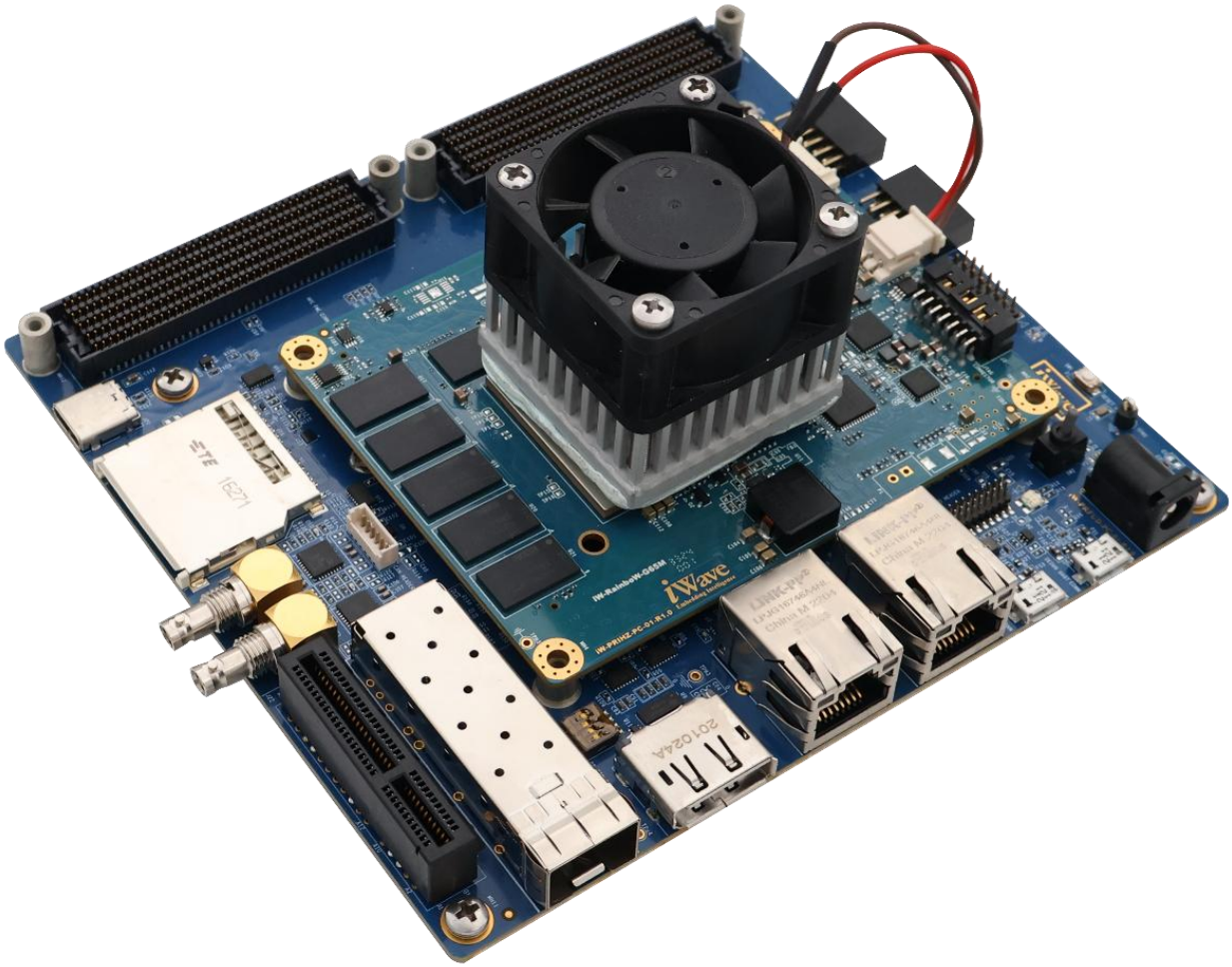
iG-RainboW-G65D
Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM Development Platform
Datasheet



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Document Revision History

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1.0	03rd May 2025	*Updated Document as per the new format * Added Devkit images through the documents * Added JTAG Chain Image in FMC connector sections.

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1. INTRODUCTION

1.1 Purpose

The Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM Development platform incorporates Zynq Ultrascale+ MPSoC based SOM and High-Performance Carrier board for complete validation of Zynq Ultrascale+ MPSoC functionality. This document is the Hardware User Guide for the Zynq Ultrascale+ MPSoC devkit and provides detailed information on the overall design & usage of the Carrier Board from a Hardware Systems perspective. The details about the Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM hardware is explained in another document "iW-RainboW-G60M-Zynq-Ultrascale+MPSoC-SOM-Datasheet".

1.2 Overview

iWave Global's s Zynq Ultrascale+ MPSoC Development platform incorporates Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM which is based on Xilinx's Zynq Ultrascale+ MPSoC and the High-Performance Carrier Board. The development board can be used for quick prototyping of various applications targeted by the Zynq Ultrascale+ MPSoC. With the 130mmx140mm size, carrier board is packed with all the necessary on-board connectors to validate the features of Zynq Ultrascale+ MPSoC SOM.

1.3 List of Acronyms

The following acronyms will be used throughout this document.

Table 1: Acronyms & Abbreviations

Acronyms	Abbreviations
ARM	Advanced RISC Machine
B2B	Board to Board
CAN	Controller Area Network
CH	Channel
CMOS	Complementary Metal Oxide Semiconductor Signal
DP	Display Port
FPGA	Field Programmable Gate Array
FMC	FPGA Mezzanine Card
Gbps	Gigabits per sec
GEM	Gigabit Ethernet Controller
GPIO	General Purpose Input Output
HPC	High Pin Count
I2C	Inter-Integrated Circuit
IC	Integrated Circuit
JTAG	Joint Test Action Group
LVCMOS	Low Voltage Complementary Metal Oxide Semiconductor Signal
LVDS	Low Voltage Differential Signal

Acronyms	Abbreviations
Mbps	Megabits per sec
MHz	Mega Hertz
NC	No Connect
NPTH	Non-Plated Through Hole
PCB	Printed Circuit Board
PCIe	Peripheral Component Interconnect Express
PD	Pull Down
PMOD	Peripheral Module
PTH	Plated Through Hole
PU	Pull Up
RGMII	Reduced Gigabit Media Independent Interface
RX	Receiver
SATA	Serial Advanced Technology Attachment
SDI	Serial Digital Interface
SDIO	Secure Digital Input Output
SDHI	SD Card Host Interface
SFP	Small Form-factor Pluggable
SOM	System On Module
TXVR	Transceiver
TX	Transmitter
UART	Universal Asynchronous Receiver/Transmitter
USB	Universal Serial Bus
USB OTG	USB On The Go

1.4 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
DIFF	Differential Signal
OD	Open Drain Signal
OC	Open Collector Signal
Analog	Analog 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.

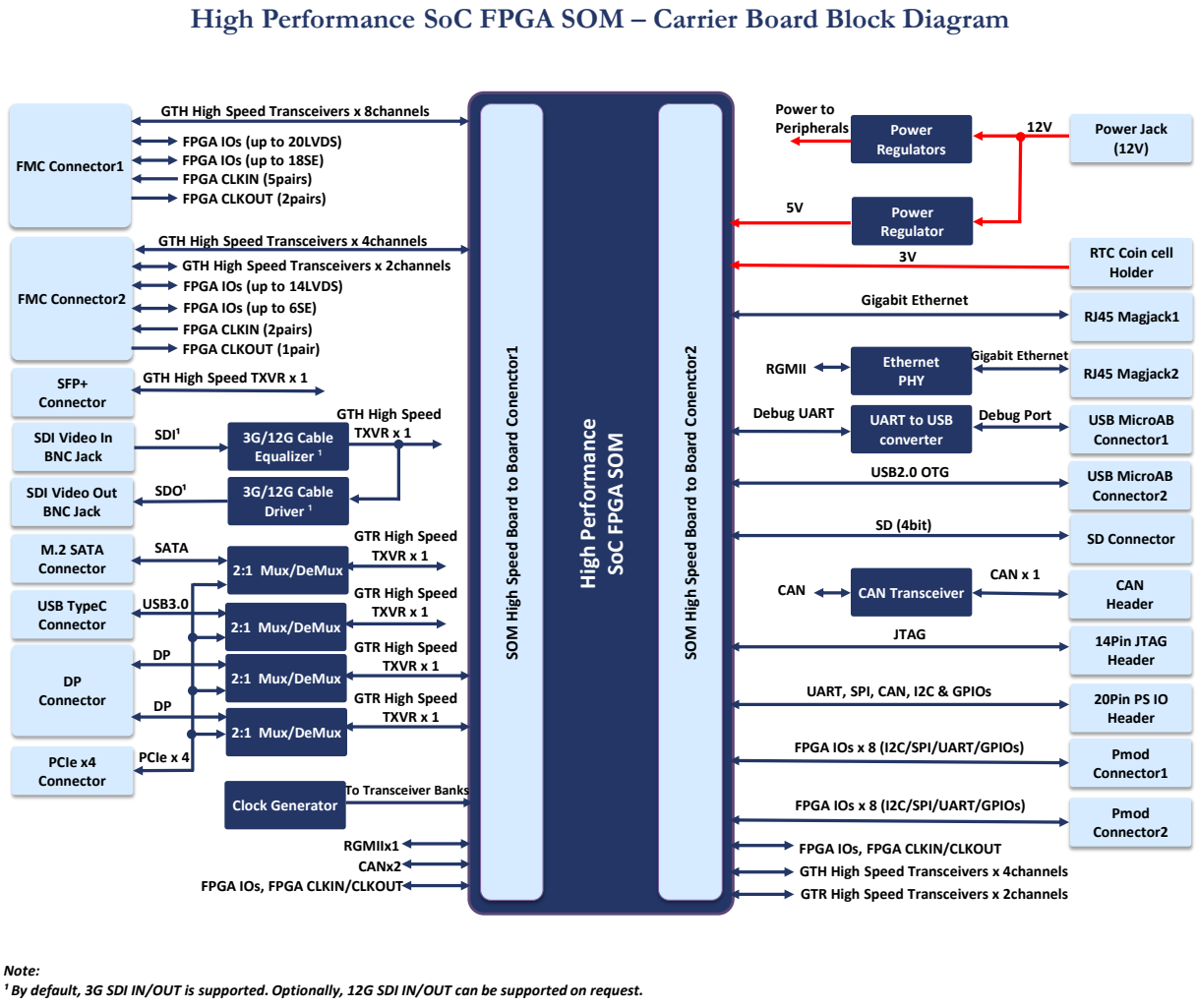
1.5 References

- Zynq Ultrascale+ MPSoC Datasheet & Reference Manual
- Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM Hardware User Guide

2. ARCHITECTURE AND DESIGN

This section provides detailed information about the Zynq Ultrascale+ MPSoC Development platform carrier board features with high level block diagram and detailed information about each block.

2.1 Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM Carrier Board Block Diagram



Note:
¹ By default, 3G SDI IN/OUT is supported. Optionally, 12G SDI IN/OUT can be supported on request.

Figure 1: Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM Carrier Board Block Diagram

2.2 Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM Carrier Board Features

The Zynq Ultrascale+ MPSoC Carrier board supports the following features to validate the Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM supported interfaces.

PS Interface Features

- PS GTR Features:
  - PCIex4 Connector x 1
  - Display Port Connector x 1
  - USB 3.0 OTG through Type-C Connector x 1
  - M.2 SATA Connector x 1
- Gigabit Ethernet through RJ45MagJack (GEM0) x 1
- Gigabit Ethernet through RJ45MagJack (GEM3) x 1
- USB2.0 OTG through MicroAB Connector x 1
- Standard SD Connector x 1
- CAN Header x 1
- Debug UART through USB MicroAB Connector x 1

PL Interface Features

- SFP+ Connector x 1
- SDI Video IN through HD BNC Connector x 1
- SDI Video OUT through HD BNC Connector x 1
- FMC High Pin Count (HPC) Connector1
  - 8 GTH High Speed Transceivers
  - 2 GTH Reference Clock
  - Upto 20 LVDS IOs/40 Single ended (SE) IOs
  - Upto 18 Single ended (SE) IOs
  - 5 Clock Input Capable LVDS/SE pins
  - 2 Clock Output Capable LVDS/SE pins
- FMC High Pin Count (HPC) Connector2
  - 6 GTH High Speed Transceivers
  - 2 GTH Reference Clock Capable
  - Upto 14 LVDS IOs/30 Single ended (SE) IOs
  - Upto 6 Single ended (SE) IOs
  - 2 Clock Input Capable LVDS/SE pins
  - 1 Clock Output Capable LVDS/SE pins
- PMOD Connector x 2

Additional Features

- Clock Synthesizer/Generator
- 16-Bit IO Expander
- JTAG Connector x 1
- 20 Pin GPIO Header x 1
- Power ON/OFF DIP Switch x 1
- Reset Pushbutton Switch x 1
- RTC Coin Cell Holder x 1

General Specification

- Power Supply : DC 12V, 5A Power Input Jack
- Form Factor : 130mmX140mm

2.3 Board to Board Connectors

The Zynq Ultrascale+ MPSoC Carrier board supports two 240 Pin Board to Board mating connectors for Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM attachment. This 240 pin Board to Board connector is capable of handling high-speed serialized signals and can be used for size constrained embedded applications.

2.3.1 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 Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM Hardware User Guide.

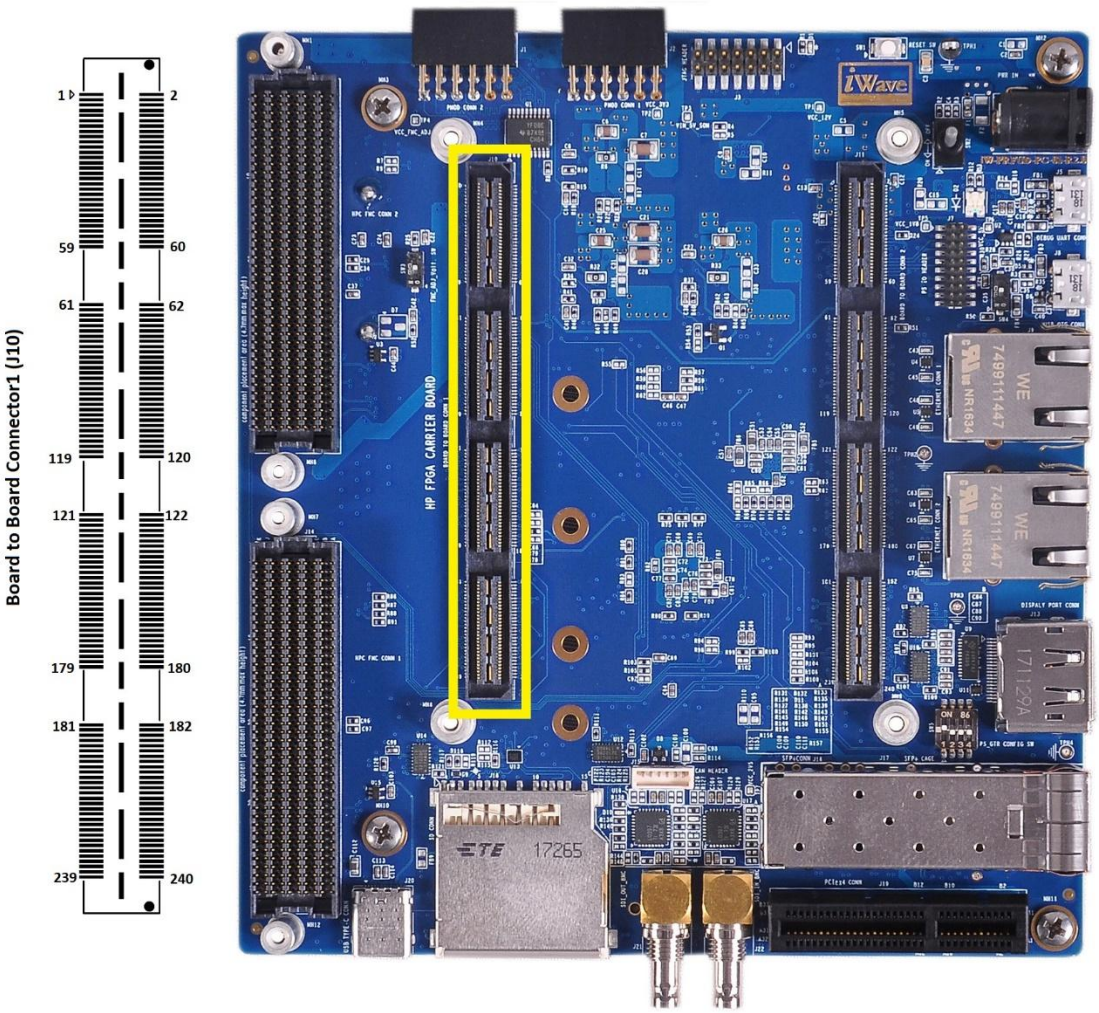


Figure 2: Board to Board Connector1

2.3.2 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 Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM Hardware User Guide.

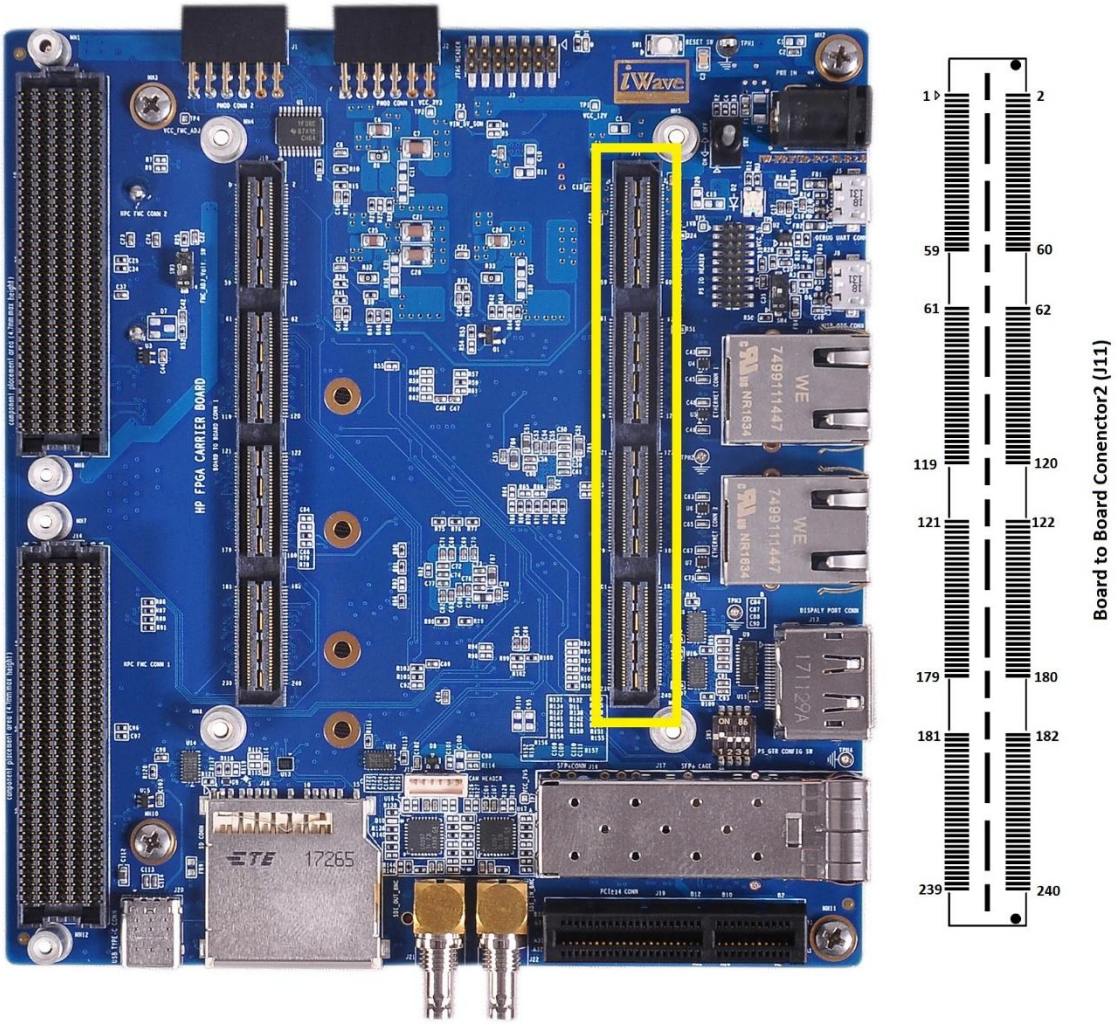


Figure 3: Board to Board Connector2

2.4 PS Interface Features

The features which are supported from Zynq Ultrascale+ MPSoC's PS is explained in the following section.

2.4.1 PS-GTR Transceivers

The Zynq Ultrascale+ MPSoC Carrier board supports different high speed interfaces through four PS-GTR lanes (two from B2B-1 and two from B2B-2). Each PS-GTR lane is conencted to High speed MUX/DEMUX IC to support different high speed interfaces as mentioned below.

- x1, x2, or x4 lane of PCIe at Gen1 (2.5Gb/s) or Gen2 (5.0Gb/s) rates
- 1 or 2 lanes of DisplayPort (TX only) at 1.62Gb/s, 2.7Gb/s, or 5.4Gb/s
- 1 SATA port at 1.5Gb/s, 3.0Gb/s, or 6.0Gb/s
- 1 USB3.0 port at 5.0Gb/s

The MUX/DEMUX connection and interface selection option is shown below for easy understanding. The selection control of each MUX IC is connected to PS-GTR Lane selection 4bit DIP switch (SW5).

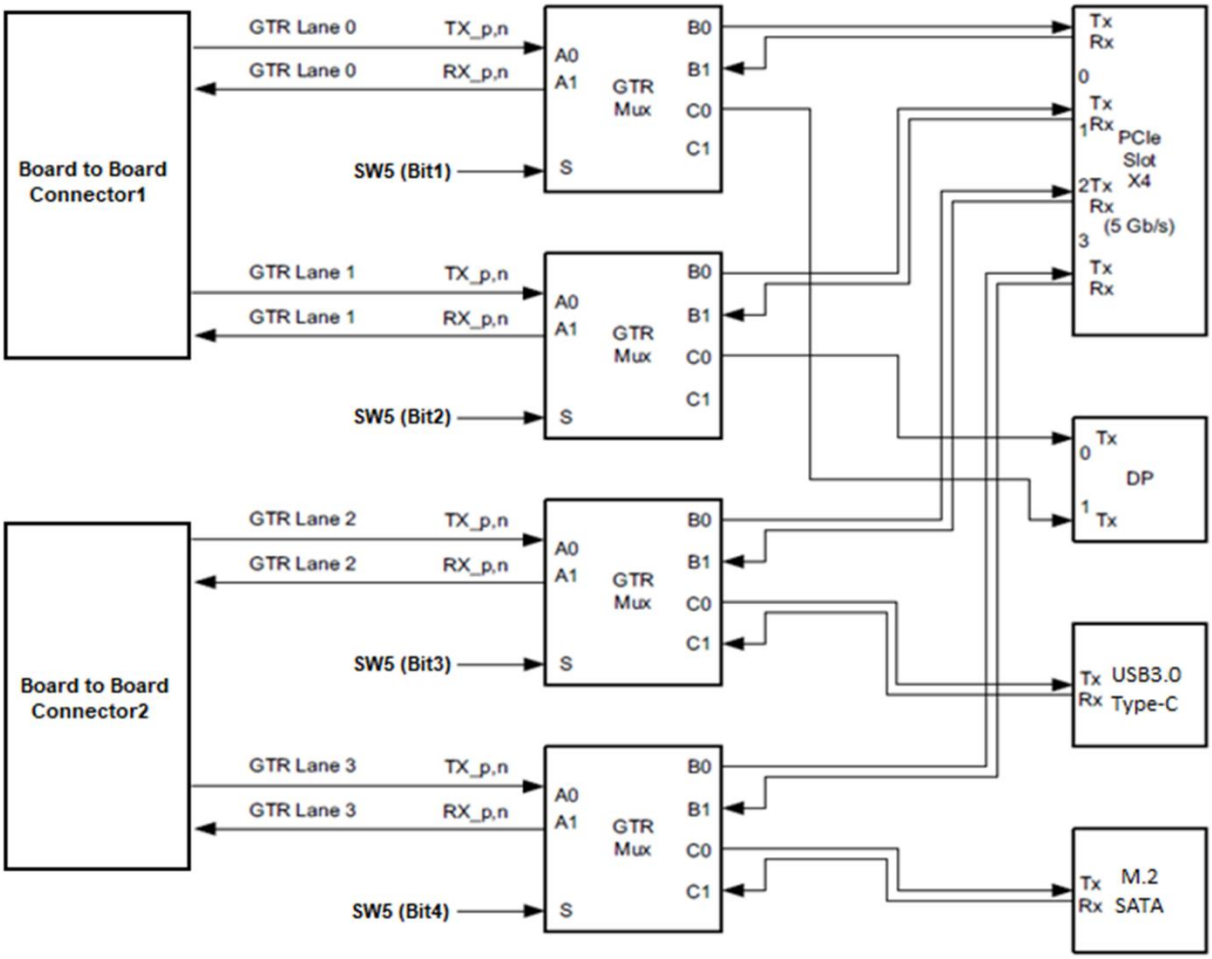


Figure 4: PS-GTR External Switch Connectivity.

The PS-GTR Lane selection switch (SW5) setting and corresponding interface selection option is explained below.

Table 3: PS-GTR Lane Selection Switch Setting

PS-GTR Lanes	PS-GTR Lane Selection Switch (SW5)		
	Switch Bit Number	Switch Bit Position	
		ON	OFF
Lane0	**Bit1**	PS-GTR Lane0 is connected to Lane0 of PCIe x4 connector (default)	PS-GTR Lane0 is connected to Lane1 of DP connector
Lane1	**Bit2**	PS-GTR Lane1 is connected to Lane1 of PCIe x4 connector	PS-GTR Lane1 is connected to Lane0 of DP connector (default)
Lane2	**Bit3**	PS-GTR Lane2 is connected to Lane2 of PCIe x4 connector	PS-GTR Lane2 is connected to Lane1 of USB3.0 Type C connector (default)
Lane3	**Bit4**	PS-GTR Lane3 is connected to Lane3 of PCIe x4 connector	PS-GTR Lane3 is connected to M.2 SATA connector (default)

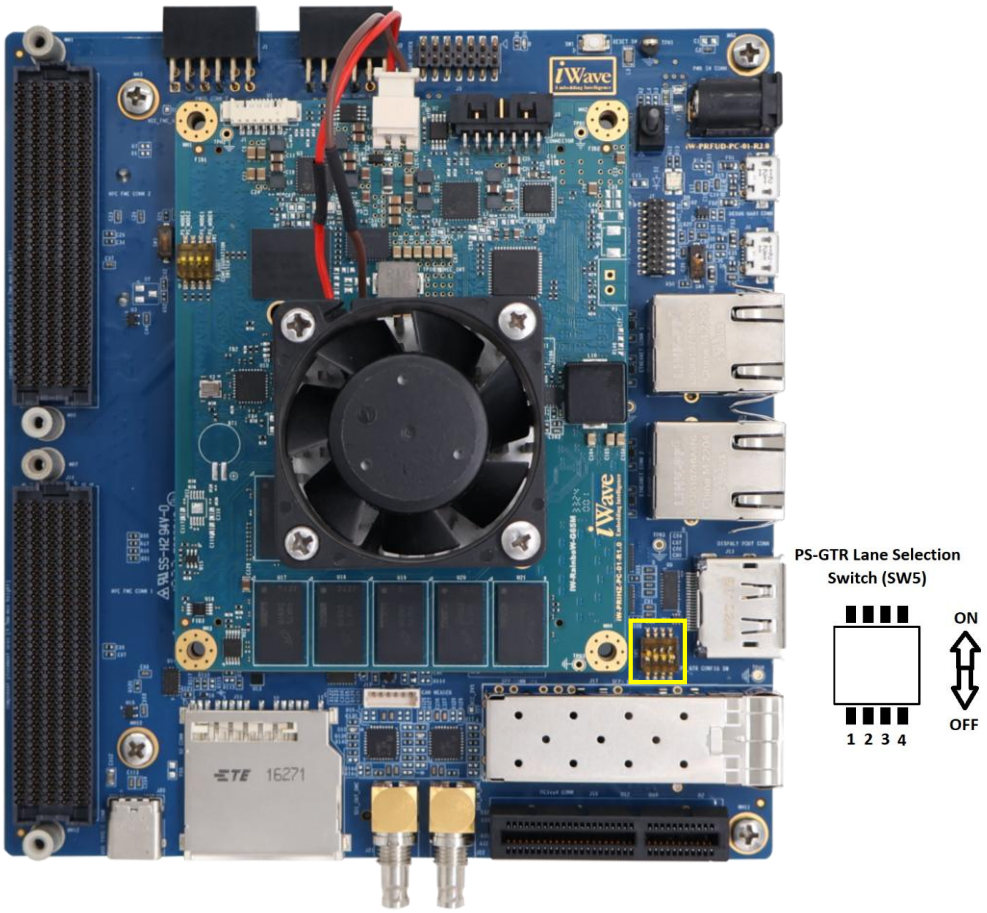


Figure 5: PS-GTR Lane Selection Switch

2.4.1.1 PCIe x4 Connector

The Zynq Ultrascale+ MPSoC Devkit supports one PCIe x4 connector through PS-GTR Lanes of Zynq Ultrascale+ MPSoC PS. All the four PS-GTR lanes from Board-to-Board Connectors are connected to PCIe x4 connector to support x1, x2 & x4 PCIe devices. The PS-GTR Lane selection to PCIe x4 connector is done through PS-GTR Lane Selection Switch (SW5). The Carrier board provides 100MHz reference clock to PCIe x4 connector from on board Clock Synthesizer. This PCIe x4 connector (J19) is physically located at the top of the board as shown below.

*Note: For more details on PS-GTR Lane selection options, refer **Table 3**.*

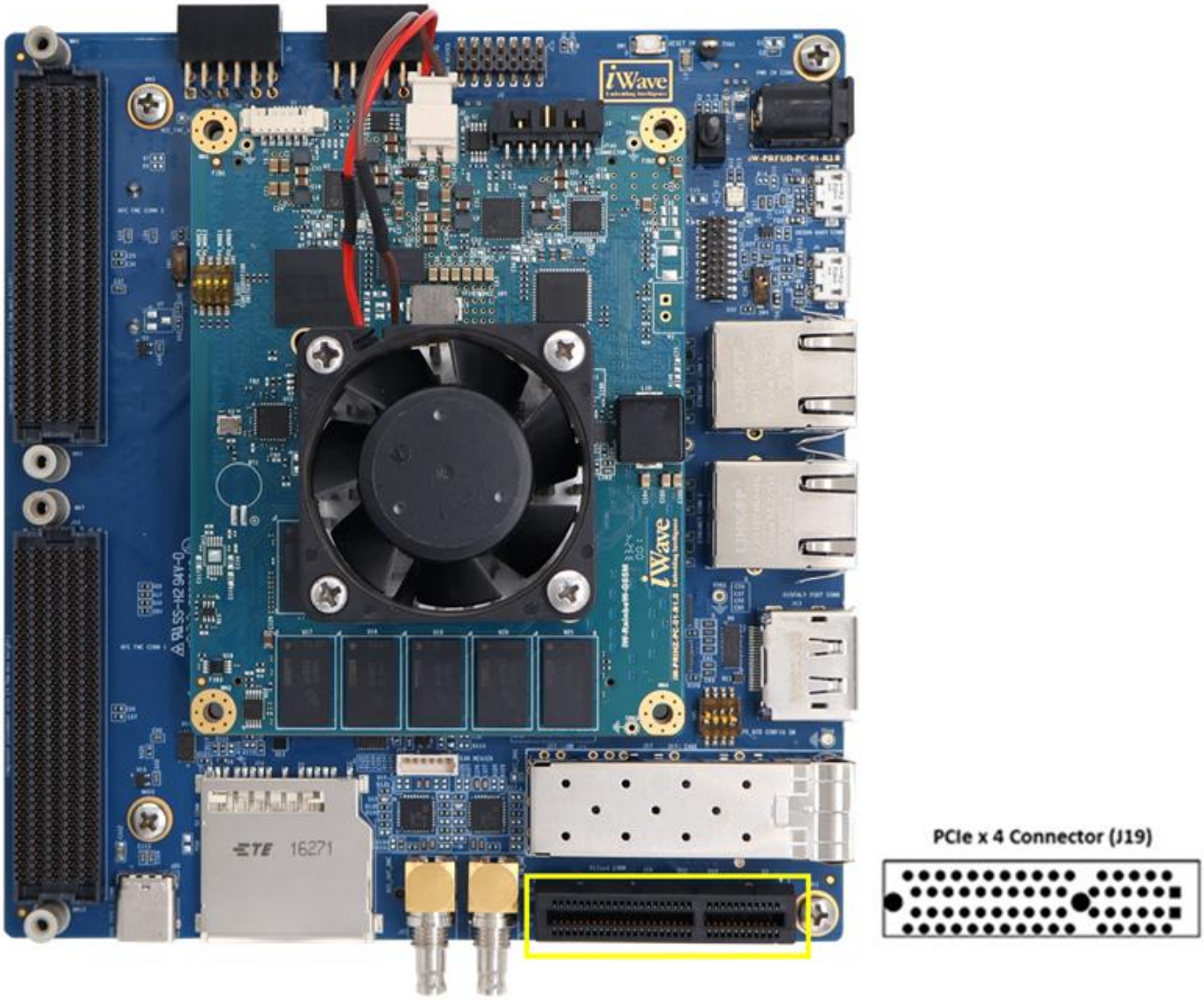


Figure 6: PCIe x4 Connector

Table 4: PCIe x4 Connector Pin Assignment

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
A1	PRSNT1#	NA	NA	NA	NA	Default Grounded.
A2	+12V	VCC_12V	NA	NA	O, 12V Power	12V Supply Voltage.
A3	+12V	VCC_12V	NA	NA	O, 12V Power	12V Supply Voltage.
A4	GND	GND	NA	NA	Power	Ground.
A5	TCK	NA	NA	NA	NA	NC.
A6	TDI	NA	NA	NA	NA	NC.
A7	TDO	NA	NA	NA	NA	NC.
A8	TMS	NA	NA	NA	NA	NC.
A9	+3V3	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
A10	+3V3	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
A11	PERST#	PL_C14_LVDS47_L4P	47	C14	O, 3.3V CMOS	PCIe Reset through PL Bank IO.
A12	GND	GND	NA	NA	Power	Ground.
A13	REFCLK+	PCIe_REFCLKP	NA	NA	O, DIFF	100MHz PCIe Reference Clock positive from on board clock synthesizer.
A14	REFCLK-	PCIe_REFCLKn	NA	NA	O, DIFF	100MHz PCIe Reference Clock negative from on board clock synthesizer.
A15	GND	GND	NA	NA	Power	Ground.
A16	PERp0	PS_MGTRRXP0_505	505	T29	I, DIFF	PCIe Lane0 Receive pair positive.
A17	PERn0	PS_MGTRRXN0_505	505	T30	I, DIFF	PCIe Lane0 Receive pair negative.
A18	GND	GND	NA	NA	Power	Ground.
A19	RSVD	NA	NA	NA	NA	NC.
A20	GND	GND	NA	NA	Power	Ground.
A21	PERp1	PS_MGTRRXP1_505	505	P29	NA	PCIe Lane1 Receive pair positive.
A22	PERn1	PS_MGTRRXN1_505	505	P30	NA	PCIe Lane1 Receive pair negative
A23	GND	GND	NA	NA	Power	Ground.
A24	GND	GND	NA	NA	Power	Ground.
A25	PERp2	PS_MGTRRXP2_505	505	M29	NA	PCIe Lane2 Receive pair positive.
A26	PERn2	PS_MGTRRXN2_505	505	M30	NA	PCIe Lane2 Receive pair negative.

