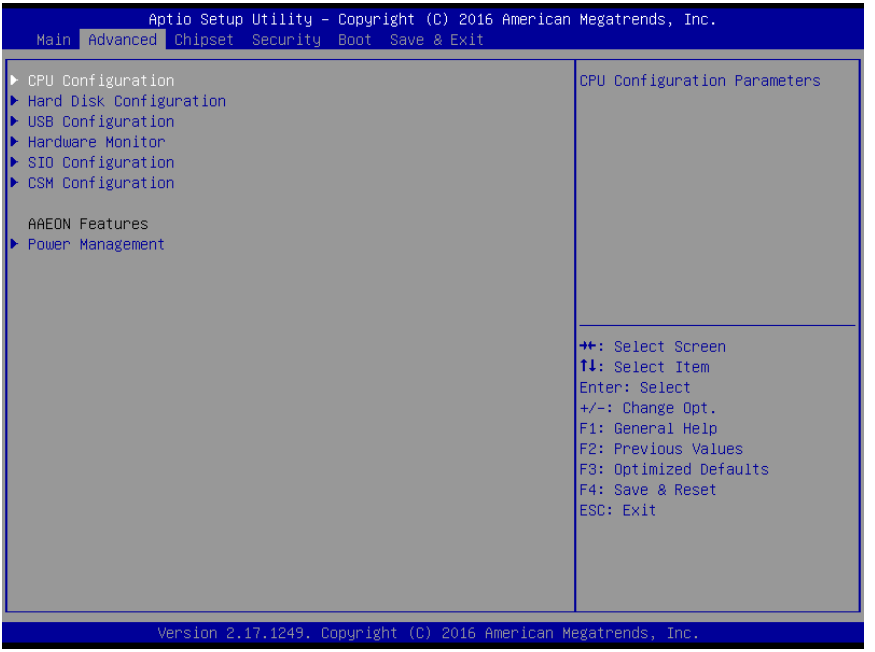
Press **Delete** to enter Setup



Options summary: (**default setting**)

System Date	Day MM:DD:YYYY	
Change the month, year and century. The 'Day' is changed automatically.		
System Time	HH : MM : SS	
Change the clock of the system.		

3.4 Setup submenu: Advanced

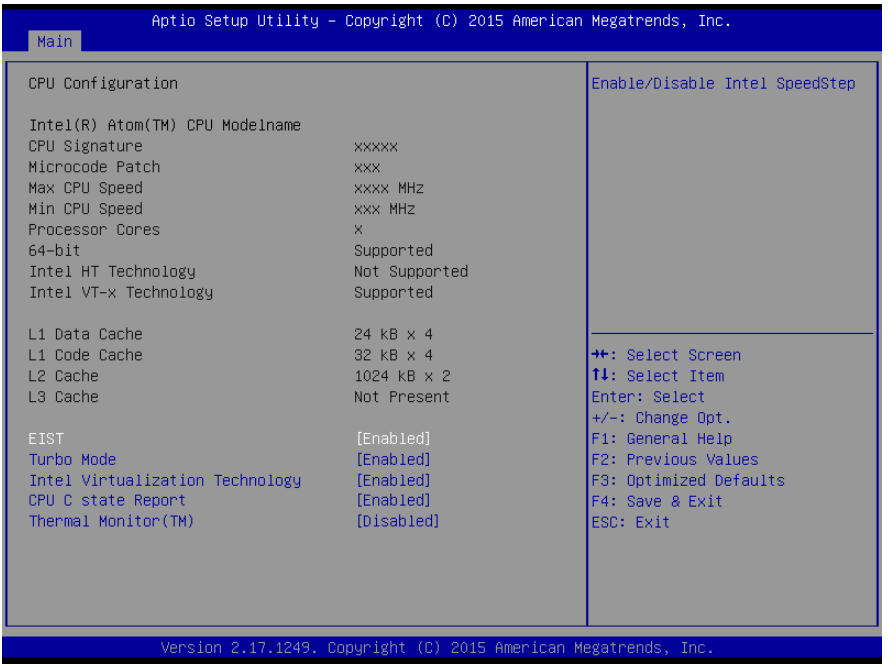


Options summary: (*default setting*)

CPU Configuration		
CPU Configuration Parameters		
Hard Disk Configuration		
Hard Disk Options Settings		
USB Configuration		
USB Configuration Parameters		
Hardware Monitor		
Monitor hardware status		
SIO Configuration		
Super IO Configuration Parameters		

CSM Configuration		
CSM Enable/Disable, Option ROM execution setting.		
Power Management		
System ACPI/Power Mode/Wake Event Configuration		

3.4.1 Advanced: CPU Configuration

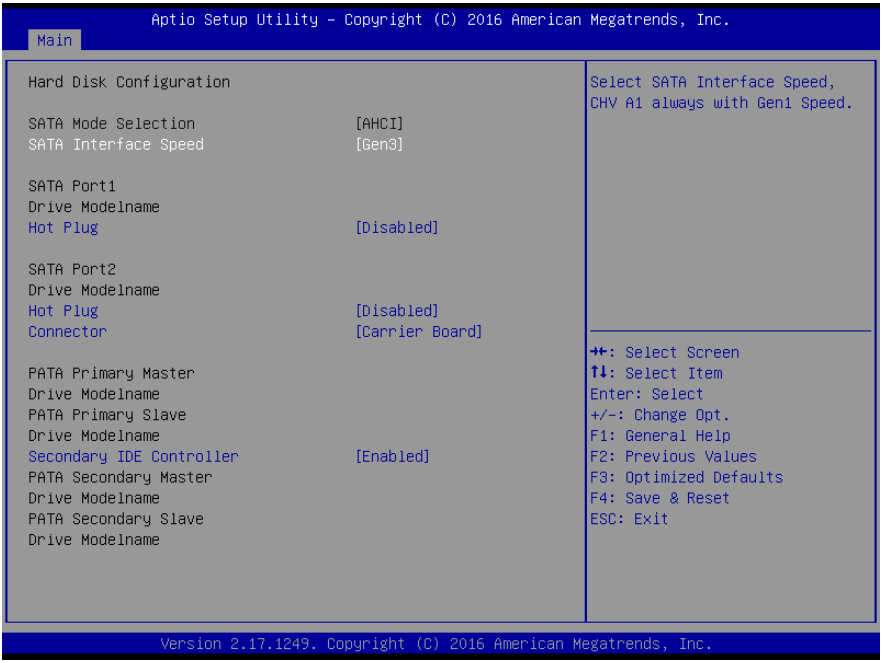


Options summary: (**default setting**)

