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EPIC-BT07

EPIC Board

User's Manual 7th Ed

Last Updated: February 17, 2022

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Packing List

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

Item	Quantity
● EPIC-BT07	1
● SATA Cable	1
● SATA Power Cable	1
● Heat-Spreader	

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

About this Document

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

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

Safety Precautions

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

1. All cautions and warnings on the device should be noted.
2. 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
外部信号 连接器及线材	×	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	X	O	O	O	O	O
Wires & Connectors for External Connections	X	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	4" EPIC Board
CPU	Intel® Atom™ E3845/Celeron® J1900/N2807
CPU Frequency	Up to 2.0 GHz
Chipset	Intel® Atom™/ Celeron® SoC
Memory Type	DDR3L 1333, SODIMM x 1
Max. Memory Capacity	Up to 8G
BIOS	AMI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V or 9-24V AT/ATX (default)
Power Supply Type	AT/ ATX
Power Consumption (Typical)	11.8W
Dimension (L x W)	4.53" x 6.50" (115 mm x 165 mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	110,000
Certification	CE/FCC

Display	
VGA/LCD Controller	Intel® Atom™/ Celeron® SoC
Video Output	CRT, LVDS, HDMI
Backlight Inverter Supply	Max. 12V

I/O

Ethernet	Intel® i211 Gigabit Ethernet, RJ-45 x 2
Audio	High Definition Audio Interface
USB Port	USB2.0 x 5
	USB3.2 Gen 1 x 1
Serial Port	RS-232 x 4 (COM1, COM4, COM5, COM6)
	RS-232/422/485 x 1 (Ring/ +5V/ +12V) (COM2, COM3)
Parallel Port	SPP/EPP/ECP x 1
HDD Interface	SATA II (3.0 Gbps) x 1
SSD	mSATA x 1 (Share with full-size Mini Card by BOM Change)
Expansion Slot	Mini Card x 1
	Micro-SD x 1 (Optional, only E3800 series)
	PCI-104 x 1 (Optional, only E3800 series)
	SMbus x 1
	I2C x 1 (optional)
	PS/2 x 1
DIO	16-bit
TPM	Optional
Touch	Optional
SIM	SIM

Chapter 2

Hardware Information

2.1 Dimensions

Component Side

Solder Side

165.00
41.00
76.00
C
C
C
87.00
100.00
6-M2.5*0.45P-through
C
C
C
6.50
30.00
87.00
19.00

2.2 Jumpers and Connectors

Component Side

CN53

2.3 Block Diagram

2.4 List of Jumpers

The board features a number of jumpers which can be configured for your application. Please refer to the table below and following sections for all jumpers which can be configured.

Label	Function
CN3	Auto Power Button Selection
CN4	PCI-104 VIO Voltage Selection
CN5	CMOS RTC Setting
CN17	LVDS/ eDP Backlight Voltage Selection
CN18	LVDS/ eDP Backlight Control Selection
CN28	Touch Screen 4/5/8-wire Mode Selection
CN34	COM2 RI/+5/+12V Selection
CN36	COM3 RI/+5/+12V Selection
CN40	eDP Operating Voltage Selection
CN41	LVDS /eDP Operating Voltage Selection
CN42	eDP Backlight Control Selection
CN43	eDP Backlight Voltage Selection

2.4.1 Auto Power Button Selection (CN3)

Disable

Enable (Default)

Note: When disabled, use CN39 (1-2) to power on the system.

2.4.2 PCI-104 VI/O Voltage Selection (CN4)

+5V

+3.3V (Default)

2.4.3 CMOS RTC Setting (CN5)

Normal (Default)

Clear CMOS

2.4.4 LVDS/eDP Backlight Voltage Selection (CN17)

+12V

+5V (Default)

2.4.5 LVDS/eDP Backlight Control Selection (CN18)

VR Mode (Default)

PWM Mode

2.4.6 Touchscreen 4/5/8-wire Mode Selection (CN28)

4/8 Wires Mode (Default)

5 Wires Mode

2.4.7 COM2 RI/+5/+12V Selection (CN34)

+12V

Ring (Default)

+5V

2.4.8 COM3 RI/+5/+12V Selection (CN36)

+12V

Ring (Default)

+5V

2.4.9 eDP Operating Voltage Selection (CN40)

+5V

+3.3V (Default)

2.4.10 LVDS/eDP Operating Voltage Selection (CN41)

+5V

+3.3V (Default)

2.4.11 eDP Backlight Control Selection (CN42)

VR Mode (Default)

PWM Mode

2.4.12 eDP Backlight Voltage Selection (CN43)

+12V

+5V (Default)

2.5 List of Connectors

This section details the connectors featured on the board, which can be configured for your application. For a list of mating connectors and cables, please see Appendix C.
For Electrical Specifications of I/O Ports, please see Appendix D.
Please refer to the table below for a list of all connectors on this board which can be configured.

Label	Function
CN1	Stereo Audio RIGHT Channel
CN2	RTC Battery Connector
CN6	4-Pin Power In Connector
CN7	Stereo Audio LEFT Channel
CN8	2-Pin Power in Connector
CN9	PCI-104 Connector
CN10	Audio Connector
CN12	LPT/Digital IO Connector
CN13	USB 2.0 Port 2
CN14	USB 2.0 Port 3
CN15	USB 2.0 Port 5
CN16	USB 2.0 Port 4
CN19	LVDS/eDP Inverter / Backlight Connector
CN20	Micro SD Card Connector
CN21	LPC Expansion Connector
CN22	UIM Card Socket
CN23	+5V Output for SATA HDD
CN24	eDP Port
CN25	SATA Port1
CN26	Mini-Card Slot
CN27	Mini-Card / mSATA Slot

Label	Function
CN29	Touch Screen Connector
CN30	PS/2 Keyboard Mouse Connector
CN31	COM Port 6
CN32	COM Port 5
CN33	SPI Programming Port
CN35	LVDS/eDP Port
CN37	COM Port 4
CN38	COM Port 3
CN39	Front Panel Connector
CN44	10/100/1000 Mbps Ethernet Port 1
CN46	eDP Inverter / Backlight Connector
CN45	10/100/1000 Mbps Ethernet Port 2
CN47	USB Ports 0 & 1
CN48	DP Port
CN49	COM Port 1 & 2
CN50	HDMI Port
CN51	VGA Port
CN52	SMBUS Connector
DIMM1	DDR3L SODIMM

Note: CN50 HDMI Colay with CN24 Display Port is default display port.

2.5.1 Stereo Audio Right Channel (CN1)

Pin	Pin Name	Signal Type	Signal Level
1	R+	OUT	
2	R-	OUT	

2.5.2 RTC Battery Connector (CN2)

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

2.5.3 4-Pin Power-In Connector (CN6)

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

2.5.4 Stereo Audio Left Channel (CN7)

Pin	Pin Name	Signal Type	Signal Level
1	L+	OUT	
2	L-	OUT	

2.5.5 2-Pin Power in Connector (CN8)

Pin	Pin Name	Signal Type	Signal Level
1	+VIN	PWR	+9V to +24 V
2	GND	GND	

2.5.6 PCI-104 Connector (CN9)

Pin	A	B	C	D
1	GND	+5V_SB	+5V	AD00
2	VI/O	AD02	AD01	+5V
3	AD05	GND	AD04	AD03
4	C/BE0#	AD07	GND	AD06
5	GND	AD09	AD08	GND
6	AD11	VI/O	AD10	M66EN
7	AD14	AD13	GND	AD12

