iW-RainboW-G57D

Versal AI Edge/Prime SOM Development Platform

Hardware Datasheet

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Document Revision History

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1. INTRODUCTION

1.1 Purpose

The Versal AI Edge/Prime SOM Development platform incorporates Versal AI Edge/Prime based SOM and REN Carrier board for complete validation of Versal AI Edge/Prime functionality. This document is the Hardware User Guide for the Versal AI Edge/Prime Carrier Board and provides detailed information on the overall design & usage of the Carrier Board from a Hardware Systems perspective. The details about the Versal AI Edge/Prime SOM hardware are explained in another document "iW-RainboW-G57M-Versal AI Edge/Prime-SOM-HardwareDatasheet".

1.2 Overview

iWave's Versal AI Edge/Prime Development platform comes with Versal AI Edge/Prime SOM and the REN Carrier Board. The development board can be used for quick prototyping of various applications targeted by the Versal AI Edge/Prime. With the 120mm x 120mm size, carrier board is packed with all the necessary on-board connectors to validate the features of Versal AI Edge/Prime SOM.

1.3 List of Acronyms

The following acronyms will be used throughout this document.

Table 1: Acronyms & Abbreviations

Acronyms	Abbreviations
CPU	Central Processing Unit
CAN	Controller Area Network
FPGA	Field Programmable Gate Array
FMC+	FPGA Mezzanine Card Plus
GB	Giga Byte
Gbps	Gigabits per sec
GHz	Giga Hertz
GPIO	General Purpose Input Output
HDMI	High-Definition Multimedia interface
HS	High Speed
I2C	Inter-Integrated Circuit
IC	Integrated Circuit
JTAG	Joint Test Action Group
Kbps	Kilobits per second
LVDS	Low Voltage Differential Signaling
MAC	Media Access Controller
Mbps	Megabits per sec
MHz	Mega Hertz
SD	Secure Digital
PCB	Printed Circuit Board
PMIC	Power Management Integrated Circuit
PMOD	Peripheral Module Interface

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Acronyms	Abbreviations
PL	Programmable Logic
PS	Processing System
RGMII	Reduced Gigabit Media Independent Interface
RTC	Real Time Clock
SDI	Serial Digital Interface
SPI	Serial Peripheral Interface
UART	Universal Asynchronous Receiver Transmitter
USB	Universal Serial Bus

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Terminology Description

In this document, wherever Signal Type is mentioned, below terminology is used.

Table 2: Terminology

Terminology	Description
I	Input Signal
O	Output Signal
IO	Bidirectional Input/output Signal
CMOS	Complementary Metal Oxide Semiconductor Signal
LVDS	Low Voltage Differential Signal
GBE	Gigabit Ethernet Media Dependent Interface differential pair signals
USB	Universal Serial Bus differential pair signals
OD	Open Drain Signal
OC	Open Collector Signal
Power	Power Pin
PU	Pull Up
PD	Pull Down
NA	Not Applicable
NC	Not Connected

Note: Signal Type does not include internal pull-ups or pull-downs implemented by the chip vendors and only includes the pull-ups or pull-downs implemented on board.

1.4 References

- Versal AI Edge/Prime Datasheet & Reference Manual
- Versal AI Edge/Prime SOM Hardware Datasheet

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2. ARCHITECTURE AND DESIGN

This section provides detailed information about the Versal AI Edge/Prime Development board features with high level block diagram and detailed information about each block.

2.1 Versal AI Edge/Prime SOM Carrier Board Block Diagram

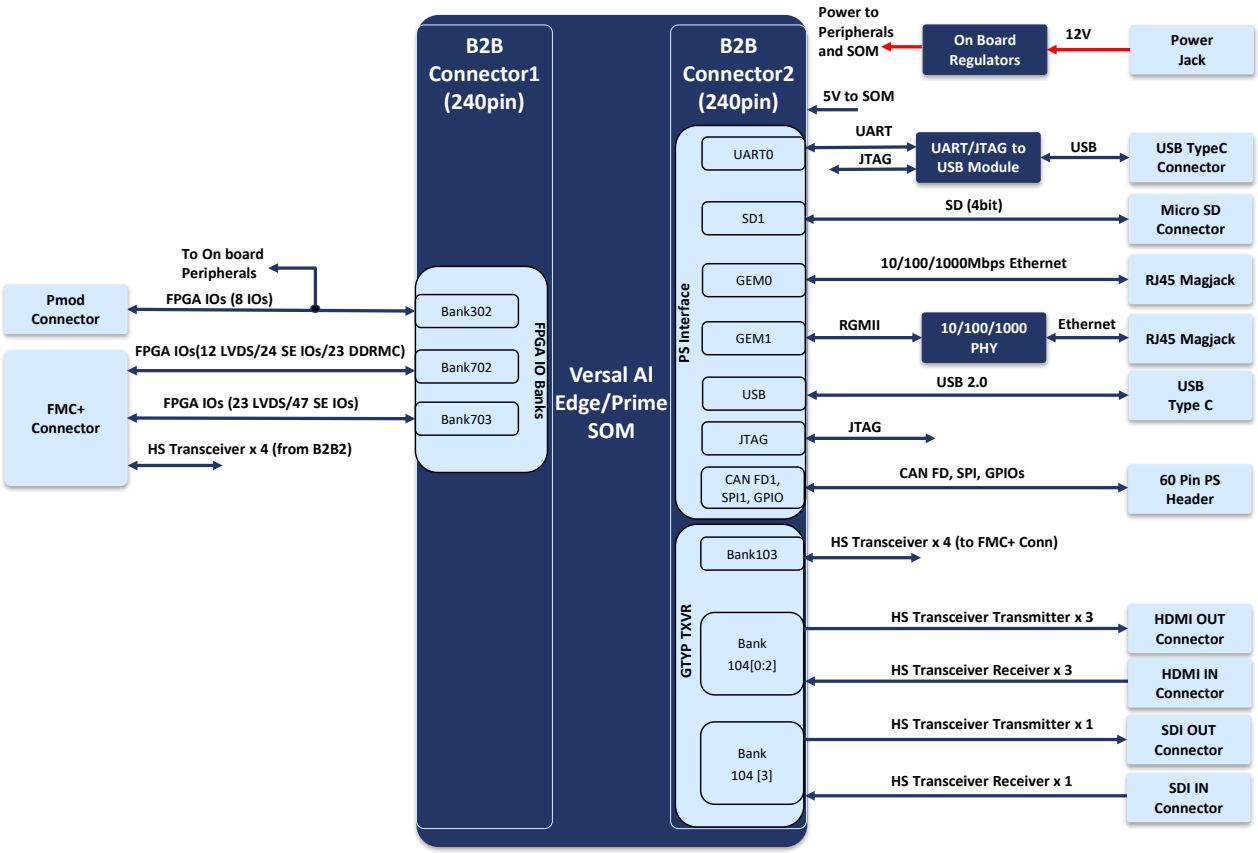

Figure 1: Versal AI Edge/Prime SOM Carrier Board Block Diagram

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2.2 Versal AI Edge/Prime SOM Carrier Board Features

Versal AI Edge/Prime SOM based Carrier board supports the following features to validate the Versal AI Edge/Prime SOM supported interfaces.

PS Interface Features

- USB Type-C for Debug port and JTAG
- USB 2.0 Interface through USB Type C Connector
- 1GBE RJ45 MagJack Connector
- On-board Gigabit Ethernet PHY with RJ45 MagJack Connector
- Micro SD x1
- 60 Pin GPIO Header (CAN, SPI, GPIOs) x1

PL Interface Features

- HDMI IN/ OUT Connector x 1
- SDI IN/OUT Connector x1
- PMOD Connector x 1
- FMC+ High Pin Count (HPC) Connector
  - 4 GTYP High Speed Transceivers
  - 1 GTYP Reference Clock
  - 12 LVDS IOs/24 Single ended (SE) IOs from XP Bank 702
  - 23 DDR memory controller signals from XPIO BANK 702
  - 23 DIFF IOs/47 Single ended (SE) IOs from XP Bank 703

Additional Features

- Clock Synthesizers/Generators x2
- RTC Coin Cell Holder x 1
- Reset Button

General Specification

- Power Supply : DC 12V, 5A Power Input Jack
- Form Factor : 120mm x 120mm

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2.3 Versal SoC Boot Mode Switch

The Versal AI Edge/Prime carrier board supports one Boot media switch to control boot selection from the Carrier Board. Versal AI Edge/Prime boots PS boots first and configures the PL through software. Versal SoC Versal SOM can support Quad SPI, SD1, eMMC & JTAG as boot device and configurable through boot mode pins and these boot mode pins are controlled from the D12, D13 & D14 pin of board-to-board connector2. Upon reset, the mode pins are read to determine the primary boot device. By default, QSPI is supported as boot device. Refer the below table to select the required boot device.

Table 3: Boot Mode Switch Truth Table

Versal AI Edge/Prime Boot Device	SW4 (4 Position Switch)			
	PS Mode 0 (Boot SEL0) SW4.1	PS Mode 1 (Boot SEL1) SW4.2	PS Mode 2 (Boot SEL2) SW4.3	Switch Position Image
PS JTAG	ON	ON	ON	
SD1	OFF	ON	OFF	
QSPI (Default)	ON	OFF	ON	
eMMC	OFF	OFF	ON	

Note: In Versal SOM, PS Mode3 (4th bit) boot mode signal is connected to Ground through 10K resistors.

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2.4 Board to Board Connectors

The Versal AI Edge/Prime carrier board supports two Board to Board mating connectors for Versal AI Edge/Prime SOM attachment. This Board-to-Board connector are capable of handling high-speed serialized signals and can be used for size constrained embedded applications.

2.4.1 Board to Board Connector1

Board to Board Connector1 (J10) is physically located at the top of the board as shown below.

Number of Pins - 240

Connector Part Number - ADF6-60-03.5-L-4-2-A-TR from Samtec

Note: For the Board-to-Board Connector1 pinout, refer the Versal AI Edge/Prime SOM Hardware Datasheet.

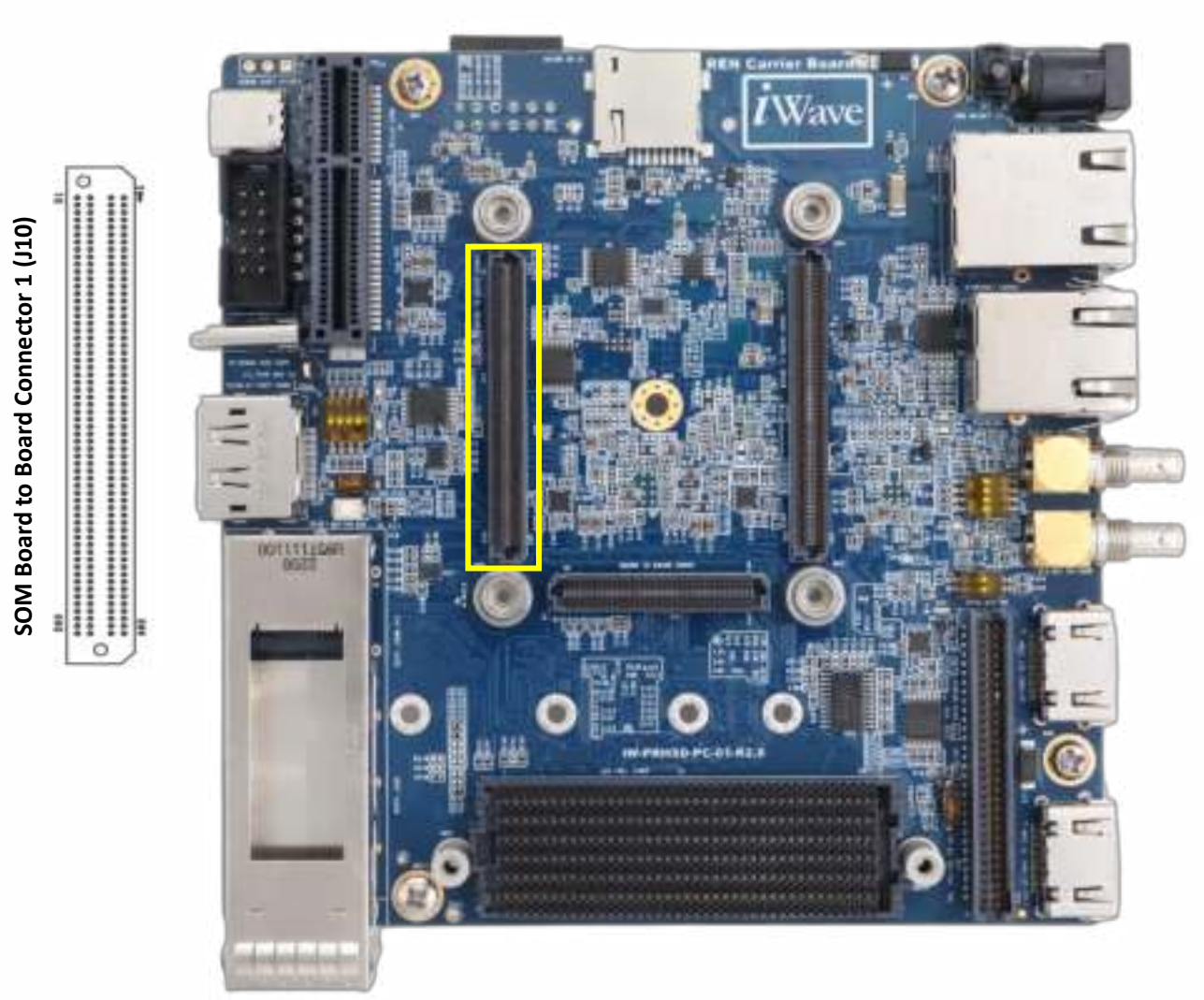

Figure 2: Board to Board Connector1

Note: REN Carrier Board is common for our other SOM also. Board to Board connector3 is not applicable for Versal AI Edge/Prime SOM.

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2.4.2 Board to Board Connector2

Board to Board Connector2 (J11) is physically located at the top of the board as shown below.

Number of Pins - 240

Connector Part Number - ADF6-60-03.5-L-4-2-A-TR from Samtec

Note: For the Board-to-Board Connector2 pinout, refer the Versal AI Edge/Prime SOM Hardware Datasheet.

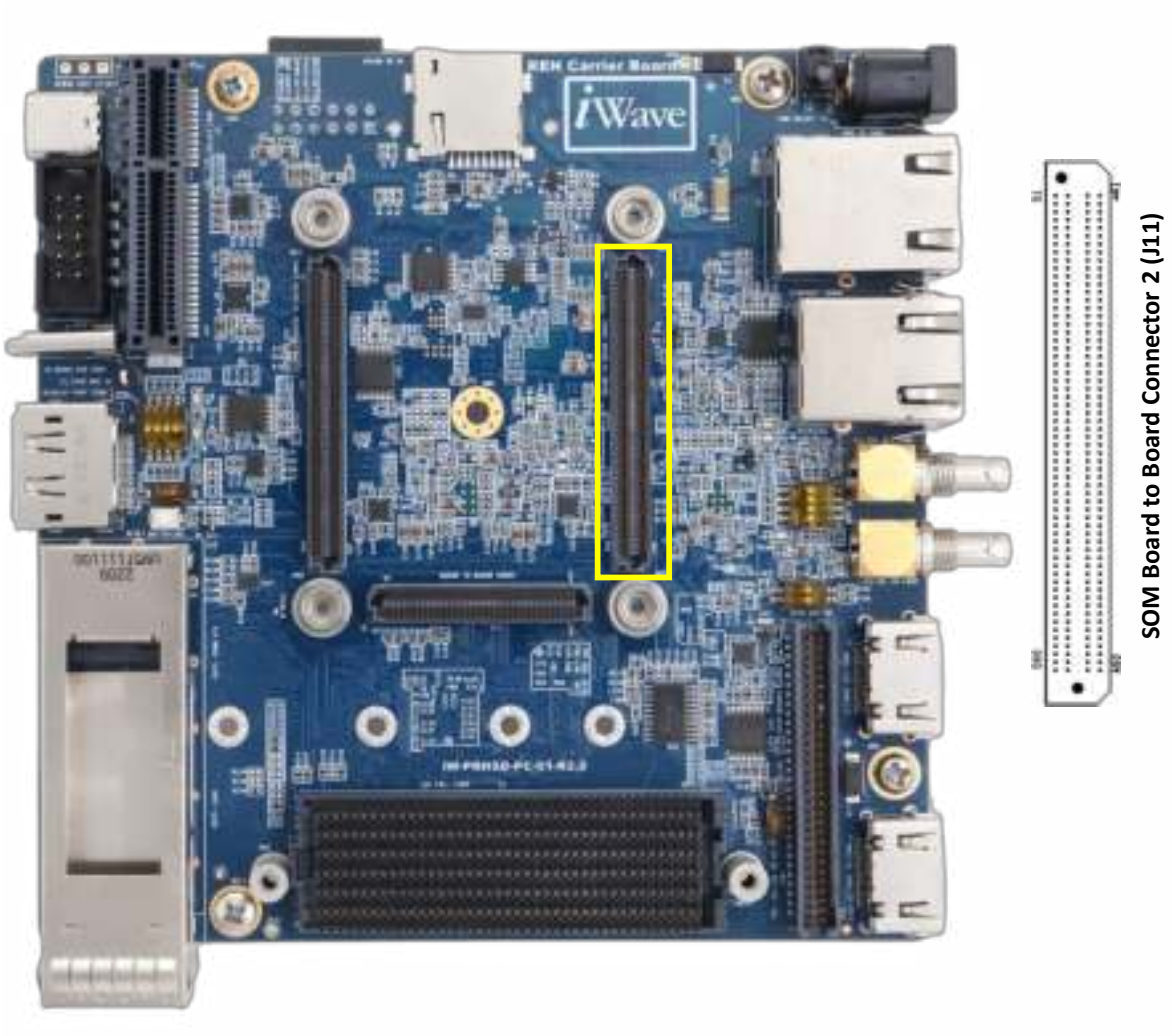

Figure 3: Board to Board Connector 2

Note: REN Carrier Board is common for our other SOM also. Board to Board connector3 is not applicable for Versal AI Edge/Prime SOM.

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2.5 PS Interface Features

The features which are supported from Versal AI Edge/Prime processor is explained in the following section.

2.5.1 Gigabit Ethernet Port1

The Versal AI Edge/Prime SOM Carrier board supports Ethernet port through GEM0 interface of Versal AI Edge/Prime PS. Ethernet PHY output signals from Board-to-Board connector2 is directly connected to RJ45 Magjack (J5). The Ethernet supports Speed (Yellow) and Link/Activity (Green) LED indications on RJ45 Magjack connector. This RJ45 Magjack connector (J5) is physically located at the top of the board as shown below.

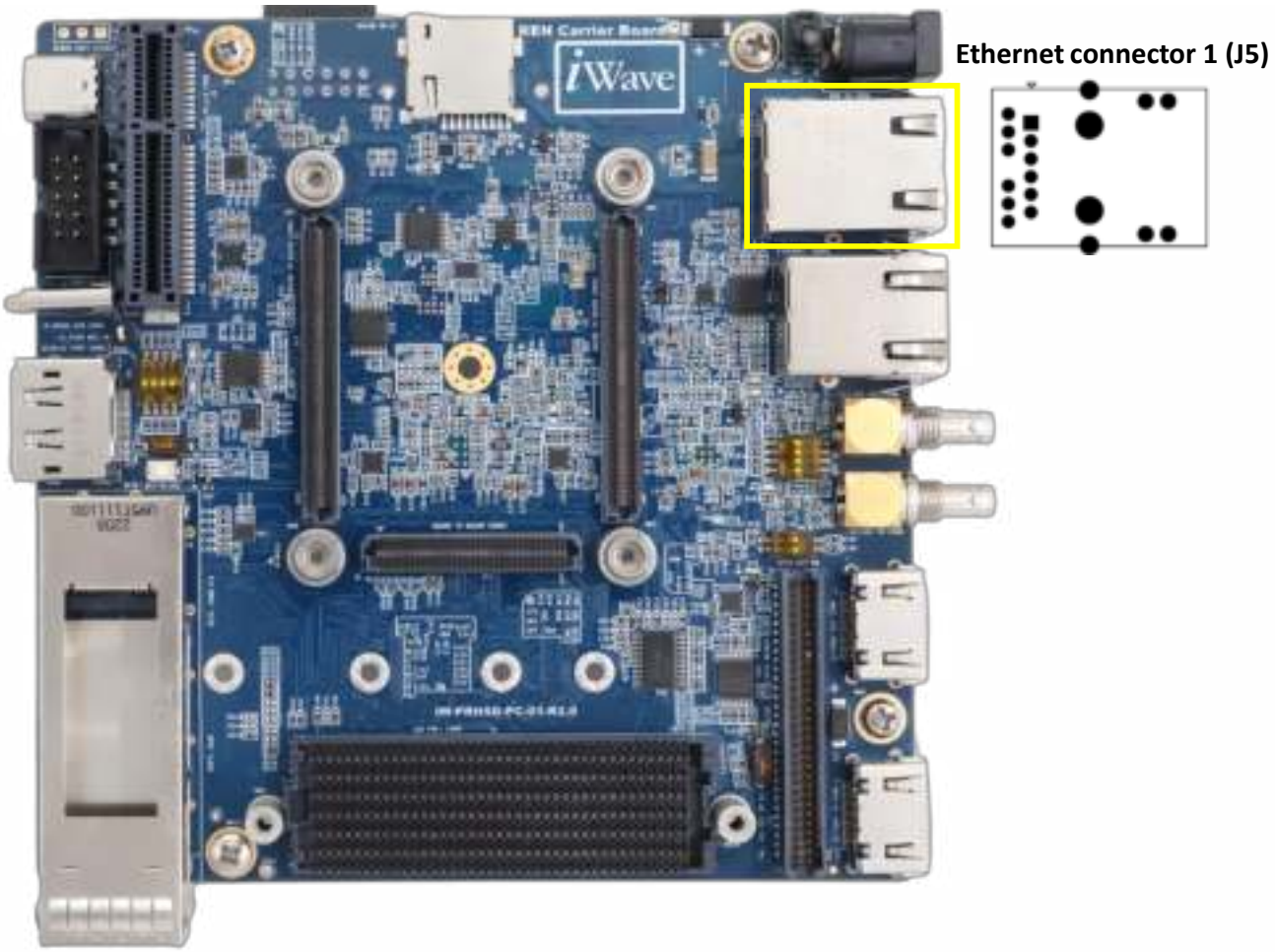

Figure 4: Gigabit Ethernet Connector1

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2.5.2 Gigabit Ethernet Port2

The Versal AI Edge/Prime SOM Carrier board support Ethernet port through GEM1 interface of Versal AI Edge/Prime PS. The MAC is integrated in the Versal AI Edge/Prime PS and connected to the external Gigabit Ethernet PHY "AR8031" on Carrier Board through Board to Board Connector2. This PHY is interfaced with GEM1 interface of Versal's PS through MIO pins and works at 1.8V IO voltage level.

