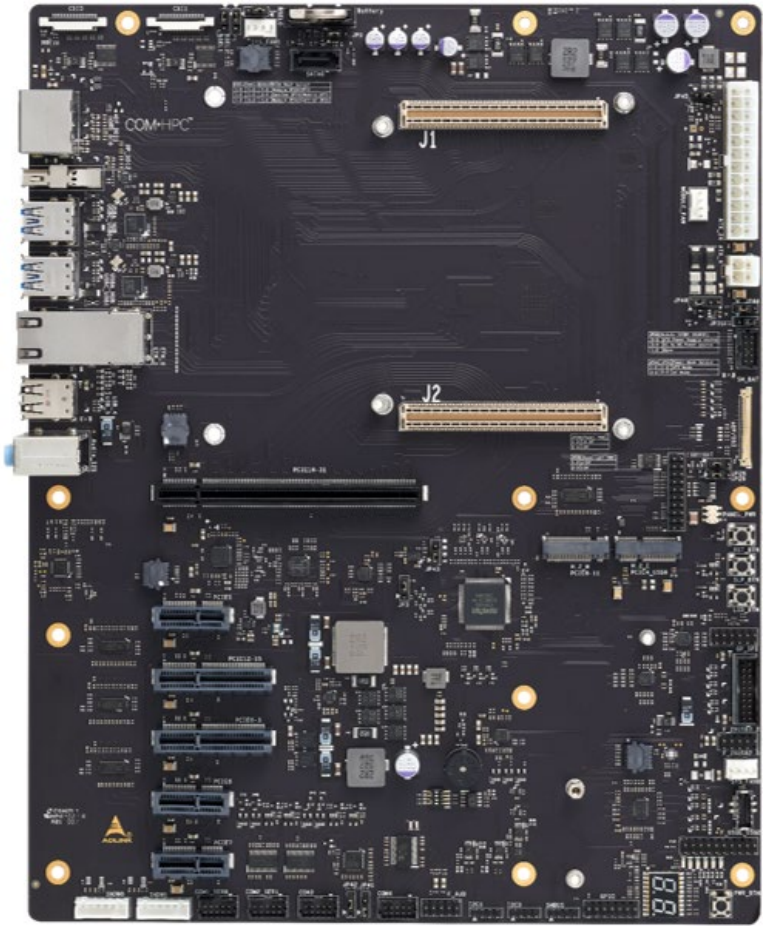
COM-HPC Client Base

User's Guide



COM-HPC™

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ADLINK
LEADING EDGE COMPUTING

Revision History

Revision	Description	Date	Author
0.1	Preliminary release	2024-06-16	AL

Preface

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Safety Instructions

For user safety, please read and follow all Instructions, **WARNING**s, **CAUTION**s, and **NOTE**s marked in this manual and on the associated equipment before handling/operating the equipment.

Read these safety instructions carefully.

- Keep this manual for future reference.
- Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- Turn off power and unplug any power cords/cables when installing/mounting or un-installing/removing equipment.
- To avoid electrical shock and/or damage to equipment:
- Keep equipment away from water or liquid sources;
- Keep equipment away from high heat or high humidity;
- Keep equipment properly ventilated (do not block or cover ventilation openings);
- Make sure to use recommended voltage and power source settings;
- Always install and operate equipment near an easily accessible electrical socket outlet;
- Secure the power cord (do not place any object on/over the power cord);
- Only install/attach and operate equipment on stable surfaces and/or recommended mountings;
- If the equipment will not be used for long periods of time, turn off the power source and unplug the equipment.

Conventions

The following conventions may be used throughout this manual, denoting special levels of information

Note: This information adds clarity or specifics to text and illustrations.

Caution: This information indicates the possibility of minor physical injury, component damage, data loss, and/or program corruption.

Warning: This information warns of possible serious physical injury, component damage, data loss, and/or program corruption.

Getting Service

Ask an Expert: https://www.adlinktech.com/en/Askanexpert

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1. Introduction

Warning: This is an EA (early available) engineering manual. The contents may not accurately reflect the actual or final version of this product.

The COM-HPC modular approach of custom carrier combined with off-the-shelf system cores relives developers and manufacturers the need to design their own system core, thereby not only accelerating their proof of concept significantly but also empowers them to upgrade to later generation processors without redesign. The COM-HPC concept reduces engineering complexity, lowers the threshold for total project quantity, and last but not least brings your product to the market in no time. The average time to design a carrier board is less than half the time of a full custom board.

The COM-HPC Client Base, based on PICMG COM-HPC R1.0, is an ATX size carrier board, supplied by ATX and AT power source through 24+4 power connector. Together with the COM-HPC Client Type module of your choice and off-the-shelf add-on cards, you can quickly emulate the functionality of your desired end product for software development and hardware verification.

To build a functional prototype of your target system you will need:

- COM-HPC Client Type module
- COM-HPC Client Base carrier
- PCI Express-based storage or SATA storage (SATA storage solutions are dependent on module specifications)

The COM-HPC Client Base is compatible with Size A, Size B and Size C COM-HPC Client Type modules and may accommodate:

- 1x PCI Express x16 slot, up to Gen5
- 2x PCI Express x4 slots, 3x PCI Express x1 slots and 1x M.2 M-key connector, 1x M.2 E-key connector
- 2x DP ports, 1x HDMI port, 1x eDP connector and 3-in-1 Audio port
- 2x USB4 Type-C, 2x USB3 Type-A, 2x USB2 Type-A and multiple USB headers for front panel usage
- 2x Ethernet RJ45 connector, up to 10GBASE-T
- 2x MIPI-CSI connectors

2. Special Features

2.1. PCI Express x16 Gen5

FHFL PCI Express cards in the PCIE16-31 slot can support up to 2-slot-width PCI Express cards. of the capability of PCI Express Gen5 depends on the module specifications.

2.2. Two Ethernet RJ45

2x RJ45 connectors are capable of 10GbE speed, depending on the module specifications.

2.3. Two USB4 Type-C

2x USB4 Type-C connectors support up to USB 40Gbit/s and DisplayPort, depending on the module specifications.

2.4. Two M.2 Connector

1x M.2 M-key (PCIe x4, up to 22110) for NVMe storage usage.

1x M.2 E-key (PCIex1 and USB, up to 2230) for wireless module usage.

