

# ECB-920A-A11

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COM Express Carrier Board

User's Manual 2<sup>nd</sup> Ed

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## Packing List

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

Item	Quantity
● ECB-920A-A11	1
● PER-T603 (COM Express Type Converter Board)	1
● PER-T604 (PCIe [x4] to PCIe [x1] x 4 Card)	1
● Cable Kit (SATA Cable x 2, COM Port Cable x 2)	1

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

## About this Document

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

Users may refer to the product page at [AAEON.com](http://AAEON.com) for the latest version of this document.

## Safety Precautions

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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.**

### **Warning!**



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

### **Caution:**

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

### **Attention:**

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



## China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON 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	○	○	○	○	○	○
外部信号 连接器及线材	○	○	○	○	○	○
<p>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。</p> <p>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。</p> <p>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。</p>						

## 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	○	○	○	○	○	○
Wires & Connectors for External Connections	○	○	○	○	○	○
<p>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.</p> <p>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.</p> <p><b>Note:</b> The Environment Friendly Use Period as labeled on this product is applicable under normal usage only</p>						

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# Chapter 1

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Product Specifications

## 1.1 Specifications

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### System

Form Factor	ATX
COM Express Connector	x 2 (Row A, B & Row C, D)
I/O Chipset	-
Front Panel Control	10-pin header (5x2)
Ethernet	10/100/1000/2500 Base-TX, RJ45 x1 (From CPU Module)
Expansion Interface	PCIe [x4] slot x 2 PCIe [x16] slot x 1
Power Supply Type	ATX
CMOS Battery	RTC Battery Socket x 1
BIOS	-
Board Dimensions	12" x 9.6" (304mm x 244mm)
Gross Weight	1.32 lbs. (0.6 kg)
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)	-
Certification	CE/FCC Class A

### Display

DVT/CRT/VGA	D-SUB15 connector x 1
LVDS/ eDP	LVDS: 40-pin (20 x 2) Dual Channel LVDS connector eDP: 30-pin board wire connector
SDVO	-

## Display

DDI Display Port x 3 (Dual x 1, Single x 1)

## I/O

Storage SATA III (6.0 Gbps) x 4

Serial Port COM Port (2-wire UART Tx/Rx) x 2

USB Port Type A connector x 8 (USB2.0 x 4, USB3.2/2.0 x4)

Audio Audio Jack, supports Line-in, Line-out, Mic

PS/2 Port -

GPIO 8-bit Programmable

Switch/Button Power Button x 1

Reset Button x 1

Debug LED 80 PORT

I2C 1

Expansion Interface LPC, I2C, SMBus, eSPI, CAN Bus, 4-pin Fan Connector, Micro SD card slot x 1

**Note:** I/O functions are based on the module installed. Refer to the function table on the datasheet for more information.

