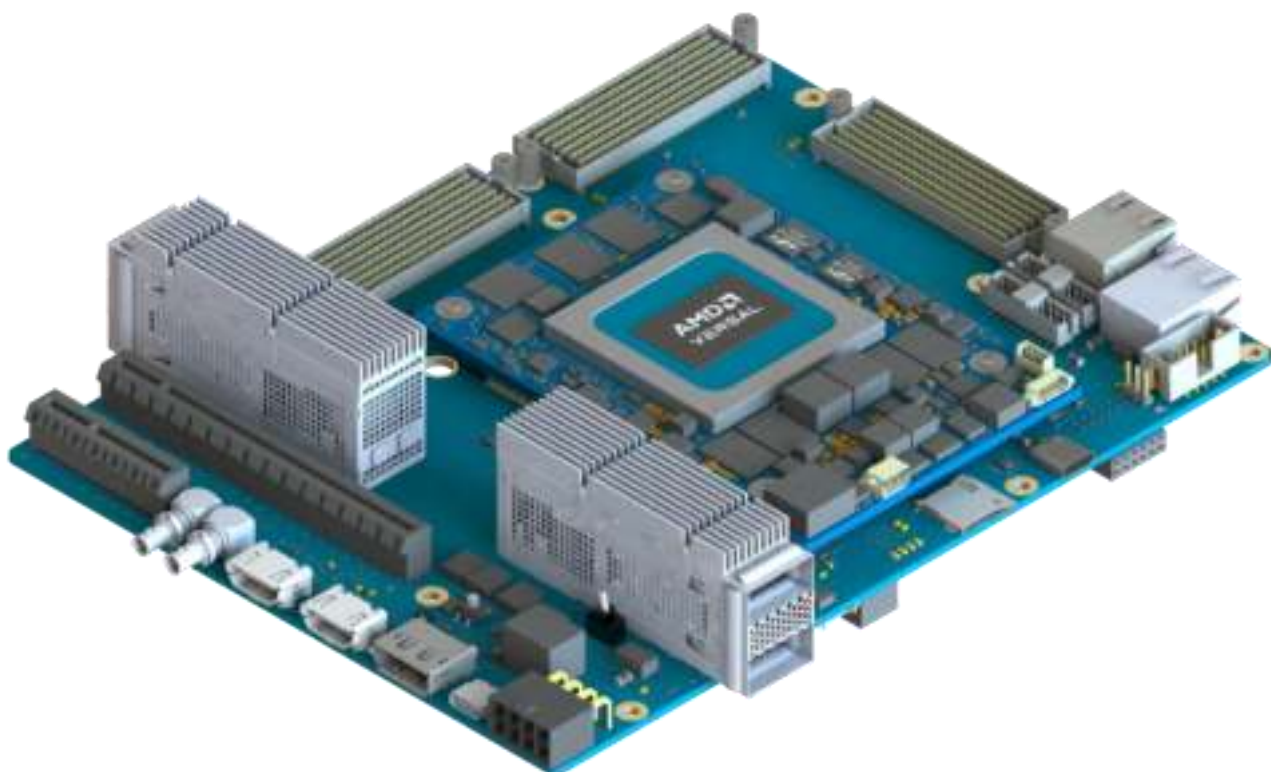


iG-RainboW-G63D

Versal Premium SOM Development Platform Hardware Datasheet



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1. INTRODUCTION

1.1 Purpose

The Versal Premium SOM Development platform incorporates Versal Premium based SOM and BRYN development board for complete validation of Versal Premium functionality. This document is the Hardware User Guide for the Versal Premium development Board and provides detailed information on the overall design & usage of the development Board from a Hardware Systems perspective. The details about the Versal Premium SOM hardware are explained in another document “iG-RainboW-G63M-Versal Premium -SOM-HardwareDatasheet”.

1.2 Overview

iWave's Versal Premium Development platform comes with Versal Premium SOM and the BRYN development Board. The development board can be used for quick prototyping of various applications targeted by the Versal Premium. With the 210mm x 160mm size, development board is packed with all the necessary on-board connectors to validate the features of Versal Premium SOM.

1.3 List of Acronyms

The following acronyms will be used throughout this document.

Table 1: Acronyms & Abbreviations

Acronyms	Abbreviations
B2B	Board To Board
CPU	Central Processing Unit
CAN	Controller Area Network
eMMC	Embedded Multimedia Card
FPGA	Field Programmable Gate Array
FMC+	FPGA Mezzanine Card Plus
GEM	Gigabit Ethernet Controller
GB	Giga Byte
Gbps	Gigabits per sec
GHz	Giga Hertz
GPIO	General Purpose Input Output
HDMI	High-Definition Multimedia interface
HS	High Speed
I2C	Inter-Integrated Circuit
IC	Integrated Circuit
JTAG	Joint Test Action Group
Kbps	Kilobits per second
LPDDR4	Low Power Double Data Rate fourth-generation
LVDS	Low Voltage Differential Signaling
MAC	Media Access Controller
Mbps	Megabits per sec
MHz	Mega Hertz

Acronyms	Abbreviations
SoC	System On Chip
SOM	System On Module
SD	Secure Digital
PCB	Printed Circuit Board
PMIC	Power Management Integrated Circuit
PMOD	Peripheral Module Interface
PL	Programmable Logic
PS	Processing System
RGMII	Reduced Gigabit Media Independent Interface
RTC	Real Time Clock
SDI	Serial Digital Interface
SPI	Serial Peripheral Interface
UART	Universal Asynchronous Receiver Transmitter
USB	Universal Serial Bus

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
LVDS	Low Voltage Differential Signal
GBE	Gigabit Ethernet Media Dependent Interface differential pair signals
USB	Universal Serial Bus differential pair signals
OD	Open Drain Signal
OC	Open Collector Signal
Power	Power Pin
PU	Pull Up
PD	Pull Down
NA	Not Applicable
NC	Not Connected

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

1.5 References

- Versal Premium Datasheet & Reference Manual
- Versal Premium SOM Hardware Datasheet

2. ARCHITECTURE AND DESIGN

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

2.1 Versal Premium SOM Development Board Block Diagram

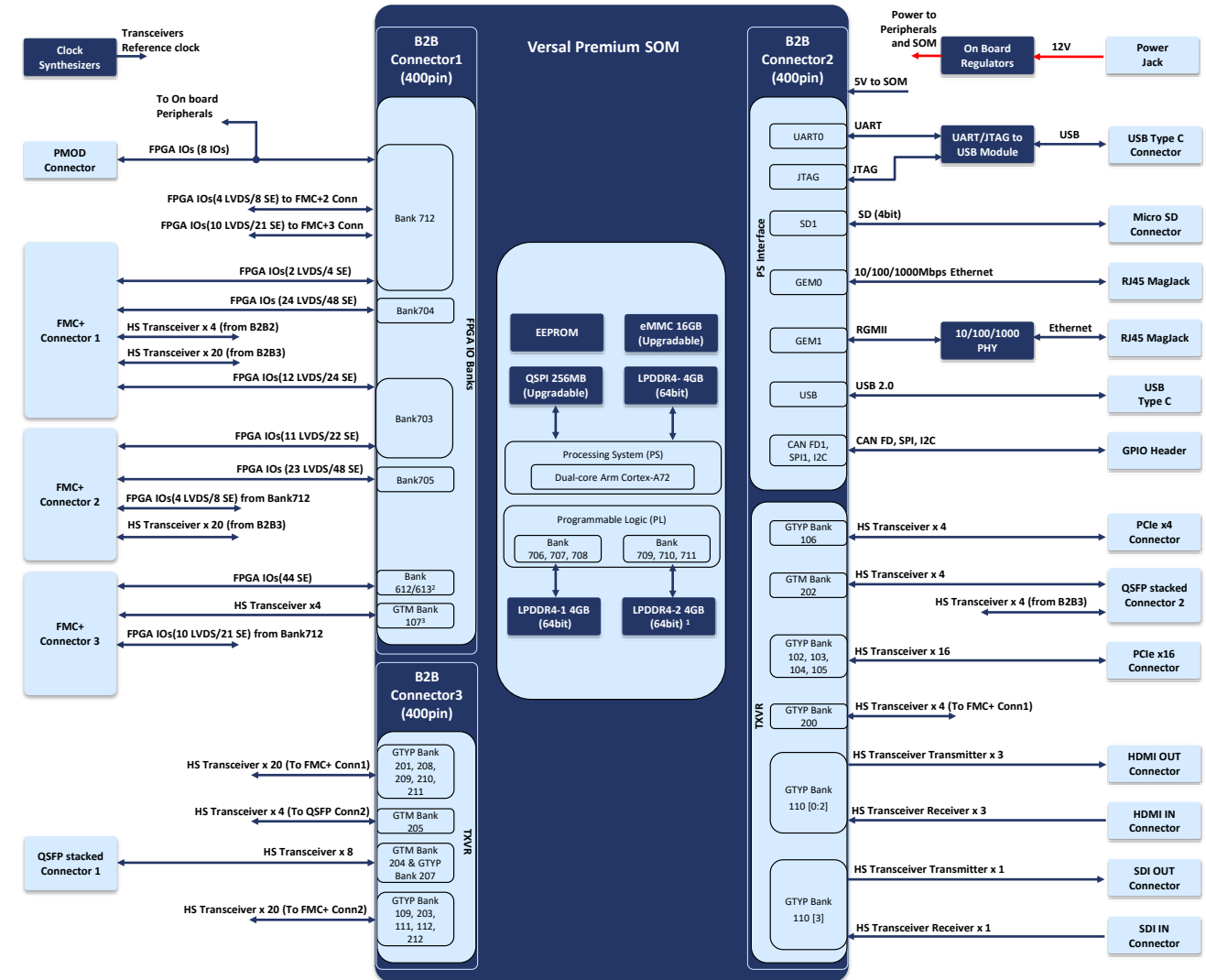


Figure 1: Versal Premium SOM development Board Block Diagram

2.2 Versal Premium SOM Development Board Features

Versal Premium SOM based development board supports the following features to validate the Versal Premium SOM supported interfaces.

Versal Premium SOM features

SoC

- Versal Premium SOC with VSVA2785 package.
- Compatible with VP1552, VP1502, VP1402 VP1202, VP1102 devices.
- Processing System with integrated Dual-core Arm Cortex-A72 Application processor (up to 1.7GHz)
- Dual-core Arm Cortex-R5 Real Time Processor (up to 800MHz).
- Programming logic with up to 3.8M Logic cells.

Memory Interfaces

- 64bit 4GB LPDDR4 for PS (Expandable)
- Dual 64bit 4GB LPDDR4 for PL (Expandable)¹
- 16GB eMMC Flash (Expandable)
- 256MB QSPI Flash

PMIC

- Renesas/Dialog's DA9062 PMIC with RTC

Features Supported Through Board-to-Board Connectors

PL Interface Features

- PCIe x16 Connector for CPM5 PCIe
- PCIe x4 Connector
- Dual QSFP112G Stacked Connector
- HDMI IN/ OUT Connector
- SDI IN/OUT Connector
- PMOD Connector x
- FMC+ Connector 1
 - 24 GTYP High Speed Transceivers Channels
 - 6 GTYP Reference Clock
 - 38 LVDS /76 Single ended (SE) IOs from XPIO Bank
- FMC+ Connector 2
 - 20 GTYP High Speed Transceivers Channels
 - 5 GTYP Reference Clock
 - 38 LVDS /76 Single ended (SE) IOs from XPIO Bank
- FMC+ Connector 3

- 4 GTM High Speed Transceivers
- 10 LVDS IOs/21 Single ended (SE) IOs from XPIO Bank
- 44 FPGA IOs from HDIO Bank

PS Interface Features

- USB Type-C for Debug UART and JTAG
- USB 2.0 Interface through USB Type C Connector
- 1GbE RJ45 MagJack Connector
- On-board Gigabit Ethernet PHY with RJ45 MagJack Connector
- Micro SD
- GPIO Header (CAN, SPI, I2C)

Additional Features

- Clock Synthesizers/Generators x4
- 16-Bit IO Expanders x3
- I2C Bus Switch x1
- Power ON/OFF Switch x1
- RTC Coin Cell Holder x1
- Reset Button
- Boot Switch

General Specification

- Power Supply : DC 15V, 22A Power Input
- Form Factor : 210mm x 160mm

Important Note:

1. Throughout this document, the FPGA IO Bank name and pin name are provided as per the VP1552 device. Please refer to the Versal Premium SOM Datasheet's **Bank Migration in Board-to-Board Connectors** section for further details regarding bank migration among supported FPGA devices.
2. In Versal Premium SOM, all the transceivers' channels and all FPGA IOs pair's P & N (Intra pair) are length matched considering internal VP1552 FPGA pin package delay.

