iW-RainboW-G57D
Versal Al Edge SOM Development Platform
Hardware User Guide
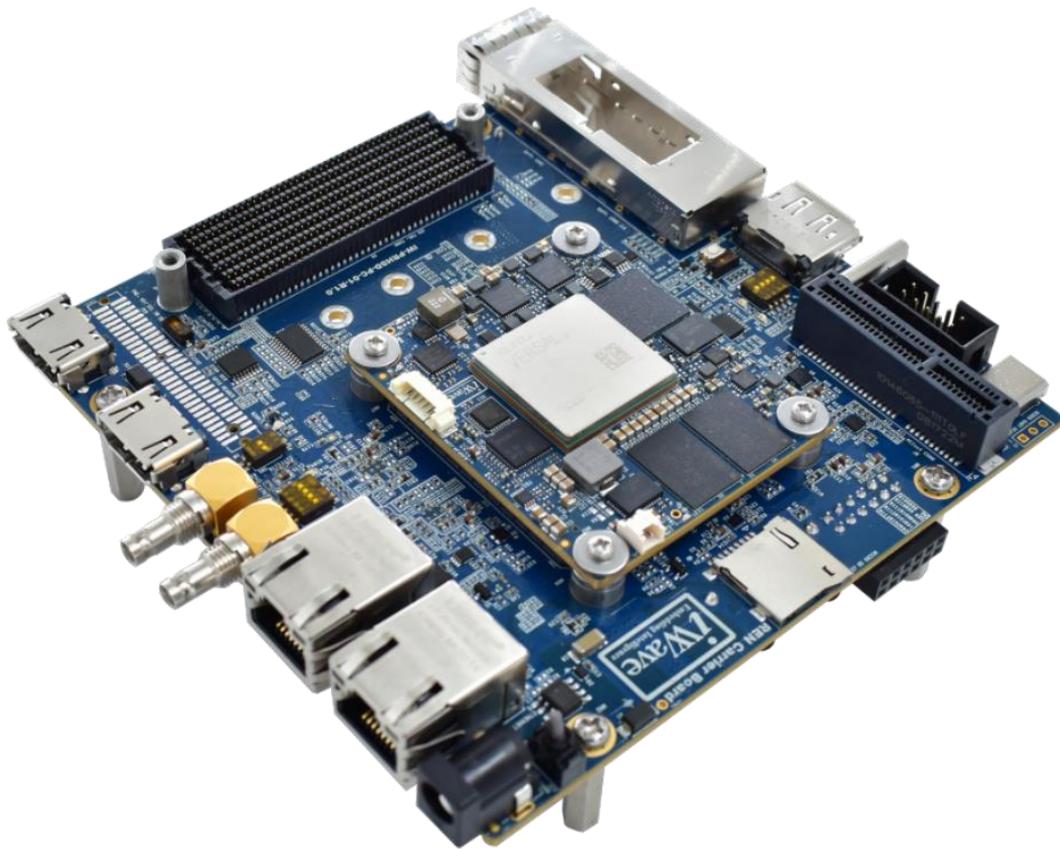
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1. INTRODUCTION

1.1 Purpose

The Versal Al Edge SOM Development platform incorporates Versal Al Edge based SOM and REN Carrier board for complete validation of Versal Al Edge functionality. This document is the Hardware User Guide for the Versal Al Edge 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 Al Edge SOM hardware is explained in another document "iW-RainboW-G57M-Versal Al Edge-SOM-HardwareUserGuide".

1.2 Overview

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

Acronyms	Abbreviations
PMIC	Power Management Integrated Circuit
PMOD	Peripheral Module Interface
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

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 Al Edge Datasheet & Reference Manual
- Versal Al Edge SOM Hardware User Guide

2. ARCHITECTURE AND DESIGN

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

2.1 Versal AI Edge SOM Carrier Board Block Diagram
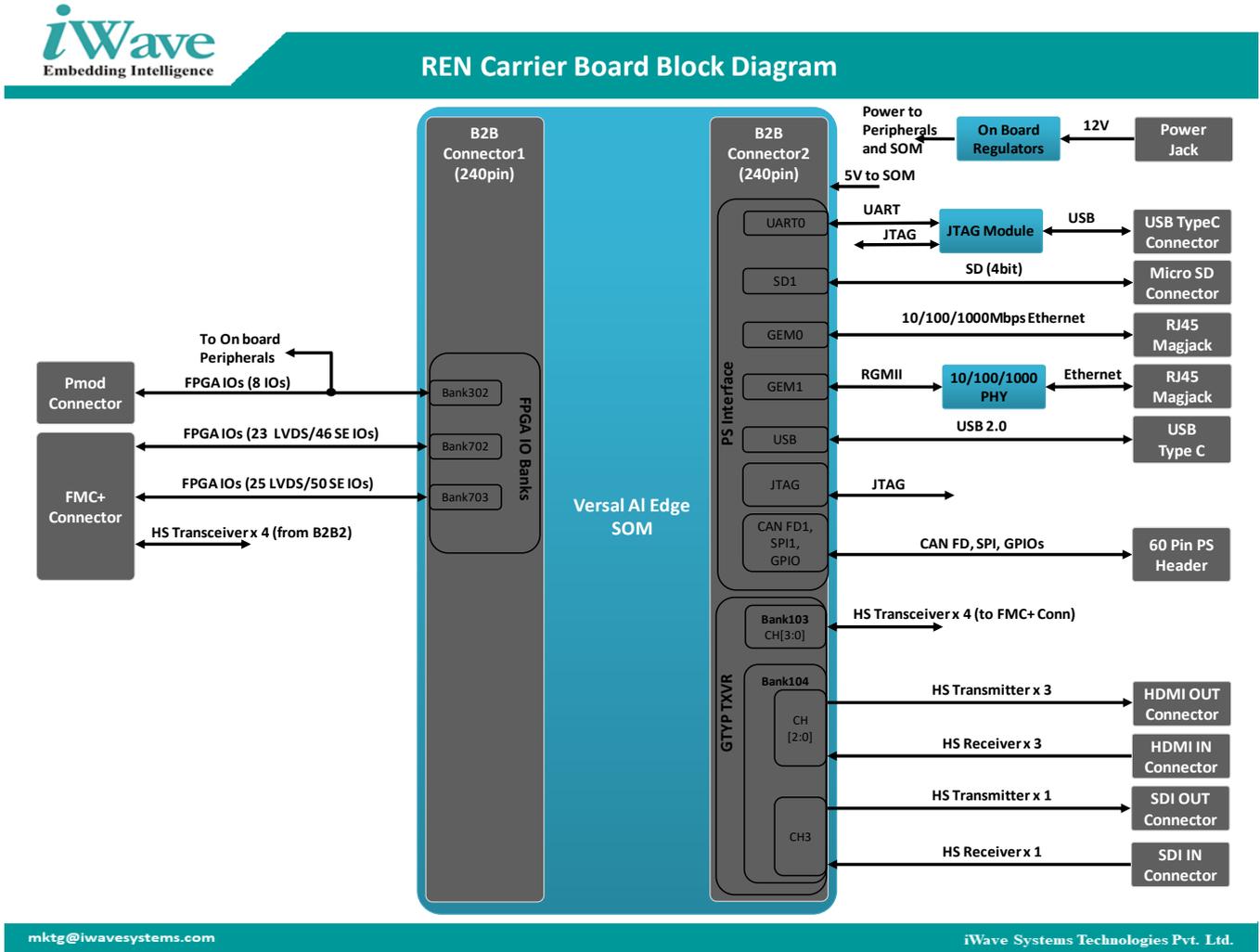
Figure 1: Versal AI Edge SOM Carrier Board Block Diagram

2.2   Versal Al Edge SOM Carrier Board Features

Versal Al Edge SOM based Carrier board supports the following features to validate the Versal Al Edge 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
  - Upto 23 LVDS IOs/46 Single ended (SE) IOs from XP Bank 702
  - Upto 25 DIFF IOs/50 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

2.3   Versal SoC Boot Mode Switch

The Versal Al Edge carrier board supports one Boot media switch to control boot selection from the Carrier Board.

Versal Al Edge boots PS boots first and configures the PL through software. Versal SoC Versal SOM can support Quad SPI, SD1, & 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 Boot Mode	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	OFF	OFF	OFF	
SD1	ON	OFF	ON	
QSPI (Default)	OFF	ON	OFF	
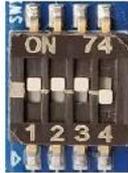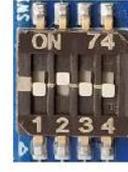
Note: In Versal SOM, PS Mode3(4th bit)boot mode signal is connected to Ground through 10K resistors.

2.4   Board to Board Connectors

The Versal AI Edge carrier board supports two Board to Board mating connectors for Versal AI Edge 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.

Note: For the Board-to-Board Connector1 pinout, refer the Versal AI Edge SOM Hardware User Guide.
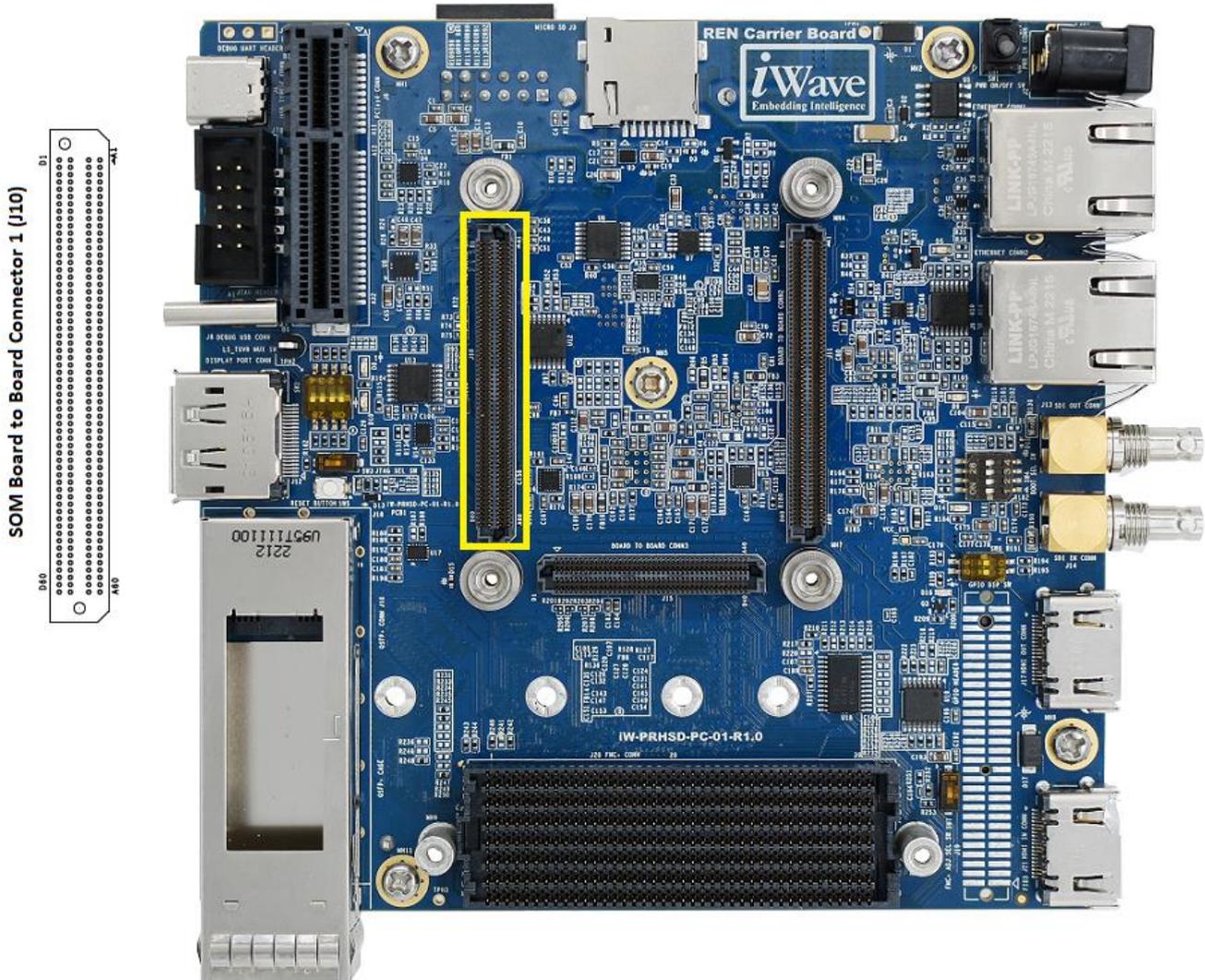
Figure 2: Board to Board Connector1