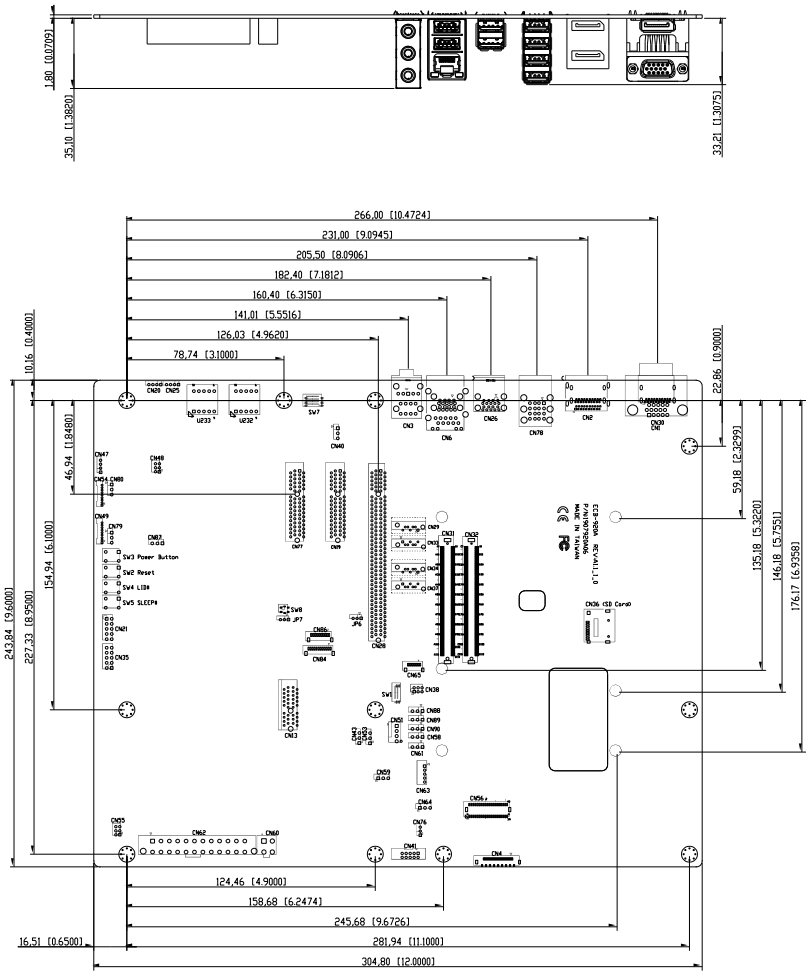


# Chapter 2

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Hardware Information

## 2.1 Dimensions

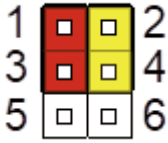


## 2.2 List of Jumpers and Switches

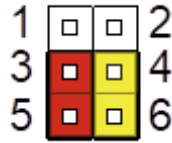
Please refer to the table below for all of the board's jumpers that you can configure for your application

Label	Function
CN38	+5V_DUAL for ATX Power
CN40	Audio Power Selection
CN43	TPM_PP Level Selection
CN48	Serial Port and CAN Bus Selection
CN53	PWM FAN Power Selection
CN55	AT/ATX Mode Selection
CN58	LVDS_BKLT_CTRL Selection
CN59	RTC Clear CMOS Selection
CN61	LVDS Inverter Voltage Selection
CN64	LVDS Operating Voltage Selection
CN76	microSD Card and DIO Selection
CN79	COM Port TX/RX Short
CN80	COM Port TX/RX Short
CN87	Serial Port Power Selection
CN88	eDP and LVDS Selection
CN89	eDP and LVDS DCC/AUX Selection
CN90	eDP and LVDS Backlight Selection
SW1	BIOS Selection

## 2.2.1 +5V\_DUAL for ATX Power (CN38)



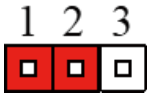
Pins 1-3 and 2-4 selected  
+5V\_DUAL for ATX (Default)



Pins 3-5 and 4-6 selected  
Non +5V\_DUAL Power

**Note:** To prevent unintended operation or damage to system, do not connect jumpers on CN38 in any other configuration than shown above.

## 2.2.2 Audio Power Selection (CN40)

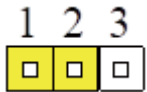


Pins 1-2  
+3.3V (Default)

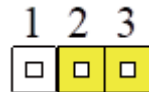


Pins 2-3  
+1.5V

## 2.2.3 TPM\_PP Level Selection (CN43)

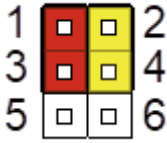


Pins 1-2  
Pull up 4.7K to 3.3V

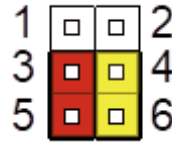


Pins 2-3  
Pull down 4.7K to GND (Default)

## 2.2.4 Serial Port and CAN Bus Selection (CN48)



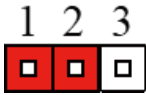
Pins 1-3 and 2-4 selected  
Serial Port (**Default**)



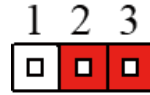
Pins 3-5 and 4-6 selected  
CAN Bus

**Note:** To prevent unintended operation or damage to system, do not connect jumpers on CN48 in any other configuration than shown above.