2.3 Versal Adaptive SoC

AMD Versal™ adaptive SoCs combine Scalar Engines, Adaptable Engines, and Intelligent Engines with leading-edge memory and interfacing technologies to deliver powerful heterogeneous acceleration for any application. The Versal portfolio is the first to combine software programmability and domain-specific hardware acceleration with the adaptability necessary to meet today's rapid pace of innovation. The portfolio includes six series of devices uniquely architected to deliver scalability and AI inference capabilities for a host of applications across different markets—from cloud—to networking—to wireless communications—to edge computing and endpoints. The Versal architecture combines different engine types with a wealth of connectivity and communication capability and a programmable network on chip (NoC) to enable seamless memory-mapped access to the full height and width of the device.

The Versal Premium series provides breakthrough heterogeneous integration, very high-performance compute, connectivity, and security in an adaptable platform with a minimized power and area footprint. The series is designed to exceed the demands of high-bandwidth, compute-intensive applications in wired communications, data centre, test & measurement, and other applications. The Versal Premium series include 112G PAM4 transceivers and integrated blocks for 600G Ethernet, 600G Interlaken, PCI Express® Gen5, and high-speed cryptography.

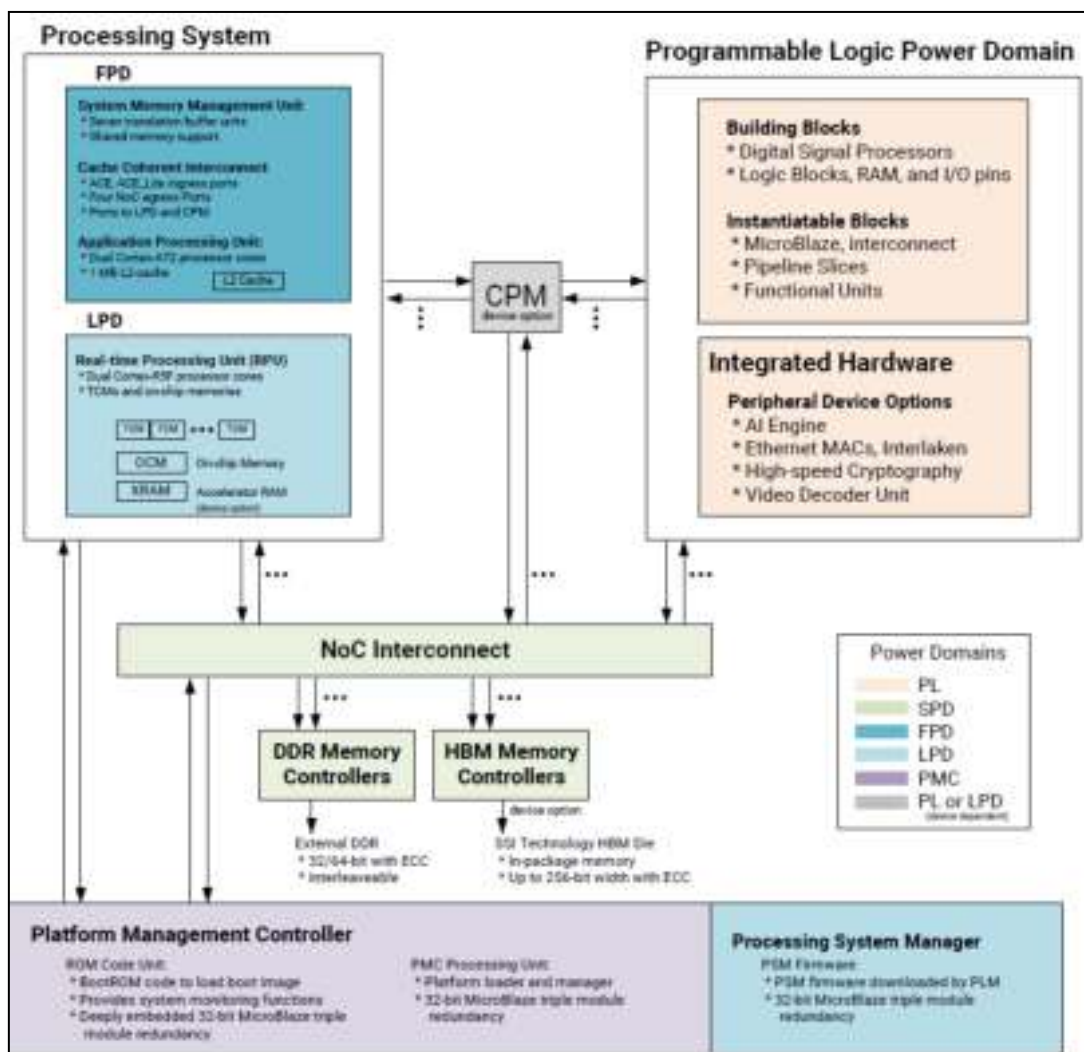


Figure 2: Versal Premium Simplified Block Diagram

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The Versal Premium SOM is compatible to VP1102, VP1202, VP1402, VP1502, VP1552 SoC of VSVA2785 package devices and feature comparison between these devices are shown below.

	VP1102	VP1202	VP1402	VP1502	VP1552
APU	Dual-core Arm Cortex-A72; 48KB/32KB L1 Cache w/ parity and ECC; 1MB L2 Cache w/ ECC				
RPU	Dual-core Arm Cortex-R5F; 32KB/32KB L1 Cache, and TCM w/ECC				
Connectivity	Ethernet (x2); UART (x1); CAN-FD (x1); USB 2.0 (x1); SPI (x1); I2C (x2)				
System Logic Cells	15,74,720	19,69,240	22,33,280	37,63,480	38,36,840
CLB Flip-Flops	14,39,744	18,00,448	20,41,856	34,40,896	35,07,968
LUTs	7,19,872	9,00,224	10,20,928	17,20,448	17,53,984
Distributed RAM (Mb)	22	27	31	53	54
Block RAM Blocks	1,405	1,341	1,981	2,541	2,541
Block RAM (Mb)	49	47	70	89	89
UltraRAM Blocks	453	677	645	1,301	1,301
UltraRAM (Mb)	127	190	181	366	366
DSP Engines	1,904	3,984	2,672	7,440	7,392
NoC Master / Slave Ports	30	28	42	52	52
PCIe w/DMA & CCIX (CPM5)	-	Supported	-	Supported	Supported
PCIe (PLPCIE5)	Supported	Supported	Supported	Supported	Supported
Multirate Ethernet MAC	6	2	6	4	4
600G Ethernet MAC	7	1	11	3	1
600G Interlaken	-	-	-	1	-
400G HSC Engine	3	1	4	2	2
XPIO	144	192	144	192	192
HDIO	-	-	44	-	-
GTYP Transceivers (32.75Gb/s)	8	28	8	28	68
GTM Transceivers(2) 58Gb/s (112Gb/s)	64(32)	20(10)	80(40)	56(38)	16(8)

Figure 3:Versal Premium SoC Devices Comparison

The Versal Premium, Processing System (PS) supports a total 78 dedicated I/O pins referred as MIO (Multiplexed I/O) for peripheral interfaces. These 78 MIO pins are divided as Platform Management Controller (PMC) and Low Power Domain (LPD). The PMC supports total 52 MIO with BANK 500 & 501 and each bank includes 26 device pins. The LPD supports a 26 MIO with Bank 502 and this bank also includes a 26 MIO pins. 78 MIO pins are not enough to support simultaneous use of all the peripherals supported by PS, there is option in Versal to route IO peripheral interfaces to PL Bank I/O pins referred as EMIO (Extended MIO). Versal premium PS peripheral pin mapping options between MIO & EMIO is shown below.

Table 3:MIO and EMIO Pin Mapping Table

Peripheral Interface	Controller Location	PMC MIO	LPD MIO	EMIO	Notes
CAN_FD 0,1	LPD	Yes	Yes	Yes	-
GEM 0,1	LPD	Yes	Yes	-	RGMII
		-	-	Yes	GMII/MII, TSU, and external FIFO
		Yes	Yes	Yes	MDIO
LPD DMA	LPD	-	-	YES	Flow control
PMC_GPIO	PMC	Yes	-	-	Bank 0,1 (no Bank 2)
		-	-	Yes	BANK 3,4

Peripheral Interface	Controller Location	PMC MIO	LPD MIO	EMIO	Notes
LPD_GPIO	LPD	-	Yes	-	LPD GPIO BANK 0 (no Bank 1,2)
		-	-	Yes	LPD GPIO Bank 3
LPD_I2C 0,1	LPD	Yes	Yes	Yes	-
PMC_I2C	PMC	Yes	-	Yes	-
Octal SPI	PMC	Yes	-		-
SD/eMMC 0, 1	PMC	Yes	-	Yes	-
Select MAP	PMC	Yes	-		-
SPI 0, 1	LPD	Yes	Yes	Yes	-
Quad SPI	PMC	Yes			-
UART 0, 1	LPD	Yes	Yes	Yes	MIO only includes RX, TX, CTS, and RTS
USB_2.0	LPD	Yes			ULPI
LPD_SWDT	LPD	Yes	Yes	Yes	-

The Versal Premium PL Banks are classified as Xtreme Performance (XP) banks or high-density (HD) banks. The XP Bank IO's are optimized for highest performance operation organized in a bank of 703, 704, 705 & 712. Each XPIO bank contains a 48 SE / 24 LVDS pins. The HD Bank I/Os are reduced-featuring I/Os organized in a bank of 612 and 613 with 44 SE pins.

In Versal Premium, each XPIO bank supports four Global Clock (GC) input pin pairs. GC pins have direct access to the global clock buffers, MMCMs and DLLs of the same Bank. The HD bank supports a two High Density Global Clock (HDGC) input pin pair and have direct access only to the DLL.

Versal Premium supports 68 high-speed transceiver GTYP from Programmable Logic (PL), these banks support up to 32.75Gbps speed. Also, Versal Premium supports 4 high-speed transceiver GTM from Programmable Logic (PL) which supports up to 112Gbps speed in PAM4 or 29Gbps in NRZ format.

2.3.1 Power

The versal premium SOM uses discrete power regulators and the DA9062 PMIC from Dialog Semiconductor (Renesas) to manage SOM power. In the SOM, the PS low-power domain, PS full-power domain, and PL power domain supply voltage (VCC_PSLP, VCC_PSFP, VCC_SOC, VCC_CPM5 and VCCINT) are up to 0.88V. AMD Versal Premium devices are available in -3 (highest performance), -2, -1 speed grades, depending on the speed grade of the device. Additionally, all PS Bank I/O voltages (VCCO_PSI0) are fixed at 1.8V.