Pin	A	B	C	D
8	+3.3V	C/BE1#	AD15	+3.3V
9	SERR#	GND	PSON#	PAR
10	GND	PERR#	+3.3V	PME#
11	STOP#	+3.3V	LOCK#	GND
12	+3.3V	TRDY#	GND	DEVSEL#
13	FRAME#	GND	IRDY#	+3.3V
14	GND	AD16	+3.3V	C/BE2#
15	AD18	+3.3V	AD17	GND
16	AD21	AD20	GND	AD19
17	+3.3V	AD23	AD22	+3.3V
18	IDSEL0	GND	IDSEL1	IDSEL2
19	AD24	C/BE3#	VI/O	IDSEL3
20	GND	AD26	AD25	GND
21	AD29	+5V	AD28	AD27
22	+5V	AD30	GND	AD31
23	REQ0#	GND	REQ1#	VI/O
24	GND	REQ2#	+5V	GNT0#
25	GNT1#	VI/O	GNT2#	GND
26	+5V	CLK0	GND	CLK1
27	CLK2	+5V	CLK3	GND
28	GND	INTD#	+5V	RST#
29	+12V	INTA#	INTB#	INTC#
30	-12V	REQ3#	GNT3#	GND

2.5.7 Audio Connector (CN10)

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

2.5.8 LPT/ Digital I/O Connector (CN12)

LPT Mode:

Pin	Pin Name	Signal Type	Signal Level
1	STOBE#	I/O	
2	#AFD	I/O	
3	PPD0	I/O	
4	ERR#	I/O	
5	PPD1	I/O	
6	PINIT#	I/O	
7	PPD2	I/O	
8	SLIN#	I/O	
9	PPD3	I/O	
10	GND	GND	
11	PPD4	I/O	
12	GND	GND	
13	PPD5	I/O	
14	GND	GND	
15	PPD6	I/O	
16	GND	GND	
17	PPD7	I/O	
18	GND	GND	
19	ACK#	I/O	
20	GND	GND	
21	BUSY	I/O	
22	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
23	PE	I/O	
24	GND	GND	
25	SLCT	I/O	
26	PWR	PWR	+5V

Digital I/O Mode:

Pin	Pin Name	Signal Type	Signal Level
1	GPIO15	I/O	+5V
2	GPIO14	I/O	+5V
3	GPIO0	I/O	+5V
4	GPIO13	I/O	+5V
5	GPIO1	I/O	+5V
6	GPIO12	I/O	+5V
7	GPIO2	I/O	+5V
8	GPIO11	I/O	+5V
9	GPIO3	I/O	+5V
10	GND	GND	
11	GPIO4	I/O	+5V
12	GND	GND	
13	GPIO5	I/O	+5V
14	GND	GND	
15	GPIO6	I/O	+5V
16	GND	GND	
17	GPIO7	I/O	+5V
18	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
19	GPIO10	I/O	+5V
20	GND	GND	
21	GPIO9	I/O	+5V
22	GND	GND	
23	GPIO8	I/O	+5V
24	GND	GND	
25	N.C		
26	PWR	PWR	+5V

2.5.9 USB 2.0 Port 2/3/4/5 (CN13/14/15/16)

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	

2.5.10 LVDS/eDP Inverter / Backlight Connector (CN19)

Notes:

BLK_PWR can be set to +12V or+5V by jumper CN17 (see section 2.4.4).

The maximum driving current is 1.5A.

BLK_CONTROL can be set to VR Mode or PWM Mode by jumper CN18 (see section 2.4.5)

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

2.5.11 MicroSD Card Connector (CN20)

Pin	Pin Name	Signal Type	Signal Level
1	SDIO_D2	I/O	
2	SDIO_D3	I/O	
3	SDIO_CMD	I/O	
4	+3.3V	PWR	+3.3V
5	SDIO_CLK	I/O	
6	GND	GND	
7	SDIO_D0	I/O	
8	SDIO_D1	I/O	
9	SDIO_CD#	I/O	

2.5.12 LPC Expansion Connector (CN21)

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

2.5.13 UIM Socket (CN22)

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	

2.5.14 +5V Output for SATA HDD (CN23)

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

2.5.15 eDP (CN24)

Notes:

LVDS LCD_PWR can be set to +3.3V or +5V by CN40 (see section 2.4.9).

The max driving current is 2A.

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	eDP_DA3-	DIFF	
6	eDP_DA3+	DIFF	
7	LCD_PWR	PWR	+3.3V/+5V
8	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
9	eDP_DA2-	DIFF	
10	eDP_DA2+	DIFF	
11	eDP_DA1-	DIFF	
12	eDP_DA1+	DIFF	
13	eDP_DA0-	DIFF	
14	eDP_DA0+	DIFF	
15	NC		
16	Hot Plug Detect #		
17	eDP_AUX-	DIFF	
18	eDP_AUX+	DIFF	
19	NC		
20	NC		
21	NC		
22	NC		
23	NC		
24	NC		
25	NC		
26	NC		
27	LCD_PWR	PWR	+3.3V/+5V
28	GND	GND	
29	NC		
30	NC		

2.5.16 SATA Port1 (CN25)

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	

2.5.17 MiniCard Slot (CN26)

Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	IN	
2	+3.3VSB	PWR	+3.3V
3	NC		
4	GND	GND	
5	NC		
6	+1.5V	PWR	+1.5V
7	PCIE_CLK_REQ#	IN	
8	UIM_PWR		
9	GND	GND	
10	UIM_DAT		

Pin	Pin Name	Signal Type	Signal Level
11	PCIE_REF_CLK-	DIFF	
12	UIM_CLK		
13	PCIE_REF_CLK+	DIFF	
14	UIM_RST		
15	GND	GND	
16	UIM_VPP		
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
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	

Pin	Pin Name	Signal Type	Signal Level
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

2.5.18 MiniCard/ mSATA Slot (CN27)

Note: CN27 can be selected for Mini Card or mSATA by BOM change

Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	IN	
2	+3.3VSB	PWR	+3.3V
3	NC		

Pin	Pin Name	Signal Type	Signal Level
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		
18	GND	GND	
19	NC		
20	W_DISABLE#	OUT	+3.3V
21	GND	GND	
22	PCIE_RST#	OUT	+3.3V
23	SATA_RX+	DIFF	
24	+3.3V	PWR	+3.3V
25	SATA_RX-	DIFF	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V
29	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
30	SMB_CLK	I/O	+3.3V
31	SATA_TX-	DIFF	
32	SMB_DATA	I/O	+3.3V
33	SATA_TX+	DIFF	
34	GND	GND	
35	GND	GND	
36	USB_D-	DIFF	
37	GND	GND	
38	USB_D+	DIFF	
39	+3.3V	PWR	+3.3V
40	GND	GND	
41	+3.3V	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	+3.3V	PWR	+3.3V

2.5.19 Touchscreen Connector (CN29)

Note: Touchscreen mode can be set by jumper CN28 (see section 2.4.6).

8 Wires

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	

5 Wires

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		

4 Wires

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

2.5.20 PS/2 Keyboard Mouse Connector (CN30)

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

2.5.21 COM Port 4/5/6 (CN31/32/37)

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	

2.5.22 SPI Programming Port (CN33)

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

2.5.23 LVDS/eDP Port (CN35)

Notes:
LVDS LCD_PWR can be set to +3.3V or +5V by jumper CN41 (see section 2.4.10)
The max driving current is 2A.
LVDS Settings:

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	

Pin	Pin Name	Signal Type	Signal Level
13	LVDS_DA2-	DIFF	
14	LVDS_DA2+	DIFF	
15	LVDS_DA3-	DIFF	
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	

eDP Settings:

Note: eDP may not work on DDI0. Pre-testing eDP is recommended

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	eDP_DA3-	DIFF	
6	eDP_DA3+	DIFF	
7	LCD_PWR	PWR	+3.3V/+5V
8	GND	GND	
9	eDP_DA2-	DIFF	
10	eDP_DA2+	DIFF	
11	eDP_DA1-	DIFF	
12	eDP_DA1+	DIFF	
13	eDP_DA0-	DIFF	
14	eDP_DA0+	DIFF	
15	NC		
16	Hot Plug Detect #		
17	eDP_AUX-	DIFF	
18	eDP_AUX+	DIFF	
19	NC		
20	NC		
21	NC		
22	NC		
23	NC		

Pin	Pin Name	Signal Type	Signal Level
24	NC		
25	NC		
26	NC		
27	LCD_PWR	PWR	+3.3V/+5V
28	GND	GND	
29	NC		
30	NC		

2.5.24 COM Port 3 (CN38)

Notes:

COM3 RS-232/422/485 can be set by BIOS settings. Default is RS-232. See Ch 3.4.8.3.