## 2.2.5 PWM FAN Power Selection (CN53)

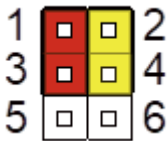


Pins 1-2  
+12V FAN Voltage (**Default**)

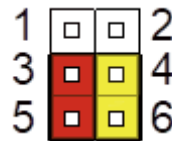


Pins 2-3  
+5V FAN Voltage

## 2.2.6 AT/ATX Mode Selection (CN55)



Pins 1-3 and 2-4 selected  
ATX Supply Controlled (**Default**)

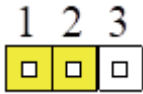


Pins 3-5 and 4-6 selected  
ATX Supply in AT Mode

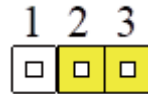
**Note:** To prevent unintended operation or damage to system, do not connect jumpers on CN55 in any other configuration than shown above.

## 2.2.7 LVDS BKLT CTRL Selection (CN58)

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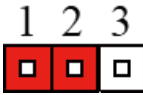
Pins 1-2  
SMBUS



Pins 2-3  
COM Module (Default)

## 2.2.8 RTC Clear CMOS Selection (CN59)

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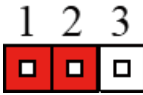
Pins 1-2  
Normal (Default)



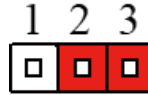
Pins 2-3  
Clear CMOS

## 2.2.9 LVDS Inverter Voltage Selection (CN61)

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Pins 1-2  
+12V



Pins 2-3  
+5V (Default)

## 2.2.10 LVDS Operating Voltage Selection (CN64)

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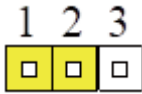
Pins 1-2  
+5V



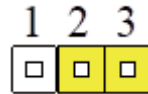
Pins 2-3  
+3.3V (Default)

## 2.2.11 microSD Card and DIO Selection (CN76)

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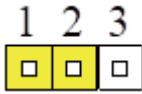
Pins 1-2  
microSD



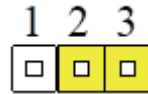
Pins 2-3  
DIO (Default)

## 2.2.12 COM Port TX/RX Short (CN79/CN80)

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Pins 1-2  
TX/RX Short (Default)



Pins 2-3  
TX/RX Open

## 2.2.13 Serial Port Power Selection (CN87)

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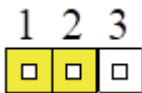
Pins 1-2  
+3V3\_DUAL



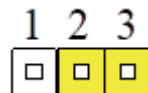
Pins 2-3  
+3.3V (Default)

## 2.2.14 eDP and LVDS Selection (CN88)

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Pins 1-2  
LVDS (Default)



Pins 2-3  
eDP

## 2.2.15 eDP and LVDS DDC/AUX Selection (CN89)

---



## 2.2.16 eDP and LVDS Backlight Selection (CN90)

---



## 2.2.17 BIOS Selection (SW'1)

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BIOS Selection Setting		
Switch 1	Switch 2	Setting
OFF	OFF	Refer to CPU module EC Setting
OFF	ON	
ON	OFF	
ON	ON	



## 2.3 List of Connectors

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

Label	Function
CN1	VGA Port
CN2	Dual Display Port
CN3	Audio Jack
CN4	eDP Connector
CN6	LAN RJ45 + Dual USB3.2 Gen 2 Ports
CN13	SIO Slot
CN19	PCIe 4.0 [x4] slot
CN20	SMBUS Pin Header
CN21	Other Function Pin Header
CN25	I2C Pin Header
CN26	Dual USB3.2 Gen 2 Ports
CN28	PCIe 4.0 [x16] Slot
CN29	SATA III (6.0 Gbps) Connector
CN30	Display Port
CN31	COM Express Type 6 Row A/B
CN32	COM Express Type 6 Row C/D
CN33	SATA III (6.0 Gbps) Connector
CN34	SATA III (6.0 Gbps) Connector
CN35	Front Panel Header
CN36	microSD Slot
CN37	SATA III (6.0 Gbps) Connector
CN41	Digital I/O Connector
CN47	CAN Bus Header