EIST	Enabled	
	Disabled	
Enable/Disable Intel SpeedStep feature.		
Turbo Mode	**Enabled**	
	Disabled	

En/Disable Turbo mode. This item is available when EIST enabled.		
Intel Virtualization Technology	**Enabled**	
	Disabled	
When enabled, a VMM can utilize the additional hardware capabilities provide by Vanderpool Technology		
CPU C State Report	Enabled	
	Disabled	
Enable/Disable CPU C state report to OS		
Thermal Monitor (TM)	**Enabled**	
	Disabled	
Enable/Disable CPU Thermal Monitor		

3.4.2 Advanced: Hard Disk Configuration

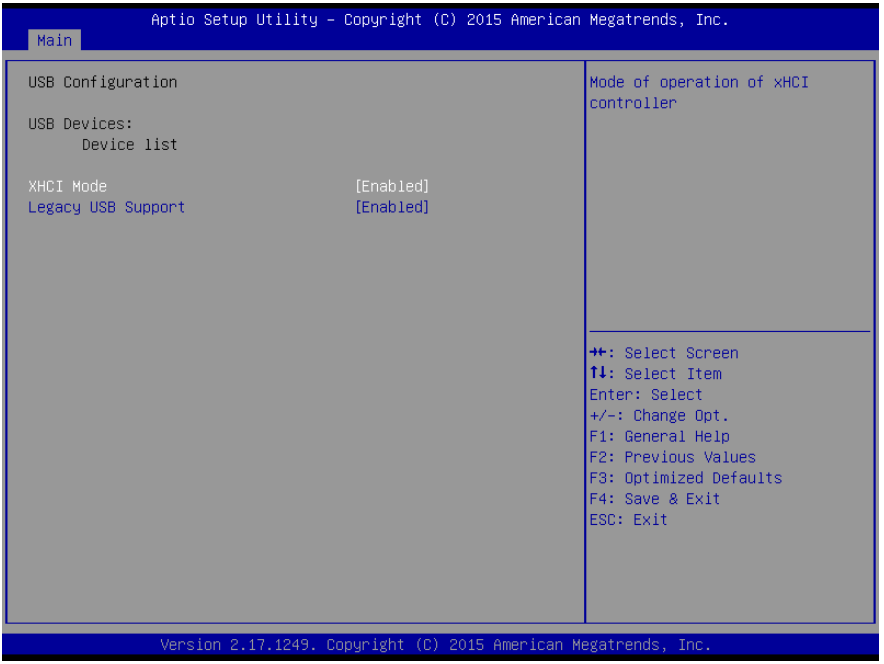


Options summary: (**default setting**)

SATA Speed Support	**Gen3**	
	Gen2	
	Gen1	
SATA Speed Support Gen3, Gen2 or Gen1		
SATA Mode	**AHCI Mode**	
Only AHCI mode support on this platform		
SATA Port0/Port1 HotPlug	**Enabled**	
	Disabled	
Enabled/Disabled SATA Port0/Port1 HotPlug function		
Connector	**Carrier Board**	

	CPU Module	
Select Location of SATA Port2.		
Secondary IDE Controller	**Disabled**	
	Enabled	
Enable/Disable Secondary IDE controller.		

3.4.3 Advanced: USB Configuration

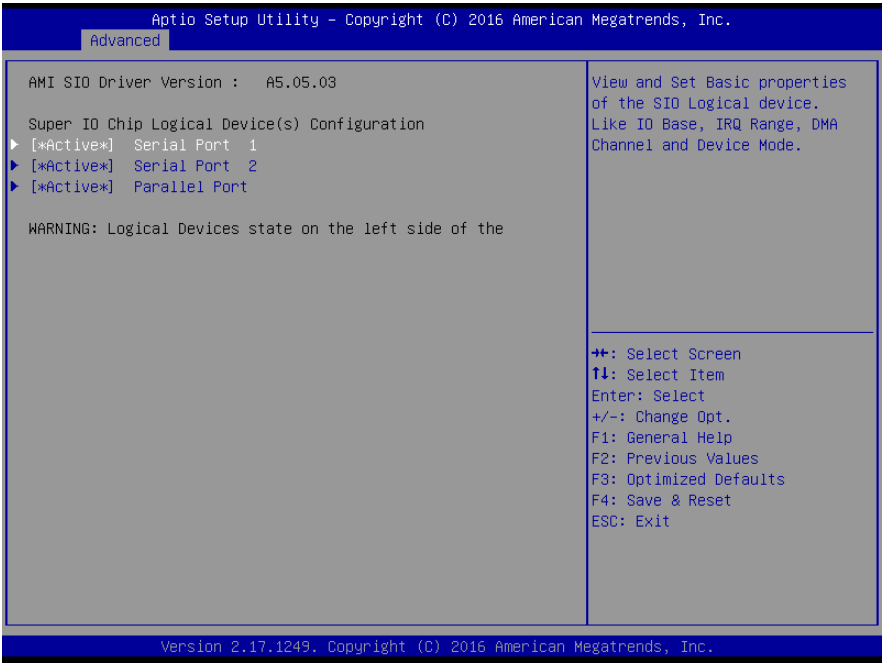


Options summary: (**default setting**)