Function for Pin 8 can be set by CN36 (See Section 2.4.8)

RS-232 Settings

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

RS-422 Settings

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 Settings

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	

2.5.25 Front Panel Connector (CN39)

Pin	Pin Name	Signal Type	Signal Level
1	PWR_BTN#	IN	
2	GND	GND	
3	+5V	PWR	+5V
4	FP_SPKR	IN	
5	+3.3V	PWR	+3.3V
6	HDD_LED#	IN	
7	+3.3V	PWR	+3.3V
8	GND	GND	
9	HWRST#	IN	
10	GND	GND	

2.5.26 10/100/1000 Mbps Ethernet Port 1/2 (CN44/45)

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	

2.5.27 eDP Inverter/Backlight (CN46)

Notes:

BLK_PWR can be set to +12V or +5V by CN43. (See Section 2.4.12)

The max driving current is 1.5A.

BLK_CONTROL can be set to VR Mode or PWM Mode by CN42. (See Section 2.4.11)

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	+5V

2.5.28 USB Port 0 & 1 (CN47)

Note: Only Port 0 supports USB3.0.

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	
10	+5VSB	PWR	+5V
11	USB1_D-	DIFF	
12	USB1_D+	DIFF	
13	GND	GND	

2.5.29 DP Port (CN48)

Pin	Pin Name	Signal Type	Signal Level
1	DP_D0+	DIFF	
2	GND	GND	
3	DP_D0-	DIFF	
4	DP_D1+	DIFF	
5	GND	GND	
6	DP_D1-	DIFF	
7	DP_D2+	DIFF	
8	GND	GND	
9	DP_D2-	DIFF	
10	DP_D3+	DIFF	
11	GND	GND	
12	DP_D3-	DIFF	
13	GND	GND	
14	GND	GND	
15	DP_AUX+	DIFF	
16	GND	GND	
17	DP_AUX-	DIFF	
18	HPLG_DETECT	IN	
19	GND	GND	
20	+3.3V	I/O	+3.3V

2.5.30 COM Port 1 & 2 (CN49)

Notes:

COM2 RS-232/422/485 can be set by BIOS setting. Default is RS-232. See Ch 3.4.8.2.

Function for Pin 9 can be set by jumper CN34 (see section 2.4.7).

COM1 RS-232 Settings

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

COM2 RS-232 Settings

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

COM2 RS-422 Settings

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

COM2 RS-485 Settings

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

2.5.31 HDMI Port (CN50)

Pin	Pin Name	Signal Type	Signal Level
1	TMDS_DAT2+	DIFF	
2	GND	GND	
3	TMDS_DAT2-	DIFF	
4	TMDS_DAT1+	DIFF	
5	GND	GND	
6	TMDS_DAT1-	DIFF	
7	TMDS_DAT0+	DIFF	
8	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
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	I/O	+5V
19	HPLG_DETECT	IN	

2.5.32 VGA Port (CN51)

Pin	Pin Name	Signal Type	Signal Level
1	RED	OUT	
2	GREEN	OUT	
3	BLUE	OUT	
4	NC		
5	GND	GND	
6	RED_GND_RTN	GND	
7	GREEN_GND_RTN	GND	
8	BLUE_GND_RTN	GND	

Pin	Pin Name	Signal Type	Signal Level
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

2.5.33 SMBus Connector (CN52)

Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	+5V
2	SMB_DATA	I/O	
3	SMB_CLK	I/O	
4	+5V	PWR	

2.5.34 DDR3L SODIMM (DIMM1)

Standard Specifications

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 date elements

Advanced – Access and configure advanced processor options and features.

Chipset – Chipset and host bridge options and features

Boot – Set boot options including boot priority and 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

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main  Advanced  Chipset  Security  Boot  Save & Exit

BIOS Information                                   Set the Date. Use Tab to
    EPIC-BT07 R1.0 (PBT7AM10)(05/29/2015) x64      switch between Date elements.

BIOS Vendor                    American Megatrends
Compliancy                     UEFI 2.3; PI 1.2

System Date                    [Wed 06/03/2015]
System Time                    [15:49:44]

Access Level                   Administrator

                                                   →←: Select Screen
                                                   ↑↓: Select Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
                                                   F3: Optimized Defaults
                                                   F4: Save & Exit
                                                   ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

3.4 Setup Submenu: Advanced

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Main  Advanced  Chipset  Security  Boot  Save & Exit

▶ CPU Configuration                    CPU Configuration Parameters
▶ IDE Configuration
▶ USB Configuration
▶ Hardware Monitor
▶ Dynamic Digital IO
▶ Power Management
▶ SD Card Configuration                →←: Select Screen
▶ Trusted Computing                    ↑↓: Select Item
                                       Enter: Select
▶ SIO Configuration                    +/–: Change Opt.
                                       F1: General Help
                                       F2: Previous Values
                                       F3: Optimized Defaults
                                       F4: Save & Exit
                                       ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

3.4.1 CPU Configuration

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

CPU Configuration                                  When enabled, a VMM can
                                                   utilize the additional
Intel(R) Atom(TM) CPU E3845 @ 1.91GHz              hardware capabilities provided
CPU Signature                    30679             by Vanderpool Technology
Microcode Patch                  903
BayTrail SoC                     D0 Stepping
Max CPU Speed                    1910 MHz
Min CPU Speed                    500 MHz
Processor Cores                  4
Intel HT Technology              Not Supported
Intel VT-x Technology            Supported
L1 Data Cache                    24 kB x 4
L1 Code Cache                    32 kB x 4
L2 Cache                         1024 kB x 2       →←: Select Screen
L3 Cache                         Not Present       ↑↓: Select Item
                                                   Enter: Select
Intel Virtualization Technology  [Enabled]         +/-: Change Opt.
EIST                             [Enabled]         F1: General Help
                                                   F2: Previous Values
                                                   F3: Optimized Defaults
                                                   F4: Save & Exit
                                                   ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Options Summary		
Intel Virtualization Technology	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Intel Virtualization Technology		
EIST	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable EIST		

3.4.2 IDE Configuration

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Advanced

IDE Configuration                                  Select IDE / AHCI

SATA Mode                          [AHCI Mode]

SATA Port0
Not Present

SATA Port1
Not Present

                                                   →←: Select Screen
                                                   ↑↓: Select Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
                                                   F3: Optimized Defaults
                                                   F4: Save & Exit
                                                   ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Options Summary		
SATA Mode	IDE Mode	
	AHCI Mode	Optimal Default, Failsafe Default

3.4.3 USB Configuration

Options Summary		
Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS. AUTO option disables legacy support if no USB devices are connected		

3.4.4 Hardware Monitor

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Advanced

Pc Health Status

CPU Temperature                    : +55 ℃
SYS Temperature                    : +33 ℃

VCORE                              : +0.896 V
+12V                               : +12.056 V
+5V                                : +4.840 V
VMEM                               : +1.360 V
+3.3V                              : +3.328 V
3VSB                               : +3.344 V
5VSB                               : +5.016 V
VBAT                               : +3.232 V

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

3.4.5 Dynamic Digital I/O

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Advanced

Dynamic Digital IO Configuration                    Set GPIO as Input or Output

Note: DIO function is available only when LPT disabled.