Label	Function
CN49	Serial Port Connector
CN51	PWM FAN Pin Header
CN54	Serial Port Connector
CN56	LVDS Connector
CN60	4-pin 12V Power for COM Express Module
CN62	24-pin ATX Power Connector
CN63	LVDS Inverter Connector
CN65	SPI Connector
CN77	PCIe 4.0 [x4] Slot
CN78	Quad USB2.0 Ports
CN84	LPC Connector
CN86	eSPI Connector

### 2.3.1 VGA Port (CN1)

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Standard Specifications

### 2.3.2 Dual Display Port (CN2)

---

Standard Specifications

### 2.3.3 Audio Jack (CN3)

---

Standard Specifications

### 2.3.4 eDP Connector (CN4)

---

Pin	Pin Name	Pin	Pin Name
1	+VDD_LVDS_eDP	2	+VDD_LVDS_eDP
3	GND	4	GND
5	EDP_TX2_DN	6	EDP_TX2_DP
7	GND	8	EDP_TX1_DN
9	EDP_TX1_DP	10	GND
11	EDP_TX0_DN	12	EDP_TX0_DP
13	GND	14	EDP_TX3_DN
15	EDP_TX3_DP	16	GND
17	EDP_AUX_DN	18	EDP_AUX_DP
19	GND	20	EDP_BKLT_CTL
21	NC	22	EDP_BKLT_EN
23	EDP_LVDS_HPD	24	GND
25	GND	26	GND
27	+VCC_LVDS_BKLT	28	+VCC_LVDS_BKLT
29	+VCC_LVDS_BKLT	30	+VCC_LVDS_BKLT

### 2.3.5 LAN RJ45 + Dual USB3.2 Gen 2 Ports (CN6)

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Standard Specifications

## 2.3.6 SIO Slot (CN13)

Pin	Pin Name	Pin	Pin Name
A1	LPC_DRQ0#	B1	--
A2	+12V	B2	--
A3	+12V	B3	--
A4	GND	B4	GND
A5	LPC_PME#	B5	LPC_AD2
A6	LPC_RST#	B6	SUS_S3#
A7	LPC_SERIRQ	B7	GND
A8	LPC_CLK0	B8	RTCBAT
A9	+3V3	B9	+5V_DUAL
A10	+3V3	B10	+3V3_Dual
A11	SUS_S5#	B11	PCIE_WAKE#
A12	GND	B12	+5V
A13	LPC_AD0	B13	GND
A14	LPC_AD1	B14	KBD_RST#
A15	GND	B15	KBD_A20GATE
A16	LPC_AD3	B16	GND
A17	LPC_FRAME#	B17	WDT_RST#
A18	GND	B18	GND

## 2.3.7 PCI Express 4.0 [x4] Slot (CN19/CN77)

Standard Specifications

### 2.3.8 SMBUS Pin Header (CN20)

---

Pin	Pin Name
1	GND
2	SMBDAT_SBY
3	SMBCLK_SBY
4	+3V3_DUAL +5V_DUAL (Option)

### 2.3.9 Other Function Pin Header (CN21)

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Pin	Pin Name	Pin	Pin Name
1	SMB_ALERT#	2	GND
3	BATLOW#	4	GND
5	THRMTRIP#	6	GND
7	THRM#	8	GND
9	PCIE_WAKE#	10	GND

### 2.3.10 I2C Pin Header (CN25)

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Pin	Pin Name
1	GND
2	EC_I2C_DAT
3	EC_I2C_CK
4	+3V3_DUAL +5V_DUAL (Option)