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
A27	GND	GND	NA	NA	Power	Ground.
A28	GND	GND	NA	NA	Power	Ground.
A29	PERp3	PS_MGTRRXP3_505	505	K29	NA	PCIe Lane3 Receive pair positive.
A30	PERn3	PS_MGTRRXN3_505	505	K30	NA	PCIe Lane3 Receive pair negative.
A31	GND	GND	NA	NA	Power	Ground.
A32	RSVD	NA	NA	NA	NA	NC.
B1	+12V	VCC_12V	NA	NA	O, 12V Power	12V Supply Voltage.
B2	+12V	VCC_12V	NA	NA	O, 12V Power	12V Supply Voltage.
B3	RSVD	NA	NA	NA	NA	NC.
B4	GND	GND	NA	NA	Power	Ground.
B5	SMCLK	I2C0_SCL(PS_MIO10_500)	500	B18	O, 3.3V CMOS	SMB Clock.
B6	SMDAT	I2C0_SDA(PS_MIO11_500)	500	G19	IO, 3.3V CMOS	SMB DATA.
B7	GND	GND	NA	NA	Power	Ground.
B8	+3V3	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
B9	TRST#	NA	NA	NA	NA	NC.
B10	3V3AUX	VCC_3V3_AUX	NA	NA	O, 3.3V Power	3.3V Supply Voltage
B11	WAKE#	PL_C13_LVDS47_L4N	47	C13	O, 3.3V CMOS	PCIe Wake through PL Bank IO.
B12	RSVD	NA	NA	NA	NA	NC.
B13	GND	GND	NA	NA	Power	Ground.
B14	PETp0	PS_MGTRTXP0_505	505	R27	O, DIFF	PCIe Lane0 Transmit pair positive.
B15	PETn0	PS_MGTRTXN0_505	505	R28	O, DIFF	PCIe Lane0 Transmit pair negative.
B16	GND	GND	NA	NA	Power	Ground.
B17	PRSNT2	NA	NA	NA	NA	NC.
B18	GND	GND	NA	NA	Power	Ground.
B19	PETp1	PS_MGTRTXP1_505	505	N27	NA	PCIe Lane1 Transmit pair positive.
B20	PETn1	PS_MGTRTXN1_505	505	N28	NA	PCIe Lane1 Transmit pair negative
B21	GND	GND	NA	NA	Power	Ground.
B22	GND	GND	NA	NA	Power	Ground.

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
B23	PETp2	PS_MGTRTXP2_505	505	L27	NA	PCIe Lane2 Transmit pair positive.
B24	PETn2	PS_MGTRTXN2_505	505	L28	NA	PCIe Lane2 Transmit pair negative
B25	GND	GND	NA	NA	Power	Ground.
B26	GND	GND	NA	NA	Power	Ground.
B27	PETp3	PS_MGTRTXP3_505	505	J27	NA	PCIe Lane3 Transmit pair positive.
B28	PETn3	PS_MGTRTXN3_505	505	J28	NA	PCIe Lane3 Transmit pair negative
B29	GND	GND	NA	NA	Power	Ground.
B30	RSVD	NA	NA	NA	NA	NC.
B31	PRSNT#2	NA	NA	NA	NA	NC.
B32	GND	GND	NA	NA	Power	Ground.

2.4.1.2 Display Port Connector

The Zynq Ultrascale+ MPSoC devkit supports one Display port connector through PS-GTR Lanes of Zynq Ultrascale+ MPSoC PS. PS-GTR Lane0 & Lane1 from Board-to-Board Connector1 is connected to Display Port connector to support single or dual lane display port. The PS-GTR Lane selection to Display port connector is done through PS-GTR Lane Selection Switch (SW5).

The Display port connector supports AUX+ & AUX- signals from the PL Bank IOs. Also, it supports Hot plug detect signal and connected to PL Bank IO. This Display Port connector (J13) is physically located at the top of the board as shown below.

*Note: For more details on PS-GTR Lane selection options, refer **Table 3**.*

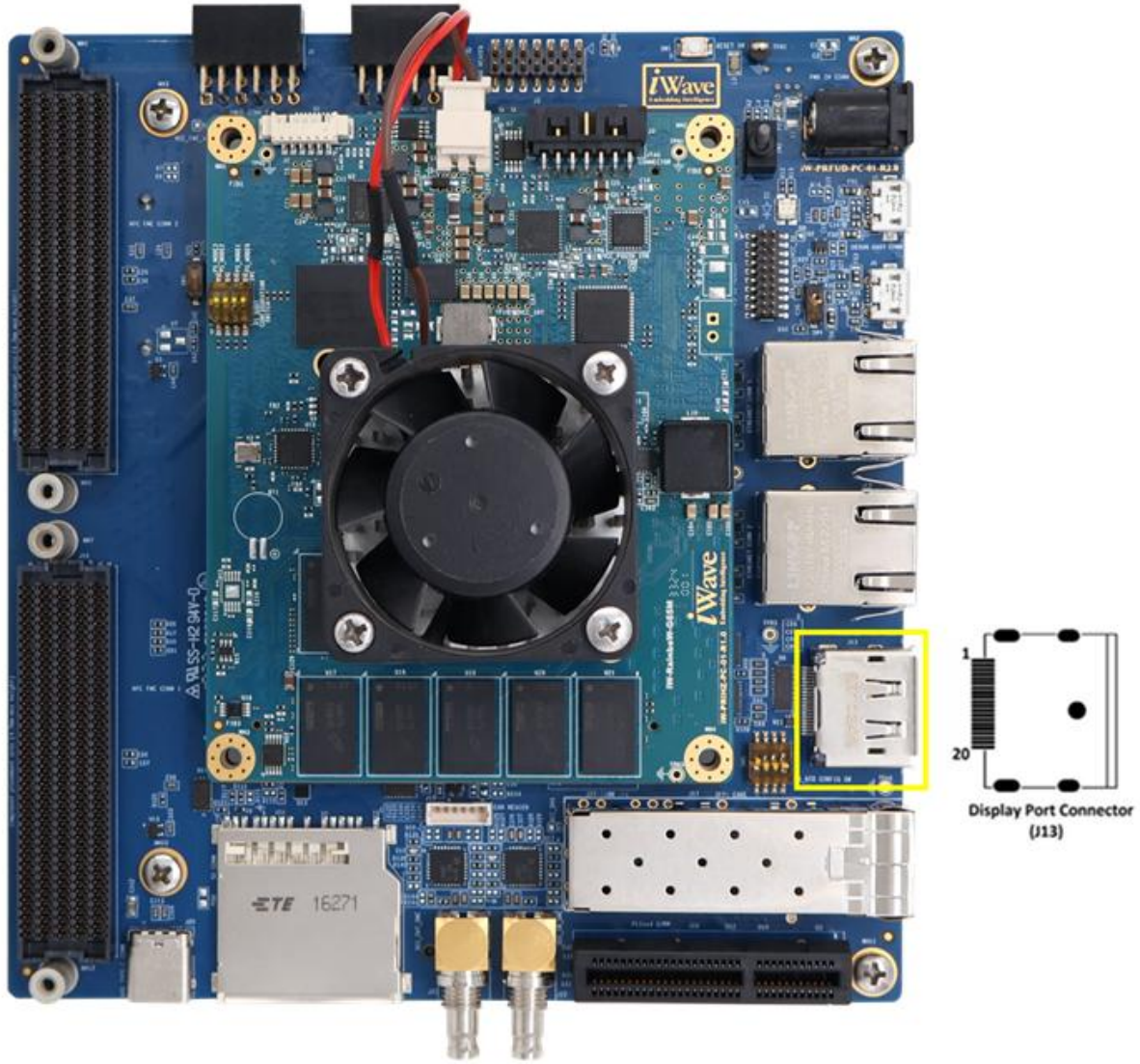


Figure 7: Display Port Connector

Table 5: Display Port Connector Pin Assignment

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
1	DP_L0+	PS_MGTRTXP1_505	505	N27	O, DIFF	Display Port Lane0 Transmit pair positive.
2	GND	GND	NA	NA	Power	Ground.
3	DP_L0-	PS_MGTRTXN1_505	505	N28	O, DIFF	Display Port Lane0 Transmit pair negative.
4	DP_L1+	PS_MGTRTXP0_505	505	R27	O, DIFF	Display Port Lane1 Transmit pair positive.
5	GND	GND	NA	NA	Power	Ground.
6	DP_L1-	PS_MGTRTXN0_505	505	R28	O, DIFF	Display Port Lane1 Transmit pair negative.
7	DP_L2+	NA	NA	NA	NA	NC.
8	GND	GND	NA	NA	Power	Ground.
9	DP_L2-	NA	NA	NA	NA	NC.
10	DP_L3+	NA	NA	NA	NA	NC.
11	GND	GND	NA	NA	Power	Ground.
12	DP_L3-	NA	NA	NA	NA	NC.
13	CONFIG1	NA	NA	NA	1M PD	Configuration Pin.
14	CONFIG2	NA	NA	NA	1M PD	Configuration Pin.
15	AUX_CH+	PL_AB11_LVDS65_L6P	65	AB11	IO, DIFF/ 100K PD	Auxiliary channel positive.
16	GND	GND	NA	NA	Power	Ground.
17	AUX_CH-	PL_AB10_LVDS65_L6N	65	AB10	IO, DIFF/ 100K PU	Auxiliary channel negative.
18	HOT_PLUG	PL_G14_LVDS47_L9N	47	G14	O,3.3V CMOS/ 100K PD	Hot Plug Detect. This signal is connected to B2B connector through level translator.
19	RETURN	NA	NA	NA	NA	NC.
20	DP_PWR	DP_PWR	NA	NA	O, 3.3V Power	3.3V Supply Voltage.

2.4.1.3 USB Type-C Connector

The Zynq Ultrascale+ MPSoC devkit supports one Super Speed USB3.0 OTG through USB Type-C connector. The PS-GTR Lane2 of Zynq Ultrascale+ MPSoC PS from Board to Board Connector2 is used for USB3.0 OTG interface. The PS-GTR Lane2 selection to USB Type-C connector is done through PS-GTR Lane Selection Switch (SW5). For more details on PS-GTR Lane selection options, refer **Table 3**.

The Zynq Ultrascale+ MPSoC devkit supports "FUSB302" USB Type-C controller for port detection & cable orientation and controlled through I2C0 interface of MPSoC PS. To support double-way plug in on USB Type-C connector, PS-GTR Lane2 is connected to "FUSB340" 2:1 data Switch and then connected to USB Type-C connector. The lane selection to Type-C connector (top or bottom port) is controlled through PL Bank IO "PL_K15_LVDS47_L10P" from Board to Board Connector1 pin70.

Also USB2.0 OTG interface of MPSoC PS is connected to USB Type-C connector for backward compatible USB2.0 support. The USB2.0 PHY Transceiver output signals from Board to Board connector2 is connected to "FUSB340" USB Switch for selecting the USB2.0 OTG conenction between USB2.0 MicroAB connector (J8) and USB3.0 Type-C connector (J20). The selection can be done by setting the Single bit DIP switch (SW4). If the DIP switch (SW4) is set to ON, USB2.0 OTG is connected to MicroAB connector (J8) and if the DIP switch (SW4) is set to OFF, USB2.0 OTG is connected to USB3.0 TypeC connector (J20).

The USB3.0 OTG port can be used as full functional OTG functionality which supports USB3.0 host and USB2.0 device based on Type-C. The VBUS power of this USB 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 900mA in host mode. Enable pin of the USB Power switch is connected to the PS GPIO "PS_MIO25_500" from Board-to-Board connector2 pin38. This USB Type-C connector (J20) is physically located at the top side of the board as shown below.

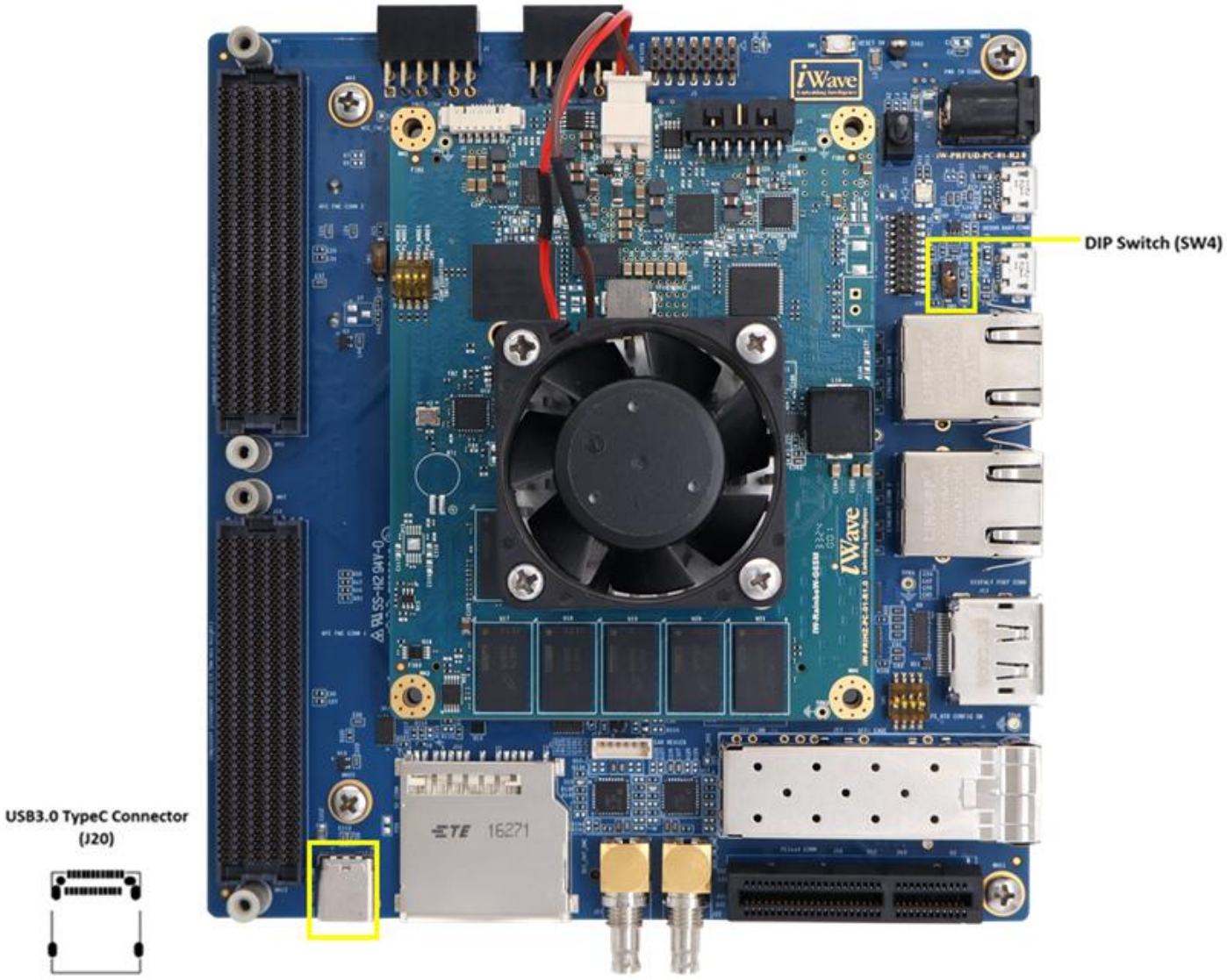


Figure 8: USB Type-C Connector

Table 6: USB Type-C Pin Assignment

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
A1	GND	GND	NA	NA	Power	Ground.
A2	SSTXp1	PS_MGTRTXP2_505	505	L27	O, DIFF	USB3.0 Super Speed Transmit Data Positive.
A3	SSTXn1	PS_MGTRTXN2_505	505	L28	O, DIFF	USB3.0 Super Speed Transmit Data Negative.
A4	VBUS	VBUS_USB3.0	NA	NA	Power	5V Power Supply.
A5	CC1	CC1	NA	NA	O, 5V CMOS	Configuration Channel pin1.
A6	Dp1	USB_OTG_DP	NA	NA	IO, DIFF	USB2.0 Transmit Data Positive.
A7	Dn1	USB_OTG_DM	NA	NA	IO, DIFF	USB2.0 Transmit Data Negative.
A8	SBU1	NA	NA	NA	NA	NC.
A9	VBUS	VBUS_USB3.0	NA	NA	Power	5V Power Supply.
A10	SSRXn2	PS_MGTRRXN2_505	505	M30	I, DIFF	USB3.0 Super Speed Receive Data Negative.
A11	SSRXp2	PS_MGTRRXP2_505	505	M29	I, DIFF	USB3.0 Super Speed Receive Data Positive.
A12	GND	GND	NA	NA	Power	Ground.
B1	GND	GND	NA	NA	Power	Ground.
B2	SSTXp2	PS_MGTRTXP2_505	505	L27	O, DIFF	USB3.0 Super Speed Transmit Data Positive.
B3	SSTXn2	PS_MGTRTXN2_505	505	L28	O, DIFF	USB3.0 Super Speed Transmit Data Negative.
B4	VBUS	VBUS_USB3.0	NA	NA	Power	5V Power Supply.
B5	CC2	CC2	NA	NA	O, 5V CMOS	Configuration Channel pin2.
B6	Dp2	USB_OTG_DP	NA	NA	IO, DIFF	USB2.0 Transmit Data Positive.
B7	Dn2	USB_OTG_DM	NA	NA	IO, DIFF	USB2.0 Transmit Data Negative.
B8	SBU2	NA	NA	NA	NA	NC.
B9	VBUS	VBUS_USB3.0	NA	NA	Power	5V Power Supply.
B10	SSRXn1	PS_MGTRRXN2_505	505	M30	I, DIFF	USB3.0 Super Speed Receive Data Negative.
B11	SSRXp1	PS_MGTRRXP2_505	505	M29	I, DIFF	USB3.0 Super Speed Receive Data Positive.
B12	GND	GND	NA	NA	Power	Ground.

2.4.1.4 M.2 SATA Connector

The Zynq Ultrascale+ MPSoC devkit supports one SATA interface through M.2 (KeyB) SATA connector. PS-GTR3 Lane of Zynq Ultrascale+ MPSoC PS is used for SATA interface. MPSoC's SATA supports SATA Specification revision 3.1 with Gen1 (1.5Gbps), Gen2 (3Gbps) & Gen3 (6Gbps) datarates. The PS-GTR Lane selection to M.2 SATA connector is done through PS-GTR Lane Selection Switch (SW5). For more details on PS-GTR Lane selection options, refer **Table 3**. The M.2 SATA Connector (J24) is physically located at the bottom side of the board as shown below.

Figure 9: M.2 SATA Connector (Key B)

Table 7: M.2 SATA Connector Pin Assignment

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
1	CONFIG_3	NA	NA	NA	NA	This pin is connected to Ground.
2	3.3V	VCC_3V3	NA	NA	O, 3.3V Power	Supply Voltage.
3	GND	GND	NA	NA	Power	Ground.
4	3.3V	VCC_3V3	NA	NA	O, 3.3V Power	Supply Voltage.
5	PERn3	NA	NA	NA	NA	NC.
6	N/A1	NA	NA	NA	NA	NC.
7	PERp3	NA	NA	NA	NA	NC.
8	N/A2	NA	NA	NA	NA	NC.
9	GND	GND	NA	NA	Power	Ground.
10	DAS/DSS	NA	NA	NA	NA	NC.
11	PETn3	NA	NA	NA	NA	NC.
12	3.3V	VCC_3V3	NA	NA	O, 3.3V Power	Supply Voltage.
13	PETp3	NA	NA	NA	NA	NC.
14	3.3V	VCC_3V3	NA	NA	O, 3.3V Power	Supply Voltage.
15	GND	GND	NA	NA	Power	Ground.
16	3.3V	VCC_3V3	NA	NA	O, 3.3V Power	Supply Voltage.
17	PERn2	NA	NA	NA	NA	NC.
18	3.3V	VCC_3V3	NA	NA	O, 3.3V Power	Supply Voltage.
19	PERp2	NA	NA	NA	NA	NC.
20	N/A3	NA	NA	NA	NA	NC.
21	CONFIG_0	NA	NA	NA	NA	This pin is connected to Ground.
22	N/A4	NA	NA	NA	NA	NC.
23	PETn2	NA	NA	NA	NA	NC.
24	N/A5	NA	NA	NA	NA	NC.
25	PETp2	NA	NA	NA	NA	NC.
26	N/A6	NA	NA	NA	NA	NC.
27	GND	GND	NA	NA	Power	Ground.
28	N/A7	NA	NA	NA	NA	NC.
29	PERn1	NA	NA	NA	NA	NC.
30	N/A8	NA	NA	NA	NA	NC.
31	PERp1	NA	NA	NA	NA	NC.
32	N/A9	NA	NA	NA	NA	NC.
33	GND	GND	NA	NA	Power	Ground.

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
34	N/A10	NA	NA	NA	NA	NC.
35	PETn1	NA	NA	NA	NA	NC.
36	N/A11	NA	NA	NA	NA	NC.
37	PETp1	NA	NA	NA	NA	NC.
38	DEVSLP	NA	NA	NA	NA	NC.
39	GND	GND	NA	NA	Power	Ground.
40	N/A12	NA	NA	NA	NA	NC.
41	SATA-B+/PERn0	PS_MGTRRXP3_505	505	K29	I, DIFF	SATA Receive pair positive.
42	N/A13	NA	NA	NA	NA	NC.
43	SATA-B-/PERp0	PS_MGTRRXN3_505	505	K30	I, DIFF	SATA Receive pair negative.
44	N/A14	NA	NA	NA	NA	NC.
45	GND	GND	NA	NA	Power	Ground.
46	N/A15	NA	NA	NA	NA	NC.
47	SATA-A-/PETn0	PS_MGTRTXN3_505	505	J28	O, DIFF	SATA Transmit pair negative.
48	N/A16	NA	NAs	NA	NA	NC.
49	SATA-A+/PETp0	PS_MGTRTXP3_505	505	J27	O, DIFF	SATA Transmit pair positive.
50	PERST#	NA	NA	NA	NA	NC.
51	GND	GND	NA	NA	Power	Ground.
52	CLKREQ#	NA	NA	NA	NA	NC.
53	REFCLKN	NA	NA	NA	NA	NC.
54	PEWAKE#	NA	NA	NA	NA	NC.
55	REFCLKP	NA	NA	NA	NA	NC.
56	MFG1	NA	NA	NA	NA	NC.
57	GND	GND	NA	NA	Power	Ground.
58	MFG2	NA	NA	NA	NA	NC.
59	M1	NA	NA	NA	NA	NC.
60	M2	NA	NA	NA	NA	NC.
61	M3	NA	NA	NA	NA	NC.
62	M4	NA	NA	NA	NA	NC.
63	M5	NA	NA	NA	NA	NC.
64	M6	NA	NA	NA	NA	NC.
65	M7	NA	NA	NA	NA	NC.
66	M8	NA	NA	NA	NA	NC.
67	N/A17	NA	NA	NA	NA	NC.
68	SUSCLK	NA	NA	NA	NA	NC.
69	CONFIG_1	NA	NA	NA	NA	This pin is connected to Ground.

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
70	3.3V	VCC_3V3	NA	NA	O, 3.3V Power	Supply Voltage.
71	GND	GND	NA	NA	Power	Ground.
72	3.3V	VCC_3V3	NA	NA	O, 3.3V Power	Supply Voltage.
73	GND	GND	NA	NA	Power	Ground.
74	3.3V	VCC_3V3	NA	NA	O, 3.3V Power	Supply Voltage.
75	CONFIG_2	NA	NA	NA	NA	This pin is connected to Ground.

2.4.2 Gigabit Ethernet Port1

The Zynq Ultrascale+ MPSoC devkit supports two 10/100/1000Mbps Ethernet ports. First Ethernet port is supported through GEM0 interface of Zynq Ultrascale+ MPSoC PS. Ethernet PHY output signals from Board to Board connector2 is directly connected to RJ45 Magjack (J9). The Ethernet supports Speed (Yellow) and Link/Activity (Green) LED indications on RJ45 Magjack connector. This RJ45 Magjack connector (J9) is physically located at the top of the board as shown below.

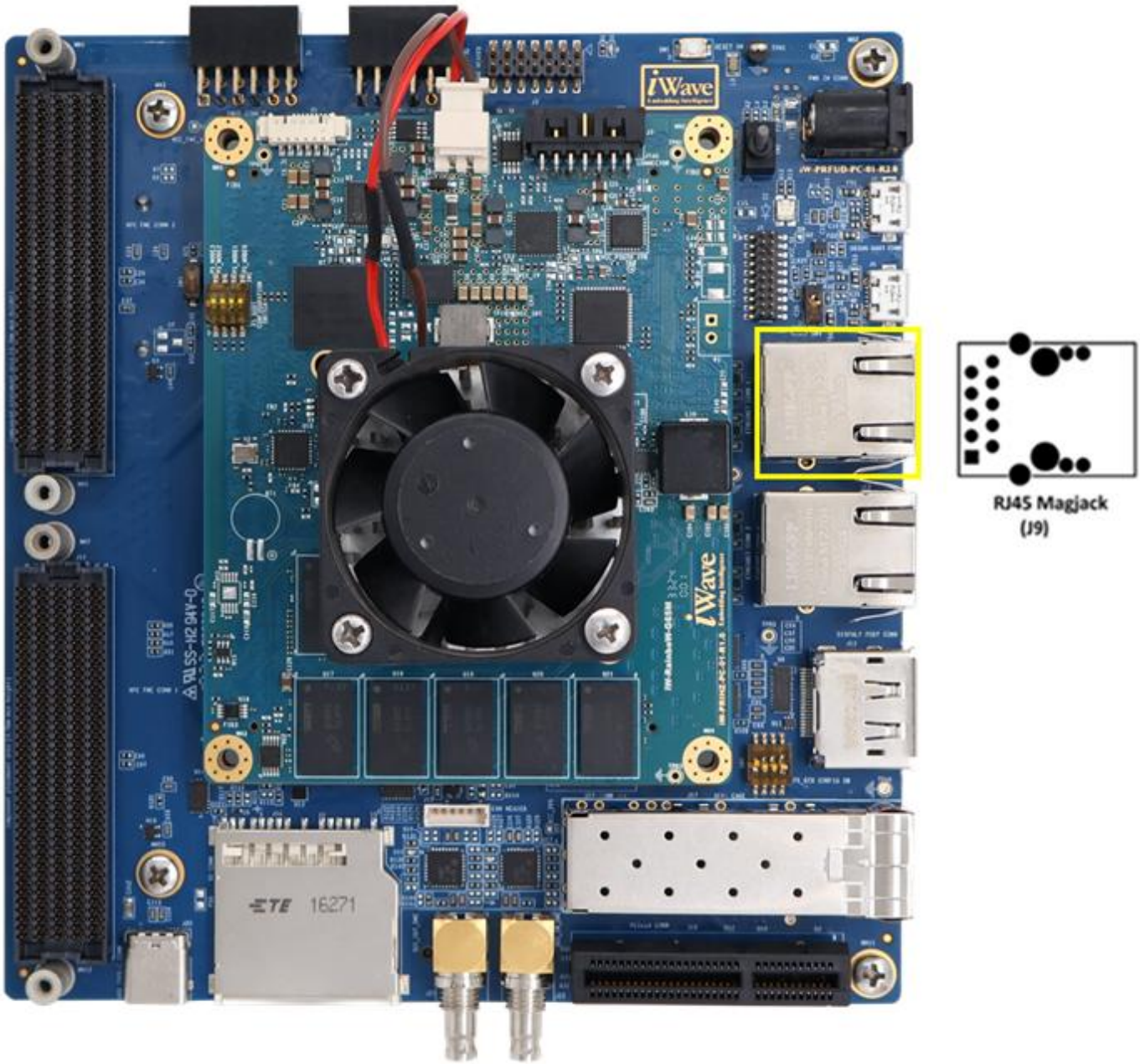


Figure 10: Gigabit Ethernet Connector1

Table 8: Gigabit Ethernet1 pinout description

B2B2 Pin No	B2B Connector2 Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
39	GPHY_DTXRXM	NA	NA	IO, GBE	Gigabit Ethernet differential pair 4 negative.
41	GPHY_DTXRXP	NA	NA	IO, GBE	Gigabit Ethernet differential pair 4 positive.
45	GPHY_CTXRXM	NA	NA	IO, GBE	Gigabit Ethernet differential pair 3 negative.
47	GPHY_CTXRXP	NA	NA	IO, GBE	Gigabit Ethernet differential pair 3 positive.
51	GPHY_BTXRXM	NA	NA	IO, GBE	Gigabit Ethernet differential pair 2 negative.
53	GPHY_BTXRXP	NA	NA	IO, GBE	Gigabit Ethernet differential pair 2 positive.
57	GPHY_ATXRXM	NA	NA	IO, GBE	Gigabit Ethernet differential pair 1 negative.
59	GPHY_ATXRXP	NA	NA	IO, GBE	Gigabit Ethernet differential pair 1 positive.
58	GPHY_LINK_LED2	NA	NA	O, 1.8V LVCMOS	Gigabit Ethernet link status LED.
60	GPHY_ACTIVITY_LED1	NA	NA	O, 1.8V LVCMOS	Gigabit Ethernet speed status LED

2.4.3 Gigabit Ethernet Port2

The Zynq Ultrascale+ MPSoC devkit supports two 10/100/1000Mbps Ethernet ports. The second Ethernet port is supproted through GEM3 interface of Zynq Ultrascale+ MPSoC PS. The MAC is integrated in the Zynq-Ultrascale+ MPSoC PS and connected to the external Gigabit Ethernet PHY "AR8031" on Carrier Board through Board to Board Connector1. This PHY is interfaced with GEM3 interface of MPSoC's PS through MIO pins and works at 1.8V IO voltage level. The Gigabit Ethernet PHY also supports MDC, MDIO, Reset and Interrupt Signals for control. These signals are used through PL Bank EMIO pins from Board to Board Connector1 pins 124, 126, 92 & 94 respectively.

In Zynq Ultrascale+ MPSoC SOM, GEM3 Ethernet PHY Address is fixed to 001 as per below table.

PHYADDRESS2	PHYADDRESS1	PHYADDRESS0	Ethernet PHY Address
GPHY2_ACTIVITY_LED1	RXD1	RXD0	1
Low	Low	High	

Important Note: GPHY_ACTIVITY_LED1 signal is muxed with PHYADDRESS2 pin. The same GPHY2_ACTIVITY_LED1 signal is connected to RJ45 Magjack connector to support Gigabit Ethernet Activity LED.

Table 9: GEM3 RGMII Pinout Description

B2B Connector 1 Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
GEM3_TX_CLK(PS_MIO64_502)	502	J22	O, 1.8V LVCMOS/33E	GEM3 RGMII Transmit Clock.
GEM3_TXD0(PS_MIO65_502)	502	N22	O, 1.8V LVCMOS/33E	GEM3 RGMII Transmit DATA0.
GEM3_TXD1(PS_MIO66_502)	502	A23	O, 1.8V LVCMOS/33E	GEM3 RGMII Transmit DATA1
GEM3_TXD2(PS_MIO67_502)	502	B23	O, 1.8V LVCMOS/33E	GEM3 RGMII Transmit DATA2
GEM3_TXD3(PS_MIO68_502)	502	C23	O, 1.8V LVCMOS/33E	GEM3 RGMII Transmit DATA3
GEM3_TX_CTL(PS_MIO69_502)	502	E23	O, 1.8V LVCMOS/33E	GEM3 RGMII Transmit Control
GEM3_RX_CLK(PS_MIO70_502)	502	F23	I, 1.8V LVCMOS/33E	GEM3 RGMII Receive Clock
GEM3_RX_CTL(PS_MIO75_502)	502	H23	I, 1.8V LVCMOS/33E	GEM3 RGMII Receive control
GEM3_RXD0(PS_MIO71_502)	502	G23	I, 1.8V LVCMOS/33E	GEM3 RGMII Receive DATA0
GEM3_RXD1(PS_MIO72_502)	502	K23	I, 1.8V LVCMOS/33E	GEM3 RGMII Receive DATA1
GEM3_RXD2(PS_MIO73_502)	502	N23	I, 1.8V LVCMOS/33E	GEM3 RGMII Receive DATA2
GEM3_RXD3(PS_MIO74_502)	502	M23	I, 1.8V LVCMOS/33E	GEM3 RGMII Receive DATA3.

B2B Connector 1 Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
PL_E14_LVDS47_L6P_HDGC	47	E14	I, 1.8V LVCMOS/	GEM0 MDIO Clock. This signal is connected to Ethernet PHY through level translator.
PL_E13_LVDS47_L6N_HDGC	47	E13	I, 1.8V LVCMOS/1.5KPU	GEM0 MDIO DATA. This signal is connected to Ethernet PHY through level translator
PL_B13_LVDS47_L3P	47	B13	I, 1.8V LVCMOS	Reset This signal is connected to Ethernet PHY through level translator
PL_A13_LVDS47_L3N	47	A13	I, 1.8V LVCMOS	Interrupt This signal is connected from Ethernet PHY through level translator.

Table 10: Gigabit Ethernet2 pinout description

B2B Connector2 Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
GPHY2_DTXRXM	NA	NA	IO, GBE	Gigabit Ethernet differential pair 4 negative.
GPHY2_DTXRXP	NA	NA	IO, GBE	Gigabit Ethernet differential pair 4 positive.
GPHY2_CTXRXM	NA	NA	IO, GBE	Gigabit Ethernet differential pair 3 negative.
GPHY2_CTXRXP	NA	NA	IO, GBE	Gigabit Ethernet differential pair 3 positive.
GPHY2_BTXRXM	NA	NA	IO, GBE	Gigabit Ethernet differential pair 2 negative.
GPHY2_BTXRXP	NA	NA	IO, GBE	Gigabit Ethernet differential pair 2 positive.
GPHY2_ATXRXM	NA	NA	IO, GBE	Gigabit Ethernet differential pair 1 negative.
GPHY2_ATXRXP	NA	NA	IO, GBE	Gigabit Ethernet differential pair 1 positive.
GPHY2_LINK_LED2	NA	NA	O, 1.8V LVCMOS	Gigabit Ethernet link status LED.
GPHY2_ACTIVITY_LED1	NA	NA	O, 1.8V LVCMOS	Gigabit Ethernet speed status LED

Ethernet PHY output is directly connected to RJ45 Magjack (J12). 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.