Digital IO 0 Direction              [Input]
Digital IO 1 Direction              [Input]
Digital IO 2 Direction              [Input]
Digital IO 3 Direction              [Input]

Digital IO 4 Direction              [Output]
  Output Level                      [Hi]
Digital IO 5 Direction              [Output]
  Output Level                      [Hi]
Digital IO 6 Direction              [Output]          →←: Select Screen
  Output Level                      [Hi]              ↑↓: Select Item
Digital IO 7 Direction              [Output]          Enter: Select
  Output Level                      [Hi]              +/-: Change Opt.
                                                      F1: General Help
Digital IO 8 Direction              [Input]           F2: Previous Values
Digital IO 9 Direction              [Input]           F3: Optimized Defaults
Digital IO 10 Direction             [Input]           F4: Save & Exit
Digital IO 11 Direction             [Input]           ESC: Exit

Digital IO 12 Direction             [Output]
  Output Level                      [Hi]

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```

```
Digital IO 13 Direction             [Output]          F3: Optimized Defaults
  Output Level                      [Hi]              F4: Save & Exit
Digital IO 14 Direction             [Output]          ESC: Exit
  Output Level                      [Hi]
Digital IO 15 Direction             [Output]
  Output Level                      [Hi]

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```

Options Summary		
Digital GPIO [3:0] Direction	Input	Optimal Default, Failsafe Default
	Output	
Set GPIO as Input or Output		
Digital GPIO [7:4] Direction	Input	
	Output	Optimal Default, Failsafe Default
Set GPIO as Input or Output		
Output Level	Low	
	Hi	Optimal Default, Failsafe Default

Options Summary		
Digital GPIO [11:8] Direction	Input	Optimal Default, Failsafe Default
	Output	
Set GPIO as Input or Output		
Digital GPIO [15:12] Direction	Input	Optimal Default, Failsafe Default
	Output	
Set GPIO as Input or Output		
Output Level	Low	Optimal Default, Failsafe Default
	Hi	

3.4.6 Power Management

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

3.4.7 SD Card Configuration

Options Summary		
SCC SD Card Support	Enable	Optimal Default, Failsafe Default
	Disabled	
Enable/Disable SD card.		
SDR25 Support for SDCard	Enabled	
	Disabled	Optimal Default, Failsafe Default
Enable/Disable SDR25 Capability in SD Card controller		
DDR50 Support for SDCard	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable/Disable DDR50 Capability in SD Card controller		

3.4.8 Trusted Computing

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

Configuration                                  Enables or Disables BIOS
  Security Device Support          [Disabled]  support for security device.
                                               O.S. will not show Security
                                               Device. TCG EFI protocol and
Current Status Information                     INT1A interface will not be
  SUPPORT TURNED OFF                           available.

                                               →←: Select Screen
                                               ↑↓: Select Item
                                               Enter: Select
                                               +/-: Change Opt.
                                               F1: General Help
                                               F2: Previous Values
                                               F3: Optimized Defaults
                                               F4: Save & Exit
                                               ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Options Summary		
Security Device Support	Disable	Optimal Default, Failsafe Default
	Enable	
Enable or Disable BIOS support for security device.		

3.4.9 SIO Configuration

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Advanced

AMI SIO Driver Version :   A5.05.03

Super IO Chip Logical Device(s) Configuration
▶ [*Active*]  Serial Port  1
▶ [*Active*]  Serial Port  2
▶ [*Active*]  Serial Port  3
▶ [*Active*]  Serial Port  4
▶ [*Active*]  Serial Port  5
▶ [*Active*]  Serial Port  6
▶ [Disabled]  Parallel Port

WARNING: Logical Devices state showing at the left side of
the controll, reflects current Logical Device state.
Cahnges made during Setup Session will be shown after you
restart the system.

View and Set Basic properties
of the SIO Logical device.
Like IO Base, IRQ Range, DMA
Channel and Device Mode.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

3.4.9.1 SIO Configuration: Serial Port 1 Configuration

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

Serial Port  1 Configuration                          Enable or Disable this Logical
                                                      Devcie.
Use This Device                    [Enabled]

Logical Device Settings:
Current :     IO=3F8h; IRQ=4;

Possible:                          [Use Automatic Settings]

WARNING: disabling SIO Logical Devices may have unwanted
side effects.
PROCEED WITH CAUTION.

                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

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```

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

3.4.9.2 SIO Configuration: Serial Port 2 Configuration

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

Serial Port  2 Configuration                          Enable or Disable this Logical
                                                      Devcie.
Use This Device                    [Enabled]

Logical Device Settings:
Current :     IO=2F8h; IRQ=3;

Possible:                          [Use Automatic Settings]
Mode    :                          [RS232]

WARNING: disabling SIO Logical Devices may have unwanted
side effects.
PROCEED WITH CAUTION.                                 →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Options Summary		
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2F8; IRQ=3;	
	IO=3F8; IRQ=4;	
Select an optimal setting for IO device		
Mode:	RS232	Optimal Default, Failsafe Default
	RS422	
	RS485	

3.4.9.3 SIO Configuration: Serial Port 3 Configuration

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Advanced

Serial Port  3 Configuration                          Enable or Disable this Logical
                                                      Devcie.
Use This Device                    [Enabled]

Logical Device Settings:
Current :     IO=3E8h; IRQ=11;

Possible:                          [Use Automatic Settings]
Mode    :                          [RS232]

WARNING: disabling SIO Logical Devices may have unwanted
side effects.
PROCEED WITH CAUTION.                                 →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Options Summary		
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=3E8; IRQ=11;	
	IO=2E8; IRQ=11;	
Select an optimal setting for IO device		
Mode:	RS232	Optimal Default, Failsafe Default
	RS422	
	RS485	

3.4.9.4 SIO Configuration: Serial Port 4 Configuration

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

Serial Port  4 Configuration                    Enable or Disable this Logical
                                                Devcie.
Use This Device                  [Enabled]

Logical Device Settings:
Current :     IO=2E8h; IRQ=11;

Possible:                        [Use Automatic Settings]

WARNING: disabling SIO Logical Devices may have unwanted
side effects.
PROCEED WITH CAUTION.

                                                →←: Select Screen
                                                ↑↓: Select Item
                                                Enter: Select
                                                +/-: Change Opt.
                                                F1: General Help
                                                F2: Previous Values
                                                F3: Optimized Defaults
                                                F4: Save & Exit
                                                ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Options Summary		
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2E8; IRQ=11;	
	IO=3E8; IRQ=11;	
Select an optimal setting for IO device		

3.4.9.5 SIO Configuration: Serial Port 5 Configuration

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

Serial Port  5 Configuration                          Enable or Disable this Logical
                                                      Devcie.
Use This Device                    [Enabled]

Logical Device Settings:
Current :     IO=2D0h; IRQ=11;

Possible:                          [Use Automatic Settings]

WARNING: disabling SIO Logical Devices may have unwanted
side effects.
PROCEED WITH CAUTION.

                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Options Summary		
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2D0; IRQ=11;	
	IO=2C0; IRQ=11;	
Select an optimal setting for IO device		

3.4.9.6 SIO Configuration: Serial Port 6 Configuration

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Advanced

Serial Port  6 Configuration                          Enable or Disable this Logical
                                                      Devcie.
Use This Device                    [Enabled]

Logical Device Settings:
Current :     IO=2C0h; IRQ=11;

Possible:                          [Use Automatic Settings]
Mode    :                          [Disable IR1]

WARNING: disabling SIO Logical Devices may have unwanted
side effects.
PROCEED WITH CAUTION.                                 →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Options Summary		
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2C0; IRQ=11;	
	IO=2E8; IRQ=11;	
Select an optimal setting for IO device		
Mode:	Disable IR1	Optimal Default, Failsafe Default
	Enable IR1 (pulse 1.6uS)	
	Enable IR1 (pulse 3/16 bit time)	
Set the Serial Mode		

3.4.10 Parallel Port Configuration

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

Parallel Port  Configuration                    Enable or Disable this Logical
                                                Devcie.
Use This Device                  [Disabled]

WARNING: disabling SIO Logical Devices may have unwanted
side effects.
PROCEED WITH CAUTION.

                                                →←: Select Screen
                                                ↑↓: Select Item
                                                Enter: Select
                                                +/-: Change Opt.
                                                F1: General Help
                                                F2: Previous Values
                                                F3: Optimized Defaults
                                                F4: Save & Exit
                                                ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

Options Summary		
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable Parallel Port		

3.5 Setup submenu: Chipset

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main  Advanced  Chipset  Security  Boot  Save & Exit

▶ North Bridge Configuration
▶ South Bridge Configuration

North Bridge Configuration

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

3.5.1 North Bridge

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                    Chipset

 North Bridge Configuration                          Display Control Configuration

 Memory Information
 Total Memory                        2048 MB (LPDDR3)

 Memory Slot0                        2048 MB (LPDDR3)

▶ Display Control Configuration

                                                     →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

3.5.2.1 Chipset: Display Control Configuration

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Chipset

Display Control Configuration                    Select DVMT 5.0 Pre-Allocated
                                                 (Fixed) Graphics Memory size
DVMT Pre-Allocated                  [64M]        used by the Internal Graphics
DVMT Total Gfx Mem                  [256MB]      Device.

Primary IGFX Boot Display           [VBIOS Default]

LVDS                                [Enabled]

LVDS Panel Type                     [1024x768,60Hz]
Color Depth                         [24bit]
Panel Mode                          [Dual channel]
Data enable polarity                [Active low]
LVDS Backlight Level                [ 80%]
LVDS Backlight Type                 [Normal]

                                                 →←: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

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

Options Summary		
DVMT Total Gfx Mem	128MB	Optimal Default, Failsafe Default
	256MB	
	Max	
DVMT Total Gfx Mem	128MB	Optimal Default, Failsafe Default
	256MB	
	Max	
LVDS	Enable	Optimal Default, Failsafe Default
	Disable	
LVDS Panel Type	640x480, 60Hz	Optimal Default, Failsafe Default
	800x480, 60Hz	
	800x600,60Hz	
	1024x600,60Hz	
	1024x768,60Hz	
	1280x768,60Hz	
	1280x1024,60Hz	
	1366x768,60Hz	
	1440x900,60Hz	
	1600x1200,60Hz	
	1920x1080,60Hz	
	1920x1200,60Hz	
	1280x800,60Hz	
Color Depth	24bit	Optimal Default, Failsafe Default
	18bit	
Panel Mode	Single Channel	Optimal Default, Failsafe Default
	Dual Channel	
Data enable polarity	Active Low	Optimal Default, Failsafe Default
	Active High	
LVDS Backlight Level	100%	Default
	90%	
	80%	
	70%	
	60%	
	50%	
	40%	
	30%	
	20%	
	10%	
	0%	

Options Summary		
LVDS Backlight Control	Normal	Default
	Inverted	

3.5.3 South Bridge

Options Summary		
Audio Controller	Disabled	
	Enabled	Optimal Default, Failsafe Default

3.6 Setup Submenu: Security

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Main  Advanced  Chipset  Security  Boot  Save & Exit

Password Description                          Set Administrator Password

If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup.
If ONLY the User's password is set, then this
is a power on password and must be entered to
boot or enter Setup. In Setup the User will
have Administrator rights.
The password length must be
in the following range:
Minimum length                    3
Maximum length                    20

Administrator Password                        →←: Select Screen
User Password                                 ↑↓: Select Item
                                              Enter: Select
                                              +/-: Change Opt.
                                              F1: General Help
                                              F2: Previous Values
                                              F3: Optimized Defaults
                                              F4: Save & Exit
                                              ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

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

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main  Advanced  Chipset  Security  Boot  Save & Exit

Boot Configuration                                   Enables or disables Quiet Boot
                                                     option
Quiet Boot                          [Enabled]
Option ROM Messages                 [Force BIOS]
Launch PXE OpROM                    [Disabled]

Boot Option Priorities
Boot Option #1                      [UEFI: Sony Storage ...]
Boot Option #2                      [Sony Storage Media ...]
Boot Option #3                      [UEFI: Built-in EFI ...]

Hard Drive BBS Priorities                            →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit

Version 2.16.1243. Copyright (C) 2013 American Megatrends, Inc.
```