### 2.3.11 Dual USB3.2 Gen 2 Ports

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Standard Specifications

### 2.3.12 PCI Express 4.0 [x16] Slot (CN28)

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Standard Specifications

### 2.3.13 SATA III (6.0 Gbps) Connector (CN29/CN33/CN34/CN37)

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Standard Specifications

### 2.3.14 Display Port (CN30)

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Standard Specifications

### 2.3.15 COM Express Type 6 Row A/B Connector (CN31)

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Row A		Row B	
Pin	Signal	Pin	Signal
A1	GND	B1	GND
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#/eSPI_CS0#
A4	GBE0_LINK100#	B4	LPC_AD0/eSPI_IO_0
A5	GBE0_LINK1000#	B5	LPC_AD1/eSPI_IO_1
A6	GBE0_MDI2-	B6	LPC_AD2/eSPI_IO_2
A7	GBE0_MDI2+	B7	LPC_AD3/eSPI_IO_3

Row A		Row B	
Pin	Signal	Pin	Signal
A8	GBE0_LINK	B8	LPC_DRQ0#/eSPI_ALERT0#
A9	GBE0_MDI1-	B9	LPC_DRQ1#/eSPI_ALERT1#
A10	GBE0_MDI1+	B10	LPC_CLK/eSPI_CLK
A11	GND	B11	GND
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CK
A14	GBE0_CTREF	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND	B21	GND
A22	SATA2_TX+	B22	SATA3_TX+
A23	SATA2_TX-	B23	SATA3_TX-
A24	SUS_S5#	B24	PWR_OK
A25	SATA2_RX+	B25	SATA3_RX+
A26	SATA2_RX-	B26	SATA3_RX-
A27	BATLOW#	B27	WDT
A28	SATA_LED#	B28	NC
A29	HDA_SYNC	B29	NC
A30	HDA_RST#	B30	HDA_SDIN0
A31	GND	B31	GND
A32	HDA_BITCLK	B32	SPKR

Row A		Row B	
Pin	Signal	Pin	Signal
A33	HDA_SDOOUT	B33	I2C_CK
A34	BIOS_DIS0#	B34	I2C_DAT
A35	THRMTRIP#	B35	THRM#
A36	USB6-	B36	USB7-
A37	USB6+	B37	USB7+
A38	USB_6_7_OC#	B38	USB_4_5_OC#
A39	USB4-	B39	USB5-
A40	USB4+	B40	USB5+
A41	GND	B41	GND
A42	USB2-	B42	USB3-
A43	USB2+	B43	USB3+
A44	USB_2_3_OC#	B44	USB_0_1_OC#
A45	USB0-	B45	USB1-
A46	USB0+	B46	USB1+
A47	VCC_RTC	B47	eSPI_EN#
A48	NC	B48	NC
A49	NC	B49	SYS_RESET#
A50	LPC_SERIRQ/eSPI_CS1#	B50	CB_RESET#
A51	GND	B51	GND
A52	PCIE_TX5+	B52	PCIE_RX5+
A53	PCIE_TX5-	B53	PCIE_RX5-
A54	GPIO_SD_DATA0	B54	GPO1_SD_CMD
A55	PCIE_TX4+	B55	PCIE_RX4+
A56	PCIE_TX4-	B56	PCIE_RX4-
A57	GND	B57	GPO2_SD_WP



Row A		Row B	
Pin	Signal	Pin	Signal
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-
A60	GND	B60	GND
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1_SD_DATA1	B63	GP03_SD_CD#
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0#
A67	GPI2_SD_DATA2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-
A70	GND	B70	GND
A71	LVDS_A0+	B71	LVDS_B0+
A72	LVDS_A0-	B72	LVDS_B0-
A73	LVDS_A1+	B73	LVDS_B1+
A74	LVDS_A1-	B74	LVDS_B1-
A75	LVDS_A2+	B75	LVDS_B2+
A76	LVDS_A2-	B76	LVDS_B2-
A77	LVDS_VDD_EN	B77	LVDS_B3+
A78	LVDS_A3+	B78	LVDS_B3-
A79	LVDS_A3-	B79	LVDS_BKLT_EN
A80	GND (FIXED)	B80	GND (FIXED)
A81	LVDS_A_CK+	B81	LVDS_B_CK+
A82	LVDS_A_CK-	B82	LVDS_B_CK-