XHCI Mode	**Enabled**	
	Disabled	
Enable/Disable for xHCI controller:		

Legacy USB Support	**Enabled**	
	Disabled	
	Auto	
Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI application		

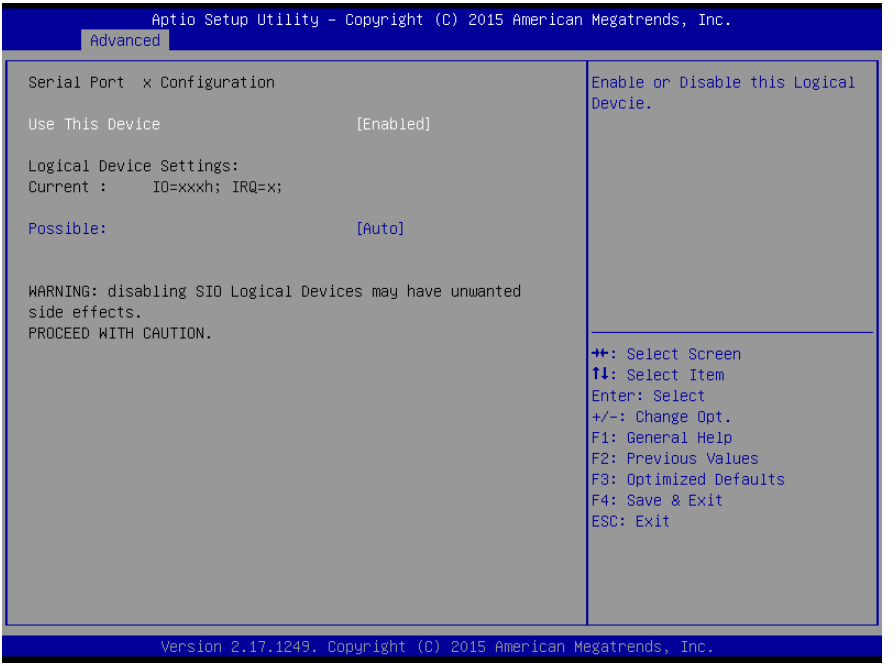
3.4.4 Advanced: SIO Configuration



Options summary: (**default setting**)

Parallel Port/Serial Port 1/2 Configuration		
Set Parameters of Serial Port 1/2 and Parallel Port		

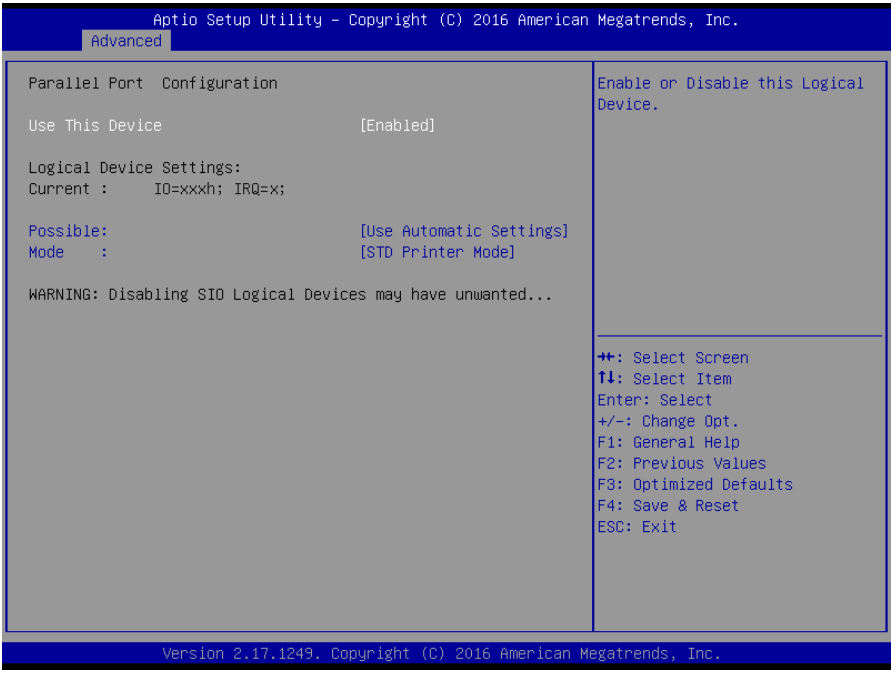
3.4.4.1 SIO Configuration: Serial Port 1/2 Configuration



Options summary: (**default setting**)

Use This Device	Disabled	
	Enabled	
En/Disable specified serial port.		
Change Settings (COM1)	**Use Automatic Settings**	
	IO=3F8h; IRQ=4;	
	IO=2F8h; IRQ=3;	
Change Settings (COM2)	**Use Automatic Settings**	
	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ=4;	
Select a resource setting for Super IO device.		