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

3.7.1 BBS Priorities

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                                Boot

Boot Option #1                  [Lexar USB Flash Dri...]   Sets the system boot order
Boot Option #2                  [P0: mSATA mini 3ME ...]

                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

3.8 Setup Submenu: Save & Exit

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main  Advanced  Chipset  Security  Boot  Save & Exit

Save Changes and Reset                    Reset the system after saving
Discard Changes and Reset                 the changes.

Restore Defaults

                                          →←: Select Screen
                                          ↑↓: Select Item
                                          Enter: Select
                                          +/-: Change Opt.
                                          F1: General Help
                                          F2: Previous Values
                                          F3: Optimized Defaults
                                          F4: Save & Exit
                                          ESC: Exit

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Chapter 4

Drivers Installation

4.1 Drivers Download and Installation

Drivers for the EPIC-BT07-A13 can be downloaded from the product page on the AAEON website by following this link:

https://www.aaeon.com/en/p/embedded-single-board-computers-epic-bt07

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

Step 1 – Install Chipset Drivers

1. Open the **Step 1 – Chipset** folder and select your OS
2. Open the **SetupChipset.exe** file
3. Follow the instructions
4. Drivers will be installed automatically

Step 2 – Install Graphics Driver

1. Open the **STEP2 - Graphics** folder and select your OS
2. Open the **Setup.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 3 – Install LAN Driver

1. Open the **STEP3 – Network** folder and select your OS
2. Open the **.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 4 – Install Intel Sideband Fabric Device Drivers (Windows 8.1/ 10 only)

1. Open the **STEP5 - Intel Sideband Fabric Device** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 5 – Install TPM Drivers

1. Open the **STEP6 – TPM** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Note for TPM Drivers: The hardware ID of MSFT0101 is for TPM2.0

If you are installing Windows 7 64-bit on your system, you must install KB2920188 and the Hotfix from the following links first:

KB2920188 Download:

https://support.microsoft.com/en-us/help/2920188/update-to-add-support-for-tpm-2-0-in-windows-7-and-windows-server-2008

KB2920188 Hotfix Download:

https://social.technet.microsoft.com/Forums/en-US/000c70e0-e391-4d52-97c3-6144803cb3cd/tpm-20-windows-7-sp1-x64-hotfix-kb2920188

Step 6 – Install Audio Driver

1. Open the **STEP7 – Audio** folder and select your OS
2. Open the **.exe** file
3. Follow the instructions
4. Drivers will be installed automatically

Step 7 – Install Touch Driver

1. Open the **STEP8 – Touch** folder and select your OS
2. Open the **Setup.exe** file
3. Follow the instructions
4. Drivers will be installed automatically

Step 8 – Serial Port Drivers (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:

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**.

For Windows 10:

1. You will need administrator rights to install the drivers. To get it, first go to **Computer Management** in **Control Panel** and double-click on **Administrator**

2. In the dialog box, **uncheck** the **Account is disabled** option to enable administrator account.

3. Restart and sign in as the administrator (not password protect by default)

4. Go back to the Windows 10 Serial Port drivers directory and **run patch.bat as administrator.**

Step 9 – Install Atom E3800 I/O Driver

1. Open the STEP8 –Atom E3800 I/O folder and select your OS
2. Open the.exe file
3. Follow the instructions
4. Drivers will be installed automatically