3. Component Location

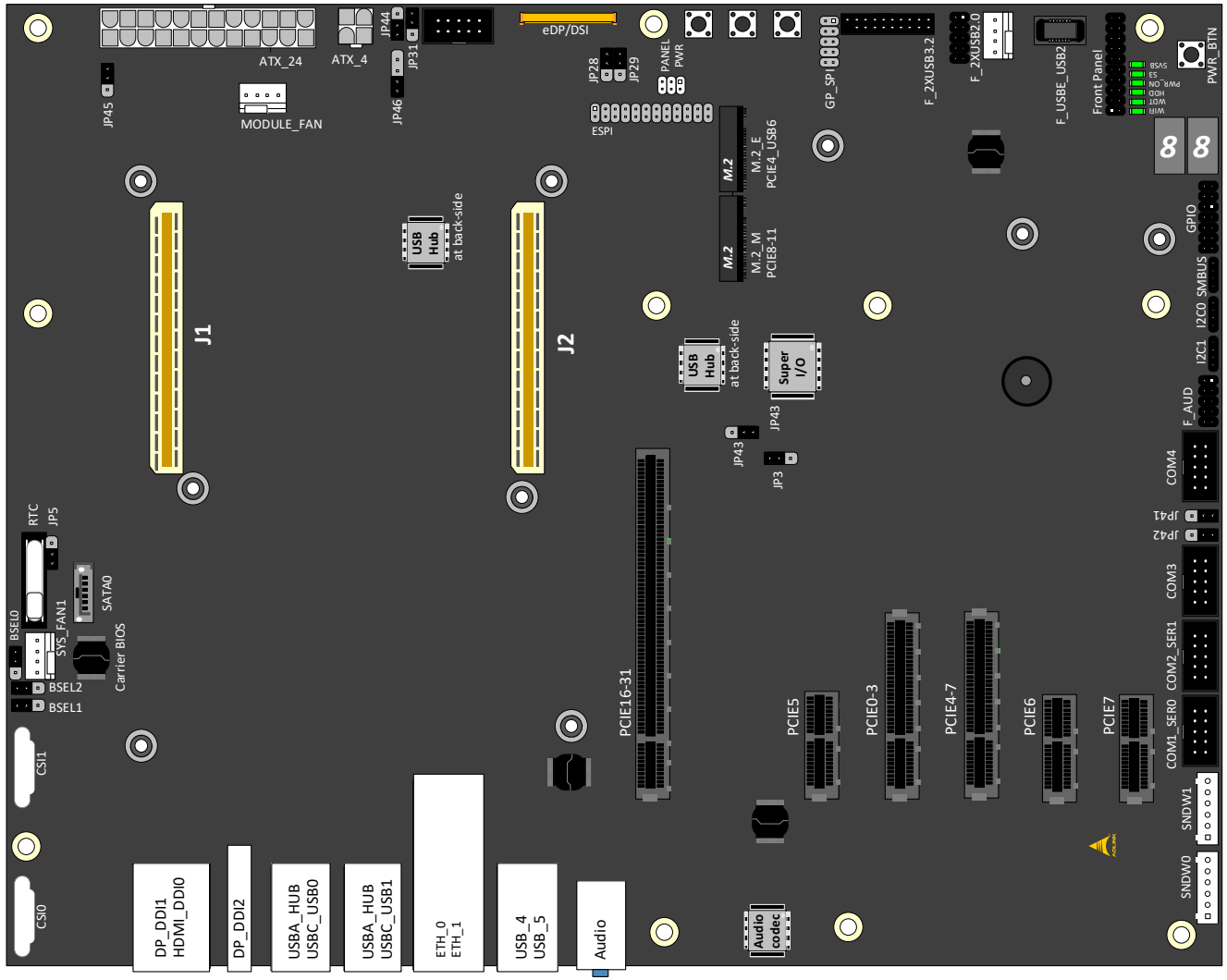


Figure 1 – Component location

4. Functional Diagram

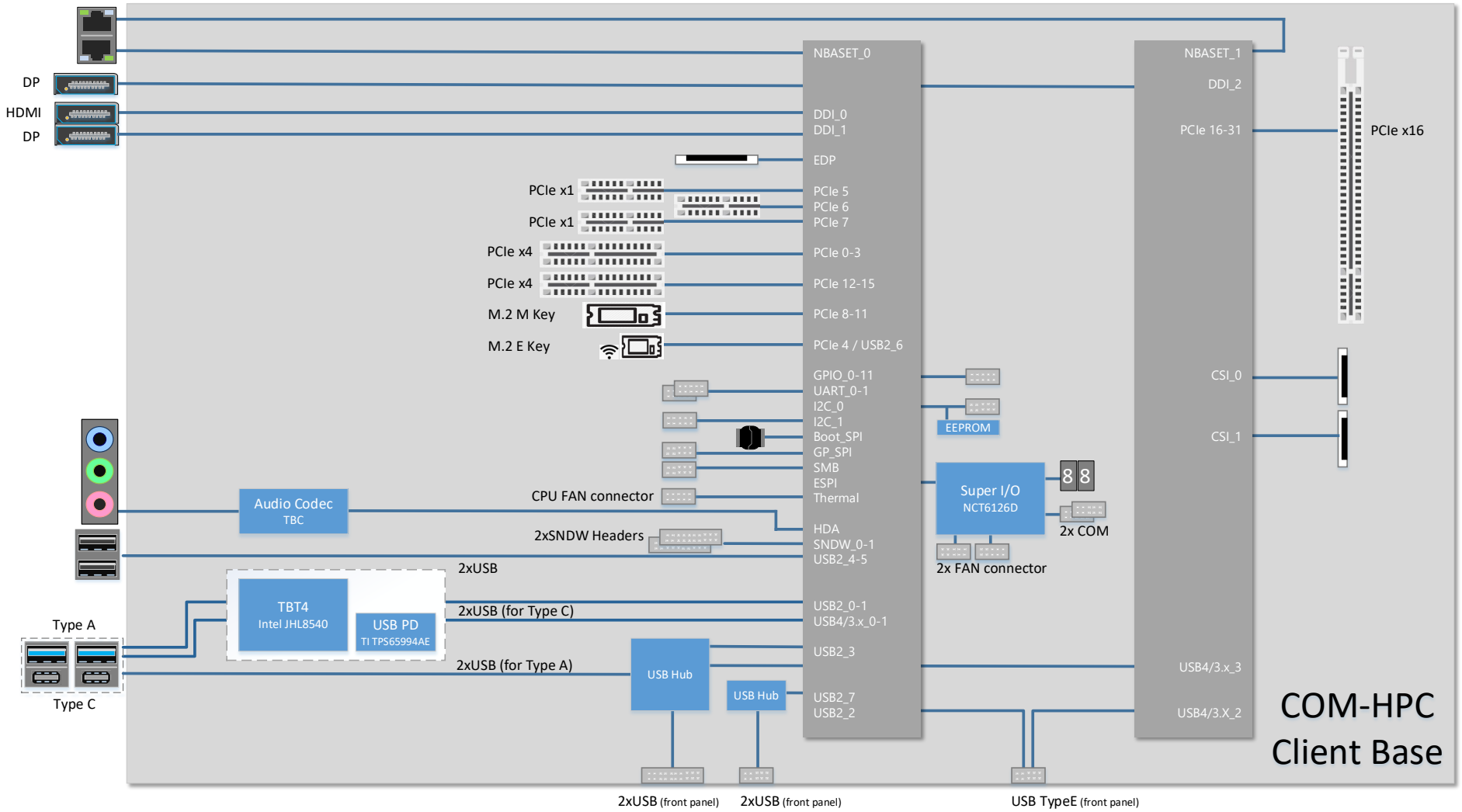


Figure 2 – Functional diagram

5. Connectors and Pinouts

5.1. Carrier Board Signals — Client Type

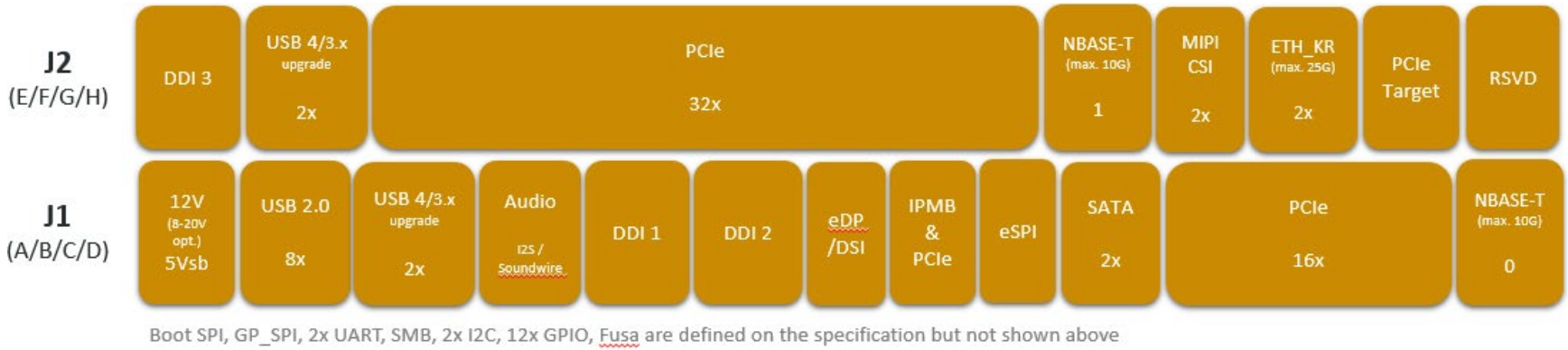


Figure 3 – Carrier board signals, Server type pinout

5.2. Connector Location and Pinout Compatibility

Connector positions and pinouts comply with the pinout and signal descriptions within the *PICMG COM-HPC Carrier Design Guide R2*. This document includes: descriptions of pinouts, signals, and mechanical characteristics of the COM-HPC specification. The COM-HPC Client Base carrier is compatible with COM-HPC modules in Size A, Size B and Size C form factor, Client Type pinout, and COM-HPC Module Base Specification R1.x.

