

VCOM-BASE USER

COM Express[®] Type 6 Reference Carrier Board
3 PCIe Slot, up to 3 displays

Manual

Record of Revision

Version	Date	Page	Description	Remark
1.00	2023/10/12	All	Official Release	

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FCC This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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Order Information

Part Number	Description
VCOM-BASE	COM Express® Type 6 Reference Carrier Board in ATX form factor

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1

GENERAL INTRODUCTION

1.1 Overview

Vecow COM Express product adheres to the PICMG® standard. The Vecow VCOM-BASE COM Express® Type 6 Reference Carrier Board comes in an ATX form factor and conforms to the COM Express® Carrier Design Guides. It supports up to 3 PCIe slots and up to 3 independent displays.

1.2 Features

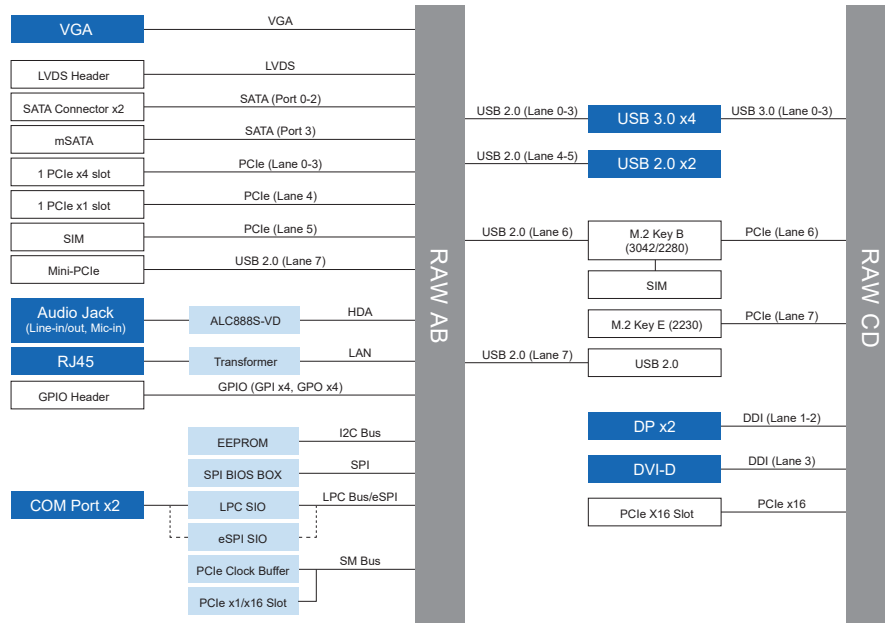
- Conforms to COM Express[®] Carrier Design Guide, supports type 6 modules in compact form factor
- 1 PCIe x16 slot, 1 PCIe x4 slot, 1 PCIe x1 slot
- Supports 3 Digital Display Interface (DDI) with VGA/DVI/DisplayPort
- Dual BIOS (SPI and LPC)

1.3 Product Specification

Form Factor	
Module Interface	PICMG® COM Express® Revision 2.0 Support Type 6 modules in Basic or Compact form factor
Dimensions (L x W)	244mm x 305mm (9.61" x 12.01")
Graphics	
Interface	<ul style="list-style-type: none"> • 1 VGA • 1 LVDS • 2 DVI-D • 2 DisplayPort
Ethernet	
LAN 1	Base on COMe Module
Audio	
Audio Codec	Realtek ALC888S-VD, 7.1 Channel HD Audio
Audio Interface	1 Mic-in, 1 Line-out, 1 Line-in
Storage	
SATA	3 SATA III (6Gbps)
mSATA	1 SATA III (Mini PCIe Type, 6Gbps)
M.2	1 M.2 Key B Socket (PCIe Interface)
Expansion	
PCIe	<ul style="list-style-type: none"> • 1 PCIe x1 Slot • 1 PCIe x4 Slot • 1 PCIe x16 Slot
Mini PCIe	1 Full-size Mini PCIe Socket for PCIe/USB/SIM Card/Optional mSATA
M.2	<ul style="list-style-type: none"> • 1 M.2 Key B (3042/2280) • 1 M.2 Key E (2230)
Power	
Power Input	ATX: 12V±5% / 5Vsb ±5%; or AT: 12V±5%
Power Interface	ATX Power Connector
Environment	
Operating Temperature	0°C to 60°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% Humidity, Non-condensing
Relative Humidity	95% at 60°C
EMC	CE, FCC

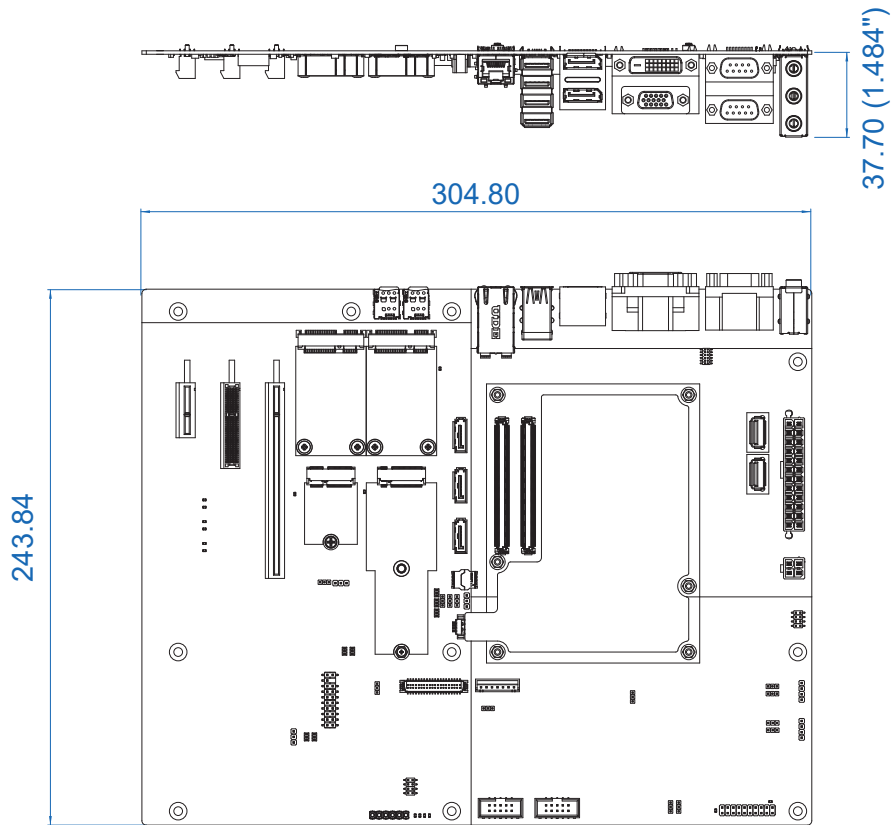
I/O Interface	
Rear I/O	<ul style="list-style-type: none"> • 1 VGA Connector • 1 DVI-D Connector • 2 DisplayPort Connector • 4 USB 3.0 Connector • 2 USB 2.0 Connector • 1 RJ45 Connector • 2 COM Connector • 1 Line-in/out, Mic-in
Internal I/O	<ul style="list-style-type: none"> • RAW AB/CD connector • 3 SATA Connector • 1 FAN Connector • 1 GPIO Header (GPI x4, GPO x4) • 1 SPI BIOS BOX • 1 LPC Debug Header • 1 I2C Bus header • 1 SMB Bus header • 1 ATX 24-pin Power Connector (for carrier) • 1 ATX 12V 4-pin Connector (for module) • 1 Smart Battery connector • 1 Miscellaneous header • 1 Clear CMOS header • 2 BIOS Selection header

1.4 Block Diagram



1.5 Mechanical Dimension

Unit : mm (inch)



2

GETTING TO KNOW YOUR VCOM-BASE

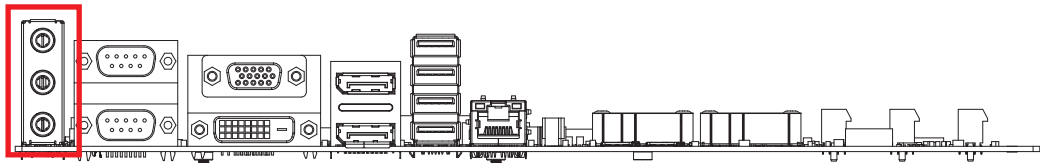
2.1 Packing List

Item	Description	Qty
1	VCOM-BASE, equipped with 1 PCIe x16, 1 PCIe x4, 1 PCIe x1 slot and supports up to 3 independent displays	1

2.2 Front Panel I/O Functions

In Vecow's VCOM-BASE series family, all I/O connectors are located on the front panel. Most of the general connections to the computer device, such as audio, USB, RJ45, DVI-D, Display Port, SIM Card, Serial Port and VGA are placed on the front panel.

2.2.1 Audio Connector



There are three audio connectors, line-in, line-out, and mic-in, on the front side of VCOM-BASE. Onboard Realtek ALC888S audio codec supports 7.1 channel HD audio and fully complies with Intel® High Definition Audio (Azalia) specifications.

To utilize the audio function on the Windows platform, you need to install corresponding drivers for both Intel chipset and Realtek ALC888S-VD codec. Please refer to chapter four for more details on driver installation.

2.2.2 10/100/1000 Mbps Ethernet Port



There is an 8-pin RJ-45 jack supporting 10/100/1000 Mbps Ethernet connections on the front side of VCOM-BASE. LAN is powered by Ethernet engine.

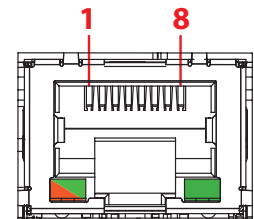
Using suitable RJ-45 cable, you can connect VCOM-BASE Carrier Board to any other devices with Ethernet connection, for example, a hub or a switch. Moreover, LAN supports Wake on LAN and Pre-boot functions. The pinouts of LAN are listed as follows:

Pin No.	10/100 Mbps	1000Mbps
1	E_TX+	MDI0_P
2	E_TX-	MDI0_N
3	E_RX+	MDI1_P
4	-----	MDI2_P
5	-----	MDI2_N
6	E_RX-	MDI1_N
7	-----	MDI3_P
8	-----	MDI3_N

Each LAN port is supported by standard RJ-45 connector with LED indicators to present Active/Link/Speed status of the connection.

The LED indicator on the right bottom corner lightens solid green when the cable is properly connected to a 100Mbps Ethernet network and solid orange when the cable is properly connected to a 1000Mbps Ethernet network. The left LED will keep blinking off when Ethernet data packets are being transmitted/received.

LED Location	LED Color	10Mbps	100Mbps	1000Mbps
Right	Green/ Orange	Off	Solid Green	Solid Orange
Left	Green	Blinking Green	Blinking Green	Blinking Green

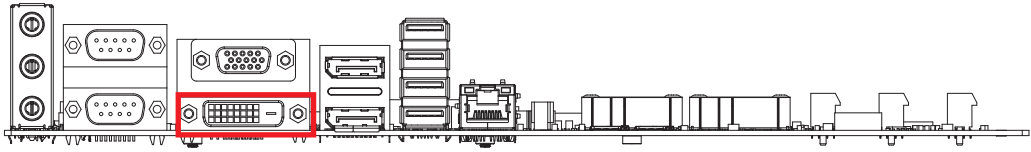


2.2.3 USB 3.1



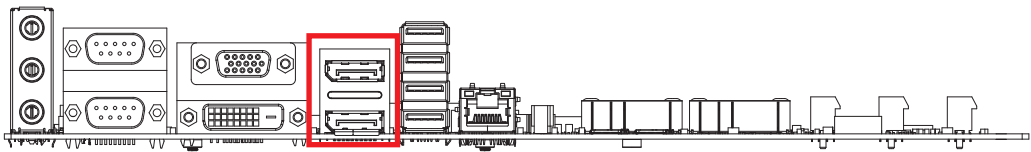
There are 4 USB 3.1 Gen1 connections available supporting up to 5GB per second data rate in the front side of VCOM-BASE. They are also compliant with the requirements of Super Speed (SS), high speed (HS), full speed (FS) and low speed (LS).

2.2.4 DVI-D



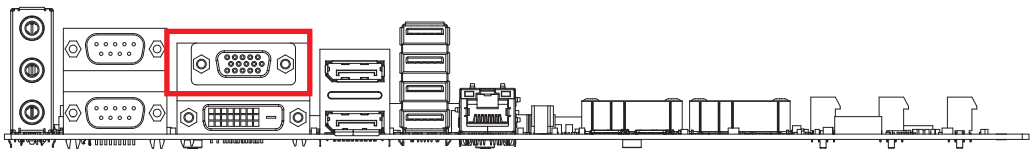
The DVI-D connector on the front panel supports DVI display. This connector can either output DVI signal. The DVI output mode supports up to 1920 x 1200 resolution and output mode supports up to 1920 x 1200 resolution. The DVI is automatically selected according to the display device connected. You will need a DVI-D cable when connecting to a display device.

2.2.5 DISPLAY PORT



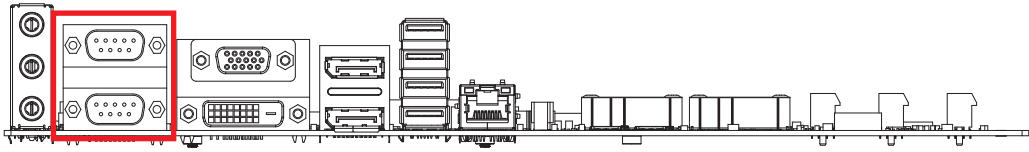
VCOM-BASE supports single Display Port and up to 4096 x 2304 pixels resolution.