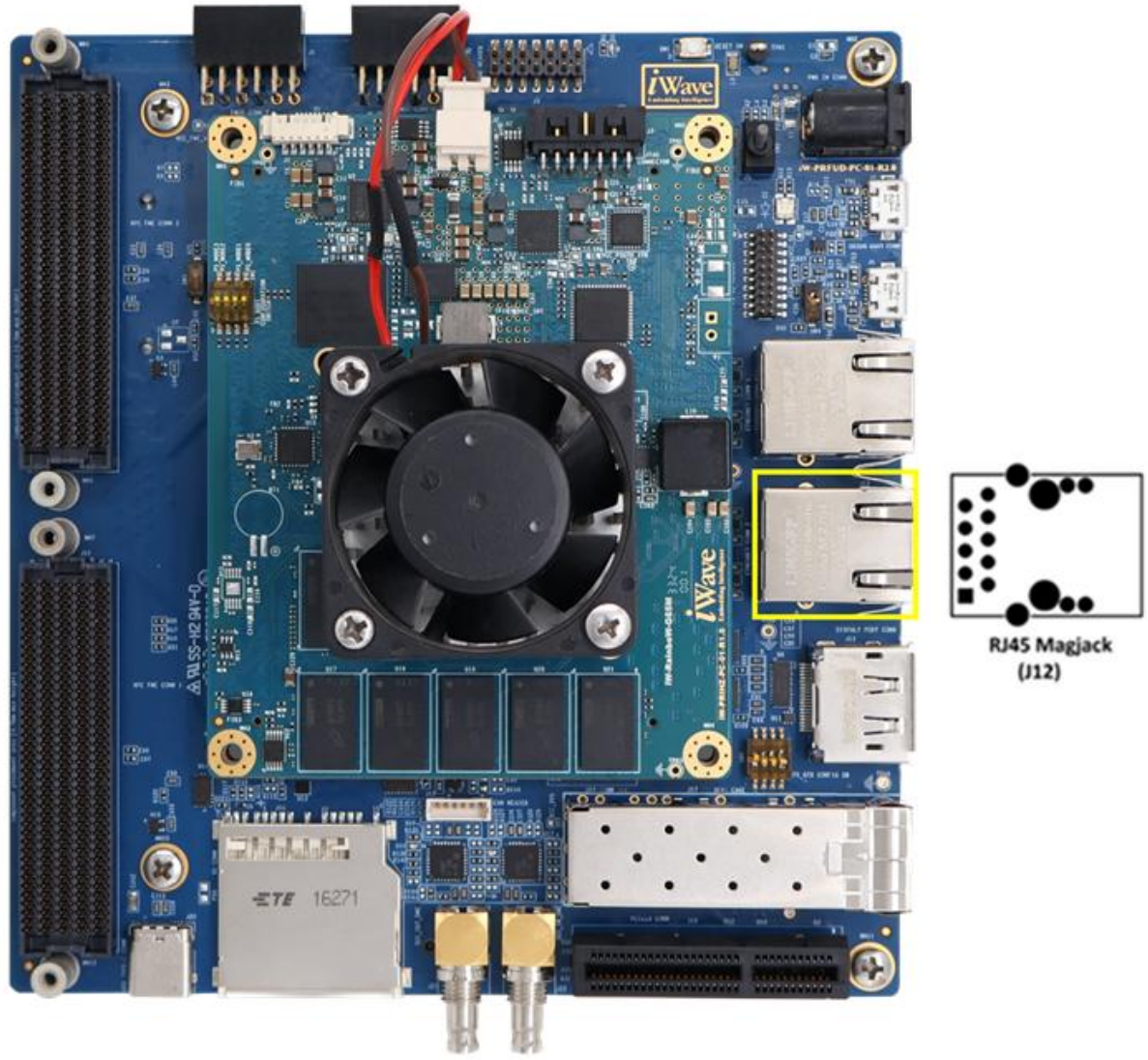


Figure 11: Gigabit Ethernet Connector2

2.4.4 USB2.0 OTG Port

The Zynq Ultrascale+ MPSoC devkit supports USB2.0 High Speed OTG interface through USB0 OTG Controller of Zynq Ultrascale+ MPSoC PS. This USB2.0 OTG interface is supported through USB2.0 MicroAB connector (J8). The USB PHY Transceiver output signals from Board to Board connector2 is connected to “FUSB340” USB Switch for selecting the USB2.0 OTG conenction between USB2.0 MicroAB connector (J8) and USB3.0 TypeC connector (J20). The selection can be done by setting the Single bit DIP switch (SW4). If the DIP switch (SW4) is set to ON, USB2.0 OTG is connected to MicroAB connector (J8) and if the DIP switch (SW4) is set to OFF, USB2.0 OTG is connected to USB3.0 TypeC connector (J20).

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 ID pin status. The VBUS power of this USB2.0 MicroAB 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 900mA in host mode. The USB PHY transceiver in SOM detects the USB functionality through USB ID pin (34th pin of B2B-2) and controls the power using the USB_PWR_EN pin (32nd pin of B2B-2). This USB2.0 OTG connector (J13) is physically located at the top of the board as shown below.

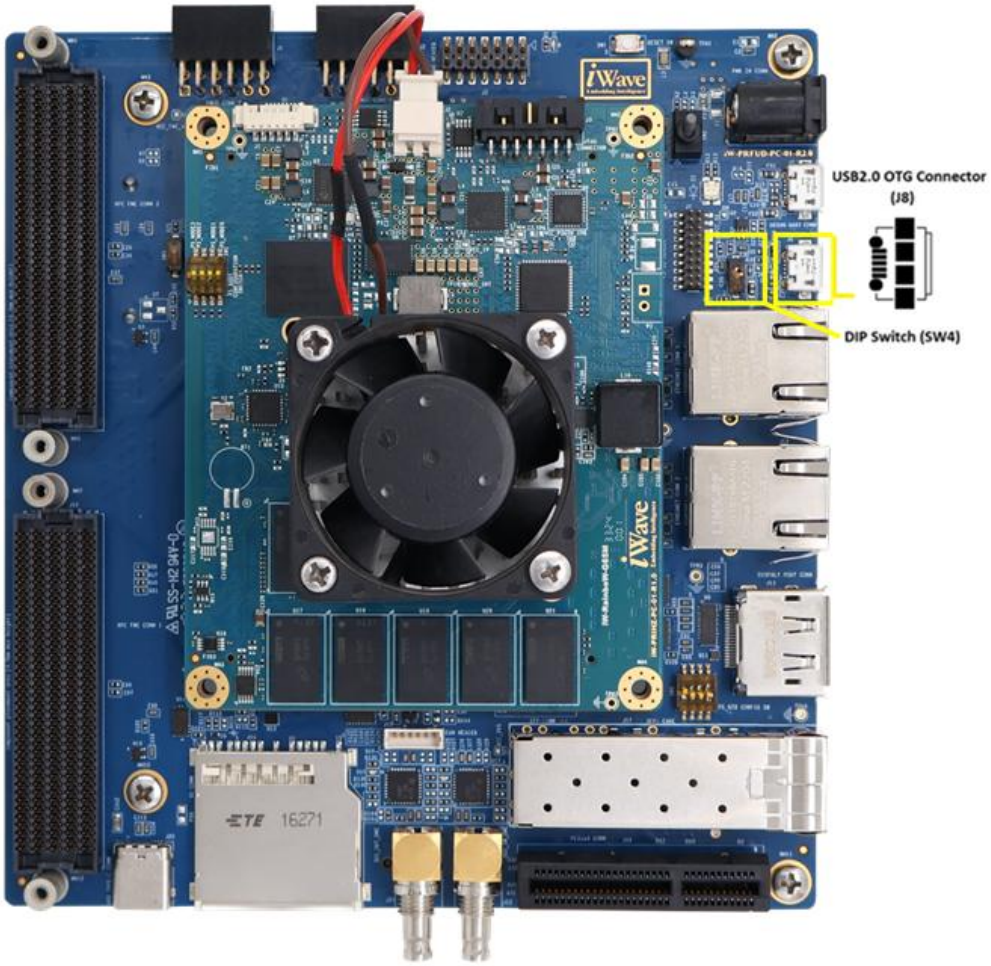


Figure 12: USB OTG Connector

2.4.5 Standard SD Port

The Zynq Ultrascale+ MPSoC devkit supports one SD interface through SD1 interface of Zynq Ultrascale+ MPSoC PS. This SD1 signals from Board to Board Connector2 is connected to Standard SD connector (J18) through auto-direction control memory card voltage level translator" NVT4857UKAZ" 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 PS GPIO (PS_MIO43_501) pin from Board to Board Connector2 pin44. If PS_MIO43_501 is set to low, then 3.3V IO level is selected for SD1 signals to SD connector. If PS_MIO43_501 is set to high, then 1.8V IO level is selected for SD1 signals to SD connector. The Standard SD connector (J18) is physically located at the top of the board as shown below.

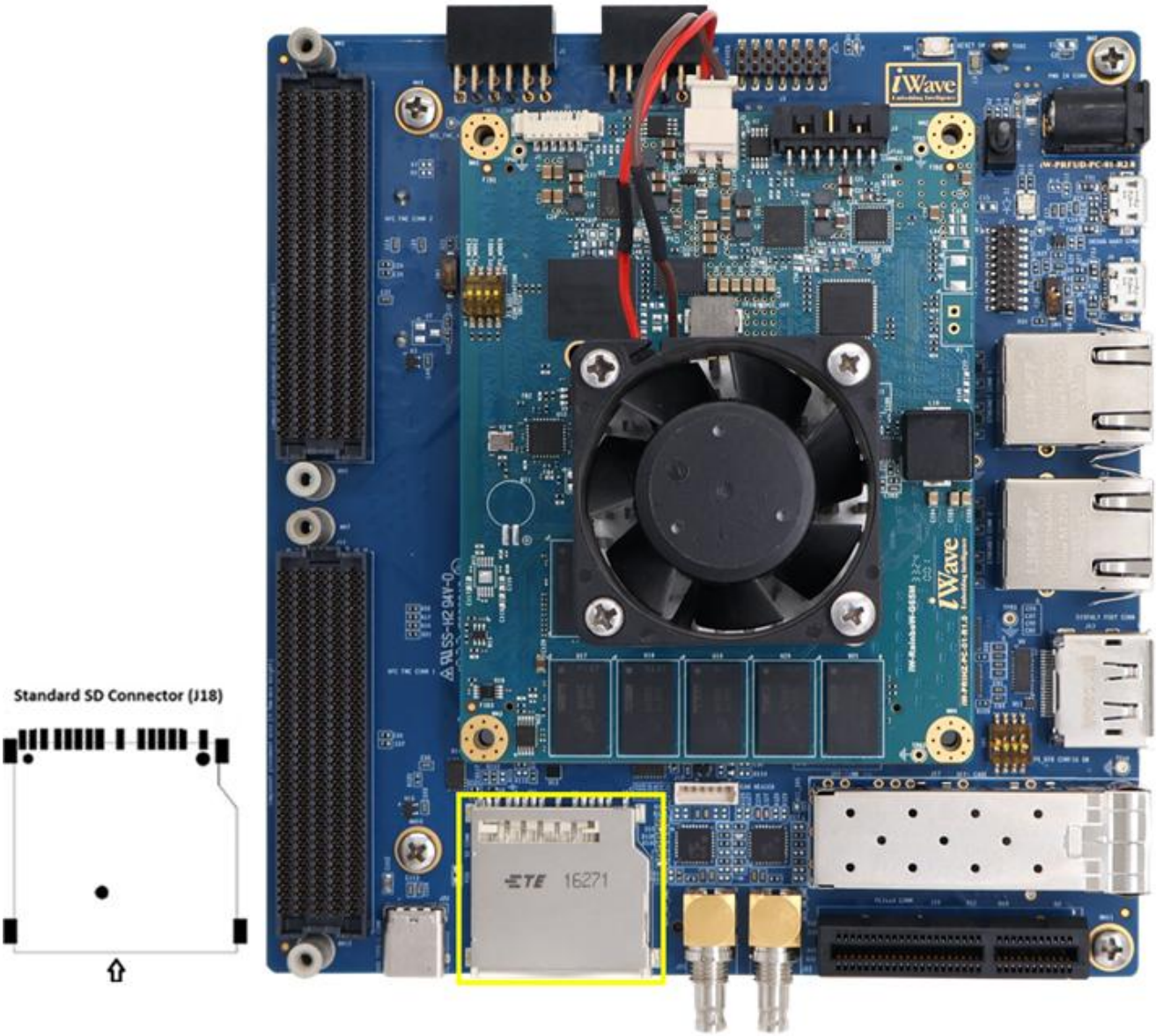


Figure 13: Standard SD Connector

Table 11: SD1 pinout description

B2B Connector2 Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
SD1_DATA3(PS_MIO49_501)	501	C21	IO, 1.8V LVCMOS/10K PU	SD1 Data3. This signal is connected to SD connector through level translator
SD1_DATA2(PS_MIO48_501)	501	F21	IO, 1.8V LVCMOS/10K PU	SD1 Data2. This signal is connected to SD connector through level translator
SD1_DATA1(PS_MIO47_501)	501	D21	IO, 1.8V LVCMOS/10K PU	SD1 Data1. This signal is connected to SD connector through level translator
SD1_DATA0(PS_MIO46_501)	501	B21	IO, 1.8V LVCMOS/10K PU	SD1 Data0. This signal is connected to SD connector through level translator
SD1_CMD(PS_MIO50_501)	501	G21	IO, 1.8V LVCMOS/10K PU	SD1 Command. This signal is connected to SD connector through level translator
SD1_CLK(PS_MIO51_501)	501	J20	O, 1.8V LVCMOS/10KPU	SD1 Clock. This signal is connected to SD connector through level translator
SD1_WP(PS_MIO44_501)	501	A20	I, 1.8V LVCMOS/4.7K PU	Write Protect.
SD1_CD(PS_MIO45_501)	501	A21	I, 1.8V LVCMOS/4.7K PU	Card Detect.

2.4.6 CAN0 Header

The Zynq Ultrascale+ MPSoC devkit supports one CAN interface through CAN0 interface of Zynq Ultrascale+ MPSoC PS. This CAN0 signals are connected from Board to Board connector1 to CAN Bus Transceiver “MCP2562FD”. Standby pin of the CAN Bus transceiver is controlled through PL Bank IO (PL_G15_LVDS47_L9P) from Board to Board Connector1 Pin74.

The output of CAN transceiver is connected to 6 pin custom CAN Header (J15). This CAN Header is physically located at the top of the board as shown below.

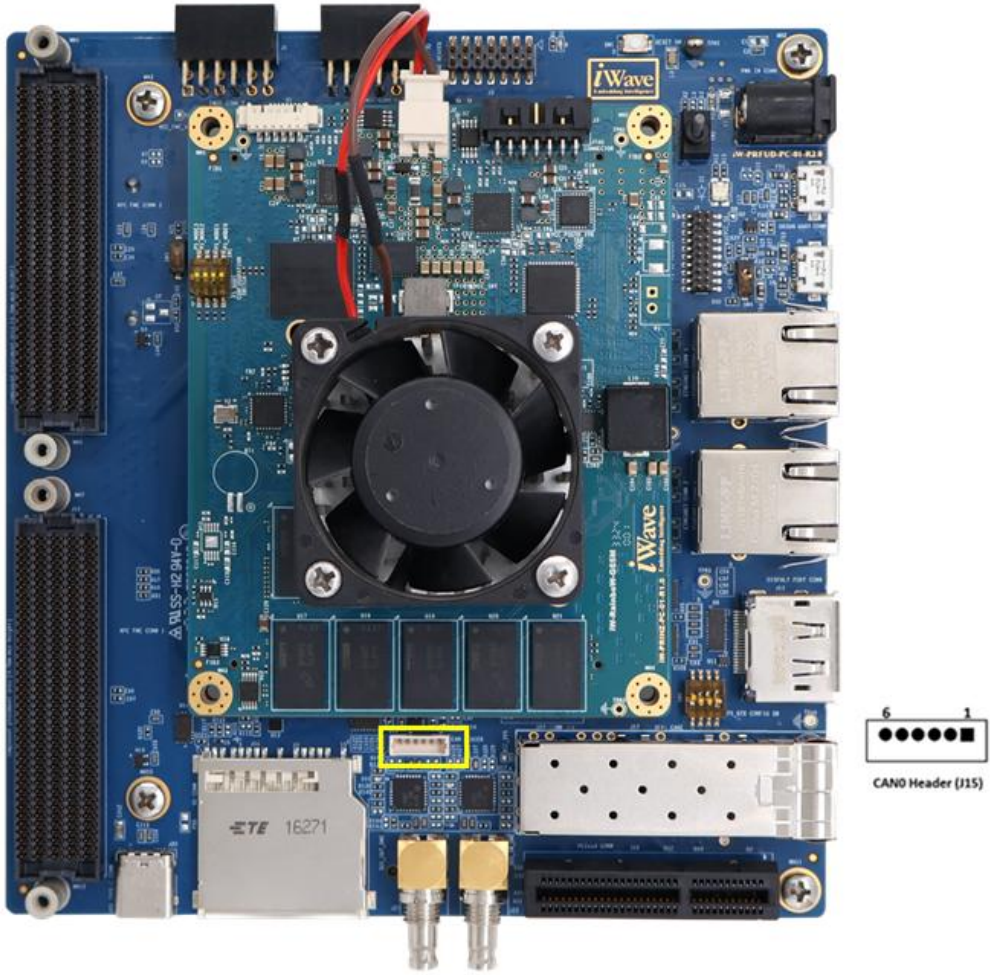


Figure 14: CAN0 Header

Number of Pins	- 6
Connector Part	- 53047-0610 from Molex
Mating Connector	- 0510210600 from Molex with crimping pins

Table 12: CAN Interface pinouts

B2B Connector1 Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
CAN0_RX(PS_MIO38_501)	501	F20	I, 1.8V LVCMOS	CAN0 Receive data. This signal is directly connected from CAN bus transceiver
CAN0_TX(PS_MIO39_501)	501	H19	O,1.8V LVCMOS	CAN0 Transmit data. This signal is directly connected to CAN bus transceiver
PL_G15_LVDS47_L9P	47	G15	O,1.8V LVCMOS/10K PD	Transceiver Standby.

Table 13: CAN0 Header Pin Assignment

Pin No	Pin Name	Signal Type/ Termination	Description
1	VCC_5V	O, 5V Power	5V Supply Voltage.
2	VCC_12V	-	NC. *Note: Optionally connected to on board 12V through resistor and by default not populated.*
3	CANL	IO, DIFF	CAN Differential negative.
4	GND	Power	Ground.
5	CANH	IO, DIFF	CAN Differential positive.
6	GND	Power	Ground.

2.4.7 Debug UART

The Zynq Ultrascale+ MPSoC devkit supports debug interface through UART0 interface of Zynq Ultrascale+ MPSoC PS. This UART0 signals from Board to Board Connector2 is connected to UART to USB Convertor “FT232RQ”. The output of the USB convetor is conencted to USB MicroAB Connector (J5). This USB MicroAB Connector can be used for Debug purpose which is is physically located at the top of the board as shown below.

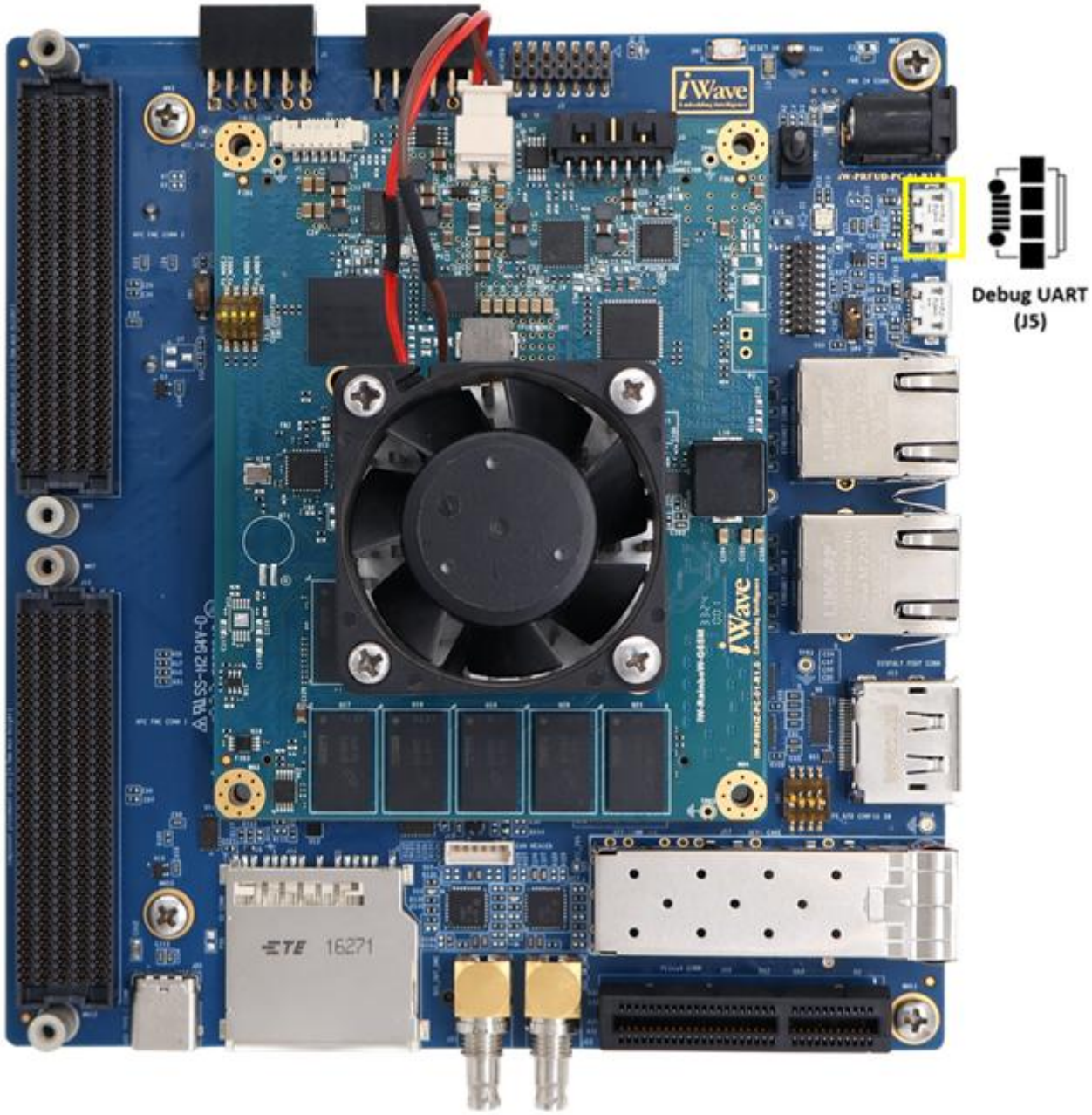


Figure 15: Debug UART Connector

2.5 PL Interface Features

The features which are supported from Zynq Ultrascale+ MPSoC's PL is explained in the following section.

2.5.1 FMC HPC Connector VADJ Selection

The Zynq Ultrascale+ MPSoC devkit supports two 400Pin Standard FMC HPC connectors and VADJ voltage can be selected through SW3. When SW3 switch is ON then VDAJ as 1.8V and When SW3 switch is OFF then VADJ as 2.5V. By default, SW3 Switch set as 1.8V. This VADJ voltage can be configured based on PL IO voltage.

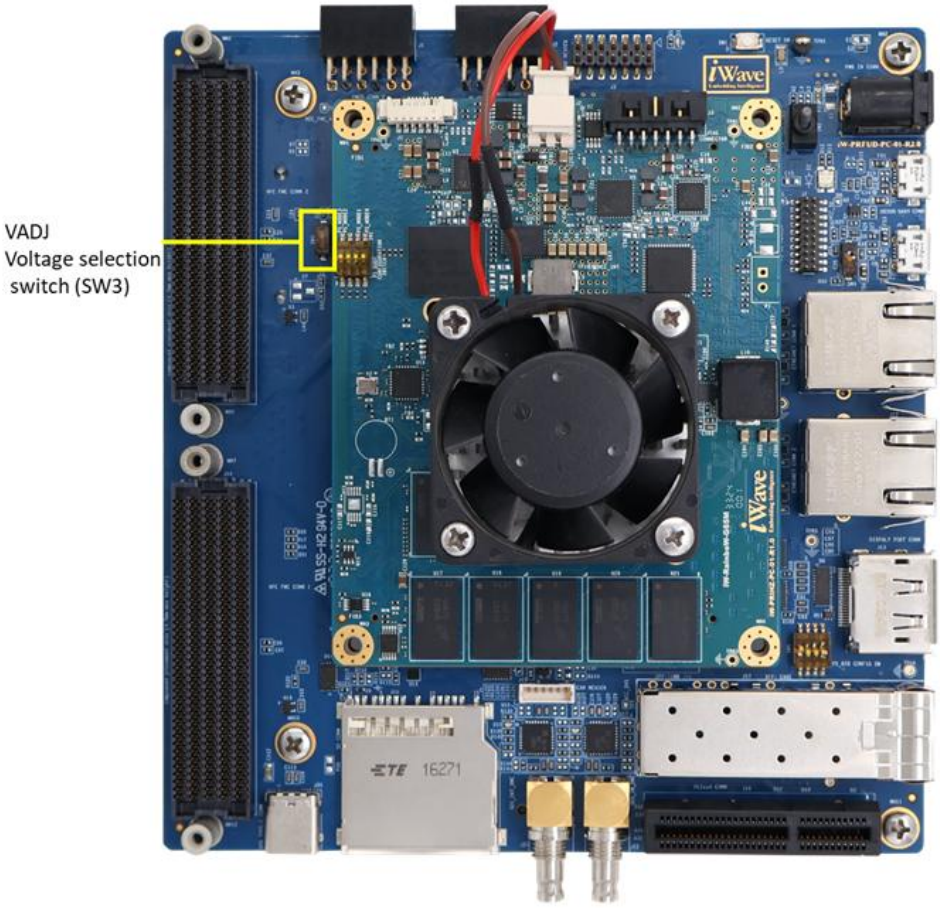


Figure 16: FMC VADJ Voltage selection

2.5.2 FMC HPC Connector1

The Zynq Ultrascale+ MPSoC devkit supports two 400Pin Standard FMC HPC connectors to support standard ANSI/VITA 57.1 FMC modules. These FMC HPC connectors can accept two Single width FMC modules or one double width FMC module.

The FMC HPC Connector1 (J14) supports the below mentioned interface from Zynq Ultrascale+ MPSoC.

- 8 GTH High Speed Transceivers
- 2 GTH Reference Clock to SoC
- 20 LVDS IOs/40 Single ended (SE) IOs
- 18 Single ended (SE) IOs
- 5 Clock Input Capable LVDS/SE pins
- 2 Clock Output Capable LVDS/SE pins

This 400Pin FMC HPC Connector1 (J14) is physically located at the top of the board as shown below.

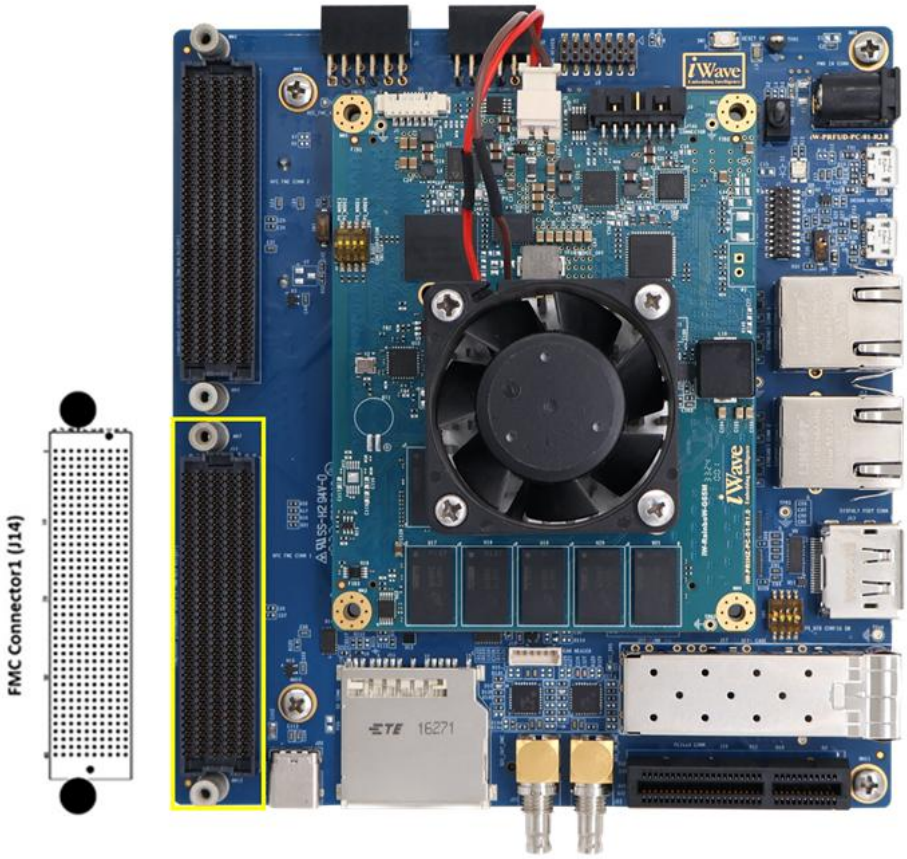


Figure 17: FMC Connector1

This 400Pin FMC HPC Connector1 (J14) pin mapping is shown below.

	K	J	H	G	F	E	D	C	B	A
1	NC	GND	NC	GND	PG_M2C	GND	PG_C2M	GND	NC	GND1
2	GND	CLK3_BIDIR_P	PRSNT_M2C_L	CLK1_M2C_P	GND	NC	GND	DP0_C2M_P	GND	DP1_M2C_P
3	GND	CLK3_BIDIR_N	GND	CLK1_M2C_N	GND	NC	GND	DP0_C2M_N	GND	DP1_M2C_N
4	NC	GND	NC	GND	HA00_P_CC	GND	GBTCLK0_M2C_P	GND	NC	GND
5	NC	GND	NC	GND	HA00_N_CC	GND	GBTCLK0_M2C_N	GND	NC	GND
6	GND	NC	GND	LA00_P_CC	GND	NC	GND	DP0_M2C_P	GND	DP2_M2C_P
7	NC	NC	LA02_P	LA00_N_CC	NC	NC	GND	DP0_M2C_N	GND	DP2_M2C_N
8	NC	GND	LA02_N	GND	NC	GND	LA01_P_CC	GND	NC	GND
9	GND	NC	GND	LA03_P	GND	NC	LA01_N_CC	GND	NC	GND
10	NC	NC	LA04_P	LA03_N	NC	NC	GND	LA06_P	GND	DP3_M2C_P
11	NC	GND	LA04_N	GND	NC	GND	LA05_P	LA06_N	GND	DP3_M2C_N
12	GND	NC	GND	LA08_P	GND	NC	LA05_N	GND	DP7_M2C_P	GND
13	NC	NC	LA07_P	LA08_N	NC	NC	GND	GND	DP7_M2C_N	GND
14	NC	GND	LA07_N	GND	NC	GND	LA09_P	LA10_P	GND	DP4_M2C_P
15	GND	NC	GND	LA12_P	GND	NC	LA09_N	LA10_N	GND	DP4_M2C_N
16	NC	NC	LA11_P	LA12_N	NC	NC	GND	GND	DP6_M2C_P	GND
17	NC	GND	LA11_N	GND	NC	GND	LA13_P	GND	DP6_M2C_N	GND
18	GND	NC	GND	LA16_P	GND	NC	LA13_N	LA14_P	GND	DP5_M2C_P
19	NC	NC	LA15_P	LA16_N	NC	NC	GND	LA14_N	GND	DP5_M2C_N
20	NC	GND	LA15_N	GND	NC	GND	LA17_P_CC	GND	GBTCLK1_M2C_P	GND
21	GND	NC	GND	LA20_P	GND	NC	LA17_N_CC	GND	GBTCLK1_M2C_N	GND
22	NC	NC	LA19_P	LA20_N	NC	NC	GND	LA18_P_CC	GND	DP1_C2M_P
23	NC	GND	LA19_N	GND	NC	GND	LA23_P	LA18_N_CC	GND	DP1_C2M_N
24	GND	NC	GND	LA22_P	GND	NC	LA23_N	GND	NC	GND
25	NC	NC	LA21_P	LA22_N	NC	NC	GND	GND	NC	GND
26	NC	GND	LA21_N	GND	NC	GND	LA26_P	LA27_P	GND	DP2_C2M_P
27	GND	NC	GND	LA25_P	GND	NC	LA26_N	LA27_N	GND	DP2_C2M_N
28	NC	NC	LA24_P	LA25_N	NC	NC	GND	GND	NC	GND
29	NC	GND	LA24_N	GND	NC	GND	TCK	GND	NC	GND
30	GND	NC	GND	LA29_P	GND	NC	TDI	SCL	GND	DP3_C2M_P
31	NC	NC	LA28_P	LA29_N	NC	NC	TDO	SDA	GND	DP3_C2M_N
32	NC	GND	LA28_N	GND	NC	GND	3P3VAUX	GND	DP7_C2M_P	GND
33	GND	NC	GND	LA31_P	GND	NC	TMS	GND	DP7_C2M_N	GND
34	NC	NC	LA30_P	LA31_N	NC	NC	TRST_L	GA0	GND	DP4_C2M_P
35	NC	GND	LA30_N	GND	NC	GND	GA1	12P0V	GND	DP4_C2M_N
36	GND	NC	GND	LA33_P	GND	NC	3P3V	GND	DP6_C2M_P	GND
37	NC	NC	LA32_P	LA33_N	NC	NC	GND	12P0V	DP6_C2M_N	GND
38	NC	GND	LA32_N	GND	NC	GND	3P3V	GND	GND	DP5_C2M_P
39	GND	NC	GND	VADJ	GND	VADJ	GND	3P3V	GND	DP5_C2M_N
40	NC	GND	VADJ	GND15	VADJ	GND	3P3V	GND	NC	GND