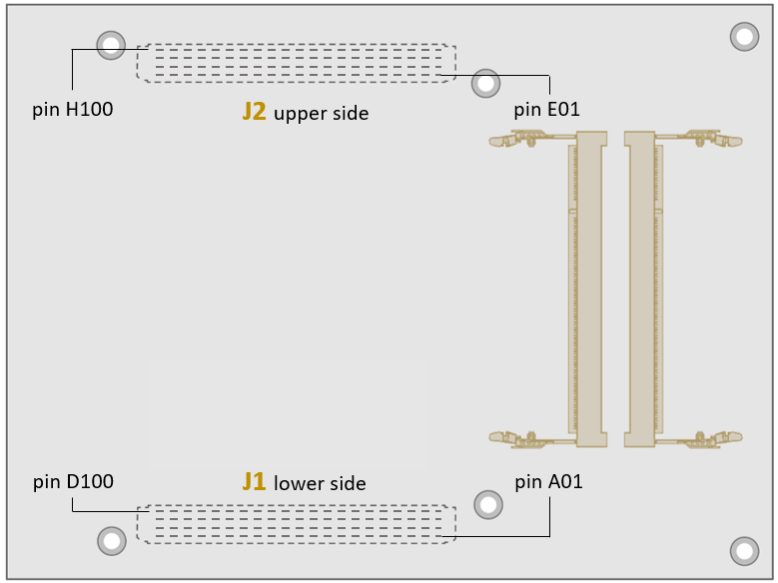


Figure 4 – Connector location and pinout compatibility (Size C as example)

5.3. Carrier Board Design

COM-HPC Client Base follows the PICMG COM-HPC Carrier Design Guide where possible, and its design and schematic have been fully verified. It is recommended to utilize them as references for your carrier board design. COM-HPC Client Base schematics and mechanical files, as well as the CDG, can be downloaded from ADLINK COM's webpage.

5.4. COM-HPC Board-to-board Connectors

Signals and Pinouts for COM-HPC **Client Type** (Size A, B & C)

Row A			Row B			Row C			Row D	
A1	VCC		B1	VCC		C1	VCC		D1	VCC
A2	VCC		B2	PWRBTN#		C2	RSTBTN#		D2	VCC
A3	VCC		B3	VCC		C3	VCC		D3	VCC
A4	VCC		B4	~~THERMTRIP#~~		C4	~~CARRIER_HOT#~~		D4	VCC
A5	VCC		B5	VCC		C5	VCC		D5	VCC
A6	VCC		B6	TAMPER#		C6	VIN_PWR_OK		D6	VCC
A7	VCC		B7	VCC		C7	VCC		D7	VCC
A8	VCC		B8	SUS_S3#		C8	SUS_S4_S5#		D8	VCC
A9	VCC		B9	VCC		C9	VCC		D9	VCC
A10	GND		B10	~~WD_STROBE#~~		C10	GND		D10	WAKE0#
A11	BATLOW#		B11	WD_OUT		C11	FAN_PWMOUT		D11	WAKE1#
A12	PLTRST#		B12	GND		C12	FAN_TACHIN		D12	GND
A13	GND		B13	USB5-		C13	GND		D13	USB1-
A14	USB7-		B14	USB5+		C14	USB3-		D14	USB1+
A15	USB7+		B15	GND		C15	USB3+		D15	GND
A16	GND		B16	USB4-		C16	GND		D16	USB0-
A17	USB6-		B17	USB4+		C17	USB2-		D17	USB0+
A18	USB6+		B18	GND		C18	USB2+		D18	GND
A19	GND		B19	I2S_LRCLK/SNDW_CLK3/HDA_SYNC		C19	GND		D19	DDI0_SDA_AUX-
A20	DDI1_SDA_AUX-		B20	I2S_DOUT/SNDW_DAT3/HDA_SDO		C20	SNDW_DMIC_CLK1		D20	DDI0_SCL_AUX+
A21	DDI1_SCL_AUX+		B21	I2S_MCLK/HDA_RST#		C21	SNDW_DMIC_DAT1		D21	GND
A22	GND		B22	I2S_DIN/SNDW_DAT2/HDA_SDI		C22	GND		D22	DDI0_PAIR0-

Row A			Row B			Row C			Row D	
A23	DDI1_PAIR0-		B23	I2S_CLK/SNDW_CLK2/HDA_BCLK		C23	SNDW_DMIC_CLK0		D23	DDI0_PAIR0+
A24	DDI1_PAIR0+		B24	VCC_5V_SBY		C24	SNDW_DMIC_DAT0		D24	GND
A25	GND		B25	~~USB67_OC#~~		C25	GND		D25	DDI0_PAIR1-
A26	DDI1_PAIR1-		B26	USB45_OC#		C26	DDI0_DDC_AUX_SEL		D26	DDI0_PAIR1+
A27	DDI1_PAIR1+		B27	~~USB23_OC#~~		C27	DDI1_DDC_AUX_SEL		D27	GND
A28	GND		B28	USB01_OC#		C28	DDI0_HPD		D28	DDI0_PAIR2-
A29	DDI1_PAIR2-		B29	SML1_CLK		C29	DDI1_HPD		D29	DDI0_PAIR2+
A30	DDI1_PAIR2+		B30	SML1_DAT		C30	eDP_HPD		D30	GND
A31	GND		B31	PMCALERT#		C31	eDP_VDD_EN		D31	DDI0_PAIR3-
A32	DDI1_PAIR3-		B32	SML0_CLK		C32	eDP_BKLT_EN		D32	DDI0_PAIR3+
A33	DDI1_PAIR3+		B33	SML0_DAT		C33	eDP_BKLTCTL		D33	GND
A34	GND		B34	USB_PD_ALERT#		C34	GND		D34	~~AC_PRESENT~~
A35	eDP_AUX-		B35	USB_PD_I2C_CLK		C35	USB1_AUX-		D35	RSVD
A36	eDP_AUX+		B36	USB_PD_I2C_DAT		C36	USB1_AUX+		D36	GND
A37	GND		B37	USB_RT_ENA		C37	GND		D37	USB1_SSTX0-
A38	eDP_TX0-		B38	USB1_LSRX		C38	USB1_SSRX0-		D38	USB1_SSTX0+
A39	eDP_TX0+		B39	USB1_LSTX		C39	USB1_SSRX0+		D39	GND
A40	GND		B40	USB0_LSRX		C40	GND		D40	USB1_SSTX1-
A41	eDP_TX1-		B41	USB0_LSTX		C41	USB1_SSRX1-		D41	USB1_SSTX1+
A42	eDP_TX1+		B42	GND		C42	USB1_SSRX1+		D42	GND
A43	GND		B43	USB0_AUX-		C43	GND		D43	USB0_SSTX0-
A44	eDP_TX2-		B44	USB0_AUX+		C44	USB0_SSRX0-		D44	USB0_SSTX0+
A45	eDP_TX2+		B45	LID#		C45	USB0_SSRX0+		D45	GND
A46	GND		B46	SLEEP#		C46	GND		D46	USB0_SSTX1-
A47	eDP_TX3-		B47	VCC_BOOT_SPI		C47	USB0_SSRX1-		D47	USB0_SSTX1+
A48	eDP_TX3+		B48	BOOT_SPI_CS#		C48	USB0_SSRX1+		D48	GND
A49	GND		B49	BSEL0		C49	GND		D49	SATA0_RX-
A50	eSPI_IO0		B50	BSEL1		C50	BOOT_SPI_IO0		D50	SATA0_RX+
A51	eSPI_IO1		B51	BSEL2		C51	BOOT_SPI_IO1		D51	GND
A52	eSPI_IO2		B52	eSPI_ALERT0#		C52	BOOT_SPI_IO2		D52	SATA0_TX-
A53	eSPI_IO3		B53	eSPI_ALERT1#		C53	BOOT_SPI_IO3		D53	SATA0_TX+
A54	eSPI_CLK		B54	eSPI_CS0#		C54	BOOT_SPI_CLK		D54	GND
A55	GND		B55	eSPI_CS1#		C55	GND		D55	~~SATA1_RX-~~
A56	PCIe_CLKREQ0_LO#		B56	eSPI_RST#		C56	PCIe_REFCLK0_HI-		D56	~~SATA1_RX+~~
A57	PCIe_CLKREQ0_HI#		B57	GND		C57	PCIe_REFCLK0_HI+		D57	GND
A58	GND		B58	~~PCIe_BMC_RX-~~		C58	GND		D58	~~SATA1_TX-~~
A59	~~PCIe_BMC_TX-~~		B59	~~PCIe_BMC_RX+~~		C59	PCIe_REFCLK0_LO-		D59	~~SATA1_TX+~~