Appendix A

I/O Information

A.1 I/O Address Map

Input/output (IO)

```
[0000000000000000 - 000000000000006F] PCI Express Root Complex
[0000000000000020 - 0000000000000021] Programmable interrupt controller
[0000000000000020 - 0000000000000021] Programmable interrupt controller
[0000000000000024 - 0000000000000025] Programmable interrupt controller
[0000000000000024 - 0000000000000025] Programmable interrupt controller
[0000000000000028 - 0000000000000029] Programmable interrupt controller
[0000000000000028 - 0000000000000029] Programmable interrupt controller
[000000000000002C - 000000000000002D] Programmable interrupt controller
[000000000000002C - 000000000000002D] Programmable interrupt controller
[000000000000002E - 000000000000002F] Motherboard resources
[0000000000000030 - 0000000000000031] Programmable interrupt controller
[0000000000000030 - 0000000000000031] Programmable interrupt controller
[0000000000000034 - 0000000000000035] Programmable interrupt controller
[0000000000000034 - 0000000000000035] Programmable interrupt controller
[0000000000000038 - 0000000000000039] Programmable interrupt controller
[0000000000000038 - 0000000000000039] Programmable interrupt controller
[000000000000003C - 000000000000003D] Programmable interrupt controller
[000000000000003C - 000000000000003D] Programmable interrupt controller
[0000000000000040 - 0000000000000043] System timer
[0000000000000040 - 0000000000000043] System timer
[000000000000004E - 000000000000004F] Motherboard resources
[0000000000000050 - 0000000000000053] System timer
[0000000000000050 - 0000000000000053] System timer
[0000000000000060 - 0000000000000060] Standard PS/2 Keyboard
[0000000000000061 - 0000000000000061] Motherboard resources
[0000000000000063 - 0000000000000063] Motherboard resources
[0000000000000064 - 0000000000000064] Standard PS/2 Keyboard
[0000000000000065 - 0000000000000065] Motherboard resources
[0000000000000067 - 0000000000000067] Motherboard resources
[0000000000000070 - 0000000000000070] Motherboard resources
[0000000000000070 - 0000000000000077] System CMOS/real time clock
[0000000000000078 - 0000000000000CF7] PCI Express Root Complex
[0000000000000080 - 000000000000008F] Motherboard resources
[0000000000000092 - 0000000000000092] Motherboard resources
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
[00000000000000A4 - 00000000000000A5] Programmable interrupt controller
[00000000000000A4 - 00000000000000A5] Programmable interrupt controller
[00000000000000A8 - 00000000000000A9] Programmable interrupt controller
[00000000000000A8 - 00000000000000A9] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000AC - 00000000000000AD] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
[00000000000000B2 - 00000000000000B3] Motherboard resources
[00000000000000B4 - 00000000000000B5] Programmable interrupt controller
[00000000000000B4 - 00000000000000B5] Programmable interrupt controller
[00000000000000B8 - 00000000000000B9] Programmable interrupt controller
```

[000000000000000B8 - 000000000000000B9] Programmable interrupt controller
[000000000000000BC - 000000000000000BD] Programmable interrupt controller
[000000000000000BC - 000000000000000BD] Programmable interrupt controller
[00000000000002C0 - 00000000000002C7] Communications Port (COM6)
[00000000000002D0 - 00000000000002D7] Communications Port (COM5)
[00000000000002E8 - 00000000000002EF] Communications Port (COM4)
[00000000000002F8 - 00000000000002FF] Communications Port (COM2)
[00000000000003B0 - 00000000000003BB] Intel(R) HD Graphics
[00000000000003C0 - 00000000000003DF] Intel(R) HD Graphics
[00000000000003E8 - 00000000000003EF] Communications Port (COM3)
[00000000000003F8 - 00000000000003FF] Communications Port (COM1)
[0000000000000400 - 000000000000047F] Motherboard resources
[00000000000004D0 - 00000000000004D1] Programmable interrupt controller
[00000000000004D0 - 00000000000004D1] Programmable interrupt controller
[0000000000000500 - 000000000000005FE] Motherboard resources
[0000000000000600 - 000000000000061F] Motherboard resources
[0000000000000680 - 000000000000069F] Motherboard resources
[0000000000000A00 - 0000000000000A0F] Motherboard resources
[0000000000000A10 - 0000000000000A1F] Motherboard resources
[0000000000000A20 - 0000000000000A2F] Motherboard resources
[0000000000000D00 - 000000000000FFFF] PCI Express Root Complex
[000000000000C000 - 000000000000CFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 2 - 0F4A
[000000000000C000 - 000000000000CFFF] PCI standard PCI-to-PCI bridge
[000000000000D000 - 000000000000DFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 1 - 0F48
[000000000000D000 - 000000000000DFFF] PCI standard PCI-to-PCI bridge
[000000000000E000 - 000000000000E01F] Intel Device
[000000000000E000 - 000000000000E01F] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12
[000000000000E020 - 000000000000E03F] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[000000000000E020 - 000000000000E03F] Standard SATA AHCI Controller
[000000000000E040 - 000000000000E043] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[000000000000E040 - 000000000000E043] Standard SATA AHCI Controller
[000000000000E050 - 000000000000E057] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[000000000000E050 - 000000000000E057] Standard SATA AHCI Controller
[000000000000E060 - 000000000000E063] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[000000000000E060 - 000000000000E063] Standard SATA AHCI Controller
[000000000000E070 - 000000000000E077] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[000000000000E070 - 000000000000E077] Standard SATA AHCI Controller
[000000000000E080 - 000000000000E087] Intel(R) HD Graphics
[000000000000E080 - 000000000000E087] Intel(R) HD Graphics

A.2 Memory Address Map

Memory

```
[00000000000A0000 - 00000000000BFFFF]  Intel(R) HD Graphics
[00000000000A0000 - 00000000000BFFFF]  PCI Express Root Complex
[00000000000C0000 - 00000000000DFFFF]  PCI Express Root Complex
[00000000000E0000 - 00000000000FFFFF]  PCI Express Root Complex
[0000000080000000 - 00000000D0818FFE]  PCI Express Root Complex
[00000000C0000000 - 00000000CFFFFFFF]  Intel(R) HD Graphics
[00000000C0000000 - 00000000CFFFFFFF]  Intel(R) HD Graphics
[00000000D0000000 - 00000000D03FFFFF]  Intel(R) HD Graphics
[00000000D0000000 - 00000000D03FFFFF]  Intel(R) HD Graphics
[00000000D0400000 - 00000000D04FFFFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution Engine Interface - 0F18
[00000000D0400000 - 00000000D04FFFFF]  PCI standard PCI-to-PCI bridge
[00000000D0500000 - 00000000D05FFFFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution Engine Interface - 0F18
[00000000D0500000 - 00000000D05FFFFF]  PCI standard PCI-to-PCI bridge
[00000000D0600000 - 00000000D060FFFF]  Intel(R) USB 3.0 eXtensible Host Controller - 0100 (Microsoft)
[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
[00000000D0610000 - 00000000D0613FFF]  High Definition Audio Controller
[00000000D0614000 - 00000000D061401F]  Intel Device
[00000000D0618000 - 00000000D06187FF]  Standard SATA AHCI Controller
[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 - 0100 (Microsoft)
[00000000D0810000 - 00000000D0813FFF]  High Definition Audio Controller
[00000000D0814000 - 00000000D081401F]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12
[00000000D0818000 - 00000000D08187FF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[00000000D0819000 - 00000000D0819FFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor SD Host Controller
[00000000D081A000 - 00000000D081AFFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor SD Host Controller
[00000000E0000000 - 00000000EFFFFFFF]  Motherboard resources
[00000000E00000D0 - 00000000E00000DB]  Intel(R) Sideband Fabric Device
[00000000FED00000 - 00000000FED003FF]  High precision event timer
[00000000FED01000 - 00000000FED01FFF]  Motherboard resources
[00000000FED03000 - 00000000FED03FFF]  Motherboard resources
[00000000FED04000 - 00000000FED04FFF]  Motherboard resources
[00000000FED08000 - 00000000FED08FFF]  Motherboard resources
[00000000FED1C000 - 00000000FED1CFFF]  Motherboard resources
[00000000FED40000 - 00000000FED44FFF]  Trusted Platform Module 1.2
[00000000FEE00000 - 00000000FEEFFFFF]  Motherboard resources
[00000000FEF00000 - 00000000FEFFFFFF]  Motherboard resources
[00000000FF000000 - 00000000FFFFFFFF]  Intel(R) 82802 Firmware Hub Device
[00000000FF000000 - 00000000FFFFFFFF]  Intel(R) 82802 Firmware Hub Device
```