Figure 18: FMC HPC Connector1 Pin Out

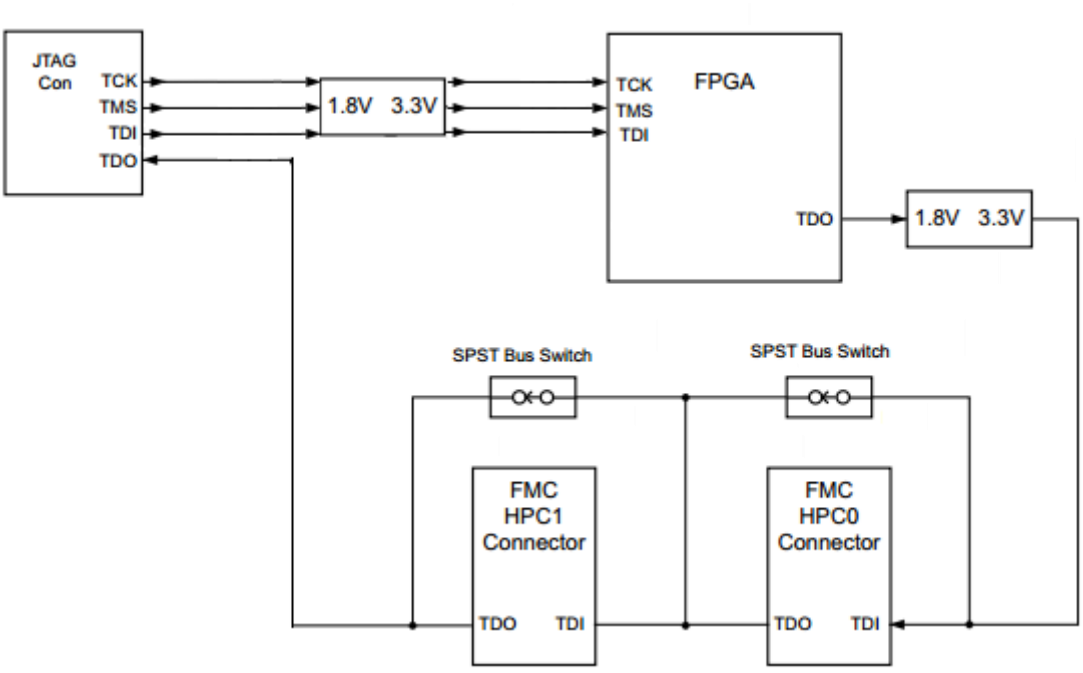


Figure 19: JTAG Chain Block Diagram

Table 14: FMC HPC Connector1 Pin Assignment

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
1	A1	GND	NA	NA	GND	NA	NA	Power	Ground.
2	A2	DP1_M2C_P	Board to Board Connector 1	17	GTHRXP1_230	230	C4	I, DIFF	GTH Bank230 channel1 High speed differential receiver positive.
3	A3	DP1_M2C_N	Board to Board Connector 1	15	GTHRXN1_230	230	C3	I, DIFF	GTH Bank230 channel1 High speed differential receiver negative.
4	A4	GND	NA	NA	GND	NA	NA	Power	Ground.
5	A5	GND	NA	NA	GND	NA	NA	Power	Ground.
6	A6	DP2_M2C_P	Board to Board Connector 1	57	GTHRXP2_230	230	B2	I, DIFF	GTH Bank230 channel2 High speed differential receiver positive.
7	A7	DP2_M2C_N	Board to Board Connector 1	55	GTHRXN2_230	230	B1	I, DIFF	GTH Bank230 channel2 High speed differential receiver negative.
8	A8	GND	NA	NA	GND	NA	NA	Power	Ground.
9	A9	GND	NA	NA	GND	NA	NA	Power	Ground.
10	A10	DP3_M2C_P	Board to Board Connector 1	51	GTHRXP3_230	230	A4	I, DIFF	GTH Bank230 channel3 High speed differential receiver positive.
11	A11	DP3_M2C_N	Board to Board Connector 1	49	GTHRXN3_230	230	A3	I, DIFF	GTH Bank230 channel3 High speed differential receiver negative.
12	A12	GND	NA	NA	GND	NA	NA	Power	Ground.
13	A13	GND	NA	NA	GND	NA	NA	Power	Ground.
14	A14	DP4_M2C_P	Board to Board Connector 1	117	GTHRXP0_229	229	K2	I, DIFF	GTH Bank229 channel0 High speed differential receiver positive.
15	A15	DP4_M2C_N	Board to Board Connector 1	115	GTHRXN0_229	229	K1	I, DIFF	GTH Bank229 channel0 High speed differential receiver negative.
16	A16	GND	NA	NA	GND	NA	NA	Power	Ground.
17	A17	GND	NA	NA	GND	NA	NA	Power	Ground.
18	A18	DP5_M2C_P	Board to Board Connector 1	111	GTHRXP1_229	229	H2	I, DIFF	GTH Bank229 channel1 High speed differential receiver positive.
19	A19	DP5_M2C_N	Board to Board Connector 1	109	GTHRXN1_229	229	H1	I, DIFF	GTH Bank229 channel1 High speed differential receiver negative.
20	A20	GND	NA	NA	GND	NA	NA	Power	Ground.
21	A21	GND	NA	NA	GND	NA	NA	Power	Ground.
22	A22	DP1_C2M_P	Board to Board Connector 1	9	GTHTXP1_230	230	C8	O, DIFF	GTH Bank230 channel1 High speed differential transmitter positive.
23	A23	DP1_C2M_N	Board to Board Connector 1	11	GTHTXN1_230	230	C7	O, DIFF	GTH Bank230 channel1 High speed differential transmitter negative.
24	A24	GND	NA	NA	GND	NA	NA	Power	Ground.
25	A25	GND	NA	NA	GND	NA	NA	Power	Ground.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
26	**A26**	DP2_C2M_P	Board to Board Connector 1	37	GTHTXP2_230	230	B6	O, DIFF	GTH Bank230 channel2 High speed differential transmitter positive.
27	**A27**	DP2_C2M_N	Board to Board Connector 1	39	GTHTXN2_230	230	B5	O, DIFF	GTH Bank230 channel2 High speed differential transmitter negative.
28	**A28**	GND	NA	NA	GND	NA	NA	Power	Ground.
29	**A29**	GND	NA	NA	GND	NA	NA	Power	Ground.
30	**A30**	DP3_C2M_P	Board to Board Connector 1	43	GTHTXP3_230	230	A8	O, DIFF	GTH Bank230 channel3 High speed differential transmitter positive.
31	**A31**	DP3_C2M_N	Board to Board Connector 1	45	GTHTXN3_230	230	A7	O, DIFF	GTH Bank230 channel3 High speed differential transmitter negative.
32	**A32**	GND	NA	NA	GND	NA	NA	Power	Ground.
33	**A33**	GND	NA	NA	GND	NA	NA	Power	Ground.
34	**A34**	DP4_C2M_P	Board to Board Connector 1	97	GTHTXP0_229	229	J4	O, DIFF	GTH Bank229 channel0 High speed differential transmitter positive.
35	**A35**	DP4_C2M_N	Board to Board Connector 1	99	GTHTXN0_229	229	J3	O, DIFF	GTH Bank229 channel0 High speed differential transmitter negative.
36	**A36**	GND	NA	NA	GND	NA	NA	Power	Ground.
37	**A37**	GND	NA	NA	GND	NA	NA	Power	Ground.
38	**A38**	DP5_C2M_P	Board to Board Connector 1	103	GTHTXP1_229	229	H6	O, DIFF	GTH Bank229 channel1 High speed differential transmitter positive.
39	**A39**	DP5_C2M_N	Board to Board Connector 1	105	GTHTXN1_229	229	H5	O, DIFF	GTH Bank229 channel1 High speed differential transmitter negative.
40	**A40**	GND	NA	NA	GND	NA	NA	Power	Ground.
41	**B1**	CLK_DIR	NA	NA	NA	NA	NA	NA	NC.
42	**B2**	GND	NA	NA	GND	NA	NA	Power	Ground.
43	**B3**	GND	NA	NA	GND	NA	NA	Power	Ground.
44	**B4**	DP9_M2C_P	NA	NA	NA	NA	NA	NA	NC.
45	**B5**	DP9_M2C_N	NA	NA	NA	NA	NA	NA	NC.
46	**B6**	GND	NA	NA	GND	NA	NA	Power	Ground.
47	**B7**	GND	NA	NA	GND	NA	NA	Power	Ground.
48	**B8**	DP8_M2C_P	NA	NA	NA	NA	NA	NA	NC.
49	**B9**	DP8_M2C_N	NA	NA	NA	NA	NA	NA	NC.
50	**B10**	GND	NA	NA	GND	NA	NA	Power	Ground.
51	**B11**	GND	NA	NA	GND	NA	NA	Power	Ground.
52	**B12**	DP7_M2C_P	Board to Board Connector 1	137	GTHRXP3_229	229	F2	I, DIFF	GTH Bank229 channel3 High speed differential receiver positive.
53	**B13**	DP7_M2C_N	Board to Board Connector 1	135	GTHRXN3_229	229	F1	I, DIFF	GTH Bank229 channel3 High speed differential receiver negative.
54	**B14**	GND	NA	NA	GND	NA	NA	Power	Ground.
55	**B15**	GND	NA	NA	GND	NA	NA	Power	Ground.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
56	B16	DP6_M2C_P	Board to Board Connector 1	143	GTHRXP2_229	229	G4	I, DIFF	GTH Bank229 channel2 High speed differential receiver positive.
57	B17	DP6_M2C_N	Board to Board Connector 1	141	GTHRXN2_229	229	G3	I, DIFF	GTH Bank229 channel2 High speed differential receiver negative.
58	B18	GND	NA	NA	GND	NA	NA	Power	Ground.
59	B19	GND	NA	NA	GND	NA	NA	Power	Ground.
60	B20	GBTCLK1_M2C_P	Board to Board Connector 1	98	GTREFCLK0P_229	229	L8	I, DIFF	GTH Bank229 differential reference clock0 positive.
61	B21	GBTCLK1_M2C_N	Board to Board Connector 1	100	GTREFCLK0N_229	229	L7	I, DIFF	GTH Bank229 differential reference clock0 negative.
62	B22	GND	NA	NA	GND	NA	NA	Power	Ground.
63	B23	GND	NA	NA	GND	NA	NA	Power	Ground.
64	B24	DP9_C2M_P	NA	NA	NA	NA	NA	NA	NC.
65	B25	DP9_C2M_N	NA	NA	NA	NA	NA	NA	NC.
66	B26	GND	NA	NA	GND	NA	NA	Power	Ground.
67	B27	GND	NA	NA	GND	NA	NA	Power	Ground.
68	B28	DP8_C2M_P	NA	NA	NA	NA	NA	NA	NC.
69	B29	DP8_C2M_N	NA	NA	NA	NA	NA	NA	NC.
70	B30	GND	NA	NA	GND	NA	NA	Power	Ground.
71	B31	GND	NA	NA	GND	NA	NA	Power	Ground.
72	B32	DP7_C2M_P	Board to Board Connector 1	129	GTHTXP3_229	229	E4	O, DIFF	GTH Bank229 channel3 High speed differential transmitter positive.
73	B33	DP7_C2M_N	Board to Board Connector 1	131	GTHTXN3_229	229	E3	O, DIFF	GTH Bank229 channel3 High speed differential transmitter negative.
74	B34	GND	NA	NA	GND	NA	NA	Power	Ground.
75	B35	GND	NA	NA	GND	NA	NA	Power	Ground.
76	B36	DP6_C2M_P	Board to Board Connector 1	123	GTHTXP2_229	229	F6	O, DIFF	GTH Bank229 channel2 High speed differential transmitter positive.
77	B37	DP6_C2M_N	Board to Board Connector 1	125	GTHTXN2_229	229	F5	O, DIFF	GTH Bank229 channel2 High speed differential transmitter negative.
78	B38	GND	NA	NA	GND	NA	NA	Power	Ground.
79	B39	GND	NA	NA	GND	NA	NA	Power	Ground.
80	B40	RES0	NA	NA	NA	NA	NA	NA	NC.
81	C1	GND	NA	NA	GND	NA	NA	Power	Ground.
82	C2	DP0_C2M_P	Board to Board Connector 1	3	GTHTXP0_230	230	D6	O, DIFF	GTH Bank230 channel0 High speed differential transmitter positive.
83	C3	DP0_C2M_N	Board to Board Connector 1	5	GTHTXN0_230	230	D5	O, DIFF	GTH Bank230 channel0 High speed differential transmitter negative.
84	C4	GND	NA	NA	GND	NA	NA	Power	Ground.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
85	**C5**	GND	NA	NA	GND	NA	NA	Power	Ground.
86	**C6**	DP0_M2C_P	Board to Board Connector 1	23	GTHRXP0_230	230	D2	I, DIFF	GTH Bank230 channel0 High speed differential receiver positive.
87	**C7**	DP0_M2C_N	Board to Board Connector 1	21	GTHRXN0_230	230	D1	I, DIFF	GTH Bank230 channel0 High speed differential receiver negative.
88	**C8**	GND	NA	NA	GND	NA	NA	Power	Ground.
89	**C9**	GND	NA	NA	GND	NA	NA	Power	Ground.
90	**C10**	LA06_P	Board to Board Connector 2	139	PL_AA6_LVDS65_L15P	65	AA6	IO, 1.8V	PL HP Bank65 IO15 differential positive.
91	**C11**	LA06_N	Board to Board Connector 2	141	PL_AA5_LVDS65_L15N	65	AA5	IO, 1.8V	PL HP Bank65 IO15 differential negative.
92	**C12**	GND	NA	NA	GND	NA	NA	Power	Ground.
93	**C13**	GND	NA	NA	GND	NA	NA	Power	Ground.
94	**C14**	LA10_P	Board to Board Connector 2	147	PL_AF2_LVDS64_L24P	64	AF2	IO, 1.8V	PL HP Bank64 IO24 differential positive.
95	**C15**	LA10_N	Board to Board Connector 2	149	PL_AF1_LVDS64_L24N	64	AF1	IO, 1.8V	PL HP Bank64 IO24 differential negative.
96	**C16**	GND	NA	NA	GND	NA	NA	Power	Ground.
97	**C17**	GND	NA	NA	GND	NA	NA	Power	Ground.
98	**C18**	LA14_P	Board to Board Connector 2	156	PL_AH9_LVDS64_L9P	64	AH9	IO, 1.8V	PL HP Bank64 IO9 differential positive.
99	**C19**	LA14_N	Board to Board Connector 2	158	PL_AJ9_LVDS64_L9N	64	AJ9	IO, 1.8V	PL HP Bank64 IO9 differential negative.
100	**C20**	GND	NA	NA	GND	NA	NA	Power	Ground.
101	**C21**	GND	NA	NA	GND	NA	NA	Power	Ground.
102	**C22**	LA18_P_CC	Board to Board Connector 1	84	PL_E10_LVDS48_L6P_HDGC	48	E10	IO, 1.8V	PL HD Bank48 IO6 differential positive.
103	**C23**	LA18_N_CC	Board to Board Connector 1	82	PL_D10_LVDS48_L6N_HDGC	48	D10	IO, 1.8V	PL HD Bank48 IO6 differential negative.
104	**C24**	GND	NA	NA	GND	NA	NA	Power	Ground.
105	**C25**	GND	NA	NA	GND	NA	NA	Power	Ground.
106	**C26**	LA27_P	Board to Board Connector 2	110	PL_AB8_LVDS65_L12P_GC	65	AB8	IO, 1.8V	PL HP Bank65 IO12 differential positive.
107	**C27**	LA27_N	Board to Board Connector 2	112	PL_AC8_LVDS65_L12N_GC	65	AC8	IO, 1.8V	PL HP Bank65 IO12 differential negative.
108	**C28**	GND	NA	NA	GND	NA	NA	Power	Ground.
109	**C29**	GND	NA	NA	GND	NA	NA	Power	Ground.
110	**C30**	SCL	Board to Board Connector 2	48	I2C0_SCL(PS_MIO10_500)	500	B18	O, 3.3V LVCMOS	I2C0 Clock Signal.
111	**C31**	SDA	Board to Board Connector 2	46	I2C0_SDA(PS_MIO11_500)	500	G19	IO, 3.3V LVCMOS	I2C0 Data Signal.
112	**C32**	GND	NA	NA	GND	NA	NA	Power	Ground.
113	**C33**	GND	NA	NA	GND	NA	NA	Power	Ground.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
114	**C34**	GA0	NA	NA	GA0	NA	NA	1K, 3.3V PU	Geographical address 0
115	**C35**	12P0V	NA	NA	VCC_12V	NA	NA	O, 12V Power	12V Supply Voltage.
116	**C36**	GND	NA	NA	GND	NA	NA	Power	Ground.
117	**C37**	12P0V	NA	NA	VCC_12V	NA	NA	O, 12V Power	12V Supply Voltage.
118	**C38**	GND	NA	NA	GND	NA	NA	Power	Ground.
119	**C39**	3P3V	NA	NA	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
120	**C40**	GND	NA	NA	GND	NA	NA	Power	Ground.
121	**D1**	PG_C2M	NA	NA	PG_C2M	NA	NA	I, 3.3V	Power Good Signal from Carrier to FMC Module.
122	**D2**	GND	NA	NA	GND	NA	NA	Power	Ground.
123	**D3**	GND	NA	NA	GND	NA	NA	Power	Ground.
124	**D4**	GBTCLK0_M2C_P	Board to Board Connector 1	4	GTREFCLK0P_230	230	G8	I, DIFF	GTH Bank230 differential reference clock0 positive.
125	**D5**	GBTCLK0_M2C_N	Board to Board Connector 1	6	GTREFCLK0N_230	230	G7	I, DIFF	GTH Bank230 differential reference clock0 negative.
126	**D6**	GND	NA	NA	GND	NA	NA	Power	Ground.
127	**D7**	GND	NA	NA	GND	NA	NA	Power	Ground.
128	**D8**	LA01_P_CC	Board to Board Connector 2	176	PL_AH7_LVDS64_L11P_GC	64	AH7	IO, 1.8V	PL HP Bank64 IO11 differential positive.
129	**D9**	LA01_N_CC	Board to Board Connector 2	178	PL_AJ7_LVDS64_L11N_GC	64	AJ7	IO, 1.8V	PL HP Bank64 IO11 differential negative.
130	**D10**	GND	NA	NA	GND	NA	NA	Power	Ground.
131	**D11**	LA05_P	Board to Board Connector 2	145	PL_AC2_LVDS65_L21P	65	AC2	IO, 1.8V	PL HP Bank65 IO21 differential positive.
132	**D12**	LA05_N	Board to Board Connector 2	143	PL_AD2_LVDS65_L21N	65	AD2	IO, 1.8V	PL HP Bank65 IO21 differential negative.
133	**D13**	GND	NA	NA	GND	NA	NA	Power	Ground.
134	**D14**	LA09_P	Board to Board Connector 2	159	PL_AG1_LVDS64_L22P_DBC	64	AG1	IO, 1.8V	PL HP Bank64 IO22 differential positive.
135	**D15**	LA09_N	Board to Board Connector 2	161	PL_AH1_LVDS64_L22N_DBC	64	AH1	IO, 1.8V	PL HP Bank64 IO22 differential negative.
136	**D16**	GND	NA	NA	GND	NA	NA	Power	Ground.
137	**D17**	LA13_P	Board to Board Connector 2	155	PL_AH3_LVDS64_L20P	64	AH3	IO, 1.8V	PL HP Bank64 IO20 differential positive.
138	**D18**	LA13_N	Board to Board Connector 2	157	PL_AH2_LVDS64_L20N	64	AH2	IO, 1.8V	PL HP Bank64 IO20 differential negative.
139	**D19**	GND	NA	NA	GND	NA	NA	Power	Ground.
140	**D20**	LA17_P_CC	Board to Board Connector 1	58	PL_F12_LVDS48_L7P_HDGC	48	F12	IO, 1.8V	PL HD Bank48 IO7 differential positive.
141	**D21**	LA17_N_CC	Board to Board Connector 1	56	PL_F11_LVDS48_L7N_HDGC	48	F11	IO, 1.8V	PL HD Bank48 IO7 differential negative.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
142	**D22**	GND	NA	NA	GND	NA	NA	Power	Ground.
143	**D23**	LA23_P	Board to Board Connector 2	162	PL_AJ11_LVDS64_L5P	64	AJ11	IO, 1.8V	PL HP Bank64 IO5 differential positive.
144	**D24**	LA23_N	Board to Board Connector 2	160	PL_AK11_LVDS64_L5N	64	AK11	IO, 1.8V	PL HP Bank64 IO5 differential negative.
145	**D25**	GND	NA	NA	GND	NA	NA	Power	Ground.
146	**D26**	LA26_P	Board to Board Connector 1	91	PL_B14_LVDS47_L2P	47	B14	IO, 1.8V	PL HD Bank47 IO2 differential positive.
147	**D27**	LA26_N	Board to Board Connector 1	93	PL_A14_LVDS47_L2N	47	A14	IO, 1.8V	PL HD Bank47 IO2 differential negative.
148	**D28**	GND	NA	NA	GND	NA	NA	Power	Ground.
149	**D29**	TCK	Board to Board Connector 2	31	PS_JTAG_TCK	503	R20	I, 3.3V CMOS/4.7K PU	JTAG Test Clock.
150	**D30**	TDI	Board to Board Connector 2	33	PS_JTAG_TDO	503	T20	I, 3.3V CMOS	JTAG Test Data Input *PS_JTAG_TDO signal is connected to D30th pin of FMC connector1 to support JTAG chain*
151	**D31**	TDO	Board to Board Connector 2	27	NA	NA	T21	O, 3.3V CMOS	JTAG Test Data Output. *This signal is connected to D30th pin of FMC connector2(TDI) to support JTAG chain.*
152	**D32**	3P3VAUX	NA	NA	3V3_AUX1	NA	NA	O, 3.3V Power	Auxiliary Supply Voltage.
153	**D33**	TMS	Board to Board Connector 2	29	PS_JTAG_TMS	503	R19	I, 3.3V CMOS/4.7K PU	JTAG Test Mode Select.
154	**D34**	TRST_L	NA	NA	NA	NA	NA	NA	NC.
155	**D35**	GA1	NA	NA	GA1	NA	NA	1K, PD	Geographical address 1
156	**D36**	3P3V	NA	NA	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
157	**D37**	GND	NA	NA	GND	NA	NA	Power	Ground.
158	**D38**	3P3V	NA	NA	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
159	**D39**	GND	NA	NA	GND	NA	NA	Power	Ground.
160	**D40**	3P3V	NA	NA	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
161	**E1**	GND	NA	NA	GND	NA	NA	Power	Ground.
162	**E2**	HA01_P_CC	NA	NA	NA	NA	NA	NA	NC.
163	**E3**	HA01_N_CC	NA	NA	NA	NA	NA	NA	NC.
164	**E4**	GND	NA	NA	GND	NA	NA	Power	Ground.
165	**E5**	GND	NA	NA	GND	NA	NA	Power	Ground.
166	**E6**	HA05_P	NA	NA	NA	NA	NA	NA	NC.
167	**E7**	HA05_N	NA	NA	NA	NA	NA	NA	NC.
168	**E8**	GND	NA	NA	GND	NA	NA	Power	Ground.
169	**E9**	HA09_P	NA	NA	NA	NA	NA	NA	NC.
170	**E10**	HA09_N	NA	NA	NA	NA	NA	NA	NC.
171	**E11**	GND	NA	NA	GND	NA	NA	Power	Ground.
172	**E12**	HA13_P	NA	NA	NA	NA	NA	NA	NC.
173	**E13**	HA13_N	NA	NA	NA	NA	NA	NA	NC.
174	**E14**	GND	NA	NA	GND	NA	NA	Power	Ground.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
175	**E15**	HA16_P	NA	NA	NA	NA	NA	NA	NC.
176	**E16**	HA16_N	NA	NA	NA	NA	NA	NA	NC.
177	**E17**	GND	NA	NA	GND	NA	NA	Power	Ground.
178	**E18**	HA20_P	NA	NA	NA	NA	NA	NA	NC.
179	**E19**	HA20_N	NA	NA	NA	NA	NA	NA	NC.
180	**E20**	GND	NA	NA	GND	NA	NA	Power	Ground.
181	**E21**	HB03_P	NA	NA	NA	NA	NA	NA	NC.
182	**E22**	HB03_N	NA	NA	NA	NA	NA	NA	NC.
183	**E23**	GND	NA	NA	GND	NA	NA	Power	Ground.
184	**E24**	HB05_P	NA	NA	NA	NA	NA	NA	NC.
185	**E25**	HB05_N	NA	NA	NA	NA	NA	NA	NC.
186	**E26**	GND	NA	NA	GND	NA	NA	Power	Ground.
187	**E27**	HB09_P	NA	NA	NA	NA	NA	NA	NC.
188	**E28**	HB09_N	NA	NA	NA	NA	NA	NA	NC.
189	**E29**	GND	NA	NA	GND	NA	NA	Power	Ground.
190	**E30**	HB13_P	NA	NA	NA	NA	NA	NA	NC.
191	**E31**	HB13_N	NA	NA	NA	NA	NA	NA	NC.
192	**E32**	GND	NA	NA	GND	NA	NA	Power	Ground.
193	**E33**	HB19_P	NA	NA	NA	NA	NA	NA	NC.
194	**E34**	HB19_N	NA	NA	NA	NA	NA	NA	NC.
195	**E35**	GND	NA	NA	GND	NA	NA	Power	Ground.
196	**E36**	HB21_P	NA	NA	NA	NA	NA	NA	NC.
197	**E37**	HB21_N	NA	NA	NA	NA	NA	NA	NC.
198	**E38**	GND	NA	NA	GND	NA	NA	Power	Ground.
199	**E39**	VADJ	NA	NA	VCC_FMC_ADJ	NA	NA	O, 1.8V Power	1.8V Supply Voltage.
200	**E40**	GND	NA	NA	GND	NA	NA	Power	Ground.
201	**F1**	PG_M2C	NA	NA	IOEXP_P17_PG_M2C 1	NA	NA	O,3.3V/ 10K PU	Power Good Signal from FMC Module to Carrier.
202	**F2**	GND	NA	NA	GND	NA	NA	Power	Ground.
203	**F3**	GND	NA	NA	GND	NA	NA	Power	Ground.
204	**F4**	HA00_P_CC	Board to Board Connector 1	130	PL_F15_LVDS47_L7P _HDGC	47	F15	IO, 1.8V	PL HD Bank47 IO7 differential positive.
205	**F5**	HA00_N_CC	Board to Board Connector 1	132	PL_E15_LVDS47_L7N _HDGC	47	E15	IO, 1.8V	PL HD Bank47 IO7 differential negative.
206	**F6**	GND	NA	NA	GND	NA	NA	Power	Ground.
207	**F7**	HA04_P	NA	NA	NA	NA	NA	NA	NC.
208	**F8**	HA04_N	NA	NA	NA	NA	NA	NA	NC.
209	**F9**	GND	NA	NA	GND	NA	NA	Power	Ground.
210	**F10**	HA08_P	NA	NA	NA	NA	NA	NA	NC.
211	**F11**	HA08_N	NA	NA	NA	NA	NA	NA	NC.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
212	**F12**	GND	NA	NA	GND	NA	NA	Power	Ground.
213	**F13**	HA12_P	NA	NA	NA	NA	NA	NA	NC.
214	**F14**	HA12_N	NA	NA	NA	NA	NA	NA	NC.
215	**F15**	GND	NA	NA	GND	NA	NA	Power	Ground.
216	**F16**	HA15_P	NA	NA	NA	NA	NA	NA	NC.
217	**F17**	HA15_N	NA	NA	NA	NA	NA	NA	NC.
218	**F18**	GND	NA	NA	GND	NA	NA	Power	Ground.
219	**F19**	HA19_P	NA	NA	NA	NA	NA	NA	NC.
220	**F20**	HA19_N	NA	NA	NA	NA	NA	NA	NC.
221	**F21**	GND	NA	NA	GND	NA	NA	Power	Ground.
222	**F22**	HB02_P	NA	NA	NA	NA	NA	NA	NC.
223	**F23**	HB02_N	NA	NA	NA	NA	NA	NA	NC.
224	**F24**	GND	NA	NA	GND	NA	NA	Power	Ground.
225	**F25**	HB04_P	NA	NA	NA	NA	NA	NA	NC.
226	**F26**	HB04_N	NA	NA	NA	NA	NA	NA	NC.
227	**F27**	GND	NA	NA	GND	NA	NA	Power	Ground.
228	**F28**	HB08_P	NA	NA	NA	NA	NA	NA	NC.
229	**F29**	HB08_N	NA	NA	NA	NA	NA	NA	NC.
230	**F30**	GND	NA	NA	GND	NA	NA	Power	Ground.
231	**F31**	HB12_P	NA	NA	NA	NA	NA	NA	NC.
232	**F32**	HB12_N	NA	NA	NA	NA	NA	NA	NC.
233	**F33**	GND	NA	NA	GND	NA	NA	Power	Ground.
234	**F34**	HB16_P	NA	NA	NA	NA	NA	NA	NC.
235	**F35**	HB16_N	NA	NA	NA	NA	NA	NA	NC.
236	**F36**	GND	NA	NA	GND	NA	NA	Power	Ground.
237	**F37**	HB20_P	NA	NA	NA	NA	NA	NA	NC.
238	**F38**	HB20_N	NA	NA	NA	NA	NA	NA	NC.
239	**F39**	GND	NA	NA	GND	NA	NA	Power	Ground.
240	**F40**	VADJ	NA	NA	VCC_FMC_ADJ	NA	NA	O, 1.8V Power	1.8V Supply Voltage.
241	**G1**	GND	NA	NA	GND	NA	NA	Power	Ground.
242	**G2**	CLK1_M2C_P	Board to Board Connector 2	169	PL_AH6_LVDS64_L14 P_GC	64	AH6	IO, 1.8V	PL HP Bank64 IO14 differential positive.
243	**G3**	CLK1_M2C_N	Board to Board Connector 2	171	PL_AJ6_LVDS64_L14 N_GC	64	AJ6	IO, 1.8V	PL HP Bank64 IO14 differential negative.
244	**G4**	GND	NA	NA	GND	NA	NA	Power	Ground.
245	**G5**	GND	NA	NA	GND	NA	NA	Power	Ground.
246	**G6**	LA00_P_CC	Board to Board Connector 2	175	PL_AG8_LVDS64_L12 P_GC	64	AG8	IO, 1.8V	PL HP Bank64 IO12 differential positive.
247	**G7**	LA00_N_CC	Board to Board Connector 2	177	PL_AH8_LVDS64_L12 N_GC	64	AH8	IO, 1.8V	PL HP Bank64 IO12 differential negative.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
248	**G8**	GND	NA	NA	GND	NA	NA	Power	Ground.
249	**G9**	LA03_P	Board to Board Connector 2	135	PL_AH4_LVDS64_L18P	64	AH4	IO, 1.8V	PL HP Bank64 IO18 differential positive.
250	**G10**	LA03_N	Board to Board Connector 2	137	PL_AJ4_LVDS64_L18N	64	AJ4	IO, 1.8V	PL HP Bank64 IO18 differential negative.
251	**G11**	GND	NA	NA	GND	NA	NA	Power	Ground.
252	**G12**	LA08_P	Board to Board Connector 2	140	PL_AG13_LVDS64_L2P	64	AG13	IO, 1.8V	PL HP Bank64 IO2 differential positive.
253	**G13**	LA08_N	Board to Board Connector 2	142	PL_AH13_LVDS64_L2N	64	AH13	IO, 1.8V	PL HP Bank64 IO2 differential negative.
254	**G14**	GND	NA	NA	GND	NA	NA	Power	Ground.
255	**G15**	LA12_P	Board to Board Connector 2	148	PL_AJ10_LVDS64_L6P	64	AJ10	IO, 1.8V	PL HP Bank64 IO6 differential positive.
256	**G16**	LA12_N	Board to Board Connector 2	150	PL_AK10_LVDS64_L6N	64	AK10	IO, 1.8V	PL HP Bank64 IO6 differential negative.
257	**G17**	GND	NA	NA	GND	NA	NA	Power	Ground.
258	**G18**	LA16_P	Board to Board Connector 2	164	PL_AK9_LVDS64_L10P_QBC	64	AK9	IO, 1.8V	PL HP Bank64 IO10 differential positive.
259	**G19**	LA16_N	Board to Board Connector 2	166	PL_AK8_LVDS64_L10N_QBC	64	AK8	IO, 1.8V	PL HP Bank64 IO10 differential negative.
260	**G20**	GND	NA	NA	GND	NA	NA	Power	Ground.
261	**G21**	LA20_P	Board to Board Connector 2	144	PL_AH12_LVDS64_L3P	64	AH12	IO, 1.8V	PL HP Bank64 IO3 differential positive.
262	**G22**	LA20_N	Board to Board Connector 2	146	PL_AJ12_LVDS64_L3N	64	AJ12	IO, 1.8V	PL HP Bank64 IO3 differential negative.
263	**G23**	GND	NA	NA	GND	NA	NA	Power	Ground.
264	**G24**	LA22_P	Board to Board Connector 2	183	PL_AF8_LVDS64_L7P_QBC	64	AF8	IO, 1.8V	PL HP Bank64 IO7 differential positive.
265	**G25**	LA22_N	Board to Board Connector 2	181	PL_AF7_LVDS64_L7N_QBC	64	AF7	IO, 1.8V	PL HP Bank64 IO7 differential negative.
266	**G26**	GND	NA	NA	GND	NA	NA	Power	Ground.
267	**G27**	LA25_P	Board to Board Connector 1	44	PL_B10_LVDS48_L3P	48	B10	IO, 1.8V	PL HD Bank48 IO3 differential positive.
268	**G28**	LA25_N	Board to Board Connector 1	42	PL_A10_LVDS48_L3N	48	A10	IO, 1.8V	PL HD Bank48 IO3 differential negative.
269	**G29**	GND	NA	NA	GND	NA	NA	Power	Ground.
270	**G30**	LA29_P	Board to Board Connector 1	32	PL_A12_LVDS48_L2P	48	A12	IO, 1.8V	PL HD Bank48 IO2 differential positive.
271	**G31**	LA29_N	Board to Board Connector 1	34	PL_A11_LVDS48_L2N	48	A11	IO, 1.8V	PL HD Bank48 IO2 differential negative.
272	**G32**	GND	NA	NA	GND	NA	NA	Power	Ground.
273	**G33**	LA31_P	Board to Board Connector 1	30	PL_C12_LVDS48_L1P	48	C12	IO, 1.8V	PL HD Bank48 IO1 differential positive.
274	**G34**	LA31_N	Board to Board Connector 1	28	PL_B11_LVDS48_L1N	48	B11	IO, 1.8V	PL HD Bank48 IO1 differential negative.
275	**G35**	GND	NA	NA	GND	NA	NA	Power	Ground.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
276	**G36**	LA33_P	Board to Board Connector 1	12	PL_J12_LVDS48_L11P	48	J12	IO, 1.8V	PL HD Bank48 IO11 differential positive.
277	**G37**	LA33_N	Board to Board Connector 1	14	PL_H11_LVDS48_L11N	48	H11	IO, 1.8V	PL HD Bank48 IO11 differential negative.
278	**G38**	GND	NA	NA	GND	NA	NA	Power	Ground.
279	**G39**	VADJ	NA	NA	VCC_FMC_ADJ	NA	NA	O, 1.8V Power	1.8V Supply Voltage.
280	**G40**	GND	NA	NA	GND	NA	NA	Power	Ground.
281	**H1**	VREF_A_M2C	NA	NA	NA	NA	NA	NA	NC
282	**H2**	PRSNT_M2C_L	NA	NA	IOEXP_P15_PR_M2C_L1	NA	NA	I, 3.3V	Module Present Signal.
283	**H3**	GND	NA	NA	GND	NA	NA	Power	Ground.
284	**H4**	CLK0_M2C_P	NA	NA	NA	NA	NA	NA	NC.
285	**H5**	CLK0_M2C_N	NA	NA	NA	NA	NA	NA	NC.
286	**H6**	GND	NA	NA	GND	NA	NA	Power	Ground.
287	**H7**	LA02_P	Board to Board Connector 2	132	PL_AF3_LVDS64_L23P	64	AF3	IO, 1.8V	PL HP Bank64 IO23 differential positive.
288	**H8**	LA02_N	Board to Board Connector 2	134	PL_AG3_LVDS64_L23N	64	AG3	IO, 1.8V	PL HP Bank64 IO23 differential negative.
289	**H9**	GND	NA	NA	GND	NA	NA	Power	Ground.
290	**H10**	LA04_P	Board to Board Connector 2	131	PL_AJ5_LVDS64_L17P	64	AJ5	IO, 1.8V	PL HP Bank64 IO17 differential positive.
291	**H11**	LA04_N	Board to Board Connector 2	133	PL_AK5_LVDS64_L17N	64	AK5	IO, 1.8V	PL HP Bank64 IO17 differential negative.
292	**H12**	GND	NA	NA	GND	NA	NA	Power	Ground.
293	**H13**	LA07_P	Board to Board Connector 2	151	PL_AJ2_LVDS64_L21P	64	AJ2	IO, 1.8V	PL HP Bank64 IO21 differential positive.
294	**H14**	LA07_N	Board to Board Connector 2	153	PL_AK2_LVDS64_L21N	64	AK2	IO, 1.8V	PL HP Bank64 IO21 differential negative.
295	**H15**	GND	NA	NA	GND	NA	NA	Power	Ground.
296	**H16**	LA11_P	Board to Board Connector 2	163	PL_AF11_LVDS64_L1P_DBC	64	AF11	IO, 1.8V	PL HP Bank64 IO1 differential positive.
297	**H17**	LA11_N	Board to Board Connector 2	165	PL_AG11_LVDS64_L1N_DBC	64	AG11	IO, 1.8V	PL HP Bank64 IO1 differential negative.
298	**H18**	GND	NA	NA	GND	NA	NA	Power	Ground.
299	**H19**	LA15_P	Board to Board Connector 2	136	PL_AK4_LVDS64_L19P_DBC	64	AK4	IO, 1.8V	PL HP Bank64 IO19 differential positive.
300	**H20**	LA15_N	Board to Board Connector 2	138	PL_AK3_LVDS64_L19N_DBC	64	AK3	IO, 1.8V	PL HP Bank64 IO19 differential negative.
301	**H21**	GND	NA	NA	GND	NA	NA	Power	Ground.
302	**H22**	LA19_P	Board to Board Connector 2	152	PL_AF10_LVDS64_L8P	64	AF10	IO, 1.8V	PL HP Bank64 IO8 differential positive.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
303	**H23**	LA19_N	Board to Board Connector 2	154	PL_AG10_LVDS64_L8N	64	AG10	IO, 1.8V	PL HP Bank64 IO8 differential negative.
304	**H24**	GND	NA	NA	GND	NA	NA	Power	Ground.
305	**H25**	LA21_P	Board to Board Connector 2	182	PL_AF6_LVDS64_L16P_QBC	64	AF6	IO, 1.8V	PL HP Bank64 IO16 differential positive.
306	**H26**	LA21_N	Board to Board Connector 2	184	PL_AF5_LVDS64_L16N_QBC	64	AF5	IO, 1.8V	PL HP Bank64 IO16 differential negative.
307	**H27**	GND	NA	NA	GND	NA	NA	Power	Ground.
308	**H28**	LA24_P	Board to Board Connector 1	38	PL_D11_LVDS48_L4P	48	D11	IO, 1.8V	PL HD Bank48 IO4 differential positive.
309	**H29**	LA24_N	Board to Board Connector 1	40	PL_C11_LVDS48_L4N	48	C11	IO, 1.8V	PL HD Bank48 IO4 differential negative.
310	**H30**	GND	NA	NA	GND	NA	NA	Power	Ground.
311	**H31**	LA28_P	Board to Board Connector 1	31	PL_K13_LVDS48_L9P	48	K13	IO, 1.8V	PL HD Bank48 IO9 differential positive.
312	**H32**	LA28_N	Board to Board Connector 1	33	PL_K12_LVDS48_L9N	48	K12	IO, 1.8V	PL HD Bank48 IO9 differential negative.
313	**H33**	GND	NA	NA	GND	NA	NA	Power	Ground.
314	**H34**	LA30_P	Board to Board Connector 1	27	PL_J11_LVDS48_L12P	48	J11	IO, 1.8V	PL HD Bank48 IO12 differential positive.
315	**H35**	LA30_N	Board to Board Connector 1	29	PL_J10_LVDS48_L12N	48	J10	IO, 1.8V	PL HD Bank48 IO12 differential negative.
316	**H36**	GND	NA	NA	GND	NA	NA	Power	Ground.
317	**H37**	LA32_P	Board to Board Connector 1	16	PL_H12_LVDS48_L10P	48	H12	IO, 1.8V	PL HD Bank48 IO10 differential positive.
318	**H38**	LA32_N	Board to Board Connector 1	18	PL_G11_LVDS48_L10N	48	G11	IO, 1.8V	PL HD Bank48 IO10 differential negative.
319	**H39**	GND	NA	NA	GND	NA	NA	Power	Ground.
320	**H40**	VADJ	NA	NA	VCC_FMC_ADJ	NA	NA	O, 1.8V Power	1.8V Supply Voltage.
321	**J1**	GND	NA	NA	GND	NA	NA	Power	Ground.
322	**J2**	CLK3_BIDIR_P	Board to Board Connector 2	170	PL_AG6_LVDS64_L13P_GC	64	AG6	IO, 1.8V	PL HP Bank64 IO13 differential positive.
323	**J3**	CLK3_BIDIR_N	Board to Board Connector 2	172	PL_AG5_LVDS64_L13N_GC	64	AG5	IO, 1.8V	PL HP Bank64 IO13 differential negative.
324	**J4**	GND	NA	NA	GND	NA	NA	Power	Ground.
325	**J5**	GND	NA	NA	GND	NA	NA	Power	Ground.
326	**J6**	HA03_P	NA	NA	NA	NA	NA	NA	NC.
327	**J7**	HA03_N	NA	NA	NA	NA	NA	NA	NC.
328	**J8**	GND	NA	NA	GND	NA	NA	Power	Ground.
329	**J9**	HA07_P	NA	NA	NA	NA	NA	NA	NC.
330	**J10**	HA07_N	NA	NA	NA	NA	NA	NA	NC.
331	**J11**	GND	NA	NA	GND	NA	NA	Power	Ground.
332	**J12**	HA11_P	NA	NA	NA	NA	NA	NA	NC.
333	**J13**	HA11_N	NA	NA	NA	NA	NA	NA	NC.
334	**J14**	GND	NA	NA	GND	NA	NA	Power	Ground.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
335	**J15**	HA14_P	NA	NA	NA	NA	NA	NA	NC.
336	**J16**	HA14_N	NA	NA	NA	NA	NA	NA	NC.
337	**J17**	GND	NA	NA	GND	NA	NA	Power	Ground.
338	**J18**	HA18_P	NA	NA	NA	NA	NA	NA	NC.
339	**J19**	HA18_N	NA	NA	NA	NA	NA	NA	NC.
340	**J20**	GND	NA	NA	GND	NA	NA	Power	Ground.
341	**J21**	HA22_P	NA	NA	NA	NA	NA	NA	NC.
342	**J22**	HA22_N	NA	NA	NA	NA	NA	NA	NC.
343	**J23**	GND	NA	NA	GND	NA	NA	Power	Ground.
344	**J24**	HB01_P	NA	NA	NA	NA	NA	NA	NC.
345	**J25**	HB01_N	NA	NA	NA	NA	NA	NA	NC.
346	**J26**	GND	NA	NA	GND	NA	NA	Power	Ground.
347	**J27**	HB07_P	NA	NA	NA	NA	NA	NA	NC.
348	**J28**	HB07_N	NA	NA	NA	NA	NA	NA	NC.
349	**J29**	GND	NA	NA	GND	NA	NA	Power	Ground.
350	**J30**	HB11_P	NA	NA	NA	NA	NA	NA	NC.
351	**J31**	HB11_N	NA	NA	NA	NA	NA	NA	NC.
352	**J32**	GND	NA	NA	GND	NA	NA	Power	Ground.
353	**J33**	HB15_P	NA	NA	NA	NA	NA	NA	NC.
354	**J34**	HB15_N	NA	NA	NA	NA	NA	NA	NC.
355	**J35**	GND	NA	NA	GND	NA	NA	Power	Ground.
356	**J36**	HB18_P	NA	NA	NA	NA	NA	NA	NC.
357	**J37**	HB18_N	NA	NA	NA	NA	NA	NA	NC.
358	**J38**	GND	NA	NA	GND	NA	NA	Power	Ground.
359	**J39**	VIO_B_M2C	NA	NA	NA	NA	NA	NA	NC.
360	**J40**	GND	NA	NA	GND	NA	NA	Power	Ground.
361	**K1**	VREF_B_M2C	NA	NA	NA	NA	NA	NA	NC.
362	**K2**	GND	NA	NA	GND	NA	NA	Power	Ground.
363	**K3**	GND	NA	NA	GND	NA	NA	Power	Ground.
364	**K4**	CLK2_BIDIR_P	NA	NA	NA	NA	NA	NA	NC.
365	**K5**	CLK2_BIDIR_N	NA	NA	NA	NA	NA	NA	NC.
366	**K6**	GND	NA	NA	GND	NA	NA	Power	Ground.
367	**K7**	HA02_P	NA	NA	NA	NA	NA	NA	NC.
368	**K8**	HA02_N	NA	NA	NA	NA	NA	NA	NC.
369	**K9**	GND	NA	NA	GND	NA	NA	Power	Ground.
370	**K10**	HA06_P	NA	NA	NA	NA	NA	NA	NC.
371	**K11**	HA06_N	NA	NA	NA	NA	NA	NA	NC.
372	**K12**	GND	NA	NA	GND	NA	NA	Power	Ground.
373	**K13**	HA10_P	NA	NA	NA	NA	NA	NA	NC.
374	**K14**	HA10_N	NA	NA	NA	NA	NA	NA	NC.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector1 Pin No	FMC Connector1 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
375	**K15**	GND	NA	NA	GND	NA	NA	Power	Ground.
376	**K16**	HA17_P_CC	NA	NA	NA	NA	NA	NA	NC.
377	**K17**	HA17_N_CC	NA	NA	NA	NA	NA	NA	NC.
378	**K18**	GND	NA	NA	GND	NA	NA	Power	Ground.
379	**K19**	HA21_P	NA	NA	NA	NA	NA	NA	NC.
380	**K20**	HA21_N	NA	NA	NA	NA	NA	NA	NC.
381	**K21**	GND	NA	NA	GND	NA	NA	Power	Ground.
382	**K22**	HA23_P	NA	NA	NA	NA	NA	NA	NC.
383	**K23**	HA23_N	NA	NA	NA	NA	NA	NA	NC.
384	**K24**	GND	NA	NA	GND	NA	NA	Power	Ground.
385	**K25**	HB00_P_CC	NA	NA	NA	NA	NA	NA	NC.
386	**K26**	HB00_N_CC	NA	NA	NA	NA	NA	NA	NC.
387	**K27**	GND	NA	NA	GND	NA	NA	Power	Ground.
388	**K28**	HB06_P_CC	NA	NA	NA	NA	NA	NA	NC.
389	**K29**	HB06_N_CC	NA	NA	NA	NA	NA	NA	NC.
390	**K30**	GND	NA	NA	GND	NA	NA	Power	Ground.
391	**K31**	HB10_P	NA	NA	NA	NA	NA	NA	NC.
392	**K32**	HB10_N	NA	NA	NA	NA	NA	NA	NC.
393	**K33**	GND	NA	NA	GND	NA	NA	Power	Ground.
394	**K34**	HB14_P	NA	NA	NA	NA	NA	NA	NC.
395	**K35**	HB14_N	NA	NA	NA	NA	NA	NA	NC.
396	**K36**	GND	NA	NA	GND	NA	NA	Power	Ground.
397	**K37**	HB17_P_CC	NA	NA	NA	NA	NA	NA	NC.
398	**K38**	HB17_N_CC	NA	NA	NA	NA	NA	NA	NC.
399	**K39**	GND	NA	NA	GND	NA	NA	Power	Ground.
400	**K40**	VIO_B_M2C	NA	NA	NA	NA	NA	NA	NC.