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

2.4.2 Board to Board Connector2

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

Note: For the Board-to-Board Connector2 pinout, refer the Versal Al Edge SOM Hardware User Guide.
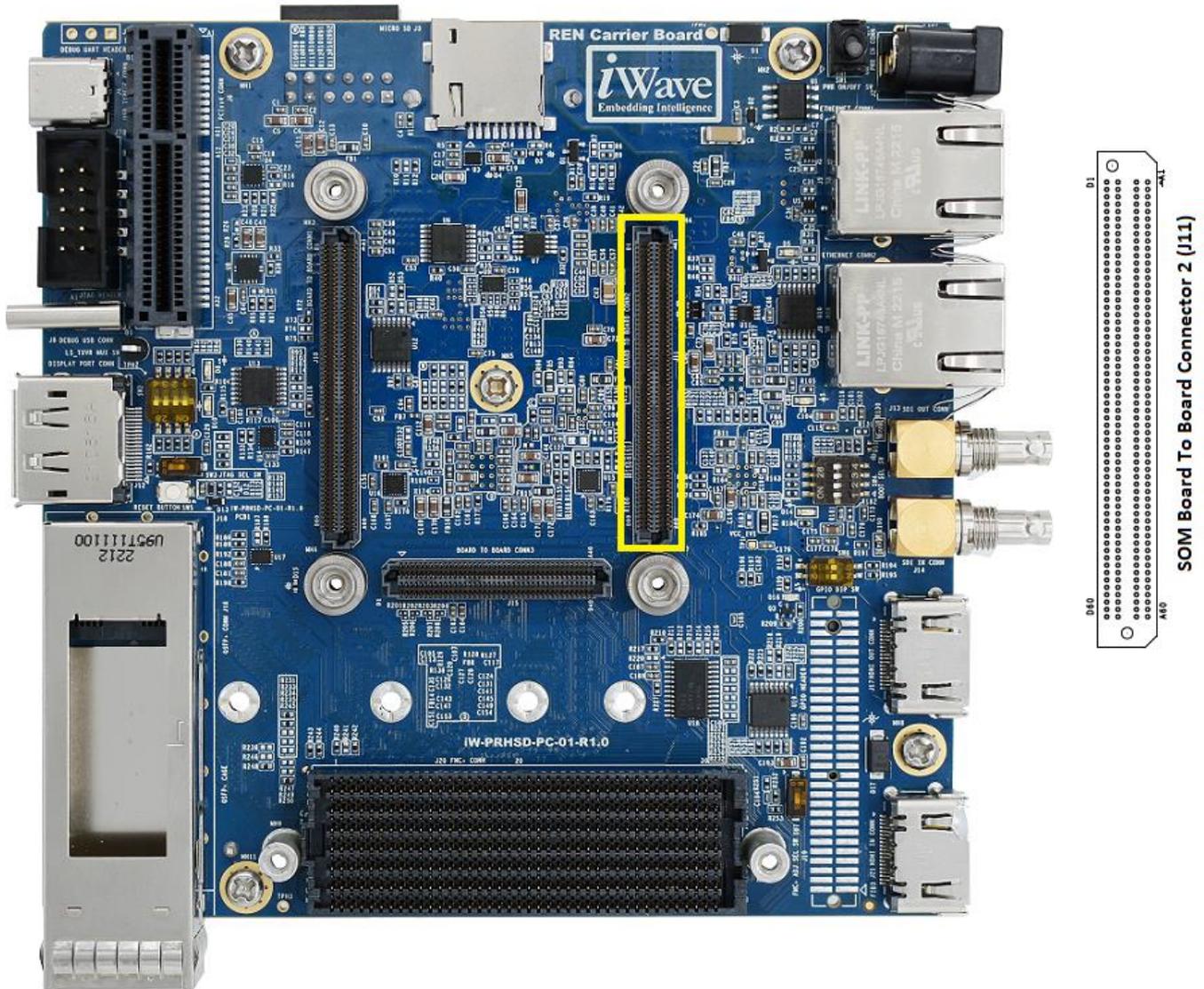
Figure 3: Board to Board Connector 2

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

2.5 PS Interface Features

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

2.5.1 Gigabit Ethernet Port1

The Versal Al Edge SOM Carrier board supports Ethernet port through GEM0 interface of Versal Al Edge 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.
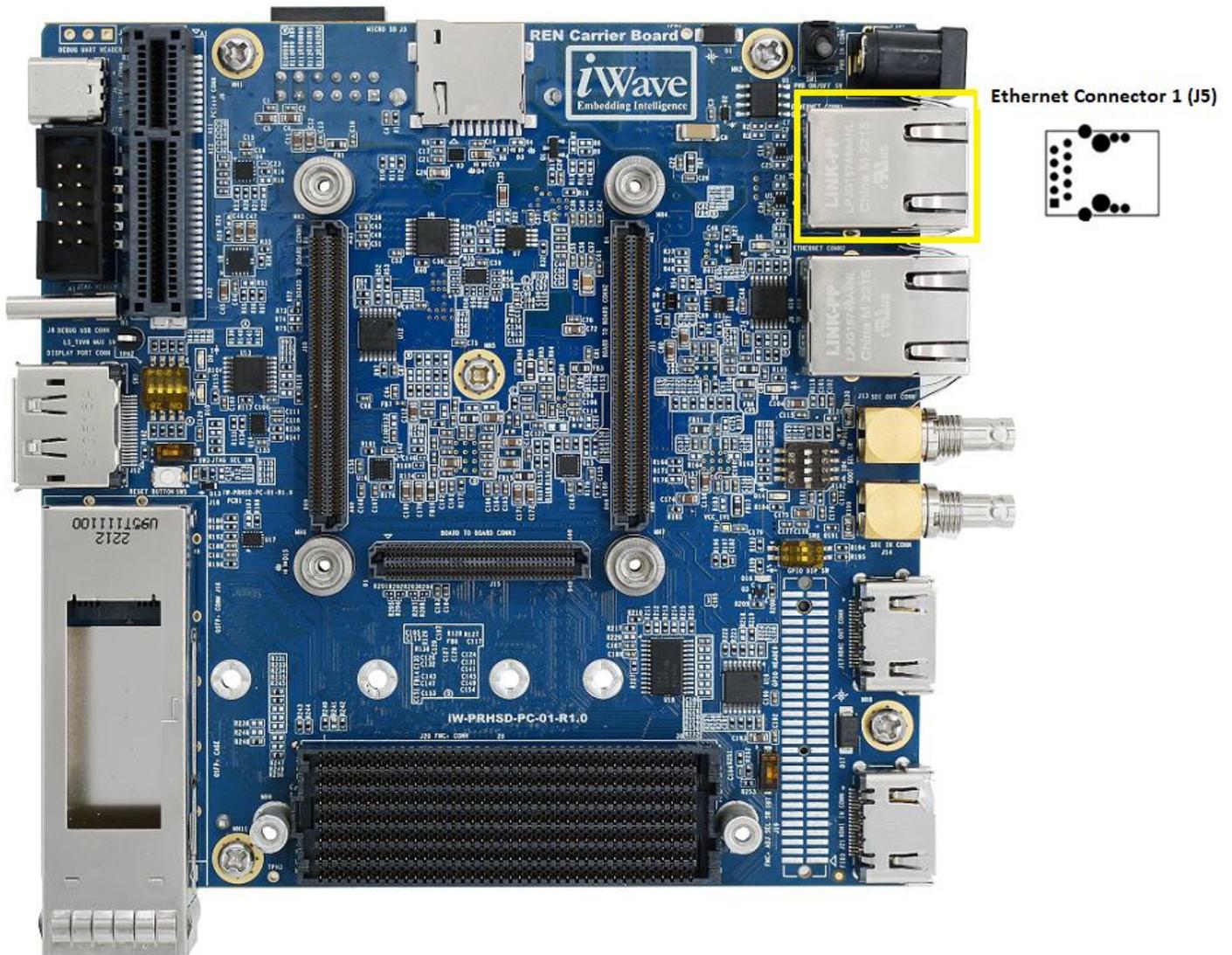
Figure 4: Gigabit Ethernet Connector1

2.5.2 Gigabit Ethernet Port2

The Versal Al Edge SOM Carrier board support Ethernet port through GEM1 interface of Versal Al Edge PS. The MAC is integrated in the Versal Al Edge 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.
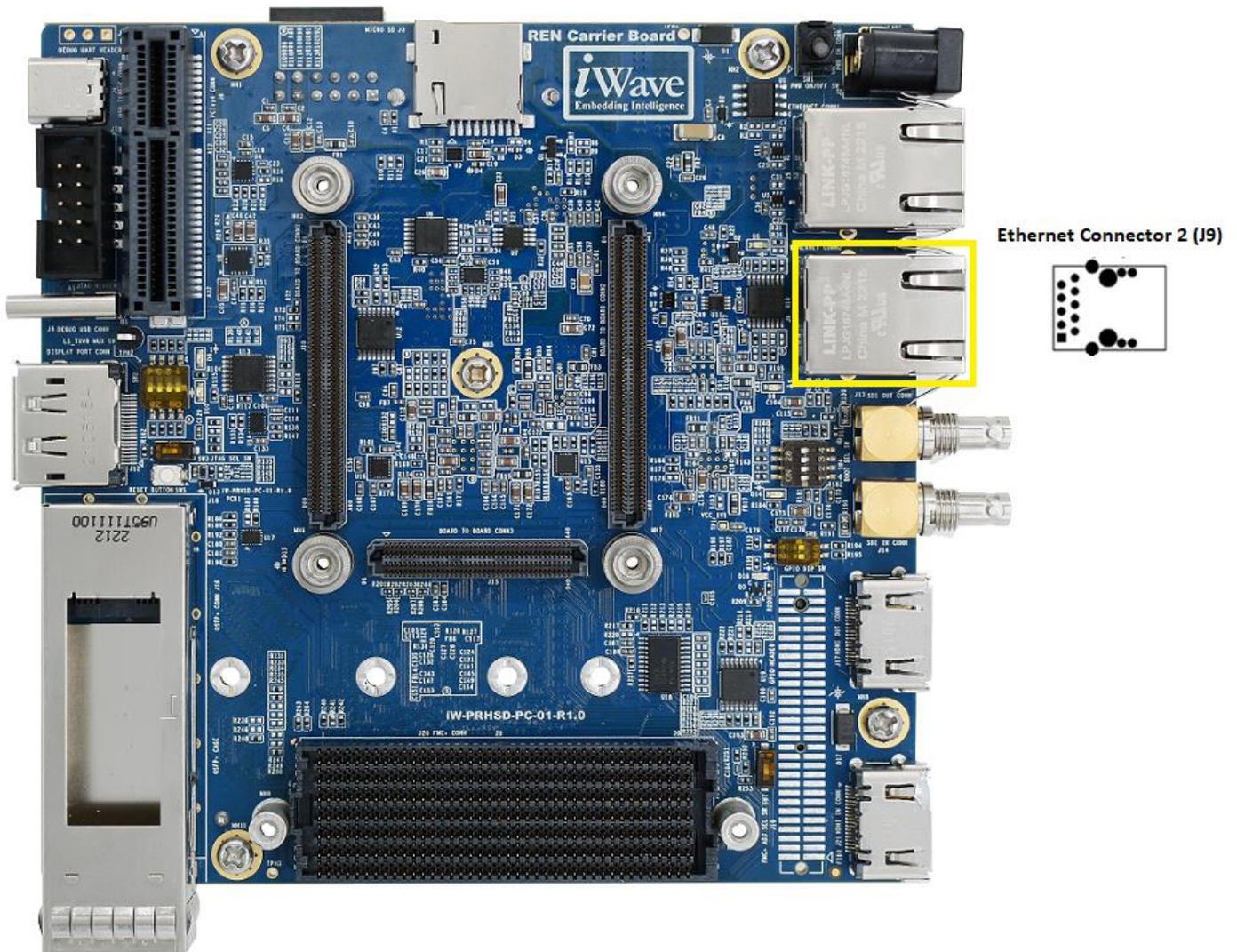
Figure 5: Gigabit Ethernet Connector2

2.5.3 USB2.0 OTG Port

The Versal Al Edge 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 (B17[th] pin of B2B-2) and controls the power using the USB_PWR_EN pin (B16[th] pin of B2B-2). This USB2.0 OTG connector (J4) is physically located at the top of the board as shown below.
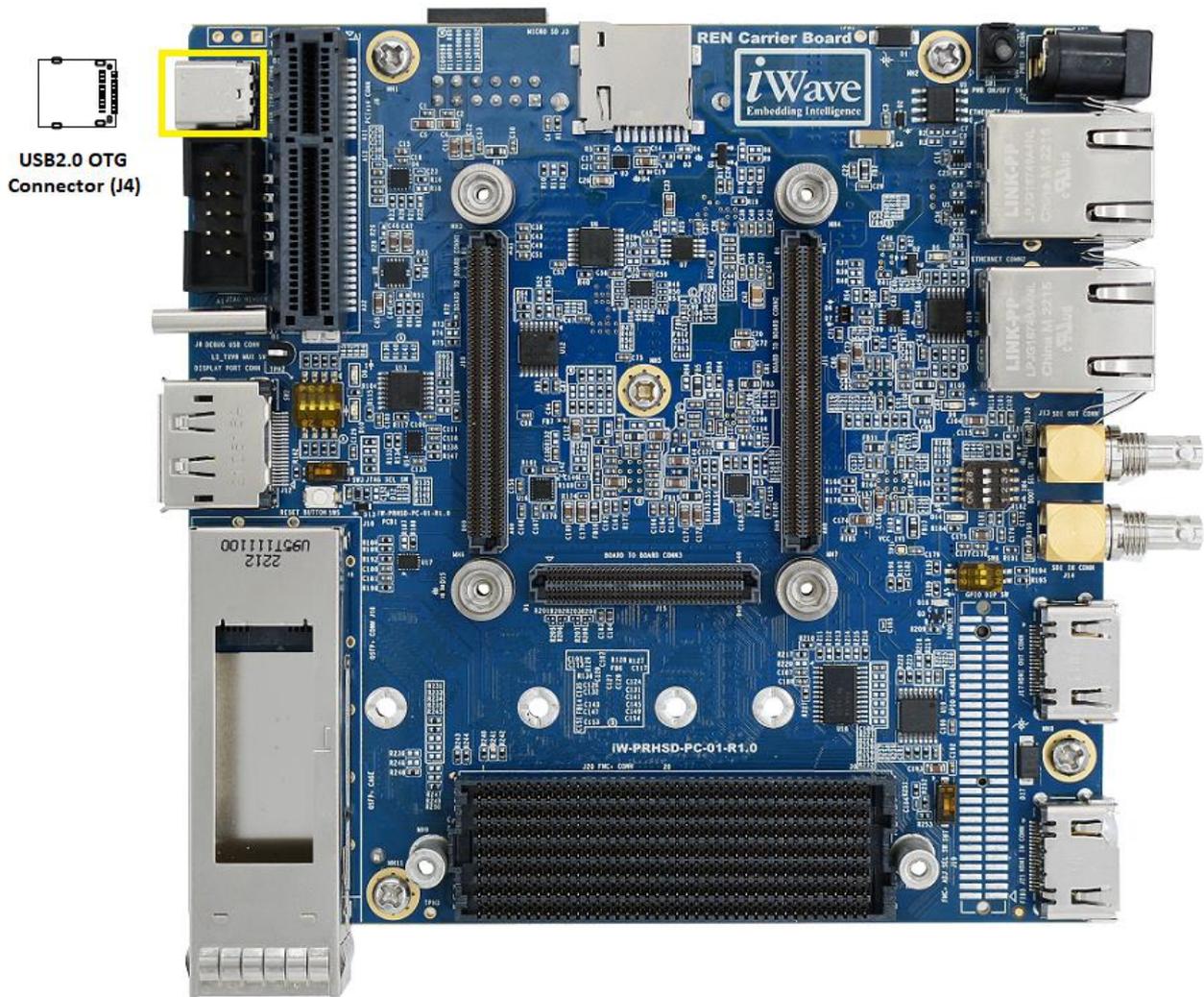
Figure 6: USB OTG Connector

