

# ECB-927

---

COM Express Carrier Board

User's Manual 1<sup>st</sup> Ed

## Copyright Notice

---

This document is copyrighted, 2022. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEON assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

AAEON reserves the right to make changes in the product design without notice to its users.

## Acknowledgement

---

All other products' name or trademarks are properties of their respective owners.

- Intel® and Celeron® are registered trademarks of Intel Corporation

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

Omission from this list does not imply any claim of ownership by the publisher of this document.

## Packing List

---

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

Item	Quantity
● ECB-927A-A10	1
● COM Port Cable	2

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

## About this Document

---

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

Users may refer to the product page at [AAEON.com](http://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.**

### **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	X	X	○	○	○	○
外部信号 连接器及线材	X	X	○	○	○	○
<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	X	X	○	○	○	○
Wires & Connectors for External Connections	X	X	○	○	○	○
<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>						

# Table of Contents

---

<b>Chapter 1 - Product Specifications</b> .....	<b>1</b>
1.1 Specifications .....	2
<b>Chapter 2 – Hardware Information</b> .....	<b>4</b>
2.1 Dimensions .....	5
2.2 List of Jumpers and Switches .....	6
2.2.1 V5SB Connection (JP_5SB1) .....	7
2.2.2 V5SB Connection (JP_5SB2) .....	7
2.2.3 80 Port Selection (JP_80C) .....	8
2.2.4 JP_557V Vref_A Selection (JP_557V) .....	8
2.2.5 LPC/eSPI CLK Buffer Voltage Selection (JP_CLKV) .....	9
2.2.6 COM Port Mode (JP_COM1) .....	9
2.2.7 COM Port Mode (JP_COM2) .....	9
2.2.8 COM Port Voltage Selection (JP_COMV) .....	10
2.2.9 LPC/ESPI Selection (JP_E_LS) .....	10
2.2.10 LPC/ESPI ENABLE (JP_ESPI) .....	11
2.2.11 FAN Voltage Selection (JP_FANV) .....	11
2.2.12 CB PWR OK Connection (JP_POK) .....	12
2.2.13 Power Supply Mode Selection (JP_PSON) .....	12
2.2.14 RTC Control Selection (JP_RTC) .....	13
2.2.15 TPM Physical Presence (PP) (JP_TPM) .....	13
2.2.16 BIOS Selection (SW1) .....	14
2.2.17 Port 80 PRE# button (SW2) .....	14
2.2.18 SATA Port 1 Redriver Pre-Emphasis Selection (1-4OFF) (SW50) .....	15
2.2.19 SATA Port 0 Redriver Pre-emphasis Selection (1-4OFF) (SW51) .....	16
2.3 List of Connectors .....	17
2.3.1 COM Express Type 7 Row A/B Connector (CN1) .....	19

2.3.2	Other Function Pin Header (CN3).....	23
2.3.3	NCSI Pin Header (CN6) .....	24
2.3.4	NCSI Pin Header (CN7) .....	24
2.3.5	COM Express Type 7 Row C/D Connector (CN8) .....	25
2.3.6	PCI Express 4.0 [x4] Slot (CN9/CN10).....	29
2.3.7	X557 LAN SPI Connector (CN13).....	29
2.3.8	SPI Connector (CN18) .....	30
2.3.9	SATA III (6.0 Gbps) Connector (CN21/CN22).....	30
2.3.10	Digital I/O Connector (CN23) .....	30
2.3.11	SMBUS Pin Header (CN24).....	31
2.3.12	I2C Pin Header (CN25) .....	31
2.3.13	PCI Express 4.0 [x16] Slot (CN26).....	31
2.3.14	PCI Express 4.0 [x8] Slot (CN27) .....	31
2.3.15	Dual USB3.2 Gen 2 Ports (CN28) .....	32
2.3.16	eSPI Connector (CN29) .....	32
2.3.17	LPC Connector (CN30).....	32
2.3.18	SIO Slot (CN31) .....	33
2.3.19	Front Panel Header (CN32) .....	34
2.3.20	SMBUS header for PCIe Hot plug (CN33) .....	34
2.3.21	10GBASE-T RJ45 (CN_10G0~ CN_10G3).....	34
2.3.22	4-pin 12V Power for COM Express Module (CN_ATX1) .....	35
2.3.23	24-pin ATX Power Connector (CN_ATX2).....	35
2.3.24	Serial Port Connector (CN_COM1).....	35
2.3.25	Serial Port Connector (CN_COM2) .....	35
2.3.26	PWM FAN Pin Header (CN_FAN1).....	36
2.3.27	LAN RJ-45 + Dual USB 3.2 Gen 2 Ports (CN_LAN1_USB1).....	36
2.4	Function Block Diagram.....	37