Row A		Row B	
Pin	Signal	Pin	Signal
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL
A84	LVDS_I2C_DAT	B84	VCC_5V_SBY
A85	GPI3_SD_DATA3	B85	VCC_5V_SBY
A86	KBD_RST#	B86	VCC_5V_SBY
A87	eDP_HPD_A87	B87	VCC_5V_SBY
A88	PCIE_CK_REF+	B88	BISO_DIS1#
A89	PCIE_CK_REF-	B89	VGA_RED
A90	GND	B90	GND
A91	SPI_POWER	B91	VGA_GREEN
A92	SPI_MISO	B92	VGA_BLUE
A93	GPO0_SD_CLK	B93	VGA_HSYNC
A94	SPI_CLK	B94	VGA_VSYNC
A95	SPI_MOSI	B95	VGA_I2C_CK
A96	GND	B96	VGA_I2C_DAT
A97	TYPE10#	B97	SPI_CS#
A98	CB_STXD1X	B98	SMI#
A99	CB_SRXD1X	B99	SCI#
A100	GND	B100	GND
A101	CB_STXD2X	B101	CB_FAN_PWM
A102	CB_SRXD2X	B102	CB_FAN_TACH
A103	PCH_LID#	B103	PCH_SLEEP#
A104	VCC_12V	B104	VCC_12V
A105	VCC_12V	B105	VCC_12V
A106	VCC_12V	B106	VCC_12V
A107	VCC_12V	B107	VCC_12V

Row A		Row B	
Pin	Signal	Pin	Signal
A108	VCC_12V	B108	VCC_12V
A109	VCC_12V	B109	VCC_12V
A110	GND	B110	GND

### 2.3.16 COM Express Type 6 Row C/D Connector (CN32)

Row C		Row D	
Pin	Signal	Pin	Signal
C1	GND	D1	GND
C2	GND	D2	GND
C3	USB_SSRX0-	D3	USB_SSTX0-
C4	USB_SSRX0+	D4	USB_SSTX0+
C5	GND	D5	GND
C6	USB_SSRX1-	D6	USB_SSTX1-
C7	USB_SSRX1+	D7	USB_SSTX1+
C8	GND	D8	GND
C9	USB_SSRX2-	D9	USB_SSTX2-
C10	USB_SSRX2+	D10	USB_SSTX2+
C11	GND	D11	GND
C12	USB_SSRX3-	D12	USB_SSTX3-
C13	USB_SSRX3+	D13	USB_SSTX3+
C14	GND	D14	GND
C15	NC	D15	DDI1_CTRLCLK_AUX+
C16	NC	D16	DDI1_CTRLDATA_AUX-
C17	RSVD	D17	RSVD

Row C		Row D	
Pin	Signal	Pin	Signal
C18	RSVD	D18	RSVD
C19	PCIE_RX6+	D19	PCIE_TX6+
C20	PCIE_RX6-	D20	PCIE_TX6-
C21	GND	D21	GND
C22	PCIE_RX7+	D22	PCIE_TX7+
C23	PCIE_RX7-	D23	PCIE_TX7-
C24	DDI1_HPD	D24	RSVD
C25	NC	D25	RSVD
C26	NC	D26	DDI1_PAIR0+
C27	RSVD	D27	DDI1_PAIR0-
C28	RSVD	D28	RSVD
C29	NC	D29	DDI1_PAIR1+
C30	NC	D30	DDI1_PAIR1-
C31	GND	D31	GND
C32	DDI2_CTRLCLK_AUX+	D32	DDI1_PAIR2+
C33	DDI2_CTRLDATA_AUX-	D33	DDI1_PAIR2-
C34	DDI2_DDC_AUX_SEL	D34	DDI1_DDC_AUX_SEL
C35	RSVD	D35	RSVD
C36	NC	D36	DDI1_PAIR3+
C37	NC	D37	DDI1_PAIR3-
C38	NC	D38	RSVD
C39	DDI3_PAIR0+	D39	DDI2_PAIR0+
C40	DDI3_PAIR0-	D40	DDI2_PAIR0-
C41	GND	D41	GND
C42	DDI3_PAIR1+	D42	DDI2_PAIR1+