The I/O voltage of FPGA IOs are generated from PMIC. PL XPIO Bank 703 supply is generated from Buck3, PL XPIO Bank 704 is generated from buck4, PL XPIO Bank 705 and 712 supply voltages are generated from PMIC LDOs LDO2 and LDO3, respectively. PL HD Bank 612 and 613 supply voltages are combined and generated from PMIC LDO3. By default, XPIO Banks voltages are set to 1.0V, and HD Banks voltages are set to 1.2V, but they can be configured through software during boot-up.

2.3.2 Reset

The Versal Premium SOM uses Output of the reset IC TPS3808G01DBVR (nRESET) for PS Power On Reset and connected to POR_B_503 pin of SoC. The reset is de asserted after the last of power of SOM is stable.

The SOM also supports hard reset from board-to-board connector2 pin B14.

2.3.3 Versal System Monitor

The System Monitor (SYSMON) resides in the PMC and monitors operating conditions on the device. The SYSMON can access internal sensors for monitoring internal power supplies and temperature. The results captured by the SYSMON are stored in a register map that is accessible through platform management controller resources.

2.3.4 Reference Clock

The Versal premium SOM supports an on-board clock synthesizer for PS reference clock and reference clock to different blocks of versal premium SOC. These reference clock details are mentioned in the below table.

The Versal premium SOM supports on board clock synthesizer for PS reference clock and reference clock to different blocks of versal premium SOC. The reference clock from Clock Synthesizer to SoC is mentioned in the below table. The SOM supports three clock synthesizer IC to provide clock to on SOM interfaces and transceiver reference clock1. Versal premium SOM clock synthesizer1, “ZL30733LDG1” is pre-programmed to support on board interfaces during power ON, this IC is also connected to I2C-B port of OSM to change the OUT0 to OUT2 frequency after board boots up. The address of Clock syntehsizer1 is 70h.

Versal premium SOM support two clock synthesizer, “SI5341B-D-GM” to support FPGA transceiver secondary reference clocks. The output of these clock synthesizer is configured using I2C-1. The 7-bit address of Clock synthesizer2 and clock synthesizer 3 is 74h and 75h respectively. Refer the below table for clock output frequency details.

Table 4: SOM Clock Synthesizer 1 reference Clocks

Sl. No	On-SOM Synthesizer	SoC Pin Name	SoC Bank	SoC Pin No	Signal Type/Termination	Description
1	33.3333 MHz	REF_CLK_503	503	AC15	1.8V, LVCMOS	33.33MHz single ended reference clock for PS from OUT0 of Clock Synthesizer 1.
2	200MHz	IO_L24P_GC_XCC_N8P0_M0 P48_700	-	AT11	LVDS	LVDS reference clock for PS LPDDR4. This is connected to XPIO_BANK 700 Global clock pins from OUT4 of Clock Synthesizer 1.
		IO_L24N_GC_XCC_N8P1_M0 P49_700		AU12		
3	200MHz	IO_L24P_GC_XCC_N8P0_M2 P156_708	-	AK43	LVDS	LVDS reference clock for PL LPDDR4-I. This is

Sl. No	On-SOM Synthesizer	SoC Pin Name	SoC Bank	SoC Pin No	Signal Type/Termination	Description
		IO_L24N_GC_XCC_N8P1_M2P157_708		AL42		connected to XPIO_BANK 708 Global clock pins from OUT5 of Clock Synthesizer 1.
4	200MHz	IO_L24P_GC_XCC_N8P0_M3P48_709	-	M24	LVDS	LVDS reference clock for PL LPDDR4-II. This is connected to XPIO_BANK 709 Global clock pins from OUT6 of Clock Synthesizer 1.
		IO_L24N_GC_XCC_N8P1_M3P49_709		L24		
5	100MHz	IO_L24P_GC_XCC_N8P0_M1P156_705	705	BD30	LVDS	LVDS reference clock This is connected to XPIO BANK 705 Global clock pins from OUT7 of Clock Synthesizer 1.
		IO_L24N_GC_XCC_N8P1_M1P157_705		BE30		
6	100MHz	IO_L24P_GC_XCC_N8P0_M1P48_703	703	BC20	LVDS	LVDS reference clock This is connected to XPIO BANK 705 Global clock pins from OUT9 of Clock Synthesizer 1.
		IO_L24N_GC_XCC_N8P1_M1P49_703		BD20		

Table 5: SOM Clock Synthesizer 2 reference Clocks

Sl. No	On-SOM Synthesizer	SoC Pin Name	SoC Bank	SoC Pin No	Signal Type/Termination	Description
1	156.25MHz	GTP_REFCLKP1_200	200	AU47	LVDS	LVDS reference clock This is connected to GTP_BANK 200 Global clock pins from OUT1 of Clock Synthesizer 2.
		GTP_REFCLKN1_200		AU48		
2	156.25MHz	GTP_REFCLKP1_201	201	AN47	LVDS	LVDS reference clock This is connected to GTP_BANK 201 Global clock pins from OUT2 of Clock Synthesizer 2.
		GTP_REFCLKN1_201		AN48		
3	156.25MHz	GTM_REFCLKP1_202	202	AG47	LVDS	LVDS reference clock This is connected to GTP_BANK 202 Global clock pins from OUT3 of Clock Synthesizer 2
		GTM_REFCLKN1_202		AG48		
4	156.25MHz	GTM_REFCLKP1_203	203	AD45	LVDS	LVDS reference clock This is connected to GTP_BANK 203 Global clock pins from OUT4 of Clock Synthesizer 2
		GTM_REFCLKN1_203		AD46		
5	156.25MHz	GTM_REFCLKP1_204	204	AA43	LVDS	LVDS reference clock This is connected to GTP_BANK 204 Global
		GTM_REFCLKN1_204		AA44		

Sl. No	On-SOM Synthesizer	SoC Pin Name	SoC Bank	SoC Pin No	Signal Type/ Termination	Description
						clock pins from OUT5 of Clock Synthesizer 2
6	156.25MHz	GTM_REFCLKP1_205	205	W43	LVDS	LVDS reference clock This is connected to GTYP_BANK 205 Global clock pins from OUT6 of Clock Synthesizer 2
		GTM_REFCLKN1_205		W44		
7	156.25MHz	GTYP_REFCLKP1_207	207	U47	LVDS	LVDS reference clock This is connected to GTYP_BANK 207 Global clock pins from OUT7 of Clock Synthesizer 2
		GTYP_REFCLKN1_207		U48		
8	156.25MHz	GTYP_LPD_REFCLKP1_102	102	AP9	LVDS	LVDS reference clock This is connected to GTYP_BANK 102 Global clock pins from OUT8 of Clock Synthesizer 2.
		GTYP_LPD_REFCLKN1_102		AP8		
9	156.25MHz	GTYP_LPD_REFCLKP1_103	103	AH9	LVDS	LVDS reference clock This is connected to GTYP_BANK 103 Global clock pins from OUT9 of Clock Synthesizer 2
		GTYP_LPD_REFCLKN1_103		AH8		

Table 6: SOM Clock Synthesizer 3 reference Clocks

Sl. No	On-SOM Synthesizer	SoC Pin Name	SoC Bank	SoC Pin No	Signal Type/ Termination	Description
1	110	GTYP_REFCLKP1_110	156.25MHz	N11	LVDS	LVDS reference clock This is connected to GTYP_BANK 110 Global clock pins from OUT0 of Clock Synthesizer 3
		GTYP_REFCLKN1_110		N10		
2	104	GTYP_LPD_REFCLKP1_104	156.25MHz	AE11	LVDS	LVDS reference clock This is connected to GTYP_BANK 104 Global clock pins from OUT1 of Clock Synthesizer 3
		GTYP_LPD_REFCLKN1_104		AE10		
3	105	GTYP_LPD_REFCLKP1_105	156.25MHz	AC11	LVDS	LVDS reference clock This is connected to GTYP_BANK 105 Global clock pins from OUT2 of Clock Synthesizer 3
		GTYP_LPD_REFCLKN1_105		AC10		
4	106	GTYP_REFCLKP1_106	156.25MHz	W11	LVDS	LVDS reference clock This is connected to GTYP_BANK 106 Global clock pins from OUT3 of Clock Synthesizer 3
		GTYP_REFCLKN1_106		W10		
5	208	GTYP_REFCLKP1_208	156.25MHz	R47	LVDS	LVDS reference clock This is connected to

Sl. No	On-SOM Synthesizer	SoC Pin Name	SoC Bank	SoC Pin No	Signal Type/Termination	Description
		GTYP_REFCLKN1_208		R48		GTYP_BANK 208 Global clock pins from OUT4 of Clock Synthesizer 3
6	209	GTYP_REFCLKP1_209	156.25MHz	P45	LVDS	LVDS reference clock This is connected to GTYP_BANK 209 Global clock pins from OUT5 of Clock Synthesizer 3
		GTYP_REFCLKN1_209		P46		
7	210	GTYP_REFCLKP1_210	156.25MHz	N43	LVDS	LVDS reference clock This is connected to GTYP_BANK 210 Global clock pins from OUT6 of Clock Synthesizer 3
		GTYP_REFCLKN1_210		N44		
8	211	GTYP_REFCLKP1_211	156.25MHz	L47	LVDS	LVDS reference clock This is connected to GTYP_BANK 211 Global clock pins from OUT7 of Clock Synthesizer 3
		GTYP_REFCLKN1_211		L48		
9	212	GTYP_REFCLKN1_212	156.25MHz	J48	LVDS	LVDS reference clock This is connected to GTYP_BANK 212 Global clock pins from OUT8 of Clock Synthesizer 3
		GTYP_REFCLKP1_212		J47		
10	109	GTYP_REFCLKP1_109	156.25MHz	R11	LVDS	LVDS reference clock This is connected to GTYP_BANK 109 Global clock pins from OUT9 of Clock Synthesizer 3.
		GTYP_REFCLKN1_109		R10		

2.4 Memory

2.4.1 LPDDR4 SDRAM for PS

The Versal Premium SOM supports 64bit, 4GB LPDDR4 RAM memory for PS. Two 32 bit, 2GB LPDDR4 SDRAM ICs are used to support a total on board RAM memory of 4GB. These LPDDR4 devices operates up to 4266MT/s data rate. Versal Premium SOM, PL XPIO bank of 700, 701 and 702 are used for LPDDR4 interface. Also, the integrated DDR memory controller (DDRMC) is attached to the NoC interconnect.

The Versal Premium SOM supports 200MHz clock from Clock synthesizer to PL XPIO bank of 700 for LPDDR4 bank reference clock and it is connected to AT11 & AU12 clock input pins through AC Coupling capacitors.

2.4.2 LPDDR4 SDRAM1 for PL

The Versal Premium SOM supports 64bit, 4GB LPDDR4 RAM memory for PL. Two 32 bit, 2GB LPDDR4 SDRAM ICs are used to support a total on board RAM memory of 4GB. These LPDDR4 devices operates up to 4266MT/s data rate. Versal Premium SOM, PL XPIO bank of 706, 707 and 708 are used for LPDDR4 interface.

The Versal Premium SOM supports 200MHz clock from Clock synthesizer to PL XPIO bank of 708 for LPDDR4 bank reference clock and it is connected to AK43 & AL42 clock input pins through AC Coupling capacitors.

2.4.3 LPDDR4 SDRAM2 for PL

The Versal Premium SOM supports 64bit, 4GB LPDDR4 RAM memory for PL. Two 32 bit, 2GB LPDDR4 SDRAM ICs are used to support a total on board RAM memory of 4GB. These LPDDR4 devices are supported from low performance PL XPIO bank of 709, 710 and 711, hence operates up to 3200MT/s data rate. Versal Premium SOM.