2.2.6 VGA



VCOM-BASE supports single VGA and up to 1920 x 1200 pixels resolution.

2.2.7 Serial Port



Serial port 1 to 2 (COM 1 to 2) can be configured for RS-232, RS-422, or RS-485 with auto flow control communication. The default definition of COM 1 and COM 2 is RS-232. If you want to change to RS-422 or RS-485, you can find the setting in BIOS.

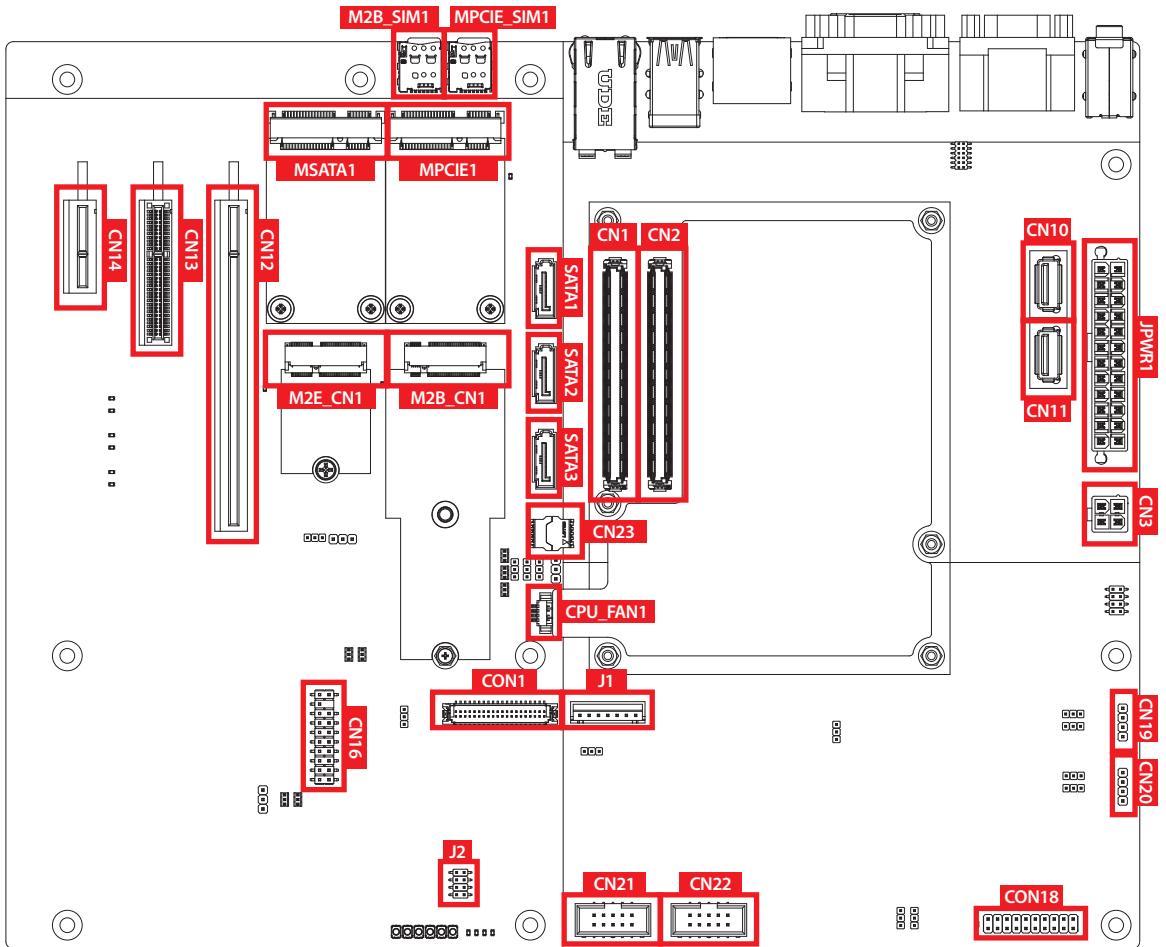
BIOS Setting	Function
COM 1 COM 2	RS-232
	RS-422 (5-wire)
	RS-422 (9-wire)
	RS-485
	RS-485 w/z auto-flow control

The pin assignments are listed in the following table :

	Serial Port	Pin No.	RS-232	RS-422 (5-wire)	RS-422 (9-wire)	RS-485 (3-wire)
		1 to 2	1	DCD	TXD-	TXD-
2	RXD		TXD+	TXD+	DATA+	
3	TXD		RXD+	RXD+	-----	
4	DTR		RXD-	RXD-	-----	
5	GND		GND	GND	GND	
6	DSR		-----	RTS-	-----	
7	RTS		-----	RTS+	-----	
8	CTS		-----	CTS+	-----	
9	RI		-----	CTS-	-----	

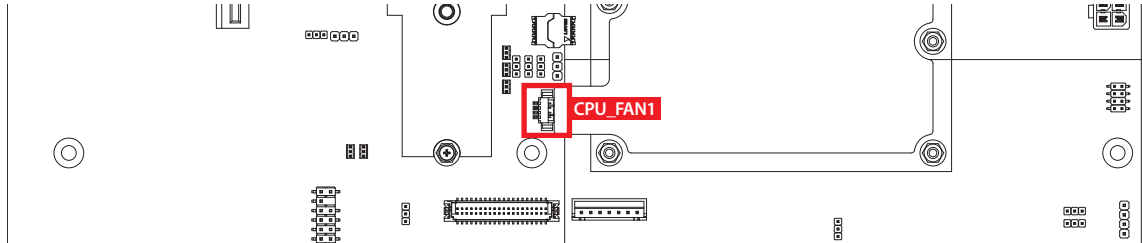
2.3 Carrier Board Connectors


2.3.1 Front View of VCOM-BASE Carrier Board With Connector Location



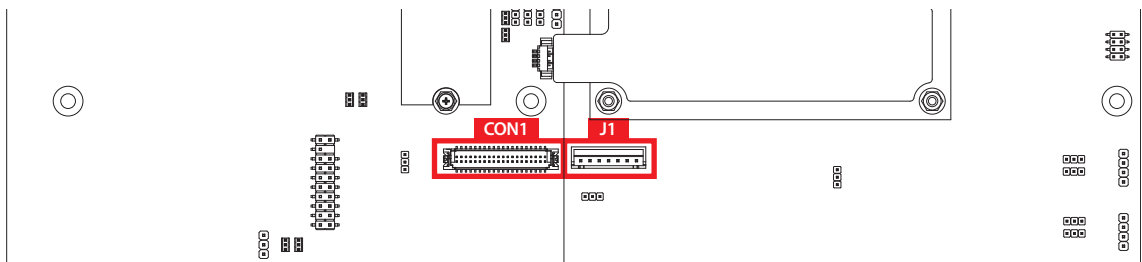
2.3.2 CPU FAN Connector

The fan power connector is for CPU module requirements. The pin assignments of CPU_FAN1 is listed in the following table.



	Pin No.	Definition	Pin No.	Definition
		1	GND	2
	3	Fan speed sensor	4	Fan PWM

2.3.3 CON1, J1: LVDS Connector




VCOM-BASE supports dual-channel 24-bit LVDS display and up to 1920 x 1200 pixels resolution. The pin assignments of LVDS are listed in the following table :

Pin No.	Definition	Pin No.	Definition
1	PANEL_VDD	2	TXO0-
3	PANEL_VDD	4	TXO0+
5	PANEL_VDD	6	TXO1-
7	GND	8	TXO1+
9	GND	10	TXO2-
11	GND	12	TXO2+
13	GND	14	TXOC-
15	GND	16	TXOC+

17	GND	18	TXO3-
19	GND	20	TXO3+
Pin No.	Definition	Pin No.	Definition
21	GND	22	TXE0-
23	GND	24	TXE0+
25	GND	26	TXE1-
27	GND	28	TXE1+
29	GND	30	TXE2-
31	GND	32	TXE2+
33	GND	34	TXEC-
35	GND	36	TXEC+
37	GND	38	TXE3-
39	LVDS_DET#	40	TXE3+

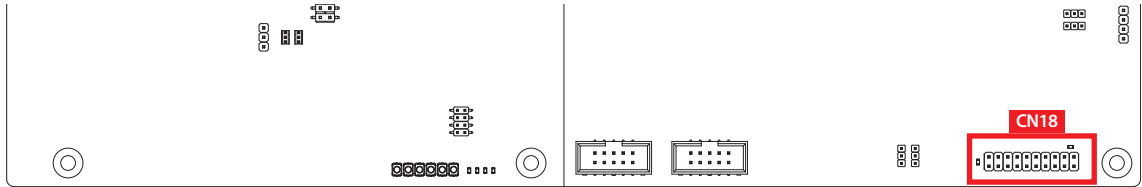
The LCD inverter is connected to J6 via a JST 7-pin, 2.5mm connector providing +5V/+12V power to LCD display. The pin assignments are listed in the following table :

			
Pin No.	Definition	Pin No.	Definition
1	+5V	2	+12V
3	+12V	4	LBKLT_CTL
5	GND	6	GND
7	LBKLT_EN		

2.3.4 CN18: Miscellaneous Pin Header

2.0mm 2x10p header

This pin header can be used as a backup for following functions, hard drive LED indicator, reset button, power LED indicator, and power-on/ off button, which already can be accessed by front panel and top panel. The pin-outs of Miscellaneous port are listed in following table:

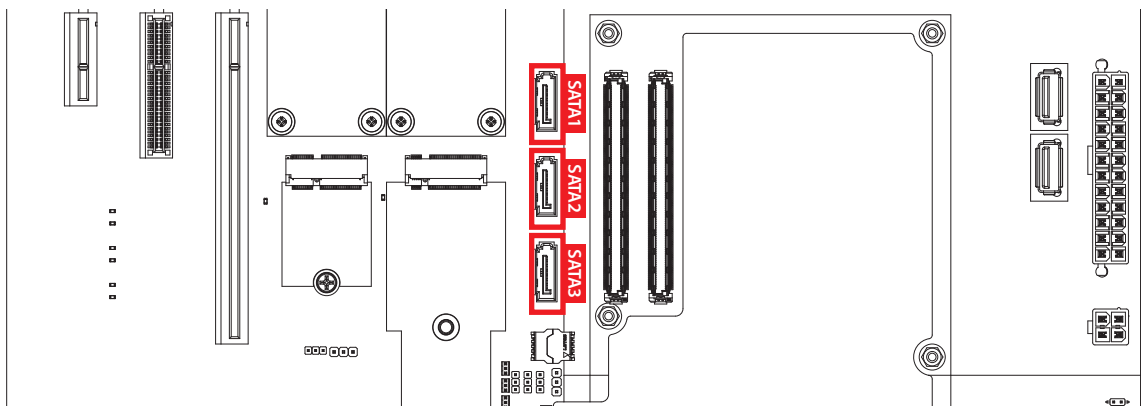


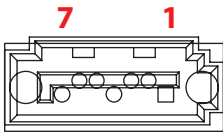
Pin No.	Definition	Pin No.	Definition
1	Power_LED	11	BUZZER
2	NC	12	GND
3	GND	13	+5V
4	NC	14	GND
5	GND	15	ATA_ACT
6	WDT_LED	16	NC
7	NC	17	+3.3V
8	PS_ON	18	PWR_BTN
9	5V STB	19	NC
10	RESET_BTN	20	GND

2.3.5 SATA 1~SATA3: SATA III Connector

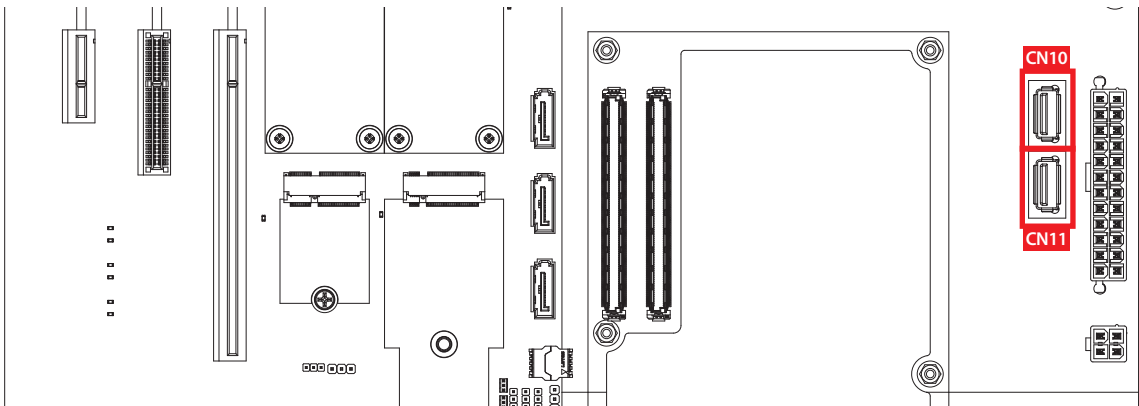
Standard 7 PIN SATA Connector

There are 3 onboard high performance Serial ATA III. It supports higher storage capacity with less cabling effort and smaller required space. The pin assignments of SATA 1 to 3 are listed in the following table :