The Gigabit Ethernet PHY also supports MDC, MDIO, and Interrupt Signals for control. These signals are used through PS Bank MIO pins from Board to Board Connector2 pins C12, C13, & C14 respectively. Ethernet PHY output is directly connected to RJ45 Magjack (J9). Also, it supports Speed (Yellow) and Link/Activity (Green) LED indications on RJ45 Magjack connector. This RJ45 Magjack connector is physically located at the top of the board as shown below.

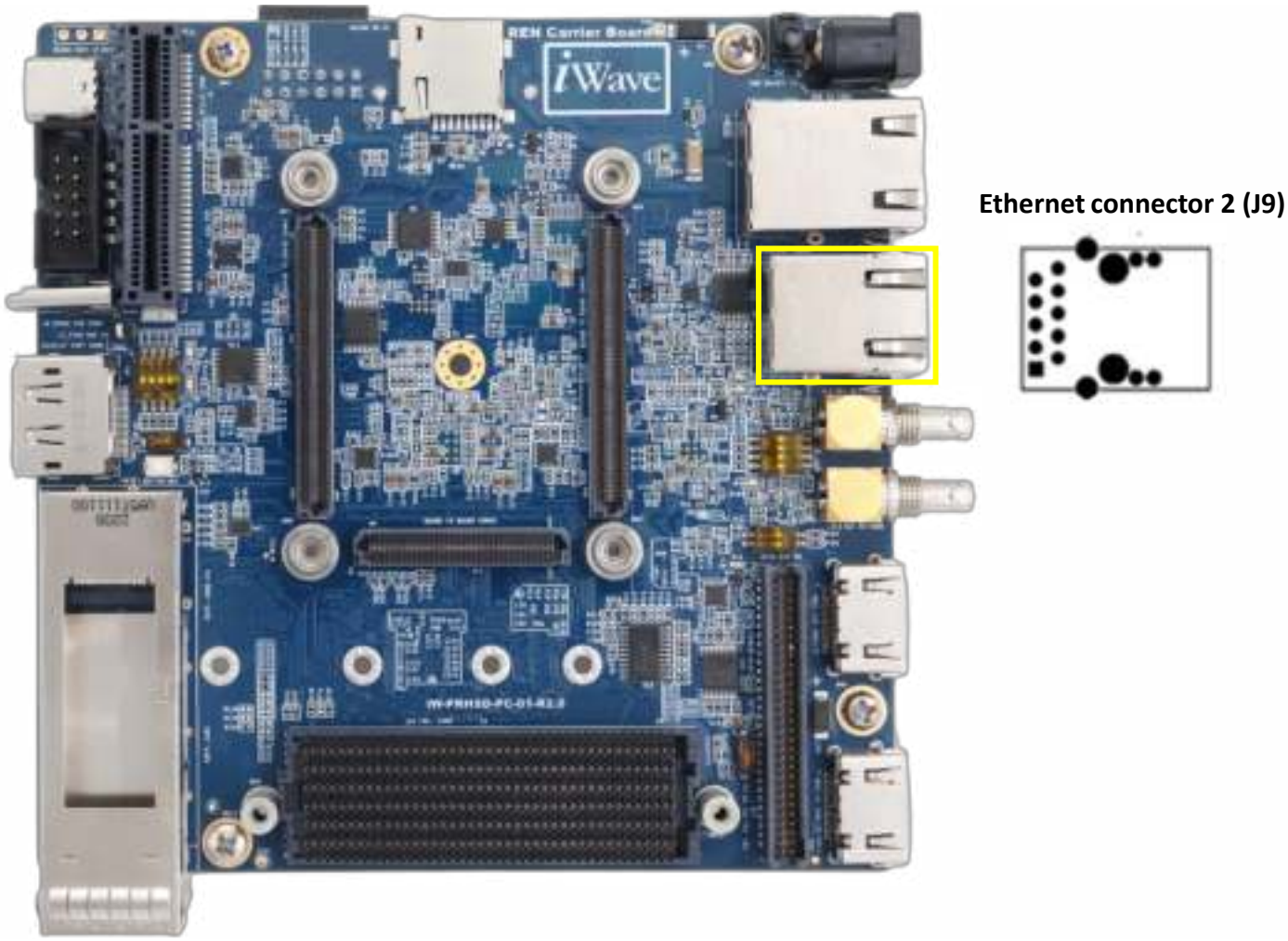

Figure 5: Gigabit Ethernet Connector2

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2.5.3 USB2.0 OTG Port

The Versal AI Edge/Prime carrier Board supports USB2.0 High Speed OTG interface through USB Controller of Versal processor. This USB2.0 OTG interface is supported through USB2.0 Type-C connector (J4). The USB PHY Transceiver output signals from Board-to-Board connector2 is connected to USB2.0 Type-C connector (J4)

The USB2.0 OTG port can be used as full functional OTG functionality which supports USB2.0 host and USB2.0 device based on USB_OTG_ID pin status. The VBUS power of this USB2.0 Type-C connector is connected through current limit power switch which can be used to switch On/Off the power based on the device or Host and also limits the current above 500mA in host mode. The USB PHY transceiver in Versal detects the USB functionality through USB_OTG_ID pin (B17th pin of B2B-2) and controls the power using the USB_PWR_EN pin (B16th pin of B2B-2). This USB2.0 OTG connector (J4) is physically located at the top of the board as shown below.

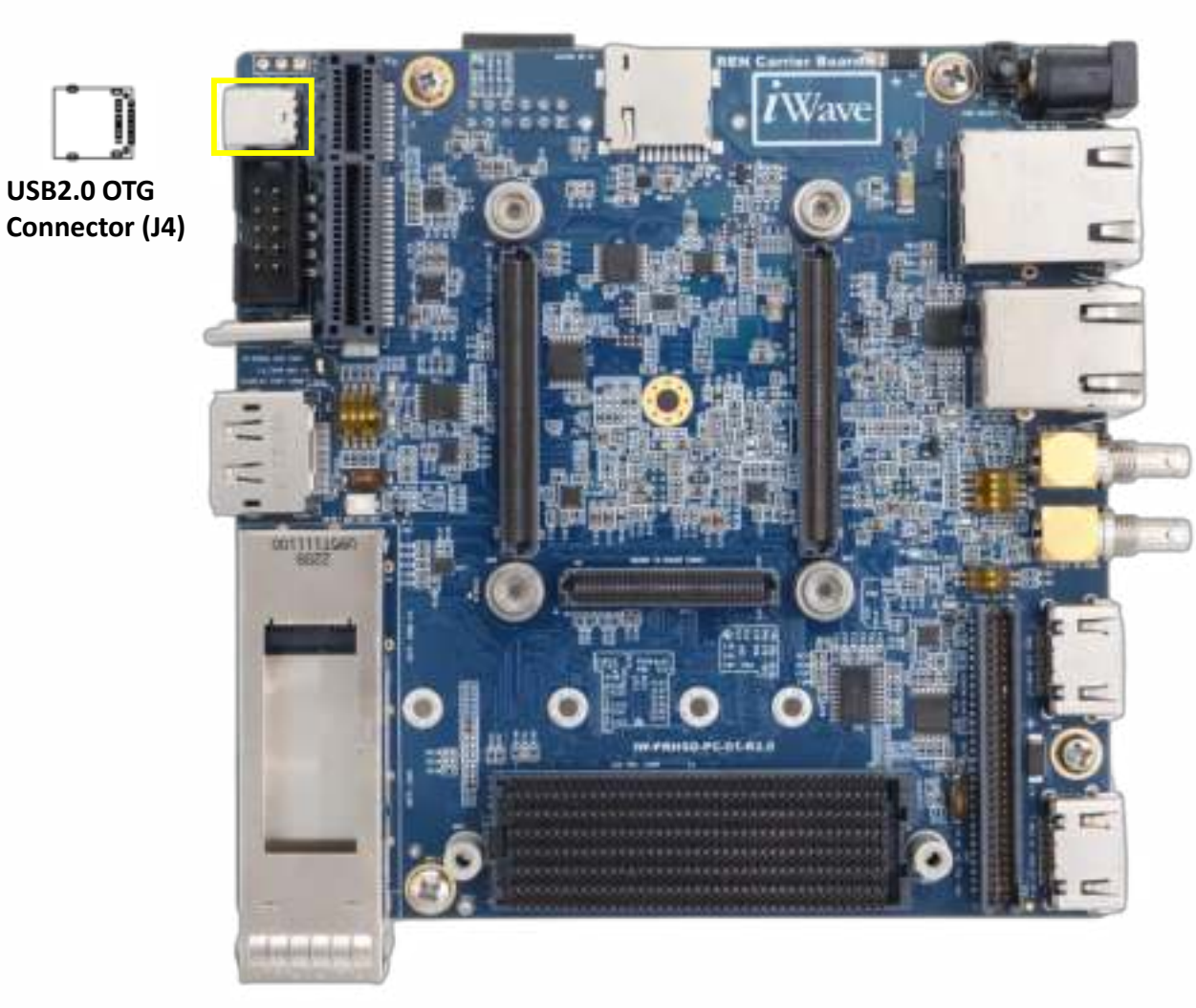

Figure 6: USB OTG Connector

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2.5.4 Micro SD Port

The Versal AI Edge/Prime Carrier Board supports one SD interface through SD1 interface of Versal AI Edge/Prime PS. This SD1 signals from Board-to-Board connector2 is connected to Micro SD connector (J3) through auto-direction control memory card voltage level translator to support both 1.8V and 3.3V supported cards. It supports up to 4-Bit data transfer with card detect and write protect.

The memory card voltage level translator's voltage selection is controlled through SD1_PWR pin from Board-to-Board Connector2 pin B21. If SD1_PWR is set to low, then 3.3V IO level is selected for SD1 signals to SD connector. If SD1_PWR is set to high, then 1.8V IO level is selected for SD1 signals to SD connector. The Micro SD connector (J3) is physically located at the top of the board as shown below.

Micro SD Connector (J3)

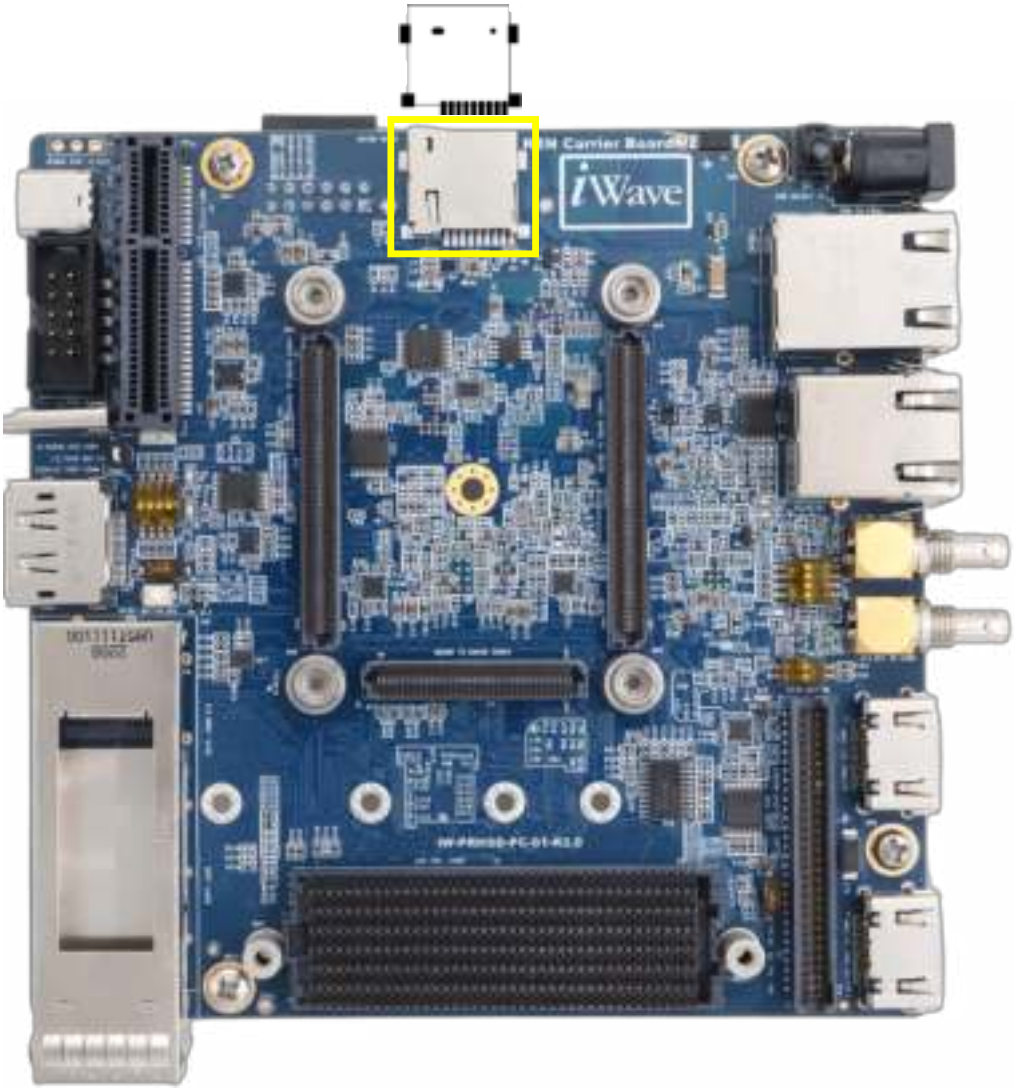

Figure 7: Micro SD Connector

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2.5.5 GPIO Header

The Versal AI Edge/Prime Carrier board supports one GPIO Header (J19) for General Purpose. These Header signals are directly connected from Board-to-Board connector 2. These header supports SPI and CAN, These GPIO Header (J19) is physically located at the top of the board as shown below.

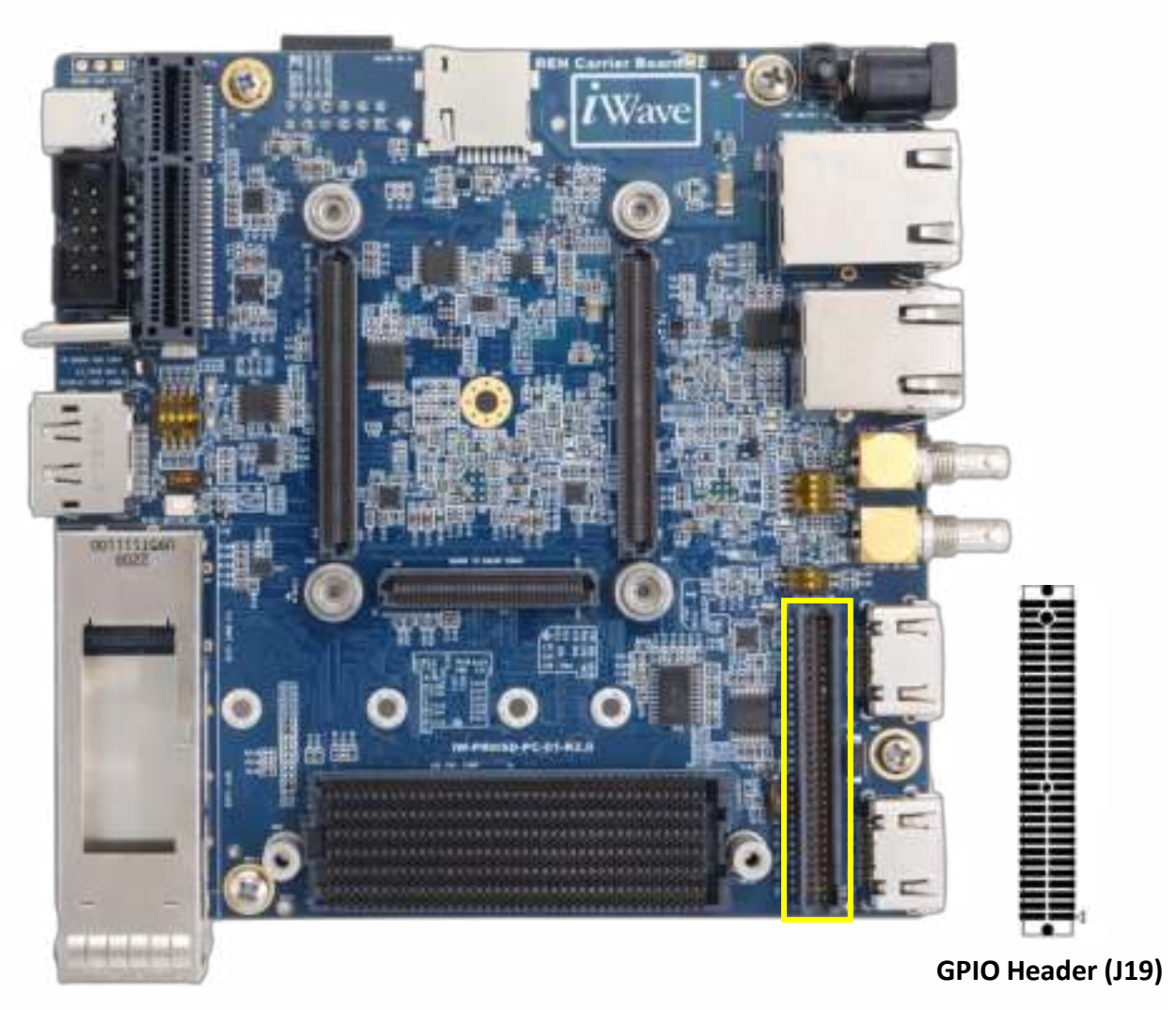

Figure 8: GPIO Header

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Table 4: GPIO Header Pin Assignment

Pin No	Soc Pin Name	Signal Name	Signal Type/ Termination	Description
1	NA	VCC_5V	O, 5V Power	5V Supply Voltage.
2	NA	VCC_5V	O, 5V Power	5V Supply Voltage.
3	NA	NA	NA	NA
4	NA	NA	NA	NA
5	NA	NA	NA	NA
6	NA	NA	NA	NA
7	NA	NA	NA	NA
8	NA	NA	NA	NA
9	NA	NA	NA	NA
10	NA	NA	NA	NA
11	NA	NA	NA	NA
12	NA	NA	NA	NA
13	NA	NA	NA	NA
14	NA	NA	NA	NA
15	NA	GND	Power	Ground
16	NA	GND	Power	Ground
17	NA	NA	NA	NA
18	NA	NA	NA	NA
19	NA	NA	NA	NA
20	NA	NA	NA	NA
21	NA	NA	NA	NA
22	NA	NA	NA	NA
23	NA	NA	NA	NA
24	NA	NA	NA	NA
25	NA	NA	NA	NA
26	NA	NA	NA	NA
27	NA	NA	NA	NA
28	NA	NA	NA	NA
29	NA	GND	Power	Ground
30	NA	VCC_1V8	O, 1.8V Power	1V8 Supply Voltage.
31	NA	NA	NA	NA
32	NA	NA	NA	NA
33	NA	NA	NA	NA
34	NA	NA	NA	NA
35	NA	NA	NA	NA
36	NA	NA	NA	NA
37	NA	NA	NA	NA
38	NA	NA	NA	NA
39	NA	NA	NA	NA
40	NA	VIO_BANK2	O, 1.8V Power	1V8 Supply Voltage.
41	NA	NA	NA	NA

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Pin No	Soc Pin Name	Signal Name	Signal Type/ Termination	Description
42	NA	NA	NA	NA
43	NA	NA	NA	NA
44	NA	NA	NA	NA
45	NA	NA	NA	NA
46	PMC_MIO36_501	CAN0_TX/UART3_TX	O, 1.8V LVCMOS	CAN0 TX. This Pin is connected to D28th pin of Board-to-Board Connector2 (J3).
47	NA	NA	NA	NA
48	PMC_MIO37_501	CAN0_RX/UART3_RX	I, 1.8V LVCMOS	CAN0 RX. This Pin is connected to D27th pin of Board-to-Board Connector2 (J3).
49	NA	NA	NA	NA
50	NA	NA	NA	NA
51	PMC_MIO8_500	SPI_SS1_IO3/Bank3_IO24P	O, 1.8V LVCMOS	SPI Slave select 1. This Pin is connected to D20th pin of Board-to-Board Connector2 (J3).
52	NA	NA	NA	NA
53	PMC_MIO6_500	SPI_SCLK/Bank3_IO22P	O, 1.8V LVCMOS	SPI Clock. This Pin is connected to D16th pin of Board-to-Board Connector2 (J3).
54	PMC_MIO7_500	SPI_SS2_IO2/Bank3_IO23N	O, 1.8V LVCMOS	SPI Slave select 2. This Pin is connected to D19th pin of Board-to-Board Connector2 (J3).
55	PMC_MIO9_500	SPI_SS0/Bank3_IO24N	O, 1.8V LVCMOS	SPI Slave select 0. This Pin is connected to D21st pin of Board-to-Board Connector2 (J3).
56	NA	GND	Power	Ground
57	PMC_MIO11_500	SPI_MOSI_IO0/Bank3_IO22N	O, 1.8V LVCMOS	SPI MOSI. This Pin is connected to D17th pin of Board-to-Board Connector2 (J3).
58	NA	NA	NA	NC.
59	PMC_MIO10_500	SPI_MISO_IO1/Bank3_IO23P	I, 1.8V LVCMOS	SPI MISO. This Pin is connected to D18th pin of Board-to-Board Connector2 (J3).
60	NA	NA	NA	NC.