**IO Type of IOs originating from ZU15/9/6 MPSoC is configurable. Hence for exact IO type configuration options, refer Xilinx ZU15/9/6 MPSoC datasheet.*

2.5.3 FMC HPC Connector2

The Zynq Ultrascale+ MPSoC Devkit supports two 400Pin Standard FMC HPC connectors to support standard ANSI/VITA 57.1 FMC modules. These FMC HPC connectors can accept two Single width FMC modules or one double width FMC module.

The FMC HPC Connector2 (J6) supports the below mentioned interface from Zynq Ultrascale+ MPSoC.

- 6 GTH High Speed Transceivers
- 2 GTH Reference Clock Capable
- 15 LVDS IOs/30 Single ended (SE) IOs
- 4 Single ended (SE) IOs
- 2 Clock Input Capable LVDS/SE pins
- 1 Clock Output Capable LVDS/SE pins

This 400Pin FMC HPC Connector2 (J6) is physically located at the top of the board as shown below.

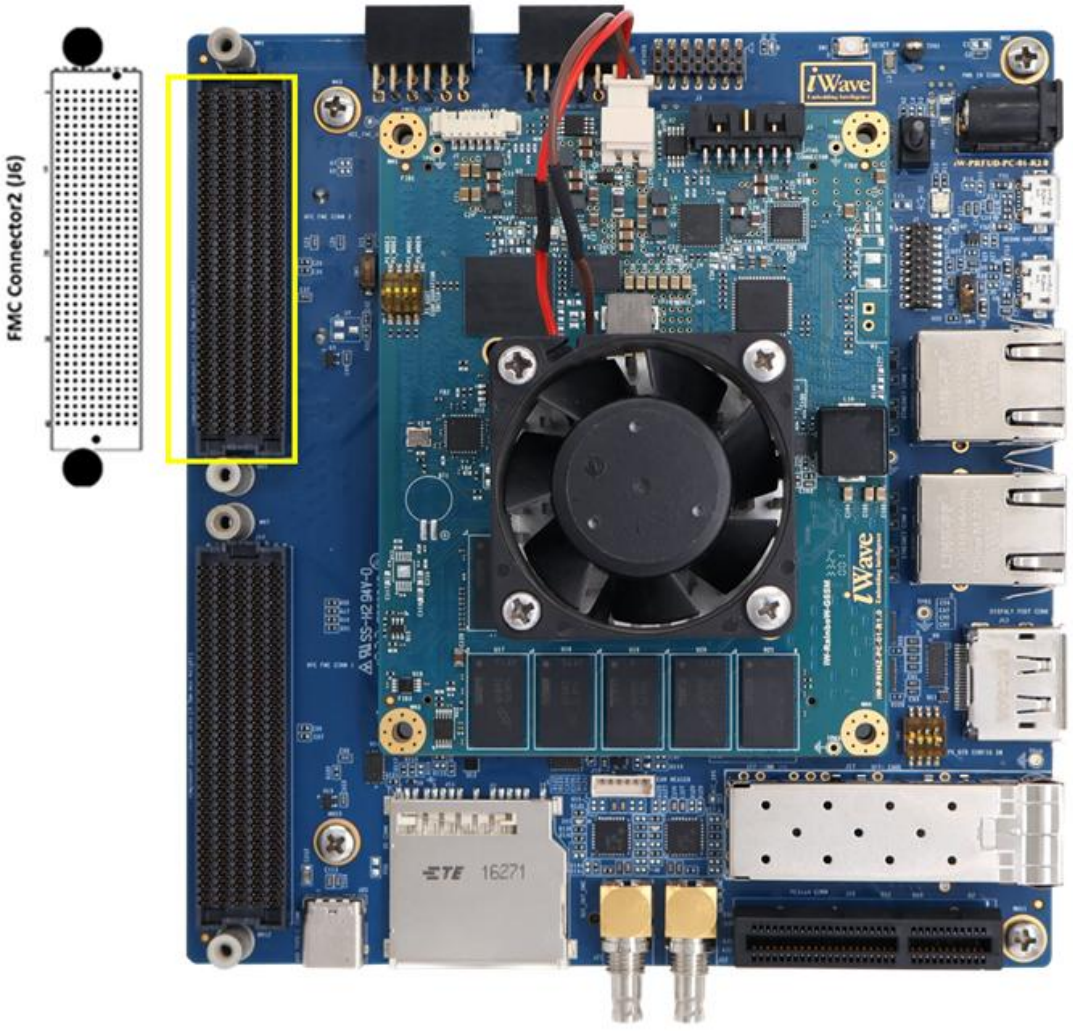


Figure 20: FMC Connector2

This 400Pin FMC HPC connector2 (J6) pin mapping is shown below.

	K	J	H	G	F	E	D	C	B	A
1	NC	GND	NC	GND	PG_M2C	GND	PG_C2M	GND	NC	GND
2	GND	NC	PRSNT_M2C_L	CLK1_M2C_P	GND	NC	GND	DP0_C2M_P	GND	DP1_M2C_P
3	GND	NC	GND	CLK1_M2C_N	GND	NC	GND	DP0_C2M_N	GND	DP1_M2C_N
4	NC	GND	NC	GND	NC	GND	GBTCLK0_M2C_P	GND	NC	GND
5	NC	GND	NC	GND	NC	GND	GBTCLK0_M2C_N	GND	NC	GND
6	GND	NC	GND	LA00_P_CC	GND	NC	GND	DP0_M2C_P	GND	DP2_M2C_P
7	NC	NC	LA02_P	LA00_N_CC	NC	NC	GND	DP0_M2C_N	GND	DP2_M2C_N
8	NC	GND	LA02_N	GND	NC	GND	LA01_P_CC	GND	NC	GND
9	GND	NC	GND	LA03_P	GND	NC	LA01_N_CC	GND	NC	GND
10	NC	NC	LA04_P	LA03_N	NC	NC	GND	LA06_P	GND	DP3_M2C_P
11	NC	GND	LA04_N	GND	NC	GND	LA05_P	LA06_N	GND	DP3_M2C_N
12	GND	NC	GND	LA08_P	GND	NC	LA05_N	GND	NC	GND
13	NC	NC	LA07_P	LA08_N	NC	NC	GND	GND	NC	GND
14	NC	GND	LA07_N	GND	NC	GND	LA09_P	LA10_P	GND	DP4_M2C_P
15	GND	NC	GND	LA12_P	GND	NC	LA09_N	LA10_N	GND	DP4_M2C_N
16	NC	NC	LA11_P	LA12_N	NC	NC	GND	GND	NC	GND
17	NC	GND	LA11_N	GND	NC	GND	LA13_P	GND	NC	GND
18	GND	NC	GND	LA16_P	GND	NC	LA13_N	LA14_P	GND	DP5_M2C_P
19	NC	NC	LA15_P	LA16_N	NC	NC	GND	LA14_N	GND	DP5_M2C_N
20	NC	GND	LA15_N	GND	NC	GND	LA17_P_CC	GND	GBTCLK1_M2C_P	GND
21	GND	NC	GND	NC	GND	NC	LA17_N_CC	GND	GBTCLK1_M2C_N	GND
22	NC	NC	NC	NC	NC	NC	GND	NC	GND	DP1_C2M_P
23	NC	GND	NC	GND	NC	GND	NC	NC	GND	DP1_C2M_N
24	GND	NC	GND	NC	GND	NC	NC	GND	NC	GND
25	NC	NC	NC	NC	NC	NC	GND	GND	NC	GND
26	NC	GND	NC	GND	NC	GND	NC	LA27_P	GND	DP2_C2M_P
27	GND	NC	GND	NC	GND	NC	NC	LA27_N	GND	DP2_C2M_N
28	NC	NC	NC	NC	NC	NC	GND	GND	NC	GND
29	NC	GND	NC	GND	NC	GND	TCK	GND	NC	GND
30	GND	NC	GND	NC	GND	NC	TDI	SCL	GND	DP3_C2M_P
31	NC	NC	NC	NC	NC	NC	TDO	SDA	GND	DP3_C2M_N
32	NC	GND	NC	GND	NC	GND	3P3VAUX	GND	NC	GND
33	GND	NC	GND	NC	GND	NC	TMS	GND	NC	GND
34	NC	NC	NC	NC	NC	NC	TRST_L	GA0	GND	DP4_C2M_P
35	NC	GND	NC	GND	NC	GND	GA1	12P0V	GND	DP4_C2M_N
36	GND	NC	GND	NC	GND	NC	3P3V	GND	NC	GND
37	NC	NC	NC	NC	NC	NC	GND	12P0V	NC	GND
38	NC	GND	NC	GND	NC	GND	3P3V	GND	GND	DP5_C2M_P
39	GND	NC	GND	VADJ	GND	VADJ	GND	3P3V	GND	DP5_C2M_N
40	NC	GND	VADJ	GND	VADJ	GND	3P3V	GND	NC	GND

Figure 21: FMC HPC Connector2 Pin Out

Table 15: FMC HPC Connector2 Pin Assignment

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
1	A1	GND	NA	NA	GND	NA	NA	Power	Ground.
2	A2	DP1_M2C_P	Board to Board Connector 1	197	GTHRXP1_228	228	P2	I, DIFF	GTH Bank228 channel1 High speed differential receiver positive.
3	A3	DP1_M2C_N	Board to Board Connector 1	195	GTHRXN1_228	228	P1	I, DIFF	GTH Bank228 channel1 High speed differential receiver negative.
4	A4	GND	NA	NA	GND	NA	NA	Power	Ground.
5	A5	GND	NA	NA	GND	NA	NA	Power	Ground.
6	A6	DP2_M2C_P	Board to Board Connector 1	237	GTHRXP2_228	228	M2	I, DIFF	GTH Bank228 channel2 High speed differential receiver positive.
7	A7	DP2_M2C_N	Board to Board Connector 1	235	GTHRXN2_228	228	M1	I, DIFF	GTH Bank228 channel2 High speed differential receiver negative.
8	A8	GND	NA	NA	GND	NA	NA	Power	Ground.
9	A9	GND	NA	NA	GND	NA	NA	Power	Ground.
10	A10	DP3_M2C_P	Board to Board Connector 1	231	GTHRXP3_228	228	L4	I, DIFF	GTH Bank228 channel3 High speed differential receiver positive.
11	A11	DP3_M2C_N	Board to Board Connector 1	229	GTHRXN3_228	228	L3	I, DIFF	GTH Bank228 channel3 High speed differential receiver negative.
12	A12	GND	NA	NA	GND	NA	NA	Power	Ground.
13	A13	GND	NA	NA	GND	NA	NA	Power	Ground.
14	A14	DP4_M2C_P	Board to Board Connector 2	187	GTHRXP0_128	128	H29	I, DIFF	GTH Bank228 channel0 High speed differential receiver positive.
15	A15	DP4_M2C_N	Board to Board Connector 2	189	GTHRXN0_128	128	H30	I, DIFF	GTH Bank128 channel0 High speed differential receiver negative.
16	A16	GND	NA	NA	GND	NA	NA	Power	Ground.
17	A17	GND	NA	NA	GND	NA	NA	Power	Ground.
18	A18	DP5_M2C_P	Board to Board Connector 2	199	GTHRXP1_128	128	F29	I, DIFF	GTH Bank128 channel1 High speed differential receiver positive.
19	A19	DP5_M2C_N	Board to Board Connector 2	201	GTHRXN1_128	128	F30	I, DIFF	GTH Bank128 channel1 High speed differential receiver negative.
20	A20	GND	NA	NA	GND	NA	NA	Power	Ground.
21	A21	GND	NA	NA	GND	NA	NA	Power	Ground.
22	A22	DP1_C2M_P	Board to Board Connector 1	189	GTHTXP1_228	228	N4	O, DIFF	GTH Bank228 channel1 High speed differential transmitter positive.
23	A23	DP1_C2M_N	Board to Board Connector 1	191	GTHTXN1_228	228	N3	O, DIFF	GTH Bank228 channel1 High speed differential transmitter negative.
24	A24	GND	NA	NA	GND	NA	NA	Power	Ground.
25	A25	GND	NA	NA	GND	NA	NA	Power	Ground.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
26	**A26**	DP2_C2M_P	Board to Board Connector 1	217	GTHTXP2_228	228	M6	O, DIFF	GTH Bank228 channel2 High speed differential transmitter positive.
27	**A27**	DP2_C2M_N	Board to Board Connector 1	219	GTHTXN2_228	228	M5	O, DIFF	GTH Bank228 channel2 High speed differential transmitter negative.
28	**A28**	GND	NA	NA	GND	NA	NA	Power	Ground.
29	**A29**	GND	NA	NA	GND	NA	NA	Power	Ground.
30	**A30**	DP3_C2M_P	Board to Board Connector 1	223	GTHTXP3_228	228	K6	O, DIFF	GTH Bank228 channel3 High speed differential transmitter positive.
31	**A31**	DP3_C2M_N	Board to Board Connector 1	225	GTHTXN3_228	228	K5	O, DIFF	GTH Bank228 channel3 High speed differential transmitter negative.
32	**A32**	GND	NA	NA	GND	NA	NA	Power	Ground.
33	**A33**	GND	NA	NA	GND	NA	NA	Power	Ground.
34	**A34**	DP4_C2M_P	Board to Board Connector 2	193	GTHTXP0_128	128	G27	O, DIFF	GTH Bank128 channel0 High speed differential transmitter positive.
35	**A35**	DP4_C2M_N	Board to Board Connector 2	195	GTHTXN0_128	128	G28	O, DIFF	GTH Bank128 channel0 High speed differential transmitter negative.
36	**A36**	GND	NA	NA	GND	NA	NA	Power	Ground.
37	**A37**	GND	NA	NA	GND	NA	NA	Power	Ground.
38	**A38**	DP5_C2M_P	Board to Board Connector 2	205	GTHTXP1_128	128	E27	O, DIFF	GTH Bank128 channel1 High speed differential transmitter positive.
39	**A39**	DP5_C2M_N	Board to Board Connector 2	207	GTHTXN1_128	128	E28	O, DIFF	GTH Bank128 channel1 High speed differential transmitter negative.
40	**A40**	GND	NA	NA	GND	NA	NA	Power	Ground.
41	**B1**	CLK_DIR	NA	NA	NA	NA	NA	NA	NC.
42	**B2**	GND	NA	NA	GND	NA	NA	Power	Ground.
43	**B3**	GND	NA	NA	GND	NA	NA	Power	Ground.
44	**B4**	DP9_M2C_P	NA	NA	NA	NA	NA	NA	NC.
45	**B5**	DP9_M2C_N	NA	NA	NA	NA	NA	NA	NC.
46	**B6**	GND	NA	NA	GND	NA	NA	Power	Ground.
47	**B7**	GND	NA	NA	GND	NA	NA	Power	Ground.
48	**B8**	DP8_M2C_P	NA	NA	NA	NA	NA	NA	NC.
49	**B9**	DP8_M2C_N	NA	NA	NA	NA	NA	NA	NC.
50	**B10**	GND	NA	NA	GND	NA	NA	Power	Ground.
51	**B11**	GND	NA	NA	GND	NA	NA	Power	Ground.
52	**B12**	DP7_M2C_P	NA	NA	NA	NA	NA	NA	NC.
53	**B13**	DP7_M2C_N	NA	NA	NA	NA	NA	NA	NC.
54	**B14**	GND	NA	NA	GND	NA	NA	Power	Ground.
55	**B15**	GND	NA	NA	GND	NA	NA	Power	Ground.
56	**B16**	DP6_M2C_P	NA	NA	NA	NA	NA	NA	NC.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
57	**B17**	DP6_M2C_N	NA	NA	NA	NA	NA	NA	NC.
58	**B18**	GND	NA	NA	GND	NA	NA	Power	Ground.
59	**B19**	GND	NA	NA	GND	NA	NA	Power	Ground.
60	**B20**	GBTCLK1_M2C_P	Board to Board Connector 2	188	GTREFCLK0P_128	128	F25	I, DIFF	GTH Bank128 differential reference clock0 positive.
61	**B21**	GBTCLK1_M2C_N	Board to Board Connector 2	190	GTREFCLK0N_128	128	F26	I, DIFF	GTH Bank128 differential reference clock0 negative.
62	**B22**	GND	NA	NA	GND	NA	NA	Power	Ground.
63	**B23**	GND	NA	NA	GND	NA	NA	Power	Ground.
64	**B24**	DP9_C2M_P	NA	NA	NA	NA	NA	NA	NC.
65	**B25**	DP9_C2M_N	NA	NA	NA	NA	NA	NA	NC.
66	**B26**	GND	NA	NA	GND	NA	NA	Power	Ground.
67	**B27**	GND	NA	NA	GND	NA	NA	Power	Ground.
68	**B28**	DP8_C2M_P	NA	NA	NA	NA	NA	NA	NC.
69	**B29**	DP8_C2M_N	NA	NA	NA	NA	NA	NA	NC.
70	**B30**	GND	NA	NA	GND	NA	NA	Power	Ground.
71	**B31**	GND	NA	NA	GND	NA	NA	Power	Ground.
72	**B32**	DP7_C2M_P	NA	NA	NA	NA	NA	NA	NC.
73	**B33**	DP7_C2M_N	NA	NA	NA	NA	NA	NA	NC.
74	**B34**	GND	NA	NA	GND	NA	NA	Power	Ground.
75	**B35**	GND	NA	NA	GND	NA	NA	Power	Ground.
76	**B36**	DP6_C2M_P	NA	NA	NA	NA	NA	NA	NC.
77	**B37**	DP6_C2M_N	NA	NA	NA	NA	NA	NA	NC.
78	**B38**	GND	NA	NA	GND	NA	NA	Power	Ground.
79	**B39**	GND	NA	NA	GND	NA	NA	Power	Ground.
80	**B40**	RES0	NA	NA	NA	NA	NA	NA	NC.
81	**C1**	GND	NA	NA	GND	NA	NA	Power	Ground.
82	**C2**	DP0_C2M_P	Board to Board Connector 1	183	GTHTXP0_228	228	P6	O, DIFF	GTH Bank228 channel0 High speed differential transmitter positive.
83	**C3**	DP0_C2M_N	Board to Board Connector 1	185	GTHTXN0_228	228	P5	O, DIFF	GTH Bank228 channel0 High speed differential transmitter negative.
84	**C4**	GND	NA	NA	GND	NA	NA	Power	Ground.
85	**C5**	GND	NA	NA	GND	NA	NA	Power	Ground.
86	**C6**	DP0_M2C_P	Board to Board Connector 1	203	GTHRXP0_228	228	R4	I, DIFF	GTH Bank228 channel0 High speed differential receiver positive.
87	**C7**	DP0_M2C_N	Board to Board Connector 1	201	GTHRXN0_228	228	R3	I, DIFF	GTH Bank228 channel0 High speed differential receiver negative.
88	**C8**	GND	NA	NA	GND	NA	NA	Power	Ground.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
89	**C9**	GND	NA	NA	GND	NA	NA	Power	Ground.
90	**C10**	LA06_P	Board to Board Connector 2	95	PL_AE13_LVDS65_L2P	65	AE13	IO, 1.8V	PL HP Bank65 IO2 differential positive.
91	**C11**	LA06_N	Board to Board Connector 2	97	PL_AF13_LVDS65_L2N	65	AF13	IO, 1.8V	PL HP Bank65 IO2 differential negative.
92	**C12**	GND	NA	NA	GND	NA	NA	Power	Ground.
93	**C13**	GND	NA	NA	GND	NA	NA	Power	Ground.
94	**C14**	LA10_P	Board to Board Connector 2	99	PL_AD12_LVDS65_L3P	65	AD12	IO, 1.8V	PL HP Bank65 IO3 differential positive.
95	**C15**	LA10_N	Board to Board Connector 2	101	PL_AE12_LVDS65_L3N	65	AE12	IO, 1.8V	PL HP Bank65 IO3 differential negative.
96	**C16**	GND	NA	NA	GND	NA	NA	Power	Ground.
97	**C17**	GND	NA	NA	GND	NA	NA	Power	Ground.
98	**C18**	LA14_P	Board to Board Connector 1	87	PL_B15_LVDS47_L1P	47	B15	IO, 1.8V	PL HD Bank47 IO1 differential positive.
99	**C19**	LA14_N	Board to Board Connector 1	89	PL_A15_LVDS47_L1N	47	A15	IO, 1.8V	PL HD Bank47 IO1 differential negative.
100	**C20**	GND	NA	NA	GND	NA	NA	Power	Ground.
101	**C21**	GND	NA	NA	GND	NA	NA	Power	Ground.
102	**C22**	LA18_P_CC	NA	NA	NA	NA	NA	NA	NC.
103	**C23**	LA18_N_CC	NA	NA	NA	NA	NA	NA	NC.
104	**C24**	GND	NA	NA	GND	NA	NA	Power	Ground.
105	**C25**	GND	NA	NA	GND	NA	NA	Power	Ground.
106	**C26**	LA27_P	Board to Board Connector 1	24	PL_G10_LVDS48_L8P_HDGC	48	G10	I, 1.8V	PL HD Bank48 IO8 differential positive.
107	**C27**	LA27_N	Board to Board Connector 1	22	PL_F10_LVDS48_L8N_HDGC	48	F10	I, 1.8V	PL HD Bank48 IO8 differential negative.
108	**C28**	GND	NA	NA	GND	NA	NA	Power	Ground.
109	**C29**	GND	NA	NA	GND	NA	NA	Power	Ground.
110	**C30**	SCL	Board to Board Connector 2	48	I2C0_SCL(PS_MIO10_500)	500	B18	O, 3.3V LVCMOS	I2C0 Clock Signal.
111	**C31**	SDA	Board to Board Connector 2	46	I2C0_SDA(PS_MIO11_500)	500	G19	IO, 3.3V LVCMOS	I2C0 Data Signal.
112	**C32**	GND	NA	NA	GND	NA	NA	Power	Ground.
113	**C33**	GND	NA	NA	GND	NA	NA	Power	Ground.
114	**C34**	GA0	NA	NA	GA0_2	NA	NA	1K, PD	Geographical address 0
115	**C35**	12P0V	NA	NA	VCC_12V	NA	NA	O, 12V Power	12V Supply Voltage.
116	**C36**	GND	NA	NA	GND	NA	NA	Power	Ground.
117	**C37**	12P0V	NA	NA	VCC_12V	NA	NA	O, 12V Power	12V Supply Voltage.
118	**C38**	GND	NA	NA	GND	NA	NA	Power	Ground.
119	**C39**	3P3V	NA	NA	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
120	**C40**	GND	NA	NA	GND	NA	NA	Power	Ground.
121	**D1**	PG_C2M	NA	NA	PG_C2M	NA	NA	O, 3.3V	Power Good Signal from Carrier to FMC Module.
122	**D2**	GND	NA	NA	GND	NA	NA	Power	Ground.
123	**D3**	GND	NA	NA	GND	NA	NA	Power	Ground.
124	**D4**	GBTCLK0_M2C_P	Board to Board Connector 1	184	GTREFCLK0P_228	228	R8	I, DIFF	GTH Bank228 differential reference clock0 positive.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
125	**D5**	GBTCLK0_M2C_N	Board to Board Connector 1	186	GTREFCLK0N_228	228	R7	I, DIFF	GTH Bank228 differential reference clock0 negative.
126	**D6**	GND	NA	NA	GND	NA	NA	Power	Ground.
127	**D7**	GND	NA	NA	GND	NA	NA	Power	Ground.
128	**D8**	LA01_P_CC	Board to Board Connector 2	116	PL_AC7_LVDS65_L11P_GC	65	AC7	IO, 1.8V	PL HP Bank65 IO11 differential positive.
129	**D9**	LA01_N_CC	Board to Board Connector 2	118	PL_AD7_LVDS65_L11N_GC	65	AD7	IO, 1.8V	PL HP Bank65 IO11 differential negative.
130	**D10**	GND	NA	NA	GND	NA	NA	Power	Ground.
131	**D11**	LA05_P	Board to Board Connector 2	98	PL_AD10_LVDS65_L8P	65	AD10	IO, 1.8V	PL HP Bank65 IO8 differential positive.
132	**D12**	LA05_N	Board to Board Connector 2	96	PL_AE10_LVDS65_L8N	65	AE10	IO, 1.8V	PL HP Bank65 IO8 differential negative.
133	**D13**	GND	NA	NA	GND	NA	NA	Power	Ground.
134	**D14**	LA09_P	Board to Board Connector 2	103	PL_AB13_LVDS65_L1P_DBC	65	AB13	IO, 1.8V	PL HP Bank65 IO1 differential positive.
135	**D15**	LA09_N	Board to Board Connector 2	105	PL_AC13_LVDS65_L1N_DBC	65	AC13	IO, 1.8V	PL HP Bank65 IO1 differential negative
136	**D16**	GND	NA	NA	GND	NA	NA	Power	Ground.
137	**D17**	LA13_P	Board to Board Connector 1	144	PL_G13_LVDS47_L8P_HDGC	47	G13	IO, 1.8V	PL HD Bank47 IO8 differential positive.
138	**D18**	LA13_N	Board to Board Connector 1	142	PL_F13_LVDS47_L8N_HDGC	47	F13	IO, 1.8V	PL HD Bank47 IO8 differential negative.
139	**D19**	GND	NA	NA	GND	NA	NA	Power	Ground.
140	**D20**	LA17_P_CC	Board to Board Connector 1	118	PL_D15_LVDS47_L5P_HDGC	47	D15	IO, 1.8V	PL HD Bank47 IO5 differential positive.
141	**D21**	LA17_N_CC	Board to Board Connector 1	116	PL_D14_LVDS47_L5N_HDGC	47	D14	IO, 1.8V	PL HD Bank47 IO5 differential negative.
142	**D22**	GND	NA	NA	GND	NA	NA	Power	Ground.
143	**D23**	LA23_P	NA	NA	NA	NA	NA	NA	NC.
144	**D24**	LA23_N	NA	NA	NA	NA	NA	NA	NC.
145	**D25**	GND	NA	NA	GND	NA	NA	Power	Ground.
146	**D26**	LA26_P	NA	NA	NA	NA	NA	NA	NC.
147	**D27**	LA26_N	NA	NA	NA	NA	NA	NA	NC.
148	**D28**	GND	NA	NA	GND	NA	NA	Power	Ground.
149	**D29**	TCK	Board to Board Connector 2	31	PS_JTAG_TCK	503	R20	I, 3.3V CMOS/ 4.7K PU	JTAG Test Clock.
150	**D30**	TDI	NA	NA	FMC1_JTAG_TDO	NA	NA	NA	JTAG Test Data Input *TDO of FMC connector 1 signal is connected to D30th pin of FMC connector2 to support JTAG chain*
151	**D31**	TDO	NA	NA	FMC2_JTAG_TDO	NA	NA	NA	JTAG Test Data Output. *This signal is connected to TDO of JTAG connector to support JTAG chain.*
152	**D32**	3P3VAUX	NA	NA	3V3_AUX2	NA	NA	O, 3.3V Power	Supply Voltage.
153	**D33**	TMS	Board to Board Connector 2	29	PS_JTAG_TMS	503	R19	I, 3.3V CMOS/ 4.7 K PU	JTAG Test Mode Select.
154	**D34**	TRST_L	NA	NA	NA	NA	NA	NA	NC.
155	**D35**	GA1	NA	NA	GA1_2	NA	NA	1K, PU	Geographical address 1