Row C		Row D	
Pin	Signal	Pin	Signal
C43	DDI3_PAIR1-	D43	DDI2_PAIR1-
C44	DDI3_HPD	D44	DDI2_HPD
C45	RSVD	D45	RSVD
C46	DDI3_PAIR2+	D46	DDI2_PAIR2+
C47	DDI3_PAIR2-	D47	DDI2_PAIR2-
C48	RSVD	D48	RSVD
C49	DDI3_PAIR3+	D49	DDI2_PAIR3+
C50	DDI3_PAIR3-	D50	DDI2_PAIR3-
C51	GND	D51	GND
C52	PEG_RX0+	D52	PEG_TX0+
C53	PEG_RX0-	D53	PEG_TX0-
C54	NC	D54	PEG_LAN_RV#
C55	PEG_RX1+	D55	PEG_TX1+
C56	PEG_RX1-	D56	PEG_TX1-
C57	NC	D57	TYPE2#
C58	PEG_RX2+	D58	PEG_TX2+
C59	PEG_RX2-	D59	PEG_TX2-
C60	GND	D60	GND
C61	PEG_RX3+	D61	PEG_TX3+
C62	PEG_RX3-	D62	PEG_TX3-
C63	RSVD	D63	RSVD
C64	RSVD	D64	RSVD
C65	PEG_RX4+	D65	PEG_TX4+
C66	PEG_RX4-	D66	PEG_TX4-
C67	RSVD	D67	GND

Row C		Row D	
Pin	Signal	Pin	Signal
C68	PEG_RX5+	D68	PEG_TX5+
C69	PEG_RX5-	D69	PEG_TX5-
C70	GND	D70	GND
C71	PEG_RX6+	D71	PEG_TX6+
C72	PEG_RX6-	D72	PEG_TX6-
C73	GND	D73	GND
C74	PEG_RX7+	D74	PEG_TX7+
C75	PEG_RX7-	D75	PEG_TX7-
C76	GND	D76	GND
C77	RSVD	D77	RSVD
C78	PEG_RX8+	D78	PEG_TX8+
C79	PEG_RX8-	D79	PEG_TX8-
C80	GND	D80	GND
C81	PEG_RX9+	D81	PEG_TX9+
C82	PEG_RX9-	D82	PEG_TX9-
C83	RSVD	D83	RSVD
C84	GND	D84	GND
C85	PEG_RX10+	D85	PEG_TX10+
C86	PEG_RX10-	D86	PEG_TX10-
C87	GND	D87	GND
C88	PEG_RX11+	D88	PEG_TX11+
C89	PEG_RX11-	D89	PEG_TX11-
C90	GND	D90	GND
C91	PEG_RX12+	D91	PEG_TX12+
C92	PEG_RX12-	D92	PEG_TX12-

Row C		Row D	
Pin	Signal	Pin	Signal
C93	GND	D93	GND
C94	PEG_RX13+	D94	PEG_TX13+
C95	PEG_RX13-	D95	PEG_TX13-
C96	GND	D96	GND
C97	RSVD	D97	RSVD
C98	PEG_RX14+	D98	PEG_TX14+
C99	PEG_RX14-	D99	PEG_TX14-
C100	GND	D100	GND
C101	PEG_RX15+	D101	PEG_TX15+
C102	PEG_RX15-	D102	PEG_TX15-
C103	GND	D103	GND
C104	VCC_12V	D104	VCC_12V
C105	VCC_12V	D105	VCC_12V
C106	VCC_12V	D106	VCC_12V
C107	VCC_12V	D107	VCC_12V
C108	VCC_12V	D108	VCC_12V
C109	VCC_12V	D109	VCC_12V
C110	GND	D110	GND

### 2.3.17 Front Panel Header (CN35)

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Pin	Pin Name	Pin	Pin Name
1	GND	2	PWRBTN#
3	SATA_LED#	4	+3V3
5	BUZZER	6	+5V
7	GND	8	PWRLED
9	GND	10	HWRST#