# Chapter 1

---

Product Specifications

## 1.1 Specifications

### System

Form Factor	COM Express Basic size Type 7 Carrier Board in ATX form factor
COM Express Connector	x 2 (Row A/B and Row C/D, Type 7 pin out)
I/O Chipset	-
Front Panel Control	10-pin (5 x 2) header
Ethernet	Intel® x557AT4: 10G Base T x 4 GbE x 1 (source from module)
Expansion Interface	PCIe [x4] x 2 PCIe [x8] x 1 PCIe [x16] x 1 (PEG port)
Power Supply Type	Standard 24-pin ATX + 4-pin 12V
CMOS Battery	CR2032 Holder x 1
BIOS	-
Board Size	12" x 9.6" (305mm x 244mm)
Gross Weight	1.5 lb. (0.7Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF	TBD

### Display

DVT/CRT/VGA	N/A. via PCIe Graphic card
LVDS / eDP	N/A. via PCIe Graphic card
SDVO	N/A. via PCIe Graphic card
DDI	N/A. via PCIe Graphic card

## I/O

Storage	SATA x 2
Serial Port	2-wire UART x 2 (TX/RX)
USB	USB 3.2 x 4
Audio	-
PS/2 Port	-
GPIO	8-bit
Switch/Button	Power Button x 1 / Reset Button x 1
Debug LED	7-SEG LED X2 80 Port POST Code Indicator
I2C	x 1
Expansion Interface	SMBus, LPC/eSPI slot.

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

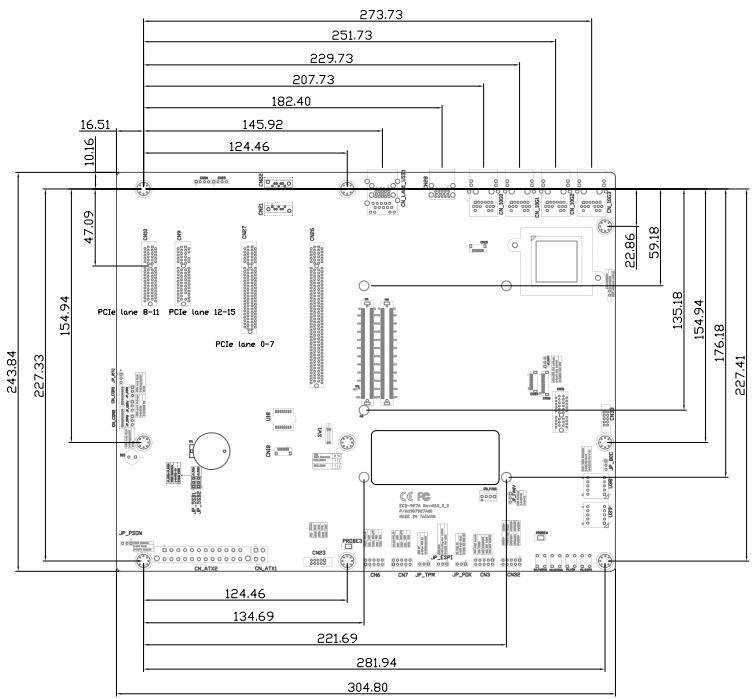
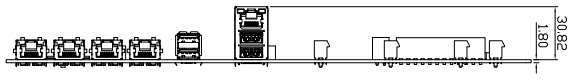
# Chapter 2

---

Hardware Information



## 2.1 Dimensions

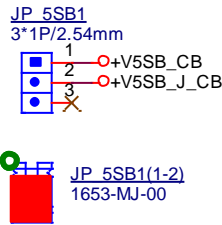


## 2.2 List of Jumpers and Switches

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

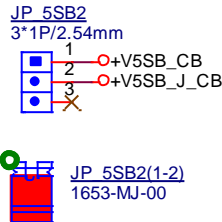
Label	Function
JP_5SB1	V5SB Connection
JP_5SB2	V5SB Connection
JP_80C	80 Port Selection
JP_557V	JP_557V Vref_A Selection
JP_CLKV	LPC/eSPI CLK Buffer Voltage Selection
JP_COM1	COM Port Mode
JP_COM2	COM Port Mode
JP_COMV	COM Port Voltage Selection
JP_E_LS	LPC/ESPI Selection
JP_ESPI	LPC/ESPI Enable
JP_FANV	FAN Voltage Selection
JP_POK	CB PWR OK Connection
JP_PSON	Power Supply Mode Selection
JP_RTC	RTC Control Selection
JP_TPM	TPM Physical Presence (PP)
SW1	BIOS Selection
SW2	Port 80 PRE# Button
SW50(1-4OFF)	SATA Port 1 Redriver Pre-emphasis Selection
SW51(1-4OFF)	SATA Port 0 Redriver Pre-emphasis Selection