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
156	**D36**	3P3V	NA	NA	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
157	**D37**	GND	NA	NA	GND	NA	NA	Power	Ground.
158	**D38**	3P3V	NA	NA	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
159	**D39**	GND	NA	NA	GND	NA	NA	Power	Ground.
160	**D40**	3P3V	NA	NA	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Supply Voltage.
161	**E1**	GND	NA	NA	GND	NA	NA	Power	Ground.
162	**E2**	HA01_P_CC	NA	NA	NA	NA	NA	NA	NC.
163	**E3**	HA01_N_CC	NA	NA	NA	NA	NA	NA	NC.
164	**E4**	GND	NA	NA	GND	NA	NA	Power	Ground.
165	**E5**	GND	NA	NA	GND	NA	NA	Power	Ground.
166	**E6**	HA05_P	NA	NA	NA	NA	NA	NA	NC.
167	**E7**	HA05_N	NA	NA	NA	NA	NA	NA	NC.
168	**E8**	GND	NA	NA	GND	NA	NA	Power	Ground.
169	**E9**	HA09_P	NA	NA	NA	NA	NA	NA	NC.
170	**E10**	HA09_N	NA	NA	NA	NA	NA	NA	NC.
171	**E11**	GND	NA	NA	GND	NA	NA	Power	Ground.
172	**E12**	HA13_P	NA	NA	NA	NA	NA	NA	NC.
173	**E13**	HA13_N	NA	NA	NA	NA	NA	NA	NC.
174	**E14**	GND	NA	NA	GND	NA	NA	Power	Ground.
175	**E15**	HA16_P	NA	NA	NA	NA	NA	NA	NC.
176	**E16**	HA16_N	NA	NA	NA	NA	NA	NA	NC.
177	**E17**	GND	NA	NA	GND	NA	NA	Power	Ground.
178	**E18**	HA20_P	NA	NA	NA	NA	NA	NA	NC.
179	**E19**	HA20_N	NA	NA	NA	NA	NA	NA	NC.
180	**E20**	GND	NA	NA	GND	NA	NA	Power	Ground.
181	**E21**	HB03_P	NA	NA	NA	NA	NA	NA	NC.
182	**E22**	HB03_N	NA	NA	NA	NA	NA	NA	NC.
183	**E23**	GND	NA	NA	GND	NA	NA	Power	Ground.
184	**E24**	HB05_P	NA	NA	NA	NA	NA	NA	NC.
185	**E25**	HB05_N	NA	NA	NA	NA	NA	NA	NC.
186	**E26**	GND	NA	NA	GND	NA	NA	Power	Ground.
187	**E27**	HB09_P	NA	NA	NA	NA	NA	NA	NC.
188	**E28**	HB09_N	NA	NA	NA	NA	NA	NA	NC.
189	**E29**	GND	NA	NA	GND	NA	NA	Power	Ground.
190	**E30**	HB13_P	NA	NA	NA	NA	NA	NA	NC.
191	**E31**	HB13_N	NA	NA	NA	NA	NA	NA	NC.
192	**E32**	GND	NA	NA	GND	NA	NA	Power	Ground.
193	**E33**	HB19_P	NA	NA	NA	NA	NA	NA	NC.
194	**E34**	HB19_N	NA	NA	NA	NA	NA	NA	NC.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
195	**E35**	GND	NA	NA	GND	NA	NA	Power	Ground.
196	**E36**	HB21_P	NA	NA	NA	NA	NA	NA	NC.
197	**E37**	HB21_N	NA	NA	NA	NA	NA	NA	NC.
198	**E38**	GND	NA	NA	GND	NA	NA	Power	Ground.
199	**E39**	VADJ	NA	NA	VCC_FMC_ADJ	NA	NA	O, 1.8V Power	1.8V Supply Voltage.
200	**E40**	GND	NA	NA	GND	NA	NA	Power	Ground.
201	**F1**	PG_M2C	NA	NA	IOEXP_P06_PG_M2C2	NA	NA	I, 3.3V CMOS/ 10K PU	Power Good Signal from FMC Module to Carrier.
202	**F2**	GND	NA	NA	GND	NA	NA	Power	Ground.
203	**F3**	GND	NA	NA	GND	NA	NA	Power	Ground.
204	**F4**	HA00_P_CC	NA	NA	NA	NA	NA	NA	NC.
205	**F5**	HA00_N_CC	NA	NA	NA	NA	NA	NA	NC.
206	**F6**	GND	NA	NA	GND	NA	NA	Power	Ground.
207	**F7**	HA04_P	NA	NA	NA	NA	NA	NA	NC.
208	**F8**	HA04_N	NA	NA	NA	NA	NA	NA	NC.
209	**F9**	GND	NA	NA	GND	NA	NA	Power	Ground.
210	**F10**	HA08_P	NA	NA	NA	NA	NA	NA	NC.
211	**F11**	HA08_N	NA	NA	NA	NA	NA	NA	NC.
212	**F12**	GND	NA	NA	GND	NA	NA	Power	Ground.
213	**F13**	HA12_P	NA	NA	NA	NA	NA	NA	NC.
214	**F14**	HA12_N	NA	NA	NA	NA	NA	NA	NC.
215	**F15**	GND	NA	NA	GND	NA	NA	Power	Ground.
216	**F16**	HA15_P	NA	NA	NA	NA	NA	NA	NC.
217	**F17**	HA15_N	NA	NA	NA	NA	NA	NA	NC.
218	**F18**	GND	NA	NA	GND	NA	NA	Power	Ground.
219	**F19**	HA19_P	NA	NA	NA	NA	NA	NA	NC.
220	**F20**	HA19_N	NA	NA	NA	NA	NA	NA	NC.
221	**F21**	GND	NA	NA	GND	NA	NA	Power	Ground.
222	**F22**	HB02_P	NA	NA	NA	NA	NA	NA	NC.
223	**F23**	HB02_N	NA	NA	NA	NA	NA	NA	NC.
224	**F24**	GND	NA	NA	GND	NA	NA	Power	Ground.
225	**F25**	HB04_P	NA	NA	NA	NA	NA	NA	NC.
226	**F26**	HB04_N	NA	NA	NA	NA	NA	NA	NC.
227	**F27**	GND	NA	NA	GND	NA	NA	Power	Ground.
228	**F28**	HB08_P	NA	NA	NA	NA	NA	NA	NC.
229	**F29**	HB08_N	NA	NA	NA	NA	NA	NA	NC.
230	**F30**	GND	NA	NA	GND	NA	NA	Power	Ground.
231	**F31**	HB12_P	NA	NA	NA	NA	NA	NA	NC.
232	**F32**	HB12_N	NA	NA	NA	NA	NA	NA	NC.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
233	**F33**	GND	NA	NA	GND	NA	NA	Power	Ground.
234	**F34**	HB16_P	NA	NA	NA	NA	NA	NA	NC.
235	**F35**	HB16_N	NA	NA	NA	NA	NA	NA	NC.
236	**F36**	GND	NA	NA	GND	NA	NA	Power	Ground.
237	**F37**	HB20_P	NA	NA	NA	NA	NA	NA	NC.
238	**F38**	HB20_N	NA	NA	NA	NA	NA	NA	NC.
239	**F39**	GND	NA	NA	GND	NA	NA	Power	Ground.
240	**F40**	VADJ	NA	NA	VCC_FMC_ADJ	NA	NA	O, 1.8V Power	1.8V Supply Voltage.
241	**G1**	GND	NA	NA	GND	NA	NA	Power	Ground.
242	**G2**	CLK1_M2C_P	Board to Board Connector 2	109	PL_AC6_LVDS65_L14P_GC	65	AC6	IO, 1.8V	PL HP Bank65 IO14 differential positive.
243	**G3**	CLK1_M2C_N	Board to Board Connector 2	111	PL_AD6_LVDS65_L14N_GC	65	AD6	IO, 1.8V	PL HP Bank65 IO14 differential negative.
244	**G4**	GND	NA	NA	GND	NA	NA	Power	Ground.
245	**G5**	GND	NA	NA	GND	NA	NA	Power	Ground.
246	**G6**	LA00_P_CC	Board to Board Connector 2	115	PL_AB6_LVDS65_L13P_GC	65	AB6	IO, 1.8V	PL HP Bank65 IO13 differential positive.
247	**G7**	LA00_N_CC	Board to Board Connector 2	117	PL_AB5_LVDS65_L13N_GC	65	AB5	IO, 1.8V	PL HP Bank65 IO13 differential negative.
248	**G8**	GND	NA	NA	GND	NA	NA	Power	Ground.
249	**G9**	LA03_P	Board to Board Connector 2	100	PL_AB9_LVDS65_L7P_QBC	65	AB9	IO, 1.8V	PL HP Bank65 IO7 differential positive.
250	**G10**	LA03_N	Board to Board Connector 2	102	PL_AC9_LVDS65_L7N_QBC	65	AC9	IO, 1.8V	PL HP Bank65 IO7 differential negative.
251	**G11**	GND	NA	NA	GND	NA	NA	Power	Ground.
252	**G12**	LA08_P	Board to Board Connector 2	104	PL_AC11_LVDS65_L4P_DBC	65	AC11	IO, 1.8V	PL HP Bank65 IO4 differential positive.
253	**G13**	LA08_N	Board to Board Connector 2	106	PL_AD11_LVDS65_L4N_DBC	65	AD11	IO, 1.8V	PL HP Bank65 IO4 differential negative.
254	**G14**	GND	NA	NA	GND	NA	NA	Power	Ground.
255	**G15**	LA12_P	Board to Board Connector 2	126	PL_AK13_LVDS64_L4P_DBC	64	AK13	IO, 1.8V	PL HP Bank64 IO4 differential positive.
256	**G16**	LA12_N	Board to Board Connector 2	128	PL_AK12_LVDS64_L4N_DBC	64	AK12	IO, 1.8V	PL HP Bank64 IO4 differential negative.
257	**G17**	GND	NA	NA	GND	NA	NA	Power	Ground.
258	**G18**	LA16_P	Board to Board Connector 1	50	PL_H14_LVDS47_L12P	47	H14	IO, 1.8V	PL HD Bank47 IO12 differential positive.
259	**G19**	LA16_N	Board to Board Connector 1	52	PL_H13_LVDS47_L12N	47	H13	IO, 1.8V	PL HD Bank47 IO12 differential negative.
260	**G20**	GND	NA	NA	GND	NA	NA	Power	Ground.
261	**G21**	LA20_P	NA	NA	NA	NA	NA	NA	NC.
262	**G22**	LA20_N	NA	NA	NA	NA	NA	NA	NC.
263	**G23**	GND	NA	NA	GND	NA	NA	Power	Ground.
264	**G24**	LA22_P	NA	NA	NA	NA	NA	NA	NC.
265	**G25**	LA22_N	NA	NA	NA	NA	NA	NA	NC.
266	**G26**	GND	NA	NA	GND	NA	NA	Power	Ground.
267	**G27**	LA25_P	NA	NA	NA	NA	NA	NA	NC.
268	**G28**	LA25_N	NA	NA	NA	NA	NA	NA	NC.
269	**G29**	GND	NA	NA	GND	NA	NA	Power	Ground.
270	**G30**	LA29_P	NA	NA	NA	NA	NA	NA	NC.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
271	**G31**	LA29_N	NA	NA	NA	NA	NA	NA	NC.
272	**G32**	GND	NA	NA	GND	NA	NA	Power	Ground.
273	**G33**	LA31_P	NA	NA	NA	NA	NA	NA	NC.
274	**G34**	LA31_N	NA	NA	NA	NA	NA	NA	NC.
275	**G35**	GND	NA	NA	GND	NA	NA	Power	Ground.
276	**G36**	LA33_P	NA	NA	NA	NA	NA	NA	NC.
277	**G37**	LA33_N	NA	NA	NA	NA	NA	NA	NC.
278	**G38**	GND	NA	NA	GND	NA	NA	Power	Ground.
279	**G39**	VADJ	NA	NA	VCC_FMC_ADJ	NA	NA	O, 1.8V Power	1.8V Supply Voltage.
280	**G40**	GND	NA	NA	GND	NA	NA	Power	Ground.
281	**H1**	VREF_A_M2C	NA	NA	NA	NA	NA	NA	NC.
282	**H2**	PRSNT_M2C_L	NA	NA	IOEXP_P06_PG_M2C2	NA	NA	I,3.3V CMOS/ 10K PU	Module Preset Signal.
283	**H3**	GND	NA	NA	GND	NA	NA	Power	Ground.
284	**H4**	CLK0_M2C_P	NA	NA	NA	NA	NA	NA	NC.
285	**H5**	CLK0_M2C_N	NA	NA	NA	NA	NA	NA	NC.
286	**H6**	GND	NA	NA	GND	NA	NA	Power	Ground.
287	**H7**	LA02_P	Board to Board Connector 2	92	PL_AA8_LVDS65_L10P_QBC	65	AA8	IO, 1.8V	PL HP Bank65 IO10 differential positive.
288	**H8**	LA02_N	Board to Board Connector 2	94	PL_AA7_LVDS65_L10N_QBC	65	AA7	IO, 1.8V	PL HP Bank65 IO10 differential negative.
289	**H9**	GND	NA	NA	GND	NA	NA	Power	Ground.
290	**H10**	LA04_P	Board to Board Connector 2	127	PL_AD5_LVDS65_L16P_QBC	65	AD5	IO, 1.8V	PL HP Bank65 IO16 differential positive.
291	**H11**	LA04_N	Board to Board Connector 2	125	PL_AE5_LVDS65_L16N_QBC	65	AE5	IO, 1.8V	PL HP Bank65 IO16 differential negative.
292	**H12**	GND	NA	NA	GND	NA	NA	Power	Ground.
293	**H13**	LA07_P	Board to Board Connector 2	123	PL_AD4_LVDS65_L17P	65	AD4	IO, 1.8V	PL HP Bank65 IO17 differential positive.
294	**H14**	LA07_N	Board to Board Connector 2	121	PL_AE4_LVDS65_L17N	65	AE4	IO, 1.8V	PL HP Bank65 IO17 differential negative.
295	**H15**	GND	NA	NA	GND	NA	NA	Power	Ground.
296	**H16**	LA11_P	Board to Board Connector 2	122	PL_AK7_LVDS64_L15P	64	AK7	IO, 1.8V	PL HP Bank64 IO15 differential positive.
297	**H17**	LA11_N	Board to Board Connector 2	124	PL_AK6_LVDS64_L15N	64	AK6	IO, 1.8V	PL HP Bank64 IO15 differential negative.
298	**H18**	GND	NA	NA	GND	NA	NA	Power	Ground.
299	**H19**	LA15_P	Board to Board Connector 1	46	PL_K14_LVDS47_L11P	47	K14	IO, 1.8V	PL HD Bank47 IO11 differential positive.
300	**H20**	LA15_N	Board to Board Connector 1	48	PL_J14_LVDS47_L11N	47	J14	IO, 1.8V	PL HD Bank47 IO11 differential negative.
301	**H21**	GND	NA	NA	GND	NA	NA	Power	Ground.
302	**H22**	LA19_P	NA	NA	NA	NA	NA	NA	NC.
303	**H23**	LA19_N	NA	NA	NA	NA	NA	NA	NC.
304	**H24**	GND	NA	NA	GND	NA	NA	Power	Ground.
305	**H25**	LA21_P	NA	NA	NA	NA	NA	NA	NC.
306	**H26**	LA21_N	NA	NA	NA	NA	NA	NA	NC.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
307	**H27**	GND	NA	NA	GND	NA	NA	Power	Ground.
308	**H28**	LA24_P	NA	NA	NA	NA	NA	NA	NC.
309	**H29**	LA24_N	NA	NA	NA	NA	NA	NA	NC.
310	**H30**	GND	NA	NA	GND	NA	NA	Power	Ground.
311	**H31**	LA28_P	NA	NA	NA	NA	NA	NA	NC.
312	**H32**	LA28_N	NA	NA	NA	NA	NA	NA	NC.
313	**H33**	GND	NA	NA	GND	NA	NA	Power	Ground.
314	**H34**	LA30_P	NA	NA	NA	NA	NA	NA	NC.
315	**H35**	LA30_N	NA	NA	NA	NA	NA	NA	NC.
316	**H36**	GND	NA	NA	GND	NA	NA	Power	Ground.
317	**H37**	LA32_P	NA	NA	NA	NA	NA	NA	NC.
318	**H38**	LA32_N	NA	NA	NA	NA	NA	NA	NC.
319	**H39**	GND	NA	NA	GND	NA	NA	Power	Ground.
320	**H40**	VADJ	NA	NA	VCC_FMC_ADJ	NA	NA	O, 1.8V Power	1.8V Supply Voltage.
321	**J1**	GND	NA	NA	GND	NA	NA	Power	Ground.
322	**J2**	CLK3_BIDIR_P	NA	NA	NA	NA	NA	NA	NC.
323	**J3**	CLK3_BIDIR_N	NA	NA	NA	NA	NA	NA	NC.
324	**J4**	GND	NA	NA	GND	NA	NA	Power	Ground.
325	**J5**	GND	NA	NA	GND	NA	NA	Power	Ground.
326	**J6**	HA03_P	NA	NA	NA	NA	NA	NA	NC.
327	**J7**	HA03_N	NA	NA	NA	NA	NA	NA	NC.
328	**J8**	GND	NA	NA	GND	NA	NA	Power	Ground.
329	**J9**	HA07_P	NA	NA	NA	NA	NA	NA	NC.
330	**J10**	HA07_N	NA	NA	NA	NA	NA	NA	NC.
331	**J11**	GND	NA	NA	GND	NA	NA	Power	Ground.
332	**J12**	HA11_P	NA	NA	NA	NA	NA	NA	NC.
333	**J13**	HA11_N	NA	NA	NA	NA	NA	NA	NC.
334	**J14**	GND	NA	NA	GND	NA	NA	Power	Ground.
335	**J15**	HA14_P	NA	NA	NA	NA	NA	NA	NC.
336	**J16**	HA14_N	NA	NA	NA	NA	NA	NA	NC.
337	**J17**	GND	NA	NA	GND	NA	NA	Power	Ground.
338	**J18**	HA18_P	NA	NA	NA	NA	NA	NA	NC.
339	**J19**	HA18_N	NA	NA	NA	NA	NA	NA	NC.
340	**J20**	GND	NA	NA	GND	NA	NA	Power	Ground.
341	**J21**	HA22_P	NA	NA	NA	NA	NA	NA	NC.
342	**J22**	HA22_N	NA	NA	NA	NA	NA	NA	NC.
343	**J23**	GND	NA	NA	GND	NA	NA	Power	Ground.
344	**J24**	HB01_P	NA	NA	NA	NA	NA	NA	NC.
345	**J25**	HB01_N	NA	NA	NA	NA	NA	NA	NC.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
346	**J26**	GND	NA	NA	GND	NA	NA	Power	Ground.
347	**J27**	HB07_P	NA	NA	NA	NA	NA	NA	NC.
348	**J28**	HB07_N	NA	NA	NA	NA	NA	NA	NC.
349	**J29**	GND	NA	NA	GND	NA	NA	Power	Ground.
350	**J30**	HB11_P	NA	NA	NA	NA	NA	NA	NC.
351	**J31**	HB11_N	NA	NA	NA	NA	NA	NA	NC.
352	**J32**	GND	NA	NA	GND	NA	NA	Power	Ground.
353	**J33**	HB15_P	NA	NA	NA	NA	NA	NA	NC.
354	**J34**	HB15_N	NA	NA	NA	NA	NA	NA	NC.
355	**J35**	GND	NA	NA	GND	NA	NA	Power	Ground.
356	**J36**	HB18_P	NA	NA	NA	NA	NA	NA	NC.
357	**J37**	HB18_N	NA	NA	NA	NA	NA	NA	NC.
358	**J38**	GND	NA	NA	GND	NA	NA	Power	Ground.
359	**J39**	VIO_B_M2C	NA	NA	NA	NA	NA	NA	NC.
360	**J40**	GND	NA	NA	GND	NA	NA	Power	Ground.
361	**K1**	VREF_B_M2C	NA	NA	NA	NA	NA	NA	NC.
362	**K2**	GND	NA	NA	GND	NA	NA	Power	Ground.
363	**K3**	GND	NA	NA	GND	NA	NA	Power	Ground.
364	**K4**	CLK2_BIDIR_P	NA	NA	NA	NA	NA	NA	NC.
365	**K5**	CLK2_BIDIR_N	NA	NA	NA	NA	NA	NA	NC.
366	**K6**	GND	NA	NA	GND	NA	NA	Power	Ground.
367	**K7**	HA02_P	NA	NA	NA	NA	NA	NA	NC.
368	**K8**	HA02_N	NA	NA	NA	NA	NA	NA	NC.
369	**K9**	GND	NA	NA	GND	NA	NA	Power	Ground.
370	**K10**	HA06_P	NA	NA	NA	NA	NA	NA	NC.
371	**K11**	HA06_N	NA	NA	NA	NA	NA	NA	NC.
372	**K12**	GND	NA	NA	GND	NA	NA	Power	Ground.
373	**K13**	HA10_P	NA	NA	NA	NA	NA	NA	NC.
374	**K14**	HA10_N	NA	NA	NA	NA	NA	NA	NC.
375	**K15**	GND	NA	NA	GND	NA	NA	Power	Ground.
376	**K16**	HA17_P_CC	NA	NA	NA	NA	NA	NA	NC.
377	**K17**	HA17_N_CC	NA	NA	NA	NA	NA	NA	NC.
378	**K18**	GND	NA	NA	GND	NA	NA	Power	Ground.
379	**K19**	HA21_P	NA	NA	NA	NA	NA	NA	NC.
380	**K20**	HA21_N	NA	NA	NA	NA	NA	NA	NC.
381	**K21**	GND	NA	NA	GND	NA	NA	Power	Ground.
382	**K22**	HA23_P	NA	NA	NA	NA	NA	NA	NC.
383	**K23**	HA23_N	NA	NA	NA	NA	NA	NA	NC.
384	**K24**	GND	NA	NA	GND	NA	NA	Power	Ground.

SL No	FMC Connector VITA		Board to Board Connectors			Zynq Ultrascale+ MPSoC			Description
	FMC Connector2 Pin No	FMC Connector2 Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination*	
385	**K25**	HB00_P_CC	NA	NA	NA	NA	NA	NA	NC.
386	**K26**	HB00_N_CC	NA	NA	NA	NA	NA	NA	NC.
387	**K27**	GND	NA	NA	GND	NA	NA	Power	Ground.
388	**K28**	HB06_P_CC	NA	NA	NA	NA	NA	NA	NC.
389	**K29**	HB06_N_CC	NA	NA	NA	NA	NA	NA	NC.
390	**K30**	GND	NA	NA	GND	NA	NA	Power	Ground.
391	**K31**	HB10_P	NA	NA	NA	NA	NA	NA	NC.
392	**K32**	HB10_N	NA	NA	NA	NA	NA	NA	NC.
393	**K33**	GND	NA	NA	GND	NA	NA	Power	Ground.
394	**K34**	HB14_P	NA	NA	NA	NA	NA	NA	NC.
395	**K35**	HB14_N	NA	NA	NA	NA	NA	NA	NC.
396	**K36**	GND	NA	NA	GND	NA	NA	Power	Ground.
397	**K37**	HB17_P_CC	NA	NA	NA	NA	NA	NA	NC.
398	**K38**	HB17_N_CC	NA	NA	NA	NA	NA	NA	NC.
399	**K39**	GND	NA	NA	GND	NA	NA	Power	Ground.
400	**K40**	VIO_B_M2C	NA	NA	NA	NA	NA	NA	NC.

**IO Type of IOs originating from ZU15/9/6 MPSoC is configurable. Hence for exact IO type configuration options, refer Xilinx ZU15/9/6 MPSoC datasheet.*

2.5.4 GTH High Speed Transceivers

The Zynq Ultrascale+ MPSoC devkit supports different high speed interfaces through 16 GTH Transceivers (12 from B2B-1 and 4 from B2B-2) as mentioned below.

- Dual FMC HPC Connectors (14 GTH Transceivers)
- SFP+ Connector (1 GTH Transceivers)
- 3G/12G SDI Video IN (1 GTH Transmitter)
- 3G/12G SDI Video OUT (1 GTH Receiver)

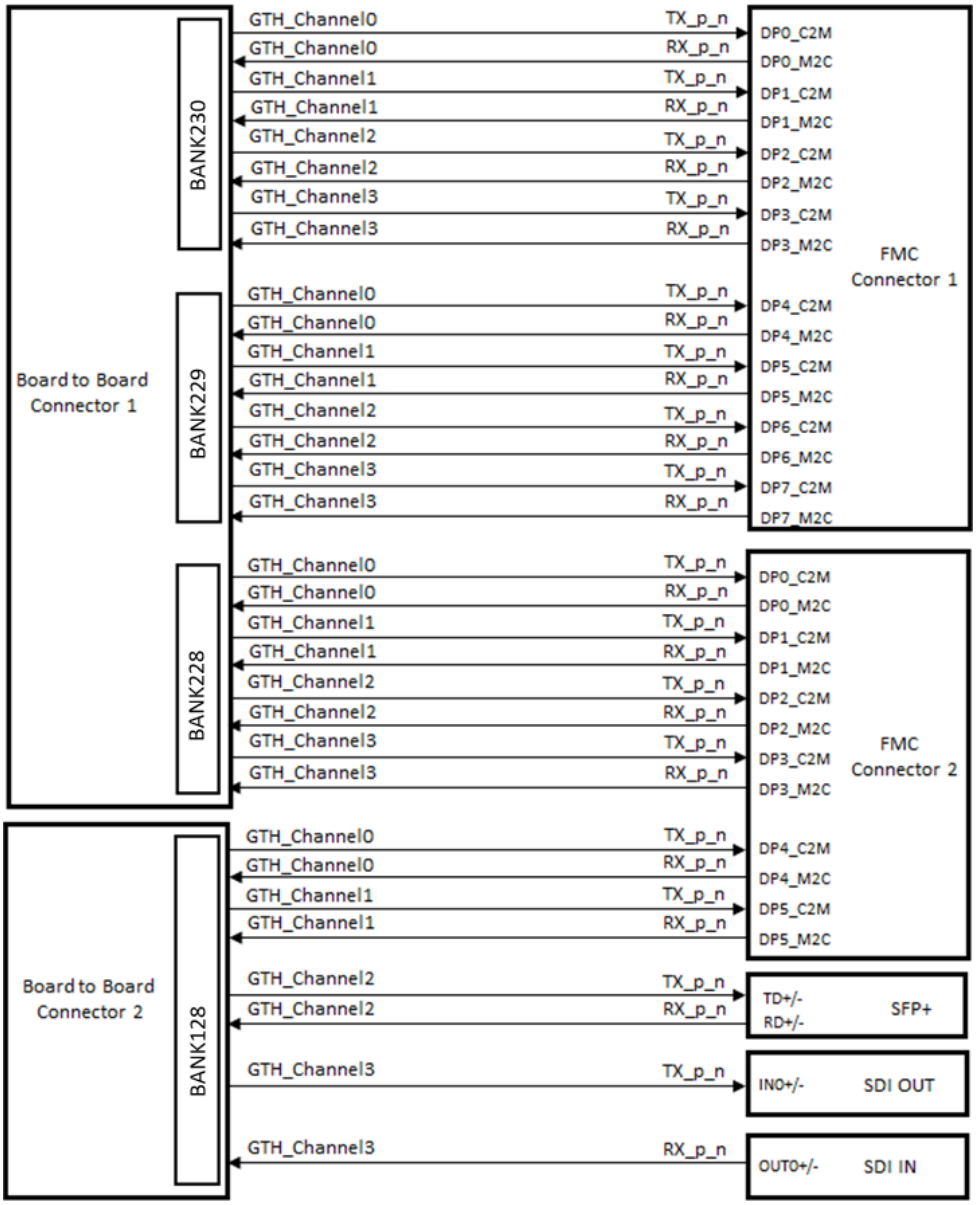


Figure 22: GTH Transceiver Connections

2.5.4.1 SFP+ Connector

The Zynq Ultrascale+ MPSoC devkit supports one SFP+ Connector through GTH transceiver of Zynq Ultrascale+ MPSoC PL. GTH transceiver of PL Bank128 Channel2 from Board to Board Connector2 is connected to SFP+ connector. Also PS I2C0 is connected to this connector for control and configuration. All other control signals of SFP+ connnector is connected from IO Expander. This SFP+ connector (J16) is physically located at the top of the board as shown below.

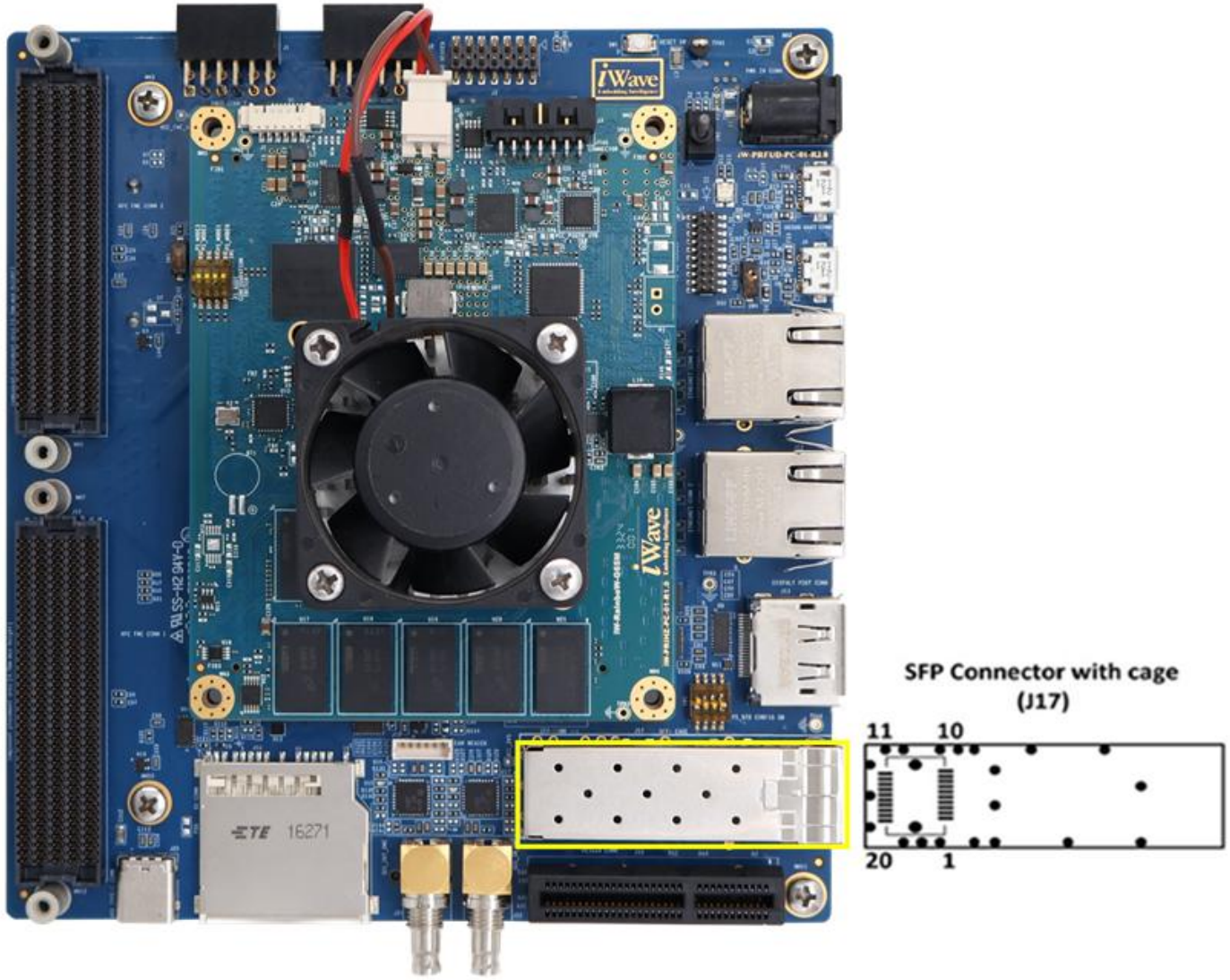


Figure 23: SFP+ Connector with Cage

Note: To Support Both SDI and SFP Module in a Single Design Transceiver Reference Clock 0 must feed from the GBTCLK0 of FMC module to GTH Bank 128.

Table 16: SFP+ Connector Pin Assignment

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
1	VEET1	GND	NA	NA	Power	Ground.
2	TFAULT	IOEXP_P00_SFP_TFAULT	NA	NA	I, LVTTL/ 4.7K PU	Module Transmitter Fault. This Pin is connected to IO Expander Port 0 for software access if required.
3	TDIS	IOEXP_P05_SFP_TDIS	NA	NA	O, LVTTL/ 4.7K PD	Transmitter Disable. This Pin is connected to IO Expander Port 5 for software control if required.
4	SDA	I2C0_SDA(PS_MIO 11_500)	500	G19	IO, 3.3V CMOS	I2C Data.
5	SCL	I2C0_SCL(PS_MIO 10_500)	500	B18	O, 3.3V CMOS	I2C Clock.
6	MOD_ABS	IOEXP_P02_SFP_MOD_ABS	NA	NA	I, 3.3V CMOS/ 4.7K PU	Module Definition. This Pin is connected to IO Expander Port 2 for software access if required.
7	RS0	IOEXP_P04_SFP_RS0	NA	NA	O, 3.3V CMOS/ 4.7K PU	Rate select 0. This Pin is connected to IO Expander Port 4 for software control if required.
8	RX_LOS	IOEXP_P01_SFP_RX_LOS	NA	NA	I, 3.3V CMOS/ 4.7K PU	Receiver loss of signal indication. This Pin is connected to IO Expander Port 1 for software access if required.
9	RS1	IOEXP_P03_SFP_RS1	NA	NA	O, 3.3V CMOS/ 4.7K PU	Rate select 1. This Pin is connected to IO Expander Port 3 for software control if required.
10	VEER1	GND	NA	NA	Power	Ground.
11	VEER2	GND	NA	NA	Power	Ground.
12	RD-	GTHRXN2_128	128	D30	I, DIFF	SFP+ Receiver Data Negative

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
13	RD+	GTHRXP2_128	128	D29	I, DIFF	SFP+ Receiver Data Positive
14	VEER3	GND	NA	NA	Power	Ground.
15	VCCR	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Receiver Supply Voltage
16	VCCT	VCC_3V3	NA	NA	O, 3.3V Power	3.3V Transmitter Supply Voltage
17	VEET2	GND	NA	NA	Power	Ground.
18	TD+	GTHTXP2_128	128	C27	O, DIFF	SFP+ Transmit Data Positive
19	TD-	GTHTXN2_128	128	C28	O, DIFF	SFP+ Transmit Data Negative
20	VEET3	GND	NA	NA	Power	Ground.

2.5.4.2 SDI Video IN

The Zynq Ultrascale+ MPSoC devkit supports one 3G/12G SDI Video IN interface through HD BNC connector (J22). The Video input signals from HD BNC Connector is directly connected to Adaptive Cable Equalizer chip and then connected to PL Bank128 Channel3 GTH receiver of Zynq Ultrascale+ MPSoC through Board to Board Connector2.

The Zynq Ultrascale+ MPSoC Carrier board supports Video Input Lock status LED (D11) for presence and absence of the Video Input signal on HD BNC connector (J22). This LED will glow when the Video Input signal is detected on HD BNC connector (J22). Also PS I2C0 is connected to Adaptive Cable Equalizer chip for control and configuration with I2C address 0x2D. SDI Video IN HD BNC connector (J22) is physically located at the top of the board as shown below.

Note: To Support Both SDI and SFP Module in a Single Design Transceiver Reference Clock 0 must feed from the GBTCLK0 of FMC module to GTH Bank 128.