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2.5.6 USB Type-C for Debug UART and JTAG

The Versal AI Edge/Prime Carrier board supports a JTAG/UART to USB Module Host through USB Type-C Connector "KUSBX-SL-CS1N14-B". This interface supports JTAG, Debug UART and DATA UART interface with a single Type-C connector from PS. The JTAG-SMT4 module is a compact, complete, and fully self-contained surface-mount programming module for Xilinx FPGAs. The module can be accessed directly from all Xilinx Tools, including Vivado, and Vitis.

The JTAG-SMT4 uses a 3.3V main power supply (VDD). Since JTAG-SMT4 requires 3.3V IO level, these signals from Board-to-Board connector2 are connector to JTAG-SMT4 module through Voltage level translator. The module routes the USB D+ (DP) and D- (DM) signals directly to the USB Type-C connector. The USB Type-C connector (J8) is located at the top side of the board as shown below.

Figure 9: Debug Connector

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2.6 PL Interface Features

The features which are supported from Versal AI Edge/Prime PL is explained in the following section.

2.6.1 SDI Video IN

The Versal AI Edge/Prime Carrier board supports one 3G/12G SDI Video IN interface through HD BNC connector (J14). The Video input signals from HD BNC Connector is directly connected to Adaptive Cable Equalizer chip and then connected to Bank104 Channel3 GTYP receiver of Versal AI Edge/Prime through Board-to-Board connector2.

The Versal AI Edge/Prime Carrier board supports Video Input Lock status LED (D14) for presence and absence of the Video Input signal on HD BNC connector (J14). This LED will glow when the Video Input signal is detected on HD BNC connector (J14). Also, Channel 1 of I2C Bus switch(U24) is connected to Adaptive Cable Equalizer chip for control and configuration with I2C address 0x2D. SDI Video IN HD BNC connector (J14) is physically located at the top of the board as shown below.

Note: By default, 12G Adaptive Cable Equalizer chip "LMH1297" is supported on the board. To support 3G Adaptive Cable Equalizer chip "LMH0397", contact iWave.

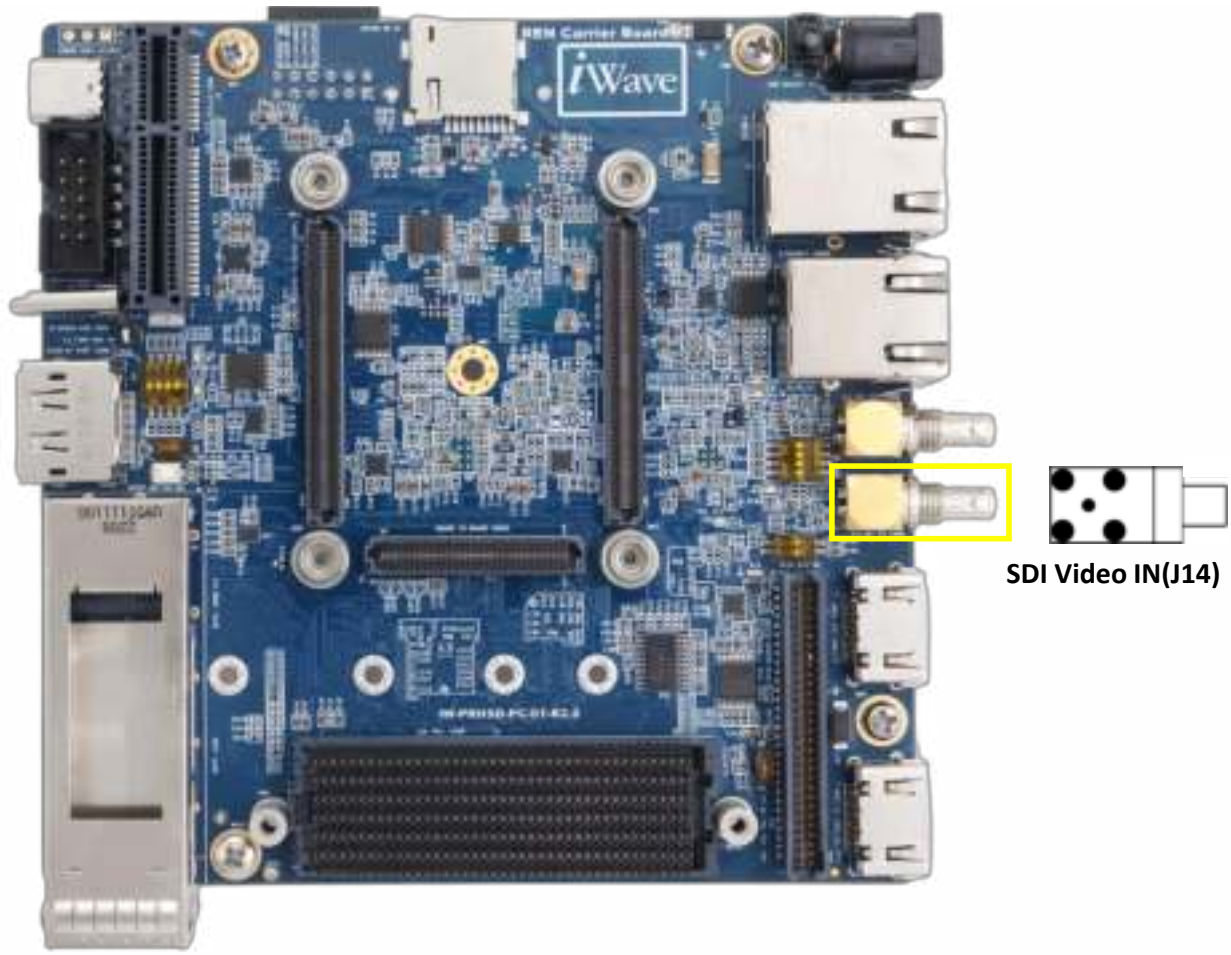

Figure 10: SDI Video IN

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2.6.2 SDI Video Out

The Versal AI Edge/Prime Carrier board supports one 3G/12G SDI Video OUT interface through HD BNC connector (J13). Versal AI Edge/Prime's Bank104 Channel3 GTYP transmitter from Board-to-Board connector2 is directly connected to Cable Driver chip and then connected to HD BNC Connector (J13) for Video out.

The Versal AI Edge/Prime Carrier board supports Video Output Lock status LED (D9). This LED will glow when the video signal from Versal GTYP transmitter is detected on Cable Driver chip. Also, PS I2C0 is connected to Cable Driver chip for control and configuration with I2C address 0x30. SDI Video OUT HD BNC connector (J13) is physically located at the top of the board as shown below.

Note: By default, 12G Adaptive Cable Equalizer chip "LMH1297" is supported on the board. To support 3G Adaptive Cable Equalizer chip "LMH0397", contact iWave.

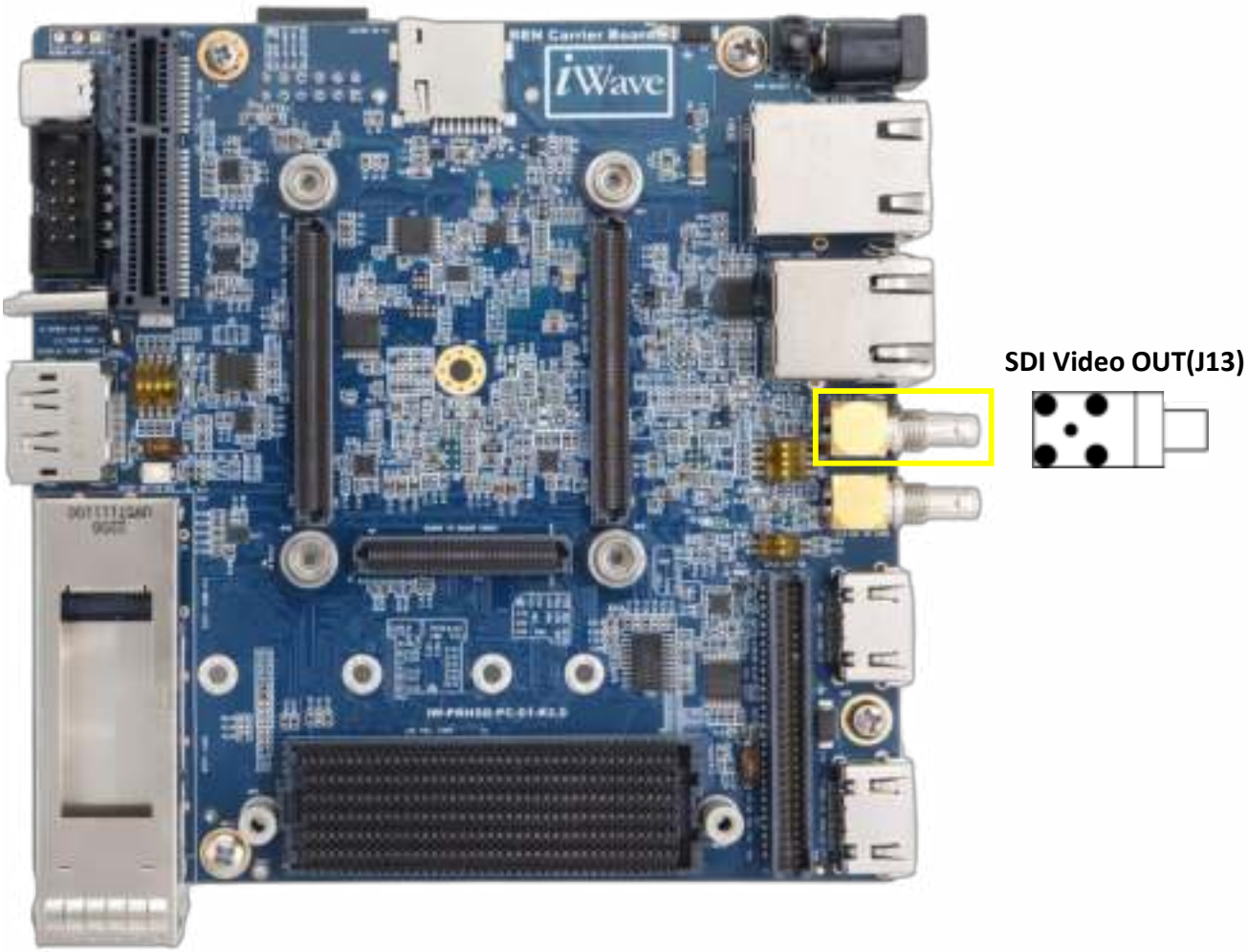

Figure 11: SDI Video OUT

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2.6.3 HDMI IN

The Versal AI Edge/Prime Carrier board supports one HDMI IN interface through HDMI connector (J21). Versal AI Edge/Prime's Bank104 Channel0 to Channel2 GTYP receiver from Board-to-Board connector2 is directly connected from HDMI IN Connector (J21) through AC caps for HDMI IN support. HDMI-IN cable detect feature is supported through PL IO through level translator. HDMI IN connector (J21) is physically located at the top of the board as shown below.

Note: Make sure that SW8 switch position set as OFF in bottom view.

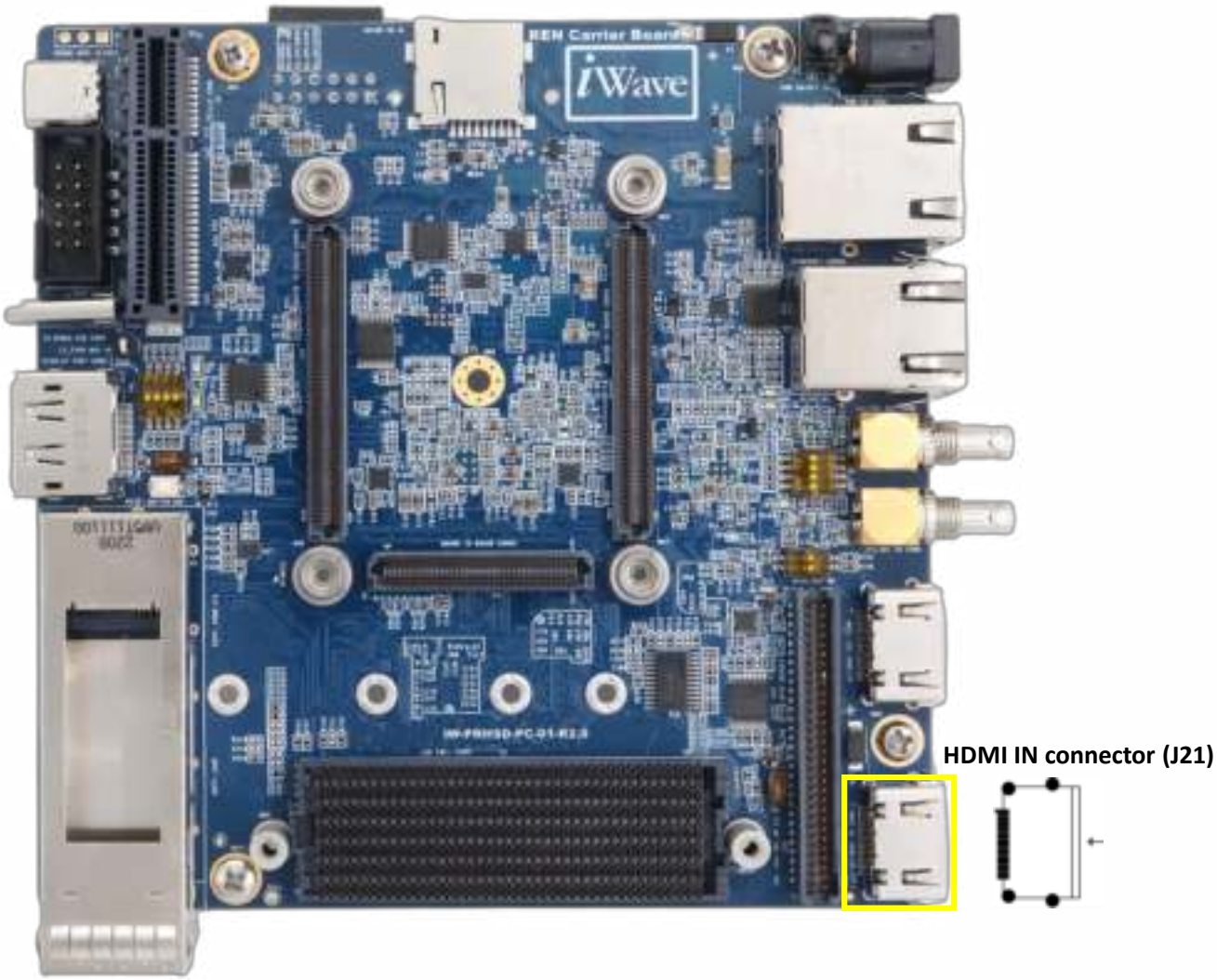

Figure 12: HDMI IN Connector

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2.6.4 HDMI OUT

The Versal AI Edge/Prime Carrier board supports one HDMI OUT interface through HDMI connector (J17). Versal AI Edge/Prime's Bank104 Channel0 to Channel2 GTYP transceiver from Board-to-Board connector2 is directly connected to HDMI Retimer chip (SN65DP159RGZR) through AC caps and then connected to HDMI OUT Connector (J17) for HDMI Video out.

Note: Make sure that SW8 switch position set as OFF in bottom view.

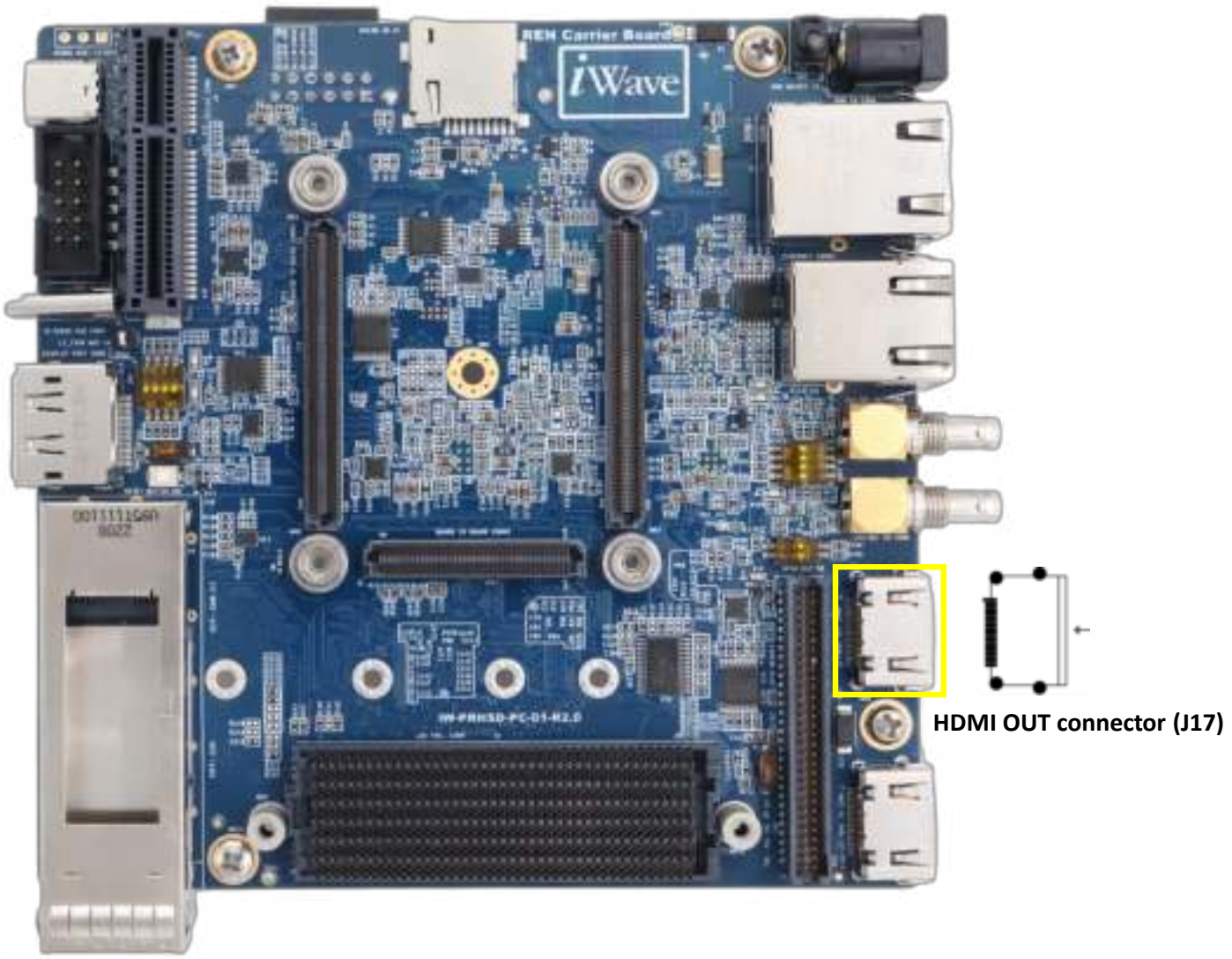

Figure 13: HDMI OUT Connector

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2.6.5 Pmod Host Port Connector

Pmod interface or Peripheral Module interface is a standard defined by Digilent Inc. The Pmod interface is used to connect low frequency, low I/O pin count peripheral modules to host controller boards.

The Versal AI Edge/Prime Carrier board supports one 12pin Pmod host port connector for plugging Pmod module. Since Pmod interface specification requires 3.3V IO level, the signals from Board-to-Board connector are connected to Pmod Connectors through Voltage level translator. Pmod Host port connector (J22) is physically located at the bottom of the board as shown below.