## 2.2.1 V5SB Connection (JP\_5SB1)



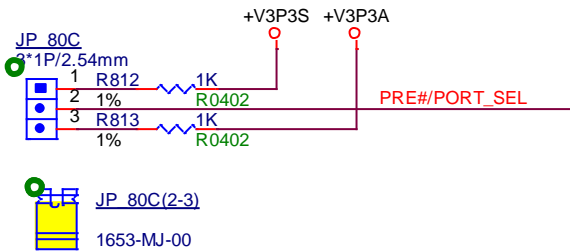
Pin	Function
1-2 (Default)	V5SB connection
2-3	V5SB disconnection

## 2.2.2 V5SB Connection (JP\_5SB2)



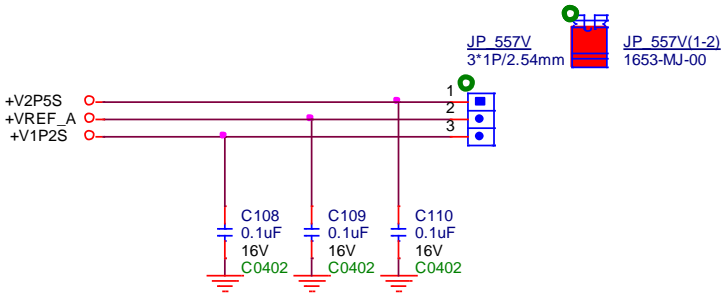
Pin	Function
1-2 (Default)	V5SB connection
2-3	V5SB disconnection

### 2.2.3 80 Port Selection (JP\_80C)



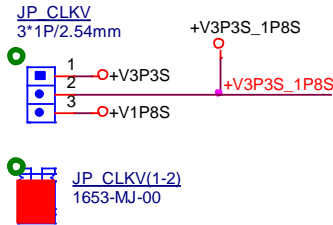
Pin	Function
1-2	82/83 Port
2-3 (Default)	80/81 Port

### 2.2.4 JP\_557V Vref\_A Selection (JP\_557V)



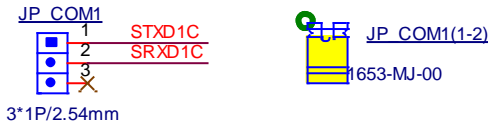
Pin	Function
1-2 (Default)	+V2P5S
2-3	+V1P2S

## 2.2.5 LPC/eSPI CLK Buffer Voltage Selection (JP\_CLKV)



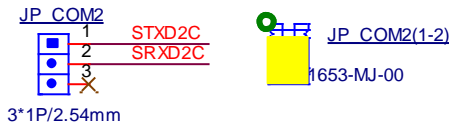
Pin	Function
1-2 (Default)	LPC CLK Voltage
2-3	eSPI CLK Voltage

## 2.2.6 COM Port Mode (JP\_COM1)



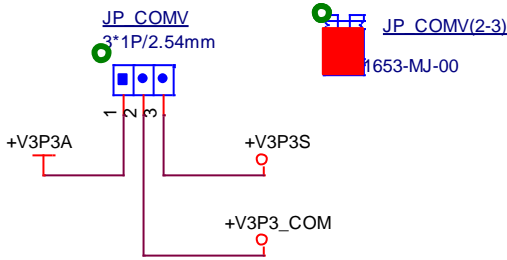
Pin	Function
1-2 (Default)	Loopback Mode
2-3	-

## 2.2.7 COM Port Mode (JP\_COM2)



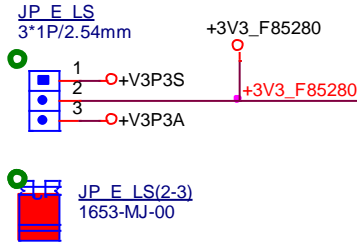
Pin	Function
1-2 (Default)	Loopback Mode
2-3	-

## 2.2.8 COM Port Voltage Selection (JP\_COMV)



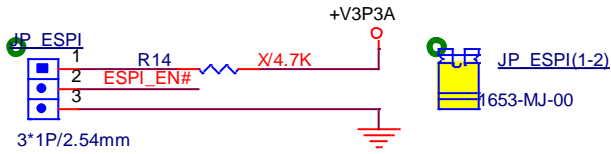
Pin	Function
1-2	+V3P3A
2-3 (Default)	+V3P3S