Row A			Row B			Row C			Row D	
A60	~~PCIe_BMC_TX+~~		B60	GND		C60	PCIe_REFCLK0_LO+		D60	GND
A61	GND		B61	PCIe08_RX-		C61	GND		D61	PCIe00_TX-
A62	PCIe08_TX-		B62	PCIe08_RX+		C62	PCIe00_RX-		D62	PCIe00_TX+
A63	PCIe08_TX+		B63	GND		C63	PCIe00_RX+		D63	GND
A64	GND		B64	PCIe09_RX-		C64	GND		D64	PCIe01_TX-
A65	PCIe09_TX-		B65	PCIe09_RX+		C65	PCIe01_RX-		D65	PCIe01_TX+
A66	PCIe09_TX+		B66	GND		C66	PCIe01_RX+		D66	GND
A67	GND		B67	PCIe10_RX-		C67	GND		D67	PCIe02_TX-
A68	PCIe10_TX-		B68	PCIe10_RX+		C68	PCIe02_RX-		D68	PCIe02_TX+
A69	PCIe10_TX+		B69	GND		C69	PCIe02_RX+		D69	GND
A70	GND		B70	PCIe11_RX-		C70	GND		D70	PCIe03_TX-
A71	PCIe11_TX-		B71	PCIe11_RX+		C71	PCIe03_RX-		D71	PCIe03_TX+
A72	PCIe11_TX+		B72	GND		C72	PCIe03_RX+		D72	GND
A73	GND		B73	PCIe12_RX-		C73	GND		D73	PCIe04_TX-
A74	PCIe12_TX-		B74	PCIe12_RX+		C74	PCIe04_RX-		D74	PCIe04_TX+
A75	PCIe12_TX+		B75	GND		C75	PCIe04_RX+		D75	GND
A76	GND		B76	PCIe13_RX-		C76	GND		D76	PCIe05_TX-
A77	PCIe13_TX-		B77	PCIe13_RX+		C77	PCIe05_RX-		D77	PCIe05_TX+
A78	PCIe13_TX+		B78	GND		C78	PCIe05_RX+		D78	GND
A79	GND		B79	PCIe14_RX-		C79	GND		D79	PCIe06_TX-
A80	PCIe14_TX-		B80	PCIe14_RX+		C80	PCIe06_RX-		D80	PCIe06_TX+
A81	PCIe14_TX+		B81	GND		C81	PCIe06_RX+		D81	GND
A82	GND		B82	PCIe15_RX-		C82	GND		D82	PCIe07_TX-
A83	PCIe15_TX-		B83	PCIe15_RX+		C83	PCIe07_RX-		D83	PCIe07_TX+
A84	PCIe15_TX+		B84	GND		C84	PCIe07_RX+		D84	GND
A85	GND		B85	~~TEST#~~		C85	GND		D85	NBASET0_MDI0-
A86	VCC_RTC		B86	RSMRST_OUT#		C86	SMB_CLK		D86	NBASET0_MDI0+
A87	SUS_CLK		B87	UART1_TX		C87	SMB_DAT		D87	GND
A88	GPIO_00		B88	UART1_RX		C88	SMB_ALERT#		D88	NBASET0_MDI1-
A89	GPIO_01		B89	UART1_RTS#		C89	UART0_TX		D89	NBASET0_MDI1+
A90	GPIO_02		B90	UART1_CTS#		C90	UART0_RX		D90	GND
A91	GPIO_03		B91	~~IPMB_CLK~~		C91	UART0_RTS#		D91	NBASET0_MDI2-
A92	GPIO_04		B92	~~IPMB_DAT~~		C92	UART0_CTS#		D92	NBASET0_MDI2+
A93	GPIO_05		B93	GPSPI_MOSI		C93	I2C0_CLK		D93	GND
A94	GPIO_06		B94	GPSPI_MISO		C94	I2C0_DAT		D94	NBASET0_MDI3-
A95	GPIO_07		B95	GPSPI_CS0#		C95	~~I2C0_ALERT#~~		D95	NBASET0_MDI3+
A96	GPIO_08		B96	GPSPI_CS1#		C96	I2C1_CLK		D96	GND

Row A			Row B			Row C			Row D	
A97	GPIO_09		B97	GPSPI_CS2#		C97	I2C1_DAT		D97	NBASET0_LINK_MAX#
A98	GPIO_10		B98	GPSPI_CS3#		C98	~~NBASET0_SDP~~		D98	NBASET0_LINK_MID#
A99	GPIO_11		B99	GPSPI_CLK		C99	NBASET0_CTREF		D99	NBASET0_LINK_ACT#
A100	TYPE0		B100	GPSPI_ALERT#		C100	TYPE1		D100	TYPE2

Row E			Row F			Row G			Row H	
E1	~~RAPID_SHUTDOWN~~		F1	~~FUSA_STATUS0~~		G1	VCC_5V_SBY		H1	GND
E2	GND		F2	~~FUSA_STATUS1~~		G2	GND		H2	USB2_SSTX0-
E3	DDI2_SDA_AUX-		F3	~~FUSA_ALERT#~~		G3	USB2_SSRX0-		H3	USB2_SSTX0+
E4	DDI2_SDA_AUX+		F4	~~FUSA_SPI_CS#~~		G4	USB2_SSRX0+		H4	GND
E5	GND		F5	~~FUSA_SPI_CLK~~		G5	GND		H5	USB2-SSTX1-
E6	DDI2_PAIR0-		F6	~~FUSA_SPI_MISO~~		G6	USB2_SSRX1-		H6	USB2-SSTX1+
E7	DDI2_PAIR0+		F7	~~FUSA_SPI_MOSI~~		G7	USB2_SSRX1+		H7	GND
E8	GND		F8	~~FUSA_SPI_ALERT~~		G8	GND		H8	USB3_SSTX0-
E9	DDI2_PAIR1-		F9	~~FUSA_VOLTAGE_ERR#~~		G9	USB3_SSRX0-		H9	USB3_SSTX0+
E10	DDI2_PAIR1+		F10	PROCHOT#		G10	USB3_SSRX0+		H10	GND
E11	GND		F11	CATERR#		G11	GND		H11	~~USB3_SSTX1-~~
E12	DDI2_PAIR2-		F12	RSVD		G12	~~USB3_SSRX1-~~		H12	~~USB3_SSTX1+~~
E13	DDI2_PAIR2+		F13	RSVD		G13	~~USB3_SSRX1+~~		H13	GND
E14	GND		F14	RSVD		G14	GND		H14	~~USB2_AUX-~~
E15	DDI2_PAIR3-		F15	RSVD		G15	~~USB3_LSRX~~		H15	~~USB2_AUX+~~
E16	DDI2_PAIR3+		F16	RSVD		G16	~~USB3_LSTX~~		H16	GND
E17	GND		F17	RSVD		G17	~~USB3_LSRX~~		H17	~~USB3_AUX-~~
E18	DDI2_DDC_AUX_SEL		F18	RSVD		G18	~~USB3_LSTX~~		H18	~~USB3_AUX+~~
E19	DDI2_HPD		F19	GND		G19	PEG_LANE_REV#		H19	GND
E20	GND		F20	~~PCIe32_RX-~~		G20	GND		H20	~~PCIe40_TX-~~
E21	~~PCIe32_TX-~~		F21	~~PCIe32_RX+~~		G21	~~PCIe40_RX-~~		H21	~~PCIe40_TX+~~
E22	~~PCIe32_TX+~~		F22	GND		G22	~~PCIe40_RX+~~		H22	GND
E23	GND		F23	~~PCIe33_RX-~~		G23	GND		H23	~~PCIe41_TX-~~
E24	~~PCIe33_TX-~~		F24	~~PCIe33_RX+~~		G24	~~PCIe41_RX-~~		H24	~~PCIe41_TX+~~
E25	~~PCIe33_TX+~~		F25	GND		G25	~~PCIe41_RX+~~		H25	GND
E26	GND		F26	~~PCIe34_RX-~~		G26	GND		H26	~~PCIe42_TX-~~
E27	~~PCIe34_TX-~~		F27	~~PCIe34_RX+~~		G27	~~PCIe42_RX-~~		H27	~~PCIe42_TX+~~
E28	~~PCIe34_TX+~~		F28	GND		G28	~~PCIe42_RX+~~		H28	GND
E29	GND		F29	~~PCIe35_RX-~~		G29	GND		H29	~~PCIe43_TX-~~