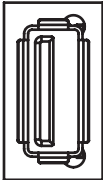


	Pin No.	Definition	Pin No.	Definition
	1	Ground	2	TX DP
	3	TX DN	4	Ground
	5	RX DN	6	RX DP
	7	Ground		

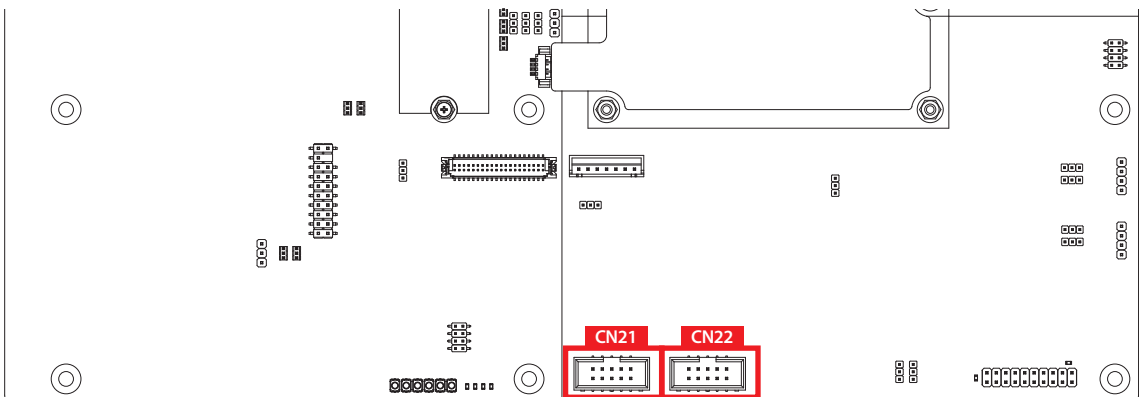
2.3.6 CN10,CN11 : Internal USB2.0

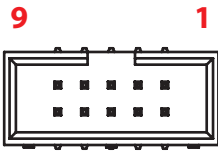


The VCOM-BASE carrier board provides maxima eight expansion USB ports. The USB interface supports 480 Mbps transfer rate which comply with high speed USB specification Rev. 2.0. The pin assignments of CN10 and CN11 are listed in the following table:

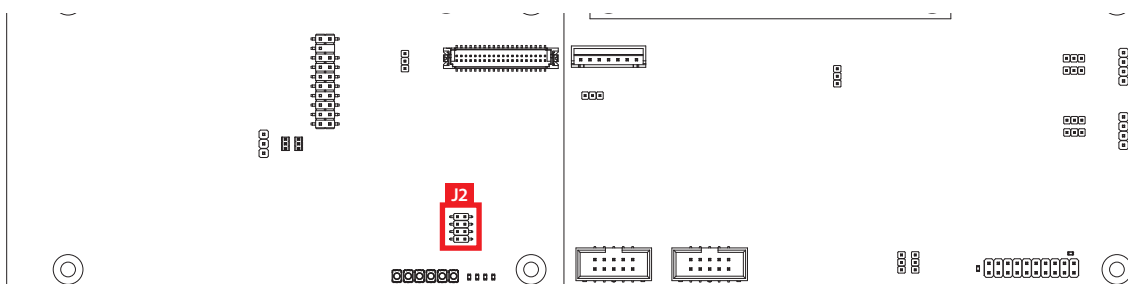
	Pin No.	Definition
	1	USB +VCC(+V5/Max. 0.5A)
	2	D-
	3	D+
	4	GND

2.3.7 CN21, CN22 : Serial Ports from Module

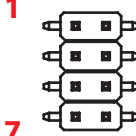


	Pin No.	Definition	Pin No.	Definition
	1	NC	6	NC
	2	SER_RX	7	NC
	3	SER_TX	8	NC
	4	NC	9	NC
5	GND	10	NC	

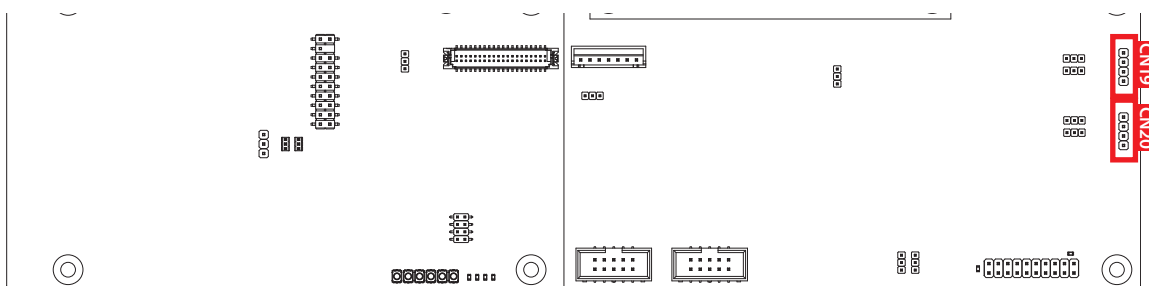
2.3.8 J2 : GPIO Header



GPIOs of J2 come from the COM Express module.


	Pin No.	Definition	Pin No.	Definition
	1	GPI0	2	GPO0
	3	GPI1	4	GPO1
	5	GPI2	6	GPO2
	7	GPI3	8	GPO3

2.3.9 CN19, CN20 : I2C and SMB Bus

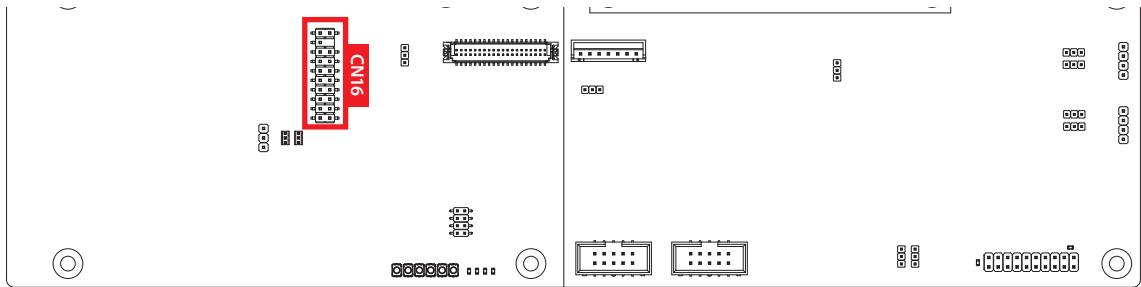


CN19: I2C Bus

CN20: SMB Bus

	Pin No.	Definition
	1	+5V
	2	I2C_DAT / SMB_DAT
	3	I2C_CK / SMB_CK
4	GND	

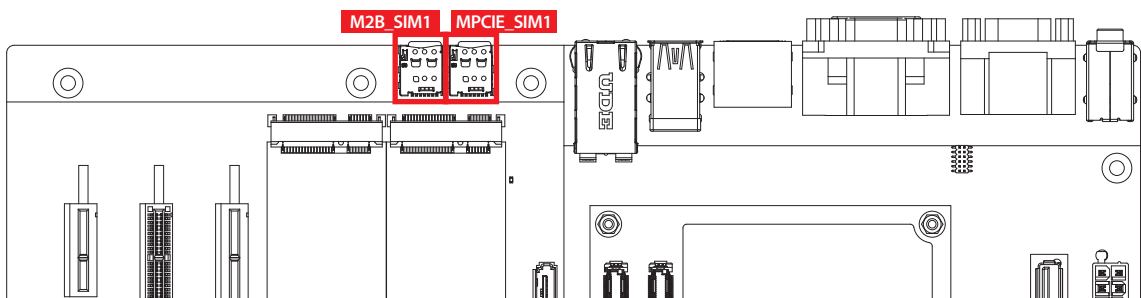
2.3.10 CN16 : LPC Debug Header



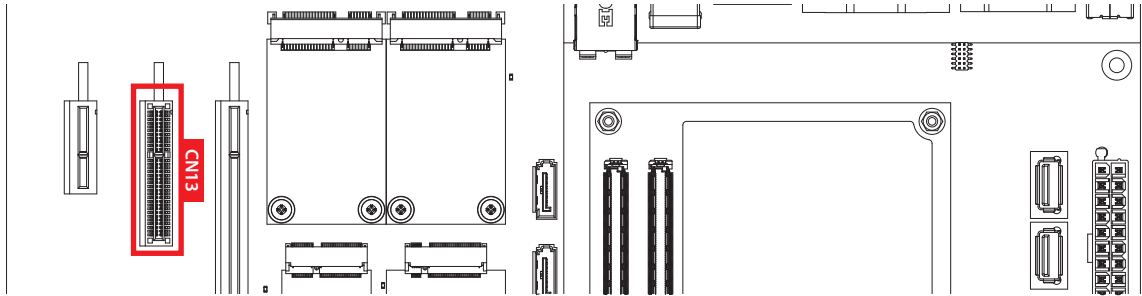
	Pin No.		Definition	
		1	LPC_CLK	2
3		LPC_FRAME#	4	KEY
5		LPC_RST#	6	+ 5V
7		LPC_AD3	8	LPC_AD2
9		+ 3.3V	10	LPC_AD1
11		LPC_AD0	12	GND
13		SMB_CK	14	SMB_DAT
15		SPD_A1	16	SPD_A0
17		GND	18	LPC_SERIRQ
19		NC	20	NC

2.3.11 M2B_SIM1, MPCIE_SIM1: Nano SIM card Sockets

The SIM card sockets do not support hot-plug. Please make sure to unplug the system power before inserting the SIM card(s).



2.3.12 CN13 : PCIe x4 Slot

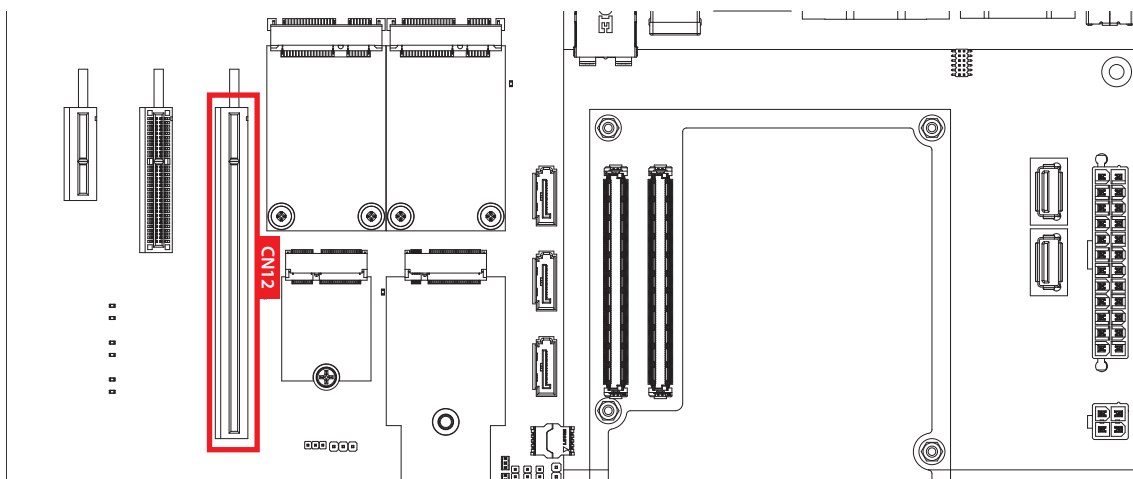


The pin assignments of CN13 are listed in the following table :

Pin No.	Definition	Pin No.	Definition
A1	Reserved	B1	+V12
A2	+V12	B2	+V12
A3	+V12	B3	+V12
A4	GND	B4	GND
A5	TCK	B5	SMB_CK
A6	TDI	B6	SMB_DAT
A7	NC	B7	GND
A8	TMS	B8	+3.3V
A9	+3.3V	B9	TRST#
A10	+3.3 V	B10	+3.3VSB
A11	PERST#	B11	WAKE#
A12	GND	B12	NC
A13	REFCLK+	B13	GND
A14	REFCLK-	B14	TXP_0
A15	GND	B15	TXN_0
A16	RXP_0	B16	GND
A17	RXN_0	B17	Reserved
A18	GND	B18	GND
A19	Reserved	B19	TXP_1
A20	GND	B20	TXN_1
A21	RXP_1	B21	GND

A22	RXN_1	B22	GND
A23	GND	B23	TXP_2
A24	GND	B24	TXN_2
A25	RXP_2	B25	GND
A26	RXN_2	B26	GND
A27	GND	B27	TXP_3
A28	GND	B28	TXN_3
A29	RXP_3	B29	GND
A30	RXN_3	B30	Reserved
A31	GND	B31	Reserved
A32	Reserved	B32	GND

2.3.13 CN12 : PCIe x16 Slot



The pin assignments of CN12 are listed in the following table :

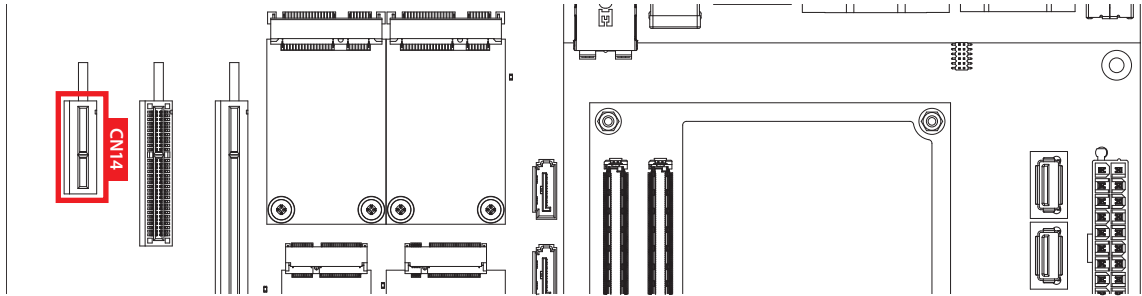
Pin No.	Definition	Pin No.	Definition
A1	Reserved	B1	+V12
A2	+V12	B2	+V12
A3	+V12	B3	+V12
A4	GND	B4	GND
A5	TCK	B5	SMB_CK