## 2.2.9 LPC/ESPI Selection (JP\_E\_LS)



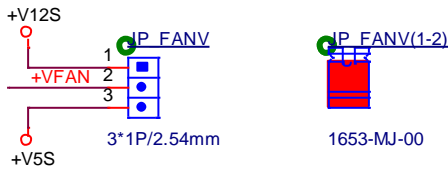
Pin	Function
1-2	LPC
2-3 (Default)	eSPI/LPC

## 2.2.10 LPC/ESPI ENABLE (JP\_ESPI)



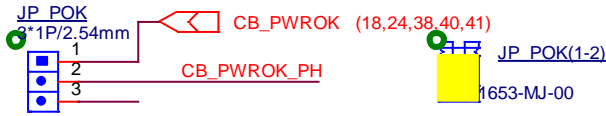
Pin	Function
1-2 (Default)	LPC operation
2-3	eSPI operation

## 2.2.11 FAN Voltage Selection (JP\_FANV)



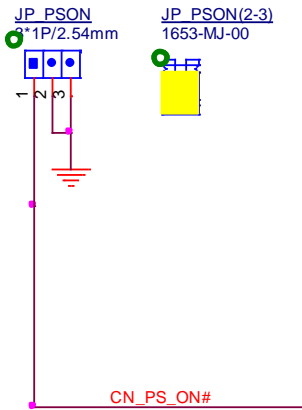
Pin	Function
1-2 (Default)	12V
2-3	5V

## 2.2.12 CB PWR OK Connection (JP\_POK)



Pin	Function
1-2 (Default)	Connect CB PWR OK
2-3	Disconnect CB PWR OK

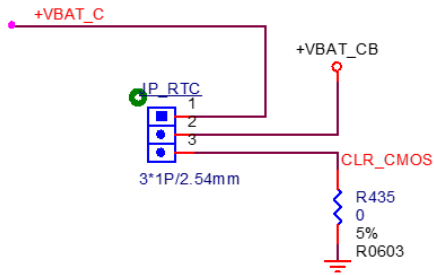
## 2.2.13 Power Supply Mode Selection (JP\_PSON)



Pin	Function
1-2	AT Mode
2-3 (Default)	ATX Mode

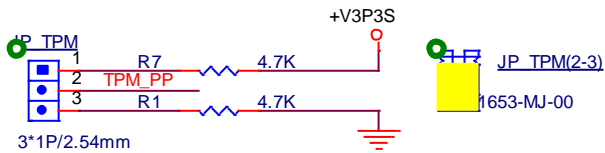


## 2.2.14 RTC Control Selection (JP\_RTC)



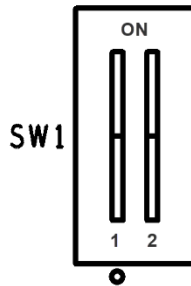
Pin	Function
1-2 (Default)	Save CMOS
2-3	Clear CMOS

## 2.2.15 TPM Physical Presence (PP) (JP\_TPM)



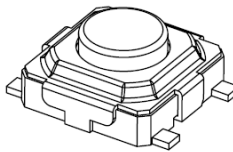
Pin	Function
1-2	Enabled for a TPM 1.2
2-3 (Default)	Clear Standard Position

## 2.2.16 BIOS Selection (SW1)



Switch	SPI Descriptor
1(OFF) 2(OFF)	Module
1(ON) 2(OFF)	Module
1(OFF) 2(ON)	Carrier
1(ON) 2(ON)	Module

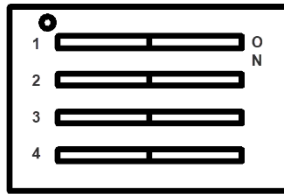
## 2.2.17 Port 80 PRE# button (SW2)



Switch	Function
	F85280 supports PRE# button to display the previous data of 0x80, 0x81, or 0x82 and 0x83 code. Using two pcs of F85280 by pressing the PRE# button would display the previous data of 0x80, 0x81, and 0x82, 0x83 code at the same time.