A.3 IRQ Mapping Chart

- bt7
  - Input/output (IO)
  - Interrupt request (IRQ)
    - (ISA) 0x00000000 (00) System timer
    - (ISA) 0x00000000 (00) System timer
    - (ISA) 0x00000001 (01) Standard PS/2 Keyboard
    - (ISA) 0x00000003 (03) Communications Port (COM2)
    - (ISA) 0x00000004 (04) Communications Port (COM1)
    - (ISA) 0x00000005 (05) Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor SD Host Controller
    - (ISA) 0x00000005 (05) PCI standard PCI-to-PCI bridge
    - (ISA) 0x00000005 (05) PCI standard PCI-to-PCI bridge
    - (ISA) 0x00000005 (05) PCI standard PCI-to-PCI bridge
    - (ISA) 0x00000005 (05) Standard SATA AHCI Controller
    - (ISA) 0x00000008 (08) High precision event timer
    - (ISA) 0x0000000A (10) High Definition Audio Controller
    - (ISA) 0x0000000A (10) Intel Device
    - (ISA) 0x0000000A (10) Intel(R) HD Graphics
    - (ISA) 0x0000000A (10) Intel(R) USB 3.0 eXtensible Host Controller - 0100 (Microsoft)
    - (ISA) 0x0000000A (10) PCI standard PCI-to-PCI bridge
    - (ISA) 0x0000000A (10) PCI standard PCI-to-PCI bridge
    - (ISA) 0x0000000B (11) Communications Port (COM3)
    - (ISA) 0x0000000B (11) Communications Port (COM4)
    - (ISA) 0x0000000B (11) Communications Port (COM5)
    - (ISA) 0x0000000B (11) Communications Port (COM6)
    - (ISA) 0x0000000C (12) Microsoft PS/2 Mouse
    - (ISA) 0x00000051 (81) Microsoft ACPI-Compliant System
    - (ISA) 0x00000052 (82) Microsoft ACPI-Compliant System
    - (ISA) 0x00000053 (83) Microsoft ACPI-Compliant System
    - (ISA) 0x00000054 (84) Microsoft ACPI-Compliant System
    - (ISA) 0x00000055 (85) Microsoft ACPI-Compliant System
    - (ISA) 0x00000056 (86) Microsoft ACPI-Compliant System
    - (ISA) 0x00000057 (87) Microsoft ACPI-Compliant System
    - (ISA) 0x00000058 (88) Microsoft ACPI-Compliant System
    - (ISA) 0x00000059 (89) Microsoft ACPI-Compliant System
    - (ISA) 0x0000005A (90) Microsoft ACPI-Compliant System
    - (ISA) 0x0000005B (91) Microsoft ACPI-Compliant System
    - (ISA) 0x0000005C (92) Microsoft ACPI-Compliant System
    - (ISA) 0x0000005D (93) Microsoft ACPI-Compliant System
    - (ISA) 0x0000005E (94) Microsoft ACPI-Compliant System
    - (ISA) 0x0000005F (95) Microsoft ACPI-Compliant System
    - (ISA) 0x00000060 (96) Microsoft ACPI-Compliant System
    - (ISA) 0x00000061 (97) Microsoft ACPI-Compliant System
    - (ISA) 0x00000062 (98) Microsoft ACPI-Compliant System
    - (ISA) 0x00000063 (99) Microsoft ACPI-Compliant System
    - (ISA) 0x00000064 (100) Microsoft ACPI-Compliant System
    - (ISA) 0x00000065 (101) Microsoft ACPI-Compliant System
    - (ISA) 0x00000066 (102) Microsoft ACPI-Compliant System
    - (ISA) 0x00000067 (103) Microsoft ACPI-Compliant System
    - (ISA) 0x00000068 (104) Microsoft ACPI-Compliant System

(ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
(ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
(ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
(ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
(ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
(ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
(ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
(ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
(ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
(ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
(ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
(ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System
(ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
(ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
(ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
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(ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System
(ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
(ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
(ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
(ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
(ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
(ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
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(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

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(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
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(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
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(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
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(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
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(ISA) 0x00000102 (258)	Microsoft ACPI-Compliant System
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(ISA) 0x0000016B (363) Microsoft ACPI-Compliant System
(ISA) 0x0000016C (364) Microsoft ACPI-Compliant System

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(ISA) 0x0000017D (381)	Microsoft ACPI-Compliant System
(ISA) 0x0000017E (382)	Microsoft ACPI-Compliant System
(ISA) 0x0000017F (383)	Microsoft ACPI-Compliant System
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(ISA) 0x0000018C (396)	Microsoft ACPI-Compliant System
(ISA) 0x0000018D (397)	Microsoft ACPI-Compliant System
(ISA) 0x0000018E (398)	Microsoft ACPI-Compliant System
(ISA) 0x0000018F (399)	Microsoft ACPI-Compliant System
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(ISA) 0x00000191 (401)	Microsoft ACPI-Compliant System
(ISA) 0x00000192 (402)	Microsoft ACPI-Compliant System
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(ISA) 0x0000019B (411)	Microsoft ACPI-Compliant System
(ISA) 0x0000019C (412)	Microsoft ACPI-Compliant System
(ISA) 0x0000019D (413)	Microsoft ACPI-Compliant System

(ISA) 0x0000019E (414)	Microsoft ACPI-Compliant System
(ISA) 0x0000019F (415)	Microsoft ACPI-Compliant System
(ISA) 0x000001A0 (416)	Microsoft ACPI-Compliant System
(ISA) 0x000001A1 (417)	Microsoft ACPI-Compliant System
(ISA) 0x000001A2 (418)	Microsoft ACPI-Compliant System
(ISA) 0x000001A3 (419)	Microsoft ACPI-Compliant System
(ISA) 0x000001A4 (420)	Microsoft ACPI-Compliant System
(ISA) 0x000001A5 (421)	Microsoft ACPI-Compliant System
(ISA) 0x000001A6 (422)	Microsoft ACPI-Compliant System
(ISA) 0x000001A7 (423)	Microsoft ACPI-Compliant System
(ISA) 0x000001A8 (424)	Microsoft ACPI-Compliant System
(ISA) 0x000001A9 (425)	Microsoft ACPI-Compliant System
(ISA) 0x000001AA (426)	Microsoft ACPI-Compliant System
(ISA) 0x000001AB (427)	Microsoft ACPI-Compliant System
(ISA) 0x000001AC (428)	Microsoft ACPI-Compliant System
(ISA) 0x000001AD (429)	Microsoft ACPI-Compliant System
(ISA) 0x000001AE (430)	Microsoft ACPI-Compliant System
(ISA) 0x000001AF (431)	Microsoft ACPI-Compliant System
(ISA) 0x000001B0 (432)	Microsoft ACPI-Compliant System
(ISA) 0x000001B1 (433)	Microsoft ACPI-Compliant System
(ISA) 0x000001B2 (434)	Microsoft ACPI-Compliant System
(ISA) 0x000001B3 (435)	Microsoft ACPI-Compliant System
(ISA) 0x000001B4 (436)	Microsoft ACPI-Compliant System
(ISA) 0x000001B5 (437)	Microsoft ACPI-Compliant System
(ISA) 0x000001B6 (438)	Microsoft ACPI-Compliant System
(ISA) 0x000001B7 (439)	Microsoft ACPI-Compliant System
(ISA) 0x000001B8 (440)	Microsoft ACPI-Compliant System
(ISA) 0x000001B9 (441)	Microsoft ACPI-Compliant System
(ISA) 0x000001BA (442)	Microsoft ACPI-Compliant System
(ISA) 0x000001BB (443)	Microsoft ACPI-Compliant System
(ISA) 0x000001BC (444)	Microsoft ACPI-Compliant System
(ISA) 0x000001BD (445)	Microsoft ACPI-Compliant System
(ISA) 0x000001BE (446)	Microsoft ACPI-Compliant System
(ISA) 0x000001BF (447)	Microsoft ACPI-Compliant System
(ISA) 0x000001C0 (448)	Microsoft ACPI-Compliant System
(ISA) 0x000001C1 (449)	Microsoft ACPI-Compliant System
(ISA) 0x000001C2 (450)	Microsoft ACPI-Compliant System
(ISA) 0x000001C3 (451)	Microsoft ACPI-Compliant System
(ISA) 0x000001C4 (452)	Microsoft ACPI-Compliant System
(ISA) 0x000001C5 (453)	Microsoft ACPI-Compliant System
(ISA) 0x000001C6 (454)	Microsoft ACPI-Compliant System
(ISA) 0x000001C7 (455)	Microsoft ACPI-Compliant System
(ISA) 0x000001C8 (456)	Microsoft ACPI-Compliant System
(ISA) 0x000001C9 (457)	Microsoft ACPI-Compliant System
(ISA) 0x000001CA (458)	Microsoft ACPI-Compliant System
(ISA) 0x000001CB (459)	Microsoft ACPI-Compliant System
(ISA) 0x000001CC (460)	Microsoft ACPI-Compliant System
(ISA) 0x000001CD (461)	Microsoft ACPI-Compliant System
(ISA) 0x000001CE (462)	Microsoft ACPI-Compliant System