3.4.4.2 SIO Configuration: Parallel Port Configuration

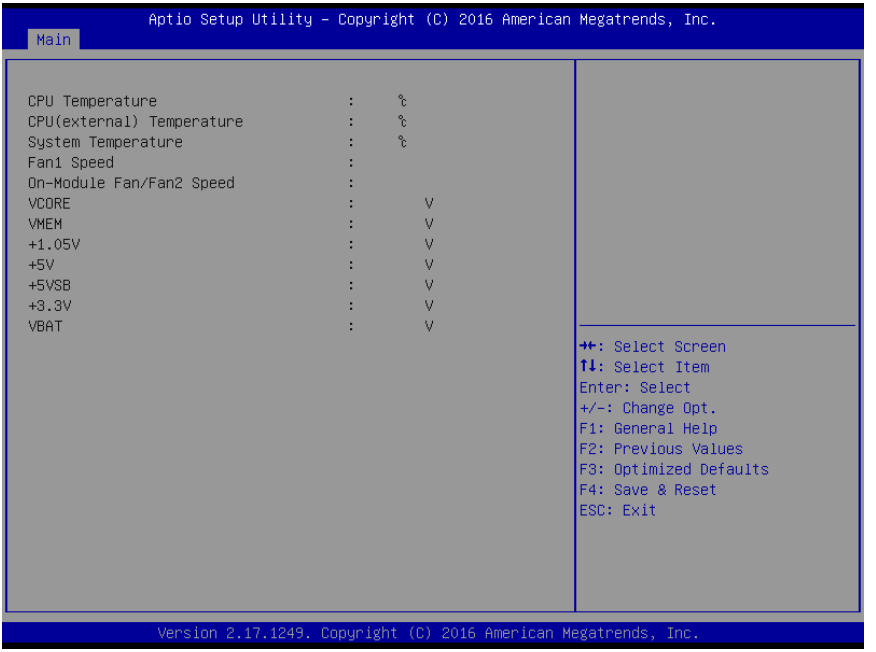


Options summary: (**default setting**)

Use This Device		**Disabled**	
		Enabled	
En/Disable specified this Logical Device Note: LPT and DIO feature share the same interface on the board. When LPT disabled, the interface works in DIO mode and vice versa.			
Possible		**Use Automatic Settings**	
	STD Printer	IO=378h; IRQ=5;	
	SPP	IO=378h; IRQ=5,6,7,9,10,11,12;	
	EPP and SPP	IO=278h; IRQ=5,6,7,9,10,11,12;	
		IO=3BCh; IRQ=5,6,7,9,10,11,12;	

	ECP	IO=378h; IO=778h; IRQ=5; DMA=3;	
	ECP and EPP	IO=378h; IO=778h; IRQ=5,6,7,9,10,11,12; DMA=1,3;	
		IO=278h; IO=678h; IRQ=5,6,7,9,10,11,12; DMA=1,3;	
		IO=3BCh; IO=7BCh; IRQ=5,6,7,9,10,11,12; DMA=1,3;	
Select a resource setting for Super IO device.			
Mode		**STD Print Mode**	
		SPP Mode	
		EPP-1.9 and SPP Mode	
		EPP-1.7 and SPP Mode	
		ECP Mode	
		ECP and EPP 1.9 Mode	
		ECP and EPP 1.7 Mode	
Change Parallel Port mode.			

3.4.4.3 SIO Configuration: Hardware Monitor



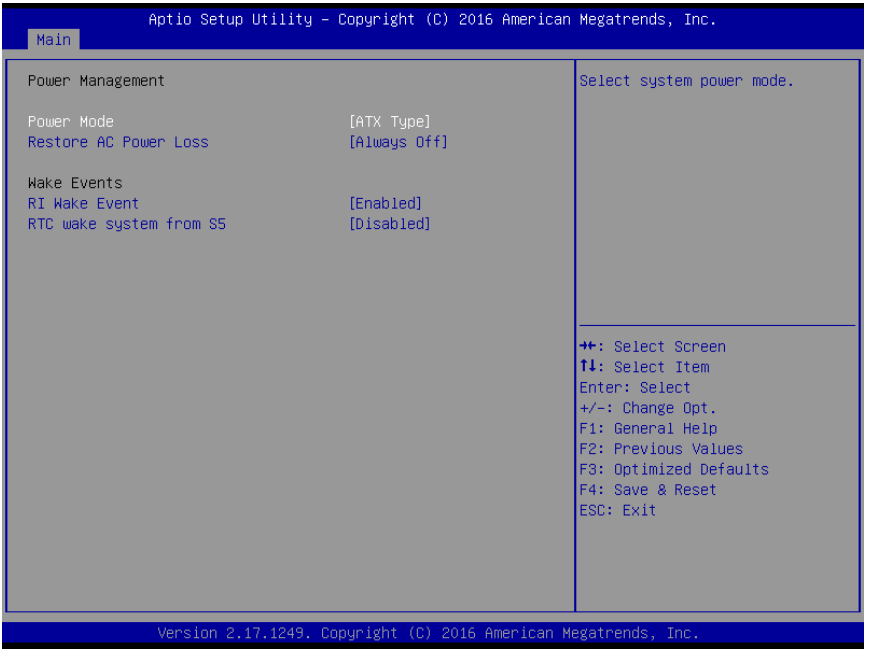
3.4.5 Advanced: CSM Configuration

Options summary: (**default setting**)

CSM Support	**Enabled**	
	Disabled	
Enable/Disable for CSM Support		
Boot option filter	**UEFI and Legacy**	
	Legacy only	
	UEFI only	
This option controls Legacy/UEFI boot option priority		
Network/PXE	**Do not launch**	
	UEFI	

	Legacy	
Controls the execution of UEFI and Legacy PXE OpROM		
Storage	Do not launch	
	UEFI	
	Legacy	
Controls the execution of UEFI and Legacy Storage OpROM		
Video	Do not launch	
	UEFI	
	Legacy	
Controls the execution of UEFI and Legacy Video OpROM		

3.4.6 Advanced: Power Management



Options summary: (**default setting**)

Power Mode	**ATX Type**	
	AT Type	
Select system power mode		
Restore AC Power Loss	**Power Off**	
	Power on	
	Late State	
Select AC power state when power is re-applied after a power failure		
RI Wake Event	**Enabled**	
	Disabled	
Enabled or disabled wake on ring function.		