## 2.2.18 SATA Port 1 Redriver Pre-Emphasis Selection (1-4OFF) (SW50)

### SW50( 1 - 4OFF )

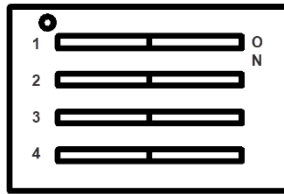


Switch	Pre-emphasis For SATA PORT 1 TX
1(OFF) 2(OFF)	0dB
1(ON) 2(OFF)	1.5dB
1(OFF) 2(ON)	2.5dB
1(ON) 2(ON)	3.5dB

Switch	Pre-emphasis For SATA PORT 1 RX
3(OFF) 4(OFF)	0dB
3(ON) 4(OFF)	1.5dB
3(OFF) 4(ON)	2.5dB
3(ON) 4(ON)	3.5dB

## 2.2.19 SATA Port 0 Redriver Pre-emphasis Selection (1-4OFF) (SW51)

### SW51 ( 1 - 4OFF )



Switch	Pre-emphasis For SATA PORT 0 TX
1(OFF) 2(OFF)	0dB
1(ON) 2(OFF)	1.5dB
1(OFF) 2(ON)	2.5dB
1(ON) 2(ON)	3.5dB

Switch	Pre-emphasis For SATA PORT 0 RX
3(OFF) 4(OFF)	0dB
3(ON) 4(OFF)	1.5dB
3(OFF) 4(ON)	2.5dB
3(ON) 4(ON)	3.5dB

## 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	COM Express Type 7 Row A/B
CN3	Other Function Pin Header
CN6	NCSI Pin Header
CN7	NCSI Pin Header
CN8	COM Express Type 7 Row C/D
CN9	PCIe [x4] slot
CN10	PCIe [x4] slot
CN13	X557 LAN SPI Connector
CN18	SPI Connector
CN21	SATA III (6.0 Gbps) Connector
CN22	SATA III (6.0 Gbps) Connector
CN23	Digital I/O Connector
CN24	SMBUS Pin Header
CN25	I2C Pin Header
CN26	PCIe [x16] Slot
CN27	PCIe [x8] Slot
CN28	Dual USB 3.2 Gen 2 Ports
CN29	eSPI Connector
CN30	LPC Connector
CN31	SIO Slot
CN32	Front Panel Header
CN33	SMBUS header for PCIe Hot plug
CN_10G0	10GBASE-T RJ45

Label	Function
CN_10G1	10GBASE-T RJ45
CN_10G2	10GBASE-T RJ45
CN_10G3	10GBASE-T RJ45
CN_ATX1	4-pin 12V Power for COM Express Module
CN_ATX2	24-pin ATX Power Connector
CN_COM1	Serial Port Connector
CN_COM2	Serial Port Connector
CN_FAN1	PWM FAN Pin Header
CN_LAN1_USB1	LAN RJ45 + Dual USB 3.2 Gen 2 Ports

### 2.3.1 COM Express Type 7 Row A/B Connector (CN1)

Row A		Row B	
Pin	Signal	Pin	Signal
A1	GND(FIXED)	B1	GND(FIXED)
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
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(FIXED)	B11	GND(FIXED)
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# / ESPI_RESET#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND(FIXED)	B21	GND(FIXED)
A22	PCIE_TX15+	B22	PCIE_RX15+
A23	PCIE_TX15-	B23	PCIE_RX15-

Row A		Row B	
Pin	Signal	Pin	Signal
A24	SUS_S5#	B24	PWR_OK
A25	PCIE_TX14+	B25	PCIE_RX14+
A26	PCIE_TX14-	B26	PCIE_RX14-
A27	BATLOW#	B27	WDT
A28	(S)ATA_ACT#	B28	RSVD
A29	RSVD	B29	RSVD
A30	RSVD	B30	RSVD
A31	GND(FIXED)	B31	GND(FIXED)
A32	RSVD	B32	SPKR
A33	RSVD	B33	I2C_CK
A34	BIOS_DIS0# / ESPI_SAFS	B34	I2C_DAT
A35	THRMTRIP#	B35	THRM#
A36	PCIE_TX13+	B36	PCIE_RX13+
A37	PCIE_TX13-	B37	PCIE_RX13-
A38	GND	B38	GND
A39	PCIE_TX12+	B39	PCIE_RX12+
A40	PCIE_TX12-	B40	PCIE_RX12-
A41	GND(FIXED)	B41	GND(FIXED)
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	RSVD	B48	RSVD



Row A		Row B	
Pin	Signal	Pin	Signal
A49	RSVD	B49	SYS_RESET#
A50	LPC_SERIRQ / ESPI_CS1#	B50	CB_RESET#
A51	GND(FIXED)	B51	GND(FIXED)
A52	PCIE_TX5+	B52	PCIE_RX5+
A53	PCIE_TX5-	B53	PCIE_RX5-
A54	GPI0	B54	GPO1
A55	PCIE_TX4+	B55	PCIE_RX4+
A56	PCIE_TX4-	B56	PCIE_RX4-
A57	GND	B57	GPO2
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-
A60	GND(FIXED)	B60	GND(FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1	B63	GPO3
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0#
A67	GPI2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-
A70	GND(FIXED)	B70	GND(FIXED)
A71	PCIE_TX8+	B71	PCIE_RX8+
A72	PCIE_TX8-	B72	PCIE_RX8-
A73	GND	B73	GND