2.5.4 Micro SD Port

The Versal Al Edge Carrier Board supports one SD interface through SD1 interface of Versal Al Edge 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.
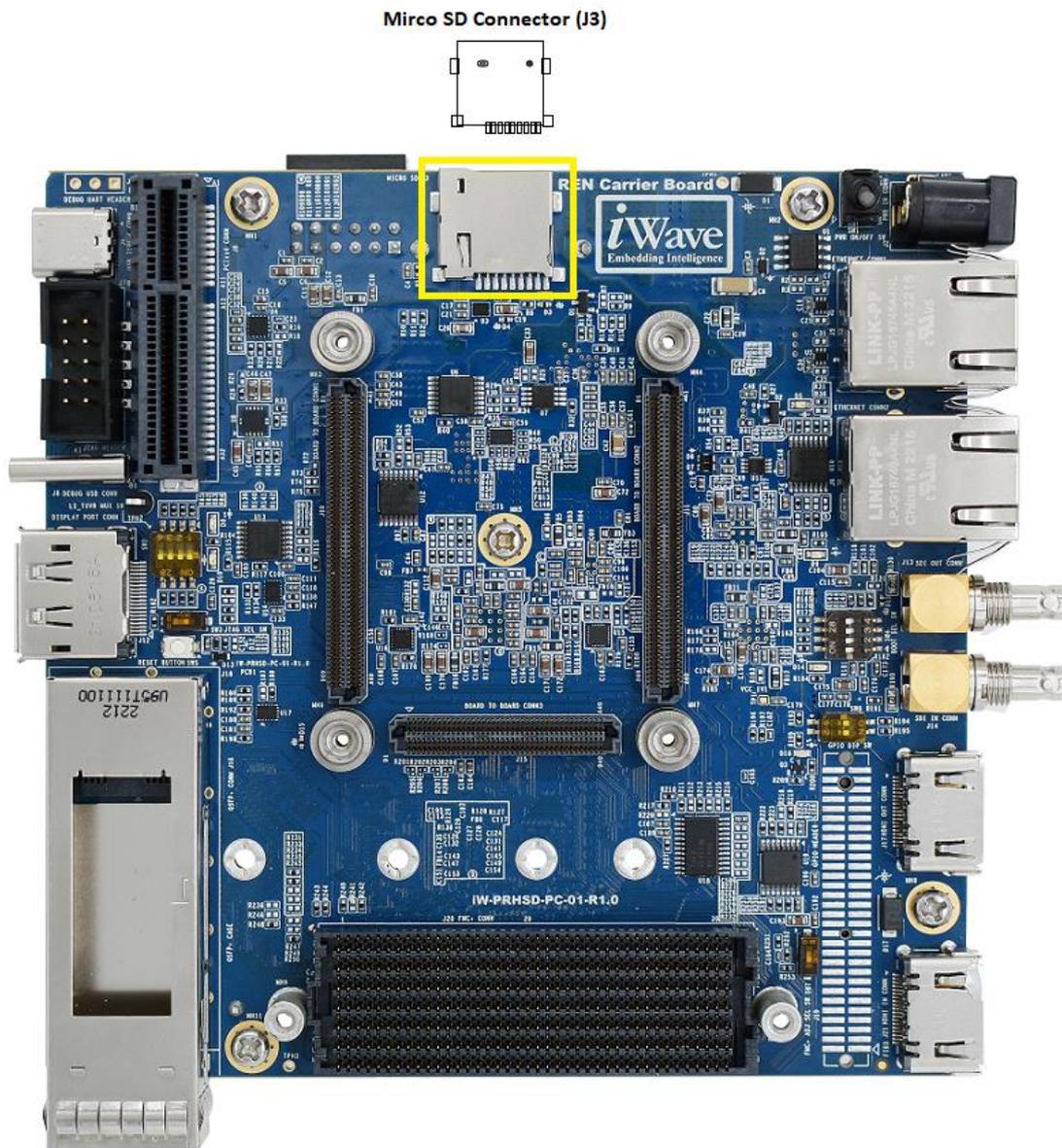
Figure 7: Micro SD Connector

2.5.5 GPIO Header

The Versal Al Edge 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, CAN, and PS GPIOs. These GPIO Header (J19) is physically located at the top of the board as shown below.
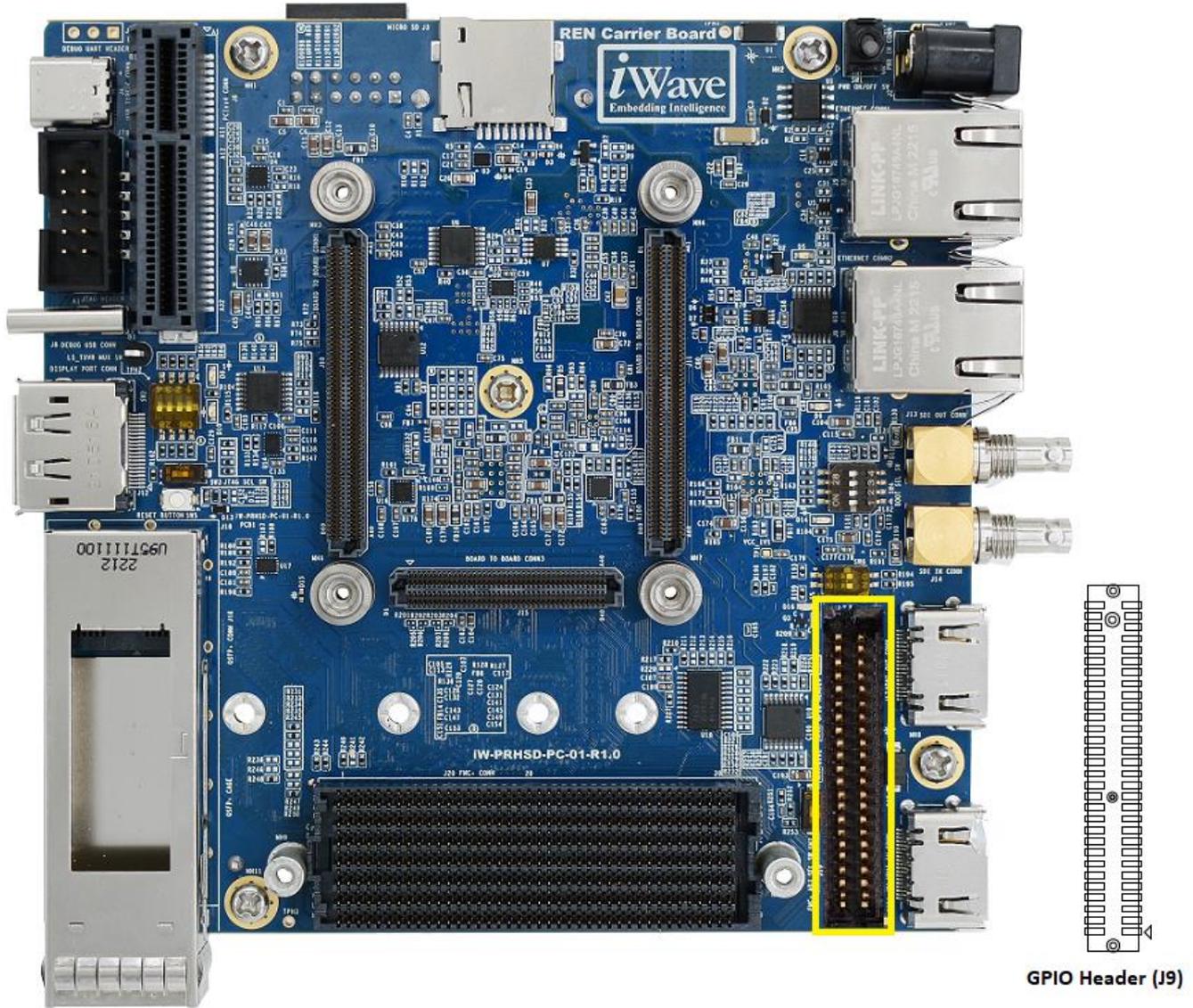
GPIO Header (J9)

Figure 8: GPIO Header

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

Pin No	Soc Pin Name	Signal Name	Signal Type/ Termination	Description
40	NA	VIO_BANK2	O, 1.8V Power	1V8 Supply Voltage.
41	NA	NA	NA	NA
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 D28[th] 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 D27[th] 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 D20[th] 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 D16[th] pin of Board-to-Board Connector2 (J3).
54	PMC_MIO7_500	SPI_SS2_IO2/Bank3_IO23 N	O, 1.8V LVCMOS	SPI Slave select 2. This Pin is connected to D19[th] 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 D21[st] pin of Board-to-Board Connector2 (J3).
56	NA	GND	Power	Ground
57	PMC_MIO11_500	SPI_MOSI_IO0/Bank3_IO2 2N	O, 1.8V LVCMOS	SPI MOSI. This Pin is connected to D17[th] pin of Board-to-Board Connector2 (J3).
58	NA	NA	NA	NC.
59	PMC_MIO10_500	SPI_MISO_IO1/Bank3_IO2 3P	I, 1.8V LVCMOS	SPI MISO. This Pin is connected to D18[th] pin of Board-to-Board Connector2 (J3).
60	NA	NA	NA	NC.

2.5.6 USB Type-C for Debug UART and JTAG

The Versal Al Edge 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 is 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.
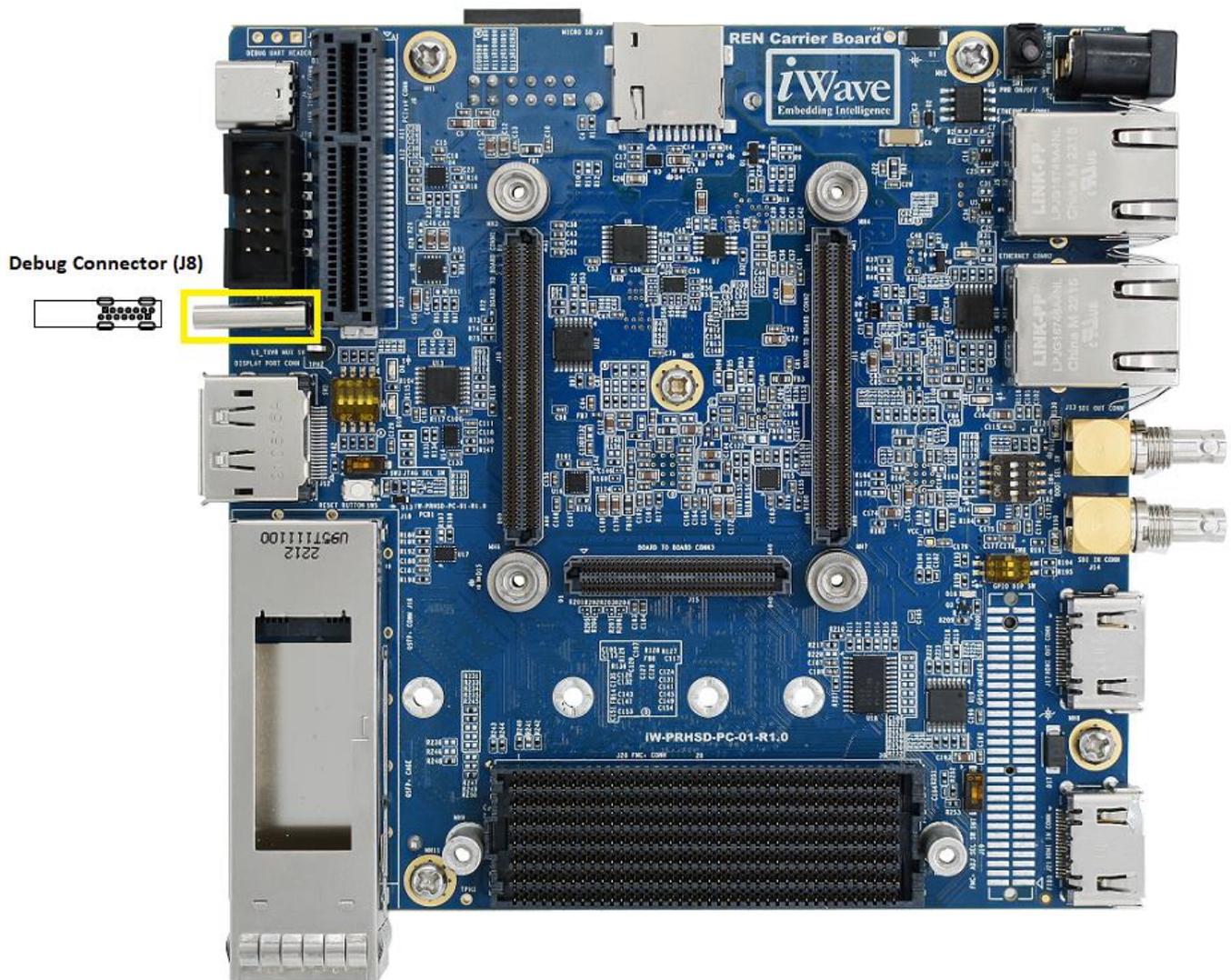
Figure 9: Debug Connector

2.6 PL Interface Features

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

2.6.1 SDI Video IN

The Versal Al Edge 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 Al Edge through Board to Board connector2.