### 2.3.18 microSD Slot (CN36)

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Standard Specifications

### 2.3.19 Digital I/O Connector (CN41)

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Pin	Pin Name	Pin	Pin Name
1	GPIO	2	GPO0
3	GP11	4	GPO1
5	GP12	6	GPO2
7	GP13	8	GPO3
9	+5V	10	GND



### 2.3.20 CAN Bus Header (CN47)

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Pin	Pin Name
1	CANH
2	GND
3	CANL
4	NC

### 2.3.21 Serial Port Connector (CN49)

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Pin	Pin Name	Pin	Pin Name
1	NC	2	NC
3	SRXD1C	4	NC
5	STXD1C	6	NC
7	NC	8	NC
9	GND		

### 2.3.22 PWM FAN Pin Header (CN51)

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Pin	Pin Name
1	GND
2	+12V
3	FANOUT
4	PWM

### 2.3.23 Serial Port Connector (CN54)

Pin	Pin Name	Pin	Pin Name
1	NC	2	NC
3	SRXD2C	4	NC
5	STXD2C	6	NC
7	NC	8	NC
9	GND		

### 2.3.24 LVDS Connector (CN56)

Pin	Pin Name	Pin	Pin Name
1	LVDS_BKLT_EN	2	LVDS_BKLT_CTRL
3	GND	4	GND
5	LVDS_A_CK-	6	VLCD
7	LVDS_A_CK+	8	VLCD
9	GND	10	GND
11	LVDS_A0-	12	LVDS_A2-
13	LVDS_A0+	14	LVDS_A2+
15	GND	16	GND
17	LVDS_A1-	18	LVDS_A3-
19	LVDS_A1+	20	LVDS_A3+
21	GND	22	GND
23	LVDS_B0-	24	LVDS_DDCDAT
25	LVDS_B0+	26	LVDS_DDCCLK
27	GND	28	GND
29	LVDS_B1-	30	LVDS_B2-

Pin	Pin Name	Pin	Pin Name
31	LVDS_B1+	32	LVDS_B2+
33	GND	34	GND
35	LVDS_B_CK-	36	LVDS_B3-
37	LVDS_B_CK+	38	LVDS_B3+
39	NC	40	NC

### 2.3.25 4-pin 12V Power for COM Express Module (CN60)

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Standard Specifications

### 2.3.26 24-pin ATX Power Connector (CN62)

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Standard Specifications

### 2.3.27 LVDS Inverter Connector (CN63)

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Pin	Pin Name
1	+5V
2	LVDS_BKLT_CTRL
3	GND
4	GND
5	LVDS_BKLT_EN

### 2.3.28 SPI Connector (CN65)

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Pin	Pin Name	Pin	Pin Name
1	SPI_SO_F	2	GND
3	SPI_CLK_F	4	3.3V
5	SPI_SI_F	6	SPI_CE0#_F
7	NC		

### 2.3.29 Quad USB2.0 Ports (CN78)

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Standard Specifications

### 2.3.30 LPC Connector (CN84)

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Pin	Pin Name	Pin	Pin Name
1	LPC_AD0/eSPI_IO_0	2	LPC_AD1/eSPI_IO_1
3	LPC_AD2/eSPI_IO_2	4	LPC_AD3/eSPI_IO_3
5	VCC 3.3V	6	LPC_FRAME#/eSPI_CS0#
7	LPC_RST#	8	GND
9	LPC_80H_CLK	10	LPC_DRQ0#/eSPI_ALERT0
11	LPC_DRQ1#/eSPI_ALERT1#	12	LPC_SERIRQ_CS1#

### 2.3.31 eSPI Connector (CN86)

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Pin	Pin Name	Pin	Pin Name
1	LPC_AD0/eSPI_IO_0	2	LPC_AD1/eSPI_IO_1
3	LPC_AD2/eSPI_IO_2	4	LPC_AD3/eSPI_IO_3
5	+3V3	6	LPC_FRAME#/eSPI_CS0#
7	LPC_RST#	8	GND
9	LPC_80H_CLK	10	+3V3_DUAL

## 2.4 Function Block Diagram