A6	TDI	B6	SMB_DAT
A7	NC	B7	GND
A8	TMS	B8	+3.3V
A9	+3.3V	B9	TRST#
A10	+3.3 V	B10	+3.3VSB
A11	PERST#	B11	WAKE#
A12	GND	B12	NC
A13	REFCLK+	B13	GND
A14	REFCLK-	B14	TXP_0
A15	GND	B15	TXN_0
A16	RXP_0	B16	GND
A17	RXN_0	B17	Reserved
A18	GND	B18	GND
A19	Reserved	B19	TXP_1
A20	GND	B20	TXN_1
A21	RXP_1	B21	GND
A22	RXN_1	B22	GND
A23	GND	B23	TXP_2
A24	GND	B24	TXN_2
A25	RXP_2	B25	GND
A26	RXN_2	B26	GND
A27	GND	B27	TXP_3
A28	GND	B28	TXN_3
A29	RXP_3	B29	GND
A30	RXN_3	B30	Reserved
A31	GND	B31	Reserved
A32	Reserved	B32	GND
A33	Reserved	B33	TXP_4
A34	GND	B34	TXN_4
A35	RXP_4	B35	GND
A36	RXN_4	B36	GND

A37	GND	B37	TXP_5
A38	GND	B38	TXN_5
A39	RXP_5	B39	GND
A40	RXN_5	B40	GND
A41	GND	B41	TXP_6
A42	GND	B42	TXN_6
A43	RXP_6	B43	GND
A44	RXN_6	B44	GND
A45	GND	B45	TXP_7
A46	GND	B46	TXN_7
A47	RXP_7	B47	GND
A48	RXN_7	B48	Reserved
A49	GND	B49	GND
A50	Reserved	B50	TXP_8
A51	GND	B51	TXN_8
A52	RXP_8	B52	GND
A53	RXN_8	B53	GND
A54	GND	B54	TXP_9
A55	GND	B55	TXN_9
A56	RXP_9	B56	GND
A57	RXN_9	B57	GND
A58	GND	B58	TXP_10
A59	GND	B59	TXN_10
A60	RXP_10	B60	GND
A61	RXN_10	B61	GND
A62	GND	B62	TXP_11
A63	GND	B63	TXN_11
A64	RXP_11	B64	GND
A65	RXN_11	B65	GND
A66	GND	B66	TXP_12

A67	GND	B67	TXN_12
A68	RXP_12	B68	GND
A69	RXN_12	B69	GND
A70	GND	B70	TXP_13
A71	GND	B71	TXN_13
A72	RXP_13	B72	GND
A73	RXN_13	B73	GND
A74	GND	B74	TXP_14
A75	GND	B75	TXN_14
A76	RXP_14	B76	GND
A77	RXN_14	B77	GND
A78	GND	B78	TXP_15
A79	GND	B79	TXN_15
A80	RXP_15	B80	GND
A81	RXN_15	B81	Reserved
A82	GND	B82	Reserved

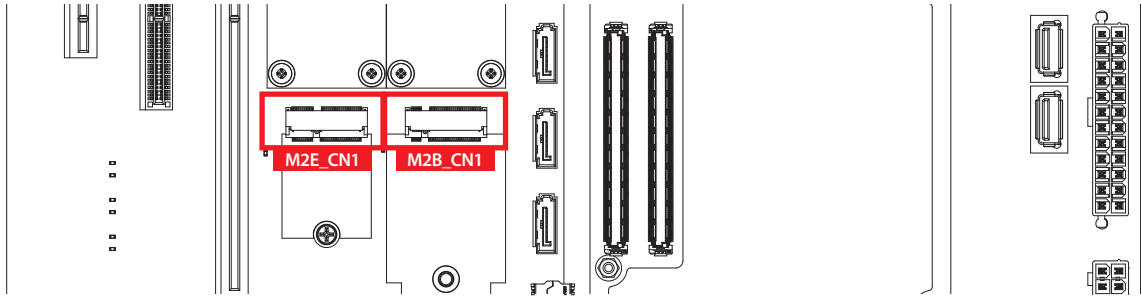
2.3.14 CN14 : PCIe x1 Slot



The pin assignments of CN14 are listed in the following table :

Pin No.	Definition	Pin No.	Definition
A1	Reserved	B1	+V12
A2	+V12	B2	+V12
A3	+V12	B3	+V12
A4	GND	B4	GND
A5	TCK	B5	SMB_CK
A6	TDI	B6	SMB_DAT
A7	NC	B7	GND
A8	TMS	B8	+3.3V
A9	+3.3V	B9	TRST#
A10	+3.3 V	B10	+3.3VSB
A11	PERST#	B11	WAKE#
A12	GND	B12	NC
A13	REFCLK+	B13	GND
A14	REFCLK-	B14	TXP_0
A15	GND	B15	TXN_0
A16	RXP_0	B16	GND
A17	RXN_0	B17	Reserved
A18	GND	B18	GND

2.3.15 M2B_CN1, M2E_CN1: M.2 Slot



M2B_CN1 : M.2 KEY B (Dimension : 2280, 3042)

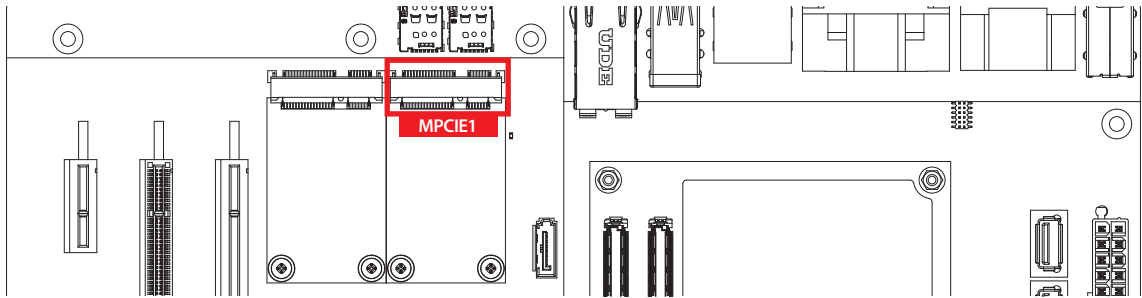
Pin No.	Signal Name	Pin No.	Signal Name
		80	Ground
75	NC		
73	Ground	74	3.3V
71	Ground	72	3.3V
69	CONFIG_1	70	3.3V
67	NC	68	NC
65	NC	66	SIM DETECT
63	NC	64	NC
61	NC	62	NC
59	NC	60	NC
57	Ground	58	NC
55	REFCLKp	56	NC
53	REFCLKn	54	PEWAKE#
51	Ground	52	CLKREQ#
49	PETp0/SATA-A+	50	PERST#
47	PETn0/SATA-A-	48	NC
45	Ground	46	NC
43	PERp0/SATA-B-	44	NC
41	PERn0/SATA-B+	42	NC
39	Ground	40	NC
37	PETp1/USB3.1-Tx+	38	DEVSLP
35	PETn1/USB3.1-Tx-	36	UIM-PWR
33	Ground	34	UIM-DATA
31	PERp1/USB3.1-Rx+	32	UIM-CLK

Pin No.	Signal Name	Pin No.	Signal Name
29	PERn1/USB3.1-Rx-	30	UIM-RESET
27	Ground	28	NC
25	NC	26	NC
23	NC	24	NC
21	NC	22	NC
		20	NC
Mechanical Key			
11	Ground		
9	USB-	10	LED_1#
7	USB+	8	W_DISABLE1
5	Ground	6	FULL_CARD_PWR_OFF/ ON
3	Ground	4	3.3V
1	NC	2	3.3V

M2E_CN1: M.2 KEY E support PCIe1 (Dimension : 2230)

Pin No.	Signal Name	Pin No.	Signal Name
75	Ground		
73	NC	74	3.3V
71	NC	72	3.3V
69	Ground	70	PEWAKE1#
67	NC	68	NC
65	NC	66	NC
63	Ground	64	NC
61	NC	62	ALERT
59	NC	60	I2C_CLK
57	Ground	58	I2C_DATA
55	PEWAKE0#	56	NC
53	CLKREQ0#	54	NC
51	Ground	52	PERST0#
49	REFCLKn0	50	NC
47	REFCLKp0	48	NC
45	Ground	46	NC
43	PERn0	44	NC
41	PERp0	42	NC
39	Ground	40	NC
37	PETn0	38	DEVSLP
35	PETp0	36	NC
33	Ground	34	NC
		32	NC
Mechanical Key			
23	NC		
21	NC	22	NC
19	Ground	20	NC
17	NC	18	Ground
15	NC	16	NC
13	Ground	14	NC
11	NC	12	NC
9	NC	10	NC
7	Ground	8	NC
5	USB-	6	LED1#
3	USB+	4	3.3V
1	Ground	2	3.3V

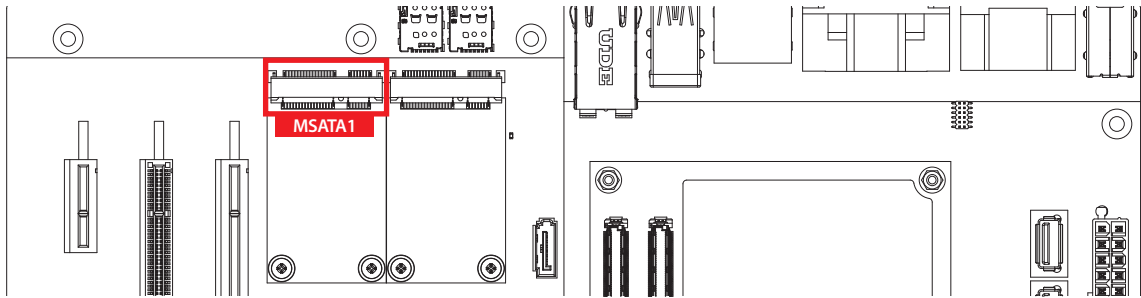
2.3.16 MPCIE1: Standard Full Length Mini PCIE Slot



The pin assignments of MPCIE 1 are listed in the following table :

Pin No.	Signal Name	Pin No.	Signal Name
51	Reserved	52	+3.3Vaux
49	Reserved	50	GND
47	Reserved	48	+1.5V
45	Reserved	46	Reserved
43	GND	44	Reserved
41	+3.3Vaux	42	Reserved
39	+3.3Vaux	40	GND
37	GND	38	USB_D+
35	GND	36	USB_D-
33	PETp0	34	GND
31	PETn0	32	SMB_DATA
29	GND	30	SMB_CLK
27	GND	28	+1.5V
25	PERp0	26	GND
23	PERn0	24	+3.3Vaux
21	GND	22	PERST#
19	Reserved	20	reserved
17	Reserved	18	GND
Mechanical Key			
15	GND	16	UIM_VPP
13	REFCLK+	14	UIM_RESET
11	REFCLK-	12	UIM_CLK
9	GND	10	UIM_DATA
7	CLKREQ#	8	UIM_PWR
5	Reserved	6	1.5V
3	Reserved	4	GND
1	WAKE#	2	3.3Vaux

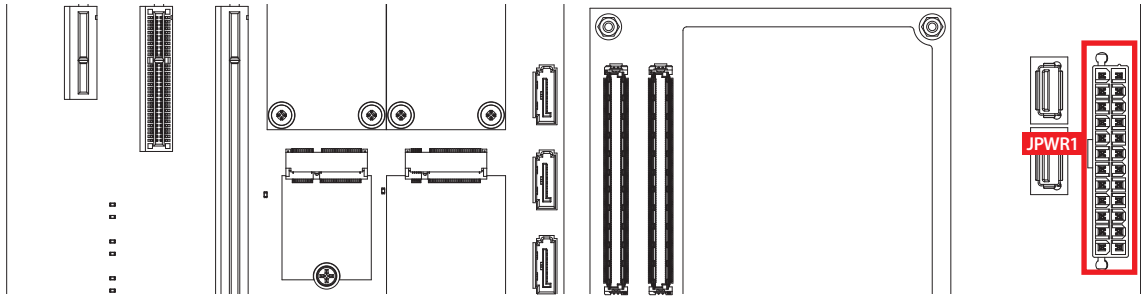
2.3.17 MSATA1: Mini SATA Slot



The pin assignments of MSATA1 1 ted in the following table :

Pin No.	Signal Name	Pin No.	Signal Name
51	Reserved	52	+3.3Vaux
49	Reserved	50	GND
47	Reserved	48	+1.5V
45	Reserved	46	Reserved
43	GND	44	Reserved
41	+3.3Vaux	42	Reserved
39	+3.3Vaux	40	GND
37	GND	38	USB_D+
35	GND	36	USB_D-
33	SATA_TXP	34	GND
31	SATA_TXN	32	SMB_DATA
29	GND	30	SMB_CLK
27	GND	28	+1.5V
25	SATA_RXN	26	GND
23	SATA_RXP	24	+3.3Vaux
21	GND	22	PERST#
19	Reserved	20	reserved
17	Reserved	18	GND
Mechanical Key			
15	GND	16	UIM_VPP
13	REFCLK+	14	UIM_RESET
11	REFCLK-	12	UIM_CLK
9	GND	10	UIM_DATA
7	CLKREQ#	8	UIM_PWR
5	Reserved	6	1.5V
3	Reserved	4	GND
1	WAKE#	2	3.3Vaux

2.3.18 JPWR1:ATX-24pin Power connector

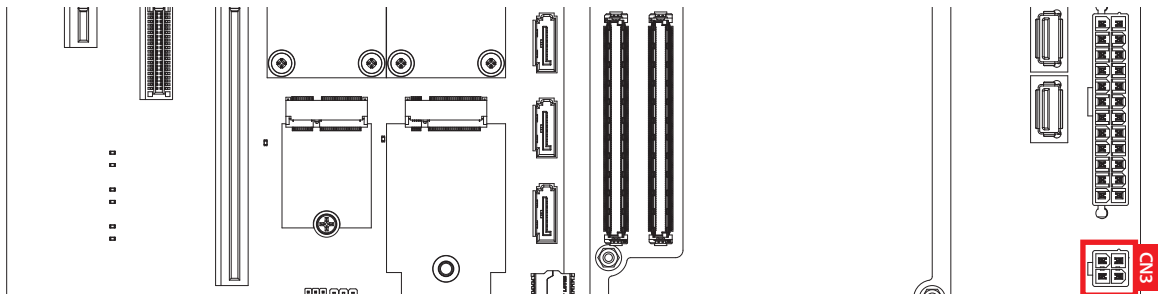


Connect (JPWR1) the ATX 24-pin connector. You must also connect the 4 pin (CN3) power connector to your supply power to the Express-BASE6 carrier.