The Versal Al Edge 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.
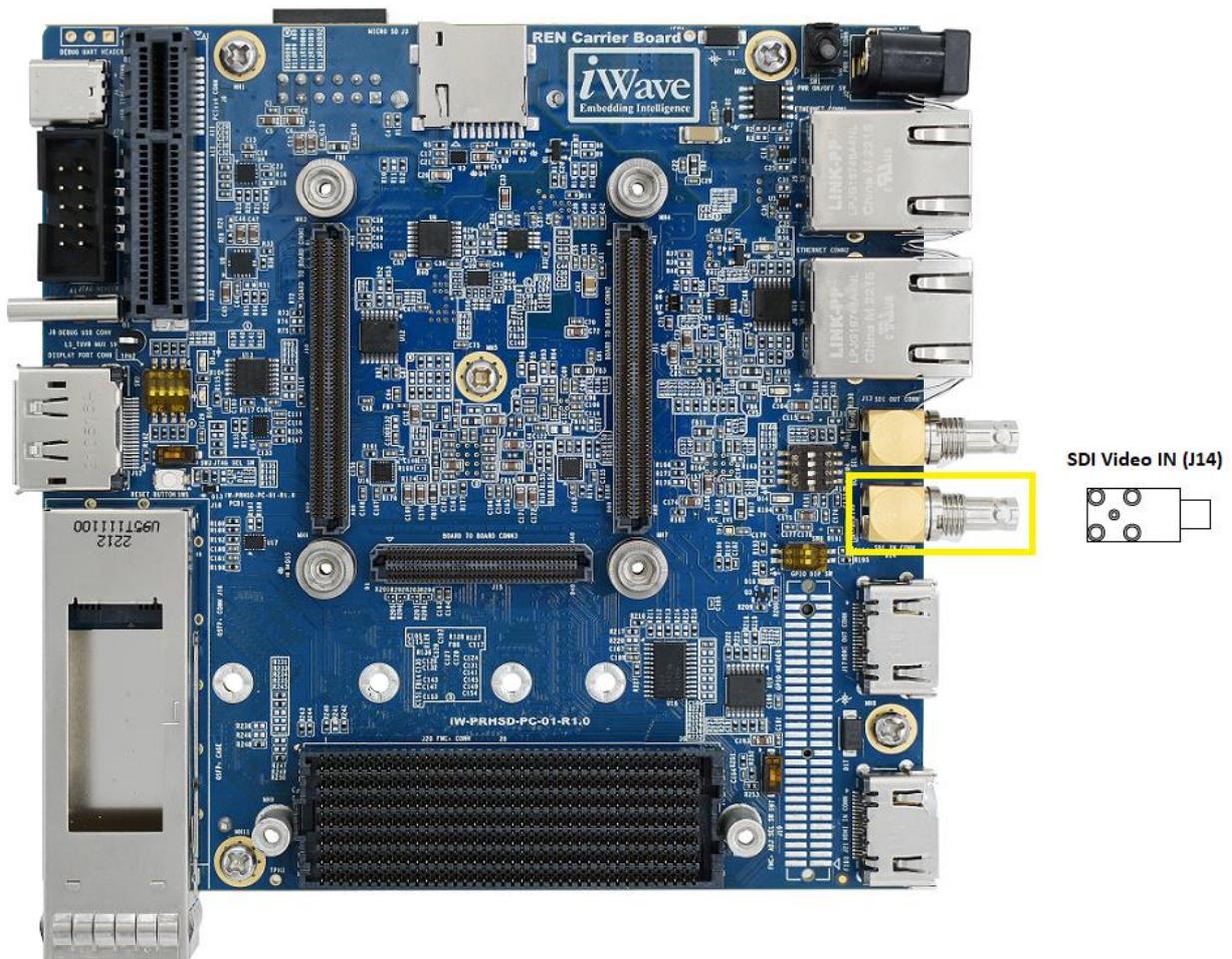
Figure 10: SDI Video IN

2.6.2 SDI Video Out

The Versal Al edge Carrier board supports one 3G/12G SDI Video OUT interface through HD BNC connector (J13). Versal Al Edge'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 Al Edge 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.
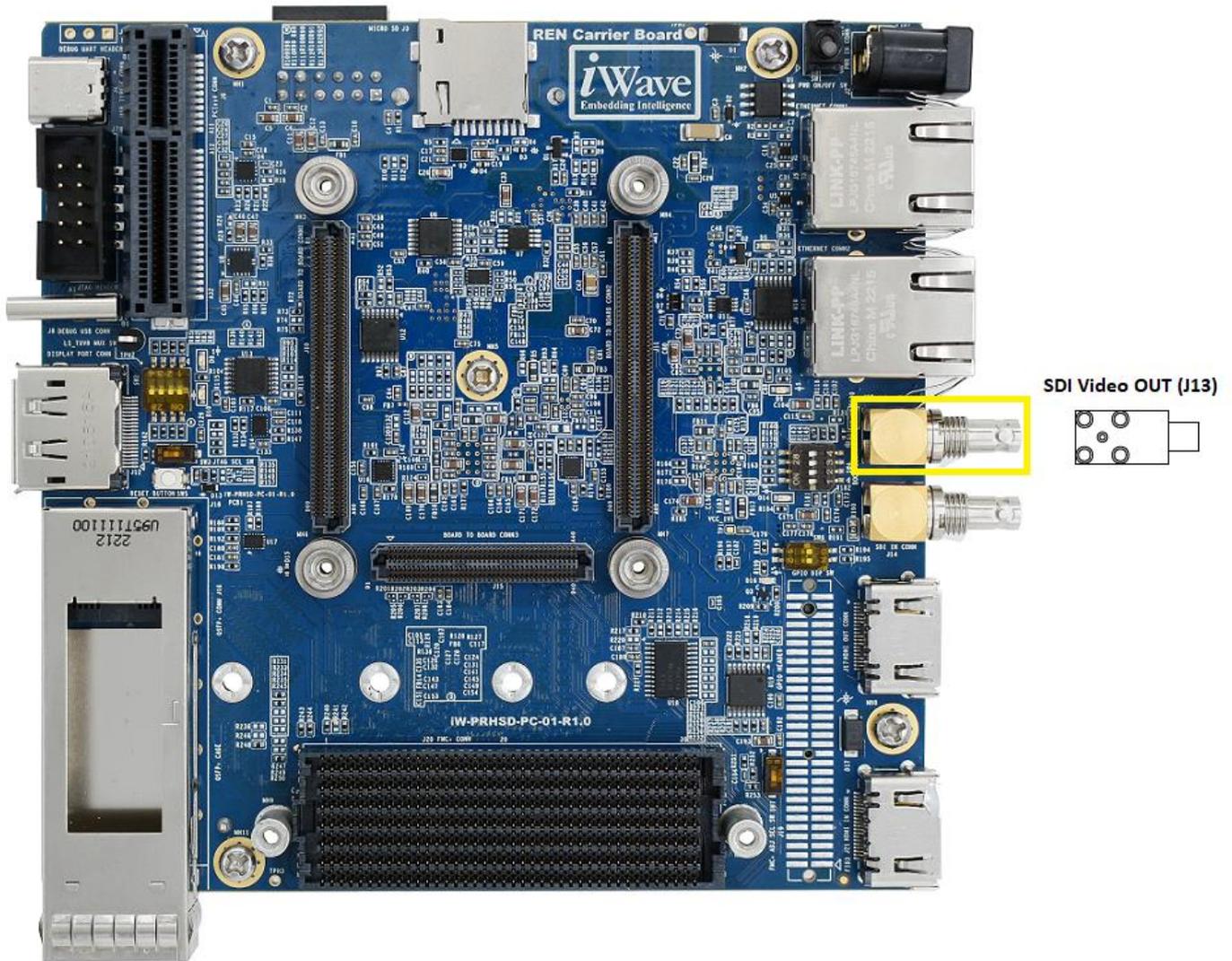
Figure 11: SDI Video OUT

2.6.3 HDMI IN

The Versal Al Edge Carrier board supports one HDMI IN interface through HDMI connector (J21). Versal Al Edge'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.
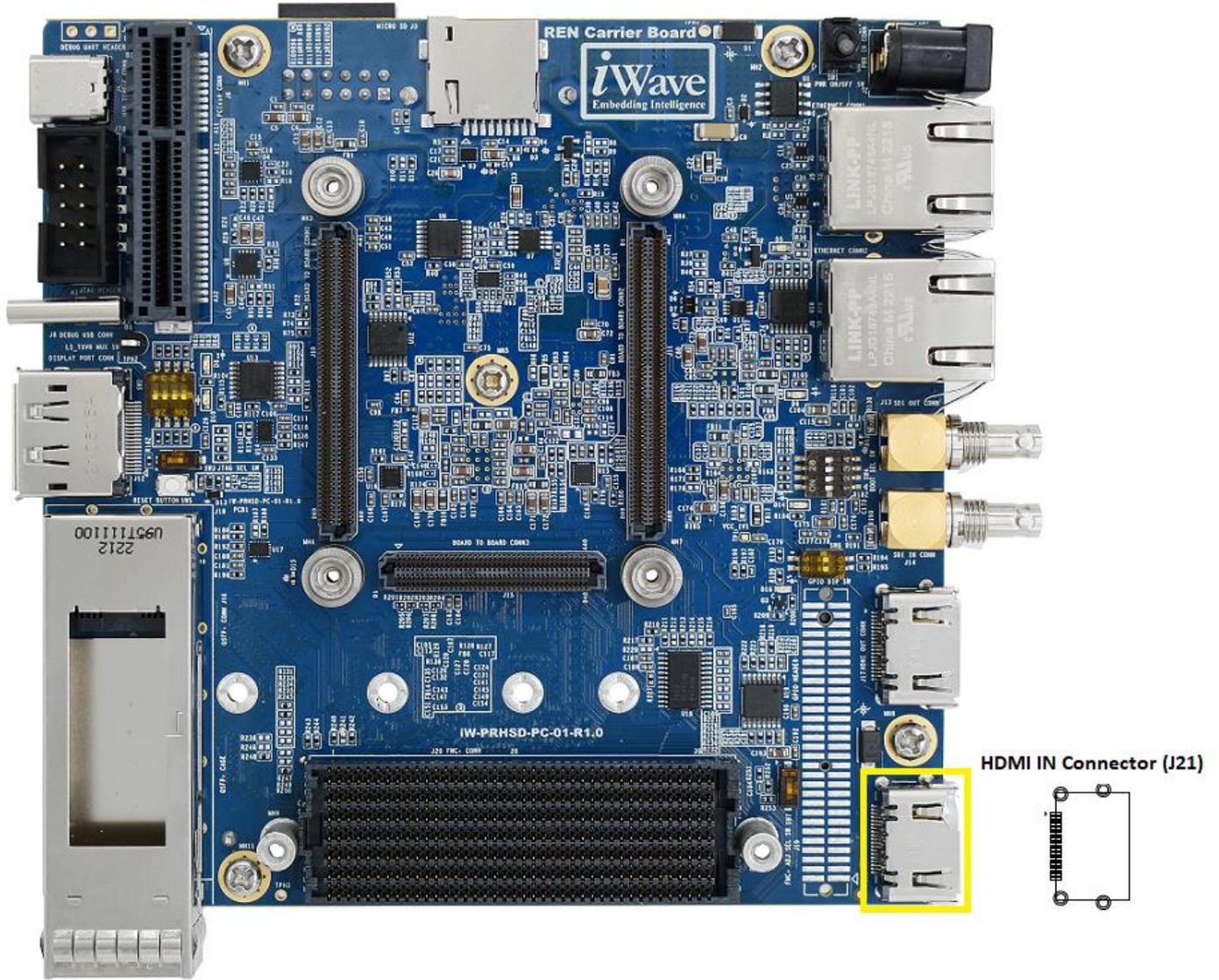
Figure 12: HDMI IN Connector

2.6.4 HDMI OUT

The Versal Al Edge Carrier board supports one HDMI OUT interface through HDMI connector (J17). Versal Al Edge'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.

HDMI OUT Connector (J17)
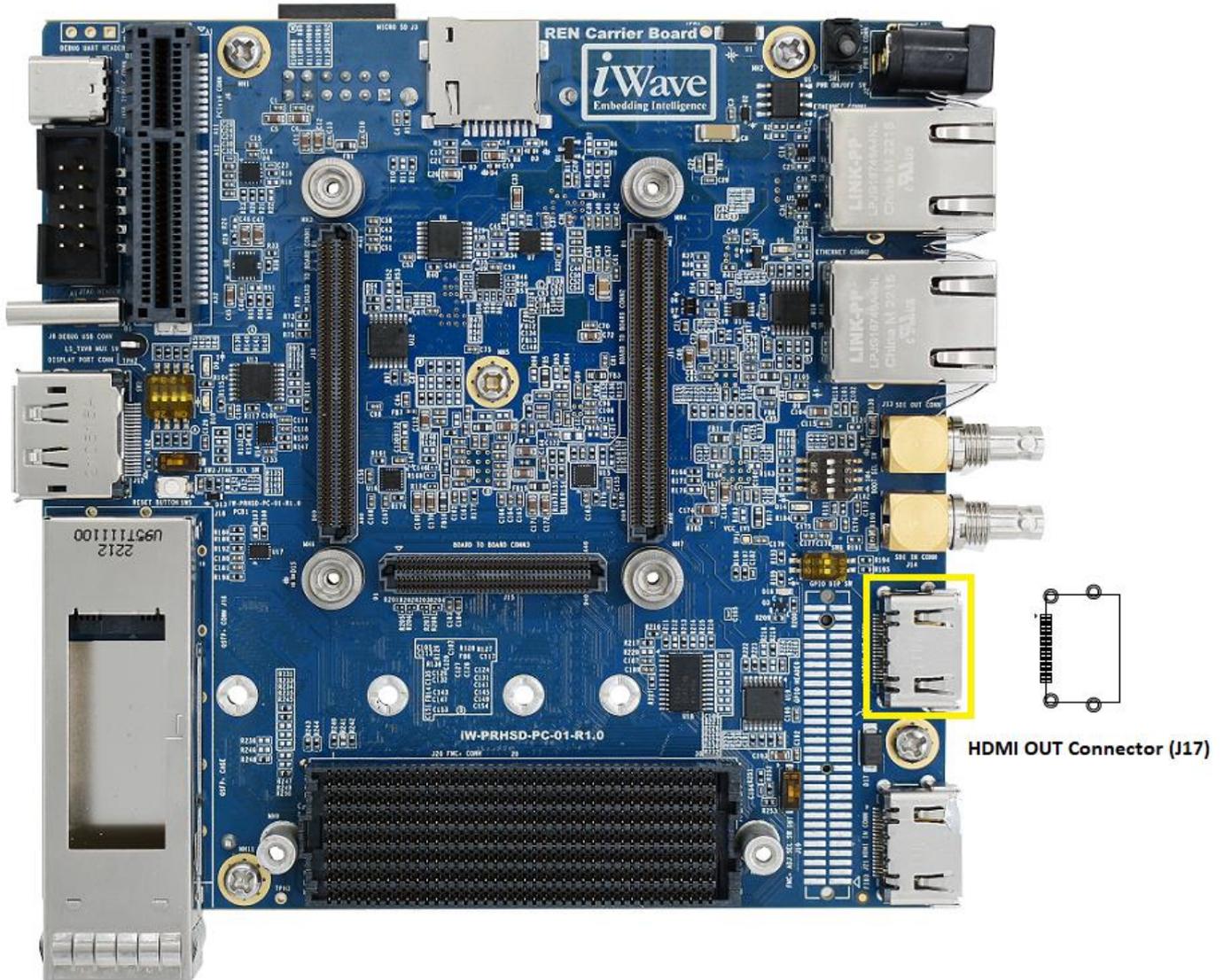
Figure 13: HDMI OUT Connector