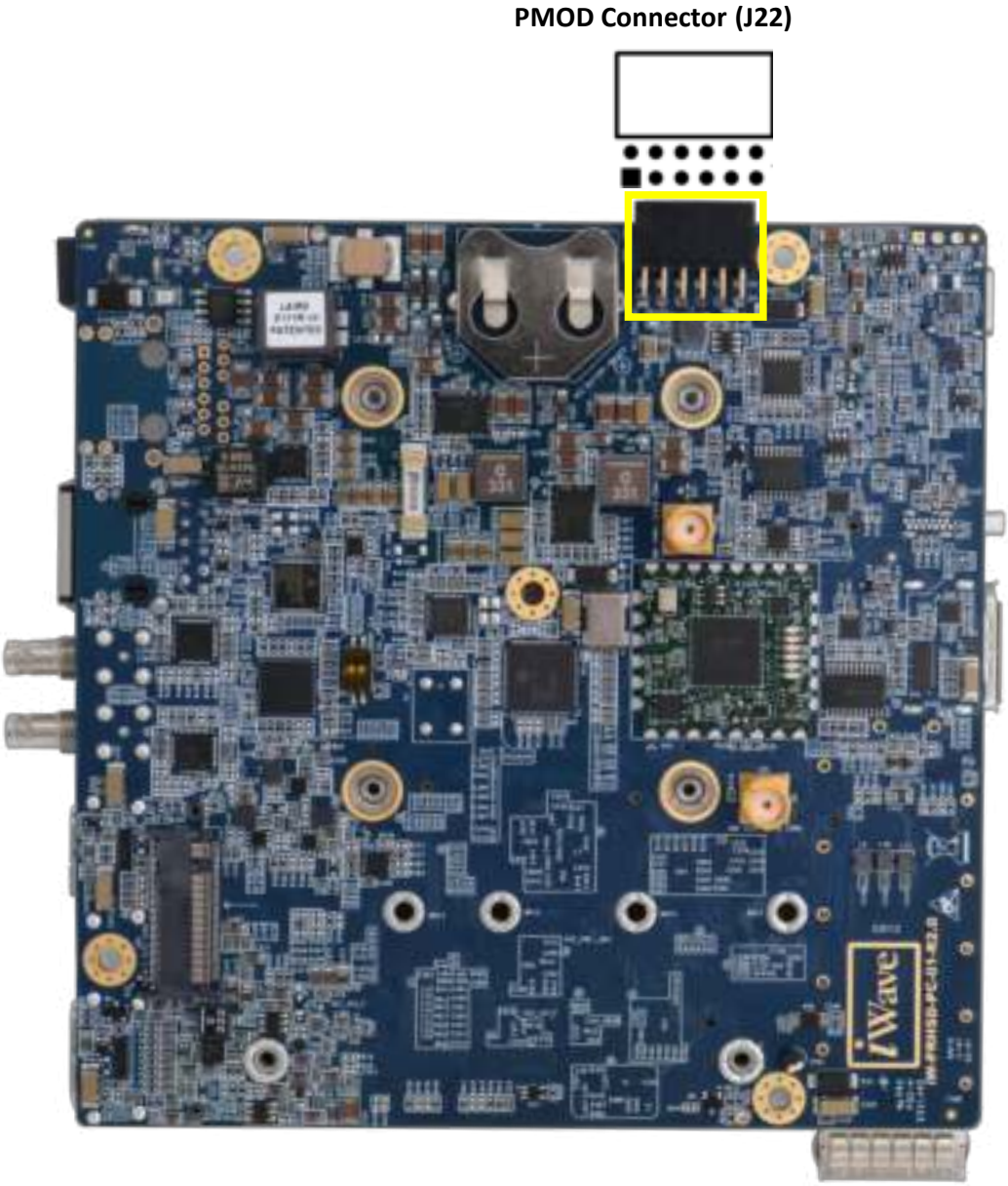

Figure 14: PMOD Host Connector

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Table 5: PMOD Connector Pin Assignment

Pin No	Signal Name	SoC Pin Name	SoC Pin Number	Signal Type/ Termination	Description
1	BANK2_IO11N_GCIN2N	IO_L6N_HDGC_302	C10	IO, 3V3 LVCMOS	General purpose Input Output.
2	BANK2_IO12N_GCIN0N	IO_L5N_HDGC_302	C12	IO, 3V3 LVCMOS	General purpose Input Output.
3	BANK2_IO8N	IO_L9N_302	A13	IO, 3V3 LVCMOS	General purpose Input Output.
4	BANK2_IO7N	IO_L8N_302	A11	IO, 3V3 LVCMOS	General purpose Input Output.
5	GND	NA	NA	Power	Ground.
6	VCC_3V3	NA	NA	O, 3.3V Power	3V3 Supply Voltage.
7	BANK2_IO11P_GCIN2P	IO_L6P_HDGC_302	D10	IO, 3V3 LVCMOS	General purpose Input Output.
8	BANK2_IO12P_GCIN0P	IO_L5P_HDGC_302	D11	IO, 3V3 LVCMOS	General purpose Input Output.
9	BANK2_IO8P	IO_L9P_302	B12	IO, 3V3 LVCMOS	General purpose Input Output.
10	BANK2_IO7P	IO_L8P_302	B11	IO, 3V3 LVCMOS	General purpose Input Output.
11	GND	NA	NA	Power	Ground.
12	VCC_3V3	NA	NA	O, 3.3V Power	3V3 Supply Voltage.

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2.6.6 FMC+ HSPC Connector

The Versal AI Edge/Prime Carrier board supports one 560Pin FMC+ HSPC connector to support standard ANSI/VITA 57.4 FMC+ modules and FMC modules.

The FMC+ HSPC Connector (J20) supports the below mentioned interface from Versal AI Edge/Prime SOM module.

- 4 GTYP High Speed Transceivers
- 1 GTY Reference Clock
- 12 LVDS IOs/24 Single ended (SE) IOs from XPIO Bank 702
- 23 DDR memory controller signals from XPIO BANK 702
- 23 LVDS IOs/47 Single ended (SE) IOs from XPIO Bank 703

The FMC+ connector supports VADJ voltage of 1.8V and 1.2V through Switch. To support VADJ=1.8V, make Switch (SW7) position at OFF and for VADJ=1.2V make switch (SW7) position set as ON. This 560Pin FMC+ HPC connector (J20) and Switch (SW7) are physically located at the top of the board as shown below.

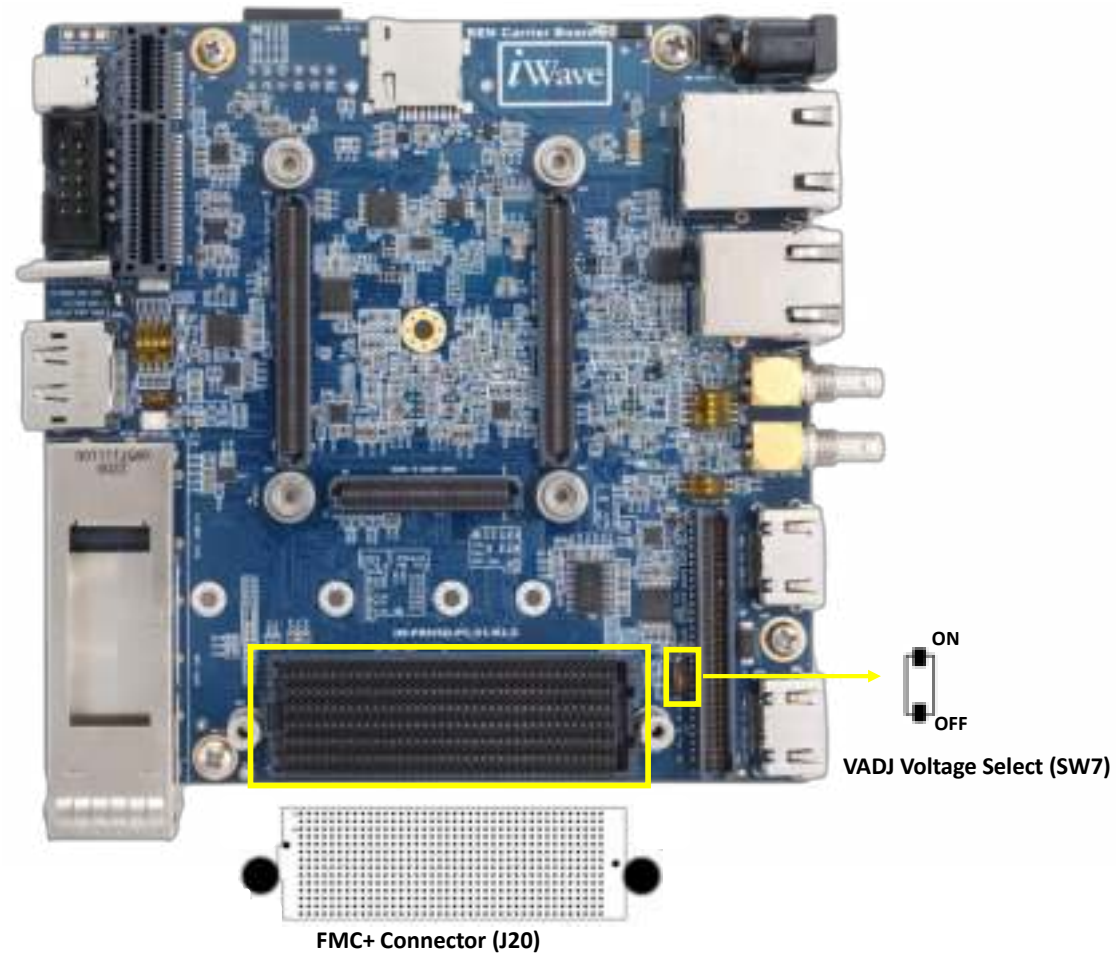

Figure 15: FMC+ Connector

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This 560Pin FMC+ HSPC connector (J20) pin mapping is shown below.

	M	L	K	J	H	G	F	E	D	C	B	A	Z	Y
1	GND	NC	NC	GND	NC	GND	PG_M2C	GND	PG_C2M	GND	CLK_DIR	GND	HSPC_PRSNT_M2C_L	GND
2	NC	GND	GND	NC	PRSNT_M2C_L	NC	GND	NC	GND	DP0_C2M_P	GND	DP1_M2C_P	GND	NC
3	NC	GND	GND	NC	GND	NC	GND	HA01_N_CC	GND	DP0_C2M_N	GND	DP1_M2C_N	GND	NC
4	GND	NC	NC	GND	CLK0_M2C_P	GND	HA00_P_CC	GND	GBTCLK0_M2C_P	GND	NC	GND	NC	GND
5	GND	NC	NC	GND	CLK0_M2C_N	GND	HA00_N_CC	GND	GBTCLK0_M2C_N	GND	NC	GND	NC	GND
6	NC	GND	GND	HA03_P	GND	LA00_P_CC	GND	HA05_P	GND	DP0_M2C_P	GND	DP2_M2C_P	GND	NC
7	NC	GND	HA02_P	HA03_N	LA02_P	LA00_N_CC	HA04_P	HA05_N	GND	DP0_M2C_N	GND	DP2_M2C_N	GND	NC
8	GND	NC	HA02_N	GND	LA02_N	GND	HA04_N	GND	LA01_P_CC	GND	NC	GND	NC	GND
9	GND	NC	GND	HA07_P	GND	LA03_P	GND	HA09_P	LA01_N_CC	GND	NC	GND	NC	GND
10	NC	GND	HA06_P	HA07_N	LA04_P	LA03_N	HA08_P	HA09_N	GND	LA06_P	GND	DP3_M2C_P	GND	NC
11	NC	GND	HA06_N	GND	LA04_N	GND	HA08_N	GND	LA05_P	LA06_N	GND	DP3_M2C_N	GND	NC
12	GND	NC	GND	HA11_P	GND	LA08_P	GND	NC	LA05_N	GND	NC	GND	NC	GND
13	GND	NC	HA10_P	HA11_N	LA07_P	LA08_N	HA12_P	NC	GND	GND	NC	GND	NC	GND
14	NC	GND	HA10_N	GND	LA07_N	GND	HA12_N	GND	LA09_P	LA10_P	GND	NC	GND	NC
15	NC	GND	GND	NC	GND	LA12_P	GND	NC	LA09_N	LA10_N	GND	NC	GND	NC
16	GND	NC	HA17_P_CC	NC	LA11_P	LA12_N	NC	NC	GND	GND	NC	GND	NC	GND
17	GND	NC	HA17_N_CC	GND	LA11_N	GND	NC	GND	LA13_P	GND	NC	GND	NC	GND
18	NC	GND	GND	NC	GND	LA16_P	GND	NC	LA13_N	LA14_P	NC	NC	GND	NC
19	NC	GND	NC	NC	LA15_P	LA16_N	NC	NC	GND	LA14_N	GND	NC	GND	NC
20	GND	NC	NC	GND	LA15_N	GND	NC	GND	LA17_P_CC	GND	NC	GND	NC	GND
21	GND	NC	GND	NC	GND	LA20_P	GND	NC	LA17_N_CC	GND	NC	GND	NC	GND
22	NC	GND	NC	NC	LA19_P	LA20_N	NC	NC	GND	LA18_P_CC	NC	DP1_C2M_P	GND	NC
23	NC	GND	NC	GND	LA19_N	GND	NC	GND	LA23_P	LA18_N_CC	GND	DP1_C2M_N	GND	NC
24	GND	NC	GND	NC	GND	LA22_P	GND	NC	LA23_N	GND	NC	GND	NC	GND
25	GND	NC	NC	NC	NC	LA22_N	NC	NC	GND	GND	NC	GND	NC	GND
26	NC	GND	NC	GND	NC	GND	NC	GND	LA26_P	LA27_P	GND	DP2_C2M_P	GND	NC
27	NC	GND	GND	NC	GND	LA25_P	GND	NC	LA26_N	LA27_N	GND	DP2_C2M_N	GND	NC
28	GND	NC	NC	NC	LA24_P	LA25_N	NC	NC	GND	GND	NC	GND	NC	GND
29	GND	NC	NC	GND	LA24_N	GND	NC	GND	TCK	GND	NC	GND	NC	GND
30	NC	GND	GND	NC	GND	LA29_P	GND	NC	TDI	SCL	GND	DP3_C2M_P	GND	NC
31	NC	GND	NC	NC	LA28_P	LA29_N	NC	NC	TDO	SDA	GND	DP3_C2M_N	GND	NC
32	GND	NC	NC	GND	LA28_N	GND	NC	GND	3P3VAUX	GND	NC	GND	NC	GND
33	GND	NC	GND	NC	GND	LA31_P	GND	NC	TMS	GND	NC	GND	NC	GND
34	NC	GND	NC	NC	LA30_P	LA31_N	NC	NC	TRST_L	GA0	GND	NC	GND	NC
35	NC	GND	NC	GND	LA30_N	GND	NC	GND	GA1	12P0V	GND	NC	GND	NC
36	GND	12P0V	GND	NC	GND	LA33_P	GND	NC	3P3V	GND	NC	GND	NC	GND
37	GND	12P0V	NC	NC	LA32_P	LA33_N	NC	NC	GND	12P0V	NC	GND	NC	GND
38	NC	GND	NC	GND	LA32_N	GND	NC	GND	3P3V	GND	GND	NC	GND	NC
39	NC	GND	GND	NC	GND	VADJ	GND	VADJ	GND	3P3V	GND	NC	GND	NC
40	GND	12P0V	NC	GND	VADJ	GND	VADJ	GND	3P3V	GND	NC	GND	3P3V	GND

Figure 16: FMC+ HSPC Connector Pin Out

Number of Pins - 560

Connector Part Number - ASP-184329-01 from Samtec

Mating Connector - ASP-184330-01 from Samtec

Staking Height - 10mm

Note:

** By default, FMC+ connector power is disabled as per Vita Specification. While booting the FMC+ Modules EEPROM is read and enabling the FMC+ connector power.*

** If FMC+ modules EEPROM is not programmed, then FMC+ connector power is not enabled.*

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Table 6: FMC+ HPC Connector Pin Assignment