Row A		Row B	
Pin	Signal	Pin	Signal
A74	PCIE_TX9+	B74	PCIE_RX9+
A75	PCIE_TX9-	B75	PCIE_RX9-
A76	GND	B76	GND
A77	PCIE_TX10+	B77	PCIE_RX10+
A78	PCIE_TX10-	B78	PCIE_RX10-
A79	GND	B79	GND
A80	GND(FIXED)	B80	GND(FIXED)
A81	PCIE_TX11+	B81	PCIE_RX11+
A82	PCIE_TX11-	B82	PCIE_RX11-
A83	GND	B83	GND
A84	NCSI_TX_EN	B84	VCC_5V_SBY
A85	GPI3	B85	VCC_5V_SBY
A86	RSVD	B86	VCC_5V_SBY
A87	RSVD	B87	VCC_5V_SBY
A88	PCIE_CK_REF+	B88	BIOS_DIS1# / ESPI_BBS
A89	PCIE_CK_REF-	B89	NCSI_RX_ER
A90	GND(FIXED)	B90	GND(FIXED)
A91	SPI_POWER	B91	NCSI_CLK_IN
A92	SPI_MISO	B92	NCSI_RXD1
A93	GPO0	B93	NCSI_RXD0
A94	SPI_CLK	B94	NCSI_CRD_DV
A95	SPI_MOSI	B95	NCSI_TXD1
A96	TPM_PP	B96	NCSI_TXD0
A97	TYPE10#	B97	SPI_CS#
A98	SERO_TX	B98	NCSI_ARB_IN

Row A		Row B	
Pin	Signal	Pin	Signal
A99	SER0_RX	B99	NCSI_ARB_OUT
A100	GND(FIXED)	B100	GND(FIXED)
A101	CAN0/SER1_TX	B101	FAN_PWMOUT
A102	CAN0/SER1_RX	B102	FAN_TACHIN
A103	LID#	B103	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
A108	VCC_12V	B108	VCC_12V
A109	VCC_12V	B109	VCC_12V
A110	GND(FIXED)	B110	GND(FIXED)

### 2.3.2 Other Function Pin Header (CN3)

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

### 2.3.3 NCSI Pin Header (CN6)

---

Pin	Pin Name	Pin	Pin Name
1	NCSI_TX_EN	2	NCSI_ARB_IN
3	GND	4	GND
5	NCSI_TXD0	6	NCSI_ARB_OUT
7	GND	8	GND
9	NCSI_TXD1	10	GND

### 2.3.4 NCSI Pin Header (CN7)

---

Pin	Pin Name	Pin	Pin Name
1	NCSI_RX_ER	2	NCSI_CLK_IN
3	GND	4	GND
5	NCSI_RXD0	6	NCSI_CRS_DV
7	GND	8	GND
9	NCSI_RXD1	10	GND

### 2.3.5 COM Express Type 7 Row C/D Connector (CN8)

Row C		Row D	
Pin	Signal	Pin	Signal
C1	GND(FIXED)	D1	GND(FIXED)
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(FIXED)	D11	GND(FIXED)
C12	USB_SSRX3-	D12	USB_SSTX3-
C13	USB_SSRX3+	D13	USB_SSTX3+
C14	GND	D14	GND
C15	10G_PHY_MDC_SCL3	D15	10G_PHY_MDIO_SDA3
C16	10G_PHY_MDC_SCL2	D16	10G_PHY_MDIO_SDA2
C17	10G_SDP2	D17	10G_SDP3
C18	GND	D18	GND
C19	PCIE_RX6+	D19	PCIE_TX6+
C20	PCIE_RX6-	D20	PCIE_TX6-
C21	GND(FIXED)	D21	GND(FIXED)
C22	PCIE_RX7+	D22	PCIE_TX7+
C23	PCIE_RX7-	D23	PCIE_TX7-