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 Al Edge 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) are physically located at the bottom of the board as shown below.
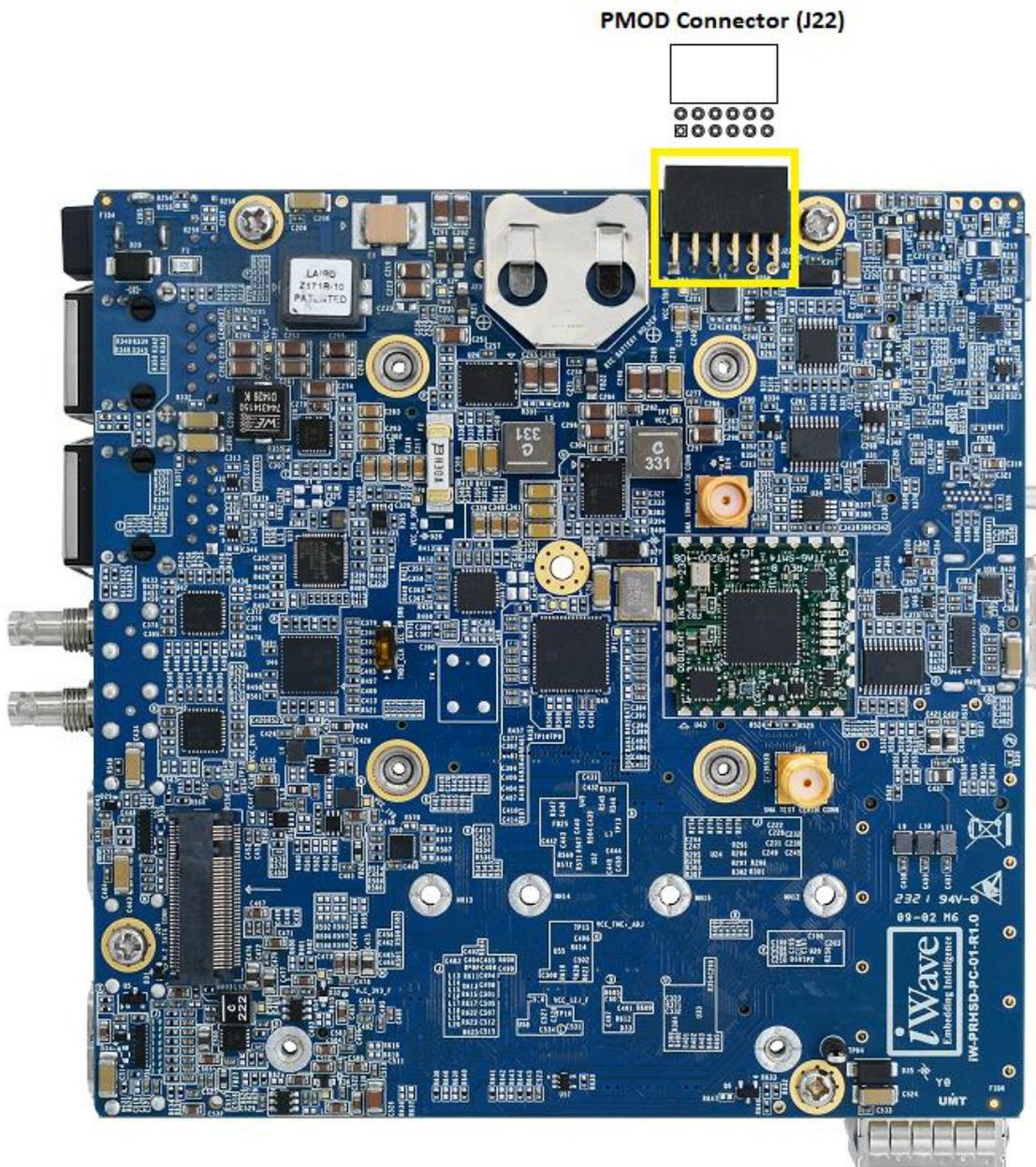
Figure 14: PMOD Host Connector

Table 5: PMOD Connector Pin Assignment

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

2.6.6 FMC+ HPC Connector

The Versal Al Edge Carrier board supports one 560Pin FMC+ HPC connector to support standard ANSI/VITA 57.4 FMC modules.

The FMC+ HPC Connector (J20) supports the below mentioned interface from Versal Al Edge SOM module.

- 4 GTYP High Speed Transceivers
- 1 GTY Reference Clock
- Up to 23 LVDS IOs/46 Single ended (SE) IOs from XPIO Bank 702
- Up to 25 LVDS IOs/50 Single ended (SE) IOs from XPIO Bank 703

This 560Pin FMC+ HPC connector (J20) is physically located at the top of the board as shown below.
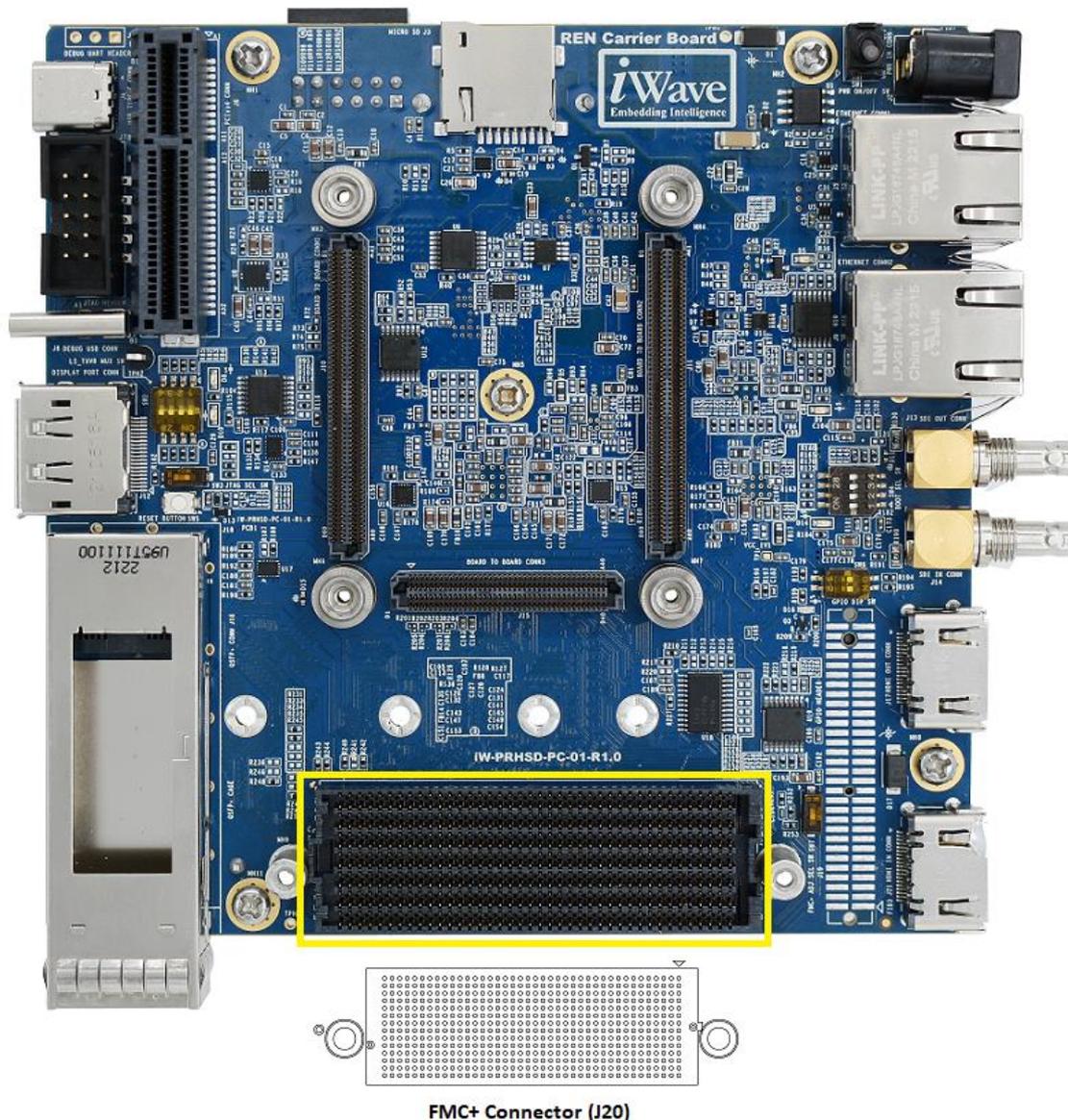
FMC+ Connector (J20)

Figure 15: FMC+ Connector

This 560Pin FMC HPC connector (J25) 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	NC	NC	NC	GND	GND	NC	GND	NC	GND
17	GND	NC	HA17_N_CC	GND	LA11_N	GND	NC	NC	LA13_P	GND	NC	GND	NC	GND
18	NC	GND	GND	NC	GND	LA16_P	GND	NC	LA13_N	LA14_P	GND	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	GND	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	HB16_P	NC	TRST_L	GA0	GND	NC	GND	NC
35	NC	GND	NC	GND	LA30_N	GND	HB16_N	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	NC	GND	NC	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+ HPC 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.

Table 6: FMC+ HPC Connector Pin Assignment

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Al Edge 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.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge 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*	
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.
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	O, 3.3V	CLK-DIR This Pin is connected to 4th pin of IO Expander (U52).
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

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Al Edge 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*	
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.
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 Connector2	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, 1.5V	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, 1.5V	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, 1.5V	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, 1.5V	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.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Al Edge 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*	
98	C18	LA14_P	Board to Board Connector 1	C11	XP_E24_LVDS703_L25P	703	E24	IO_L25P_N8P2_703	IO, 1.5V	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, 1.5V	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, 1.5V	PL Bank703 IO6 differential positive.
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, 1.5V	PL Bank703 IO6 differential negative.
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, 1.5V	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, 1.5V	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	FMC+ I2C Clock Signal. This Pin is connected from 10th pin of I2C Bus switch (U53).
111	C31	SDA	NA	NA	NA	NA	NA	NA	IO, 3.3V LVCMOS	FMC+ I2C Data Signal. This Pin is connected from 9th pin of I2C Bus switch (U53).
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	1K, PU	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 connected to 8th pin of IO Expander (U52).
122	D2	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
123	D3	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Al Edge 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***		**Description**
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, 1.5V		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, 1.5V		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, 1.5V		PL Bank703 IO5 differential positive.
132	D12	LA05_N	Board to Board Connector 1	C3	XP_B28_LVDS703_L5N	703	B28	IO_L5N_N1P5_703	IO, 1.5V		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, 1.5V		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, 1.5V		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, 1.5V		PL Bank703 IO24 differential positive.
138	D18	LA13_N	Board to Board Connector 1	C10	XP_F24_LVDS703_L24N_GC	703	F24	IO_L24N_GC_XCC_N8P1_703	IO, 1.5V		PL Bank703 IO24 differential negative.
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, 1.5V		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, 1.5V		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, 1.5V		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, 1.5V		PL Bank703 IO17 differential negative.
145	D25	GND	NA	NA	GND	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, 1.5V		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, 1.5V		PL Bank702 IO16 differential negative.
148	D28	GND	NA	NA	GND	NA	NA	NA	Power		Ground.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge 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*		
149	D29	TCK	Board to Board Connector 2	A9	JTAG_TCK	503	AH10	TCK_503	I, 3.3V CMOS/ 49.9K PU		JTAG Test Clock. This Pin is connected to A9 pin of Board-to-Board Connector2 (J3) through Voltage level translator.
150	D30	TDI	Board to Board Connector 2	A12	JTAG_TDI	503	AG10	TDI_503	I, 3.3V CMOS/ 49.9K PU		JTAG Test Data Input. This Pin is connected to A12 pin of Board-to-Board Connector2 (J3) through Voltage level translator.
151	D31	TDO	Board to Board Connector 2	A11	JTAG_TDO	503	AF8	TDO_503	O, 3.3V CMOS/ 49.9K PU		FMC+ Test Data Output. This pin is connected to D30th pin of FMC+ Connector(J25)
152	D32	3P3VAUX	NA	NA	VCC_3V3	NA	NA	NA	O, 3.3V Power		Carrier Board Supply Voltage.
153	D33	TMS	Board to Board Connector 2	A10	JTAG_TMS	503	AH9	TMS_503	I, 3.3V CMOS/ 49.9K PU		JTAG Test Mode Select. This Pin is connected to A10 pin of Board-to-Board Connector2 (J3) through Voltage level translator.
154	D34	TRST_L	Board to Board Connector 2	A8	NC	NA	NA	NA	NA		NC. This Pin is connected to A8 pin of Board-to-Board Connector2 (J3) through Voltage level translator.
155	D35	GA1	NA	NA	NA	NA	NA	NA	1K, PU		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	Board to Board connector 1	D25	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_M0P 127_702	IO, 1.5V		PL Bank702 IO9 differential negative.
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	IO, 1.5V		PL Bank702 IO1 differential positive.
167	E7	HA05_N	Board to Board connector 1	C28	XP_T28_LVDS702_L1N	702	T28	IO_L1N_N0P3_M0P111_702	IO, 1.5V		PL Bank702 IO1 differential negative.
168	E8	GND	NA	NA	GND	NA	NA	NA	Power		Ground.