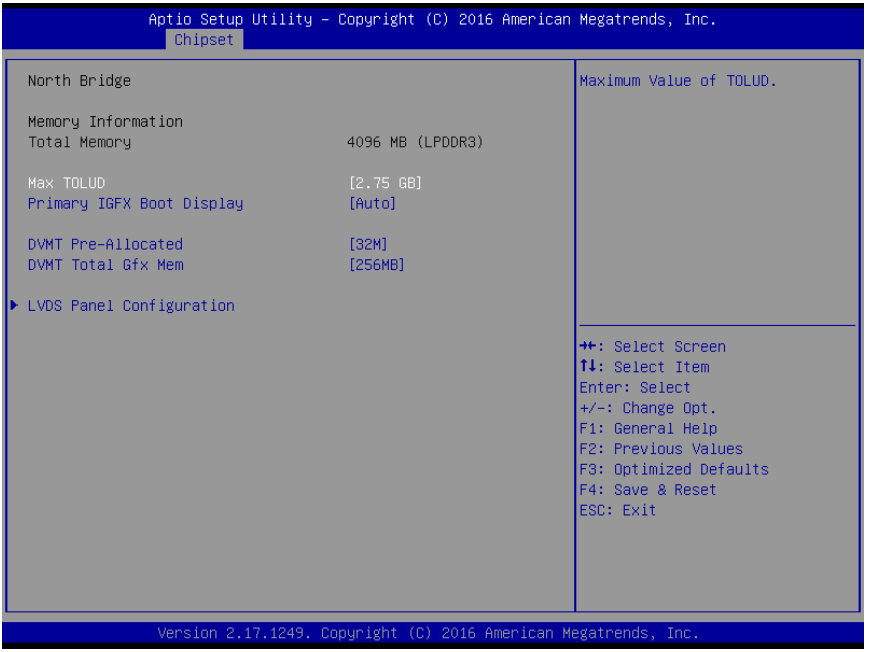
RTC wake system from S5	**Disabled**	
	Fixed Time	
	Dynamic Time	
Enable system to wake from S5 using RTC alarm.		
Wake up day	0-31	
0 for daily system wake up.		
Wake up hour	0-23	
Wake up minute	0-59	
Wake up second	0-59	
Wake up minute increase	1-5	

3.5 Setup submenu: Chipset

Options summary: (**default setting**)

North Bridge Configuration		
North Bridge Parameters.		
South Bridge		
South Bridge Parameters		

3.5.1 Chipset: North Bridge

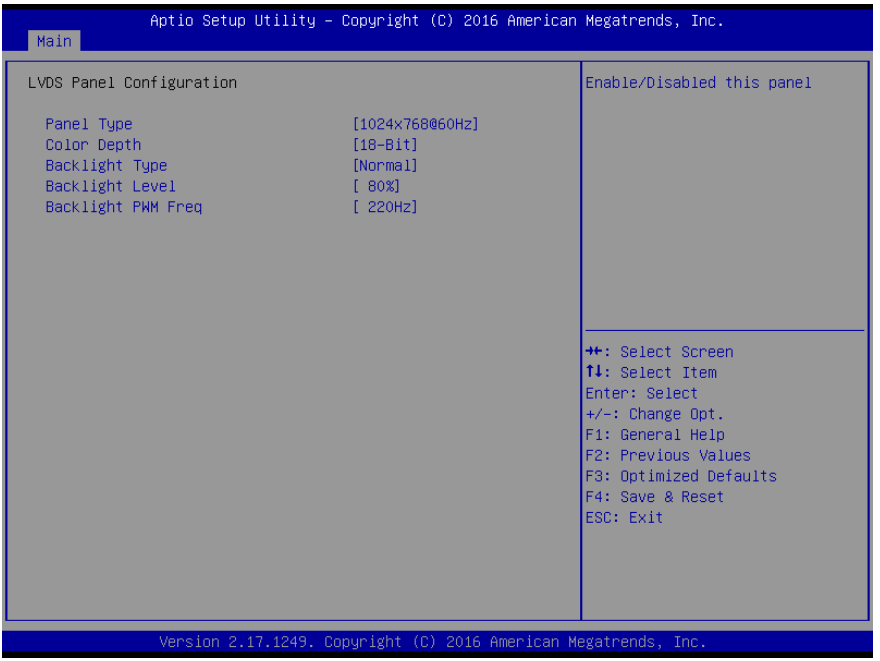


Options summary: (**default setting**)

Max TOLUD	**2GB**	
	2.25GB	
	2.5GB	
	2.75GB	
Maximum value of TOLUD (Top of Low Usable DRAM). Note: User can set to 2.75GB for more available memory under x86 OS.		
Primary Boot Display	**Auto**	
	CRT	
	LVDS1	
	DP/LVDS2	

Select Primary boot display device		
Secondary Boot Display	**Disabled**	
	CRT	
	LVDS1	
	DP/LVDS2	
Select Primary boot display device		
DVMT Pre-Allocated	**32MB**	
	32MB~512MB	
Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.		
DVMT Total Gfx Mem	128MB	
	256MB	
	Max	
Select DVMT 5.0 Total Graphic Memory size used by the IGD.		
LVDS Panel Configuration		
Configure LVDS panel parameters.		