Row C		Row D	
Pin	Signal	Pin	Signal
C24	10G_INT2	D24	10G_INT3
C25	GND	D25	GND
C26	10G_KR_RX3+	D26	10G_KR_TX3+
C27	10G_KR_RX3-	D27	10G_KR_TX3-
C28	GND	D28	GND
C29	10G_KR_RX2+	D29	10G_KR_TX2+
C30	10G_KR_RX2-	D30	10G_KR_TX2-
C31	GND(FIXED)	D31	GND(FIXED)
C32	10G_SFP_SDA3	D32	10G_SFP_SCL3
C33	10G_SFP_SDA2	D33	10G_SFP_SCL2
C34	10G_PHY_RST_23	D34	10G_PHY_SEL_23
C35	10G_PHY_RST_01	D35	10G_PHY_SEL_01
C36	10G_LED_SDA	D36	RSVD
C37	10G_LED_SCL	D37	RSVD
C38	10G_SFP_SDA1	D38	10G_SFP_SCL1
C39	10G_SFP_SDA0	D39	10G_SFP_SCL0
C40	10G_SDP0	D40	10G_SDP1
C41	GND(FIXED)	D41	GND(FIXED)
C42	10G_KR_RX1+	D42	10G_KR_TX1+
C43	10G_KR_RX1-	D43	10G_KR_TX1-
C44	GND	D44	GND
C45	10G_PHY_MDC_SCL1	D45	10G_PHY_MDIO_SDA1
C46	10G_PHY_MDC_SCL0	D46	10G_PHY_MDIO_SDA0
C47	10G_INT0	D47	10G_INT1
C48	GND	D48	GND

Row C		Row D	
Pin	Signal	Pin	Signal
C49	10G_KR_RX0+	D49	10G_KR_TX0+
C50	10G_KR_RX0-	D50	10G_KR_TX0-
C51	GND(FIXED)	D51	GND(FIXED)
C52	PCIE_RX16+	D52	PCIE_TX16+
C53	PCIE_RX16-	D53	PCIE_TX16-
C54	TYPE0#	D54	RSVD
C55	PCIE_RX17+	D55	PCIE_TX17+
C56	PCIE_RX17-	D56	PCIE_TX17-
C57	TYPE1#	D57	TYPE2#
C58	PCIE_RX18+	D58	PCIE_TX18+
C59	PCIE_RX18-	D59	PCIE_TX18-
C60	GND(FIXED)	D60	GND(FIXED)
C61	PCIE_RX19+	D61	PCIE_TX19+
C62	PCIE_RX19-	D62	PCIE_TX19-
C63	RSVD	D63	RSVD
C64	RSVD	D64	RSVD
C65	PCIE_RX20+	D65	PCIE_TX20+
C66	PCIE_RX20-	D66	PCIE_TX20-
C67	RSVD	D67	GND
C68	PCIE_RX21+	D68	PCIE_TX21+
C69	PCIE_RX21-	D69	PCIE_TX21-
C70	GND(FIXED)	D70	GND(FIXED)
C71	PCIE_RX22+	D71	PCIE_TX22+
C72	PCIE_RX22-	D72	PCIE_TX22-
C73	GND	D73	GND

Row C		Row D	
Pin	Signal	Pin	Signal
C74	PCIE_RX23+	D74	PCIE_TX23+
C75	PCIE_RX23-	D75	PCIE_TX23-
C76	GND	D76	GND
C77	RSVD	D77	RSVD
C78	PCIE_RX24+	D78	PCIE_TX24+
C79	PCIE_RX24-	D79	PCIE_TX24-
C80	GND(FIXED)	D80	GND(FIXED)
C81	PCIE_RX25+	D81	PCIE_TX25+
C82	PCIE_RX25-	D82	PCIE_TX25-
C83	RSVD	D83	RSVD
C84	GND	D84	GND
C85	PCIE_RX26+	D85	PCIE_TX26+
C86	PCIE_RX26-	D86	PCIE_TX26-
C87	GND	D87	GND
C88	PCIE_RX27+	D88	PCIE_TX27+
C89	PCIE_RX27-	D89	PCIE_TX27-
C90	GND(FIXED)	D90	GND(FIXED)
C91	PCIE_RX28+	D91	PCIE_TX28+
C92	PCIE_RX28-	D92	PCIE_TX28-
C93	GND	D93	GND
C94	PCIE_RX29+	D94	PCIE_TX29+
C95	PCIE_RX29-	D95	PCIE_TX29-
C96	GND	D96	GND
C97	RSVD	D97	RSVD
C98	PCIE_RX30+	D98	PCIE_TX30+



Row C		Row D	
Pin	Signal	Pin	Signal
C99	PCIE_RX30-	D99	PCIE_TX30-
C100	GND(FIXED)	D100	GND(FIXED)
C101	PCIE_RX31+	D101	PCIE_TX31+
C102	PCIE_RX31-	D102	PCIE_TX31-
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(FIXED)	D110	GND(FIXED)

### 2.3.6 PCI Express 4.0 [x4] Slot (CN9/CN10)

Standard Specifications.