Row E			Row F			Row G			Row H	
E30	~~PCIe35_TX-~~		F30	~~PCIe35_RX+~~		G30	~~PCIe43_RX-~~		H30	~~PCIe43_TX+~~
E31	~~PCIe35_TX+~~		F31	GND		G31	~~PCIe43_RX+~~		H31	GND
E32	GND		F32	~~PCIe36_RX-~~		G32	GND		H32	~~PCIe44_TX-~~
E33	~~PCIe36_TX-~~		F33	~~PCIe36_RX+~~		G33	~~PCIe44_RX-~~		H33	~~PCIe44_TX+~~
E34	~~PCIe36_TX+~~		F34	GND		G34	~~PCIe44_RX+~~		H34	GND
E35	GND		F35	~~PCIe37_RX-~~		G35	GND		H35	~~PCIe45_TX-~~
E36	~~PCIe37_TX-~~		F36	~~PCIe37_RX+~~		G36	~~PCIe45_RX-~~		H36	~~PCIe45_TX+~~
E37	~~PCIe37_TX+~~		F37	GND		G37	~~PCIe45_RX+~~		H37	GND
E38	GND		F38	~~PCIe38_RX-~~		G38	GND		H38	~~PCIe46_TX-~~
E39	~~PCIe38_TX-~~		F39	~~PCIe38_RX+~~		G39	~~PCIe46_RX-~~		H39	~~PCIe46_TX+~~
E40	~~PCIe38_TX+~~		F40	GND		G40	~~PCIe46_RX+~~		H40	GND
E41	GND		F41	~~PCIe39_RX-~~		G41	GND		H41	~~PCIe47_TX-~~
E42	~~PCIe39_TX-~~		F42	~~PCIe39_RX+~~		G42	~~PCIe47_RX-~~		H42	~~PCIe47_TX+~~
E43	~~PCIe39_TX+~~		F43	GND		G43	~~PCIe47_RX+~~		H43	GND
E44	GND		F44	PCIe16_RX-		G44	GND		H44	PCIe24_TX-
E45	PCIe16_TX-		F45	PCIe16_RX+		G45	PCIe24_RX-		H45	PCIe24_TX+
E46	PCIe16_TX+		F46	GND		G46	PCIe24_RX+		H46	GND
E47	GND		F47	PCIe17_RX-		G47	GND		H47	PCIe25_TX-
E48	PCIe17_TX-		F48	PCIe17_RX+		G48	PCIe25_RX-		H48	PCIe25_TX+
E49	PCIe17_TX+		F49	GND		G49	PCIe25_RX+		H49	GND
E50	GND		F50	PCIe18_RX-		G50	GND		H50	PCIe26_TX-
E51	PCIe18_TX-		F51	PCIe18_RX+		G51	PCIe26_RX-		H51	PCIe26_TX+
E52	PCIe18_TX+		F52	GND		G52	PCIe26_RX+		H52	GND
E53	GND		F53	PCIe19_RX-		G53	GND		H53	PCIe27_TX-
E54	PCIe19_TX-		F54	PCIe19_RX+		G54	PCIe27_RX-		H54	PCIe27_TX+
E55	PCIe19_TX+		F55	GND		G55	PCIe27_RX+		H55	GND
E56	GND		F56	PCIe20_RX-		G56	GND		H56	PCIe28_TX-
E57	PCIe20_TX-		F57	PCIe20_RX+		G57	PCIe28_RX-		H57	PCIe28_TX+
E58	PCIe20_TX+		F58	GND		G58	PCIe28_RX+		H58	GND
E59	GND		F59	PCIe21_RX-		G59	GND		H59	PCIe29_TX-
E60	PCIe21_TX-		F60	PCIe21_RX+		G60	PCIe29_RX-		H60	PCIe29_TX+
E61	PCIe21_TX+		F61	GND		G61	PCIe29_RX+		H61	GND
E62	GND		F62	PCIe22_RX-		G62	GND		H62	PCIe30_TX-
E63	PCIe22_TX-		F63	PCIe22_RX+		G63	PCIe30_RX-		H63	PCIe30_TX+
E64	PCIe22_TX+		F64	GND		G64	PCIe30_RX+		H64	GND
E65	GND		F65	PCIe23_RX-		G65	GND		H65	PCIe31_TX-
E66	PCIe23_TX-		F66	PCIe23_RX+		G66	PCIe31_RX-		H66	PCIe31_TX+

Row E			Row F			Row G			Row H	
E67	PCIe23_TX+		F67	GND		G67	PCIe31_RX+		H67	GND
E68	GND		F68	RSVD		G68	GND		H68	RSVD
E69	RSVD		F69	RSVD		G69	RSVD		H69	RSVD
E70	RSVD		F70	GND		G70	RSVD		H70	GND
E71	RSVD		F71	NBASET1_MDI0-		G71	GND		H71	CSI1_RX0-
E72	RSVD		F72	NBASET1_MDI0+		G72	CSI0_RX0-		H72	CSI1_RX0+
E73	RSVD		F73	GND		G73	CSI0_RX0+		H73	GND
E74	RSVD		F74	NBASET1_MDI1-		G74	GND		H74	CSI1_RX1-
E75	RSVD		F75	NBASET1_MDI1+		G75	CSI0_RX1-		H75	CSI1_RX1+
E76	RSVD		F76	GND		G76	CSI0_RX1+		H76	GND
E77	RSVD		F77	NBASET1_MDI2-		G77	GND		H77	CSI1_RX2-
E78	NBASET1_CTREF		F78	NBASET1_MDI2+		G78	CSI0_RX2-		H78	CSI1_RX2+
E79	~~NBASET1_SDP~~		F79	GND		G79	CSI0_RX2+		H79	GND
E80	NBASET1_LINK_MID#		F80	NBASET1_MDI3-		G80	GND		H80	CSI1_RX3-
E81	NBASET1_LINK_ACT#		F81	NBASET1_MDI3+		G81	CSI0_RX3-		H81	CSI1_RX3+
E82	NBASET1_LINK_MAX#		F82	GND		G82	CSI0_RX3+		H82	GND
E83	GND		F83	RSVD		G83	GND		H83	CSI1_CLK-
E84	RSVD		F84	RSVD		G84	CSI0_CLK-		H84	CSI1_CLK+
E85	RSVD		F85	GND		G85	CSI0_CLK+		H85	GND
E86	GND		F86	~~ETH0_TX-~~		G86	GND		H86	CSI1_I2C_CLK
E87	~~ETH0_RX-~~		F87	~~ETH0_TX+~~		G87	CSI0_I2C_CLK		H87	CSI1_I2C_DAT
E88	~~ETH0_RX+~~		F88	GND		G88	CSI0_I2C_DAT		H88	CSI1_MCLK
E89	GND		F89	~~ETH1_TX-~~		G89	CSI0_MCLK		H89	CSI1_RST#
E90	~~ETH1_RX-~~		F90	~~ETH1_TX+~~		G90	CSI0_RST#		H90	CSI1_ENA
E91	~~ETH1_RX+~~		F91	GND		G91	CSI0_ENA		H91	GND
E92	GND		F92	~~PCIe_REFCLK2-~~		G92	GND		H92	~~PCIe_REFCLKIN0-~~
E93	PCIe_REFCLK1-		F93	~~PCIe_REFCLK2+~~		G93	RSVD		H93	~~PCIe_REFCLKIN0+~~
E94	PCIe_REFCLK1+		F94	GND		G94	RSVD		H94	GND
E95	GND		F95	RSVD		G95	GND		H95	~~PCIe_REFCLKIN1-~~
E96	PCIe_CLKREQ1#		F96	~~ETH0-1_PRSNT#~~		G96	~~ETH0-1_I2C_CLK~~		H96	~~PCIe_REFCLKIN1+~~
E97	~~PCIe_CLKREQ2#~~		F97	~~ETH0-1_PHY_RST#~~		G97	~~ETH0-1_I2C_DAT~~		H97	GND
E98	~~PCIe_CLKREQ_OUT0#~~		F98	~~ETH0_SDP~~		G98	~~ETH0-1_PHY_INT#~~		H98	~~ETH0-1_MDIO_CLK~~
E99	~~PCIe_CLKREQ_OUT1#~~		F99	~~ETH1_SDP~~		G99	~~ETH0-1_INT#~~		H99	~~ETH0-1_MDIO_DAT~~
E100	~~PCIe_PERST_IN0#~~		F100	~~PCIe_PERST_IN1#~~		G100	~~PCIe_WAKE_OUT0#~~		H100	~~PCIe_WAKE_OUT1#~~

5.5. PCIe x16 Slot

The example below illustrates the interface or usage of each connectors/jumper.

PCIe 16-31: Group 1 Lanes 16:31 assigned PCIex16 Slot

slikscreen interface from module or IC on carrier more information

PCIe 16-31: Group 1 Lanes 16:31 assigned PCIex16 slot, supporting up to Gen5 speeds, depending on the module specifications.