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

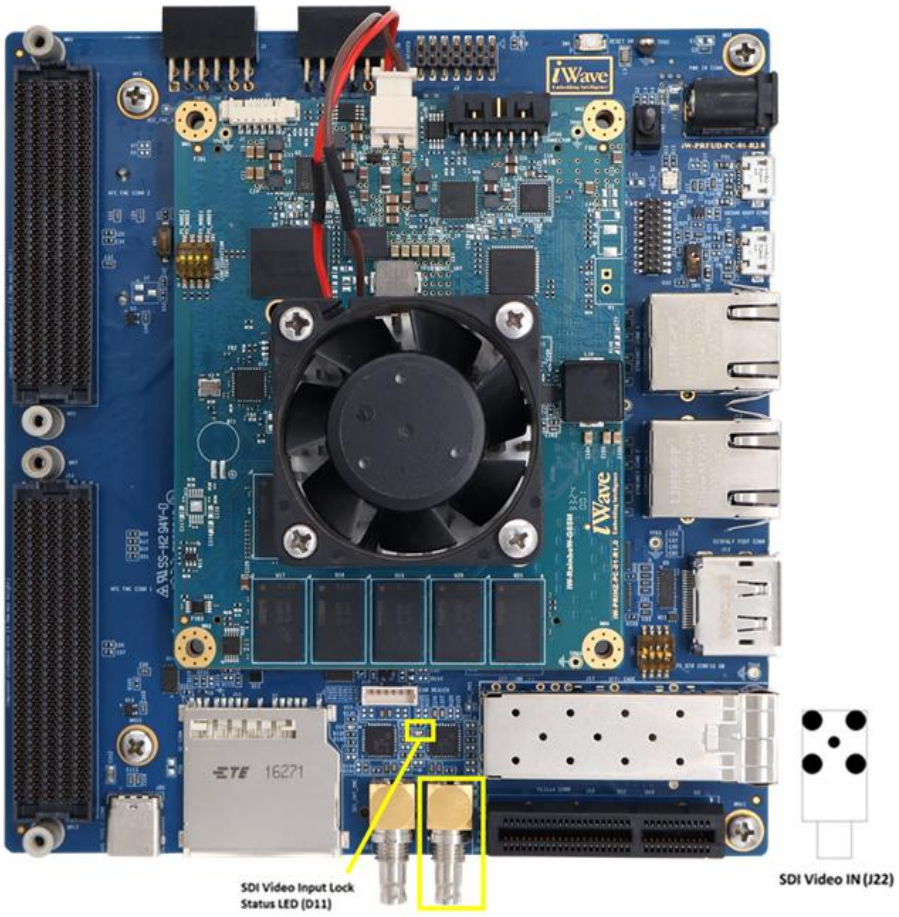


Figure 24: SDI Video IN HD BNC Connector

2.5.4.3 SDI Video OUT

The Zynq Ultrascale+ MPSoC devkit supports one 3G/12G SDI Video OUT interface through HD BNC connector (J21). Zynq Ultrascale+ MPSoC's PL Bank128 Channel3 GTH transmitter from Board to Board Connector2 is directly connected to Cable Driver chip and then connected to HD BNC Connector (J21) for Video out.

The Zynq Ultrascale+ MPSoC Carrier board supports Video Output Lock status LED (D10). This LED will glow when the video signal from MPSoC GTH 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 (J21) is physically located at the top of the board as shown below.

Note: To Support Both SDI and SFP Module in a Single Design Transceiver Reference Clock 0 must feed from the GBTCLK0 of FMC module to GTH Bank 128.

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

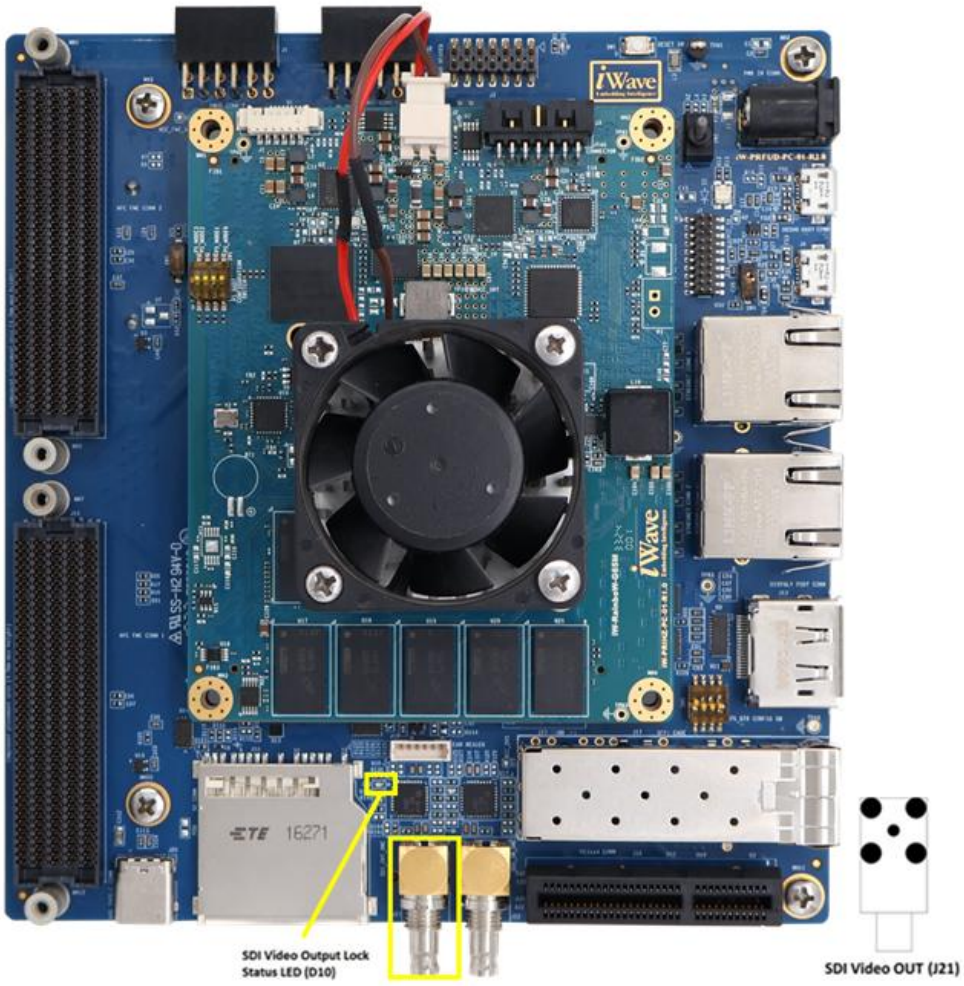


Figure 25: SDI Video OUT HD BNC Connector

2.5.5 Pmod Host Port Connectors

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. There are twelve-pin of the interface defined, encompassing SPI, I²C, UART, I2S and GPIO protocols.

The Zynq Ultrascale+ MPSoC devkit supports two 12pin Pmod host port connector for plugging Pmod modules. Since the Pmod interface specification requires 3.3V IO level, the signals from Board to Board connector is connected to Pmod Connectors through Voltage Level Translator. Pmod Host Port Connector1 (J2) and Connector2 (J1) are physically located at the top of the board as shown below.

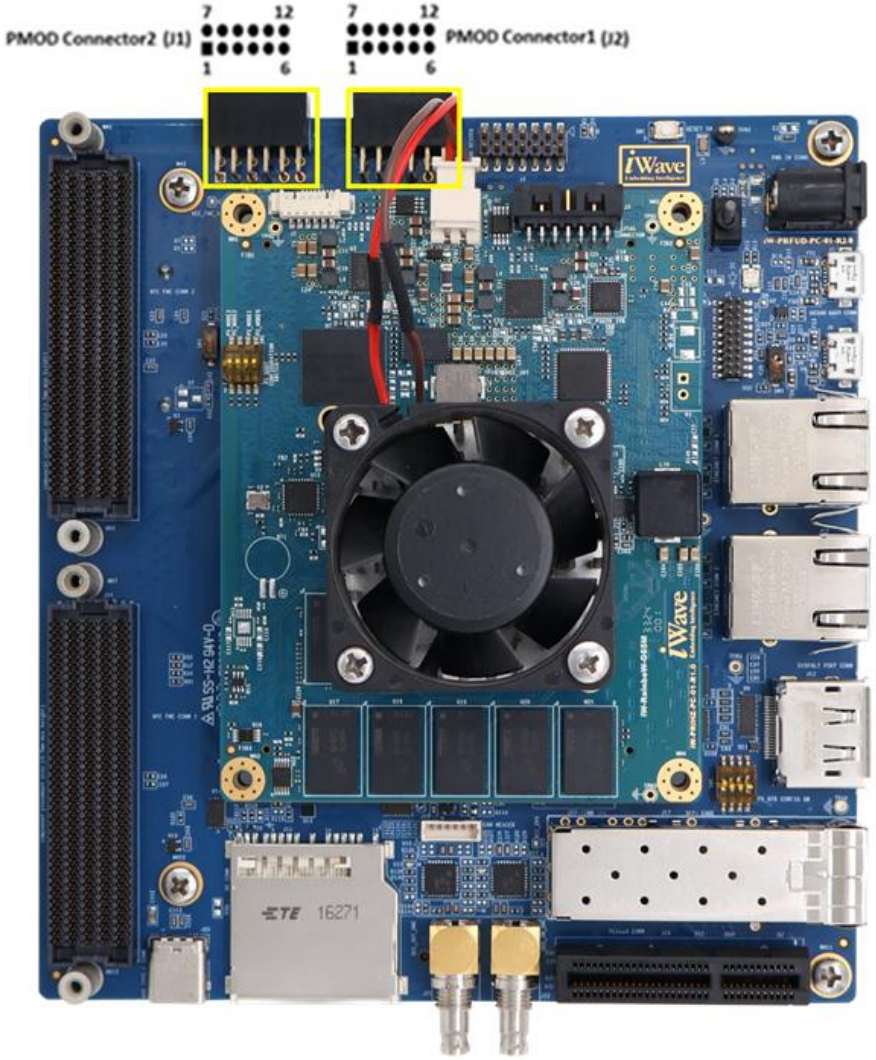


Figure 26: Pmod Host Port Connectors

Table 17: Pmod Connector1 Pin Assignment

Pin No	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
1	PL_AE3_LVDS65_L20P	65	AE3	IO, 3V3 LVCMOS	General purpose Input Output.
2	PL_AE2_LVDS65_L20N	65	AE2	IO, 3V3 LVCMOS	General purpose Input Output.
3	PL_AB4_LVDS65_L18P	65	AB4	IO, 3V3 LVCMOS	General purpose Input Output.
4	PL_AC4_LVDS65_L18N	65	AC4	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	PL_AA1_LVDS65_L24P	65	AA1	IO, 3V3 LVCMOS	General purpose Input Output.
8	PL_AB1_LVDS65_L24N	65	AB1	IO, 3V3 LVCMOS	General purpose Input Output.
9	PL_AA3_LVDS65_L23P	65	AA3	IO, 3V3 LVCMOS	General purpose Input Output.
10	PL_AA2_LVDS65_L23N	65	AA2	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.

Table 18: Pmod Connector2 Pin Assignment

Pin No	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
1	PL_AA11_LVDS65_L5N	65	AA11	IO, 3V3 LVCMOS	General purpose Input Output.
2	PL_AA12_LVDS65_L5P	65	AA12	IO, 3V3 LVCMOS	General purpose Input Output.
3	PL_AC1_LVDS65_L22P _DBC	65	AC1	IO, 3V3 LVCMOS	General purpose Input Output.
4	PL_AD1_LVDS65_L22N _DBC	65	AD1	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	PL_AC3_LVDS65_L19N _DBC	65	AC3	IO, 3V3 LVCMOS	General purpose Input Output.

Pin No	Signal Name	MPSoC Bank	MPSoC Pin No	Signal Type/ Termination	Description
8	PL_AB3_LVDS65_L19P_DBC	65	AB3	IO, 3V3 LVCMOS	General purpose Input Output.
9	PL_AE9_LVDS65_L9N	65	AE9	IO, 3V3 LVCMOS	General purpose Input Output.
10	PL_AD9_LVDS65_L9P	65	AD9	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.

2.6 Additional Features

2.6.1 Clock Synthesizer/Generator

The Zynq Ultrascale+ MPSoC devkit board supports one 10-output Clock Synthesizer "SI5341B-D-GM" for on board clock distribution. This Clock Generator outputs are connected to PL-GTH & PS-GTR Transceiver Banks Reference Clock on Board to Board Connectors through 0.01uF AC coupling capacitors. An external 48MHz crystal is connected to this Clock Synthesizer for reference. This Clock Synthesizer supports from 100Hz to 1028Mhz clock output and configurable through PS I2C0.

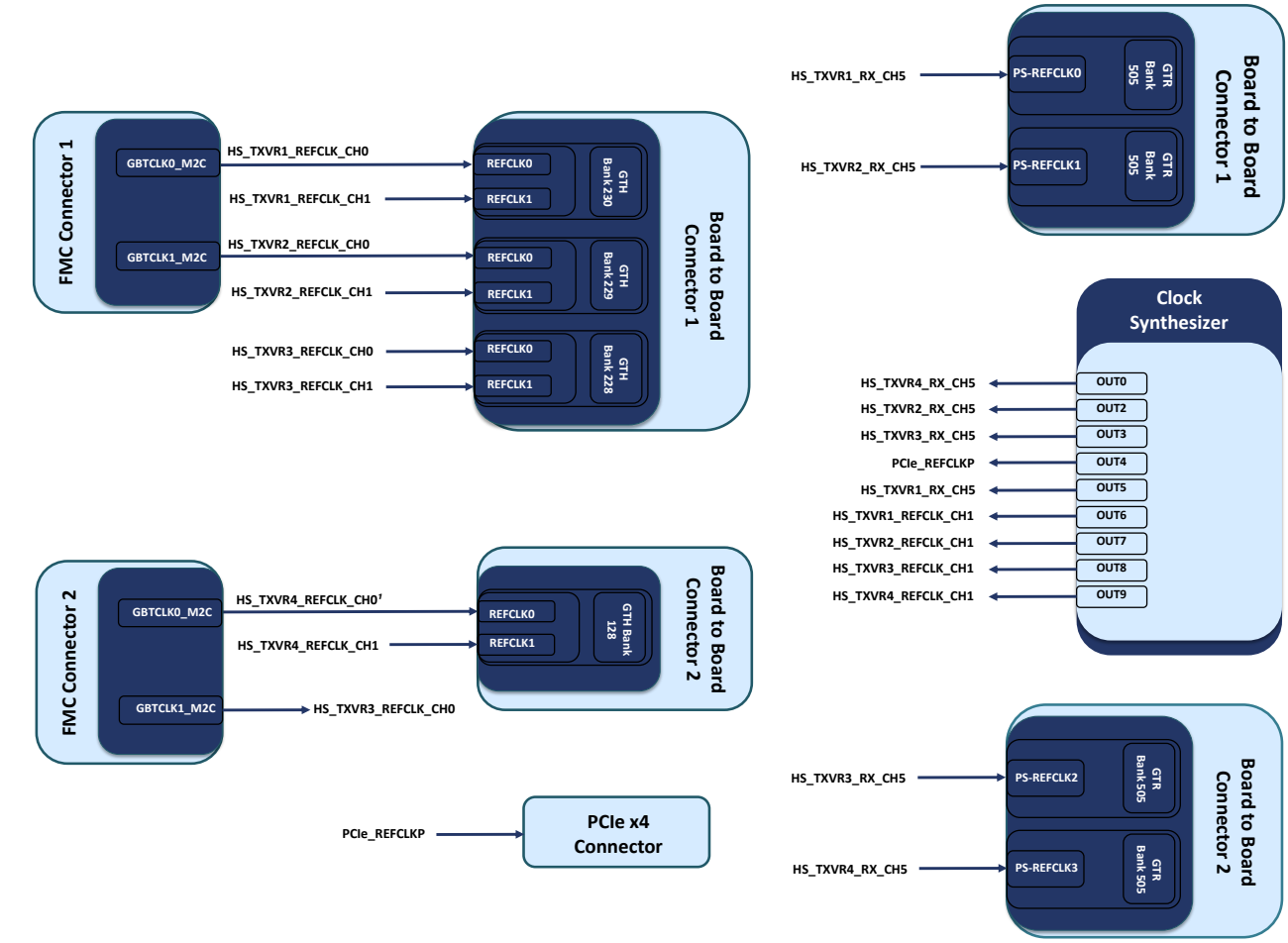
Table 19: Clock Synthesizer Output Clocks

Pin No	Pin Name	Signal Name	MPSoC Bank	MPSoC Pin	Programmed Frequency	Connected To
23	OUT0b	PS_MGTREFCLK3N_505	505	H26	125MHz	B2B-2 220th pin.
24	OUT0	PS_MGTREFCLK3P_505	505	H25		B2B-2 218th pin.
30	OUT2b	PS_MGTREFCLK1N_505	505	M26	27MHz	B2B-1 169th pin.
31	OUT2	PS_MGTREFCLK1P_505	505	M25		B2B-1 171th pin.
34	OUT3b	PS_MGTREFCLK2N_505	505	K26	52MHz	B2B-2 232th pin.
35	OUT3	PS_MGTREFCLK2P_505	505	K25		B2B-2 230th pin.
37	OUT4b	PCIe_REFCLKn	NA	NA	100MHz	PCIe x4 connector A14th pin.
38	OUT4	PCIe_REFCLKP	NA	NA		PCIe x4 connector A13th pin.
41	OUT5b	PS_MGTREFCLK0N_505	505	P26	100MHz	B2B-1 75th pin.
42	OUT5	PS_MGTREFCLK0P_505	505	P25		B2B-1 77th pin.
44	OUT6b	GTREFCLK1N_230	230	E7	125MHz	B2B-1 66th pin.
45	OUT6	GTREFCLK1P_230	230	E8		B2B-1 64th pin.
50	OUT7b	GTREFCLK1N_229	229	J7	125MHz	B2B-1 160th pin.
51	OUT7	GTREFCLK1P_229	229	J8		B2B-1 158th pin.
53	OUT8b	GTREFCLK1N_228	228	N7	156.25MHz	B2B-1 220th pin.
54	OUT8	GTREFCLK1P_228	228	N8		B2B-1 218th pin.
58	OUT9b	GTREFCLK1N_128	128	D26	148.5MHz	B2B-2 225th pin.
59	OUT9	GTREFCLK1P_128	128	D25		B2B-2 223th pin.

Note: In Zynq Ultrascale+ MPSoC Development board, PL GTH Primary clocks are connected from the dedicated clocks on FMC HPC Connectors.

Note: To Support Both SDI and SFP Module in a Single Design, Bank 128 Transceiver Reference Clock 0 must feed from the GBTCLK0 of FMC module.

iW-RainboW-G65D – Zynq Ultrascale+ MPSoC SOM Devkit Clock Tree



Note:
[1] To Support Both SDI and SFP Module in a Single Design Transceiver Reference Clock 0 must feed from the GBTCLK0 of FMC module to GTH Bank 128.

Figure 27: Clock Tree

2.6.2 IO Expander

The Zynq Ultrascale+ MPSoC devkit supports one "TCA6416A" GPIO 16-Bit port Expander. This GPIO 16-Bit port Expander controls the enable pin of USB type-C Switch, SFP+ Control signals and FMC Control Signals. This GPIO 16-Bit port Expander is connected to PS I2C0 through level translator. The GPIO 16-Bit port Expander I2C address is 0X21. The pinout details for IO Expander are given as below.

Table 20: IO Expander pinout details

Pin No	Pin Name	Signal Name	Signal Type/ Termination	Description
4	P00	IOEXP_P00_SFP_TFAULT	I, 3.3V CMOS/ 4.7K PU	Connected to SFP+ Connector
5	P01	IOEXP_P01_SFP_RX_LOS	I, 3.3V CMOS/ 4.7K PU	Connected to SFP+ Connector
6	P02	IOEXP_P02_SFP_MOD_ABS	I, 3.3V CMOS/ 4.7K PU	Connected to SFP+ Connector
7	P03	IOEXP_P03_SFP_RS1	I, 3.3V CMOS/ 4.7K PU	Connected to SFP+ Connector
8	P04	IOEXP_P04_SFP_RS0	O, 3.3V CMOS/ 4.7K PU	Connected to SFP+ Connector
9	P05	IOEXP_P05_SFP_TDIS	O, 3.3V CMOS/ 4.7K PD	Connected to SFP+ Connector
10	P06	IOEXP_P06_PG_M2C2	O, 3.3V CMOS	Connected to F1 pin of FMC Connector 2 (J6).
11	P07	IOEXP_P07_SDI_IN_CD_INT	I, 3.3V CMOS	Connected to 27th pin of SDI Video IN Equalizer.
13	P10	IOEXP_P10_SDI_CD_INT	I, 3.3V CMOS	Connected to 27th pin of SDI Video OUT Driver.
14	P11	IOEXP_P11_MUX_SEL1	I, 3.3V CMOS	Connected to MUX Selection Switch 1
15	P12	IOEXP_P12_MUX_SEL2	I, 3.3V CMOS	Connected to MUX Selection Switch 2
16	P13	IOEXP_P13_MUX_SEL3	I, 3.3V CMOS	Connected to MUX Selection Switch 3
17	P14	IOEXP_P14_MUX_SEL4	I, 3.3V CMOS	Connected to MUX Selection Switch 4
18	P15	IOEXP_P15_PR_M2C_L1	I, 3.3V CMOS/10K PU	Connected to H2 pin of FMC Connector 1 (J14).
19	P16	IOEXP_P16_PR_M2C_L2	I, 3.3V CMOS/10K PU	Connected to H2 pin of FMC Connector 2 (J6).
20	P17	IOEXP_P17_PG_M2C1	I, 3.3V CMOS/10K PU	Connected to F1 pin of FMC Connector 1 (J14).

2.6.3 JTAG Connector

A Standard Xilinx 14-pin JTAG Header is available in Zynq Ultrascale+ MPSoC devkit for debug purpose. JTAG signals from Board to Board connector2 is connected to JTAG Header (J3) and same JTAG signals are also connected to FMC connector through level Translator. JTAG-HS2/JTAG-HS3 programming cable can be plugged to this JTAG Header for programming and debugging purpose. This JTAG Header (J3) is physically located at the top of the board as shown below.

Number of Pins	- 14
Connector Part	- TMM-107-01-G-D-SM from Samtec
Mating Connector	- HS2/HS3 JTAG Module

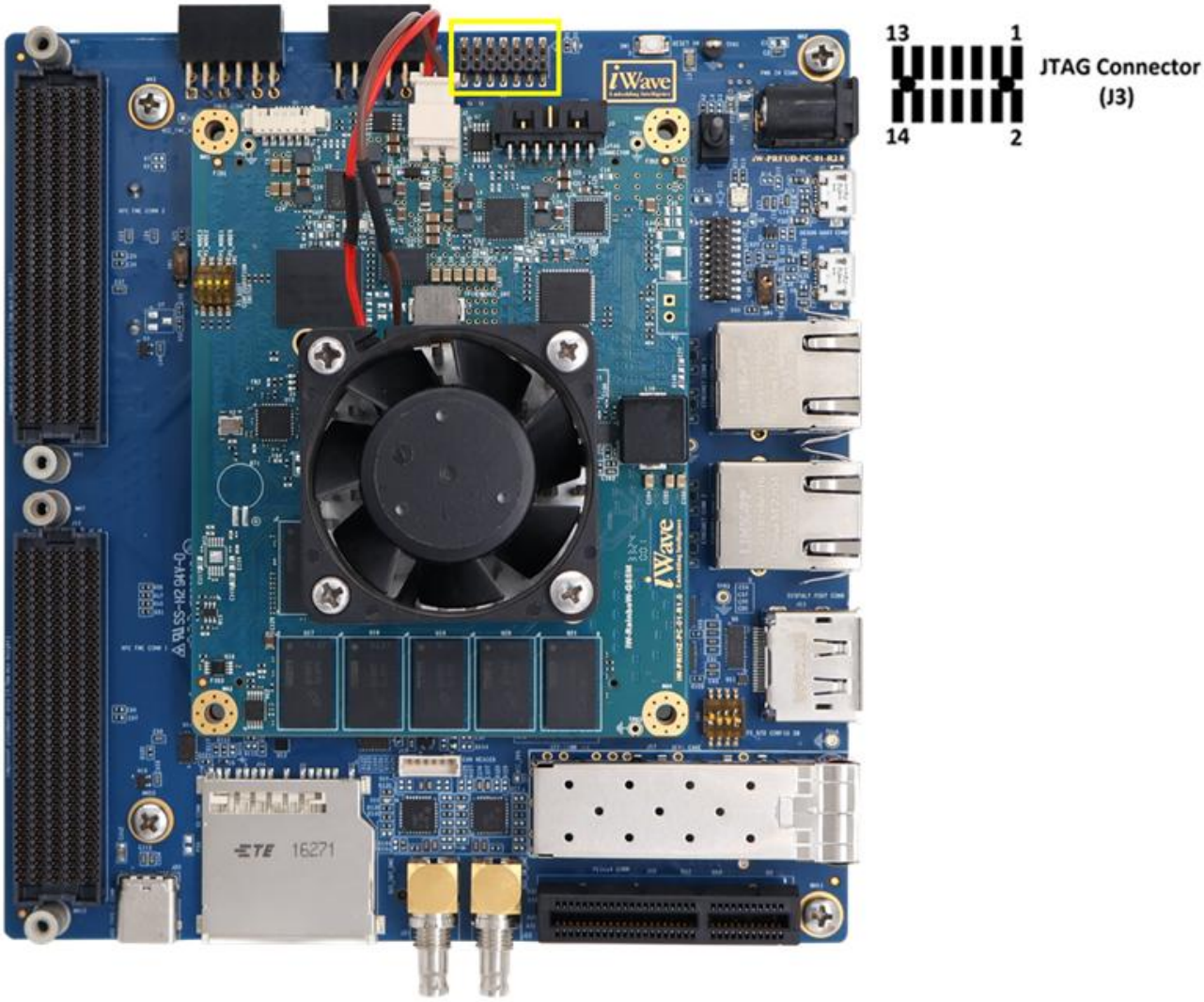


Figure 28: JTAG Connector

Table 21: JTAG Header Pin Assignment

Pin No	Signal Name	MPSoC Bank	MPSoC Pin	Signal Type/ Termination	Description
1	NC	NA	NA	-	Not Connected
2	VCC_3V3	NA	NA	O, 3.3V Power	3V3 Supply Voltage.
3	GND	NA	NA	Power	Ground
4	PS_JTAG_TMS	503	R19	I, 3V3 LVCMOS/ 49.9K PU	JTAG test mode select.
5	GND	NA	NA	Power	Ground
6	PS_JTAG_TCK	503	R20	I, 3V3 LVCMOS/ 49.9K PU	JTAG test Clock
7	GND	NA	NA	Power	Ground
8	PS_JTAG_TDO	503	T20	O,3V3 LVCMOS/ 49.9K PU	JTAG test data output.
9	GND	NA	NA	Power	Ground
10	PS_JTAG_TDI	503	T21	I, 3V3 LVCMOS	JTAG test data input
11	GND	NA	NA	Power	Ground
12	NC	NA	NA	-	Not Connected
13	GND	NA	NA	Power	Ground
14	JTAG_TRSTB	NA	NA	-	Not Connected

2.6.4 GPIO Header

The Zynq Ultrascale+ MPSoC devkit supports GPIO Header (J7) for General Purpose. This Header signals are directly connected from Board to Board connectors. This header supports I2C0, UART1, SPI0, CAN1 and PS GPIOs. This GPIO Header (J7) is physically located at the top of the board as shown below.

Number of Pins - 20

GPIO Header Part Number(J7) - GRPB102VWQP-RC from Sullins

Mating Connector - LPPB102CFFN-RC from Sullins

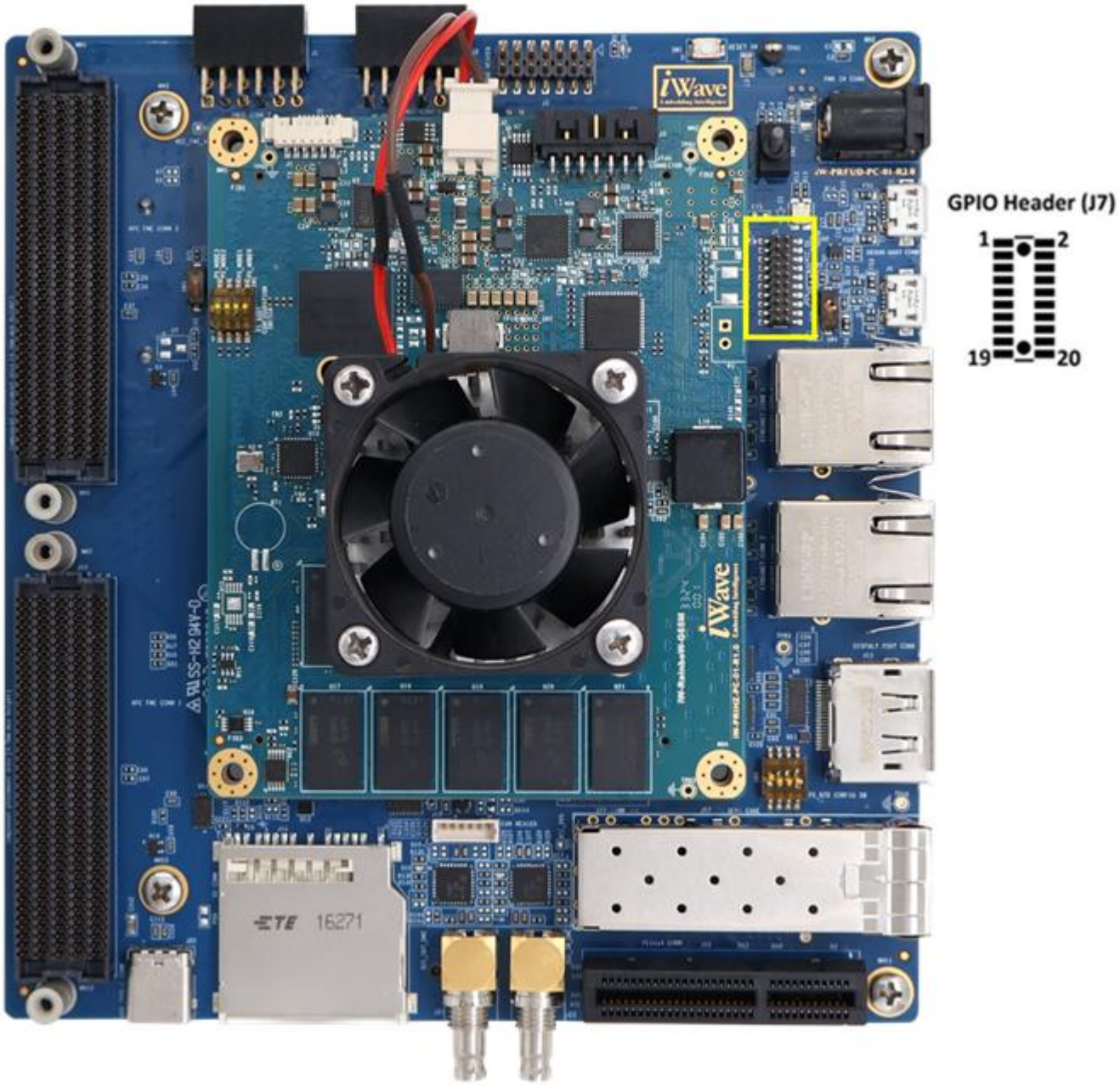


Figure 29: GPIO Header

Table 22: GPIO Header Pin Assignment

Pin No	Signal Name	MPSoC Bank	MPSoC Pin	Signal Type/ Termination	Description
1	VCC_1V8	NA	NA	O, 1.8V Power	1V8 Supply Voltage.
2	VCC_5V	NA	NA	O, 5V Power	5V Supply Voltage.
3	CAN1_RX(PS_MIO41_501)	501	K20	I, 1.8V LVCMOS	CAN1 Receive data. Same pin can be configured as General Purpose Input/Output if required. This Pin is connected to 211th pin of Board to Board Connector1 (J10).
4	I2C0_SDA(PS_MIO11_500)	500	G19	IO, 1.8V OD/ 4.7K PU	I2C0 data. This Pin is connected to 46th pin of Board to Board Connector2 (J11).
5	CAN1_TX(PS_MIO40_501)	501	G20	O, 1.8V LVCMOS	CAN1 Transmit data. Same pin can be configured as General Purpose Input/Output if required. This Pin is connected to 213rd pin of Board to Board Connector1 (J10).
6	I2C0_SCL(PS_MIO10_500)	500	B18	IO, 1.8V OD/ 4.7K PU	I2C0 Clock. This Pin is connected to 48th pin of Board to Board Connector2 (J11).
7	SPI0_SS2(PS_MIO1_500)	500	H17	O, 1.8V LVCMOS	SPI Chip select 2. Same pin can be configured as General Purpose Input/Output if required. This Pin is connected to 178rd pin of Board to Board Connector1 (J10).
8	UART1_TX(PS_MIO08_500)	500	K18	O, 1.8V LVCMOS	UART1 Transmit data line. Same pin can be configured as General Purpose Input/Output if required. This Pin is connected to 50th pin of Board to Board Connector2 (J11).
9	NC	NA	NA	NA	NC.
10	UART1_RX(PS_MIO09_500)	500	L18	I, 1.8V LVCMOS	UART1 Receive data line. Same pin can be configured as General Purpose Input/Output if required. This Pin is connected to 52nd pin of Board to Board Connector2 (J11).
11	GND	NA	NA	Power	Ground
12	GND	NA	NA	Power	Ground
13	SPI0_SCLK(PS_MIO0_500)	500	C18	O, 1.8V LVCMOS	SPI Clock output. Same pin can be configured as General Purpose Input/Output if required. This Pin is connected to 61st pin of Board to Board Connector2 (J11).
14	NC	NA	NA	NA	NC.

Pin No	Signal Name	MPSoC Bank	MPSoC Pin	Signal Type/ Termination	Description
15	SPI0_SS0(PS_MIO3_500)	500	F18	O, 1.8V LVCMOS	SPI Chip select 0. This Pin is connected to 63rd pin of Board to Board Connector2 (J11).
16	NC	NA	NA	NA	NC.
17	SPI0_MOSI(PS_MIO5_500)	500	J17	IO, 1.8V LVCMOS	SPI Master output Slave input. Same pin can be configured as General Purpose Input/Output if required. This Pin is connected to 65th pin of Board to Board Connector2 (J11).
18	SPI0_MISO(PS_MIO4_500)	500	G18	IO, 1.8V LVCMOS	SPI Master input Slave output. Same pin can be configured as General Purpose Input/Output if required. This Pin is connected to 67th pin of Board to Board Connector2 (J11).
19	GND	NA	NA	Power	Ground
20	GND	NA	NA	Power	Ground

2.6.5 I2C Tree

The Zynq Ultrascale+ MPSoC devkit supports I2C through the Zynq Ultrascale+ SoC SOM via the Board-to-Board Connectors. The Carrier Board I2C tree is shown below.

iW-RainboW-G65D-ZynqUltrascale+ MPSoC SOM Devkit I2C Block Diagram

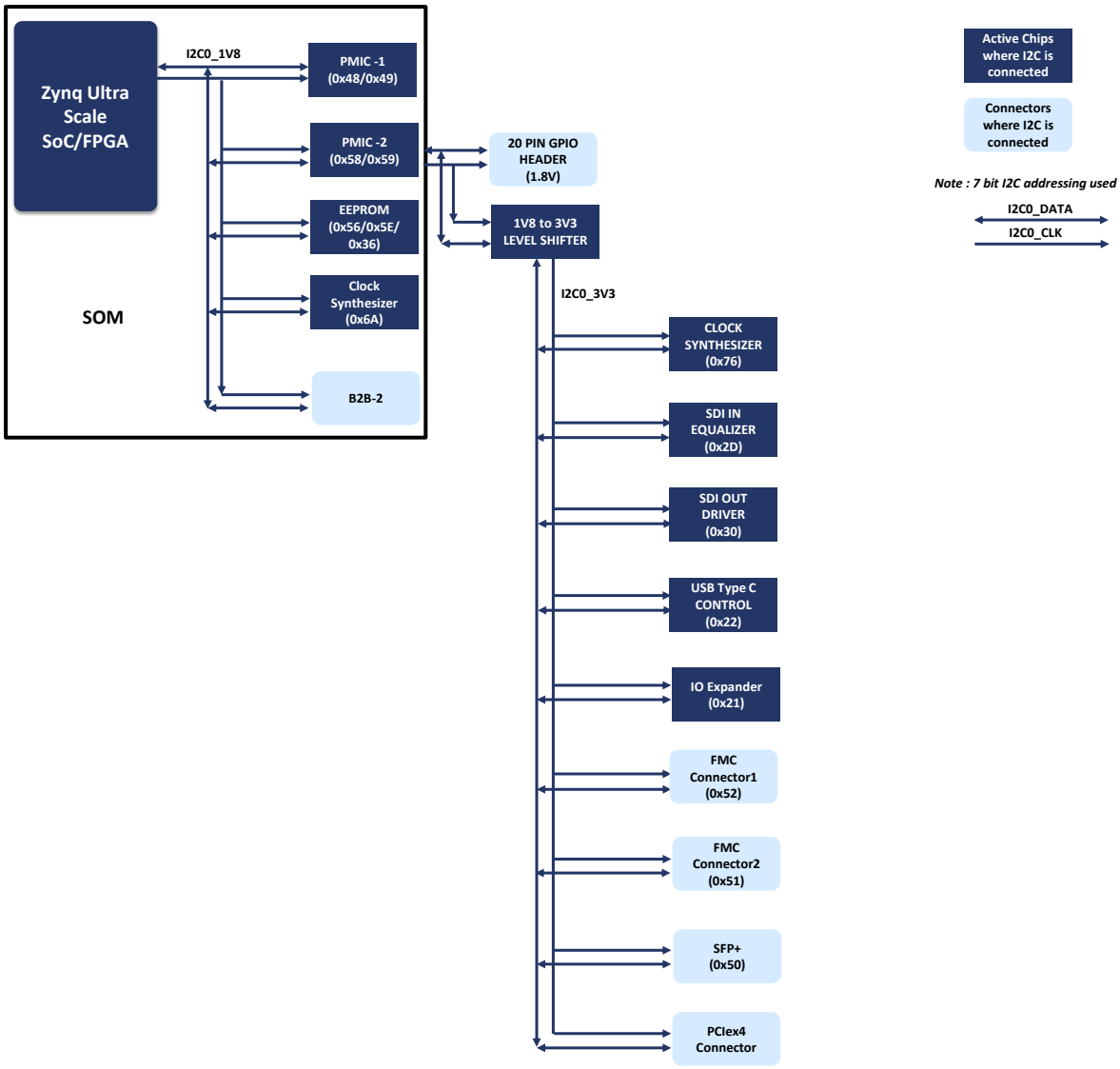


Figure 30: I2C Tree

2.6.6 Power ON/OFF Switch

The Zynq Ultrascale+ MPSoC devkit has power ON/OFF switch (SW2) 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.