### 2.3.7 X557 LAN SPI Connector (CN13)

Pin	Pin Name	Pin	Pin Name
1	LAN_SPI_SI	2	GND
3	LAN_SPI_SCK	4	+V2P5S_SPI
5	LAN_SPI_SO	6	LAN_SPI_CS#LAN_SPI_CS#
7	NC	-	-

### 2.3.8 SPI Connector (CN18)

---

Pin	Pin Name	Pin	Pin Name
1	SPI_SO_F	2	GND
3	SPI_CLK_F	4	+V3P3_SPI
5	SPI_SI_F	6	SPI_CE0#_F
7	NC	-	-

### 2.3.9 SATA III (6.0 Gbps) Connector (CN21/CN22)

---

Standard Specifications.

### 2.3.10 Digital I/O Connector (CN23)

---

Pin	Pin Name	Pin	Pin Name
1	GPI0	2	GPO0
3	GPI1	4	GPO1
5	GPI2	6	GPO2
7	GPI3	8	GPO3
9	+V5S	10	GND

### 2.3.11 SMBUS Pin Header (CN24)

---

Pin	Pin Name
1	GND
2	SMBDAT
3	SMBCLK
4	+V3P3A +V5A (Option)

---

### 2.3.12 I2C Pin Header (CN25)

---

Pin	Pin Name
1	GND
2	I2C_DAT
3	I2C_CK
4	+ V3P3A +V5A(Option)

---

### 2.3.13 PCI Express 4.0 [x16] Slot (CN26)

---

Standard Specifications.

### 2.3.14 PCI Express 4.0 [x8] Slot (CN27)

---

Standard Specifications.

### 2.3.15 Dual USB3.2 Gen 2 Ports (CN28)

---

Standard Specifications.

### 2.3.16 eSPI Connector (CN29)

---

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	+V3P3S
6	LPC_FRAME/ESPI_CS0#
7	LPC_RST/ESPI_RST#_CN
8	GND
9	LPC_CLK/ESPI_CLK
10	+V3P3A

### 2.3.17 LPC Connector (CN30)

---

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	+V3P3S	6	LPC_FRAME#/eSPI_CS0#
7	LPC_RST#	8	GND
9	LPC_CLK/ESPI_CLK	10	LPC_DRQ0#/eSPI_ALERT0
11	LPC_DRQ1#/eSPI_ALERT1#	12	LPC_SERIRQ_CS1#

## 2.3.18 SIO Slot (CN31)

Pin	Pin Name	Pin	Pin Name
A1	LPC_DRQ0#	B1	--
A2	+V12S	B2	--
A3	+V12S	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	+VBAT_CB
A9	+3V3S	B9	+V5A
A10	+3V3S	B10	+V3P3A
A11	SUS_S5#	B11	PCIE_WAKE#
A12	GND	B12	+V5S
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

### 2.3.19 Front Panel Header (CN32)

---

Pin	Pin Name	Pin	Pin Name
1	GND	2	PWRBTN#
3	SATA_LED#	4	+ V3P3S
5	BUZZER	6	+V5S
7	GND	8	PWRLED
9	GND	10	HWRST#

### 2.3.20 SMBUS header for PCIe Hot plug (CN33)

---

Pin	Pin Name	Pin	Pin Name
1	GND	2	GND
3	SMB_PCl_e_PCH_DATA	4	SMB_PCl_e_CPU_DATA
5	SMB_PCl_e_PCH_CLK	6	SMB_PCl_e_CPU_CLK
7	SMB_PCl_e_PCH_ALERT#	8	SMB_PCl_e_CPU_ALERT#

### 2.3.21 10GBASE-T RJ45 (CN\_10G0~ CN\_10G3)

---

Standard Specifications.

### 2.3.22 4-pin 12V Power for COM Express Module (CN\_ATX1)

---

Standard Specifications.

### 2.3.23 24-pin ATX Power Connector (CN\_ATX2)

---

Standard Specifications.

### 2.3.24 Serial Port Connector (CN\_COM1)

---

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

### 2.3.25 Serial Port Connector (CN\_COM2)

---

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

### 2.3.26 PWM FAN Pin Header (CN\_FAN1)

---

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

### 2.3.27 LAN RJ-45 + Dual USB 3.2 Gen 2 Ports (CN\_LAN1\_USB1)

---

Standard Specifications.



## 2.4 Function Block Diagram