Pin	Signal	Pin	Signal
B1	+ 12V	A1	PRSNT
B2	+ 12V	A2	+ 12V
B3	+ 12V	A3	+ 12V
B4	GND	A4	GND
B5	SMB_CLK	A5	JTAG
B6	SMB_DAT	A6	JTAG
B7	GND	A7	JTAG
B8	+3.3V	A8	JTAG
B9	JTAG	A9	+ 3.3V
B10	+ 3.3VAUX	A10	+ 3.3V
B11	WAKE#	A11	PERST#
B12	RSVD	A12	GND
B13	GND	A13	REFCLK+
B14	PETp0	A14	REFCLK-
B15	PETn0	A15	GND
B16	GND	A16	PERp0
B17	PRSNT	A17	PERn0

Pin	Signal	Pin	Signal
B22	GND	A22	PERn1
B23	PETp2	A23	GND
B24	PETn2	A24	GND
B25	GND	A25	PERp2
B26	GND	A26	PERn2
B27	PETp3	A27	GND
B28	PETn3	A28	GND
B29	GND	A29	PERp3
B30	RSVD	A30	PERn3
B31	PRSNT	A31	GND
B32	GND	A32	RSVD
B33	PETp4	A33	RSVD
B34	PETn4	A34	GND
B35	GND	A35	PERp4
B36	GND	A36	PERn4
B37	PETp5	A37	GND
B38	PETn5	A38	GND

Pin	Signal	Pin	Signal
B43	GND	A43	PERp6
B44	GND	A44	PERn6
B45	PETp7	A45	GND
B46	PETn7	A46	GND
B47	GND	A47	PERp7
B48	PRSNT	A48	PERn7
B49	GND	A49	GND
B50	PETp8	A50	RSVD
B51	PETn8	A51	GND
B52	GND	A52	PERp8
B53	GND	A53	PERn8
B54	PETp9	A54	GND
B55	PETn9	A55	GND
B56	GND	A56	PERp9
B57	GND	A57	PERn9
B58	PETp10	A58	GND
B59	PETn10	A59	GND

Pin	Signal	Pin	Signal
B18	GND	A18	GND
B19	PETp1	A19	RSVD
B20	PETn1	A20	GND
B21	GND	A21	PERp1
B64	GND	A64	PERp11
B65	GND	A65	PERn11
B66	PETp12	A66	GND
B67	PETn12	A67	GND
B68	GND	A68	PERp12
B69	GND	A69	PERn12
B70	PETp13	A70	GND

Pin	Signal	Pin	Signal
B39	GND	A39	PERp5
B40	GND	A40	PERn5
B41	PETp6	A41	GND
B42	PETn6	A42	GND
B71	PETn13	A71	GND
B72	GND	A72	PERp13
B73	GND	A73	PERn13
B74	PETp14	A74	GND
B75	PETn14	A75	GND
B76	GND	A76	PERp14
B77	GND	A77	PERn14

Pin	Signal	Pin	Signal
B60	GND	A60	PERp10
B61	GND	A61	PERn10
B62	PETp11	A62	GND
B63	PETn11	A63	GND
B78	PETp15	A78	GND
B79	PETn15	A79	GND
B80	GND	A80	PERp15
B81	PRSNT	A81	PERn15
B82	RSVD	A82	GND

5.6. PCIe x4 Slot

PCIE0-3: Group 0 Low Lanes 0:3 assigned PCIex4 slot

PCIE12-15: Group 0 High Lanes 12:15 assigned PCIex4 slot

Open-ended slot

Pin	Signal	Pin	Signal
B1	+12V	A1	PRSNT
B2	+12V	A2	+12V
B3	+12V	A3	+12V
B4	GND	A4	GND
B5	SMB_CLK	A5	JTAG
B6	SMB_DAT	A6	JTAG
B7	GND	A7	JTAG
B8	+3.3V	A8	JTAG

Pin	Signal	Pin	Signal
B12	RSVD	A12	GND
B13	GND	A13	REFCLK+
B14	PETp0	A14	REFCLK-
B15	PETn0	A15	GND
B16	GND	A16	PERp0
B17	PRSNT	A17	PERn0
B18	GND	A18	GND
B19	PETp1	A19	RSVD

Pin	Signal	Pin	Signal
B23	PETp2	A23	GND
B24	PETn2	A24	GND
B25	GND	A25	PERp2
B26	GND	A26	PERn2
B27	PETp3	A27	GND
B28	PETn3	A28	GND
B29	GND	A29	PERp3
B30	RSVD	A30	PERn3

Pin	Signal	Pin	Signal
B9	JTAG	A9	+3.3V
B10	+3.3VAUX	A10	+3.3V
B11	WAKE	A11	PERST#

Pin	Signal	Pin	Signal
B20	PETn1	A20	GND
B21	GND	A21	PERp1
B22	GND	A22	PERn1

Pin	Signal	Pin	Signal
B31	PRSNT	A31	GND
B32	GND	A32	RSVD

5.7. PCIe x1 Slot

PCIE5: Group 0 Low Lanes 5 assigned PCIex1 slot

PCIE6: Group 0 Low Lanes 6 assigned PCIex1 slot

PCIE7: Group 0 Low Lanes 7 assigned PCIex1 slot

Open-ended slot (to be phased in later)

Pin	Signal	Pin	Signal
B1	+12V	A1	PRSNT
B2	+12V	A2	+12V
B3	+12V	A3	+12V
B4	GND	A4	GND
B5	SMB_CLK	A5	JTAG
B6	SMB_DAT	A6	JTAG
B7	GND	A7	JTAG
B8	+3.3V	A8	JTAG
B9	JTAG	A9	+3.3V
B10	+3.3VAUX	A10	+3.3V
B11	WAKE	A11	PERST#

Pin	Signal	Pin	Signal
B12	RSVD	A12	GND
B13	GND	A13	REFCLK+
B14	PETp0	A14	REFCLK-
B15	PETn0	A15	GND
B16	GND	A16	PERp0
B17	PRSNT	A17	PERn0
B18	GND	A18	GND
B19	PETp1	A19	RSVD
B20	PETn1	A20	GND
B21	GND	A21	PERp1
B22	GND	A22	PERn1

Pin	Signal	Pin	Signal
B23	PETp2	A23	GND
B24	PETn2	A24	GND
B25	GND	A25	PERp2
B26	GND	A26	PERn2
B27	PETp3	A27	GND
B28	PETn3	A28	GND
B29	GND	A29	PERp3
B30	RSVD	A30	PERn3
B31	PRSNT	A31	GND
B32	GND	A32	RSVD

5.8. M.2 M-KEY

M2_M: Group 0 High Lanes 8-11 assigned M.2 slot

Up to 22110 M.2 dimension

Pin	Signal	Pin	Signal
1	CONFIG	2	+3.3V
3	GND	4	+3.3V
5	PERn3	6	N.C
7	PERp3	8	N.C
9	GND	10	DAS/DSS#
11	PETn3	12	+3.3V
13	PETp3	14	+3.3V
15	GND	16	+3.3V
17	PERn2	18	+3.3V
19	PERp2	20	N.C
21	CONFIG	22	N.C
23	PETn2	24	N.C

Pin	Signal	Pin	Signal
25	PETp2	26	N.C
27	GND	28	N.C
29	PERn1	30	N.C
31	PERp1	32	N.C
33	GND	34	N.C
35	PETn1	36	N.C
37	PETp1	38	DEVSLP
39	GND	40	N.C
41	PERn0	42	N.C
43	PERp0	44	N.C
45	GND	46	N.C
47	PETn0	48	N.C

Pin	Signal	Pin	Signal
49	PETp0	50	PETST#
51	GND	52	CLKREQ#
53	REFCLKN	54	PEWAKE#
55	REFCLKP	56	N.C
57	GND	58	N.C
67	N.C	68	SUSCLK
69	CONFIG	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	CONFIG		

5.9. M.2 E-KEY

M2_E: PCIe Group 0, Low Lane 4, and USB2 port 6 assigned

Up to 2230 M.2 dimension

Pin	Signal	Pin	Signal
1	GND	2	+3.3V
3	USB_D+	4	+3.3V
5	USB_D-	6	LED_1#
7	GND	8	N.C
9	N.C	10	N.C
11	N.C	12	N.C
13	N.C	14	N.C
15	N.C	16	N.C
17	N.C	18	GND
19	N.C	20	N.C
21	N.C	22	N.C
23	N.C		