3.5.1.1 North Bridge: LVDS Panel Configuration



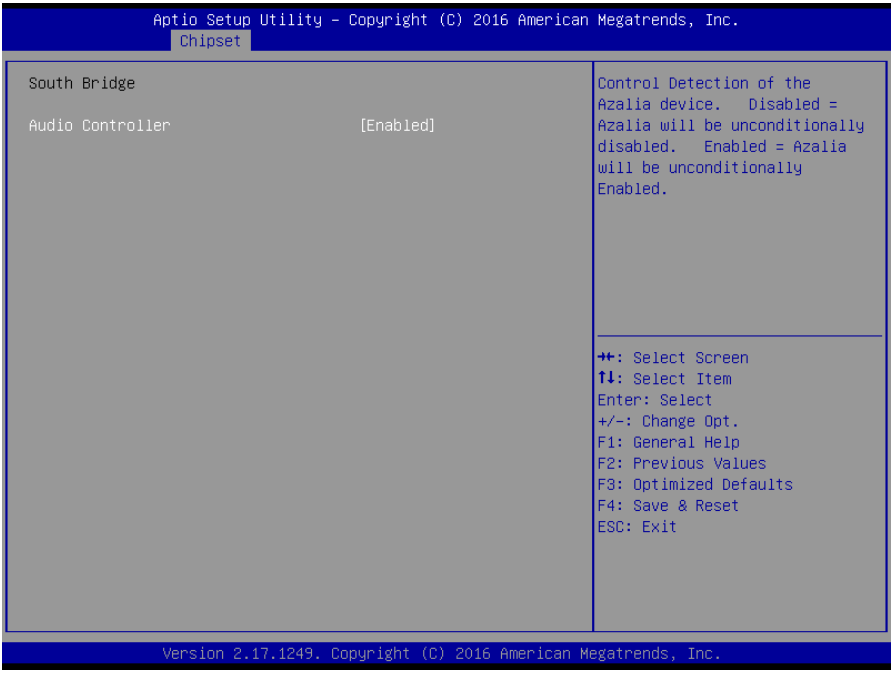
Options summary: (**default setting**)

Panel Type	640x480@60Hz	
	800x480@60Hz	
	800x600@60Hz	
	1024x600@60Hz	
	1024x768@60Hz	
	1280x768@60Hz	
	1280x800@60Hz	
	1280x1024@60Hz	
	1366x768@60Hz	
	1440x900@60Hz	

	1600x1200@60Hz	
	1920x1080@60Hz	
	1920x1200@60Hz	
Select panel resolution.		
Color Depth	**18-Bit**	
	24-Bit	
	36-Bit	
	48-Bit	
Select color depth of the panel		
Backlight Type	Inverted	
	Normal	
Select Backlight control type. Inverted: Brightest for low PWM duty cycle and low voltage. Normal: Brightest for high PWM duty cycle and high voltage.		
Backlight Level	100%	
	90%	
	80%	
	70%	
	60%	
	50%	
	40%	
	30%	
	20%	
	10%	
	0%	
Select Backlight Level		
Backlight PWM Freq	100Hz	

	200Hz	
	220Hz	
	500Hz	
	1KHz	
	2.2KHz	
	6.5KHz	
Select PWM frequency of backlight control signal.		

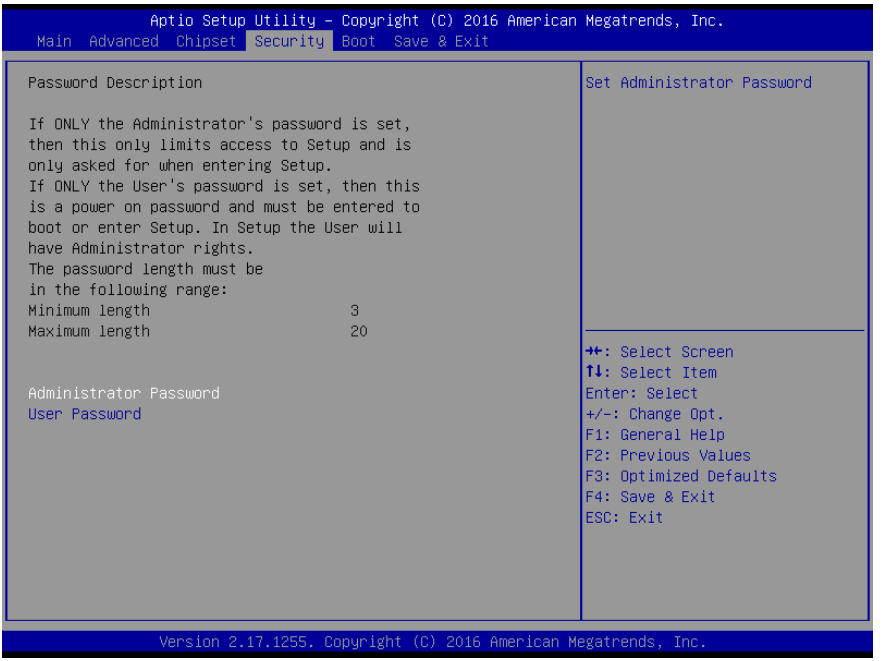
3.5.2 Chipset: South Bridge



Options summary: (**default setting**)

Audio Controller	Disabled	
	Enabled	
Enable or disabled Azalia device for audio function.		

3.6 Setup submenu: Security



Options summary: (**default setting**)