Pin No.	Definition	Pin No.	Definition
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWR GOOD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

2.3.19 CN3: ATX 12V 4-pin Connector

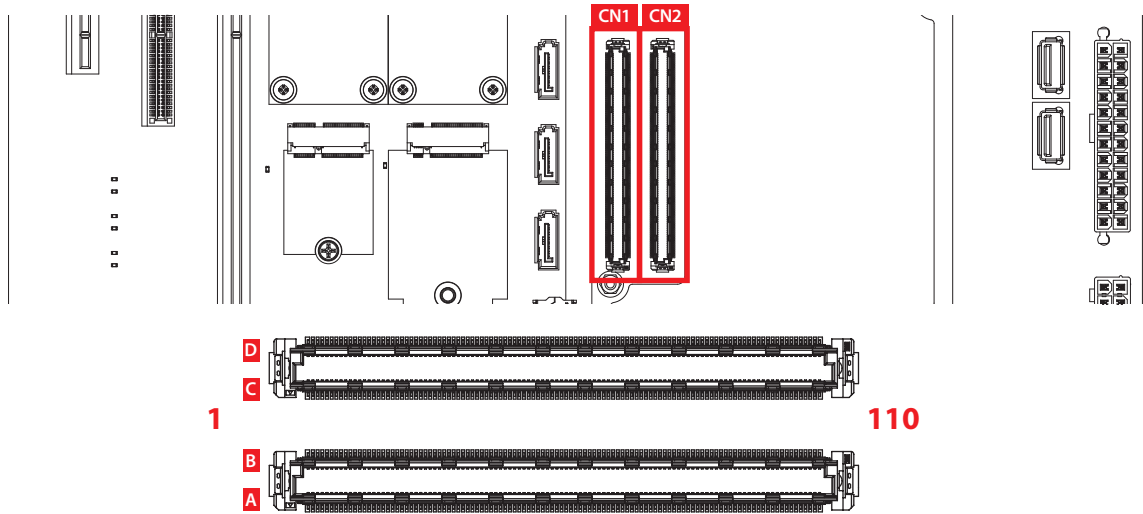
Connect(CN3) the ATX 12V 4-pin connector to power supply to the Express-BASE6 carrier.



Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

2.3.20 CN1, CN2: COM Express Board-to-Board Connectors

Signals and Pinout are for COM Express Type 6.

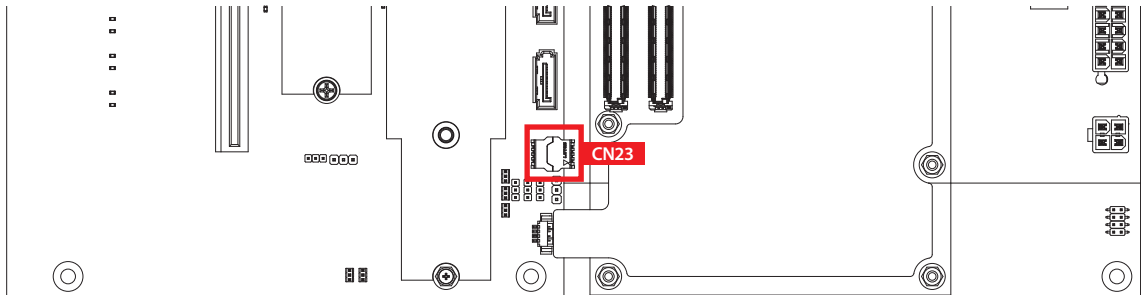


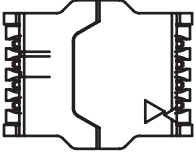
No.	Pin Name	No.	Pin Name	No.	Pin Name	No.	Pin Name
A1	GND(FIXE D)	B1	GND(FIXE D)	C1	GND(FIXE D)	D1	GND(FIXE D)
A2	GBE 0_ MDI3-	B2	GBE 0_ ACT#	C2	GND	D2	GND
A3	GBE 0_ MDI3+	B3	LPC_ FRAME #	C3	USB_ SSRX0-	D3	USB_ SSTX0-
A4	GBE 0_ LINK100#	B4	LPC_ AD0	C4	USB_ SS RX0+	D4	USB_ SSTX0+
A5	GBE 0_ LINK1000#	B5	LPC_ AD1	C5	GND	D5	GND
A6	GBE 0_ MDI2-	B6	LPC_ AD2	C6	USB_ SSRX1-	D6	USB_ SSTX1-
A7	GBE 0_ MDI2+	B7	LPC_ AD3	C7	USB_ SSRX1+	D7	USB_ SSTX1+
A8	GBE 0_ LINK#	B8	LPC_ DRQ0#	C8	GND	D8	GND
A9	GBE 0_ MDI1-	B9	LPC_ DRQ1#	C9	USB_ SSRX2-	D9	USB_ SSTX2-
A10	GBE 0_ MDI1+	B10	LPC_ CLK	C10	USB_ SSRX2+	D10	USB_ SSTX2+
A11	GND(FIXE D)	B11	GND(F IXE D)	C11	GND(FIXE D)	D11	GND(F IXE D)
A12	GBE 0_ MDI0-	B12	PWRBTN#	C12	USB_ SSRX3-	D12	USB_ SS TX3-
A13	GBE 0_ MDI0+	B13	SMB_ C K	C13	USB_ SSRX3+	D13	USB_ SS TX3+
A14	GBE 0_ CTRE F	B14	SMB_ DAT	C14	GND	D14	GND
A15	SUS_ S3#	B15	SMB_ ALE RT#	C15	DDI1_ PAIR6+	D15	DDI1_ CTRLCLK_ AUX+
A16	SATA0_ TX+	B16	SATA1_ TX+	C16	DDI1_ PAIR6-	D16	DDI1_ CTRLDATA_ AUX
A17	SATA0_ TX-	B17	SATA1_ TX-	C17	RSVD	D17	RSVD
A18	SUS_ S4#	B18	SUS_ S TAT#	C18	RSVD	D18	RSVD
A19	SATA0_ RX+	B19	SATA1_ RX+	C19	PCIE_ RX6+	D19	PCIE_ TX6+
A20	SATA0_ RX-	B20	SATA1_ RX-	C20	PCIE_ RX6-	D20	PCIE_ TX6-
A21	GND(FIXE D)	B21	GND(F IXE D)	C21	GND(FIXE D)	D21	GND(FIXE D)
A22	SATA2_ TX+	B22	SATA3_ TX+	C22	PCIE_ RX7+	D22	PCIE_ TX7+
A23	SATA2_ TX-	B23	SATA3_ TX-	C23	PCIE_ RX7-	D23	PCIE_ TX7-
A24	SUS_ S5#	B24	PWR_ OK	C24	DDI1_ HPD	D24	RSVD
A25	SATA2_ RX+	B25	SATA3_ RX+	C25	DDI1_ PAIR4+	D25	RSVD
A26	SATA2_ RX-	B26	SATA3_ RX-	C26	DDI1_ PAIR4-	D26	DDI1_ PAIR0+
A27	BATLOW #	B27	WDT	C27	RSVD	D27	DDI1_ PAIR0-
A28	(S)ATA_ ACT#	B28	AC/HDA_ SDIN2	C28	RSVD	D28	RSVD
A29	AC/HDA_ SYNC	B29	AC/HDA_ SDIN1	C29	DDI1_ PAIR5+	D29	DDI1_ PAIR1+
A30	AC /HDA_ RST#	B30	AC/HDA_ SDIN0	C30	DDI1_ PAIR5-	D30	DDI1_ PAIR1-

No.	Pin Name	No.	Pin Name	No.	Pin Name	No.	Pin Name
A31	GND(FIXE D)	B31	GND(F IXE D)	C31	GND(FIXE D)	D31	GND(FIXE D)
A32	AC /HDA_ BITC LK	B32	SPKR	C32	DDI2_CTRLCL LK_AUX+	D32	DDI1_PAIR2+
A33	AC/HDA_SDOU	B33	I2C _ CK	C33	DDI2 CTRLDATA_AUX-	D33	DDI1_PAIR2-
A34	BIOS _ DIS0#	B34	I2C _ DAT	C34	DDI2_DDC_ AUX_SEL	D34	DDI1_DDC_ AUX_SEL
A35	THRMTRIP#	B35	THRM#	C35	RSVD	D35	RSVD
A36	USB 6-	B36	USB 7-	C36	DDI3_CTRLCLK_ AUX+	D36	DDI1_PAIR3+
A37	USB 6+	B37	USB 7+	C37	DDI3_C TRLDATA_AUX-	D37	DDI1_PAIR3-
A38	USB_6_7_ OC #	B38	USB_4_5_ OC#	C38	DDI3_DDC_ AUX_SEL	D38	RSVD
A39	USB 4-	B39	USB 5-	C39	DDI3_PAIR0+	D39	DDI2_PAIR0+
A40	USB 4+	B40	USB 5+	C40	DDI3_PAIR0-	D40	DDI2_PAIR0-
A41	GND(FIXE D)	B41	GND(FIXE D)	C41	GND(FIXE D)	D41	GND(FIXE D)
A42	USB 2-	B42	USB 3-	C42	DDI3_PAIR1+	D42	DDI2_PAIR1+
A43	USB 2+	B43	USB 3+	C43	DDI3_PAIR1-	D43	DDI2_PAIR1-
A44	USB_2_3_OC #	B44	USB_0_1_OC#	C44	DDI3_HP	D44	DDI2_HP
A45	USB0-	B45	US B 1-	C45	RSVD	D45	RSVD
A46	USB0+	B46	US B 1+	C46	DDI3_PAIR2+	D46	DDI2_PAIR2+
A47	VCC _ RTC	B47	EXCD1_PERST#	C47	DDI3_PAIR2-	D47	DDI2_PAIR2-
A48	EXCD0_PERST#	B48	EXCD1_CPPE#	C48	RSVD	D48	RSVD
A49	EXCD0_CPPE #	B49	SYS _ RESET#	C49	DDI3_PAIR3+	D49	DDI2_PAIR3+
A50	LPC _ SERIRQ	B50	CB _ RESET#	C50	DDI3_PAIR3-	D50	DDI2_PAIR3-
A51	GND(FIXE D)	B51	GND(FIXE D)	C51	GND(FIXE D)	D51	GND(FIXE D)
A52	PCIE _ TX5+	B52	PCIE _ RX5+	C52	PEG_RX0+	D52	PE G _ TX0+
A53	PCIE _ TX5-	B53	PCIE _ RX5-	C53	PEG_RX0-	D53	PE G _ TX0-
A54	GPI0	B54	GPO1	C54	TYPE0#	D54	PEG_LANE_RV#
A55	PCIE _ TX4+	B55	PCIE _ R X4+	C55	PEG_RX1+	D55	PEG _ TX1+
A56	PCIE _ TX4-	B56	PCIE _ RX4-	C56	PEG_RX1-	D56	PEG _ TX1-
A57	GND	B57	GPO2	C57	TYPE1#	D57	TYPE2#
A58	PCIE _ TX3+	B58	PCIE _ RX3+	C58	PEG_RX2+	D58	PEG _ TX2+
A59	PCIE _ TX3-	B59	PCIE _ RX3-	C59	PEG_RX2-	D59	PEG _ TX2-
A60	GND(FIXE D)	B60	GND(FIXE D)	C60	GND(FIXE D)	D60	GND(FIXE D)
A61	PCIE _ TX2+	B61	PCIE _ RX2+	C61	PEG_RX3+	D61	PEG _ TX3+
A62	PCIE _ TX2-	B62	PCIE _ RX2-	C62	PEG_RX3-	D62	PEG _ TX3-
A63	GPI1	B63	GPO3	C63	RSVD	D63	RSVD
A64	PCIE _ TX1+	B64	PCIE _ RX1+	C64	RSVD	D64	RSVD
A65	PCIE _ TX1-	B65	PCIE _ RX1-	C65	PEG_RX4+	D65	PEG _ TX4+
A66	GND	B66	WAKE 0#	C66	PEG_RX4-	D66	PEG _ TX4-
A67	GPI2	B67	WAKE 1#	C67	RSVD	D67	GND
A68	PCIE _ TX0+	B68	PCIE _ RX0+	C68	PEG_RX5+	D68	PEG _ TX5+
A69	PCIE _ TX0-	B69	PCIE _ RX0-	C69	PEG_RX5-	D69	PEG _ TX5-
A70	GND(FIXE D)	B70	GND(FIXE D)	C70	GND(FIXE D)	D70	GND(FIXE D)
A71	LVDS _ A0+	B71	LVDS _ B0+	C71	PEG_RX6+	D71	PEG _ TX6+
A72	LVDS _ A0-	B72	LVDS _ B0-	C72	PEG_RX6-	D72	PEG _ TX6-
A73	LVDS _ A1+	B73	LVDS _ B1+	C73	GND	D73	GND
A74	LVDS _ A1-	B74	LVDS _ B1-	C74	PEG_RX7+	D74	PEG _ TX7+
A75	LVDS _ A2+	B75	LVDS _ B2+	C75	PEG_RX7-	D75	PEG _ TX7-