The SOM supports 200MHz clock from Clock synthesizer to PL XPIO bank of 709 for LPDDR4 bank reference clock and it is connected to M24 & L24 clock input pins through AC Coupling capacitors.

2.4.4 QSPI Flash

The Versal Premium SOM supports 256MB of Quad SPI through QSPI interface. The QSPI controller use an interface through MIO pins of Versal SOM with 1.8V voltage level. The Flash can be used as boot device or storage device. By default, mode bit is configured for QSPI Flash as configuration device.

2.4.5 eMMC Flash

The Versal Premium SOM supports 16GB eMMC Flash memory and Storage of Versal Adaptive SoC PS. This eMMC Flash memory is directly connected to the SD0 controller of the SOC's PS through MIO pins and operates at 1.8V Voltage level. This SD/SDIO controller supports eMMC4.51 standard with up to 8bit HS200 mode. The eMMC Flash size can be expandable up to 128GB for storage.

2.4.6 EEPROM

The Versal Premium SOM supports 2Kb EEPROM for storing SOM configuration. The I2C1 module of Versal Adaptive SoC PS is used for EEPROM interface through MIO pins with I2C address 0x52h, 0x5Ah and 0x32h. This device operates at 1.8 voltage level.

2.5 Versal SoC Boot Mode Switch

The Versal Premium SOM development board supports one Boot media switch to control boot selection from the development Board. Versal Premium PS boots first and configures the PL through software. Versal SoC Versal SOM can support Quad SPI, SD1 & JTAG as boot device and configurable through boot mode pins and these boot mode pins are controlled from the C13, C14 & C15 pin of board-to-board connector2. Upon reset, the mode pins are read to determine the primary boot device. By default, QSPI is supported as boot device. Refer the below table to select the required boot device. This Boot Mode switch is physically located at the top of the board as shown below.



Figure 4: Boot Mode Switch

Table 7: Boot Mode Switch Truth Table

Versal Premium Boot Device	SW6 (4 Position Switch)			
	PS Mode 0 (Boot SEL0) SW6.1	PS Mode 1 (Boot SEL1) SW6.2	PS Mode 2 (Boot SEL2) SW6.3	Switch Position Image
PS JTAG	ON	ON	ON	
SD1	OFF	ON	OFF	
eMMC1	OFF	OFF	ON	
QSPI (Default)	ON	OFF	ON	

Note: In Versal Premium SOM, PS Mode3 (4th bit) boot mode signal is connected to Ground through 1K resistors.

2.6 Board to Board Connectors

The Versal Premium development board supports three Board to Board mating connectors for Versal Premium SOM attachment. This Board-to-Board connector are capable of handling high-speed serialized signals and can be used for size constrained embedded applications.

2.6.1 Board to Board Connector1

Board to Board Connector1 (J14) is physically located at the top of the board as shown below.

Number of Pins - 400

Connector Part Number - ASP-214802-01 from Samtec

Note: For the Board-to-Board Connector1 pinout, refer the Versal Premium SOM Hardware Datasheet.

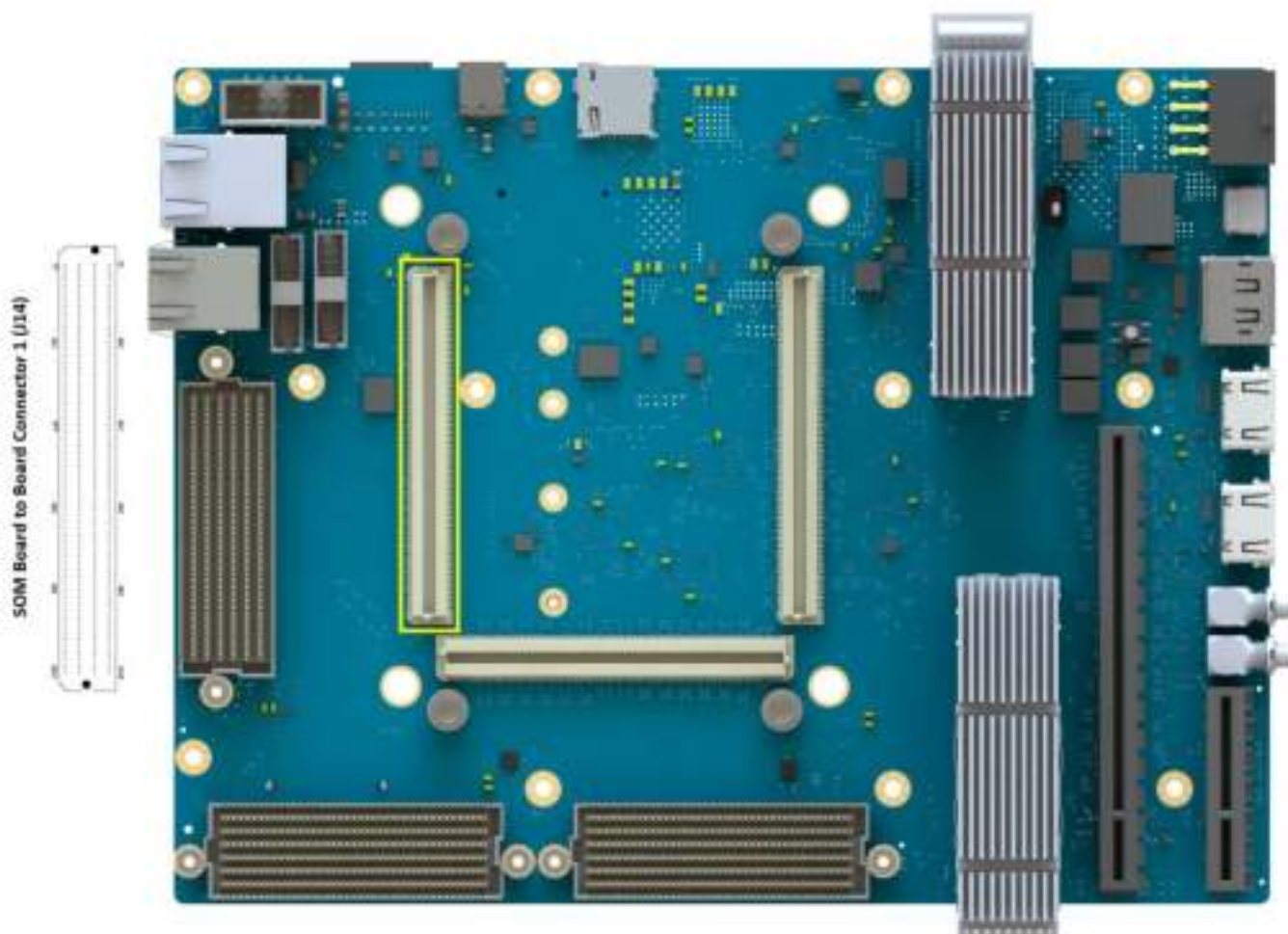


Figure 5: Board to Board Connector1

2.6.2 Board to Board Connector2

Board to Board Connector2 (J15) is physically located at the top of the board as shown below.

Number of Pins - 400

Connector Part Number - ASP-214802-01 from Samtec

Note: For the Board-to-Board Connector2 pinout, refer the Versal Premium SOM Hardware Datasheet.

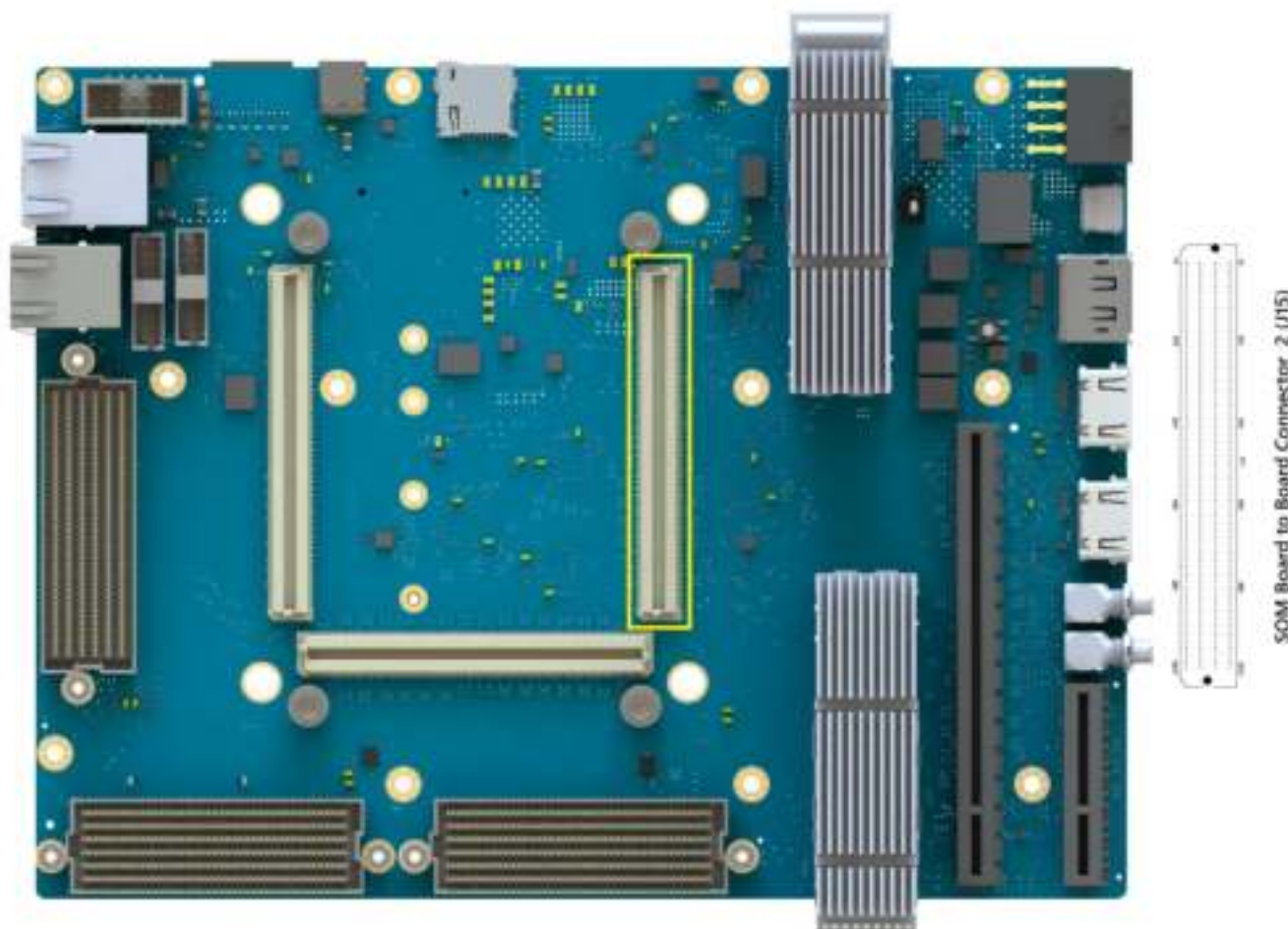


Figure 6: Board to Board Connector 2

2.6.3 Board to Board Connector3

Board to Board Connector3 (J20) is physically located at the top of the board as shown below.

Number of Pins - 400

Connector Part Number - ASP-214802-01 from Samtec

Note: For the Board-to-Board Connector3 pinout, refer the Versal Premium SOM Hardware Datasheet.