Pin	Signal	Pin	Signal
32	N.C	33	GND
34	N.C	35	PETp0
36	N.C	37	PETn0
38	N.C	39	GND
40	N.C	41	PERp0
42	N.C	43	PERn0
44	N.C	45	GND
46	N.C	47	REFCLKp0
48	N.C	49	REFCLKn0
50	SUSCLK	51	GND
52	PERST0#	53	CLKREQ0#
54	W_DISABLE2#	55	PWAKE0#

Pin	Signal	Pin	Signal
56	W_DISABLE1#	57	GND
58	I2C_DATA	59	N.C
60	I2C_CLK	61	N.C
62	ALERT#	63	GND
64	N.C	65	N.C
66	N.C	67	N.C
68	N.C	69	GND
70	N.C	71	N.C
72	+3.3V	73	N.C
74	+3.3V	75	GND

5.10. DisplayPort / HDMI

HDMI/DP Combo connector at Rear I/O

- **HDMI_DDI0**: DDI0 channel assigned
- **DP_DDI1**: DDI1 channel assigned (DP++ feature depends on the module specifications)

Vertical DP connector at Rear I/O

- **DP_DDI2**: DDI2 channel assigned

5.11. eDP / DSI

eDP/DSI: 4 lanes eDP/DSI signal assigned

40-pin connectors

eDP or DSI depends on the module specifications

Pin	Signal	Pin	Signal
1	N.C	2	+12V
3	+12V	4	+12V
5	+12V	6	N.C
7	N.C	8	BKL_CTRL
9	BKL_ENABLE	10	GND
11	GND	12	GND
13	GND	14	HPD
15	GND	16	GND
17	GND	18	GND
19	N.C	20	+3.3V
21	+3.3V	22	+3.3V
23	+3.3V	24	GND

Pin	Signal	Pin	Signal
25	AUX_N	26	AUX_P
27	GND	28	eDP_LANE0_P
29	eDP_LANE0_N	30	GND
31	eDP_LANE1_P	32	eDP_LANE1_N
33	GND	34	eDP_LANE2_P
35	eDP_LANE2_N	36	GND
37	eDP_LANE3_P	38	eDP_LANE3_N
39	GND	40	N.C

Note: Pins 2, 3, 4, and 5 supply 12V for backlight power.

PANEL_PWR: power for eDP/DSI panel

6-pin headers

Pin	Signal	Pin	Signal
1	+3.3V	2	+3.3V
3	+3.3V	4	+3.3V
5	GND	6	GND

JP28: panel power setting

Jumper	Status
1-2	3.3V (default)
2-3	5V

JP29: backlight power setting

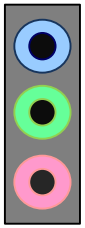
Jumper	Status
1-2	12V (default)
2-3	5V

5.12. Audio HDA

Audio: HDA/I2S assigned at Rear I/O

3-in-1 audio jack

HDA/I2S depends on the audio codec and module specifications



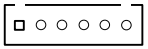
Audio function is not enabled in this version

Color	Signal
BLUE	LINE-IN
GREEN	LINE-OUT
PINK	MIC-IN

5.13. Audio SNDW

SNDW0: SNDW0 signal assigned

SNDW1: SNDW1 signal assigned

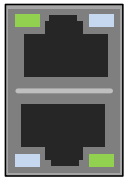


Audio function is not enabled in this version

Pin	Signal	Pin	Signal
1	+5V	2	+3.3V
3	+1.8V	4	SNDW_CLK
5	SNDW_DATA	6	GND

5.14. Ethernet NBASE-T

2-in-1 Ethernet Connector at Rear I/O



ETH_0: NBASET_0 assigned (lower one)

ETH_1: NBASET_1 assigned (upper one)

Up to 10GbE, depending on the module specifications

LED Function	LED Color	LED State	Description
Speed	Green/Yellow	Green	A speed lower than what the maximum speed that the Ethernet controller of module is capable of.
		Yellow	The maximum speed that the Ethernet controller of Module is capable of
Status & Activity	Yellow	Off	No link
		Steady On	Link established, no activity detected
		Blinking	Link established, activity detected

5.15. CSI Camera Serial Interface

CSI0: TBD-pin connector: CSI_0 assigned

CSI1: TBD-pin connector: CSI_1 assigned

CSI function is not enabled in this version

5.16. USB

USB Type-A / Type-C Combo connector at Rear I/O

- **USBA_HUB**: 1x USB3.x/2.0 from USB Hub assigned, Type-A connector, up to 10Gbit/s
- **USBC_USB0**: USB_0 assigned, Type-C connector, USB4 capable

USB_0 consists of USB4/3.x SSTX/RX pairs from port 0, USB2.0 D+/D- from port 0 and sidebands

USB4 at Type-C depends on module specification. It is implemented by USB_0 from module and PD/Re-timer on carrier board

USB Type-A / Type-C Combo connector at Rear I/O

- **USBA_HUB**: 1x USB3.x/2.0 from USB Hub assigned, Type-A connector, up to 10Gbit/s
- **USBC_USB1**: USB_1 assigned, Type-C connector, USB4 capable

USB_1 consists of USB4/3.x SSTX/RX pairs from port 1, USB2.0 D+/D- from port 1 and sidebands

USB4 at Type-C depends on module specification. It is implemented by USB_1 from module and PD/Re-timer on carrier board

USB Type-A 2-in-1 connector at Rear I/O

- **USB_4**: USB_4 assigned, Type-A connector, up to USB2.0 speed
- **USB_5**: USB_5 assigned, Type-A connector, up to USB2.0 speed

F_2XUSB_3.2: 2x USB3.x/2.0 from USB Hub assigned, up to 10Gbit/s

Front panel usage, 19-pin, 2.54mm pitch

This function is not enabled in this version

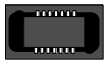
F_2XUSB_2.0: 2x USB2.0 from USB Hub assigned

Front panel usage, 9-pin, 2.54 mm pitch

Pin	Signal	Pin	Signal
1	+5V	2	+5V
3	HUB_USB2_N	4	HUB_USB1_N
5	HUB_USB2_P	6	HUB_USB1_P
7	GND	8	GND
9	GND		

F_USBE_USB2: USB_2 assigned, Type-E connector, up to 10Gbit/s

Front panel usage



Pin	Signal	Pin	Signal
1	VBUS	2	USB2_TX0_P
3	USB2_TX0_N	4	GND
5	USB2_RX0_P	6	USB2_RX0_N
7	VBUS	8	PD_CC1
9	N.C	10	N.C
11	VBUS	12	USB2_TX1_P
13	USB2_TX1_N	14	GND
15	USB2_RX1_P	16	USB2_RX1_N
17	GND	18	USB2_USB2.0_N

Pin	Signal	Pin	Signal
19	USB2_USB2.0_P	20	PD_CC2

5.17. GPIO

GPIO: GPIO 0-11 signal assigned

14-pin, 2.54mm pitch

Pin	Signal	Pin	Signal
1	3.3V	2	GPIO_06
3	GPIO_00	2	GPIO_07
5	GPIO_01	4	GPIO_08
7	GPIO_02	6	GPIO_09
9	GPIO_03	8	GPIO_10
11	GPIO_04	10	GPIO_11
13	GPIO_05	12	GND

5.18. I2C

I2C0: I2C0 bus assigned, 3.3V, 4-pin, 2.54mm pitch

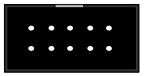
I2C1: I2C1 bus assigned, 1.8V, 4-pin, 2.54mm pitch

Pin	Signal	Pin	Signal
1	+3.3V (for I2C0) +1.8B (for I2C1)	2	I2C_DATA
3	I2C_CLK	4	GND

5.19. UART / COM

COM1_SER0: UART0 signal assigned, 2.0mm pitch

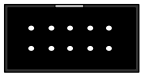
COM2_SER1: UART1 signal assigned, 2.0mm pitch



Pin	Signal	Pin	Signal
1	N.C	2	N.C
3	UART_RX	4	UART_RTS
5	UART_TX	6	UART_CTS
7	N.C	8	N.C
9	GND	10	N.C

COM3: UART from Super I/O signal assigned, 2.0mm pitch

COM4: UART from Super I/O signal assigned, 2.0mm pitch



Pin	Signal	Pin	Signal
1	DCD	2	DSR
3	RX	4	RTS
5	TX	6	CTS
7	DTR	8	RI
9	GND	10	N.C

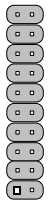
JP42/JP41: selection of RS232/RS485/RS422 mode for COM3