No.	Pin Name	No.	Pin Name	No.	Pin Name	No.	Pin Name
A76	LVDS_A2-	B76	LVDS_B2-	C76	GND	D76	GND
A77	LVDS_VDD_EN	B77	LVDS_B3+	C77	RSVD	D77	RSVD
A78	LVDS_A3+	B78	LVDS_B3-	C78	PEG_RX8+	D78	PEG_TX8+
A79	LVDS_A3-	B79	LVDS_BKLT_EN	C79	PEG_RX8-	D79	PEG_TX8-
A80	GND(FIXE D)	B80	GND(FIXE D)	C80	GND(FIXE D)	D80	GND(FIXE D)
A81	LVDS_A_CK+	B81	LVDS_B_CK+	C81	PEG_RX9+	D81	PEG_TX9+
A82	LVDS_A_CK-	B82	LVDS_B_CK-	C82	PEG_RX9-	D82	PEG_TX9-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL	C83	TPM_PP	D83	RSVD
A84	LVDS_I2C_DAT	B84	VCC_5V_S BY	C84	GND	D84	GND
A85	GPI3	B85	VCC_5V_S BY	C85	PEG_RX10+	D85	PEG_TX10+
A86	RSVD	B86	VCC_5V_S BY	C86	PEG_RX10-	D86	PEG_TX10-
A87	RSVD	B87	VCC_5V_S BY	C87	GND	D87	GND
A88	PCIE_CLK_REF+	B88	BIOS DIS1#	C88	PEGRX11+	D88	PEG TX11+
A89	PCIE_CLK_REF-	B89	VGA_RED	C89	PEG_RX11-	D89	PEG_TX11-
A90	GND(FIXE D)	B90	GND(FIXE D)	C90	GND(FIXE D)	D90	GND(FIXE D)
A91	SPI POWER	B91	VGA GRN	C91	PEG RX12+	D91	PEG TX12+
A92	SPI MISO	B92	VGA BLU	C92	PEG RX12-	D92	PEG TX12-
A93	GPO0	B93	VGA_HSYNC	C93	GND	D93	GND
A94	SPI CLK	B94	VGA_VSYNC	C94	PEG RX13+	D94	PEG TX13+
A95	SPI MOSI	B95	VGA_I2C_CK	C95	PEG RX13-	D95	PEG TX13-
A96	TPM_PP	B96	VGA_I2C_DAT	C96	GND	D96	GND
A97	TYPE 10#	B97	SPI CS #	C97	RSVD	D97	RSVD
A98	SER0 TX	B98	RSVD	C98	PEG RX14+	D98	PEG TX14+
A99	SER0RX	B99	RSVD	C99	PEG RX14-	D99	PEG TX14-
A100	GND(FIXE D)	B100	GND(FIXE D)	C100	GND(FIXE D)	D100	GND(FIXE D)
A101	SER1 TX	B101	FAN PWMOUT	C101	PEG RX15+	D101	PEG TX15+
A102	SER1 RX	B102	FAN TAC HIN	C102	PEG RX15-	D102	PEG TX15-
A103	LID#	B103	SLEEP#	C103	GND	D103	GND
A104	VCC_12V	B104	VCC_12V	C104	VCC_12V	D104	VCC_12V
A105	VCC_12V	B105	VCC_12V	C105	VCC_12V	D105	VCC_12V
A106	VCC_12V	B106	VCC_12V	C106	VCC_12V	D106	VCC_12V
A107	VCC_12V	B107	VCC_12V	C107	VCC_12V	D107	VCC_12V
A108	VCC_12V	B108	VCC_12V	C108	VCC_12V	D108	VCC_12V
A109	VCC_12V	B109	VCC_12V	C109	VCC_12V	D109	VCC_12V
A110	GND(FIXE D)	B110	GND(FIXE D)	C110	GND(FIXE D)	D110	GND(FIXE D)

2.3.21 CN23: Secondary SPI BIOS Socket

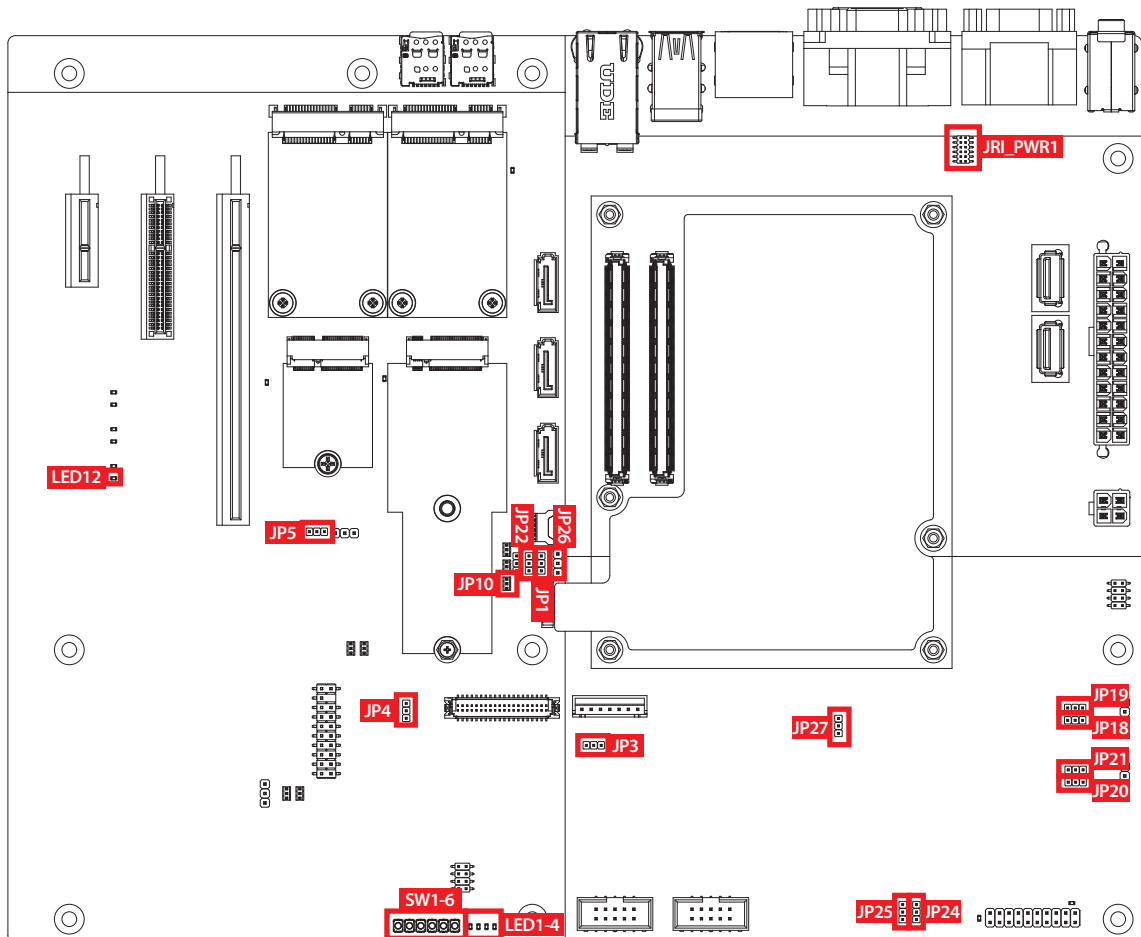


	Pin No.	Definition
	1	CS#
	2	DO
	3	WP#
	4	GND
	5	DI
	6	CLK
	7	HOLD#
	8	+3.3V

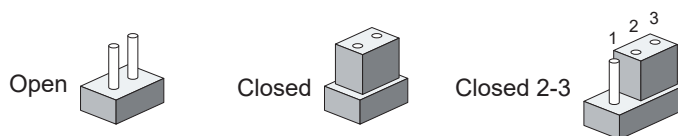
2.4 Carrier Board Jumper Settings

2.4.1 Front View of VCOM-BASE Main Board With Jumper Location

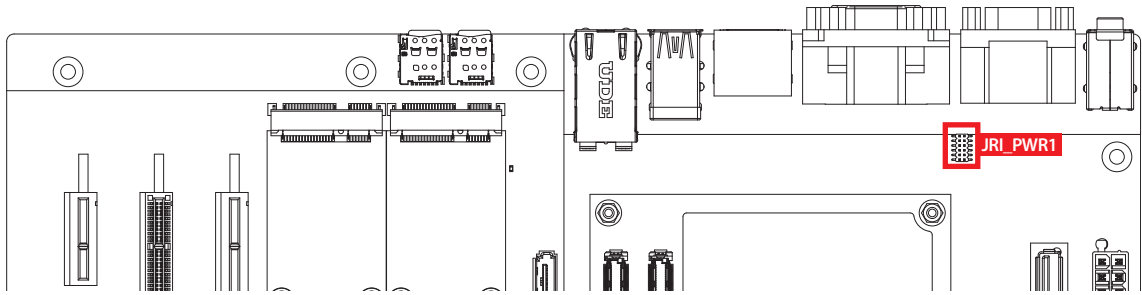
The figure below is the top view of the VCOM-BASE main board. It shows the location of the jumpers.



You may configure your card to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper, you connect the pins with the clip. To “open” a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case you would connect either pins 1 and 2, or 2 and 3.

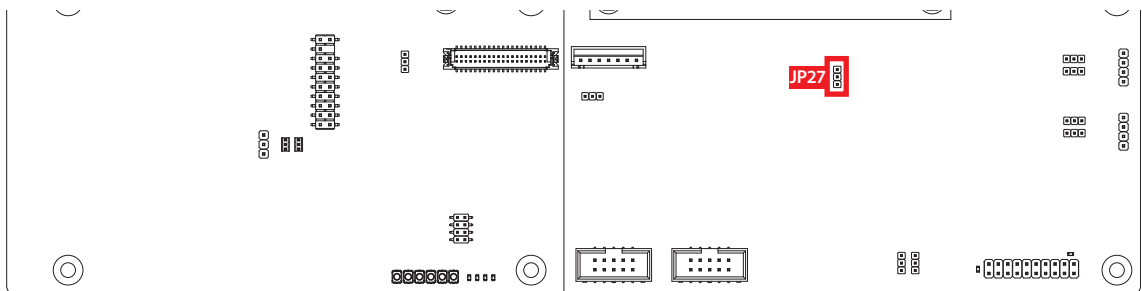


2.4.2 JRI_PWR1 : COM Port RI pin Select



	Pin No.	Function	Function
	1-2	+5V (1A max.)	COM1
	3-4	+12V (0.5A max.)	
	5-6	RI (Default)	
	7-8	+5V (1A max.)	COM2
	9-10	+12V (0.5A max.)	
	11-12	RI (Default)	

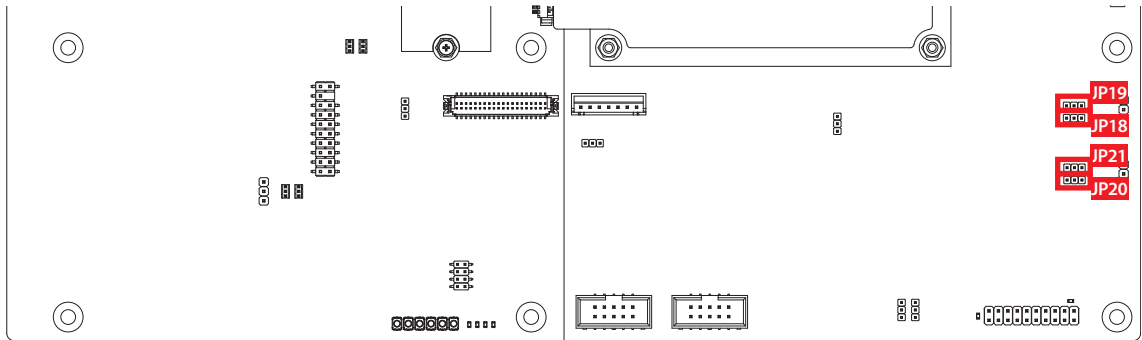
2.4.3 JP27 : CMOS Clear



	Pin No.	Function
	1-2	Normal (Default)
	2-3	Clear CMOS

2.4.4 JP18, JP19, JP20, JP21: I2C/SMBus Buffers

These buffers settings are for the I2C and SMBus test feature only.