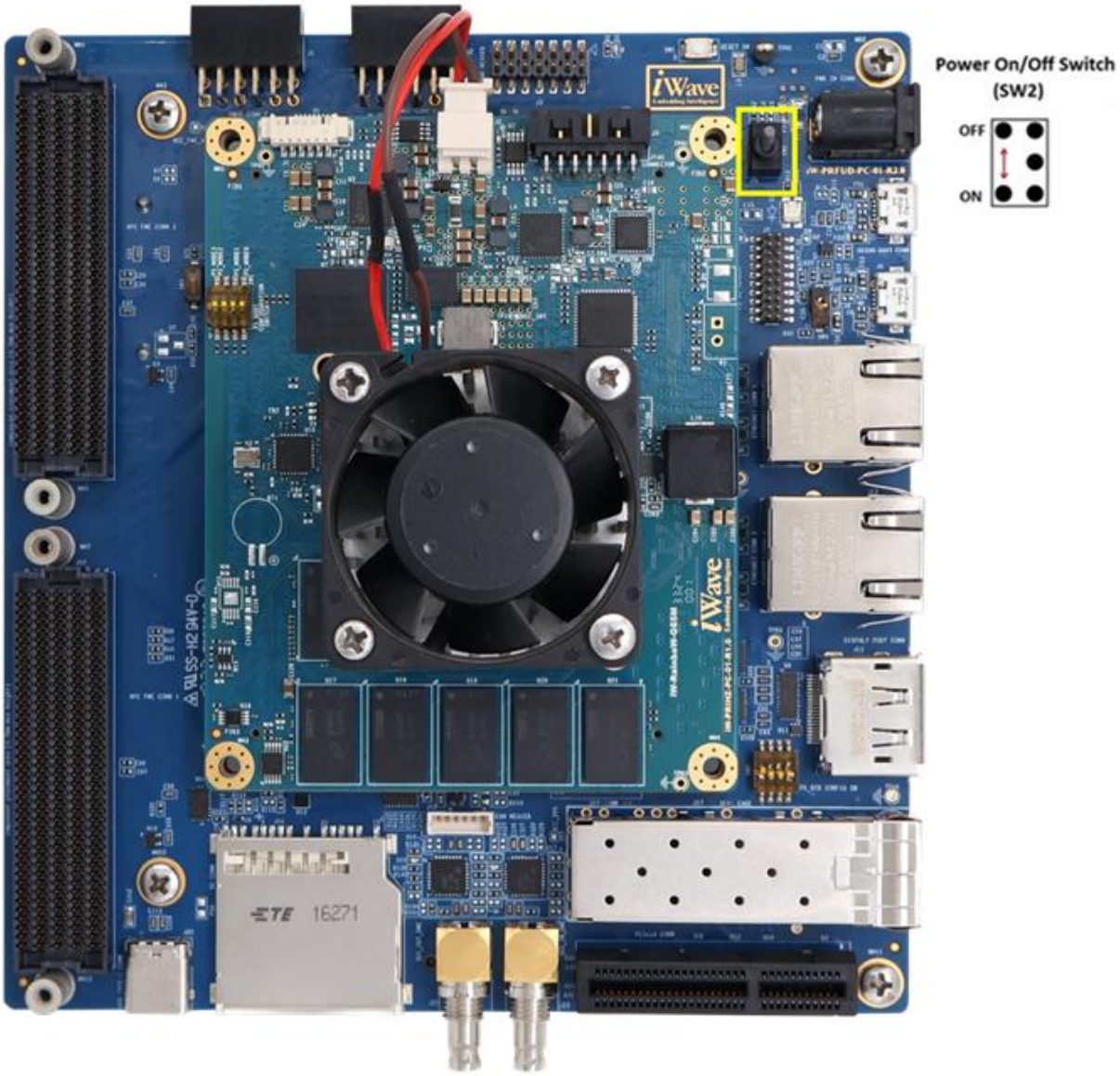


Figure 31: Power On/Off Switch

2.6.7 Power Status LED

The Zynq Ultrascale+ MPSoC devkit supports one power status LED(D1) This LED is connected to the last power rail of the devkit internal power which to state the devkit power is stable. This Power status LED is physically located at the top of the board as shown below.

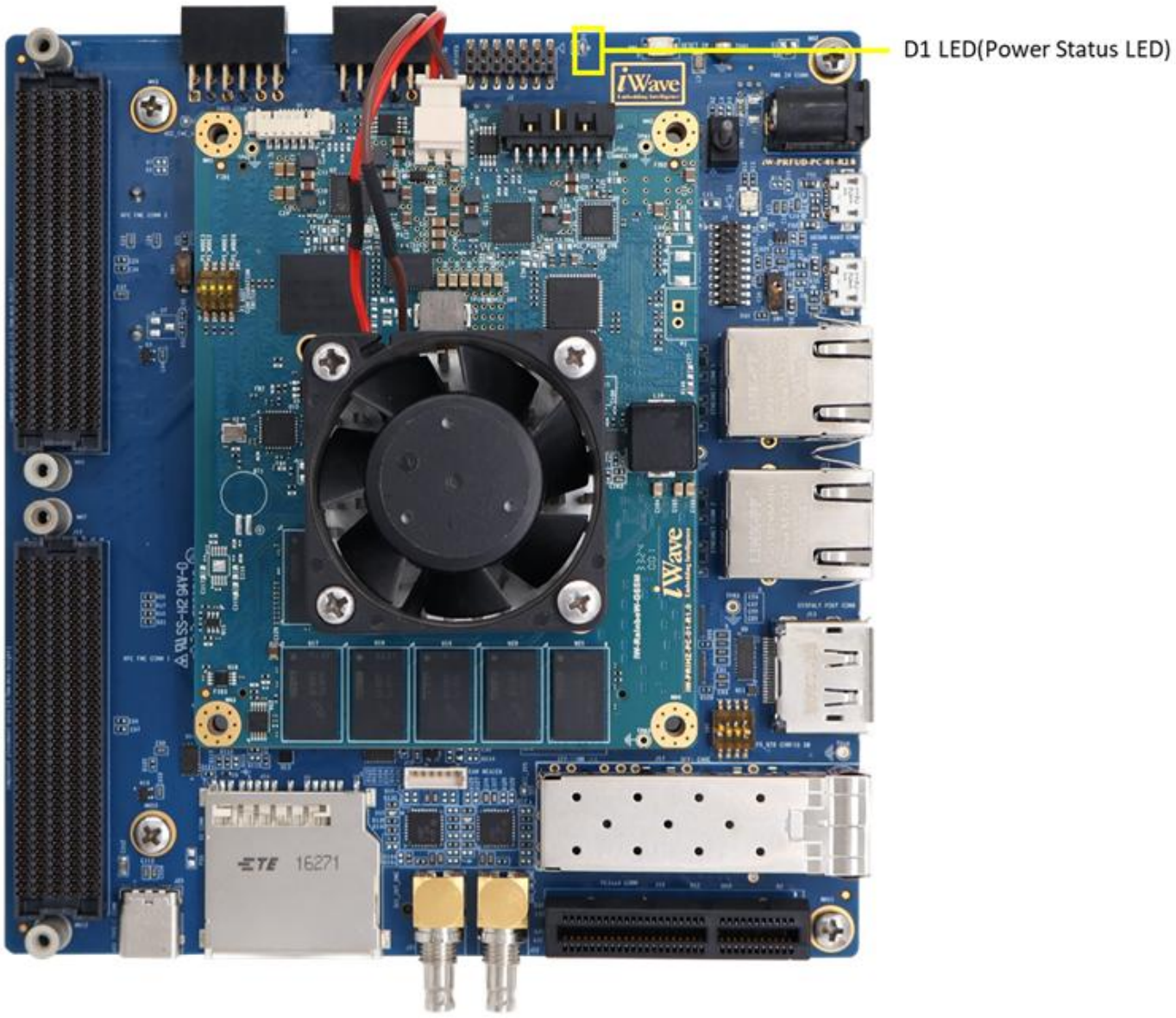


Figure 32: Power On/Off Switch

2.6.8 Reset Switch

The Zynq Ultrascale+ MPSoC devkit supports Push button switch (SW1) to reset the Zynq Ultrascale+ MPSoC CPU. Reset signal from Pin 35 of Board to Board connector2 is directly connected from Reset Push Button switch. This Reset Push button switch (SW1) is physically located at the top of the board as shown below.

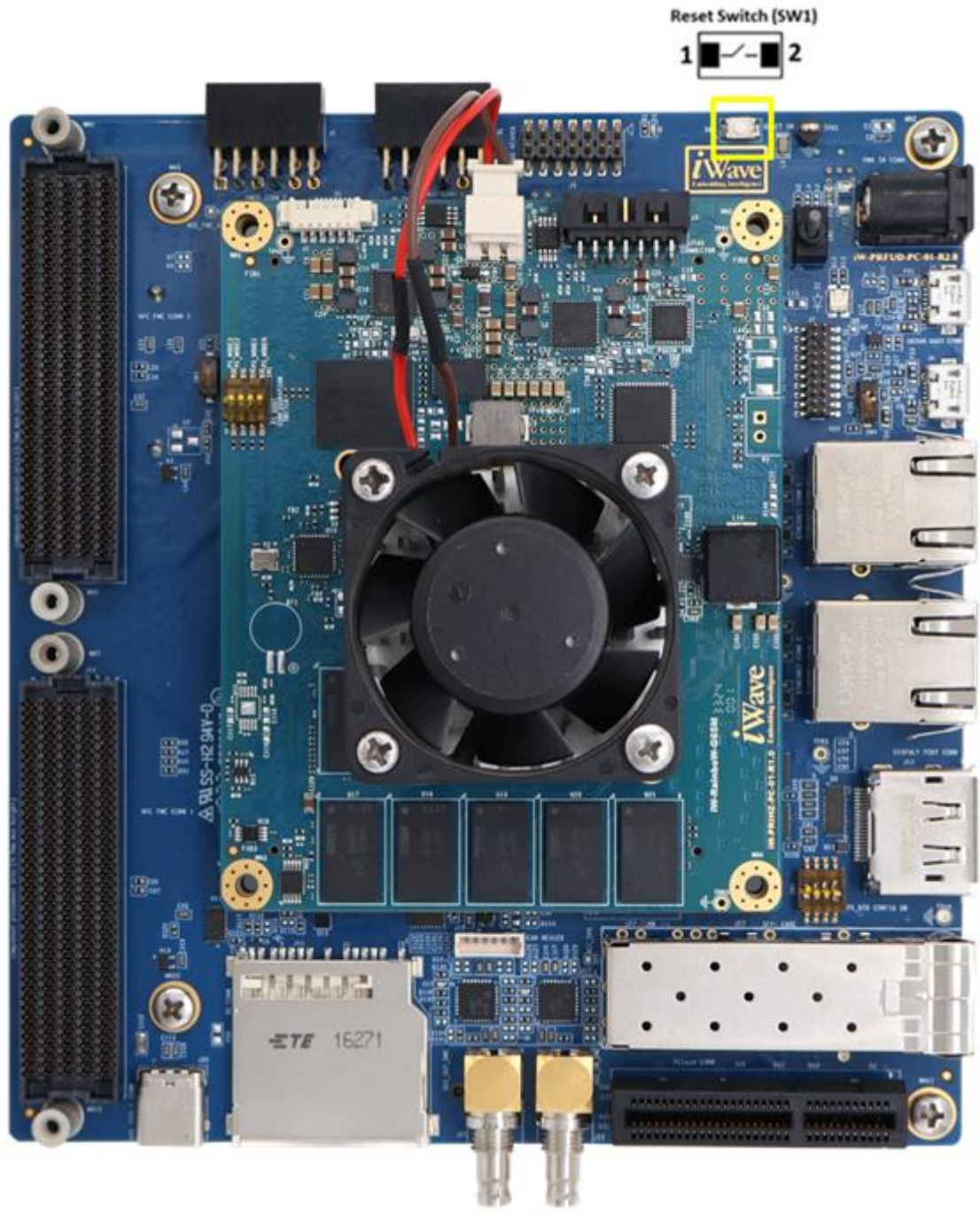


Figure 33: Reset Switch

2.6.9 RTC Coin Cell Holder

The Zynq Ultrascale+ MPSoC Carrier board supports Coin Cell Holder to connect “2032” series 3V coin cell. This coin cell voltage is connected to Zynq Ultrascale+ MPSoC (ZU15/9/6) 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.

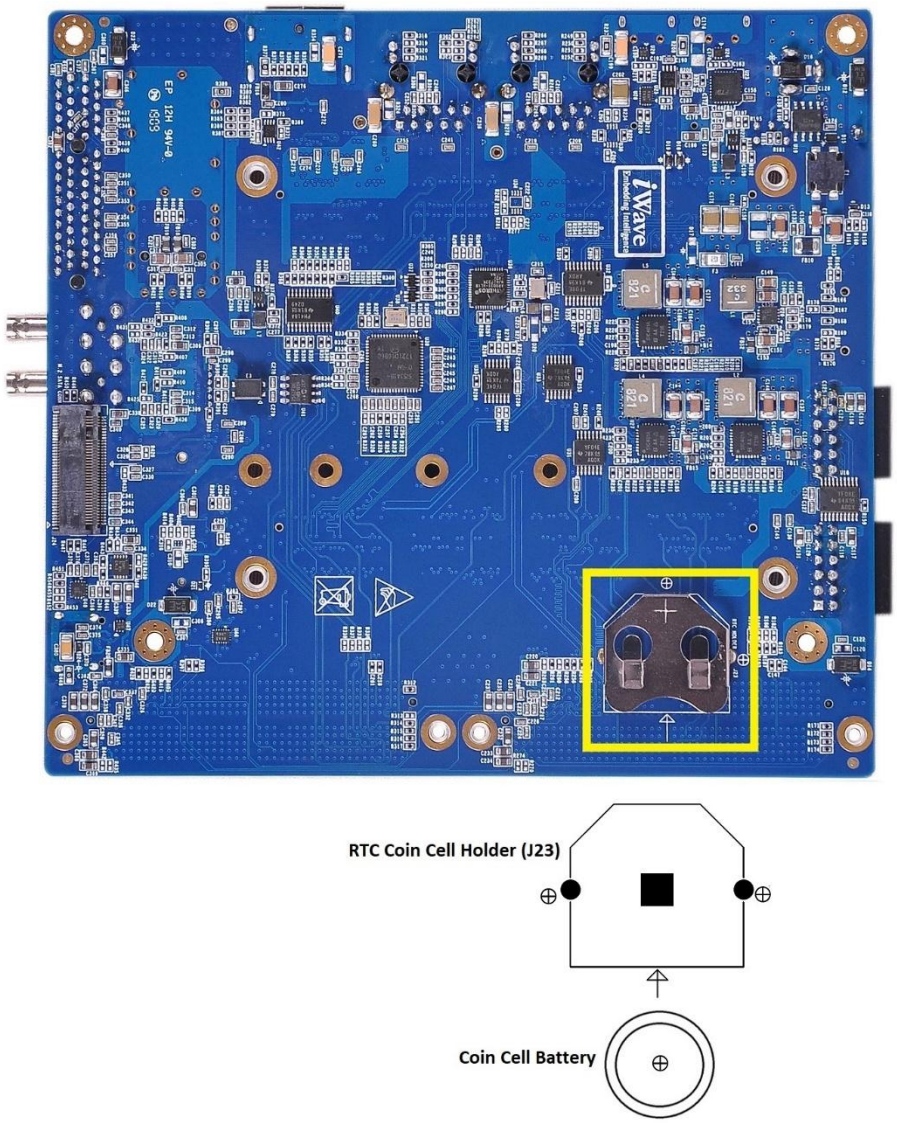


Figure 34: RTC Coin Cell Holder

3. TECHNICAL SPECIFICATION

This section provides detailed information about the Zynq Ultrascale+ MPSoC Carrier Board technical specification with Electrical, Environmental and Mechanical characteristics.

3.1 Power Input Requirement

The Zynq Ultrascale+ MPSoC devkit 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 Zynq Ultrascale+ MPSoC Carrier Board through Power Jack (J4). This 2.5mm x 6.5mm barrel connector Jack should fit standard DC Plugs with an inner dimension of 2.5mm and an outer dimension of 5.5mm. This Power Input connector (J4) is physically located at the top of the board as shown below.

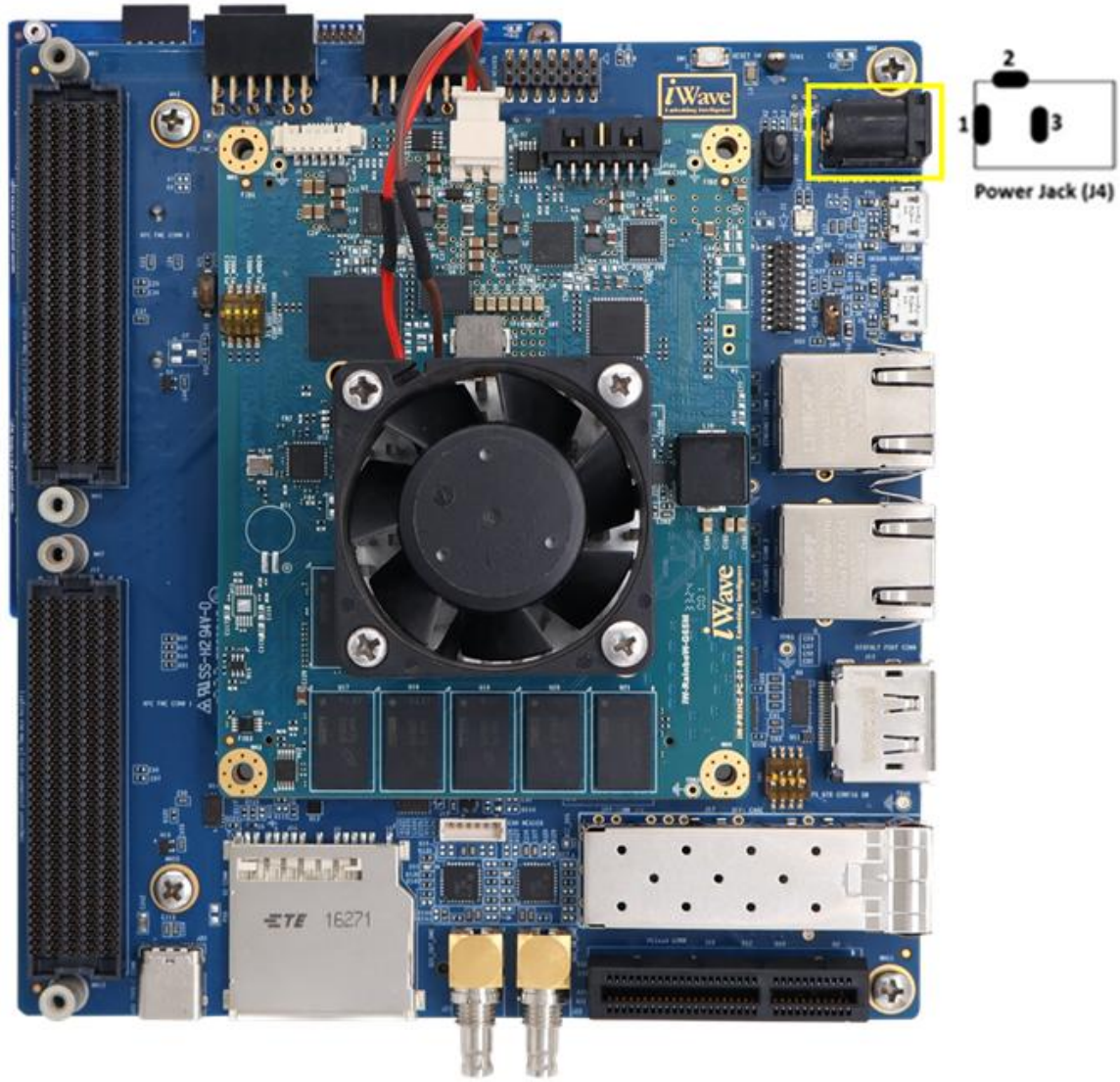


Figure 35: Power Jack

The below table provides the Power Input Requirement Zynq Ultrascale+ MPSoC Carrier Board.

Table 23: 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]	0V	3V	3.15V	±20mV

[1] The Zynq Ultrascale+ MPSoC DevKit uses this voltage as backup power source to On-SOM PMIC RTC controller when VCC is off.

3.2 Power Output Specification

The Zynq Ultrascale+ MPSoC 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 Zynq Ultrascale+ MPSoC Carrier Board also shares different on-board power to FMC connectors, Pmod connectors and GPIO Header for its Add-On Module power.

Table 24: Power Output Specification

Sl. No.	Power Rail	Min (V)	Typical (V)	Max(V)	Max Output Current
To Board to Board Connector2 (for Zynq Ultrascale+ MPSoC SOM)					
1	VCC_5V	4.85V	5V	5.15V	15A
2	VRTC_3V0	2.8V	3V	3.3V	-
To FMC Connector1					
1	VCC_FMC_ADJ	1.75	1.8	1.85	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 FMC Connector2					
1	VCC_FMC_ADJ	1.75	1.8	1.85	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 Connector1					
1	VCC_3V3	3.15	3.3	3.45	500mA
To Pmod Connector2					
1	VCC_3V3	3.15	3.3	3.45	500mA
To GPIO Header					
1	VCC_5V	4.85V	5V	5.15V	500mA
2	VCC_1V8	1.75	1.8	1.85	200mA

3.3 Environmental Characteristics

3.3.1 Environmental Specification

The below table provides the Environment specification of Zynq Ultrascale+ MPSoC Development platform.

Table 25: Environmental Specification

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

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

3.3.2 RoHS Compliance

iWave Global's Zynq Ultrascale+ MPSoC Development platform is designed by using RoHS compliant components and manufactured on lead free production process.

3.3.3 Electrostatic Discharge

iWave Global's Zynq Ultrascale+ MPSoC Development platform is sensitive to electro static 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 High-Performance Carrier Board PCB form factor is 130mmx140mm. The Board mechanical dimensions are shown below.

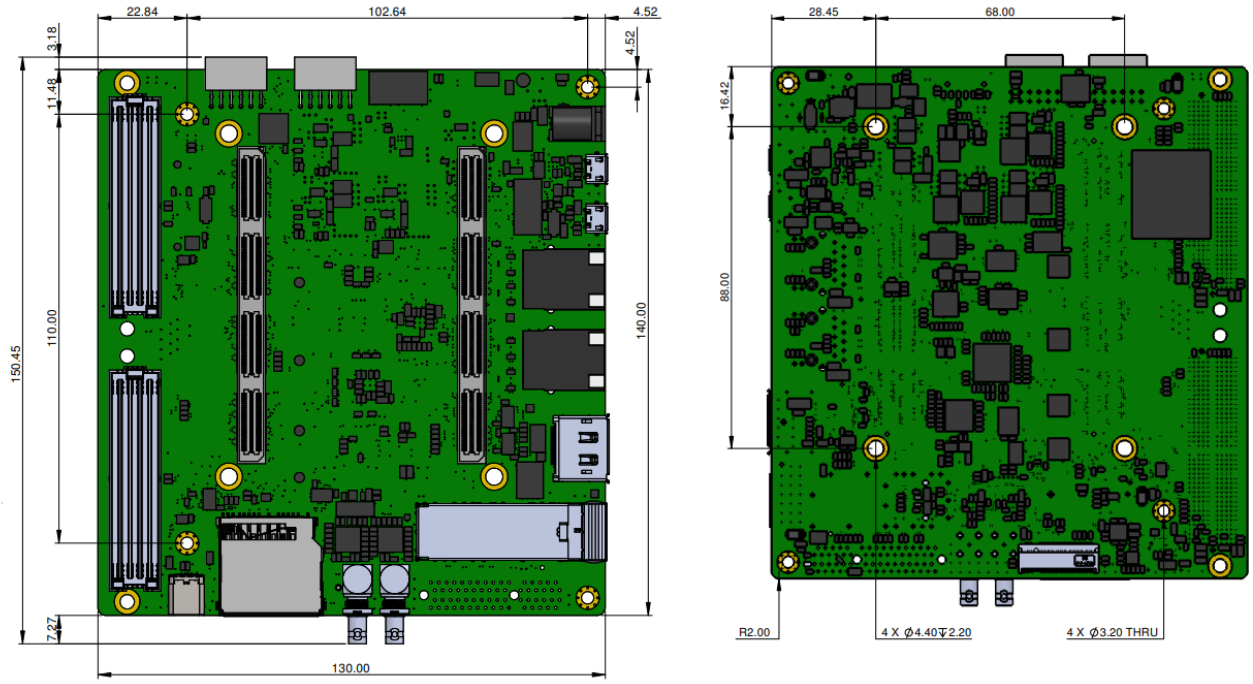


Figure 36: Carrier Board Mechanical dimension – Top and Bottom Views

The High-Performance carrier board PCB thickness is 1.55mm±0.1mm, top side maximum height component is Ethernet Connector (15.27mm) and bottom side maximum height component is M.2 SATA Connector (4.20mm). Please refer the below figure for height details of the Zynq Ultrascale+ MPSoC Carrier board.

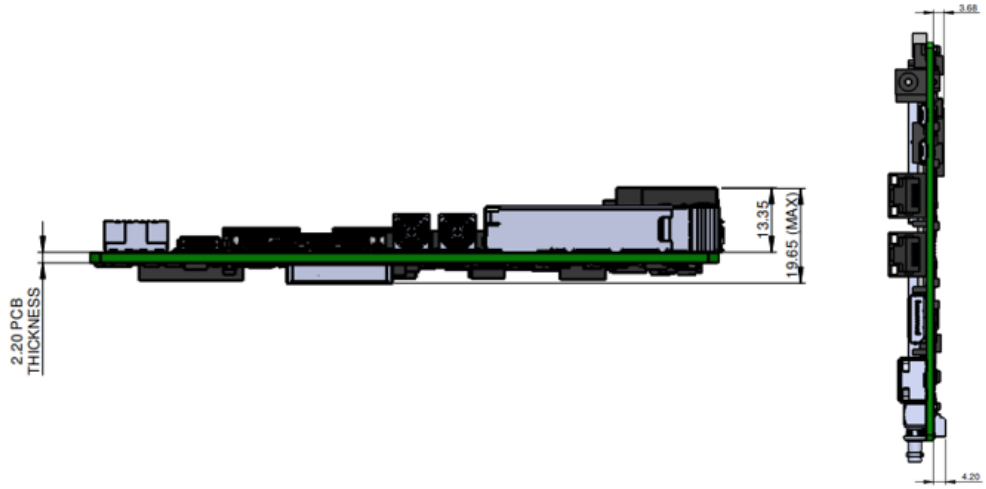


Figure 37: Carrier board Mechanical dimension – Side Views

3.4.2 Guidelines to insert and remove the Zynq Ultrascale+ SoC SOM with Carrier Board

The following section gives the details on inserting and removing of the Zynq Ultrascale+ SoC SOM into the Carrier Board.

- Before inserting the SOM, make sure that the power is not provided to the Carrier Board.
- Insert the Zynq Ultrascale+ SoC SOM to the Board-to-Board Connectors (B2B) as shown below in the first photo.
- Confirm whether the positions of B2B1 and B2B2 of Zynq Ultrascale+ SOM is matching with the Carrier Board B2B Connectors while inserting.
- Press the SOM in to B2B Connectors from the edges as shown below in the first photo such that the SOM is fixed firmly into the B2B Connectors.
- To remove the SOM from the Carrier Board, lift the SOM following the procedure as shown in the second photo.

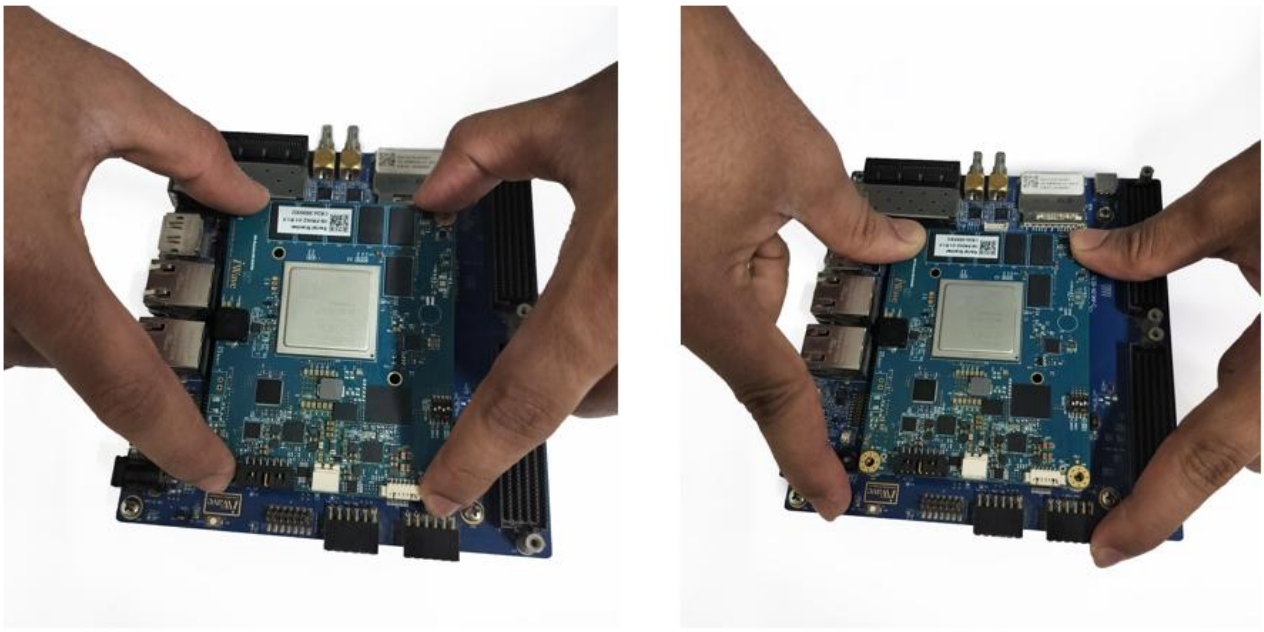


Figure 38: Zynq Ultrascale+ SoC SOM Insert and Removal Procedure

3.4.3 Fan Sink Fixing procedure on SOM with Carrier Board

The Fan Sink fixing procedure for the Zynq Ultrascale+ SOM with Carrier board is as shown in the image below.

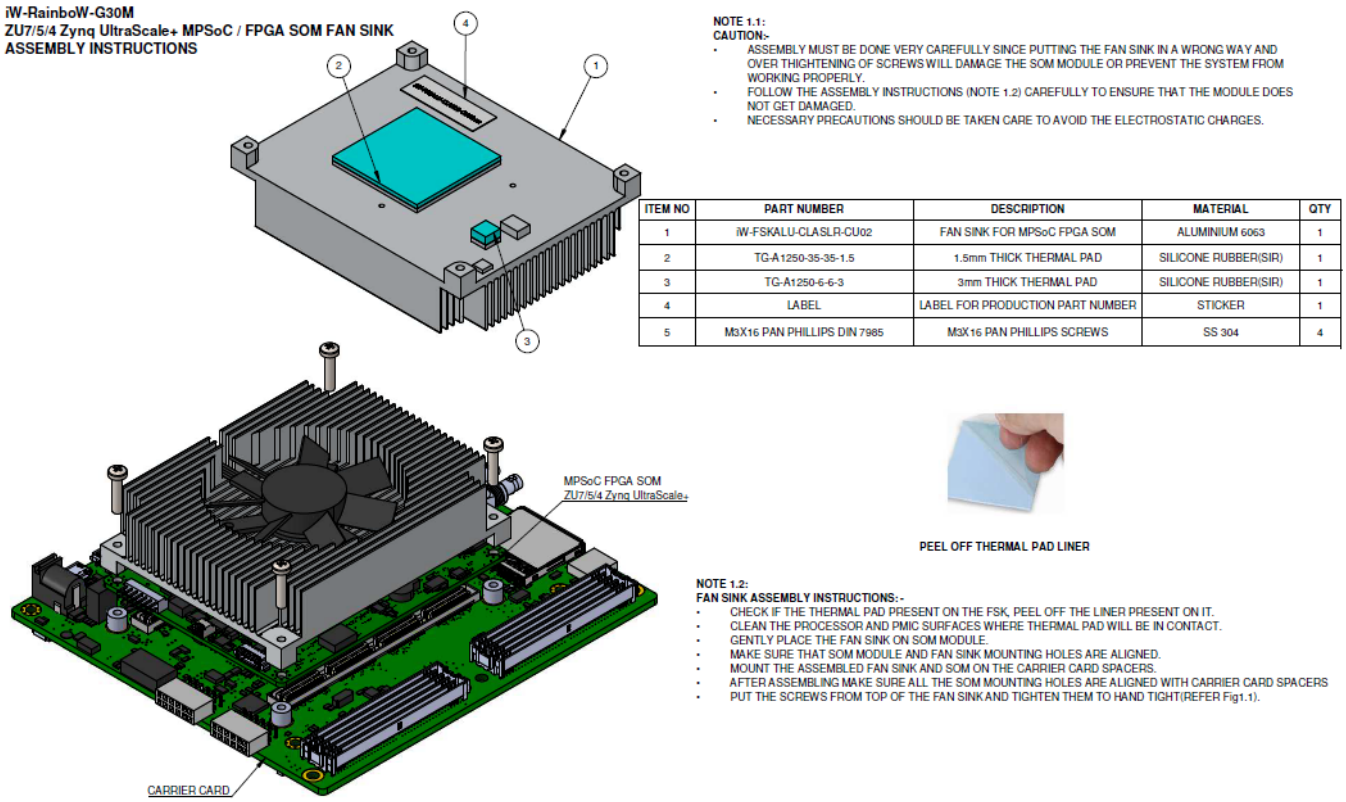


Figure 39: Zynq Ultrascale+ SOM with Fan Sink fixing procedure

4. ORDERING INFORMATION

The below table provides the standard orderable part numbers for Zynq Ultrascale+ MPSoC Development platform which includes Zynq Ultrascale+ MPSoC (ZU15/9/6) SOM and Carrier Board.

Table 26: Orderable Product Part Numbers

Product Part Number	Description	Temperature
ZU15 MPSoC based SOM Development Platform		
iG65D-15EG02-4E004G-E032G-CAA	ZU15EG, -2 Speed MPSoC Kit with 4GB PS RAM with ECC, 2GB PL RAM, 32GB eMMC	Commercial
ZU9 MPSoC based SOM Development Platform		
iG65D-09EG02-4E004G-E032G-CAA	ZU9EG, -2 Speed MPSoC Kit with 4GB PS RAM with ECC, 2GB PL RAM, 32GB eMMC	Commercial

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

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