Mode	JP42	JP41
RS232 (default)	2-3	1-2
RS485	1-2	2-3
RS422	1-2	1-2

5.20. eSPI Debug Connector

ESPI: for eSPI debugging connection purpose

Pin	Signal	Pin	Signal
1	eSPI_CLK	2	GND
3	eSPI_CS0	4	N.C
5	CB_RST	6	+5V
7	eSPI_IO_3	8	eSPI_IO_2
9	+ 3.3VSB	10	eSPI_IO_1
11	eSPI_IO_0	12	eSPI_ALERT0#
13	SMB_CK	14	SMB_DAT
15	+1.8VSB	16	eSPI_CS1
17	eSPI_RST#	18	N.C
19	+5V	20	eSPI_ALEART1#



5.21. SMB

SMBUS: SMBus assigned, 4-pin, 2.54mm pitch

Pin	Signal	Pin	Signal
1	+3.3V	2	SMB_DATA
3	SMB_CLK	4	GND

5.22. FAN Connector

MODULE_FAN: FAN control signals from module assigned, 4-pin

Pin	Signal
1	GND
2	+12V_5V_FAN
3	SENSE_FAN
4	PWMOUT_FAN

SYS_FAN1: FAN control signals from Super I/O assigned, 4-pin

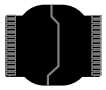
Pin	Signal
1	GND
2	+12V_5V_FAN0
3	SENSE_FAN0
4	PWMOUT_FAN0

SYS_FAN2: FAN control signals from Super I/O assigned, 4-pin

Pin	Signal
1	GND
2	+12V_5V_FAN1
3	SENSE_FAN1
4	PWMOUT_FAN1

5.23. Carrier BIOS

A SPI BIOS Socket on carrier board



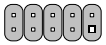
- Allow boot-up from the carrier with proper jumper settings.

BSEL1/BSEL2/BSEL3: jumpers for module boot-up selection

BESL2	BSEL1	BSEL0	BIOS Boot Select
1-2	1-2	1-2	Module SPI0/SPI1 (default)
1-2	1-2	2-3	Carrier SPI0/Module SPI1
1-2	2-3	1-2	Module SPI0/Carrier SPI1

5.24. GP_SPI

GP_SPI: GP_SPI assigned, 12-pin, 2.54mm pitch



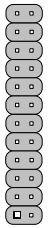
GP_SPI depends on the module specifications

Pin	Signal	Pin	Signal
1	+3.3V	2	N.C
3	GP_SPI_CLK	4	GP_SPI_MOSI
5	GP_SPI_CS2#	6	GP_SPI_MISO
7	GP_SPI_CS3#	8	GP_SPI_CS0#
9	GP_SPI_ALERT#	10	GP_SPI_CS1#
11	N.C	12	GNG

5.25. Front Panel Control

Power Button, Reset Button, HDD LED, Power LED for front panel header

Pin	Signal	Pin	Signal
19	N.C	20	N.C
17	N.C	18	BUZZER
15	N.C	16	N.C
13	GND	14	N.C
11	+5VSB	12	+5V
9	N.C	10	N.C
7	SYS_RESET#	8	GND
5	GND	6	PWR_BTN#
3	HDD_LED_N	4	GND
1	HDD_LED_P	2	+5V



5.26. Other Jumpers

JP5: clear CMOS.

To clear CMOS, shut down the power and short pin 2 and pin 3 (short VBAT to ground)

Jumper	BIOS Boot Select
1-2	Normal (default)
2-3	Clear CMOS

JP43: Enable or Disable Super I/O on carrier board

This function is not enabled yet at this version. The Super I/O at this version is always enabled

Jumper	BIOS Boot Select
1-2	TBC
2-3	TBC

JP3: Selection of Super I/O address

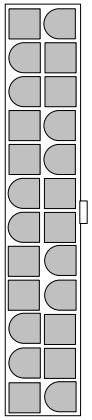
Jumper	BIOS Boot Select
1-2	4Eh
2-3	2Eh (default)

5.27. Power Connectors

ATX_24: ATX 24-pin Power Connector

Connect the ATX 24-pin (or 20-pin) connector to supply power to COM-HPC Client Base carrier.

Pin	Signal	Pin	Signal
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	COM
4	+5V	16	PWR_ON
5	GND	17	COM
6	+5V	18	COM
7	GND	19	COM
8	PWR_GOOD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	COM



ATX_4: ATX 12V 4-pin Connector.

Connect the ATX 12V 4-pin connector to supply power to the COM-HPC Client module.

Pin	Signal
1	GND
2	GND
3	+12V
4	+12V

JP46: selection of 5VSB source for module

Jumper	Module 5VSBY SOURCE
2-3	ATX Power Supply source (default)
3-4	DC to DC Power source
1-2	None

JP45, JP31: selection of power mode

AT mode means short PS_ON# to ground directly to force power on

JP45	JP31	BIOS Boot Select
1-2	1-2	ATX Mode (default)
2-3	2-3	AT Mode

JP44: selection of PS_ON source, from S3 or from S5

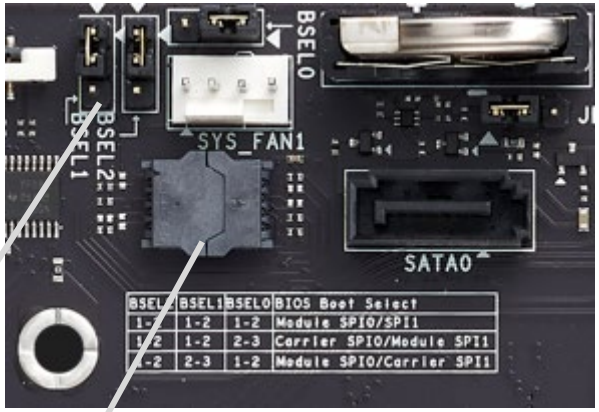
Jumper	ATX Power PS_ON Selection
2-3	Source from S5
1-2	Source from S3 (default)

6. Carrier BIOS (need update)

The COM-HPC Client Base supports Carrier BIOS, using Boot Serial Peripheral Interface (SPI) for COM-HPC modules.

Secondary BIOS solutions can be used as an alternative to the on-module BIOS and provide support for the following:

- Testing new BIOS versions
- Development of firmware modifications
- Recovery if soldered BIOS on module is corrupted



To use the BIOS on the module:
short pins 1-2 on **BESL2, BESL1, BESL0**; reference *section 5.23*

To use the BIOS on the carrier board:
short pins 2-3 on **BESL0**, and keep pin 1-2 on BESL2, BESL1; reference *section 5.23*

Make sure that the **secondary BIOS flash chip** has been properly installed into the Carrier BIOS socket before BOOT BIOS adjusting.

7. Switches, POST and LEDs

7.1. Switches

There are four switches

PWR_BTN: ATX Power Button
PWR_BTN: Reset Button

SLP_BTN: Sleep Button
LID_BTN: Lid Button

Both SLP and LID buttons support COM Express Type 6 modules for ACPI power management behavior setting in an OS environment.

7.2. POST and inductors LEDs

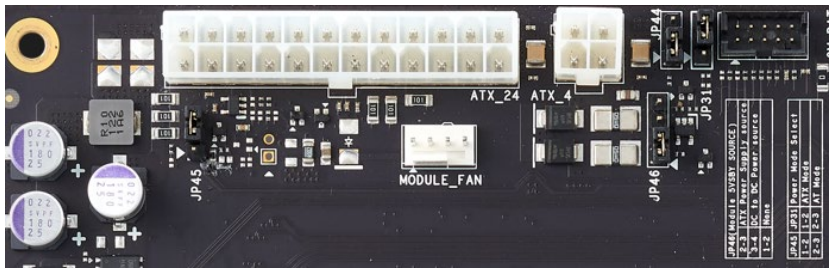
An eSPI-based POST display is added for debugging.
The two 7-SEG LEDs shows the actual **POST data.**

A row of mini-LEDs nearby the POST display indicates the following:

5VSB: ATX power attached on standby or active
S3: Indicates S3 status
PWR_ON: Indicates power on
WDT: Indicates WDT (watchdog timer) activity
HDD: Indicates hard drive activity (at M.2 M-key)
WIFI: Indicates wireless device activity (at M.2 E-key)

7.3. ATX Power Connectors

The COM-HPC Client Base has one **ATX 24-pin connector** to supply power to the carrier board and one **ATX 12V 4-pin connector** to supply power to the COM-HPC module.



The system will not power on unless an ATX 12V 4-pin connector is connected. (JP45, JP31 at default setting)

7.4. AT Power Mode

To operate the system in AT Mode with an ATX power supply, Refer to *section 5.27* jumper settings of JP45, JP31 for details