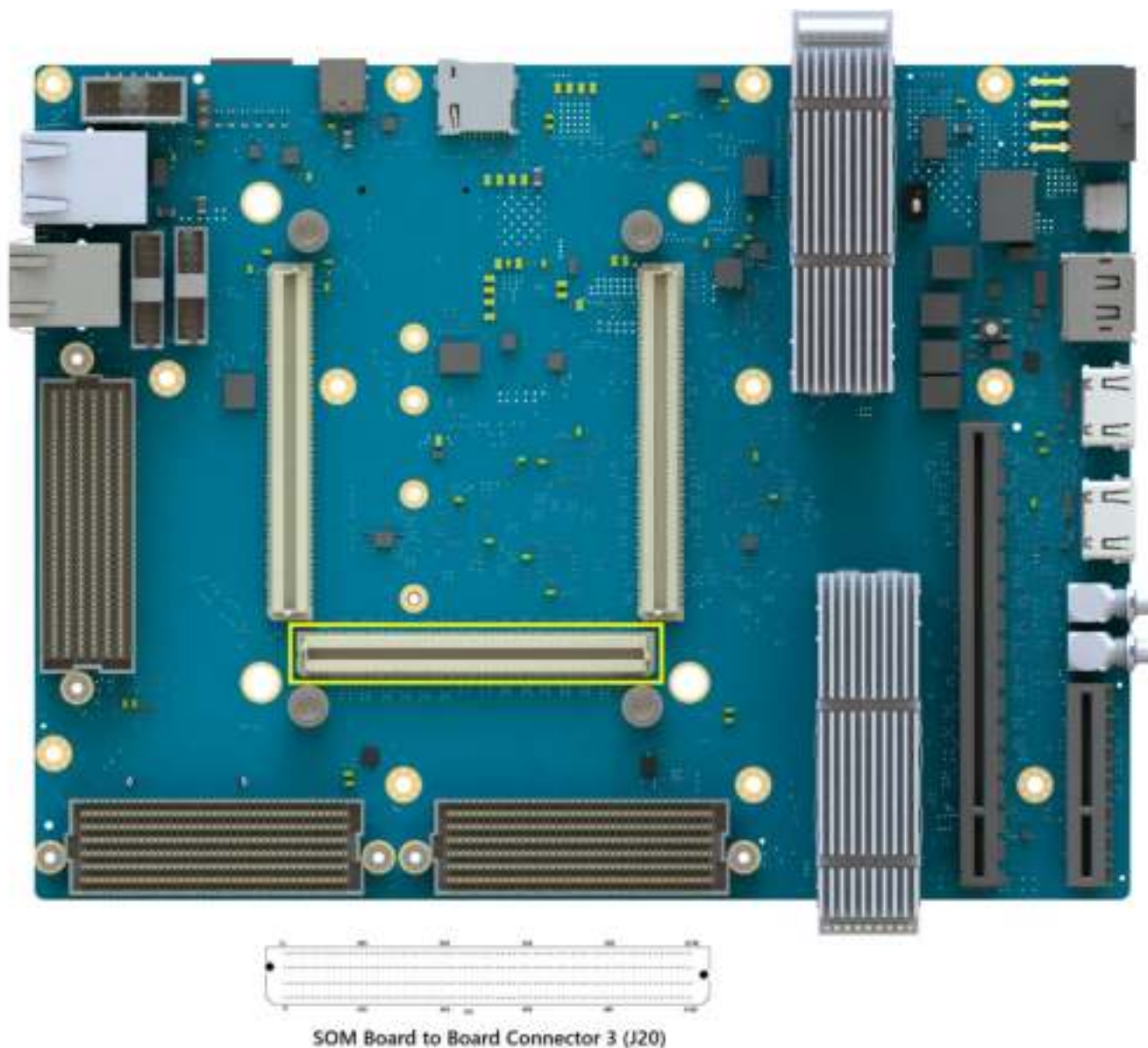


Figure 7: Board to Board Connector 3

2.7 PL Interface Features

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

2.7.1 PCIe x16 Connector

The Versal Premium development board supports one PCIe x16 connector through GTYP LPD Transceivers of Versal Premium SOM. These GTYP LPD banks support PCIe Gen 5. All the Sixteen GTYP transceivers, Bank 102 to Bank 105 from Board-to-Board Connectors is connected to PCIe x16 connector (J21) to support x1, x4, x8 and x16 PCIe devices. The devkit supports Root port mode and endpoint mode. In root port mode transceiver and PCIe connector clock, 100MHz is provided from on board Clock Synthesizer. In the Endpoint mode, connector clock is connected to transceiver reference clock. Dedicated reset from HS_PCl_e_Reset pin from board to connector2 is used for PCIe reset, this pin is from MIO bank 501 (PMC_MIO39_501).

The devkit supports both PCIe Root port and End point configuration and change the SW9 status as per below table to support the configuration.

PCIe Select Switch (SW9)					
SW9.1	SW9.2	SW9.3	SW9.4	Mode	Switch Position Image
1	1	1	0	End Point	
0	0	0	1	Root Port	

This PCIe x16 connector (J21) is physically located at the top of the board as shown below

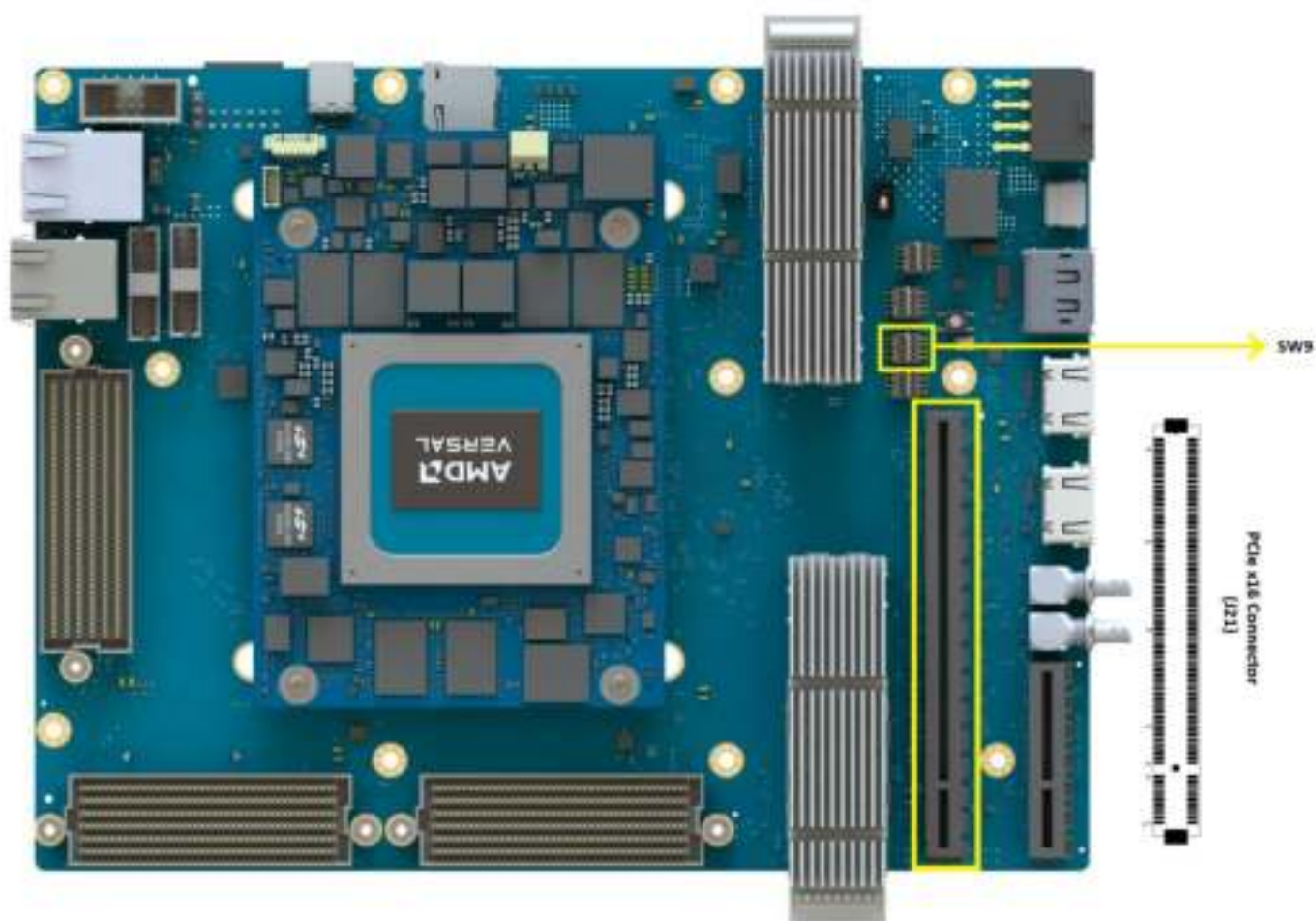


Figure 8: PCIe x16 Connector

Table 8: PCIe x16 Connector Pinout

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
A1	PRSNT1_N	PRSNT1	O, 3.3V CMOS	Present pin, default Grounded
A2	+12V	VCC_12V_PClx16	O, 12V Power	12V Supply Voltage
A3	+12V	VCC_12V_PClx16	O, 12V Power	12V Supply Voltage
A4	GND	GND	Power	Ground
A5	JTAG_TCK	NA	NA	NC
A6	JTAG_TDI	NA	NA	NC
A7	JTAG_TDO	NA	NA	NC
A8	JTAG_TMS	NA	NA	NC
A9	+3_3V	VCC_3V3_PClx16	O, 3.3V Power	3.3V Supply Voltage
A10	+3_3V	VCC_3V3_PClx16	O, 3.3V Power	3.3V Supply Voltage
A11	PERST_N	B_HS_PClx_RSTn	IO, 3.3V LVCMOS	PCIe Reset through MIO Bank 501 IO. <i>Note: This signal is output from SOM to PCIe connector in root port mode and input to SOM from PCIe connector in Endpoint mode.</i>

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
A12	GND	GND	Power	Ground
A13	REFCLK+	PL_PCIE16_REFCLKP	IO, DIFF	100MHz PCIe Reference Clock positive <i>Note: This 100MHz clock is Input to PCIe connector for Root Port application from clock generator and output from PCIe connector to SOM for Endpoint application</i>
A14	REFCLK	PL_PCIE16_REFCLKN	IO, DIFF	100MHz PCIe Reference Clock negative <i>Note: This 100MHz clock is Input to PCIe connector for Root Port application from clock generator and output from PCIe connector to SOM for Endpoint application</i>
A15	GND	GND	Power	Ground
A16	PER0P	GTYP_LPD_RXP0_102	I, DIFF	PCIe Lane0 Receive pair positive.
A17	PER0N	GTYP_LPD_RXN0_102	I, DIFF	PCIe Lane0 Receive pair negative.
A18	GND	GND	Power	Ground
A19	RSVD2	NC	NA	NA
A20	GND	GND	Power	Ground
A21	PER1P	GTYP_LPD_RXP1_102	I, DIFF	PCIe Lane1 Receive pair positive.
A22	PER1N	GTYP_LPD_RXN1_102	I, DIFF	PCIe Lane1 Receive pair negative.
A23	GND	GND	Power	Ground
A24	GND	GND	Power	Ground
A25	PER2P	GTYP_LPD_RXP2_102	I, DIFF	PCIe Lane2 Receive pair positive.
A26	PER2N	GTYP_LPD_RXN2_102	I, DIFF	PCIe Lane2 Receive pair negative.
A27	GND	GND	Power	Ground
A28	GND	GND	Power	Ground
A29	PER3P	GTYP_LPD_RXP3_102	I, DIFF	PCIe Lane3 Receive pair positive.
A30	PER3N	GTYP_LPD_RXN3_102	I, DIFF	PCIe Lane3 Receive pair negative.
A31	GND	GND	Power	Ground
A32	RSVD4	NC	NA	NA
A33	RSVD5	NC	NA	NA
A34	GND	GND	Power	Ground
A35	PER4P	GTYP_LPD_RXP0_103	I, DIFF	PCIe Lane4 Receive pair positive.
A36	PER4N	GTYP_LPD_RXN0_103	I, DIFF	PCIe Lane4 Receive pair negative.
A37	GND	GND	Power	Ground
A38	GND	GND	Power	Ground
A39	PER5P	GTYP_LPD_RXP1_103	I, DIFF	PCIe Lane5 Receive pair positive.
A40	PER5N	GTYP_LPD_RXN1_103	I, DIFF	PCIe Lane5 Receive pair negative.
A41	GND	GND	Power	Ground
A42	GND	GND	Power	Ground
A43	PER6P	GTYP_LPD_RXP2_103	I, DIFF	PCIe Lane6 Receive pair positive.