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
1	A1	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
2	A2	DP1_M2C_P	Board to Board Connector 2	B33	GTYP_RXP1_103	103	M2	GTYP_RXP1_103	I, DIFF	GTYP Bank103 channel1 High speed differential receiver positive.
3	A3	DP1_M2C_N	Board to Board Connector 2	B34	GTYP_RXN1_103	103	M1	GTYP_RXN1_103	I, DIFF	GTYP Bank103 channel1 High speed differential receiver negative.
4	A4	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
5	A5	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
6	A6	DP2_M2C_P	Board to Board Connector 2	C35	GTYP_RXP2_103	103	K2	GTYP_RXP2_103	I, DIFF	GTYP Bank103 channel2 High speed differential receiver positive.
7	A7	DP2_M2C_N	Board to Board Connector 2	C36	GTYP_RXN2_103	103	K1	GTYP_RXN2_103	I, DIFF	GTYP Bank103 channel2 High speed differential receiver negative.
8	A8	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
9	A9	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
10	A10	DP3_M2C_P	Board to Board Connector 2	D33	GTYP_RXP3_103	103	H2	GTYP_RXP3_103	I, DIFF	GTYP Bank103 channel3 High speed differential receiver positive.
11	A11	DP3_M2C_N	Board to Board Connector 2	D34	GTYP_RXN3_103	103	H1	GTYP_RXN3_103	I, DIFF	GTYP Bank103 channel3 High speed differential receiver negative.
12	A12	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
13	A13	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
14	A14	DP4_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
15	A15	DP4_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
16	A16	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
17	A17	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
18	A18	DP5_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
19	A19	DP5_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
20	A20	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
21	A21	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
22	A22	DP1_C2M_P	Board to Board Connector 2	B37	GTYP_TXP1_103	103	L5	GTYP_TXP1_103	O, DIFF	GTYP Bank103 channel1 High speed differential transmitter positive.
23	A23	DP1_C2M_N	Board to Board Connector 2	B38	GTYP_TXN1_103	103	L4	GTYP_TXN1_103	O, DIFF	GTYP Bank103 channel1 High speed differential transmitter negative.
24	A24	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
25	A25	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
26	A26	DP2_C2M_P	Board to Board Connector 2	C39	GTYP_TXP2_103	103	J5	GTYP_TXP2_103	O, DIFF	GTYP Bank103 channel2 High speed differential transmitter positive.
27	A27	DP2_C2M_N	Board to Board Connector 2	C40	GTYP_TXN2_103	103	J4	GTYP_TXN2_103	O, DIFF	GTYP Bank103 channel2 High speed differential transmitter negative.
28	A28	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
29	A29	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
30	A30	DP3_C2M_P	Board to Board Connector 2	D37	GTYP_TXP3_103	103	G5	GTYP_TXP3_103	O, DIFF	GTYP Bank103 channel3 High speed differential transmitter positive.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
31	**A31**	DP3_C2M_N	Board to Board Connector 2	D38	GTYP_TXN3_103	103	G4	GTYP_TXN3_103	O, DIFF	GTYP Bank103 channel3 High speed differential transmitter negative.
32	**A32**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
33	**A33**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
34	**A34**	DP4_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
35	**A35**	DP4_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
36	**A36**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
37	**A37**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
38	**A38**	DP5_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
39	**A39**	DP5_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
40	**A40**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
41	**B1**	CLK_DIR	NA	NA	NA	NA	NA	NA	I, 3.3V/1K PD	CLK-DIR This Pin is connected to P00 port of IO Expander2.
42	**B2**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
43	**B3**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
44	**B4**	DP9_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
45	**B5**	DP9_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
46	**B6**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
47	**B7**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
48	**B8**	DP8_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
49	**B9**	DP8_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
50	**B10**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
51	**B11**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
52	**B12**	DP7_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
53	**B13**	DP7_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
54	**B14**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
55	**B15**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
56	**B16**	DP6_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
57	**B17**	DP6_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
58	**B18**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
59	**B19**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
60	**B20**	GBTCLK1_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
61	**B21**	GBTCLK1_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
62	**B22**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
63	**B23**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
64	**B24**	DP9_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
65	**B25**	DP9_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
66	**B26**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
67	**B27**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
68	**B28**	DP8_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
69	**B29**	DP8_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
70	**B30**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
71	**B31**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
72	**B32**	DP7_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
73	**B33**	DP7_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
74	**B34**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
75	**B35**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
76	**B36**	DP6_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
77	**B37**	DP6_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
78	**B38**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
79	**B39**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
80	**B40**	RES0	NA	NA	NA	NA	NA	NA	NA	NC.
81	**C1**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
82	**C2**	DP0_C2M_P	Board to Board Connector 2	A39	GTYP_TXP0_103	103	N5	GTYP_TXP0_103	O, DIFF	GTYP Bank103 channel0 High speed differential transmitter positive.
83	**C3**	DP0_C2M_N	Board to Board Connector 2	A40	GTYP_TXN0_103	103	N4	GTYP_TXN0_103	O, DIFF	GTYP Bank103 channel0 High speed differential transmitter negative.
84	**C4**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
85	**C5**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
86	**C6**	DP0_M2C_P	Board to Board Connector 2	A35	GTYP_RXP0_103	103	P2	GTYP_RXP0_103	I, DIFF	GTYP Bank103 channel0 High speed differential receiver positive.
87	**C7**	DP0_M2C_N	Board to Board Connector 2	A36	GTYP_RXN0_103	103	P1	GTYP_RXN0_103	I, DIFF	GTYP Bank103 channel0 High speed differential receiver negative.
88	**C8**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
89	**C9**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
90	**C10**	LA06_P	Board to Board Connector 1	C4	XP_D27_LVDS703_L4P	703	D27	IO_L4P_N1P2_703	IO, 1.2V	PL Bank703 IO4 differential positive.
91	**C11**	LA06_N	Board to Board Connector 1	C5	XP_C28_LVDS703_L4N	703	C28	IO_L4N_N1P3_703	IO, 1.2V	PL Bank703 IO4 differential negative.
92	**C12**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
93	**C13**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
94	**C14**	LA10_P	Board to Board Connector 1	B6	XP_G27_LVDS703_L2P	703	G27	IO_L2P_N0P4_703	IO, 1.2V	PL Bank703 IO2 differential positive.
95	**C15**	LA10_N	Board to Board Connector 1	B7	XP_F28_LVDS703_L2N	703	F28	IO_L2N_N0P5_703	IO, 1.2V	PL Bank703 IO2 differential negative.
96	**C16**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
97	**C17**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
98	**C18**	LA14_P	Board to Board Connector 1	C11	XP_E24_LVDS703_L25P	703	E24	IO_L25P_N8P2_703	IO, 1.2V	PL Bank703 IO25 differential positive.
99	**C19**	LA14_N	Board to Board Connector 1	C12	XP_F25_LVDS703_L25N	703	F25	IO_L25N_N8P3_703	IO, 1.2V	PL Bank703 IO25 differential negative.
100	**C20**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
101	**C21**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
102	**C22**	LA18_P_CC	Board to Board Connector 1	A6	XP_H25_LVDS703_L6P_GC	703	H25	IO_L6P_GC_XCC_N2P0_703	IO, 1.2V	PL Bank703 IO6 differential positive. Same pin can be configured as Global Clock input.
103	**C23**	LA18_N_CC	Board to Board Connector 1	A7	XP_J26_LVDS703_L6N_GC	703	J26	IO_L6N_GC_XCC_N2P1_703	IO, 1.2V	PL Bank703 IO6 differential negative. Same pin can be configured as Global Clock input.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
104	**C24**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
105	**C25**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
106	**C26**	LA27_P	Board to Board Connector 1	D22	XP_K23_LVDS702_L17P	702	K23	IO_L17P_N5P4_M0P142_702	IO, 1.2V	PL Bank702 IO17 differential positive.
107	**C27**	LA27_N	Board to Board Connector 1	D23	XP_J24_LVDS702_L17N	702	J24	IO_L17N_N5P5_M0P143_702	IO, 1.2V	PL Bank702 IO17 differential negative.
108	**C28**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
109	**C29**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
110	**C30**	SCL	NA	NA	NA	NA	NA	NA	O, 3.3V LVCMOS/ 4.7K PU	FMC+ I2C Clock Signal. This Pin is connected from channel2 SCL ofI2C Bus switch.
111	**C31**	SDA	NA	NA	NA	NA	NA	NA	IO, 3.3V LVCMOS/ 4.7K PU	FMC+ I2C Data Signal. This Pin is connected from channel2 SDA of I2C Bus switch.
112	**C32**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
113	**C33**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
114	**C34**	GA0	NA	NA	NA	NA	NA	NA	O, 1K, PD	Geographical address 0
115	**C35**	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
116	**C36**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
117	**C37**	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
118	**C38**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
119	**C39**	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
120	**C40**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
121	**D1**	PG_C2M	NA	NA	NA	NA	NA	NA	O, 3.3V	Power Good Signal from Carrier to FMC+ Module. This Pin is controlled by P04 port of IO Expander2.
122	**D2**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
123	**D3**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
124	**D4**	GBTCLK0_M2C_P	Board to Board Connector 2	A31	GTYP_REFCLK0P_103	103	M7	GTYP_REFCLKP0_103	I, DIFF	GTYP Bank103 differential reference clock0 positive.
125	**D5**	GBTCLK0_M2C_N	Board to Board Connector 2	A32	GTYP_REFCLK0N_103	103	M6	GTYP_REFCLKN0_103	I, DIFF	GTYP Bank103 differential reference clock0 negative.
126	**D6**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
127	**D7**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
128	**D8**	LA01_P_CC	Board to Board Connector 1	D11	XP_F22_LVDS703_L13P	703	F22	IO_L13P_N4P2_703	IO, 1.2V	PL Bank703 IO13 differential positive.
129	**D9**	LA01_N_CC	Board to Board Connector 1	D12	XP_G23_LVDS703_L13N	703	G23	IO_L13N_N4P3_703	IO, 1.2V	PL Bank703 IO13 differential negative.
130	**D10**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
131	**D11**	LA05_P	Board to Board Connector 1	C2	XP_C27_LVDS703_L5P	703	C27	IO_L5P_N1P4_703	IO, 1.2V	PL Bank703 IO5 differential positive.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
132	**D12**	LA05_N	Board to Board Connector 1	C3	XP_B28_LVDS703_L5N	703	B28	IO_L5N_N1P5_703	IO, 1.2V	PL BanK703 IO5 differential negative.
133	**D13**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
134	**D14**	LA09_P	Board to Board Connector 1	B4	XP_H27_LVDS703_L1P	703	H27	IO_L1P_N0P2_703	IO, 1.2V	PL Bank703 IO1 differential positive.
135	**D15**	LA09_N	Board to Board Connector 1	B5	XP_G28_LVDS703_L1N	703	G28	IO_L1N_N0P3_703	IO, 1.2V	PL Bank703 IO1 differential negative.
136	**D16**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
137	**D17**	LA13_P	Board to Board Connector 1	C9	XP_F23_LVDS703_L24P_GC	703	F23	IO_L24P_GC_XCC_N8P0_703	IO, 1.2V	PL Bank703 IO24 differential positive. Same pin can be configured as Global Clock.
138	**D18**	LA13_N	Board to Board Connector 1	C10	XP_F24_LVDS703_L24N_GC	703	F24	IO_L24N_GC_XCC_N8P1_703	IO, 1.2V	PL Bank703 IO24 differential negative. Same pin can be configured as Global Clock.
139	**D19**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
140	**D20**	LA17_P_CC	Board to Board Connector 1	A4	XP_F26_LVDS703_L8P	703	F26	IO_L8P_N2P4_703	IO, 1.2V	PL Bank703 IO8 differential positive.
141	**D21**	LA17_N_CC	Board to Board Connector 1	A5	XP_E26_LVDS703_L8N	703	E26	IO_L8N_N2P5_703	IO, 1.2V	PL Bank703 IO8 differential negative.
142	**D22**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
143	**D23**	LA23_P	Board to Board Connector 1	C15	XP_A23_LVDS703_L17P	703	A23	IO_L17P_N5P4_703	IO, 1.2V	PL Bank703 IO17 differential positive.
144	**D24**	LA23_N	Board to Board Connector 1	C16	XP_A24_LVDS703_L17N	703	A24	IO_L17N_N5P5_703	IO, 1.2V	PL Bank703 IO17 differential negative.
145	**D25**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
146	**D26**	LA26_P	Board to Board Connector 1	D20	XP_L23_LVDS702_L16P	702	L23	IO_L16P_N5P2_M0P140_702	IO, 1.2V	PL Bank702 IO16 differential positive.
147	**D27**	LA26_N	Board to Board Connector 1	D21	XP_K24_LVDS702_L16N	702	K24	IO_L16N_N5P3_M0P141_702	IO, 1.2V	PL Bank702 IO16 differential negative.
148	**D28**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
149	**D29**	TCK	Board to Board Connector 2	A9	JTAG_TCK	503	AH10	TCK_503	I, 3.3V CMOS	JTAG Test Clock. This Pin is connected to A9 pin of Board-to-Board Connector2 (J10) through Voltage level translator.
150	**D30**	TDI	Board to Board Connector 2	A12	JTAG_TDI	503	AG10	TDI_503	I, 3.3V CMOS	JTAG Test Data Input. This Pin is connected to A12 pin of Board-to-Board Connector2 (J10) through Voltage level translator.
151	**D31**	TDO	Board to Board Connector 2	A11	JTAG_TDO	503	AF8	TDO_503	O, 3.3V CMOS	FMC+ Test Data Output. This pin is connected to board-to-board connector2 via D30th pin of FMC+ Connector.
152	**D32**	3P3VAUX	NA	NA	VCC_3V3	NA	NA	NA	O, 3.3V Power	Carrier Board Auxiliary Supply Voltage.
153	**D33**	TMS	Board to Board Connector 2	A10	JTAG_TMS	503	AH9	TMS_503	I, 3.3V CMOS	JTAG Test Mode Select.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
										This Pin is connected to A10 pin of Board-to-Board Connector2 (J10) through Voltage level translator.
154	**D34**	TRST_L	Board to Board Connector 2	A8	NC	NA	NA	NA	I, 3.3V CMOS/ 4.7K PU	NC. This Pin is connected to A8 pin of Board-to-Board Connector2 (J10) through Voltage level translator.
155	**D35**	GA1	NA	NA	NA	NA	NA	NA	O, 1K, PD	Geographical address 1
156	**D36**	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
157	**D37**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
158	**D38**	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
159	**D39**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
160	**D40**	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
161	**E1**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
162	**E2**	HA01_P_CC	NA	NA	NC	NA	NA	NA	NA	NA
163	**E3**	HA01_N_CC	Board to Board Connector 1	D26	XP_N27_LVDS702_L9N_GC	702	N27	IO_L9N_GC_XCC_N3P1_M0P127_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
164	**E4**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
165	**E5**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
166	**E6**	HA05_P	Board to Board Connector 1	C27	XP_R27_LVDS702_L1P	702	R27	IO_L1P_N0P2_M0P110_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
167	**E7**	HA05_N	Board to Board Connector 1	C28	XP_T28_LVDS702_L1N	702	T28	IO_L1N_N0P3_M0P111_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
168	**E8**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
169	**E9**	HA09_P	Board to Board connector 1	B29	XP_J21_LVDS702_L23P	702	J21	IO_L23P_N7P4_M0P154_702	IO, 1.2V	PL Bank702 IO23 differential positive.
170	**E10**	HA09_N	Board to Board connector 1	B30	XP_J22_LVDS702_L23N	702	J22	IO_L23N_N7P5_M0P155_702	IO, 1.2V	PL Bank702 IO23 differential negative.
171	**E11**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
172	**E12**	HA13_P	NA	NA	NC	NA	NA	NA	NA	NA
173	**E13**	HA13_N	NA	NA	NC	NA	NA	NA	NA	NA
174	**E14**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
175	**E15**	HA16_P	NA	NA	NC	NA	NA	NA	NA	NC.
176	**E16**	HA16_N	NA	NA	NC	NA	NA	NA	NA	NC.
177	**E17**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
178	**E18**	HA20_P	NA	NA	NC	NA	NA	NA	NA	NC.
179	**E19**	HA20_N	NA	NA	NC	NA	NA	NA	NA	NC.
180	**E20**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
181	**E21**	HB03_P	NA	NA	NC	NA	NA	NA	NA	NC.
182	**E22**	HB03_N	NA	NA	NC	NA	NA	NA	NA	NC.
183	**E23**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
184	**E24**	HB05_P	NA	NA	NC	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
185	**E25**	HB05_N	NA	NA	NC	NA	NA	NA	NA	NC.
186	**E26**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
187	**E27**	HB09_P	NA	NA	NC	NA	NA	NA	NA	NC.
188	**E28**	HB09_N	NA	NA	NC	NA	NA	NA	NA	NC.
189	**E29**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
190	**E30**	HB13_P	NA	NA	NC	NA	NA	NA	NA	NC.
191	**E31**	HB13_N	NA	NA	NC	NA	NA	NA	NA	NC.
192	**E32**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
193	**E33**	HB19_P	NA	NA	NC	NA	NA	NA	NA	NC.
194	**E34**	HB19_N	NA	NA	NC	NA	NA	NA	NA	NC.
195	**E35**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
196	**E36**	HB21_P	NA	NA	NC	NA	NA	NA	NA	NC.
197	**E37**	HB21_N	NA	NA	NC	NA	NA	NA	NA	NC.
198	**E38**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
199	**E39**	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
200	**E40**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
201	**F1**	PG_M2C	NA	NA	NA	NA	NA	NA	I, 3.3V CMOS	Power Good Signal from Module to Carrier. This Pin is connected to P01 port of IO Expander2.
202	**F2**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
203	**F3**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
204	**F4**	HA00_P_CC	Board to Board Connector 1	A22	XP_U23_LVDS702_L12P_GC	702	U23	IO_L12P_GC_XCC_N4P0_M0P132_702	IO, 1.2V	PL Bank702 IO12 differential positive. Same pin can be configured as Global Clock.
205	**F5**	HA00_N_CC	Board to Board Connector 1	A23	XP_T24_LVDS702_L12N_GC	702	T24	IO_L12N_GC_XCC_N4P1_M0P133_702	IO, 1.2V	PL Bank702 IO12 differential negative. Same pin can be configured as Global Clock.
206	**F6**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
207	**F7**	HA04_P	Board to Board Connector 1	C25	XP_U27_LVDS702_L0P	702	U27	IO_L0P_XCC_N0P0_M0P108_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
208	**F8**	HA04_N	Board to Board Connector 1	C26	XP_U28_LVDS702_L0N	702	U28	IO_L0N_XCC_N0P1_M0P109_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
209	**F9**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
210	**F10**	HA08_P	Board to Board Connector 1	B27	XP_K21_LVDS702_L22P	702	K21	IO_L22P_N7P2_M0P152_702	IO, 1.2V	PL Bank702 IO22 differential positive.
211	**F11**	HA08_N	Board to Board Connector 1	B28	XP_L22_LVDS702_L22N	702	L22	IO_L22N_N7P3_M0P153_702	IO, 1.2V	PL Bank702 IO22 differential negative.
212	**F12**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
213	**F13**	HA12_P	Board to Board Connector 1	A29	XP_V21_LVDS702_L18P	702	V21	IO_L18P_XCC_N6P0_M0P144_702	IO, 1.2V	PL Bank702 IO18 differential positive.
214	**F14**	HA12_N	Board to Board Connector 1	A30	XP_U22_LVDS702_L18N	702	U22	IO_L18N_XCC_N6P1_M0P145_702	IO, 1.2V	PL Bank702 IO18 differential negative.
215	**F15**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
216	**F16**	HA15_P	NA	NA	NA	NA	NA	NA	NA	NC.
217	**F17**	HA15_N	NA	NA	NA	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
218	**F18**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
219	**F19**	HA19_P	NA	NA	NC	NA	NA	NA	NA	NC.
220	**F20**	HA19_N	NA	NA	NC	NA	NA	NA	NA	NC.
221	**F21**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
222	**F22**	HB02_P	NA	NA	NC	NA	NA	NA	NA	NC.
223	**F23**	HB02_N	NA	NA	NC	NA	NA	NA	NA	NC.
224	**F24**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
225	**F25**	HB04_P	NA	NA	NC	NA	NA	NA	NA	NC.
226	**F26**	HB04_N	NA	NA	NC	NA	NA	NA	NA	NC.
227	**F27**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
228	**F28**	HB08_P	NA	NA	NC	NA	NA	NA	NA	NC.
229	**F29**	HB08_N	NA	NA	NC	NA	NA	NA	NA	NC.
230	**F30**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
231	**F31**	HB12_P	NA	NA	NC	NA	NA	NA	NA	NC.
232	**F32**	HB12_N	NA	NA	NC	NA	NA	NA	NA	NC.
233	**F33**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
234	**F34**	HB16_P	NA	NA	NC	NA	NA	NA	NA	NC.
235	**F35**	HB16_N	NA	NA	NC	NA	NA	NA	NA	NC.
236	**F36**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
237	**F37**	HB20_P	NA	NA	NC	NA	NA	NA	NA	NC.
238	**F38**	HB20_N	NA	NA	NC	NA	NA	NA	NA	NC.
239	**F39**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
240	**F40**	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
241	**G1**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
242	**G2**	CLK1_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
243	**G3**	CLK1_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
244	**G4**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
245	**G5**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
246	**G6**	LA00_P_CC	Board to Board Connector 1	D9	XP_H23_LVDS703_L12P_GC	703	H23	IO_L12P_GC_XCC_N4P0_703	IO, 1.2V	PL Bank703 IO12 differential positive. Same pin can be configured as Global Clock.
247	**G7**	LA00_N_CC	Board to Board Connector 1	D10	XP_H24_LVDS703_L12N_GC	703	H24	IO_L12N_GC_XCC_N4P1_703	IO, 1.2V	PL Bank703 IO12 differential negative. Same pin can be configured as Global Clock.
248	**G8**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
249	**G9**	LA03_P	Board to Board Connector 1	D4	XP_E20_LVDS703_L19P	703	E20	IO_L19P_N6P2_703	IO, 1.2V	PL Bank703 IO19 differential positive.
250	**G10**	LA03_N	Board to Board Connector 1	D5	XP_F21_LVDS703_L19N	703	F21	IO_L19N_N6P3_703	IO, 1.2V	PL Bank703 IO19 differential negative.
251	**G11**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
252	**G12**	LA08_P	Board to Board Connector 1	B2	XP_J27_LVDS703_L0P	703	J27	IO_L0P_XCC_N0P0_703	IO, 1.2V	PL Bank703 IO0 differential positive.
253	**G13**	LA08_N	Board to Board Connector 1	B3	XP_H28_LVDS703_L0N	703	H28	IO_L0N_XCC_N0P1_703	IO, 1.2V	PL Bank703 IO0 differential negative.
254	**G14**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
255	**G15**	LA12_P	Board to Board Connector 1	D13	XP_E22_LVDS703_L14P	703	E22	IO_L14P_N4P4_703	IO, 1.2V	PL Bank703 IO14 single ended signal.
256	**G16**	LA12_N	Board to Board Connector 2	B30	HS_PCIe_RSTN	302	A14	IO_L10N_302	IO, 1.2V	PL Bank302 IO10 single ended signal. This pin supports PL PCIe reset
257	**G17**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
258	**G18**	LA16_P	Board to Board Connector 1	B9	XP_C25_LVDS703_L9P_GC	703	C25	IO_L9P_GC_XCC_N3P0_703	IO, 1.2V	PL Bank703 IO9 differential positive. Same pin can be configured as Global Clock.
259	**G19**	LA16_N	Board to Board Connector 1	B10	XP_B25_LVDS703_L9N_GC	703	B25	IO_L9N_GC_XCC_N3P1_703	IO, 1.2V	PL Bank703 IO9 differential negative. Same pin can be configured as Global Clock.
260	**G20**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
261	**G21**	LA20_P	Board to Board Connector 1	B13	XP_B26_LVDS703_L11P	703	B26	IO_L11P_N3P4_703	IO, 1.2V	PL Bank703 IO11 differential positive.
262	**G22**	LA20_N	Board to Board Connector 1	B14	XP_B27_LVDS703_L11N	703	B27	IO_L11N_N3P5_703	IO, 1.2V	PL Bank703 IO11 differential negative.
263	**G23**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
264	**G24**	LA22_P	Board to Board Connector 1	D15	XP_C23_LVDS703_L16P	703	C23	IO_L16P_N5P2_703	IO, 1.2V	PL Bank703 IO16 differential positive.
265	**G25**	LA22_N	Board to Board Connector 1	D16	XP_B23_LVDS703_L16N	703	B23	IO_L16N_N5P3_703	IO, 1.2V	PL Bank703 IO16 differential negative.
266	**G26**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
267	**G27**	LA25_P	Board to Board Connector 1	D18	XP_M22_LVDS702_L15P	702	M22	IO_L15P_XCC_N5P0_M0P138_702	IO, 1.2V	PL Bank702 IO15 differential positive.
268	**G28**	LA25_N	Board to Board Connector 1	D19	XP_M23_LVDS702_L15N	702	M23	IO_L15N_XCC_N5P1_M0P139_702	IO, 1.2V	PL Bank702 IO15 differential negative.
269	**G29**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
270	**G30**	LA29_P	Board to Board Connector 1	C20	XP_M27_LVDS702_L4P	702	M27	IO_L4P_N1P2_M0P116_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
271	**G31**	LA29_N	Board to Board Connector 1	C21	XP_L28_LVDS702_L4N	702	L28	IO_L4N_N1P3_M0P117_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
272	**G32**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
273	**G33**	LA31_P	Board to Board Connector 1	B18	XP_P25_LVDS702_L8P	702	P25	IO_L8P_N2P4_M0P124_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
274	**G34**	LA31_N	Board to Board Connector 1	B19	XP_R26_LVDS702_L8N	702	R26	IO_L8N_N2P5_M0P125_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
275	**G35**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
276	**G36**	LA33_P	Board to Board Connector 1	B22	XP_U25_LVDS702_L6P_GC	702	U25	IO_L6P_GC_XCC_N2P0_M0P120_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
277	**G37**	LA33_N	Board to Board Connector 1	B23	XP_U26_LVDS702_L6N_GC	702	U26	IO_L6N_GC_XCC_N2P1_M0P121_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
278	**G38**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
279	**G39**	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
280	**G40**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
281	**H1**	VREF_A_M2C	NA	NA	NC	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
282	**H2**	PRSNT_M2C_L	NA	NA	NA	NA	NA	NA	I,3.3V/10K PU	FMC Module Present Signal. This Pin is connected to P02 port of IO Expander2.
283	**H3**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
284	**H4**	CLK0_M2C_P	Board to Board Connector 1	D27	XP_J25_LVDS702_L11P	702	J25	IO_L11P_N3P4_M0P130_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
285	**H5**	CLK0_M2C_N	Board to Board Connector 1	D28	XP_K26_LVDS702_L11N	702	K26	IO_L11N_N3P5_M0P131_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
286	**H6**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
287	**H7**	LA02_P	Board to Board Connector 1	D2	XP_G21_LVDS703_L18P	703	G21	IO_L18P_XCC_N6P0_703	IO, 1.2V	PL Bank703 IO18 differential positive.
288	**H8**	LA02_N	Board to Board Connector 2	D3	XP_H22_LVDS703_L18N	703	H22	IO_L18N_XCC_N6P1_703	IO, 1.2V	PL Bank703 IO18 differential negative.
289	**H9**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
290	**H10**	LA04_P	Board to Board Connector 1	D6	XP_D20_LVDS703_L20P	703	D20	IO_L20P_N6P4_703	IO, 1.2V	PL Bank703 IO20 differential positive.
291	**H11**	LA04_N	Board to Board Connector 1	D7	XP_D21_LVDS703_L20N	703	D21	IO_L20N_N6P5_703	IO, 1.2V	PL Bank703 IO20 differential negative.
292	**H12**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
293	**H13**	LA07_P	Board to Board Connector 1	C6	XP_E27_LVDS703_L3P	703	E27	IO_L3P_XCC_N1P0_703	IO, 1.2V	PL Bank703 IO3 differential positive.
294	**H14**	LA07_N	Board to Board Connector 1	C7	XP_E28_LVDS703_L3N	703	E28	IO_L3N_XCC_N1P1_703	IO, 1.2V	PL Bank703 IO3 differential negative.
295	**H15**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
296	**H16**	LA11_P	Board to Board Connector 1	A2	XP_G25_LVDS703_L7P	703	G25	IO_L7P_N2P2_703	IO, 1.2V	PL Bank703 IO7 differential positive.
297	**H17**	LA11_N	Board to Board Connector 1	A3	XP_G26_LVDS703_L7N	703	G26	IO_L7N_N2P3_703	IO, 1.2V	PL Bank703 IO7 differential negative.
298	**H18**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
299	**H19**	LA15_P	Board to Board Connector 1	C13	XP_D25_LVDS703_L26P	703	D25	IO_L26P_N8P4_703	IO, 1.2V	PL Bank703 IO26 differential positive.
300	**H20**	LA15_N	Board to Board Connector 1	C14	XP_D26_LVDS703_L26N	703	D26	IO_L26N_N8P5_703	IO, 1.2V	PL Bank703 IO26 differential negative.
301	**H21**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
302	**H22**	LA19_P	Board to Board Connector 1	B11	XP_A25_LVDS703_L10P	703	A25	IO_L10P_N3P2_703	IO, 1.2V	PL BanK703 IO10 differential positive.
303	**H23**	LA19_N	Board to Board Connector 1	B12	XP_A26_LVDS703_L10N	703	A26	IO_L10N_N3P3_703	IO, 1.2V	PL Bank703 IO10 differential negative.
304	**H24**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
305	**H25**	LA21_P	NA	NA	NC	NA	NA	NA	NA	NA
306	**H26**	LA21_N	NA	NA	NC	NA	NA	NA	NA	NA
307	**H27**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
308	**H28**	LA24_P	Board to Board Connector 1	B15	XP_D24_LVDS703_L15P	703	D24	IO_L15P_XCC_N5P0_703	IO, 1.2V	PL Bank703 IO15 differential positive.
309	**H29**	LA24_N	Board to Board Connector 1	B16	XP_C24_LVDS703_L15N	703	C24	IO_L15N_XCC_N5P1_703	IO, 1.2V	PL Bank703 IO15 differential negative.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
310	**H30**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
311	**H31**	LA28_P	Board to Board Connector 1	C18	XP_K27_LVDS702_L5P	702	K27	IO_L5P_N1P4_M0P118_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
312	**H32**	LA28_N	Board to Board Connector 1	C19	XP_K28_LVDS702_L5N	702	K28	IO_L5N_N1P5_M0P119_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
313	**H33**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
314	**H34**	LA30_P	Board to Board Connector 1	C22	XP_N28_LVDS702_L3P	702	N28	IO_L3P_XCC_N1P0_M0P114_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
315	**H35**	LA30_N	Board to Board Connector 1	C23	XP_M28_LVDS702_L3N	702	M28	IO_L3N_XCC_N1P1_M0P115_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
316	**H36**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
317	**H37**	LA32_P	Board to Board Connector 1	B20	XP_T25_LVDS702_L7P	702	T25	IO_L7P_N2P2_M0P122_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
318	**H38**	LA32_N	Board to Board Connector 1	B21	XP_T26_LVDS702_L7N	702	T26	IO_L7N_N2P3_M0P123_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
319	**H39**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
320	**H40**	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
321	**J1**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
322	**J2**	CLK3_BIDIR_P	NA	NA	NC	NA	NA	NA	NA	NC.
323	**J3**	CLK3_BIDIR_N	NA	NA	NC	NA	NA	NA	NA	NC.
324	**J4**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
325	**J5**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
326	**J6**	HA03_P	Board to Board Connector 1	D29	XP_M26_LVDS702_L10P	702	M26	IO_L10P_N3P2_M0P128_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
327	**J7**	HA03_N	Board to Board Connector 1	D30	XP_L26_LVDS702_L10N	702	L26	IO_L10N_N3P3_M0P129_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
328	**J8**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
329	**J9**	HA07_P	Board to Board Connector 1	B25	XP_N21_LVDS702_L21P	702	N21	IO_L21P_XCC_N7P0_M0P150_702	IO, 1.2V	PL Bank702 IO21 differential positive.
330	**J10**	HA07_N	Board to Board Connector 1	B26	XP_M21_LVDS702_L21N	702	M21	IO_L21N_XCC_N7P1_M0P151_702	IO, 1.2V	PL Bank702 IO21 differential negative.
331	**J11**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
332	**J12**	HA11_P	Board to Board Connector 1	A27	XP_R21_LVDS702_L20P	702	R21	IO_L20P_N6P4_M0P148_702	IO, 1.2V	PL Bank702 IO20 differential positive.
333	**J13**	HA11_N	Board to Board Connector 1	A28	XP_P22_LVDS702_L20N	702	P22	IO_L20N_N6P5_M0P149_702	IO, 1.2V	PL Bank702 IO20 differential negative.
334	**J14**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
335	**J15**	HA14_P	NA	NA	NA	NA	NA	NA	NA	NA
336	**J16**	HA14_N	NA	NA	NA	NA	NA	NA	NA	NA
337	**J17**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
338	**J18**	HA18_P	NA	NA	NC	NA	NA	NA	NA	NC.
339	**J19**	HA18_N	NA	NA	NC	NA	NA	NA	NA	NC.
340	**J20**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
341	**J21**	HA22_P	NA	NA	NC	NA	NA	NA	NA	NC.
342	**J22**	HA22_N	NA	NA	NC	NA	NA	NA	NA	NC.
343	**J23**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
344	**J24**	HB01_P	NA	NA	NC	NA	NA	NA	NA	NC.
345	**J25**	HB01_N	NA	NA	NC	NA	NA	NA	NA	NC.
346	**J26**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
347	**J27**	HB07_P	NA	NA	NC	NA	NA	NA	NA	NC.
348	**J28**	HB07_N	NA	NA	NC	NA	NA	NA	NA	NC.
349	**J29**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
350	**J30**	HB11_P	NA	NA	NC	NA	NA	NA	NA	NC.
351	**J31**	HB11_N	NA	NA	NC	NA	NA	NA	NA	NC.
352	**J32**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
353	**J33**	HB15_P	NA	NA	NC	NA	NA	NA	NA	NC.
354	**J34**	HB15_N	NA	NA	NC	NA	NA	NA	NA	NC.
355	**J35**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
356	**J36**	HB18_P	NA	NA	NC	NA	NA	NA	NA	NC.
357	**J37**	HB18_N	NA	NA	NC	NA	NA	NA	NA	NC.
358	**J38**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
359	**J39**	VIO_B_M2C	NA	NA	NC	NA	NA	NA	NA	NC.
360	**J40**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
361	**K1**	VREF_B_M2C	NA	NA	NC	NA	NA	NA	NA	NC.
362	**K2**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
363	**K3**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
364	**K4**	CLK2_BIDIR_P	NA	NA	NA	NA	NA	NA	NA	NA
365	**K5**	CLK2_BIDIR_N	NA	NA	NA	NA	NA	NA	NA	NA
366	**K6**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
367	**K7**	HA02_P	Board to Board Connector 1	A18	XP_T23_LVDS702_L13P	702	T23	IO_L13P_N4P2_M0P134_702	IO, 1.2V	PL Bank702 IO13 differential positive.
368	**K8**	HA02_N	Board to Board Connector 1	A19	XP_R24_LVDS702_L13N	702	R24	IO_L13N_N4P3_M0P135_702	IO, 1.2V	PL Bank702 IO13 differential negative.
369	**K9**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
370	**K10**	HA06_P	Board to Board Connector 1	C29	XP_P27_LVDS702_L2P	702	P27	IO_L2P_N0P4_M0P112_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
371	**K11**	HA06_N	Board to Board Connector 1	C30	XP_R28_LVDS702_L2N	702	R28	IO_L2N_N0P5_M0P113_702	DDRMC, 1.2V	This pin from Bank 702 can only be used for DDR memory controller (DDRMC)
372	**K12**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
373	**K13**	HA10_P	Board to Board Connector 1	A25	XP_T21_LVDS702_L19P	702	T21	IO_L19P_N6P2_M0P146_702	IO, 1.2V	PL Bank702 IO19 differential positive.
374	**K14**	HA10_N	Board to Board Connector 1	A26	XP_R22_LVDS702_L19N	702	R22	IO_L19N_N6P3_M0P147_702	IO, 1.2V	PL Bank702 IO19 differential negative.
375	**K15**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
376	**K16**	HA17_P_CC	Board to Board Connector 1	A20	XP_R23_LVDS702_L14P	702	R23	IO_L14P_N4P4_M0P136_702	IO, 1.2V	PL Bank702 IO14 differential positive.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
377	**K17**	HA17_N_CC	Board to Board Connector 1	A21	XP_P24_LVDS702_L14N	702	P24	IO_L14N_N4P5_M0P137_702	IO, 1.2V	PL Bank702 IO14 differential negative.
378	**K18**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
379	**K19**	HA21_P	NA	NA	NC	NA	NA	NA	NA	NC.
380	**K20**	HA21_N	NA	NA	NC	NA	NA	NA	NA	NC.
381	**K21**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
382	**K22**	HA23_P	NA	NA	NC	NA	NA	NA	NA	NC.
383	**K23**	HA23_N	NA	NA	NC	NA	NA	NA	NA	NC.
384	**K24**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
385	**K25**	HB00_P_CC	NA	NA	NC	NA	NA	NA	NA	NC.
386	**K26**	HB00_N_CC	NA	NA	NC	NA	NA	NA	NA	NC.
387	**K27**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
388	**K28**	HB06_P_CC	NA	NA	NC	NA	NA	NA	NA	NC.
389	**K29**	HB06_N_CC	NA	NA	NC	NA	NA	NA	NA	NC.
390	**K30**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
391	**K31**	HB10_P	NA	NA	NC	NA	NA	NA	NA	NC.
392	**K32**	HB10_N	NA	NA	NC	NA	NA	NA	NA	NC.
393	**K33**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
394	**K34**	HB14_P	NA	NA	NC	NA	NA	NA	NA	NC.
395	**K35**	HB14_N	NA	NA	NC	NA	NA	NA	NA	NC.
396	**K36**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
397	**K37**	HB17_P_CC	NA	NA	NC	NA	NA	NA	NA	NC.
398	**K38**	HB17_N_CC	NA	NA	NC	NA	NA	NA	NA	NC.
399	**K39**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
400	**K40**	VIO_B_M2C	NA	NA	NC	NA	NA	NA	NA	NC.
401	**L1**	RES1	NA	NA	NC	NA	NA	NA	NA	NC.
402	**L2**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
403	**L3**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
404	**L4**	GBTCLK4_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
405	**L5**	GBTCLK4_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
406	**L6**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
407	**L7**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
408	**L8**	GBTCLK3_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
409	**L9**	GBTCLK3_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
410	**L10**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
411	**L11**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
412	**L12**	GBTCLK2_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
413	**L13**	GBTCLK2_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
414	**L14**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
415	**L15**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
416	**L16**	SYNC_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
417	**L17**	SYNC_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.