(ISA) 0x000001CF (463) Microsoft ACPI-Compliant System
(ISA) 0x000001D0 (464) Microsoft ACPI-Compliant System
(ISA) 0x000001D1 (465) Microsoft ACPI-Compliant System
(ISA) 0x000001D2 (466) Microsoft ACPI-Compliant System
(ISA) 0x000001D3 (467) Microsoft ACPI-Compliant System
(ISA) 0x000001D4 (468) Microsoft ACPI-Compliant System
(ISA) 0x000001D5 (469) Microsoft ACPI-Compliant System
(ISA) 0x000001D6 (470) Microsoft ACPI-Compliant System
(ISA) 0x000001D7 (471) Microsoft ACPI-Compliant System
(ISA) 0x000001D8 (472) Microsoft ACPI-Compliant System
(ISA) 0x000001D9 (473) Microsoft ACPI-Compliant System
(ISA) 0x000001DA (474) Microsoft ACPI-Compliant System
(ISA) 0x000001DB (475) Microsoft ACPI-Compliant System
(ISA) 0x000001DC (476) Microsoft ACPI-Compliant System
(ISA) 0x000001DD (477) Microsoft ACPI-Compliant System
(ISA) 0x000001DE (478) Microsoft ACPI-Compliant System
(ISA) 0x000001DF (479) Microsoft ACPI-Compliant System
(ISA) 0x000001E0 (480) Microsoft ACPI-Compliant System
(ISA) 0x000001E1 (481) Microsoft ACPI-Compliant System
(ISA) 0x000001E2 (482) Microsoft ACPI-Compliant System
(ISA) 0x000001E3 (483) Microsoft ACPI-Compliant System
(ISA) 0x000001E4 (484) Microsoft ACPI-Compliant System
(ISA) 0x000001E5 (485) Microsoft ACPI-Compliant System
(ISA) 0x000001E6 (486) Microsoft ACPI-Compliant System
(ISA) 0x000001E7 (487) Microsoft ACPI-Compliant System
(ISA) 0x000001E8 (488) Microsoft ACPI-Compliant System
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(ISA) 0x000001EA (490) Microsoft ACPI-Compliant System
(ISA) 0x000001EB (491) Microsoft ACPI-Compliant System
(ISA) 0x000001EC (492) Microsoft ACPI-Compliant System
(ISA) 0x000001ED (493) Microsoft ACPI-Compliant System
(ISA) 0x000001EE (494) Microsoft ACPI-Compliant System
(ISA) 0x000001EF (495) Microsoft ACPI-Compliant System
(ISA) 0x000001F0 (496) Microsoft ACPI-Compliant System
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(ISA) 0x000001F7 (503) Microsoft ACPI-Compliant System
(ISA) 0x000001F8 (504) Microsoft ACPI-Compliant System
(ISA) 0x000001F9 (505) Microsoft ACPI-Compliant System
(ISA) 0x000001FA (506) Microsoft ACPI-Compliant System
(ISA) 0x000001FB (507) Microsoft ACPI-Compliant System
(ISA) 0x000001FC (508) Microsoft ACPI-Compliant System
(ISA) 0x000001FD (509) Microsoft ACPI-Compliant System
(ISA) 0x000001FE (510) Microsoft ACPI-Compliant System
(ISA) 0x000001FF (511) Microsoft ACPI-Compliant System

(PCI) 0x00000005 (05) Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12
(PCI) 0x0000000A (10) Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution Engine Interface - 0F18
(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) 0x00000012 (18) Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 3 - 0F4C
(PCI) 0x00000013 (19) Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
(PCI) 0x00000013 (19) Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 4 - 0F4E
(PCI) 0x00000013 (19) PCI standard PCI-to-PCI bridge
(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 - 0100 (Microsoft)
(PCI) 0xFFFFFFFE (-2) Intel(R) HD Graphics

Appendix B

Mating Connectors

B.1 List of Mating Connectors and Cables

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
CN1	Stereo Audio RIGHT Channel	PINREX	712-71-02TW01	N/A	N/A
CN6	4-Pin Power In Connector	CATCH	1121-700-04S	ATX 2x2 Power Cable	N/A
CN7	Stereo Audio LEFT Channel	PINREX	712-71-02TW01	N/A	N/A
CN8	2-Pin Power in Connector	DINKLE	DT-126VP-S2016002P	Power Cable	170204010R
CN10	Audio Connector	PINREX	712-71-10TW01	Audio Cable	1709100254
CN12	LPT/Digital IO Connector	PINREX	520-90-26GB00	Parallel Port Cable	1701260200
CN13	USB 2.0 Port 2	PINREX	712-71-05TW01	USB Wafer Cable	1700050207
CN14	USB 2.0 Port 3	PINREX	712-71-05TW01	USB Wafer Cable	1700050207
CN15	USB 2.0 Port 5	PINREX	712-71-05TW01	USB Wafer Cable	1700050207
CN16	USB 2.0 Port 4	PINREX	712-71-05TW01	USB Wafer Cable	1700050207
CN21	LPC Expansion Connector	PINREX	710-73-12TW01	AAEON LPC Cable	1703120130

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
CN23	+5V Output for SATA HDD	PINREX	721-81-02TW00	2 Pins For SATA Power	1702150155
CN25	SATA Port1	PINREX	770-83-07SB39	SATA Cable	1709070500
CN29	Touch Screen Connector	PINREX	710-73-09TW01	N/A	N/A
CN30	PS/2 Keyboard Mouse Connector	PINREX	712-41-065W00	KB/MS Cable	1700060155
CN31	COM Port 6	PINREX	712-71-09TW01	UART Wafer Cable	1701090150
CN32	COM Port 5	PINREX	712-71-09TW01	UART Wafer Cable	1701090150
CN37	COM Port 4	PINREX	712-71-09TW01	UART Wafer Cable	1701090150
CN38	COM Port 3	PINREX	712-71-09TW01	UART Wafer Cable	1701090150

Appendix C

Electrical Specifications for I/O Ports

C.1 Electrical Specifications for I/O Ports

I/O	Reference	Signal Name	Rate Output
Audio I/O Port	CN10	+5V	+5V/1A
COM Port 2	CN49	+5V/+12V	+5V/1A or +12V/1A
COM Port 3	CN38	+5V/+12V	+5V/1A or +12V/1A
DP Port	CN48	+3.3V	+3.3V/1A
Digital IO Port	CN12	+5V	+5V/1A
LVDS/eDP Inverter / Backlight Connector	CN19	+5V/+12V	+5V/1.5A or +12V/1.5A
eDP Inverter/ Backlight Connector	CN46	+5V/+12V	+5V/1.5A or +12V/1.5A
HDMI Port	CN50	+5V	+5V/1A
LVDS Port / eDP	CN35	+3.3V/+5V	+3.3V/2A or +5V/2A
eDP	CN24	+3.3V/+5V	+3.3V/2A or +5V/2A
Mini Card Slot	CN26	+3.3VSB +1.5V	+3.3V/1.1A +1.5V/0.375A
Mini Card Slot	CN27	+3.3VSB +1.5V	+3.3V/1.1A +1.5V/0.375A
PS/2 Keyboard/ Mouse Combo Port	CN30	+5VSB	+5V/1A
+5V Output for SATA HDD	CN23	+5V	+5V/1A

I/O	Reference	Signal Name	Rate Output
USB Ports 0 & 1	CN47	+5VSB	+5V/0.5A (USB 2.0) +5V/0.9A (USB 3.0)
USB 2.0 Port 2	CN13	+5VSB	+5V/0.5A
USB 2.0 Port 3	CN14	+5VSB	+5V/0.5A
USB 2.0 Port 5	CN15	+5VSB	+5V/0.5A
USB 2.0 Port 4	CN16	+5VSB	+5V/0.5A
VGA Port	CN51	+5V	+5V/1A (reserved)