Administrator Password/ User Password	Not set	

Change User/Administrator Password

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

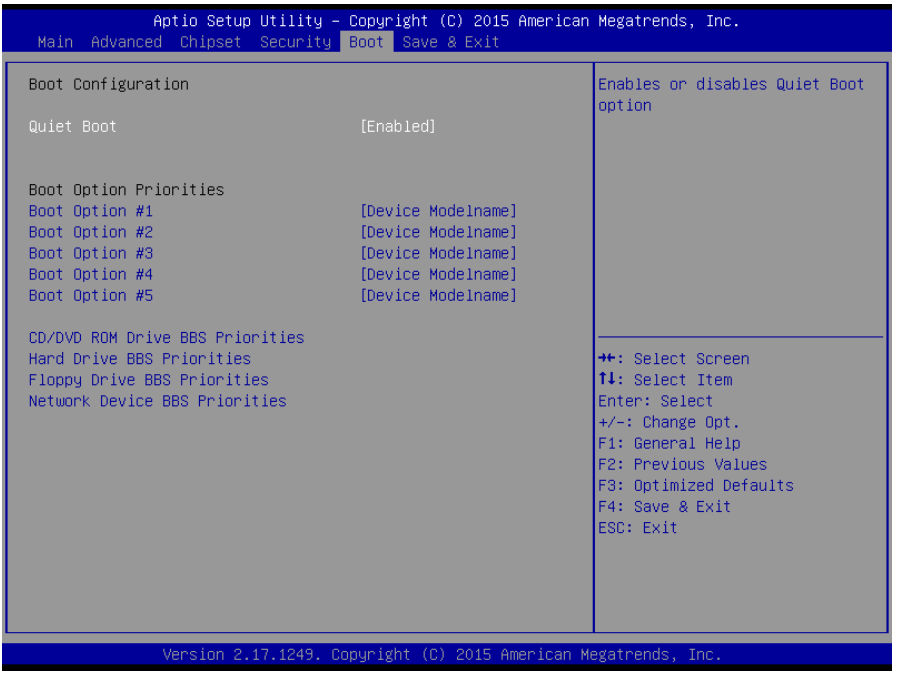
Select the password you wish to set, press Enter to open a dialog box to enter your password (you can enter no more than six letters or numbers). Press Enter to confirm your entry, after which you will be prompted to retype your password for a final

confirmation. Press Enter again after you have retyped it correctly.

Removing the Password

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

3.7 Setup submenu: Boot

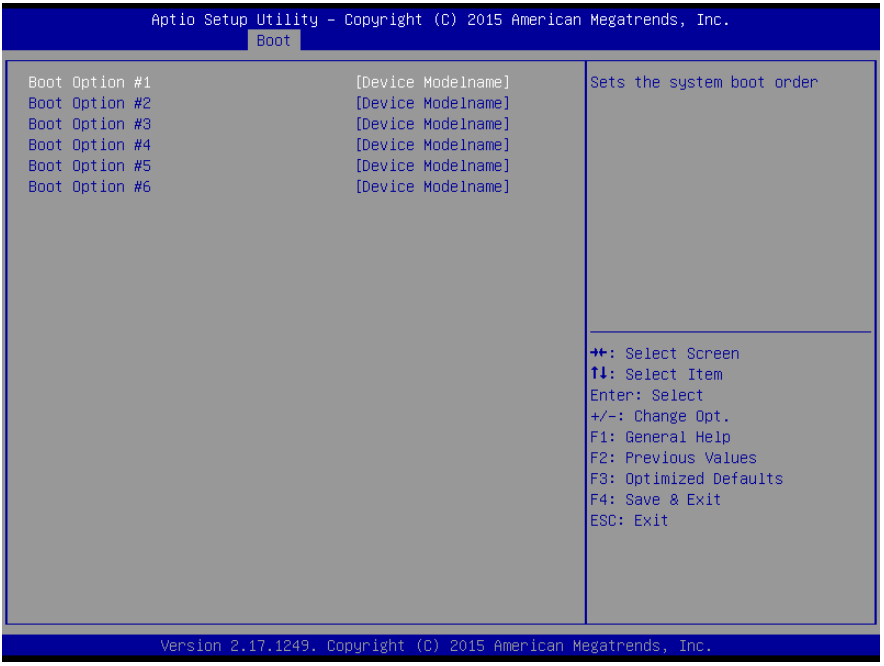


Options summary: (**default setting**)

Quiet Boot	Disabled	
	Enabled	
En/Disable showing boot logo.		
Boot Option #X/ XXXX Drive BBS Priorities		

The order of boot priorities.

3.7.1 Setup submenu: BBS Priorities



Options summary: (**default setting**)

Boot Option #x	Disabled	
	Device name	
Sets the system boot order		

3.8 Setup submenu: Save & Exit

Options summary: (**default setting**)

Save Changes and Reset		
Reset the system after saving the changes		
Discard Changes and Exit		
Reset system setup without saving any changes		
Restore Defaults		
Restore/Load Default values for all the setup options.		

Chapter 4

Drivers Installation

4.1 Product CD/DVD

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

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

Step 1 – Install Chipset Driver

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

Step 2 – Install Graphics Driver

1. Open the **Step2 - Graphics** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 3 – Install Audio Driver

1. Open the **Step3 - Audio** folder followed by Setup**.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 4 – Install LAN Driver

1. Open the **STEP4 - Audio** folder and select your OS
2. Open **setup.exe** in the folder
3. Follow the instructions

4. Drivers will be installed automatically

Step 5 – Install USB 3.0 Driver

1. Open the **STEP5 – USB3.0** folder and select your OS
2. Open the**.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 6 – Install Serial Port Driver

1. Open the **STEP6 - Serial Port Driver (Optional)** folder followed by **setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Appendix A

Watchdog Timer Programming

A.1 Watchdog Timer Registers

Table 1 : Watch dog relative IO address		
	Default Value	Note
I/O Base Address	0xA10	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 then 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        0x510   // 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.
       AaeonWDTEnable();
}
*****************************************************************************

*****************************************************************************
// Procedure : AaeonWDTEnable
```

```
VOID    AaeonWDTEnable (){
          WDTEnableDisable(1);
}

// Procedure : AaeonWDTConfig
VOID    AaeonWDTConfig (byte Counter, BOOLEAN Unit){
          // Disable WDT counting
          WDTEnableDisable(0);
          // Clear Watchdog Timeout Status
          WDTClearTimeoutStatus();
          // WDT relative parameter setting
          WDTParameterSetting(Timer, Unit);
}

VOID    WDTEnableDisable(byte Value){
          If (Value == 1)
              WDTSetBit(TimerReg, EnableBit, 1);
          else
              WDTSetBit(TimerReg, EnableBit, 0);
}