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	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
418	**L18**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
419	**L19**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
420	**L20**	REFCLK_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
421	**L21**	REFCLK_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
422	**L22**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
423	**L23**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
424	**L24**	REFCLK_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
425	**L25**	REFCLK_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
426	**L26**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
427	**L27**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
428	**L28**	SYNC_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
429	**L29**	SYNC_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
430	**L30**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
431	**L31**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
432	**L32**	RES2	NA	NA	NC	NA	NA	NA	NA	NC.
433	**L33**	RES3	NA	NA	NC	NA	NA	NA	NA	NC.
434	**L34**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
435	**L35**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
436	**L36**	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
437	**L37**	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
438	**L38**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
439	**L39**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
440	**L40**	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
441	**M1**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
442	**M2**	DP23_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
443	**M3**	DP23_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
444	**M4**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
445	**M5**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
446	**M6**	DP22_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
447	**M7**	DP22_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
448	**M8**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
449	**M9**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
450	**M10**	DP21_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
451	**M11**	DP21_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
452	**M12**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
453	**M13**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
454	**M14**	DP20_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
455	**M15**	DP20_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
456	**M16**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
457	**M17**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
458	**M18**	DP14_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
459	**M19**	DP14_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
460	**M20**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
461	**M21**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
462	**M22**	DP15_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
463	**M23**	DP15_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
464	**M24**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
465	**M25**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
466	**M26**	DP16_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
467	**M27**	DP16_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
468	**M28**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
469	**M29**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
470	**M30**	DP17_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
471	**M31**	DP17_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
472	**M32**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
473	**M33**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
474	**M34**	DP18_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
475	**M35**	DP18_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
476	**M36**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
477	**M37**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
478	**M38**	DP19_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
479	**M39**	DP19_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
480	**M40**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
481	**Y1**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
482	**Y2**	DP23_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
483	**Y3**	DP23_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
484	**Y4**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
485	**Y5**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
486	**Y6**	DP21_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
487	**Y7**	DP21_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
488	**Y8**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
489	**Y9**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
490	**Y10**	DP10_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
491	**Y11**	DP10_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
492	**Y12**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
493	**Y13**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
494	**Y14**	DP12_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
495	**Y15**	DP12_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
496	**Y16**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
497	**Y17**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
498	**Y18**	DP14_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
499	**Y19**	DP14_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
500	**Y20**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
501	**Y21**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
502	**Y22**	DP15_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
503	**Y23**	DP15_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
504	**Y24**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
505	**Y25**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
506	**Y26**	DP11_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
507	**Y27**	DP11_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
508	**Y28**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
509	**Y29**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
510	**Y30**	DP13_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
511	**Y31**	DP13_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
512	**Y32**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
513	**Y33**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
514	**Y34**	DP17_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
515	**Y35**	DP17_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
516	**Y36**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
517	**Y37**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
518	**Y38**	DP19_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
519	**Y39**	DP19_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
520	**Y40**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
521	**Z1**	HSPC_PRSNT_M2C_L	NA	NA	NA	NA	NA	NA	I,3.3V/10K PU	FMC+ Module Present Signal. This Pin is connected to P03 port of IO Expander2.
522	**Z2**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
523	**Z3**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
524	**Z4**	DP22_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
525	**Z5**	DP22_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
526	**Z6**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
527	**Z7**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
528	**Z8**	DP20_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
529	**Z9**	DP20_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
530	**Z10**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
531	**Z11**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
532	**Z12**	DP11_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
533	**Z13**	DP11_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
534	**Z14**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
535	**Z15**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
536	**Z16**	DP13_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
537	**Z17**	DP13_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
538	**Z18**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
539	**Z19**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
540	**Z20**	GBTCLK5_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
541	**Z21**	GBTCLK5_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge/Prime SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination*	
542	**Z22**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
543	**Z23**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
544	**Z24**	DP10_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
545	**Z25**	DP10_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
546	**Z26**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
547	**Z27**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
548	**Z28**	DP12_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
549	**Z29**	DP12_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
550	**Z30**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
551	**Z31**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
552	**Z32**	DP16_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
553	**Z33**	DP16_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
554	**Z34**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
555	**Z35**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
556	**Z36**	DP18_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
557	**Z37**	DP18_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
558	**Z38**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
559	**Z39**	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
560	**Z40**	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.

Note:

FMC+ connector supports VADJ 1.8V and 1.2V. By default, VADJ is set to 1.2V Versal AI Edge/Prime devkit.

**IO Type of IOs originating from Versal AI Edge/Prime is configurable. Hence for exact IO type configuration options, refer AMD Versal AI Edge/Prime datasheet.*

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2.7 Additional Features

2.7.1 Clock Synthesizers

The Versal AI Edge/Prime Carrier board supports one 10-output Clock Synthesizer "ZL30733LDG1" and one 6-output Clock Synthesizer "SI5332A-D-GM1" for on board clock distribution. These Clock Generator outputs are connected to PL-GTYP and reference for other Interfaces on board through 0.01uF AC coupling capacitors. An external 114.285MHz crystal oscillator for Clock Synthesizer 1 and a 25MHz crystal is connected to Clock Synthesizer 2 for reference. The Clock Synthesizer 1 supports from 0.5 Hz to 750 MHz clock output and the Clock Synthesizer 2 supports from 5 Hz to 333.33 MHz clock output and configurable through I2C0.

Table 7: Clock Synthesizer 1 Output Clocks

Pin No	Pin Name	Signal Name	Programmed Frequency	Connected To
52	OUT0p	NA	-	NA
51	OUT0n	NA		NA
55	OUT1p	10MHz_REFCLK_OUT	10MHz	Connected to SMA Connector (Optional). This clock is from OUT1p of Clock synthesizer1.
54	OUT1n	NC	NA	NA
58	OUT2p	NA	-	NA
57	OUT2n	NA		NA
61	OUT3p	NA	-	NA
60	OUT3n	NA		NA
64	OUT4p	SYS_SYNC_CLK_INP	100MHz	B2B-1 A15th pin. This clock is from OUT4p of Clock synthesizer1. This clock is input to ON SOM clock synthesizer input
63	OUT4n	SYS_SYNC_CLK_INN		B2B-1 A16th pin. This clock is from OUT4n of Clock synthesizer1. This clock is input to ON SOM clock synthesizer input
17	OUT5p	CLK_SYNTH2_IN_CLK_IN_P	100MHz	This clock is from OUT4p of Clock synthesizer1. This clock is input to clock synthesizer 2 input
18	OUT5n	CLK_SYNTH2_IN_CLK_IN_N		This clock is from OUT4n of Clock synthesizer1. This clock is input to clock synthesizer 2 input
20	OUT6p	ETH2_XI_CLK25MHz	25MHz	1G Ethernet PHY reference clock
21	OUT6n	NA	NA	NA
23	OUT7p	NA	-	NA
24	OUT7n	NA		NA
26	OUT8p	NA	-	NA
27	OUT8n	NA		NA
29	OUT9p	HS_TXVR1_CLK0P	148.5 MHz	B2B-2 B41th pin. This clock is from OUT9p of Clock synthesizer1. This clock is input to reference clock 0 of GTYP bank104
30	OUT9n	HS_TXVR1_CLK0N		B2B-2 B42th pin. This clock is from OUT9n of Clock synthesizer1. This clock is input to reference clock 0 of GTYP bank104

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Table 8: Clock Synthesizer 2 Output Clocks

Pin No	Pin Name	Signal Name	Programmed Frequency	Connected To
12	OUT0	HS_TXVR0_CLK1P	148.5 MHz	NC. Optionally this clock is connected from the clock synthesizer 2 Out0 to C31st pin of Board-to-Board connector2.
11	OUT0b	HS_TXVR0_CLK1N		NC. Optionally this clock is connected from the clock synthesizer 2 Out0 to C32nd pin of Board-to-Board connector2.
15	OUT1	NA	-	NA
14	OUT1b	NA		NA
19	OUT2	NA	-	NA
18	OUT2b	NA		NA
22	OUT3	NA	-	NA
21	OUT3b	NA		NA
27	OUT4	NA	-	NA
26	OUT4b	NA		NA
31	OUT5	NC	-	NA
30	OUT5b	NC		NA

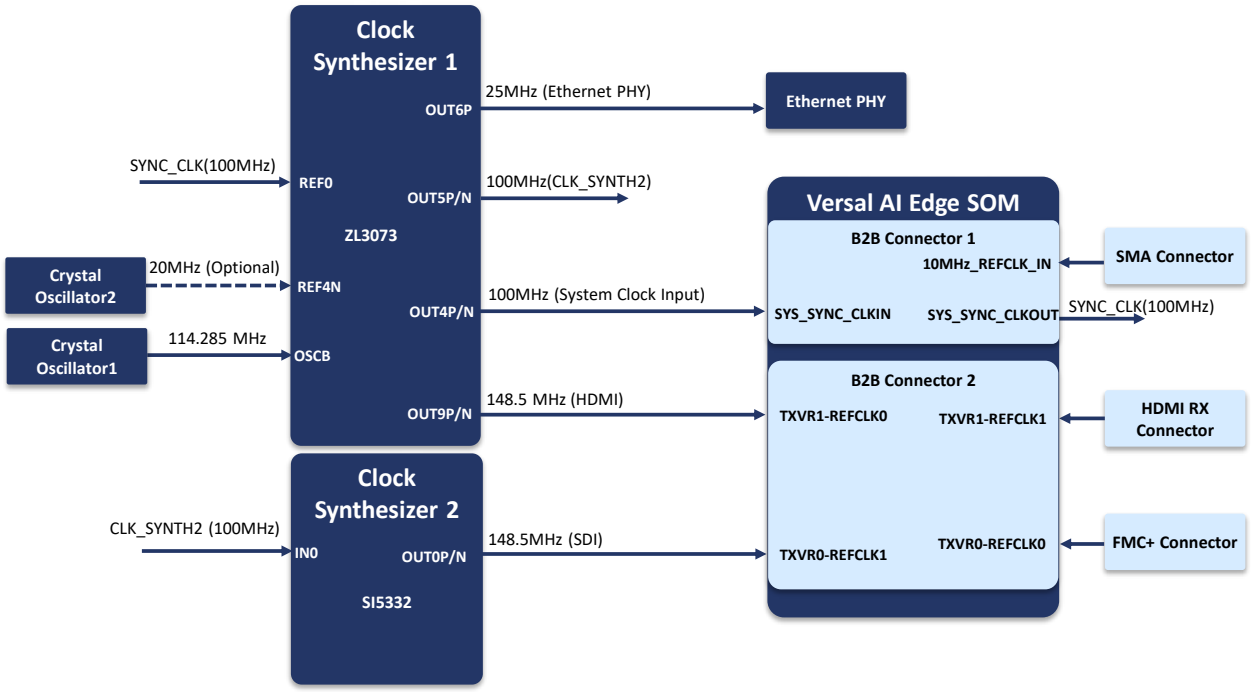

Figure 17: Clock Tree

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2.7.2 IO Expanders

The Versal AI Edge/Prime Carrier board supports two GPIO 16-Bit port Expander. IO expanders are configured through I2C of carrier board I2C mux switch. IO expander 1 is connected to Channel0 of I2C MUX switch and IO expander 2 is connected to Channel1 of I2C MUX.