JP18: I2C Buffer Data

	Pin No.	Function
	1-2	I2C passes through PCA9511 Buffer
	2-3	Bypass Buffer(Default)

JP19: I2C Buffer CLK

	Pin No.	Function
	1-2	I2C passes through PCA9511 Buffer
	2-3	Bypass Buffer(Default)

JP20: SMBus Buffer Data

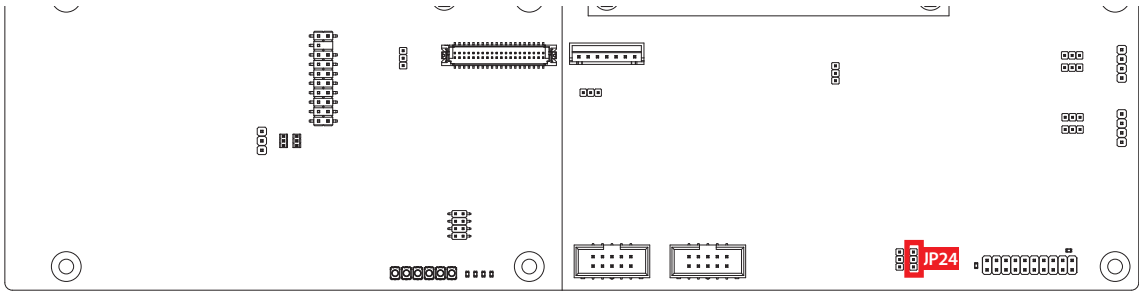
	Pin No.	Function
	1-2	SMBus passes through PCA9511 Buffer
	2-3	Bypass Buffer(Default)

JP21: SMBus Buffer CLK

	Pin No.	Function
	1-2	SMBus passes through PCA9511 Buffer
	2-3	Bypass Buffer(Default)

2.4.5 JP24 : AT/ATX MODE

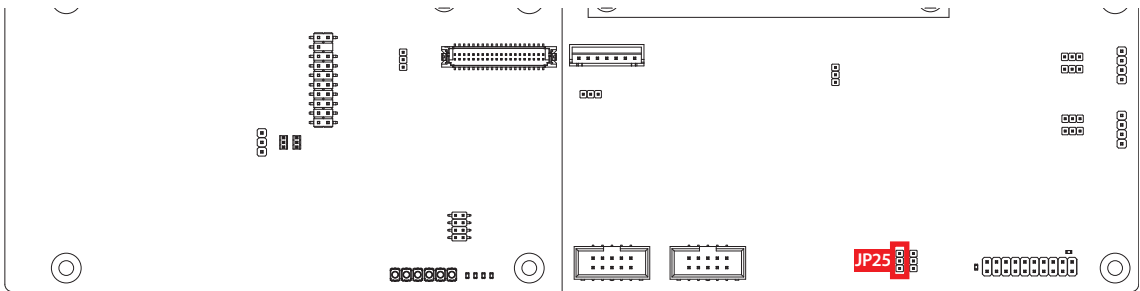
In AT mode, shorts PS_ON# to ground directly to force power on.



		Pin No.	Function	
1	□○○	3	1-2	ATX Mode(Default)
			2-3	AT Mode

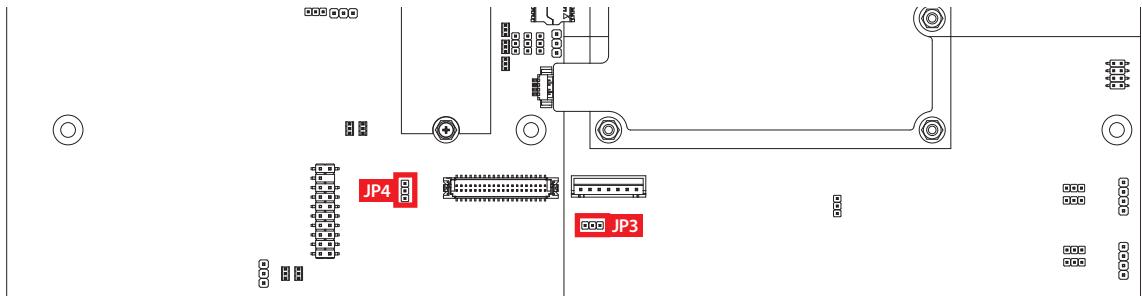
2.4.6 JP25 : PS_ON# Signal Source

VCOM-BASE carrier board support S3 mode and S5 mode power up.



		Pin No.	Function	
1	□○○	3	1-2	SUS_S3# (Default)
			2-3	SUS_S5#

2.4.7 JP3, JP4 : LVDS Module



JP3: Backlight Control Level Select

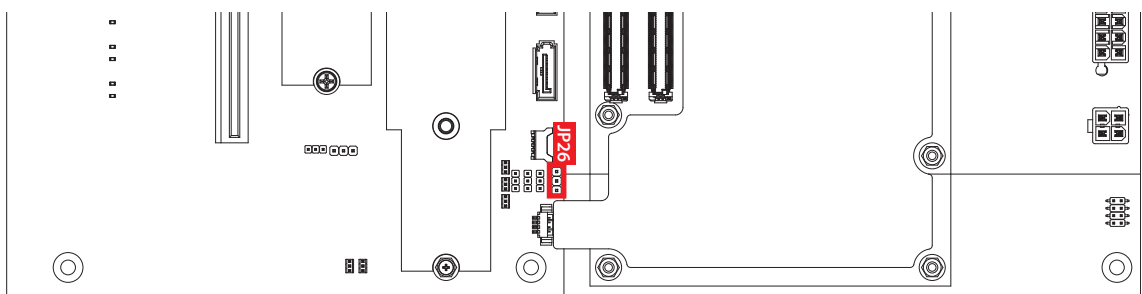
	Pin No.	Function
	1-2	3.3v
	2-3	5v

JP4: Power Selection

JP4 provides LVDS voltage selection function, Closing Pin 1 and Pin 2 is for 3.3V LVDS power input; closing Pin 2 and Pin 3 is for 5V LVDS power input.

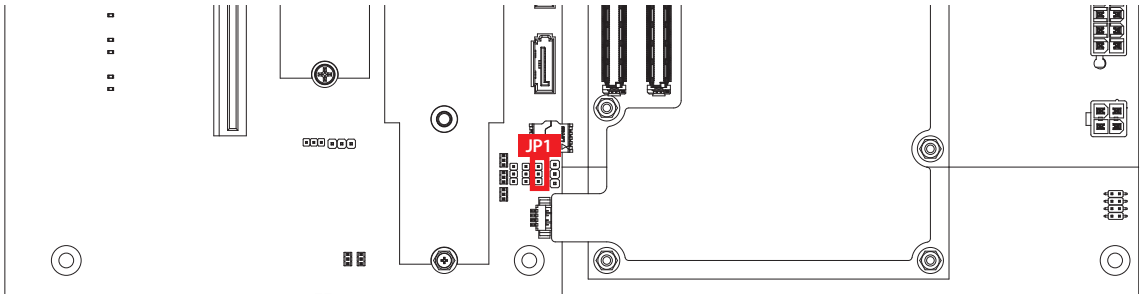
	Pin No.	Definition
	1-2	+3.3V (Default)
	2-3	+5V

2.4.8 JP26 : 5VSB to Module Source



	Pin No.	Function
	1-2	5VSB from ATX Power Supply (Default)
	2-3	P5V from AT Power Supply
	NO JUMPER	No 5VSB to module

2.4.9 JP1 : TPM ON/OFF Jumper



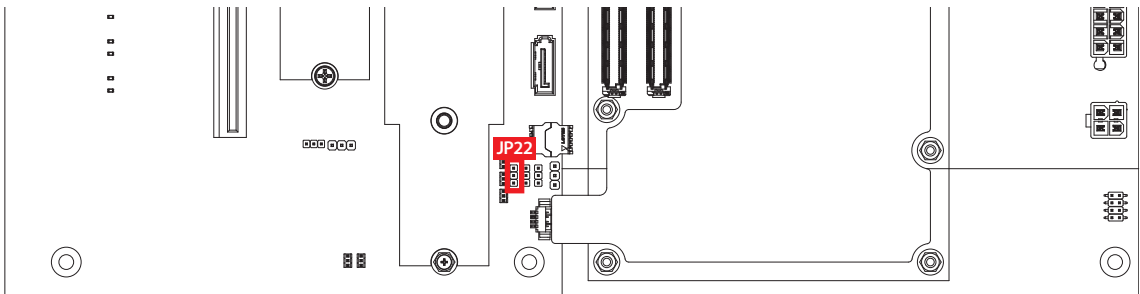
"ON" pulls the TPM signal high

"OFF" pulls the TPM signal low for nothing to the TPM signal

Dependent upon module's design for the TPM signal.

	Pin No.	Function
	1-2	ON
	2-3	OFF(Default)

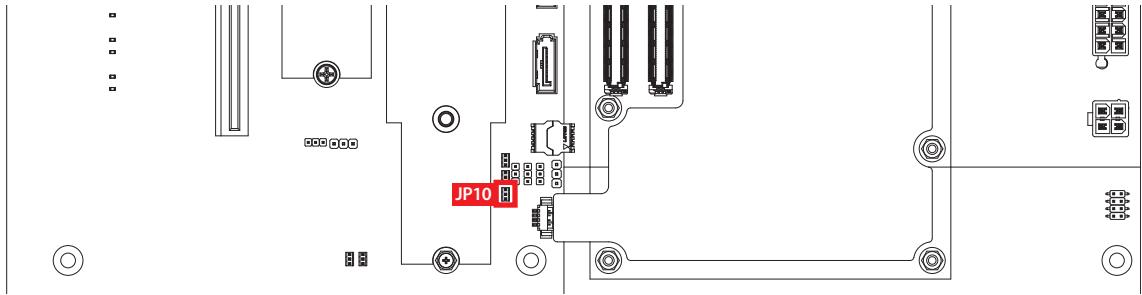
2.4.10 JP22 : Secondary SPI BIOS



PICMG COM.0 Rev. 2.0 provide a Secondary BIOS for COM Express Rev 2.0 modules that support a Secondary SPI BIOS. Open the BIOS socket and insert the secondary BIOS flash chip on the carrier board.

	Pin No.	Function
	1-2	BIOS flash chip on the CPU module(Default)
	2-3	BIOS flash chip on the carrier board

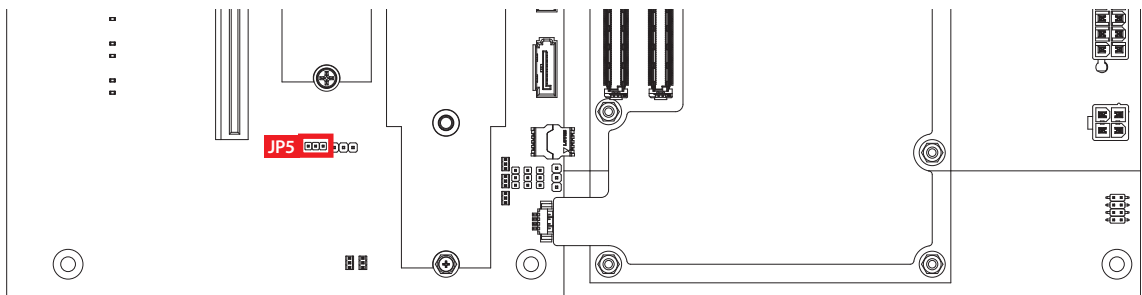
2.4.11 JP10 : DDI3 Signals



On VCOM-BASE carrier board, DDI3 Signals support front side DVI-D connector.

	Pin No.	Function
	1-2	HDMI (Default)
	2-3	Display Port

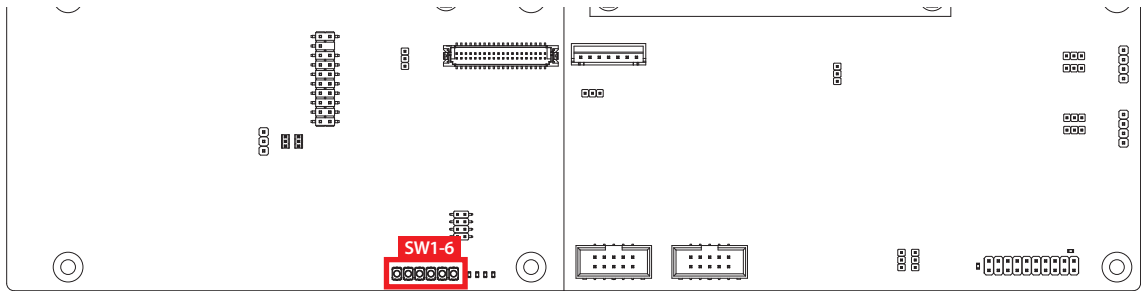
2.4.12 JP5 : Super I/O



To enable or disable Super I/O on the carrier board, the Express-BASE6 enables the carrier board ITE 8786E Super I/O, short pins 1-2 of Jumper JP5 by default. To disable the carrier board Super I/O, short pins 2-3 of Jumper JP5.