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
A44	PER6N	GTYP_LPD_RXN2_103	I, DIFF	PCIe Lane6 Receive pair negative.
A45	GND	GND	Power	Ground
A46	GND	GND	Power	Ground
A47	PER7P	GTYP_LPD_RXP3_103	I, DIFF	PCIe Lane7 Receive pair positive.
A48	PER7N	GTYP_LPD_RXN3_103	I, DIFF	PCIe Lane7 Receive pair negative.
A49	GND	GND	Power	Ground
A50	RSVD7	NC	NA	NA
A51	GND	GND	Power	Ground
A52	PER8P	GTYP_LPD_RXP0_104	I, DIFF	PCIe Lane8 Receive pair positive.
A53	PER8N	GTYP_LPD_RXN0_104	I, DIFF	PCIe Lane8 Receive pair negative.
A54	GND	GND	Power	Ground
A55	GND	GND	Power	Ground
A56	PER9P	GTYP_LPD_RXP1_104	I, DIFF	PCIe Lane9 Receive pair positive.
A57	PER9N	GTYP_LPD_RXN1_104	I, DIFF	PCIe Lane9 Receive pair negative.
A58	GND	GND	Power	Ground
A59	GND	GND	Power	Ground
A60	PER10P	GTYP_LPD_RXP2_104	I, DIFF	PCIe Lane10 Receive pair positive.
A61	PER10N	GTYP_LPD_RXN2_104	I, DIFF	PCIe Lane10 Receive pair negative.
A62	GND	GND	Power	Ground
A63	GND	GND	Power	Ground
A64	PER11P	GTYP_LPD_RXP3_104	I, DIFF	PCIe Lane11 Receive pair positive.
A65	PER11N	GTYP_LPD_RXN3_104	I, DIFF	PCIe Lane11 Receive pair negative.
A66	GND	GND	Power	Ground
A67	GND	GND	Power	Ground
A68	PER12P	GTYP_LPD_RXP0_105	I, DIFF	PCIe Lane12 Receive pair positive.
A69	PER12N	GTYP_LPD_RXN0_105	I, DIFF	PCIe Lane12 Receive pair negative.
A70	GND	GND	Power	Ground
A71	GND	GND	Power	Ground
A72	PER13P	GTYP_LPD_RXP1_105	I, DIFF	PCIe Lane13 Receive pair positive.
A73	PER13N	GTYP_LPD_RXN1_105	I, DIFF	PCIe Lane13 Receive pair negative.
A74	GND	GND	Power	Ground
A75	GND	GND	Power	Ground
A76	PER14P	GTYP_LPD_RXP2_105	I, DIFF	PCIe Lane14 Receive pair positive.
A77	PER14N	GTYP_LPD_RXN2_105	I, DIFF	PCIe Lane14 Receive pair negative.
A78	GND	GND	Power	Ground
A79	GND	GND	Power	Ground
A80	PER15P	GTYP_LPD_RXP3_105	I, DIFF	PCIe Lane15 Receive pair positive.
A81	PER15N	GTYP_LPD_RXN3_105	I, DIFF	PCIe Lane15 Receive pair negative.
A82	GND	GND	Power	Ground
B1	+12V	VCC_12V_PCIex16	O, 12V Power	12V Supply Voltage.
B2	+12V	VCC_12V_PCIex16	O, 12V Power	12V Supply Voltage.
B3	+12V	VCC_12V_PCIex16	O, 12V Power	12V Supply Voltage.
B4	GND	GND	Power	Ground

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
B5	SMCLK	NC	NA	NA
B6	SMDAT	NC	NA	NA
B7	GND	GND	Power	Ground
B8	+3_3V	VCC_3V3_PClx16	O, 3.3V Power	3.3V Supply Voltage
B9	JTAG_TRSTN	NC	NA	NA
B10	+3_3VAUX	VCC_3V3_PClx16	O, 3.3V Power	3.3V Supply Voltage
B11	WAKE_N	B_PL_PCI_Wake	O, 3.3V CMOS	PCIe Wake. This pin is connected from P12 th pin of IO Expander 3
B12	RSVD1	NC	NA	NA
B13	GND	GND	Power	Ground
B14	PET0P	GTYP_LPD_TXP0_102	O, DIFF	PCIe Lane0 Transmit pair positive
B15	PET0N	GTYP_LPD_TXN0_102	O, DIFF	PCIe Lane0 Transmit pair negative
B16	GND	GND	Power	Ground
B17	PRSNT2n_X1	NC	NA	NA
B18	GND	GND	Power	Ground
B19	PET1P	GTYP_LPD_TXP1_102	O, DIFF	PCIe Lane1 Transmit pair positive
B20	PET1N	GTYP_LPD_TXN1_102	O, DIFF	PCIe Lane1 Transmit pair negative
B21	GND	GND	Power	Ground
B22	GND	GND	Power	Ground
B23	PET2P	GTYP_LPD_TXP2_102	O, DIFF	PCIe Lane2 Transmit pair positive
B24	PET2N	GTYP_LPD_TXN2_102	O, DIFF	PCIe Lane2 Transmit pair negative
B25	GND	GND	Power	Ground
B26	GND	GND	Power	Ground
B27	PET3P	GTYP_LPD_TXP3_102	O, DIFF	PCIe Lane3 Transmit pair positive
B28	PET3N	GTYP_LPD_TXN3_102	O, DIFF	PCIe Lane3 Transmit pair negative
B29	GND	GND	Power	Ground
B30	RSVD3	NC	NA	NA
B31	PRSNT2n_X4	NC	NA	NA
B32	GND	GND	Power	Ground
B33	PET4P	GTYP_LPD_TXP0_103	O, DIFF	PCIe Lane4 Transmit pair positive
B34	PET4N	GTYP_LPD_TXN0_103	O, DIFF	PCIe Lane4 Transmit pair negative
B35	GND	GND	Power	Ground
B36	GND	GND	Power	Ground
B37	PET5P	GTYP_LPD_TXP1_103	O, DIFF	PCIe Lane5 Transmit pair positive
B38	PET5N	GTYP_LPD_TXN1_103	O, DIFF	PCIe Lane5 Transmit pair negative
B39	GND	GND	Power	Ground
B40	GND	GND	Power	Ground
B41	PET6P	GTYP_LPD_TXP2_103	O, DIFF	PCIe Lane6 Transmit pair positive
B42	PET6N	GTYP_LPD_TXN2_103	O, DIFF	PCIe Lane6 Transmit pair negative
B43	GND	GND	Power	Ground
B44	GND	GND	Power	Ground
B45	PET7P	GTYP_LPD_TXP3_103	O, DIFF	PCIe Lane7 Transmit pair positive
B46	PET7N	GTYP_LPD_TXN3_103	O, DIFF	PCIe Lane7 Transmit pair negative

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
B47	GND	GND	Power	Ground
B48	PRSNT2n_X8	PL_PCIE_PRSNT_X8	NA	This signal is pulled up to 3.3V.
B49	GND	GND	Power	Ground
B50	PET8P	GTYP_LPD_TXP0_104	O, DIFF	PCle Lane8 Transmit pair positive
B51	PET8N	GTYP_LPD_TXN0_104	O, DIFF	PCle Lane8 Transmit pair negative
B52	GND	GND	Power	Ground
B53	GND	GND	Power	Ground
B54	PET9P	GTYP_LPD_TXP1_104	O, DIFF	PCle Lane9 Transmit pair positive
B55	PET9N	GTYP_LPD_TXN1_104	O, DIFF	PCle Lane9 Transmit pair negative
B56	GND	GND	Power	Ground
B57	GND	GND	Power	Ground
B58	PET10P	GTYP_LPD_TXP2_104	O, DIFF	PCle Lane10 Transmit pair positive
B59	PET10N	GTYP_LPD_TXN2_104	O, DIFF	PCle Lane10 Transmit pair negative
B60	GND	GND	Power	Ground
B61	GND	GND	Power	Ground
B62	PET11P	GTYP_LPD_TXP3_104	O, DIFF	PCle Lane11 Transmit pair positive
B63	PET11N	GTYP_LPD_TXN3_104	O, DIFF	PCle Lane11 Transmit pair negative
B64	GND	GND	Power	Ground
B65	GND	GND	Power	Ground
B66	PET12P	GTYP_LPD_TXP0_105	O, DIFF	PCle Lane12 Transmit pair positive
B67	PET12N	GTYP_LPD_TXN0_105	O, DIFF	PCle Lane12 Transmit pair negative
B68	GND	GND	Power	Ground
B69	GND	GND	Power	Ground
B70	PET13P	GTYP_LPD_TXP1_105	O, DIFF	PCle Lane13 Transmit pair positive
B71	PET13N	GTYP_LPD_TXN1_105	O, DIFF	PCle Lane13 Transmit pair negative
B72	GND	GND	Power	Ground
B73	GND	GND	Power	Ground
B74	PET14P	GTYP_LPD_TXP2_105	O, DIFF	PCle Lane14 Transmit pair positive
B75	PET14N	GTYP_LPD_TXN2_105	O, DIFF	PCle Lane14 Transmit pair negative
B76	GND	GND	Power	Ground
B77	GND	GND	Power	Ground
B78	PET15P	GTYP_LPD_TXP3_105	O, DIFF	PCle Lane15 Transmit pair positive
B79	PET15N	GTYP_LPD_TXN3_105	O, DIFF	PCle Lane15 Transmit pair negative
B80	GND	GND	Power	Ground
B81	PRSNT2n_X16	PL_PCIE_PRSNT_X16	NA	This signal is pulled up to 3.3V.
B82	RSVD6	NC	NA	NA

2.7.2 PCIe x4 Connector

The Versal Premium development board supports one PCIe x4 connector through GTYP Transceivers of Versal Premium SOM. All the four GTYP transceivers, Bank 106 from Board-to-Board Connector is connected to PCIe x4 connector (J24) to support x1, x4 PCIe devices. The devkit supports Root port mode and endpoint mode. In root port mode transceiver and PCIe connector clock, 100MHz is provided from on board Clock Synthesizer. In the Endpoint mode, connector clock is connected to transceiver reference clock. Dedicated reset from LS_PClE_RSTn pin from board to connector2 is used for PCIe reset, this pin is from XPIO bank 704 (IO_L25P_N8P2_M1P104_704).

The devkit supports both PCIe Root port and End point configuration and change the SW10 status as per below table to support the configuration.