Refer below table for IO Expander pin mapping.

Table 9: IO EXPANDER 1 Output

Pin No	Pin Port Name	Signal Name	Signal Type / Termination	Description
IO EXPANDER 1 (TCA6416APWR) - I2C address: 0x20				
4	P00	IOEXP1_HDMITX_OE	O, 3.3V CMOS	Connected to HDMI OUT Re-timer IC
5	P01	IOEXP1_HDMITX_CEC	I, 3.3V CMOS	Connected to HDMI OUT Re-timer IC
6	P02	IOEXP1_HDMIRX_CEC	O, 3.3V CMOS	Connected to HDMI IN Connector
7	P03	IOEXP1_EEPROM_WCn	O, 3.3V CMOS/ 10K PU	Connected to EEPROM write protection control pin.
8	P04	IOEXP1_SDI_IN_CD_INT	I, 3.3V CMOS	Connected to SDI IN IC PLL lock status pin
9	P05	IOEXP1_SDI_CD_INT	I, 3.3V CMOS	Connected to SDI OUT PLL lock status pin
10	P06	IOEXP1_EXP2_INT	I, 3.3V CMOS/ 10K PU	Connected to IO Expander 2
11	P07	IOEXP1_USB3_C_INT	I, 3.3V CMOS/ 10K PU	Connected from Interrupt pin of USB controller.
13	P10	IOEXP1_BRD_CONFIG0	I, 3.3V CMOS	For Board Configuration
14	P11	IOEXP1_BRD_CONFIG1	I, 3.3V CMOS	For Board Configuration
15	P12	IOEXP1_BRD_CONFIG2	I, 3.3V CMOS	For Board Configuration
16	P13	IOEXP1_BRD_CONFIG3	I, 3.3V CMOS	For BOM Configuration
17	P14	IOEXP1_BRD_CONFIG4	I, 3.3V CMOS	For BOM Configuration
18	P15	IOEXP1_BRD_CONFIG5	I, 3.3V CMOS	For BOM Configuration
19	P16	IOEXP1_BRD_CONFIG6	I, 3.3V CMOS	For BOM Configuration
20	P17	NA	NA	NA

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Table 10: IO EXPANDER 2 Output

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
IO EXPANDER 2 (TCA6416APWR)- I2C address: 0x21				
4	P00	B_FMC+_CLK_DIR	I, 3.3V CMOS/ 1K PD	Connected to FMC+ connector to determine FMC+ module or the carrier card is the driver for CLK [2:3].
5	P01	B_FMC+_PG_M2C	I, 3.3V CMOS	Connected to FMC+ connector, it will provide the power status from module to carrier.
6	P02	B_FMC+_PR_M2C_L	I, 3.3V CMOS	Connected to FMC+ connector
7	P03	B_FMC+_HSPC_PRSNT_M2C_L	I, 3.3V CMOS	Connected to FMC+ connector
8	P04	B_FMC+_PG_C2M	O, 3.3V CMOS/ 10K PD	Connected to FMC+ connector carrier This signal will provide the power status from carrier to module.
9	P05	B_FMC+_12V_EN	O, 3.3V CMOS/ 10K PD	This pin is used to control the 12V power to the FMC+ Connector.
10	P06	B_FMC+_3V3_EN	O, 3.3V CMOS/ 10K PD	This pin is used to control the 3.3V power to the FMC+ Connector.
11	P07	B_FMC+_ADJ_EN	O, 3.3V CMOS/ 10K PD	This pin is used to control the Adjustable (VADJ) power to the FMC+ Connector.
13	P10	NA	NA	NA
14	P11	NA	NA	NA
15	P12	NA	NA	NA
16	P13	NA	NA	NA
17	P14	NA	NA	NA
18	P15	NC	NA	NA
19	P16	NC	NA	NA
20	P17	NC	NA	NA

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2.7.3 I2C Tree

The Versal AI Edge/Prime Carrier board supports one 4 channel I2C Bus Switch (PI4MSD5V9546ALEX). I2C tree shown below. I2C0 of SOM is connected from board to connector2 to all the carrier board interfaces such as Clock synthesizer, EEPROM and 4 channel MUX switch. The I2C MUX channel 0 is connected to IO expander1, USB controller and HDMI Re-timer. Similarly, Channel1 of I2C mux is connected to IO expander2, SDI Driver (OUT) and equalizer (IN) IC and Channel3 is connected to FMC+ connector I2C interface. The I2C address of all the I2C devices of Versal AI Edge/ Prime development kit is mentioned in below I2C tree. These Addresses are represented in 7-bit format.

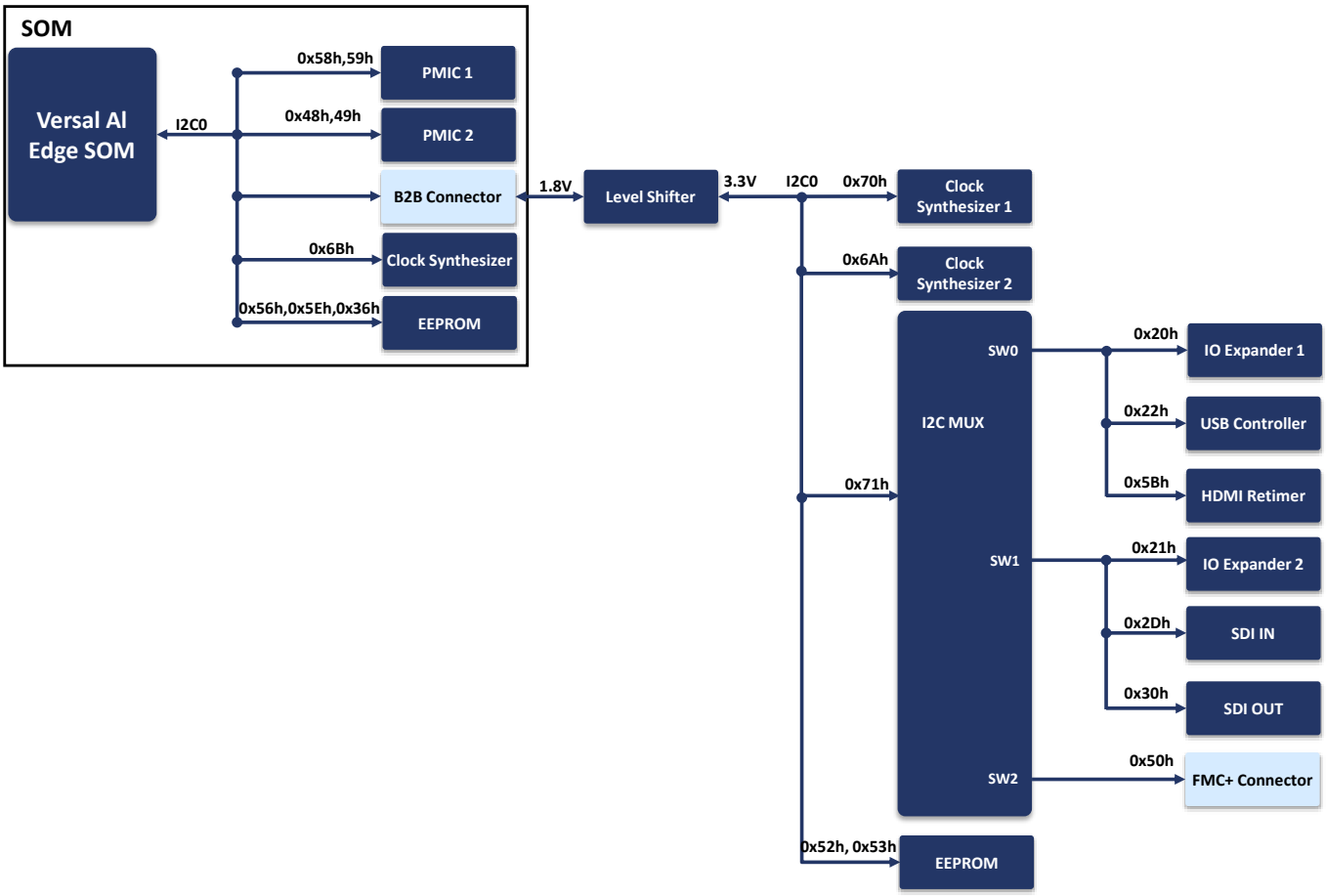

Figure 18: I2C Tree

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2.7.4 Power ON/OFF Switch

The Versal AI Edge/Prime Carrier board has power ON/OFF switch (SW1) to control the Main power Input ON/OFF functionality. This power ON/OFF switch is physically located at the top of the board as shown below.

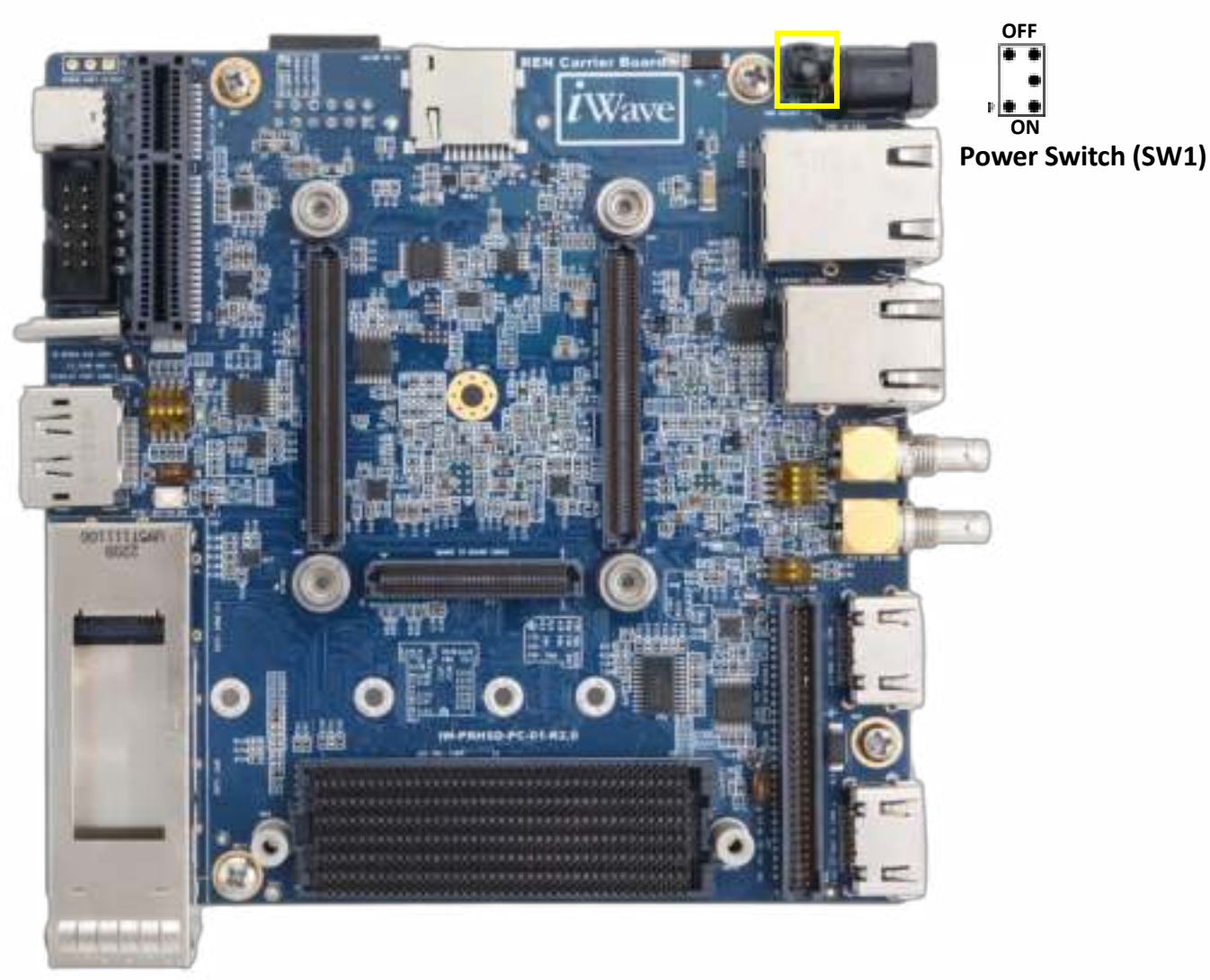

Figure 19: Power On/Off Switch

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2.7.5 Reset Switch

The Versal AI Edge/Prime Carrier board supports Push button switch (SW5) to reset the Versal AI Edge/Prime CPU. Reset signal of Board-to-Board connector2 Pin B11 is directly connected from Reset Push button switch. This Reset Push button switch (SW5) is physically located at the top of the board as shown below.

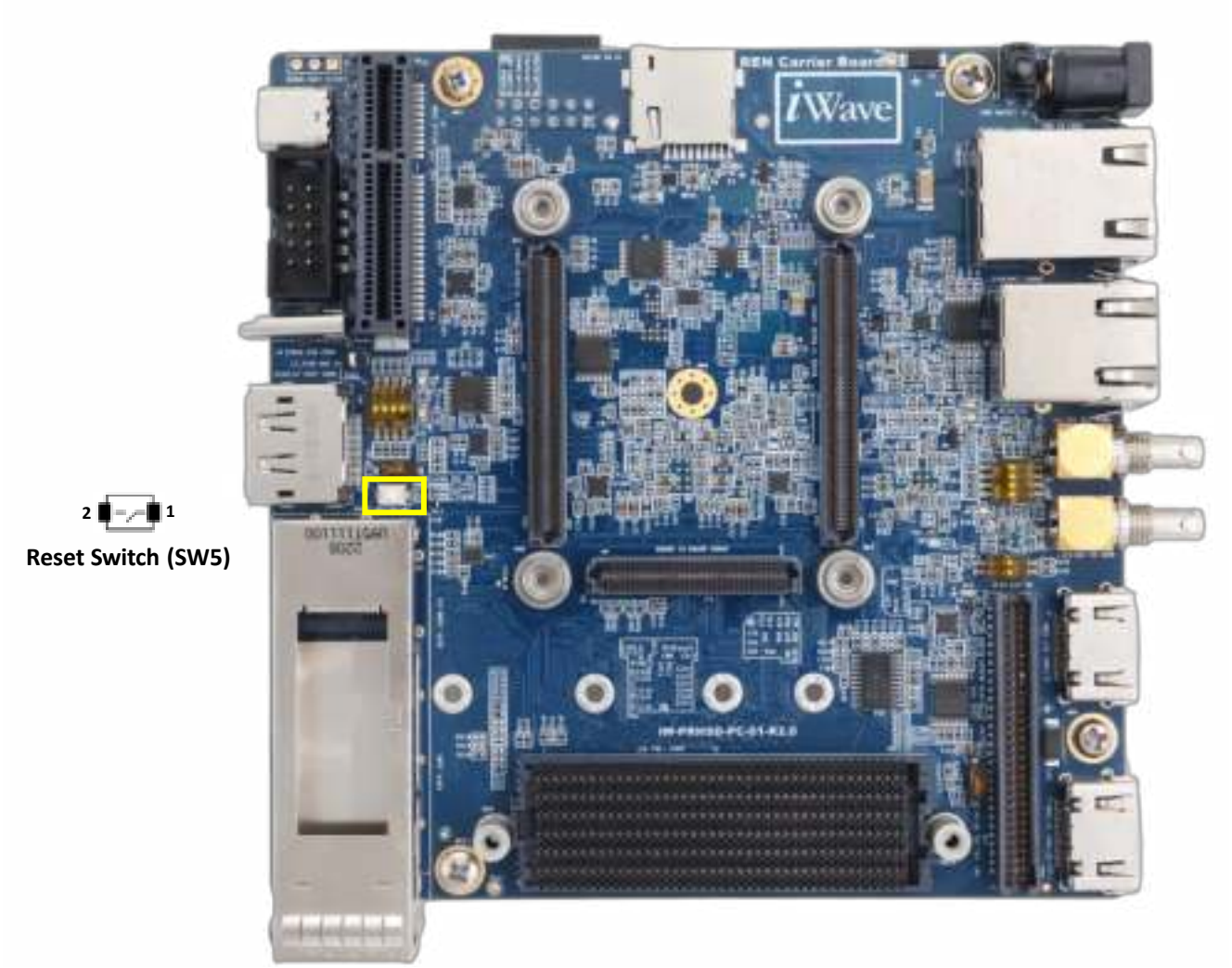

Figure 20: Reset Switch

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2.7.6 RTC Coin Cell Holder

The Versal AI Edge/Prime Carrier board supports Coin Cell Holder to connect “2032” series 3V coin cell. This coin cell voltage is connected to Versal AI Edge/Prime SOM for RTC back up voltage when VCC main power is off. This Coin Cell Holder (J23) is physically located at the bottom of the board as shown below.

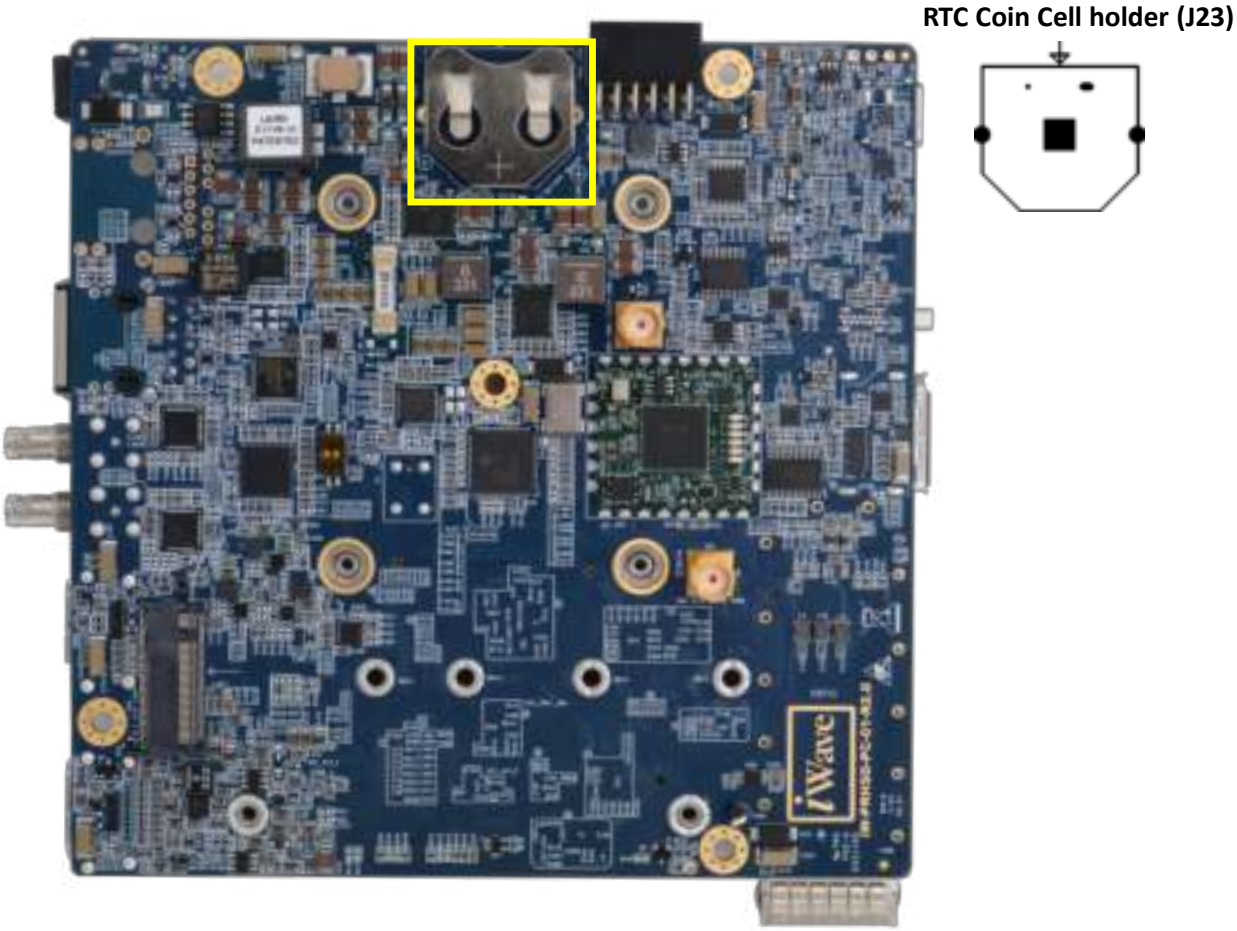

Figure 21: RTC Coin Cell Holder

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3. TECHNICAL SPECIFICATION

This section provides detailed information about the Versal AI Edge/Prime Carrier Board technical specification with Electrical, Environmental and Mechanical characteristics.