	Pin No.	Function
	1-2	Enable(Default)
	2-3	Disable

2.4.13 SW1~SW6: GPI, Sleep & Lid Button



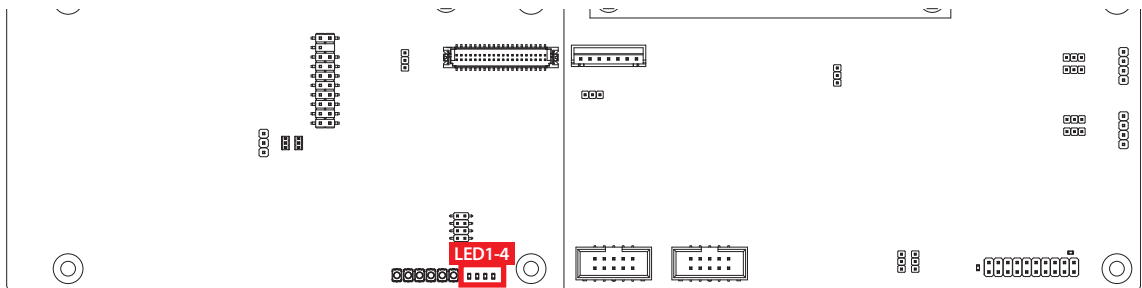
1  6

The SW1, SW2 switches are the Sleep and the Lid Button. Both buttons support COM Express Type 6 modules for ACPI power management behavior settings in an OS environment.

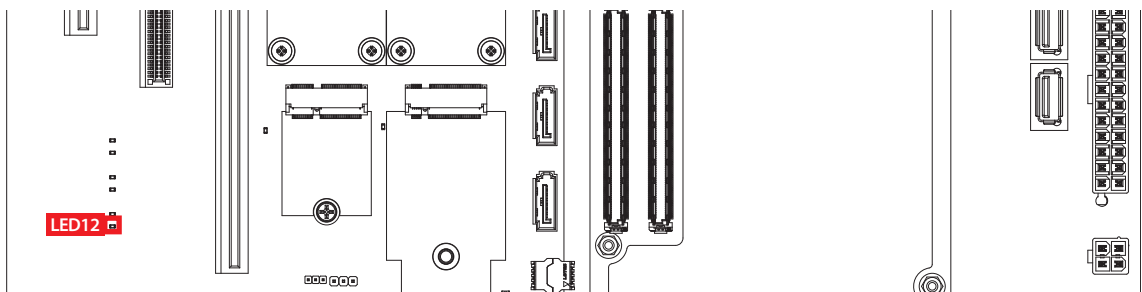
The SW3~SW6 switches are the general purpose input button.

2.4.14 LED1~LED4 & LED12: GPO & Module Type Display

The LED1~LED4 are indicators for the general purpose output. When the output signal is low, the LED will light. These signals control from the COM Express module.



The LED12 indicate the type of COM Express module installed on the Express-BASE6.



3

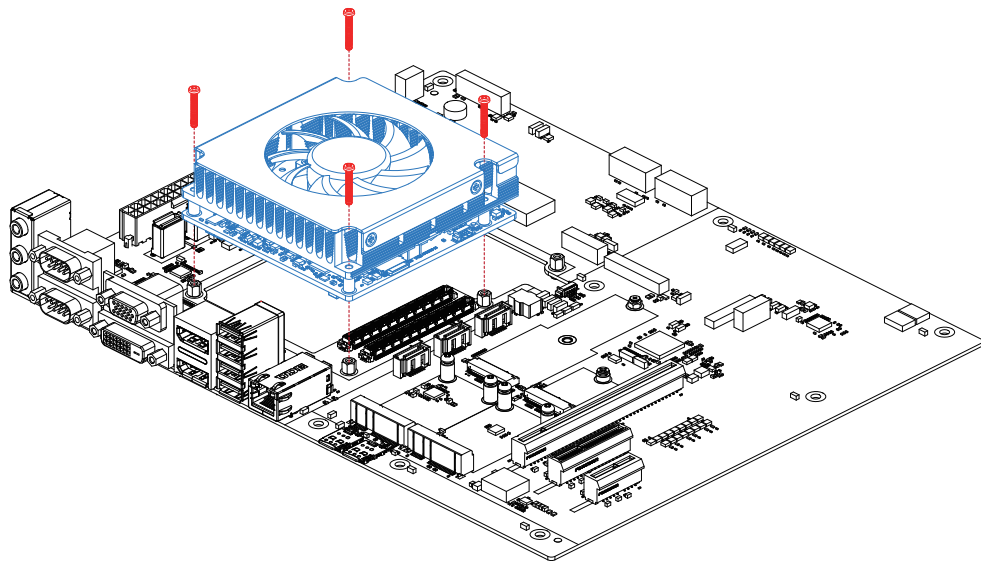
SYSTEM SETUP

3.1 How to Install Your COM Module

Place the **COM Express module** and heatsink assembly onto the connectors on the carrier board.

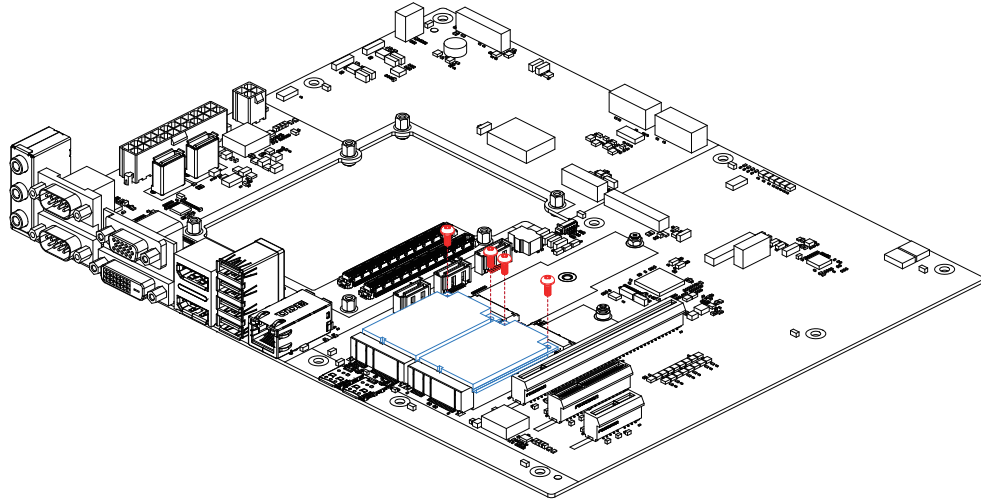
Then press down on the module until it is firmly seated on the carrier board.

Use the **five M2.5, L=16 mm screws** provided to secure the **COM Express module** to the carrier board.



3.2 Installing Mini PCIe Card

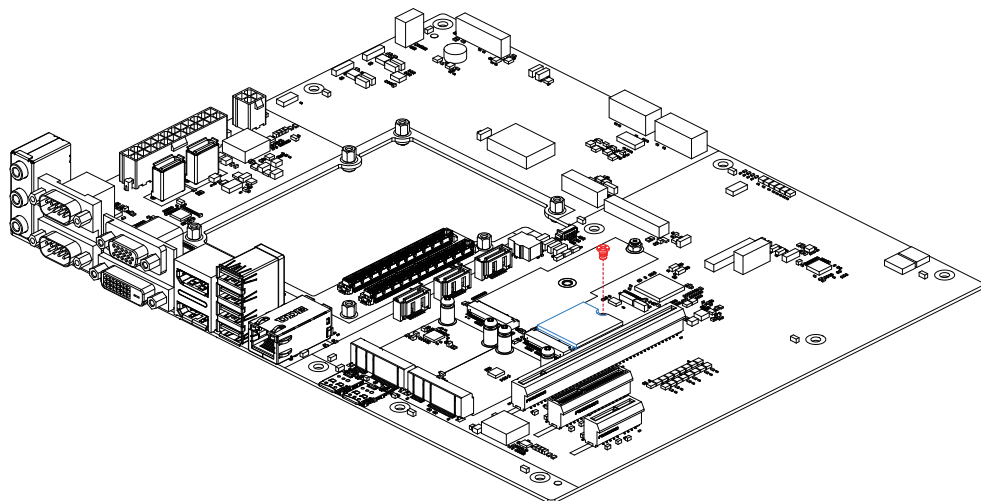
Install **mini PCIe card** into slot. Fasten **two pan head M2.5, L=6 mm screws**.



3.3 Installing M.2

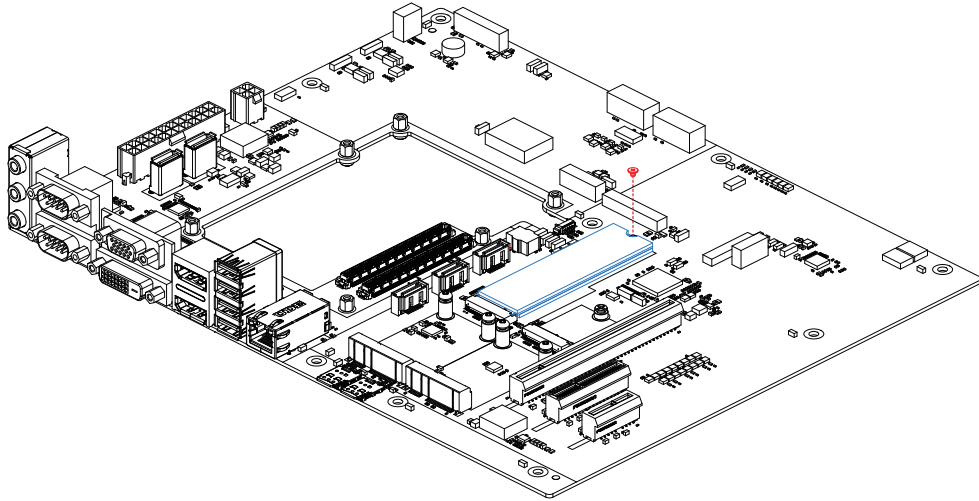
M.2 Key E 2230

Install **M.2 Key E 2230 module card** into slot, and fasten **1 head M3, L=4 mm screw**.



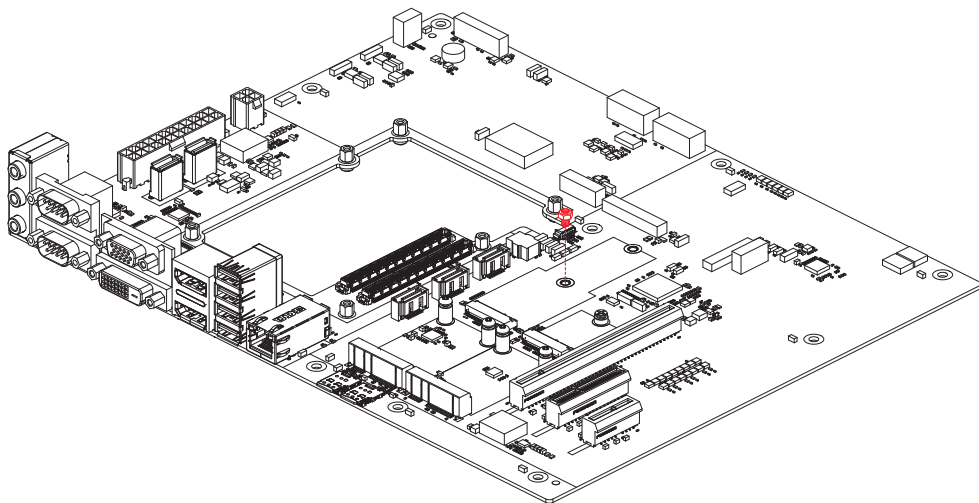
M.2 Key B 2280

Install **M.2 Key B 2280 module card** into slot, and fasten **I head M2, L=2 mm screw**.

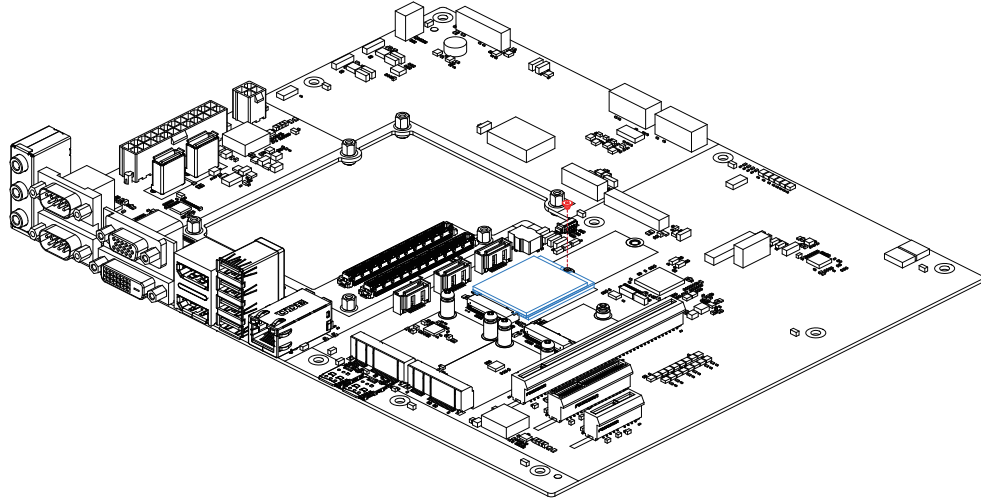


M.2 Key B 3042

Step 1 Remove **hexagon M3 standoff** on the position of Key B 2280, and install **hexagon M3 standoff** on the position of Key B 3042.



Step 2 Install M.2 Key B 3042 module card into slot, and fasten I head M2, L=2 mm screw.





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