| Sl.no | FMC+ Connector VITA | | Board to Board Connectors | | | Versal AI Edge SOM | | | | | |
	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*	Description
169	E9	HA09_P	Board to Board connector 1	B29	XP_J21_LVDS702_L23P	702	J21	IO_L23P_N7P4_M0P154_702	IO, 1.5V	PL Bank702 IO23 differential positive.
170	E10	HA09_N	Board to Board connector 1	B30	XP_J21_LVDS702_L23N	702	J21	IO_L23N_N7P5_M0P155_702	IO, 1.5V	PL Bank702 IO23 differential negative.
171	E11	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
172	E12	HA13_P	Board to Board Connector 1	D31	NC	NA	NA	NA	NA	NA
173	E13	HA13_N	Board to Board Connector 1	D32	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.
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, 1.5V 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/ 10K PU	Power Good Signal from FMC Module to Carrier. This Pin is connected to 5th pin of IO Expander (U52).

| Sl.no | FMC+ Connector VITA | | Board to Board Connectors | | | Versal AI Edge SOM | | | | |
	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*	Description
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, 1.5V	PL Bank702 IO12 differential positive.
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, 1.5V	PL Bank702 IO12 differential negative.
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	IO, 1.5V	PL Bank702 IO0 differential positive.
208	F8	HA04_N	Board to Board Connector 1	C26	XP_U28_LVDS702_L0N	702	U28	IO_L0N_XCC_N0P1_M0P109_702	IO, 1.5V	PL Bank702 IO0 differential negative.
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, 1.5V	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, 1.5V	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, 1.5V	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, 1.5V	PL Bank702 IO18 differential negative.
215	F15	GND	NA	NA	NC	NA	NA	NA	Power	Ground.
216	F16	HA15_P	Board to Board Connector 1	B31	NC	NA	NA	NA	NA	NC.
217	F17	HA15_N	Board to Board Connector 1	B32	NC	NA	NA	NA	NA	NC.
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.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge SOM				
	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*	Description
233	F33	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
234	F34	HB16_P	Board to Board Connector 1	A13	XP_C22_LVDS703_L23P	703	C22	IO_L23P_N7P4_703	IO, 1.5V	PL Bank703 IO23 differential positive.
235	F35	HB16_N	Board to Board Connector 1	A14	XP_B22_LVDS703_L23N	703	B22	IO_L23N_N7P5_703	IO, 1.5V	PL Bank703 IO23 differential negative.
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, 1.5V 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, 1.5V	PL Bank703 IO12 differential positive.
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, 1.5V	PL Bank703 IO12 differential negative.
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, 1.5V	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, 1.5V	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, 1.5V	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, 1.5V	PL Bank703 IO0 differential negative.
254	G14	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
255	G15	LA12_P	Board to Board Connector 1	D13	XP_E22_LVDS703_L14P	703	E22	IO_L14P_N4P4_703	IO, 1.5V	PL Bank703 IO14 differential positive.
256	G16	LA12_N	Board to Board Connector 1	D14	NC	NA	NA	NA	NA	NA
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, 1.5V	PL Bank703 IO9 differential positive.
259	G19	LA16_N	Board to Board Connector 1	B10	XP_B25_LVDS703_L9N_GC	703	B25	IO_L9N_GC_XCC_N3P1_703	IO, 1.5V	PL Bank703 IO9 differential negative.
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, 1.5V	PL Bank703 IO11 differential positive.

	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge SOM					
Sl.no	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*	Description
262	G22	LA20_N	Board to Board Connector 1	B14	XP_B27_LVDS703_L11N	703	B27	IO_L11N_N3P5_703	IO, 1.5V	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, 1.5V	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, 1.5V	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	703	M22	IO_L15P_XCC_N5P0_M0P138_702	IO, 1.5V	PL Bank703 IO15 differential positive.
268	G28	LA25_N	Board to Board Connector 1	D19	XP_M23_LVDS702_L15N	703	M23	IO_L15N_XCC_N5P1_M0P139_702	IO, 1.5V	PL Bank703 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	IO, 1.5V	PL Bank702 IO4 differential positive.
271	G31	LA29_N	Board to Board Connector 1	C21	XP_L28_LVDS702_L4N	702	L28	IO_L4N_N1P3_M0P117_702	IO, 1.5V	PL Bank702 IO4 differential negative.
272	G32	GND	NA	NA	GND	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	IO, 1.5V	PL Bank702 IO8 differential positive.
274	G34	LA31_N	Board to Board Connector 1	B19	XP_R26_LVDS702_L8N	702	R26	IO_L8N_N2P5_M0P125_702	IO, 1.5V	PL Bank702 IO8 differential negative.
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	IO, 1.5V	PL Bank702 IO6 differential positive.
277	G37	LA33_N	Board to Board Connector 1	B23	XP_U26_LVDS702_L6N_GC	702	U26	IO_L6N_GC_XCC_N2P1_M0P121_702	IO, 1.5V	PL Bank702 IO6 differential negative.
278	G38	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
279	G39	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.5V 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.
282	H2	PRSNT_M2C_L	NA	NA	NA	NA	NA	NA	I,3.3V/10K PU	Module Present Signal. This Pin is connected to 6th pin of IO Expander (U52).
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	IO, 1.5V	PL Bank702 IO11 differential positive.
285	H5	CLK0_M2C_N	Board to Board Connector 1	D28	XP_K26_LVDS702_L11N	702	K26	IO_L11N_N3P5_M0P131_702	IO, 1.5V	PL Bank702 IO11 differential negative.
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, 1.5V	PL Bank703 IO18 differential positive.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge 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*		Description
288	H8	LA02_N	Board to Board Connector 2	D3	XP_H22_LVDS703_L18N	703	H22	IO_L18N_XCC_N6P1_703	IO, 1.5V		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, 1.5V		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, 1.5V		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, 1.5V		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, 1.5V		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, 1.5V		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, 1.5V		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, 1.5V		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, 1.5V		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, 1.5V		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, 1.5V		PL Bank703 IO10 differential negative.
304	H24	GND	NA	NA	GND	NA	NA	NA	Power		Ground.
305	H25	LA21_P	Board to Board Connector 1	A9	NC	NA	NA	NA	NA		NA
306	H26	LA21_N	Board to Board Connector 1	A10	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, 1.5V		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, 1.5V		PL Bank703 IO15 differential negative.
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	IO, 1.5V		PL Bank702 IO5 differential positive.
312	H32	LA28_N	Board to Board Connector 1	C19	XP_K28_LVDS702_L5N	702	K28	IO_L5N_N1P5_M0P119_702	IO, 1.5V		PL Bank702 IO5 differential negative.
313	H33	GND	NA	NA	GND	NA	NA	NA	Power		Ground.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge SOM					
	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*	Description
314	H34	LA30_P	Board to Board Connector 1	C22	XP_N28_LVDS702_L3P	702	N28	IO_L3P_XCC_N1P0_M0P114_702	IO, 1.5V	PL Bank702 IO3 differential positive.
315	H35	LA30_N	Board to Board Connector 1	C23	XP_M28_LVDS702_L3N	702	M28	IO_L3N_XCC_N1P1_M0P115_702	IO, 1.5V	PL Bank702 IO3 differential negative.
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	IO, 1.5V	PL Bank702 IO7 differential positive.
318	H38	LA32_N	Board to Board Connector 1	B21	XP_T26_LVDS702_L7N	702	T26	IO_L7N_N2P3_M0P123_702	IO, 1.5V	PL Bank702 IO7 differential negative.
319	H39	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
320	H40	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.5V 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	IO, 1.5V	PL Bank702 IO10 differential positive.
327	J7	HA03_N	Board to Board Connector 1	D30	XP_L26_LVDS702_L10N	702	L26	IO_L10N_N3P3_M0P129_702	IO, 1.5V	PL Bank702 IO10 differential negative.
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_L21N_XCC_N7P1_M0P151_702	IO, 1.5V	PL Bank702 IO21 differential positive.
330	J10	HA07_N	Board to Board Connector 1	B26	XP_M21_LVDS702_L21N	702	M21	IO_L21P_XCC_N7P0_M0P150_702	IO, 1.5V	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, 1.5V	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, 1.5V	PL Bank702 IO20 differential negative.
334	J14	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
335	J15	HA14_P	Board to Board Connector 1	C31	NC	NA	NA	NA	NA	NA
336	J16	HA14_N	Board to Board Connector 1	C32	NC	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.
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.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Al Edge 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*	
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	Board to Board Connector 1	A11	NC	NA	NA	NA	NA	NC.
354	J34	HB15_N	Board to Board Connector 1	A12	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			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, 1.5V	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, 1.5V	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	IO, 1.5V	PL Bank702 IO2 differential positive.
371	K11	HA06_N	Board to Board Connector 1	C30	XP_R28_LVDS702_L2N	702	R28	IO_L2N_N0P5_M0P113_702	IO, 1.5V	PL Bank702 IO2 differential negative.
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, 1.5V	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, 1.5V	PL Bank702 IO19 differential negative.
375	K15	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Al Edge 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*	
376	K16	HA17_P_CC	Board to Board Connector 1	A20	XP_R23_LVDS702_L14P	702	R23	IO_L14P_N4P4_M0P136_702	IO, 1.5V	PL Bank702 IO14 differential positive.
377	K17	HA17_N_CC	Board to Board Connector 1	A21	XP_P24_LVDS702_L14N	702	P24	IO_L14N_N4P5_M0P137_702	IO, 1.5V	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.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal AI Edge 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*	
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.
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.

| Sl.no | FMC+ Connector VITA | | Board to Board Connectors | | | Versal Al Edge 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*	
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.
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.

| Sl.no | FMC+ Connector VITA | | Board to Board Connectors | | | Versal Al Edge SOM | | | | |
	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*	Description
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.
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 7th pin of IO Expander (U52).
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.

| Sl.no | FMC+ Connector VITA | | Board to Board Connectors | | | Versal Al Edge 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*	
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.
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, 1.5V and 1.2V. By default, VADJ is set to 1.5V. Contact iWave for further details.

*IO Type of IOs originating from Versal Al Edge is configurable. Hence for exact IO type configuration options, refer Xilinx Versal Al Edge datasheet.

2.7   Additional Features

2.7.1 Clock Synthesizers

The Versal AI Edge 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		B21-1 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 OUT4n 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	1PPS_REFCLK_OUT	1Hz	B2B-1 A47th pin.
23	OUT7p	NA	-	NA
24	OUT7n	NA		NA
26	OUT8p	NA	-	NA
27	OUT8n	NA		NA
29	OUT9p	HS_TXVR1_CLK0P	156.25MHz	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

Table 8: Clock Synthesizer 2 Output Clocks

Pin No	Pin Name	Signal Name	Programmed Frequency	Connected To
12	OUT0p	HS_TXVR0_CLK1P	156.25MHz	B2B-2 C31th pin. This clock is from OUT0p of Clock synthesizer2. This clock is input to reference clock 1 of GTYP bank103(Optional)
11	OUT0n	HS_TXVR0_CLK1N		B2B-2 C32th pin. This clock is from OUT0n of Clock synthesizer2. This clock is input to reference clock 1 of GTYP bank103(Optional)
15	OUT1p	NA	-	NA
14	OUT1n	NA		NA
19	OUT2p	NA	-	NA
18	OUT2n	NA		NA
22	OUT3p	NA	-	NA
21	OUT3n	NA		NA
27	OUT4p	NA	-	NA
26	OUT4n	NA		NA
31	OUT5p	NC	-	NA
30	OUT5n	NC		NA
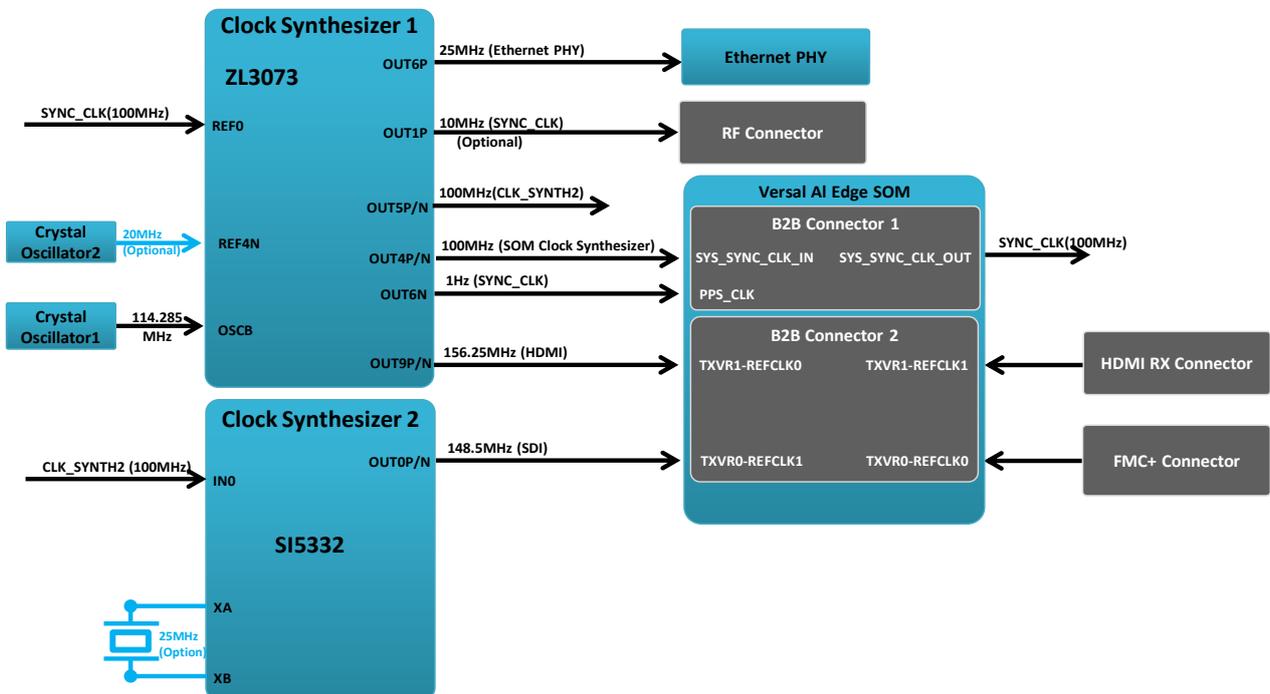
Figure 17: Clock Tree

2.7.2 IO Expanders

The Versal Al Edge Carrier board supports two GPIO 16-Bit port Expander. Refer below table for IO Expander pin mapping.