3.1 Power Input Requirement

The Versal AI Edge/Prime Carrier Board is designed to work with 12V external power and uses on board voltage regulators for internal power management. 12V power input from an external power supply is connected to the Versal AI Edge/Prime Carrier Board through Power Jack (J2). This connector is physically placed at the top of the board as shown below.

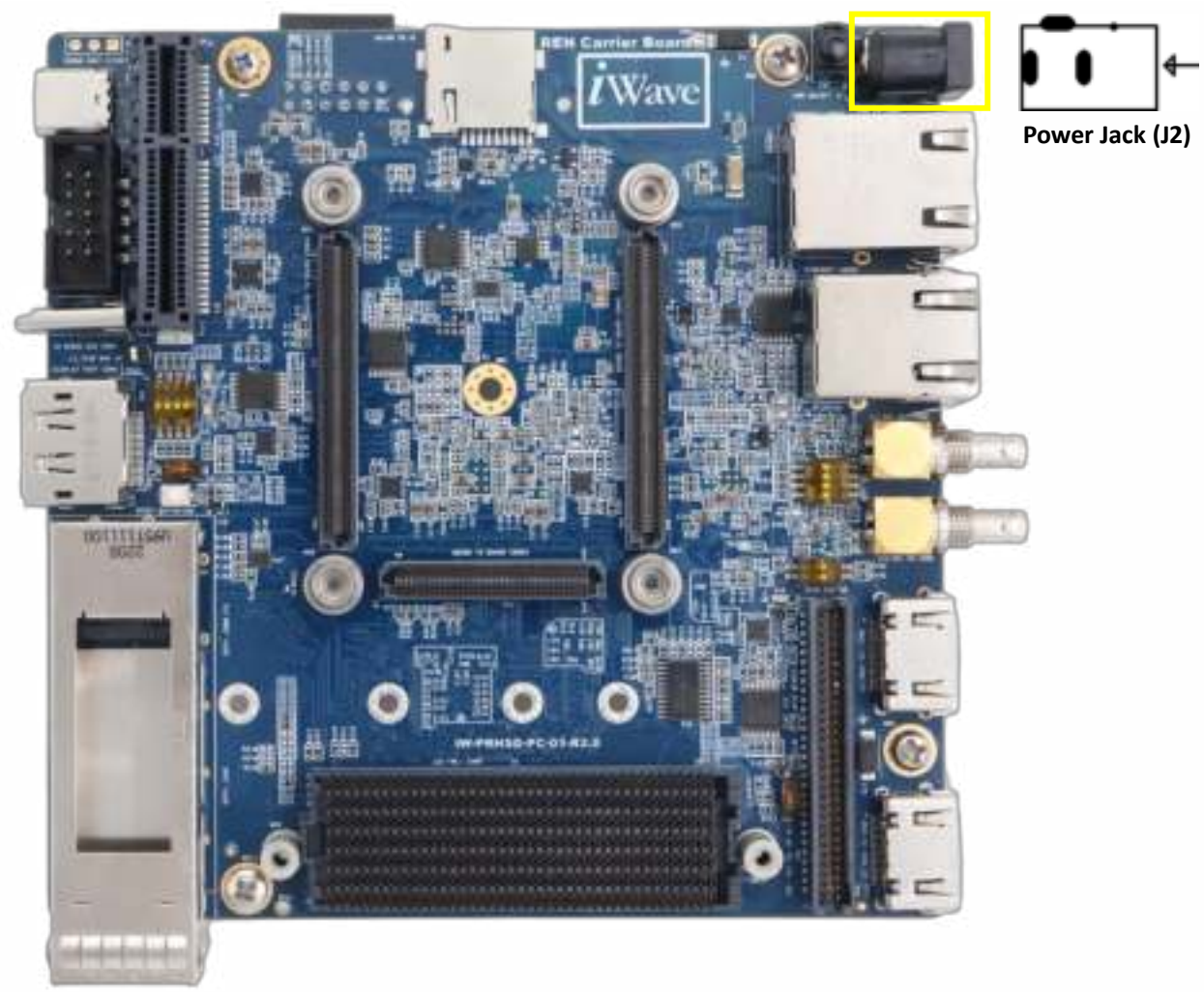

Figure 22: Power Jack

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The below table provides the Power Input Requirement Versal AI Edge/Prime Carrier Board.

Table 11: Power Input Requirement

Sl. No.	Power Rail	Min (V)	Typical (V)	Max(V)	Max Input Ripple
1	VCC_12V	11.75V	12V	12.25V	±50mV
2	VRTC_3V0[1]	0	3V	3.15V	±20mV

[1] The Versal AI Edge/Prime Devkit uses this voltage as backup power source to On-SOM PMIC RTC controller when VCC is off.

3.2 Power Output Specification

The Versal AI Edge/Prime SOM Carrier Board has dedicated power regulator to provide +5V power to SOM for VCC power supply. Also +3V RTC power from coin cell holder is provided for Real time clock support.

The Versal AI Edge/Prime SOM Carrier Board also shares different on-board power to FMC+ connector, Pmod connector and GPIO Headers for its Add-On Module power.

Table 12: Power Output Specification

Sl. No.	Power Rail	Min (V)	Typical (V)	Max(V)	Max Output Current
To Board-to-Board Connector2 (for Versal AI Edge/Prime SOM)					
1	VCC_5V	4.85V	5V	5.15V	25A
2	VRTC_3V0	0V	3V	3.15V	-
To FMC+ Connector					
1	VCC_FMC_ADJ	1.15	1.2	1.25	4A
2	VCC_3V3	3.15	3.3	3.45	3A
3	3P3VAUX	3.15	3.3	3.45	100mA
4	VCC_12V	11.75V	12V	12.25V	1A
To Pmod Connector					
1	VCC_3V3	3.15	3.3	3.45	100mA
To GPIO Header					
1	VCC_5V	4.85V	5V	5.15V	500mA
2	VCC_1V8	1.75	1.8	1.85	100mA
3	VIO_BANK2	1.75	1.8	1.85	100mA

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3.3 Environmental Characteristics

3.3.1 Environmental Specification

The below table provides the Environment specification of Versal AI Edge/Prime SOM Development platform.

Table 13: Environmental Specification

Parameters	Min	Max
Operating temperature range[1]	0°C	70°C

[1] *iWave only guarantees the component selection for the given operating temperature.*

3.3.2 RoHS Compliance

iWave's Versal AI Edge/Prime SOM Development platform is designed by using RoHS compliant components and manufactured on lead free production process.

3.3.3 Electrostatic Discharge

iWave's Versal AI Edge/Prime SOM Development platform is sensitive to electrostatic discharge and so high voltages caused by static electricity could damage some of the devices on board. It is packed with necessary protection while shipping. Do not open or use board except at an electrostatic free workstation.

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3.4 Mechanical Characteristics

3.4.1 Carrier Board Mechanical Dimensions

The REN Carrier board PCB form factor is 120mm x 120mm and Board mechanical dimension is shown below.

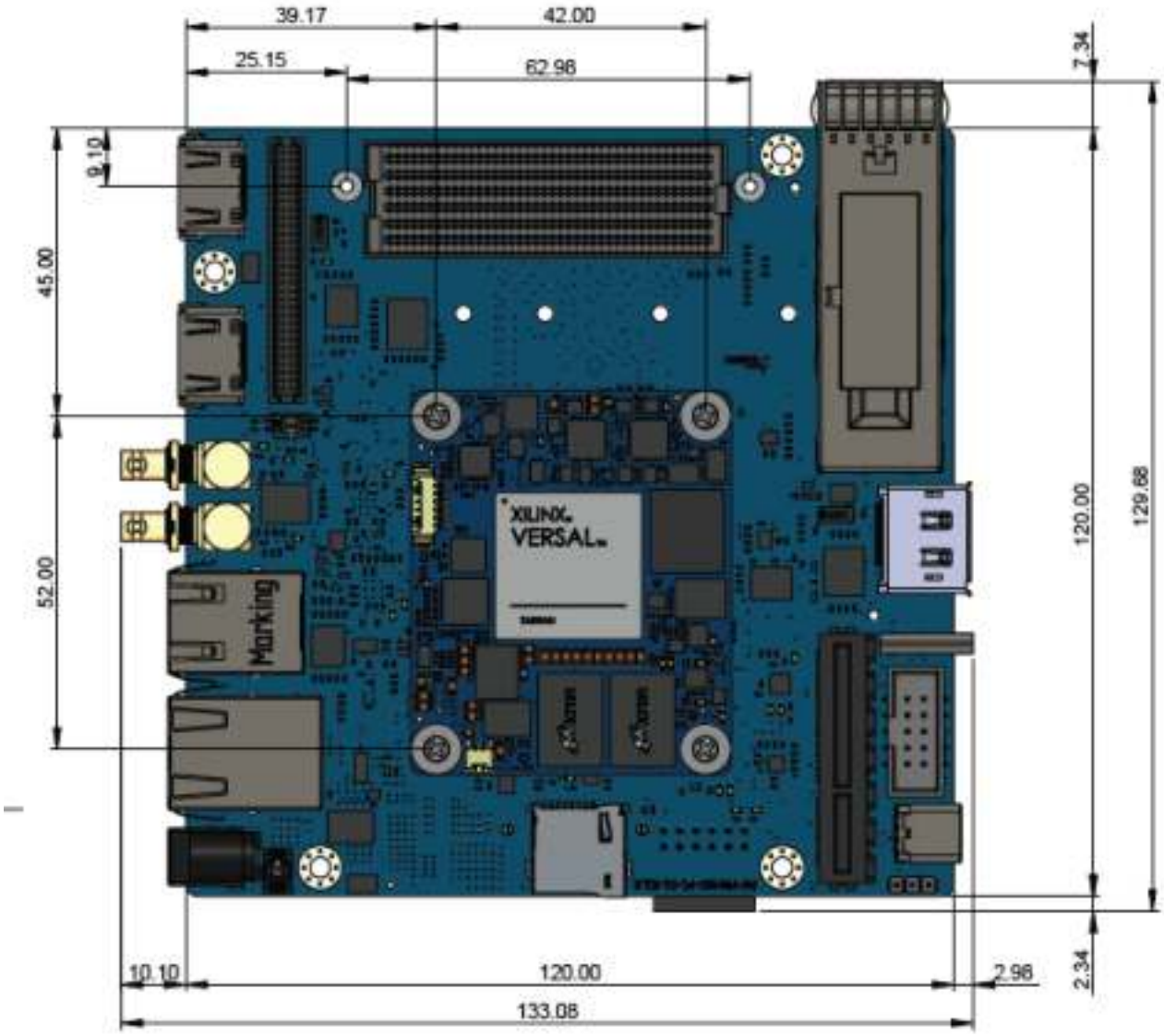

Figure 23: Carrier board Mechanical dimension – Top View

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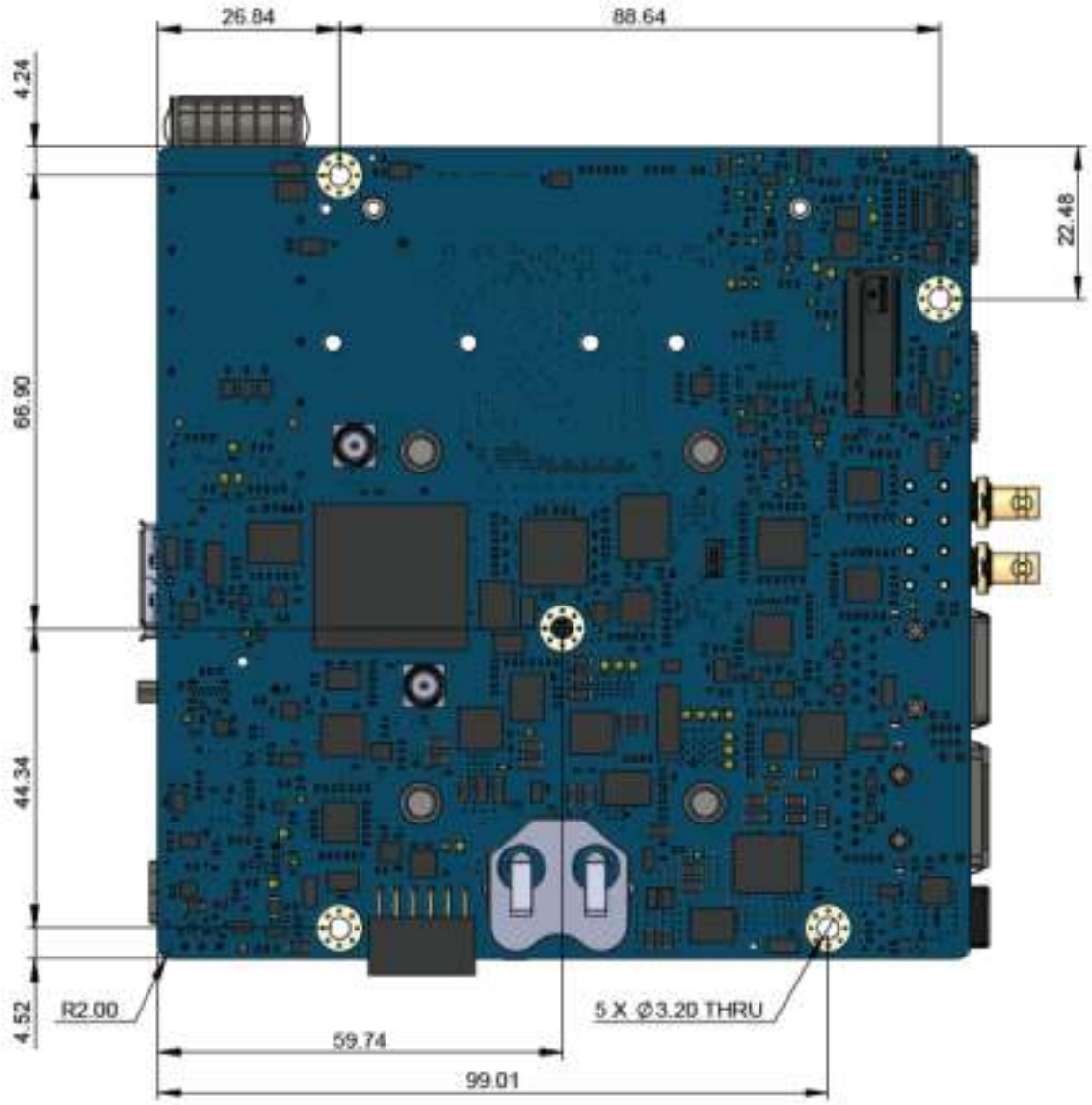

Figure 24:Carrier board Mechanical dimension – Bottom view

The REN Carrier board PCB thickness is 1.83mm±0.1mm, top side maximum height component is Ethernet Magjack Connector (15.27mm) and bottom side maximum height component is SMA Connector (9.53mm). Please refer the below figure for height details of the Versal AI Edge/Prime SOM Carrier board.

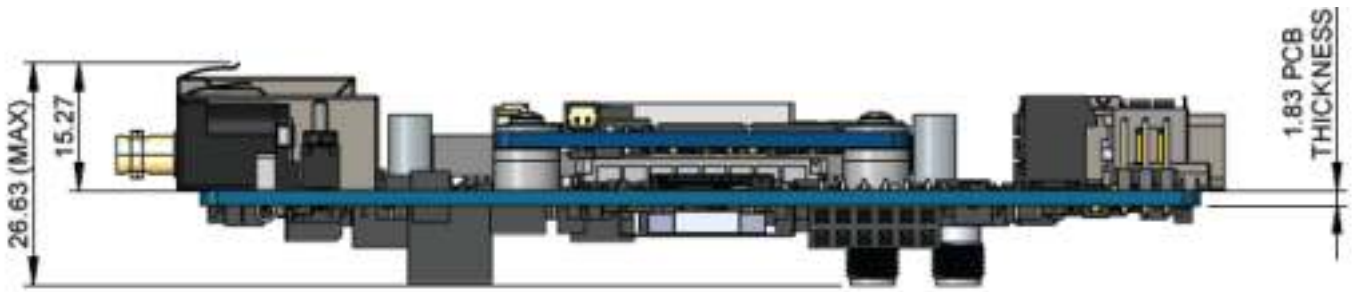

Figure 25: Carrier board Mechanical dimension – Side View

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3.4.2 Guidelines to insert the SOM into Carrier Board

- Make sure the Development platform is handled at a ESD free work environment
- Make sure the power is not provided to the carrier board.
- Confirm that all 4 JSO 'Jack Screw' & 'Stand-Off Base' are assembled in Carrier board
- Equally tightening each JSO 'Jack Screw' into 'Stand-Off Base' constantly by rotating it in clockwise direction by using 'Allen Key' as shown in "Figure 26" (make sure there is no air gap between the 'Jack Screw' & 'Stand-Off Base')
- Then, Insert the SOM B2B connector into the carrier board B2B connector as shown in "Figure 27"
- Check the position of SOM B2B1 and B2B2 connectors are properly aligned with Carrier board B2B1 and B2B2 connectors respectively
- Press the all 4 side SOM equally into B2B connectors as Shown in below "Figure 27" such that the board is fixed firmly into connectors as in.
- To remove the SOM from Carrier board, loose the Jack Screw with Allen Key by rotating it anticlockwise direction in each 4 side equally as in "Figure 28"

Figure 26: Tightening the of Jack Screw

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Figure 27: Insertion of SOM in to Carrier Board

Figure 28: Removal SOM from Carrier Board

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3.4.3 Fan Sink Fixing procedure on SOM with carrier Board

The REN Carrier board and Versal AI Edge/Prime SOM with Fan sink fixing procedure is shown below.

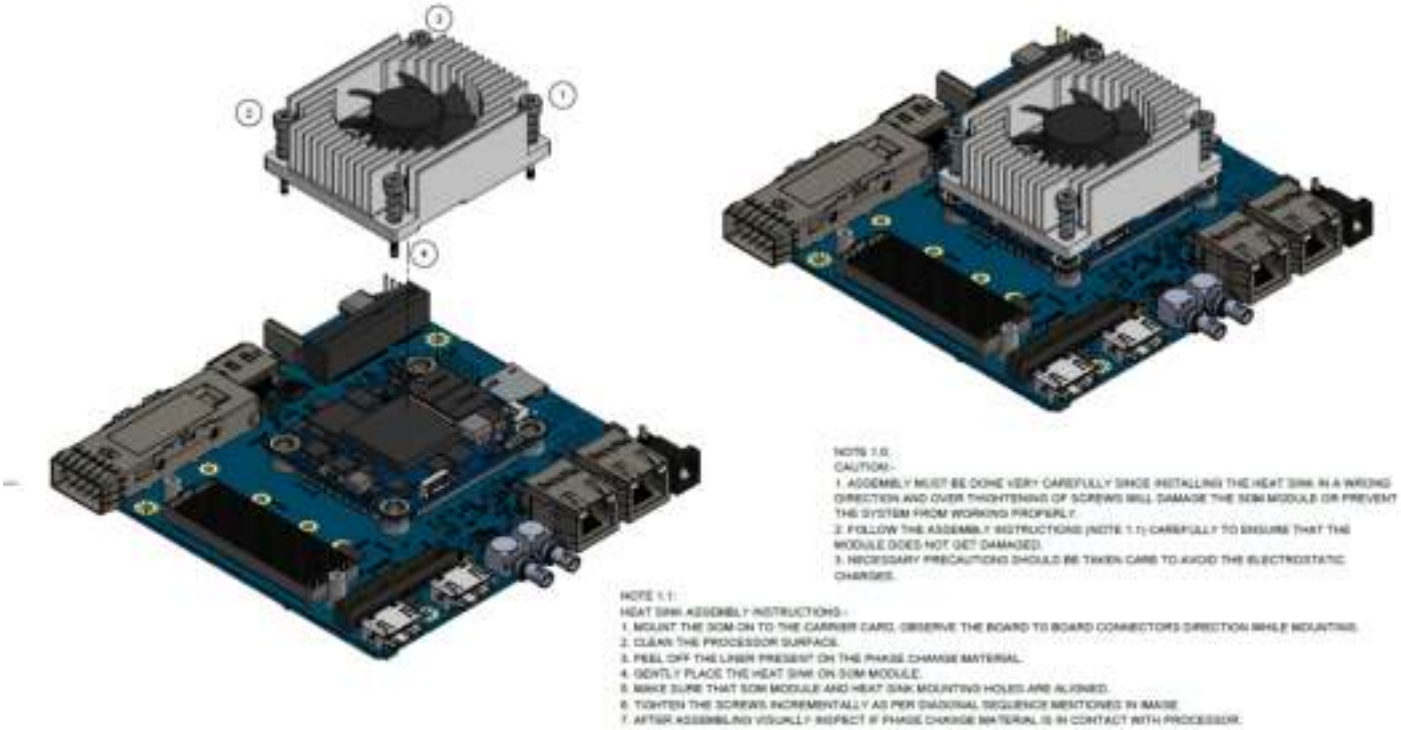

Figure 29: SOM with Fan sink fixing procedure

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4. ORDERING INFORMATION

The below table provides the standard orderable part numbers for Versal AI Edge/Prime Development platform which includes Versal AI Edge/Prime SOM and Carrier Board.

Table 14: Orderable Product Part Numbers

Product Part Number	Description	Temperature
iW-G57D-2302-4L004G-E016G-LCB	VE2302 -1LSE Speed Versal AI Edge SoC with 4GB PS LPDDR4,16GB eMMC DevKit with Linux.	Commercial
iW-G57D-1102-4L004G-E016G-LCB	VE2302 -1LSE Speed Versal Prime SoC with 4GB PS LPDDR4,16GB eMMC DevKit with Linux.	Commercial

Note: For Development platform identification purpose, Product part number is pasted as Label with Barcode readable format.

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