VOID    WDTParameterSetting(byte Counter, BOOLEAN Unit){
          // Watchdog Timer counter setting
         WDTWriteByte(CounterReg, Counter);
        // WDT counting unit setting
        WDTSetBit(TimerReg, UnitBit, Unit);
        // WDT output mode set to pulse
        WDTSetBit(TimerReg, ModeBit, ModeVal);
        // WDT output mode set to active low
        WDTSetBit(TimerReg, PolarityBit, PolarityVal);
        // WDT output pulse width is 25ms
        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

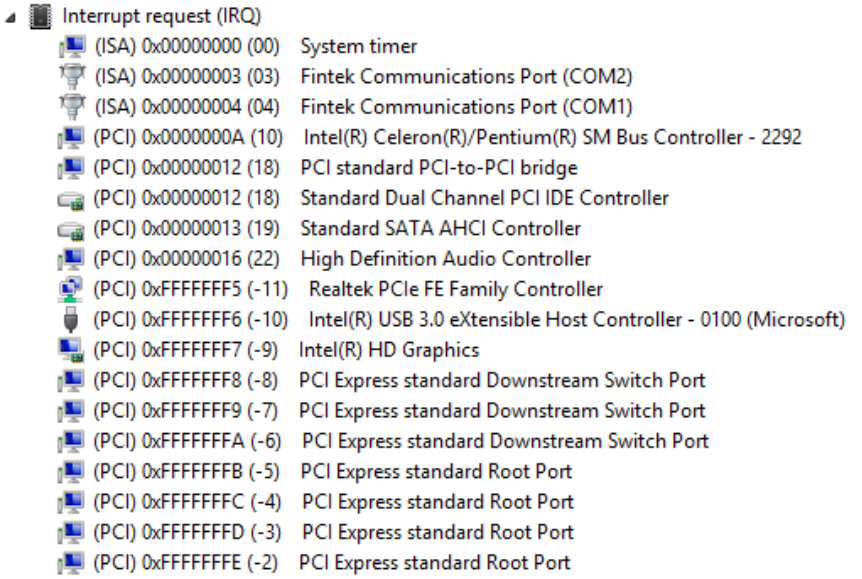
I/O Information

B.1 I/O Address Map

Input/output (IO)
- [0000000000000000 - 000000000000006F] PCI Express Root Complex
- [0000000000000020 - 0000000000000021] Programmable interrupt controller
- [0000000000000024 - 0000000000000025] Programmable interrupt controller
- [0000000000000028 - 0000000000000029] Programmable interrupt controller
- [000000000000002C - 000000000000002D] Programmable interrupt controller
- [000000000000002E - 000000000000002F] Motherboard resources
- [0000000000000030 - 0000000000000031] Programmable interrupt controller
- [0000000000000034 - 0000000000000035] Programmable interrupt controller
- [0000000000000038 - 0000000000000039] Programmable interrupt controller
- [000000000000003C - 000000000000003D] Programmable interrupt controller
- [0000000000000040 - 0000000000000043] System timer
- [000000000000004E - 000000000000004F] Motherboard resources
- [0000000000000050 - 0000000000000053] System timer
- [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 Express Root Complex
- [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
- [00000000000002F8 - 00000000000002FF] Fintek Communications Port (COM2)
- [0000000000000378 - 000000000000037F] Printer Port (LPT1)
- [00000000000003B0 - 00000000000003BB] Intel(R) HD Graphics
- [00000000000003C0 - 00000000000003DF] Intel(R) HD Graphics
- [00000000000003F8 - 00000000000003FF] Fintek Communications Port (COM1)
- [0000000000000400 - 000000000000047F] Motherboard resources
- [00000000000004D0 - 00000000000004D1] Programmable interrupt controller
- [0000000000000500 - 000000000000057F] Motherboard resources
- [0000000000000680 - 000000000000069F] Motherboard resources
- [0000000000000A00 - 0000000000000A0F] Motherboard resources
- [0000000000000A10 - 0000000000000A1F] Motherboard resources
- [0000000000000A20 - 0000000000000A2F] Motherboard resources
- [0000000000000D00 - 0000000000000FFFF] PCI Express Root Complex
- [0000000000000D000 - 0000000000000D00F] Standard Dual Channel PCI IDE Controller
- [0000000000000D000 - 0000000000000DFFF] PCI Express standard Root Port
- [0000000000000D010 - 0000000000000D013] Standard Dual Channel PCI IDE Controller
- [0000000000000D020 - 0000000000000D027] Standard Dual Channel PCI IDE Controller
- [0000000000000D030 - 0000000000000D033] Standard Dual Channel PCI IDE Controller
- [0000000000000D040 - 0000000000000D047] Standard Dual Channel PCI IDE Controller
- [0000000000000E000 - 0000000000000E0FF] Realtek PCIe FE Family Controller
- [0000000000000E000 - 0000000000000EFFF] PCI Express standard Root Port
- [0000000000000F000 - 0000000000000F03F] Intel(R) HD Graphics
- [0000000000000F040 - 0000000000000F05F] Intel(R) Celeron(R)/Pentium(R) SM Bus Controller - 2292
- [0000000000000F060 - 0000000000000F07F] Standard SATA AHCI Controller

B.2 Memory Address Map

B.3 IRQ Mapping Chart



Appendix C

Notes for Users

C.1 Notes for Users

Please observe the following items to ensure optimal performance:

1. The LPC function is removed from the X1 pin-out due to specifications of the Intel platform and pin definitions of the XTX form factor.
2. With the EHCI controller no longer available on the latest Intel® platforms, it is recommended to install Windows 7 through a SATA bus, eg SATA DVD ROM, or refer to https://downloadcenter.intel.com/download/25476/Windows-7-USB-3-0-Creator-Utility to create a USB installer