Table 9: IO EXPANDER 1 Output

Pin No	Pin 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 Retimer IC
5	P01	IOEXP1_HDMITX_CEC	I, 3.3V CMOS	Connected to HDMI OUT Retimer IC
6	P02	IOEXP1_HDMIRX_CEC	O, 3.3V CMOS	Connected to HDMI IN Connector
7	P03	IOEXP1_EEPROM_WCn	O, 3.3V CMOS	Connected to EEPROM
8	P04	IOEXP1_SDI_IN_CD_INT	I, 3.3V CMOS	Connected to SDI IN IC
9	P05	IOEXP1_SDI_CD_INT	I, 3.3V CMOS	Connected to SDI OUT IC
10	P06	IOEXP1_EXP2_INT	I, 3.3V CMOS	Connected to IO Expander 2
11	P07	NA	NA	NA
13	P10	IOEXP1_BRD_CONFIG0	I, 3.3V CMOS/ 10K PD	For Board Configuration
14	P11	IOEXP1_BRD_CONFIG1	I, 3.3V CMOS/ 10K PD	For Board Configuration
15	P12	IOEXP1_BRD_CONFIG2	I, 3.3V CMOS/ 10K PD	For Board Configuration
16	P13	IOEXP1_BRD_CONFIG3	I, 3.3V CMOS/ 10K PD	For BOM Configuration
17	P14	IOEXP1_BRD_CONFIG4	I, 3.3V CMOS/ 10K PD	For BOM Configuration
18	P15	IOEXP1_BRD_CONFIG5	I, 3.3V CMOS/ 10K PD	For BOM Configuration
19	P16	IOEXP1_BRD_CONFIG6	I, 3.3V CMOS/ 10K PD	For BOM Configuration
20	P17	NA	NA	NA

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	Connected to FMC+ connector
5	P01	B_FMC+_PG_M2C	I, 3.3V CMOS	Connected to FMC+ connector
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
9	P05	B_FMC+_12V_EN	O, 3.3V CMOS/ 10K PD	Connected to FMC+ Power sequence control
10	P06	B_FMC+_3V3_EN	O, 3.3V CMOS/ 10K PD	Connected to FMC+ Power sequence control
11	P07	B_FMC+_ADJ_EN	O, 3.3V CMOS/ 10K PD	Connected to FMC+ Regulator
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

2.7.3 I2C Tree

The Versal Al Edge Carrier board supports one 4 channel I2C Bus Switch (PI4MSD5V9546ALEX). I2C tree shown below.
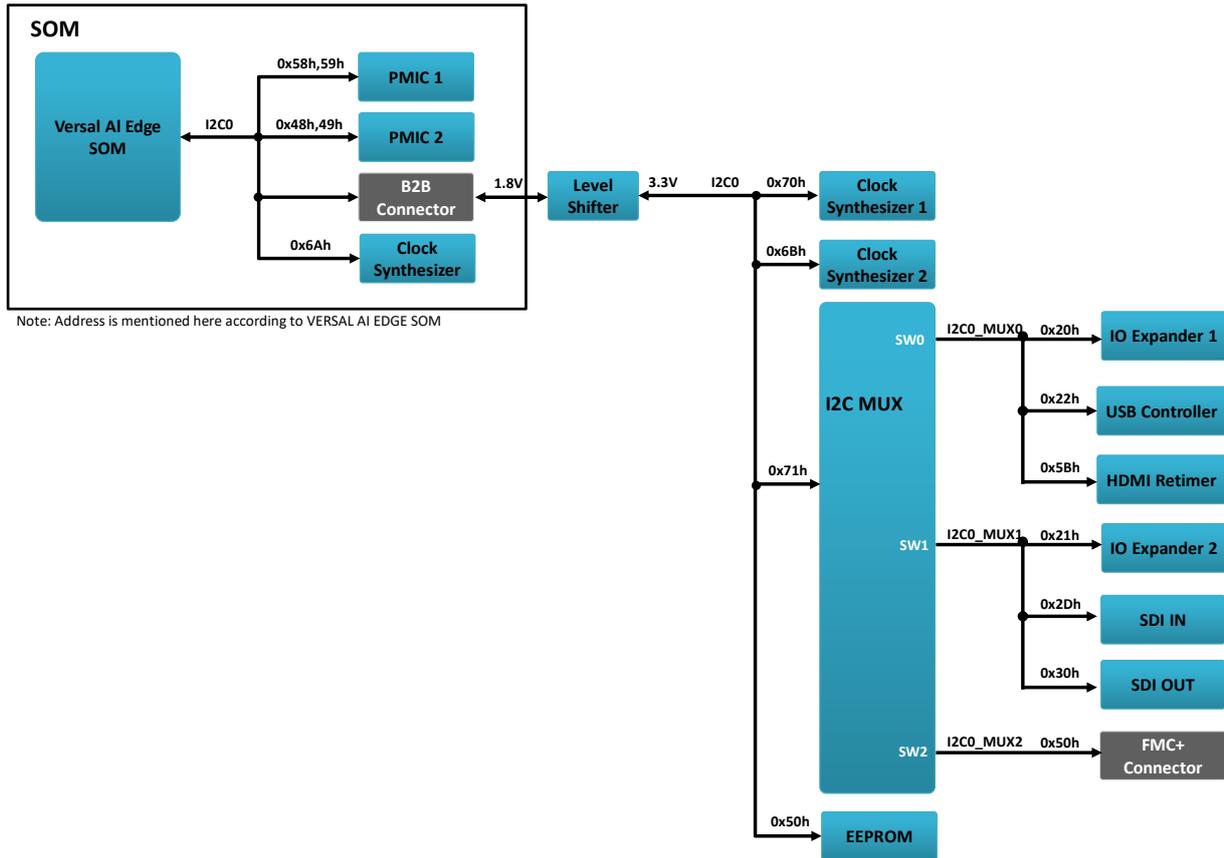
Figure 18: I2C Tree

2.7.4 Power ON/OFF Switch

The Versal AI Edge 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.
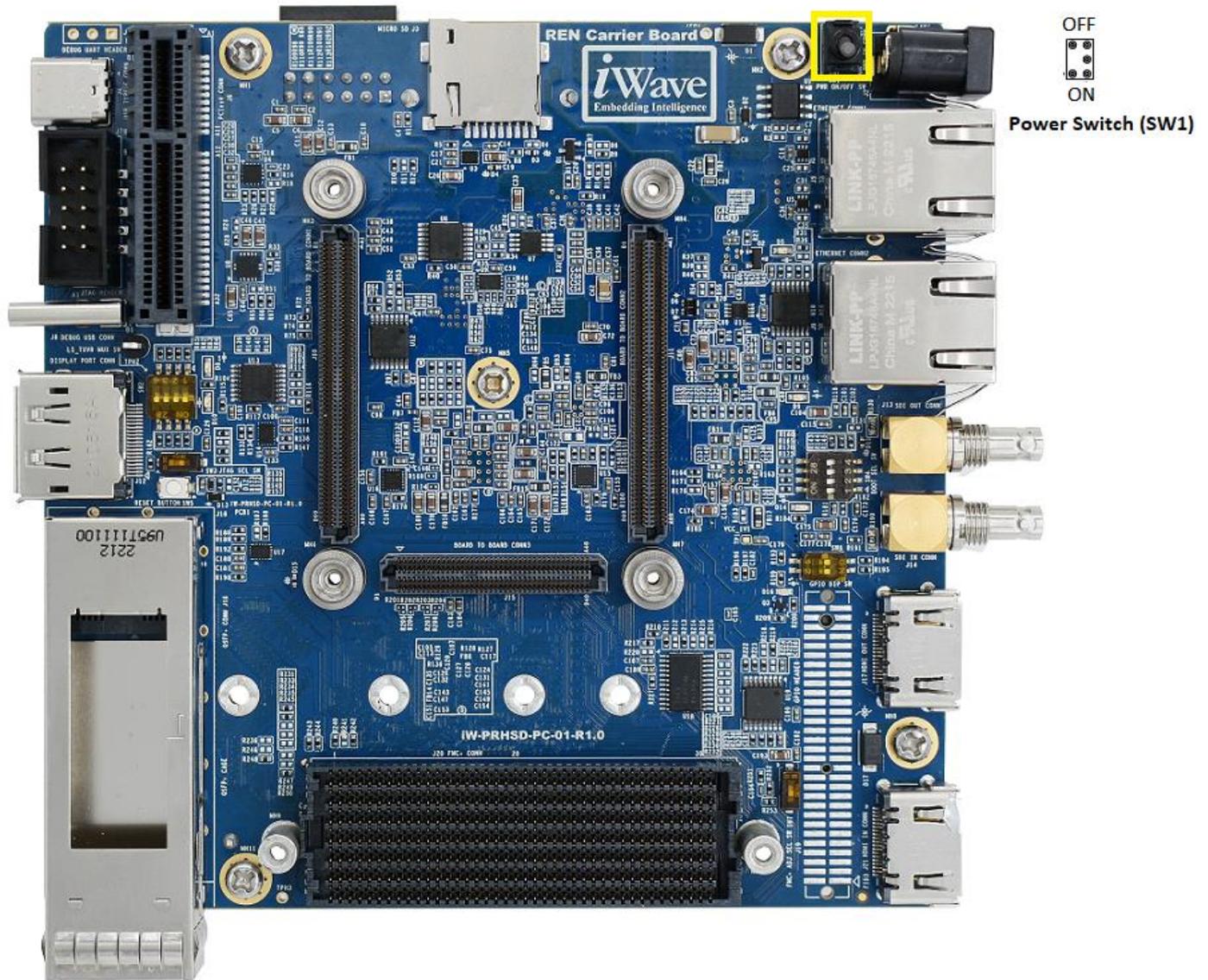

Figure 19: Power On/Off Switch

2.7.5 Reset Switch

The Versal AI Edge Carrier board supports Push button switch (SW5) to reset the Versal AI Edge 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.
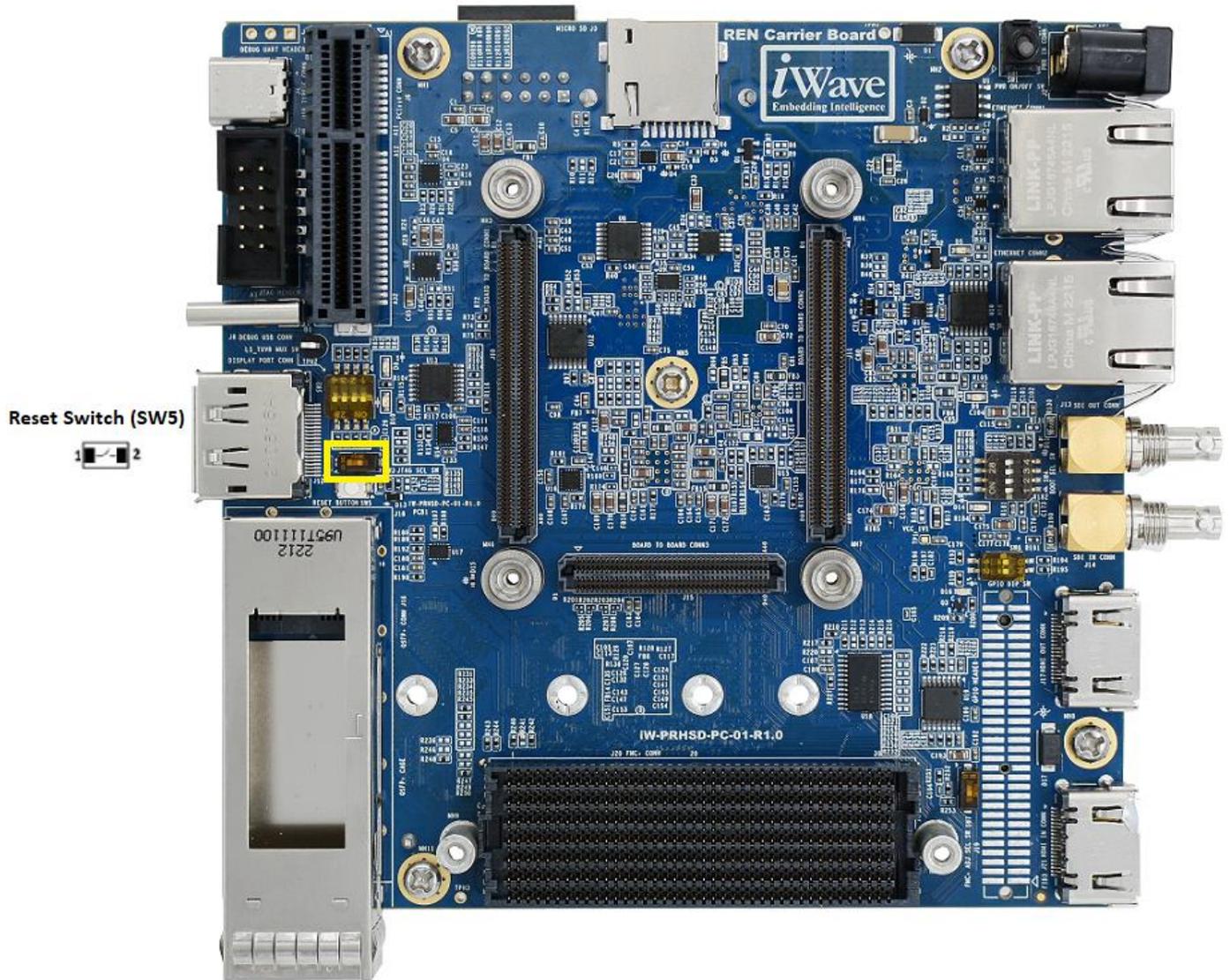
Figure 20: Reset Switch