PCIe Select Switch (SW10s)					
SW10.1	SW10.2	SW10.3	SW10.4	Mode	Switch Position Image
1	1	1	0	End Point	
0	0	0	1	Root Port	

This PCIe x4 connector (J24) is physically located at the top of the board as shown below

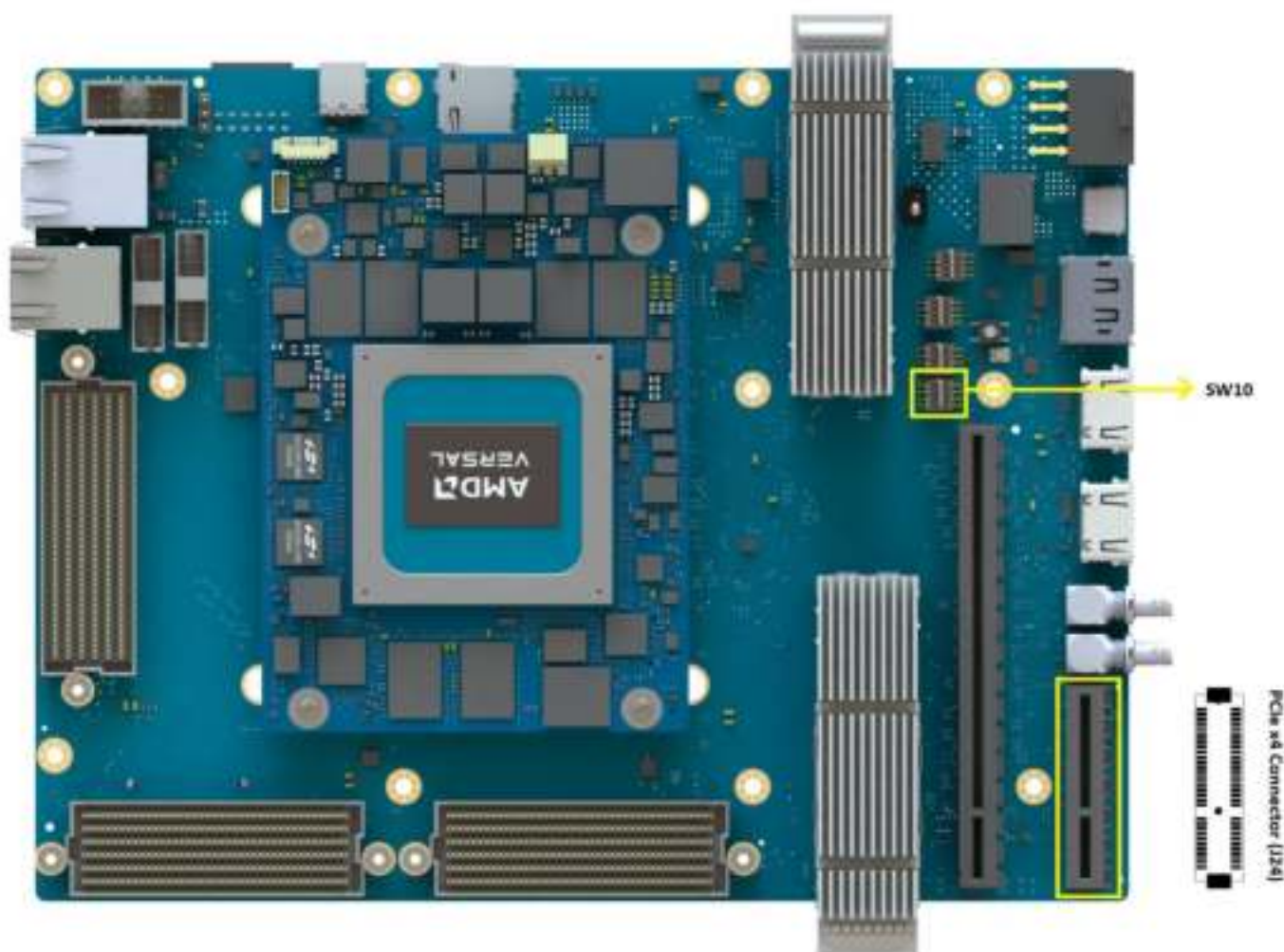


Figure 9: PCIe x4 Connector

Table 9: PCIe x4 Connector Pinout

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
A1	PRSNT1_N	PRSNT1	O, 3.3V CMOS	Present pin, default Grounded
A2	+12V	VCC_12V_PClx4	O, 12V Power	12V Supply Voltage
A3	+12V	VCC_12V_PClx4	O, 12V Power	12V Supply Voltage
A4	GND	GND	Power	Ground
A5	JTAG_TCK	NA	NA	NC
A6	JTAG_TDI	NA	NA	NC
A7	JTAG_TDO	NA	NA	NC
A8	JTAG_TMS	NA	NA	NC
A9	+3_3V	VCC_3V3_PClx4	O, 3.3V Power	3.3V Supply Voltage
A10	+3_3V	VCC_3V3_PClx4	O, 3.3V Power	3.3V Supply Voltage
A11	PERST_N	B_LS_PClx4_RSTn	IO, 3.3V LVCMOS	PCIe Reset through XPIO Bank 704 IO. <i>Note: This signal is output from SOM to PCIe connector in root port mode and</i>

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
				<i>input to SOM from PCIe connector in Endpoint mode.</i>
A12	GND	GND	Power	Ground
A13	REFCLK+	PS_PClx4_REFCLKP	IO, DIFF	100MHz PCIe Reference Clock positive <i>Note: This 100MHz clock is Input to PCIe connector for Root Port application from clock generator and output from PCIe connector to SOM for Endpoint application</i>
A14	REFCLK	PS_PClx4_REFCLKn	IO, DIFF	100MHz PCIe Reference Clock negative <i>Note: This 100MHz clock is Input to PCIe connector for Root Port application from clock generator and output from PCIe connector to SOM for Endpoint application</i>
A15	GND	GND	Power	Ground
A16	PER0P	GTYP_RXP0_106	I, DIFF	PCIe Lane0 Receive pair positive.
A17	PER0N	GTYP_RXN0_106	I, DIFF	PCIe Lane0 Receive pair negative.
A18	GND	GND	Power	Ground
A19	RSVD2	NC	NA	NA
A20	GND	GND	Power	Ground
A21	PER1P	GTYP_RXP1_106	I, DIFF	PCIe Lane1 Receive pair positive.
A22	PER1N	GTYP_RXN1_106	I, DIFF	PCIe Lane1 Receive pair negative.
A23	GND	GND	Power	Ground
A24	GND	GND	Power	Ground
A25	PER2P	GTYP_RXP2_106	I, DIFF	PCIe Lane2 Receive pair positive.
A26	PER2N	GTYP_RXN2_106	I, DIFF	PCIe Lane2 Receive pair negative.
A27	GND	GND	Power	Ground
A28	GND	GND	Power	Ground
A29	PER3P	GTYP_RXP3_106	I, DIFF	PCIe Lane3 Receive pair positive.
A30	PER3N	GTYP_RXN3_106	I, DIFF	PCIe Lane3 Receive pair negative.
A31	GND	GND	Power	Ground
A32	RSVD4	NC	NA	NA
B1	+12V	VCC_12V_PClx4	O, 12V Power	12V Supply Voltage.
B2	+12V	VCC_12V_PClx4	O, 12V Power	12V Supply Voltage.
B3	RSVD1	NC	NA	NA
B4	GND	GND	Power	Ground
B5	SMCLK	NC	NA	NA
B6	SMDAT	NC	NA	NA
B7	GND	GND	Power	Ground
B8	+3_3V	VCC_3V3_PClx4	O, 3.3V Power	3.3V Supply Voltage
B9	JTAG_TRSTN	NC	NA	NA

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
B10	+3_3VAUX	VCC_3V3_PClex4	O, 3.3V Power	3.3V Supply Voltage
B11	WAKE_N	B_PCI_Wake	O, 3.3V CMOS	NC PCIe Wake. This pin is connected from P15 th pin of IO Expander 3
B12	RSVD1	NC	NA	NA
B13	GND	GND	Power	Ground
B14	PETOP	GTYP_TXP0_106	O, DIFF	PCIe Lane0 Transmit pair positive
B15	PETON	GTYP_TXN0_106	O, DIFF	PCIe Lane0 Transmit pair negative
B16	GND	GND	Power	Ground
B17	PRSNT2n_X1	PS_PCl_e_PRSNTX1	NA	This signal is pulled up to 3.3V.
B18	GND	GND	Power	Ground
B19	PET1P	GTYP_TXP1_106	O, DIFF	PCIe Lane1 Transmit pair positive
B20	PET1N	GTYP_TXN1_106	O, DIFF	PCIe Lane1 Transmit pair negative
B21	GND	GND	Power	Ground
B22	GND	GND	Power	Ground
B23	PET2P	GTYP_TXP2_106	O, DIFF	PCIe Lane2 Transmit pair positive
B24	PET2N	GTYP_TXN2_106	O, DIFF	PCIe Lane2 Transmit pair negative
B25	GND	GND	Power	Ground
B26	GND	GND	Power	Ground
B27	PET3P	GTYP_TXP3_106	O, DIFF	PCIe Lane3 Transmit pair positive
B28	PET3N	GTYP_TXN3_106	O, DIFF	PCIe Lane3 Transmit pair negative
B29	GND	GND	Power	Ground
B30	RSVD3	NC	NA	NA
B31	PRSNT2n_X4	PS_PCl_e_PRSNTX4	NA	This signal is pulled up to 3.3V.
B32	GND	GND	Power	Ground

2.7.3 QSFP112G Stacked Connector 1

The Versal Premium development board supports two QSFP112G Stacked Connector through GTM & GTYP transceiver of Versal Premium SOM. The GTYP transceiver of FPGA Bank 207, Channels 0 to 3, is connected to the top connector, while FPGA GTM Bank 204, Channels 0 to 3, is connected to the bottom of QSFP Stacked Connector 1 via Board-to-Board Connector 3. Also, I2C0 through port 3 and port 4 of I2C bus switch is connected to top and bottom connector respectively for control and configuration. All other control signals of QSFP connector is connected from IO Expanders.

The QSFP112G Stacked Connector (J22) with QSFP Stacked cage (J23) is physically located at the top of the board as shown below.



Figure 10: QSFP112G Stacked Connector 1

Table 10: QSFP112G Stacked Connector 1 Pinout

Pin No	Pin Name	Signal Name	Signal Type/ Termination	Description
TOP				
T1	GND	GND	Power	Ground
T1	GND	GND	Power	Ground
T2	TX2N	GTYP_TXN1_207	O, DIFF	QSFP Transmit2 Data Negative
T3	TX2P	GTYP_TXP1_207	O, DIFF	QSFP Transmit2 Data Positive
T4	GND	GND	Power	Ground
T4	GND	GND	Power	Ground
T5	TX4N	GTYP_TXN3_207	O, DIFF	QSFP Transmit4 Data Negative
T6	TX4P	GTYP_TXP3_207	O, DIFF	QSFP Transmit4 Data Positive
T7	GND	GND	Power	Ground
T7	GND	GND	Power	Ground
T8	MODSELL	QSFP112G1T_ModSelL	O, 3.3V CMOS/ 4.7K PU	Mode Select, connected to IO Expander 2 Port 3. Low - Responds to serial communication High - Will not respond to serial communication
T9	RESETL	QSFP112G1T_ResetL	O, 3.3V CMOS/ 4.7K PU	Module Reset, connected to IO Expander 1 Port 1. Low - Module in reset state High (3.3V) - Module in out of reset state
T10	VCCRX	VCCTRX_3V3	O, 3.3V Power	3.3V Receiver Supply Voltage
T10	VCCRX	VCCTRX_3V3	O, 3.3V Power	3.3V Receiver Supply Voltage
T11	SCL	I2C0_SD3_SCL	O, 3.3V CMOS/ 4.7K PU	I2C Clock Connected from port SC3 of I2C Bus Switch
T12	SDA	I2C0_SD3_SDA	IO. 3.3V CMOS /4.7K PU	I2C Data Connected from port SD3 of I2C Bus Switch
T13	GND	GND	Power	Ground
T13	GND	GND	Power	Ground
T14	RX3P	GTYP_RXP2_207	I, DIFF	QSFP Receiver2 Data Positive
T15	RX3N	GTYP_RXN2_207	I, DIFF	QSFP Receiver2 Data Negative
T16	GND	GND	Power	Ground
T16	GND	GND	Power	Ground
T17	RX1P	GTYP_RXP0_207	I, DIFF	QSFP Receiver0 Data Positive
T18	RX1N	GTYP_RXN0_207	I, DIFF	QSFP Receiver0 Data Negative
T19	GND	GND	Power	Ground
T19	GND	GND	Power	Ground
T20	GND	GND	Power	Ground
T20	GND	GND	Power	Ground