2.7.6 RTC Coin Cell Holder

The Versal AI Edge Carrier board supports Coin Cell Holder to connect "2032" series 3V coin cell. This coin cell voltage is connected to Versal AI Edge 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.
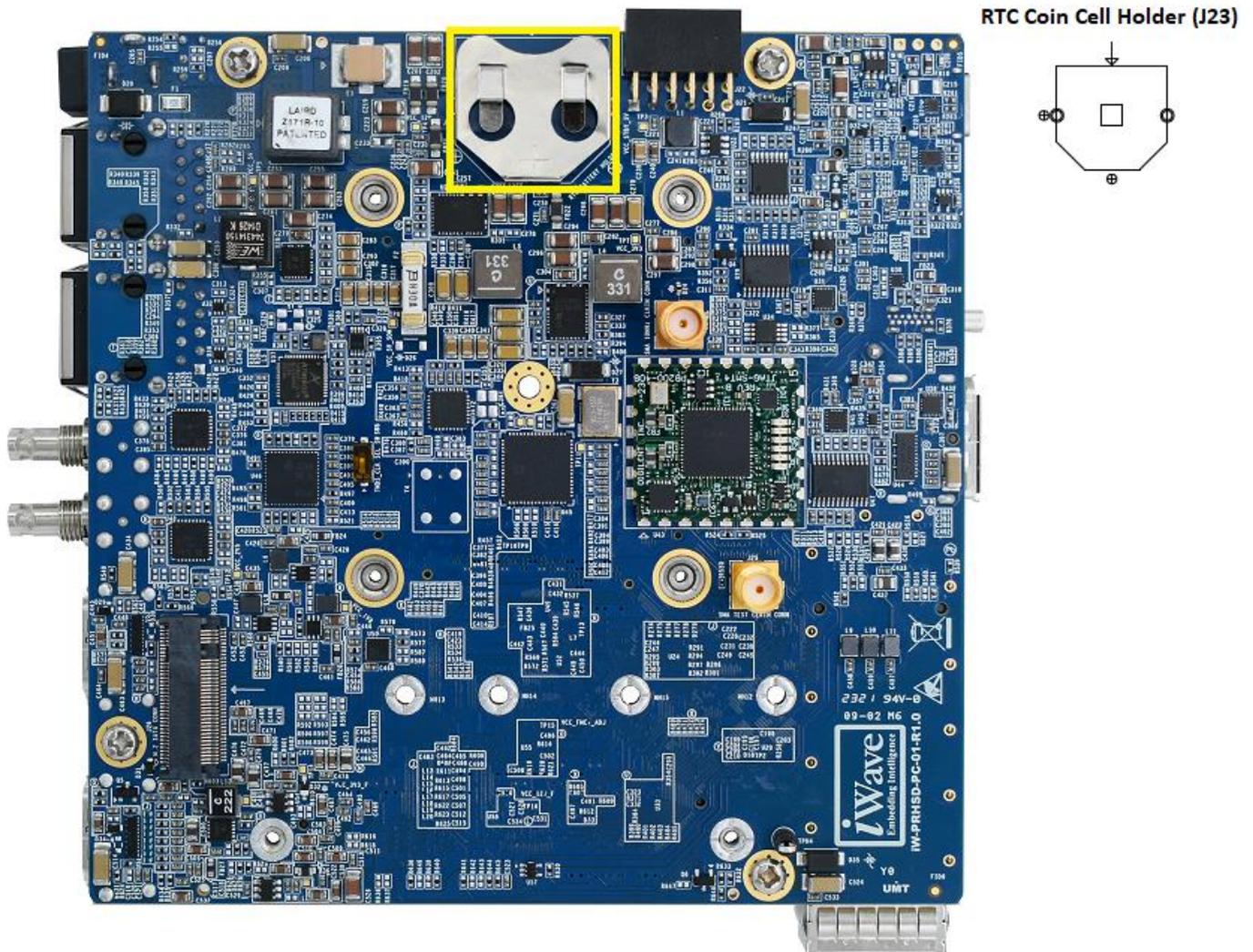
Figure 21: RTC Coin Cell Holder

3. TECHNICAL SPECIFICATION

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

3.1 Power Input Requirement

The Versal Al Edge 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 Al Edge Carrier Board through Power Jack (J2). This connector is physically placed at the top of the board as shown below.
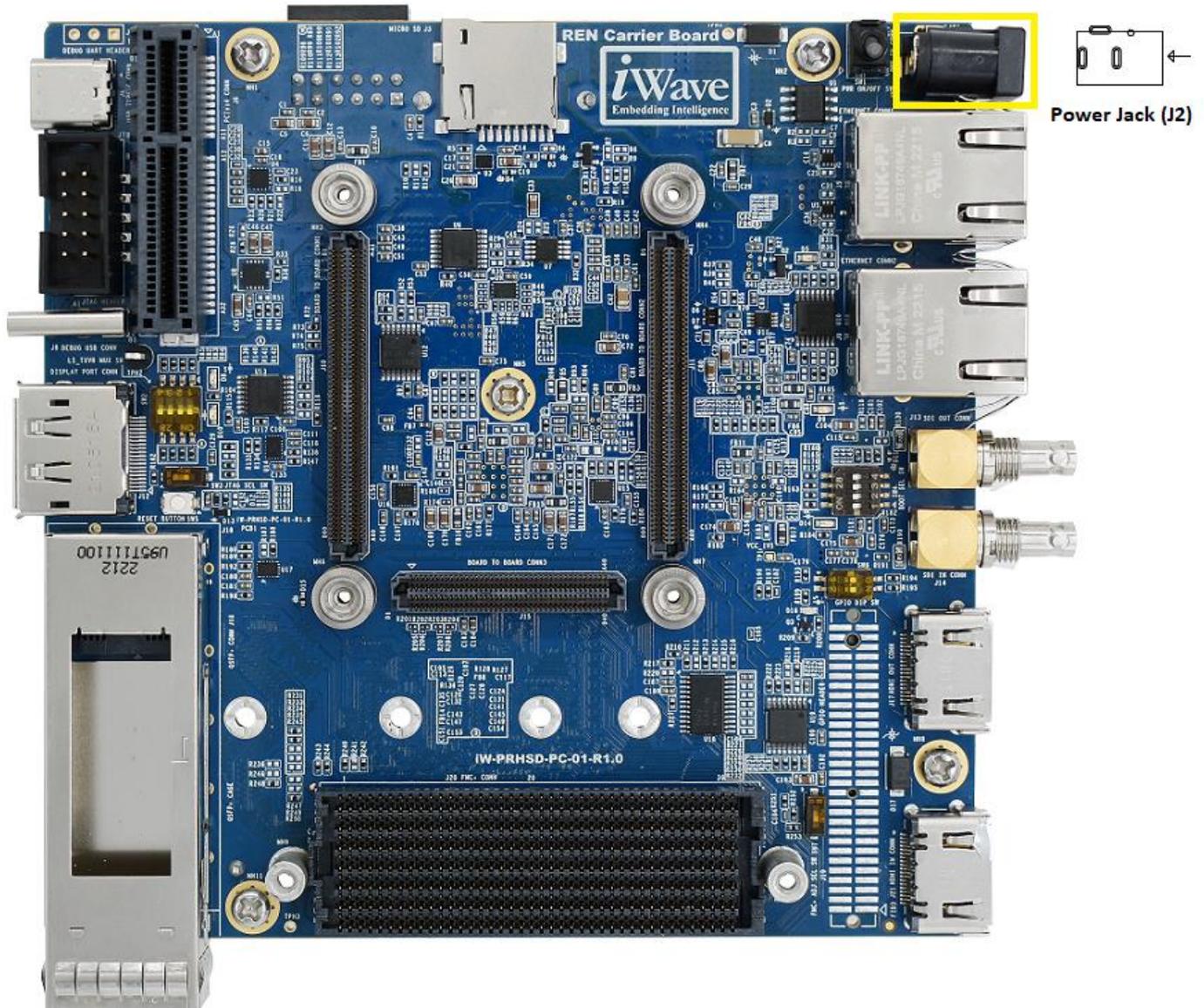

Figure 22: Power Jack

The below table provides the Power Input Requirement Versal AI Edge 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 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 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 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 SOM)					
1	VCC_5V	4.85V	5V	5.15V	25A
2	VRTC_3V0	0V	3V	3.15V	-
To FMC+ Connector					
1	VCC_FMC_ADJ	1.45	1.5	1.55	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

3.3   Environmental Characteristics

3.3.1 Environmental Specification

The below table provides the Environment specification of Versal Al Edge SOM Development platform.

Table 13: Environmental Specification

Parameters	Min	Max
Operating temperature range[1]	-40°C	85°C

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

3.3.2 RoHS Compliance

iWave's Versal Al Edge 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 Al Edge 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.

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.
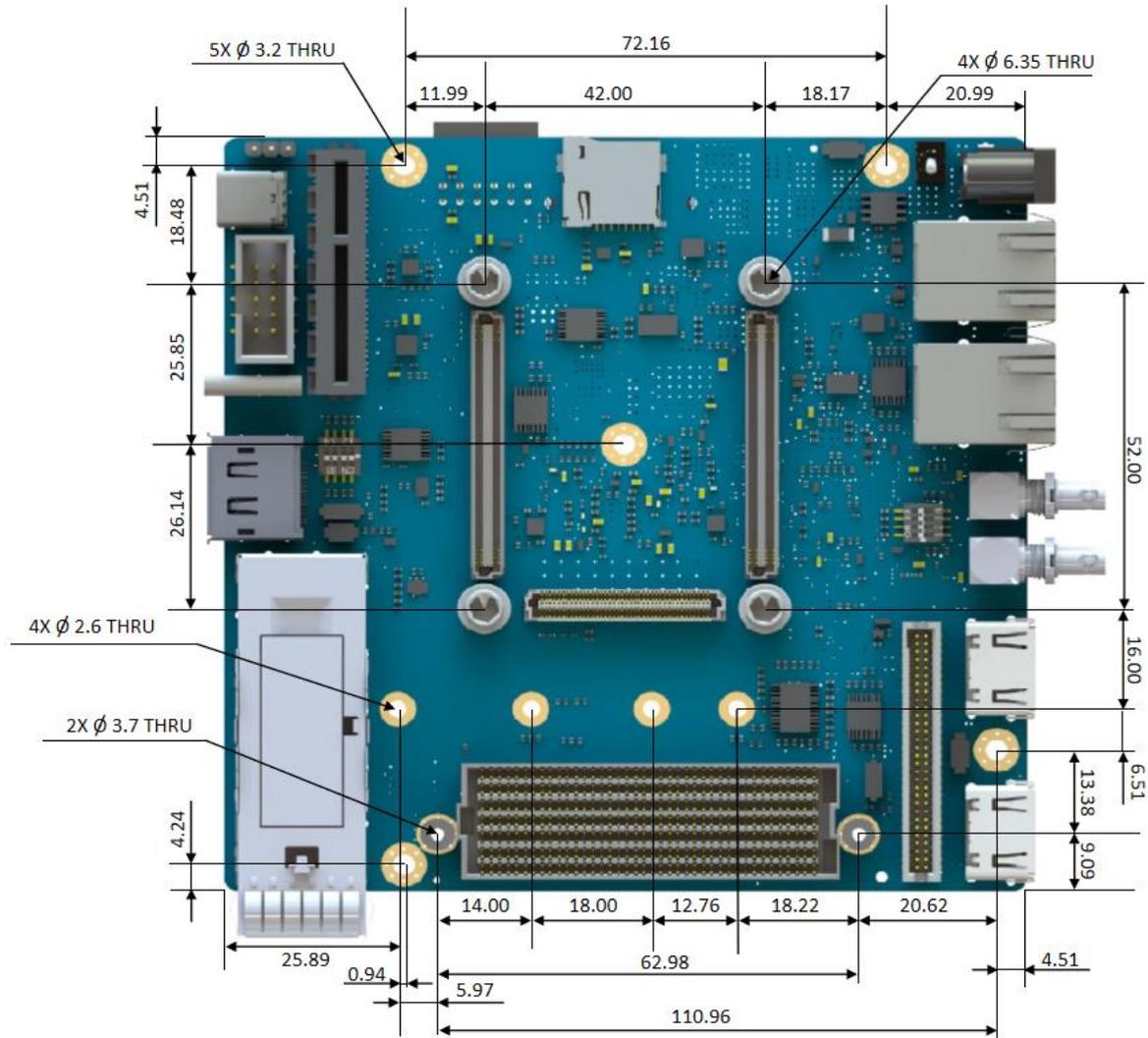
Figure 23: Carrier board Mechanical dimension – Top View

The REN Carrier board PCB thickness is 1.83mm±0.1mm, top side maximum height component is Ethernet Magjack Connector (14.75mm) and bottom side maximum height component is CMC (9.32mm). Please refer the below figure for height details of the Versal AI Edge SOM Carrier board.
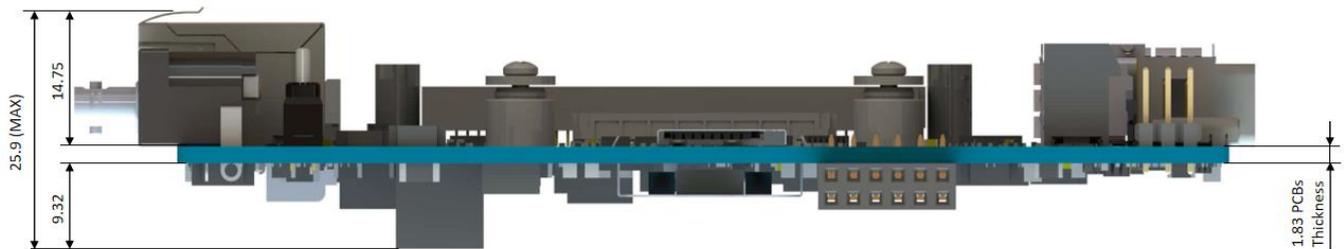
Figure 24: Carrier board Mechanical dimension – Side View

4. ORDERING INFORMATION

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

Table 14: Orderable Product Part Numbers

Product Part Number	Description	Temperature
TBD		

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