Pin No	Pin Name	Signal Name	Signal Type/ Termination	Description
T21	RX2N	GTYP_RXN1_207	I, DIFF	QSFP Receiver1 Data Negative
T22	RX2P	GTYP_RXP1_207	I, DIFF	QSFP Receiver1 Data Positive
T23	GND	GND	Power	Ground
T23	GND	GND	Power	Ground
T24	RX4N	GTYP_RXN3_207	I, DIFF	QSFP Receiver3 Data Negative
T25	RX4P	GTYP_RXP3_207	I, DIFF	QSFP Receiver3 Data Positive
T26	GND	GND	Power	Ground
T26	GND	GND	Power	Ground
T27	MODPRSL	QSFP112G1T_ModPrsL	I, 3.3V CMOS/ 4.7K PU	Module Present, connected to IO Expander 2 Port 10 Low - When module is inserted High - When module is absent
T28	INTL/RXLOS	QSFP112G1T_IntL/RxLOS	I, 3.3V CMOS/ 4.7K PU	Module Interrupt, Connected to IO Expander 1 Port 3. Low - Operational fault High - Normal operation
T29	VCCTX	VCCTTX_3V3	O, 3.3V Power	3.3V Transmit Supply Voltage
T29	VCCTX	VCCTTX_3V3	O, 3.3V Power	3.3V Transmit Supply Voltage
T30	VCC1	VCCT_3V3	O, 3.3V Power	3.3V Supply Voltage
T31	LPMODE/T XDIS	QSFP112G1T_LPMoDe/TxDis	O, 3.3V CMOS/ 4.7K PU	Module Low power mode, connected to IO Expander 3 Port 17 High for LpMode Low for TXDIS mode
T32	GND	GND	Power	Ground
T32	GND	GND	Power	Ground
T33	TX3P	GTYP_TXP2_207	O, DIFF	QSFP Transmit2 Data Positive
T34	TX3N	GTYP_TXN2_207	O, DIFF	QSFP Transmit2 Data Negative
T35	GND	GND	Power	Ground
T35	GND	GND	Power	Ground
T36	TX1P	GTYP_TXP0_207	O, DIFF	QSFP Transmit0 Data Positive
T37	TX1N	GTYP_TXN0_207	O, DIFF	QSFP Transmit0 Data Negative
T38	GND	GND	Power	Ground
T38	GND	GND	Power	Ground
Bottom				
B1	GND	GND	Power	Ground
B1	GND	GND	Power	Ground
B2	TX2N	GTM_TXN1_204	O, DIFF	QSFP Transmit1 Data Negative
B3	TX2P	GTM_TXP1_204	O, DIFF	QSFP Transmit1 Data Positive
B4	GND	GND	Power	Ground
B4	GND	GND	Power	Ground
B5	TX4N	GTM_TXN3_204	O, DIFF	QSFP Transmit3 Data Negative
B6	TX4P	GTM_TXP3_204	O, DIFF	QSFP Transmit3 Data Positive
B7	GND	GND	Power	Ground
B7	GND	GND	Power	Ground

Pin No	Pin Name	Signal Name	Signal Type/ Termination	Description
B8	MODESEL	QSFP112G1B_ModSelL	O, 3.3V CMOS/ 4.7K PU	Mode Select, connected to IO Expander 1 Port 5. Low - Responds to serial communication High - Will not respond to serial communication
B9	RESETL	QSFP112G1B_ResetL	O, 3.3V CMOS/ 4.7K PU	Module Reset, connected to IO Expander 1 Port 6. Low - Module in reset state High (3.3V) - Module in out of reset state
B10	VCCRX	VCCBRX_3V3	O, 3.3V Power	3.3V Receiver Supply Voltage
B10	VCCRX	VCCBRX_3V3	O, 3.3V Power	3.3V Receiver Supply Voltage
B11	SCL	I2C0_SD4_SCL	O, 3.3V CMOS/ 4.7K PU	I2C Clock Connected from port SC4 of I2C Bus Switch
B12	SDA	I2C0_SD4_SDA	IO. 3.3V CMOS /4.7K PU	I2C Data Connected from port SD4 of I2C Bus Switch
B13	GND	GND	Power	Ground
B13	GND	GND	Power	Ground
B14	RX3P	GTM_RXP2_204	I, DIFF	QSFP Receiver2 Data Positive
B15	RX3N	GTM_RXN2_204	I, DIFF	QSFP Receiver2 Data Negative
B16	GND	GND	Power	Ground
B16	GND	GND	Power	Ground
B17	RX1P	GTM_RXP0_204	I, DIFF	QSFP Receiver0 Data Positive
B18	RX1N	GTM_RXN0_204	I, DIFF	QSFP Receiver0 Data Negative
B19	GND	GND	Power	Ground
B19	GND	GND	Power	Ground
B20	GND	GND	Power	Ground
B20	GND	GND	Power	Ground
B21	RX2N	GTM_RXN1_204	I, DIFF	QSFP Receiver1 Data Positive
B22	RX2P	GTM_RXP1_204	I, DIFF	QSFP Receiver1 Data Negative
B23	GND	GND	Power	Ground
B23	GND	GND	Power	Ground
B24	RX4N	GTM_RXN3_204	I, DIFF	QSFP Receiver3 Data Positive
B25	RX4P	GTM_RXP3_204	I, DIFF	QSFP Receiver3 Data Negative
B26	GND	GND	Power	Ground
B26	GND	GND	Power	Ground
B27	MODPRSL	QSFP112G1B_ModPrsL	I, 3.3V CMOS/ 4.7K PU	Module Present, connected to IO Expander 3 Port 16 Low - When module is inserted High - When module is absent

Pin No	Pin Name	Signal Name	Signal Type/ Termination	Description
B28	INTL/RXLOS	QSFP112G1B_IntL/RxLOS	I, 3.3V CMOS/ 4.7K PU	Module Interrupt, Connected to IO Expander 1 Port 10. Low - Operational fault High - Normal operation
B29	VCCTX	VCCBTX_3V3	O, 3.3V Power	3.3V Transmit Supply Voltage
B29	VCCTX	VCCBTX_3V3	O, 3.3V Power	3.3V Transmit Supply Voltage
B30	VCC1	VCCB_3V3	O, 3.3V Power	3.3V Supply Voltage
B31	LPMODE/TXDIS	QSFP112G1B_LPMMode/TxDis	O, 3.3V CMOS/ 4.7K PU	Module Low power mode, connected to IO Expander 2 Port 17 High for LpMode Low for TXDIS mode
B32	GND	GND	Power	Ground
B32	GND	GND	Power	Ground
B33	TX3P	GTM_TXP2_204	O, DIFF	QSFP Transmit2 Data Positive
B34	TX3N	GTM_TXN2_204	O, DIFF	QSFP Transmit2 Data Negative
B35	GND	GND	Power	Ground
B35	GND	GND	Power	Ground
B36	TX1P	GTM_TXP0_204	O, DIFF	QSFP Transmit0 Data Positive
B37	TX1N	GTM_TXN0_204	O, DIFF	QSFP Transmit0 Data Negative
B38	GND	GND	Power	Ground
B38	GND	GND	Power	Ground

2.7.4 QSFP112G Stacked Connector2

The Versal Premium development board supports two QSFP112G Stacked Connector through GTM transceiver of Versal Premium SOM. The GTM transceiver of FPGA Bank 202, Channels 0 to 3, is connected to the top connector, while FPGA Bank 205, Channels 0 to 3, is connected to the bottom of QSFP Stacked Connector 2 via Board-to-Board Connector 3. Also, I2C0 through port 5 and port 6 of I2C bus switch is connected to top and bottom connector respectively for control and configuration. All other control signals of QSFP connector is connected from IO Expanders.

The QSFP112G Stacked Connector (J12) with QSFP Stacked cage (J7) is physically located at the top of the board as shown below.



Figure 11:QSFP112G Stacked Connector 2

Table 11: QSFP112G Stacked Connector 2 Pinout

Pin No	Pin Name	Signal Name	Signal Type/ Termination	Description
TOP				
T1	GND	GND	Power	Ground
T1	GND	GND	Power	Ground
T2	TX2N	GTM_TXN1_202	O, DIFF	QSFP Transmit2 Data Negative
T3	TX2P	GTM_TXP1_202	O, DIFF	QSFP Transmit2 Data Positive
T4	GND	GND	Power	Ground
T4	GND	GND	Power	Ground
T5	TX4N	GTM_TXN3_202	O, DIFF	QSFP Transmit4 Data Negative
T6	TX4P	GTM_TXP3_202	O, DIFF	QSFP Transmit4 Data Positive
T7	GND	GND	Power	Ground
T7	GND	GND	Power	Ground
T8	MODESEL	QSFP112G1T_ModSelL	O, 3.3V CMOS/ 4.7K PU	Mode Select, connected to IO Expander 2 Port 0. Low - Responds to serial communication High - Will not respond to serial communication
T9	RESETL	QSFP112G1T_ResetL	O, 3.3V CMOS/ 4.7K PU	Module Reset, connected to IO Expander 2 Port 1. Low - Module in reset state High (3.3V) - Module in out of reset state
T10	VCCRX	VCCTRX_3V3	O, 3.3V Power	3.3V Receiver Supply Voltage
T10	VCCRX	VCCTRX_3V3	O, 3.3V Power	3.3V Receiver Supply Voltage
T11	SCL	I2C0_SD5_SCL	O, 3.3V CMOS/ 4.7K PU	I2C Clock Connected from port SC5 of I2C Bus Switch
T12	SDA	I2C0_SD5_SDA	IO. 3.3V CMOS /4.7K PU	I2C Data Connected from port SD5 of I2C Bus Switch
T13	GND	GND	Power	Ground
T13	GND	GND	Power	Ground
T14	RX3P	GTM_RXP2_202	I, DIFF	QSFP Receiver2 Data Positive
T15	RX3N	GTM_RXN2_202	I, DIFF	QSFP Receiver2 Data Negative
T16	GND	GND	Power	Ground
T16	GND	GND	Power	Ground
T17	RX1P	GTM_RXP0_202	I, DIFF	QSFP Receiver0 Data Positive
T18	RX1N	GTM_RXN0_202	I, DIFF	QSFP Receiver0 Data Negative
T19	GND	GND	Power	Ground
T19	GND	GND	Power	Ground
T20	GND	GND	Power	Ground
T20	GND	GND	Power	Ground

Pin No	Pin Name	Signal Name	Signal Type/ Termination	Description
T21	RX2N	GTM_RXN1_202	I, DIFF	QSFP Receiver1 Data Negative
T22	RX2P	GTM_RXP1_202	I, DIFF	QSFP Receiver1 Data Positive
T23	GND	GND	Power	Ground
T23	GND	GND	Power	Ground
T24	RX4N	GTM_RXN3_202	I, DIFF	QSFP Receiver3 Data Negative
T25	RX4P	GTM_RXP3_202	I, DIFF	QSFP Receiver3 Data Positive
T26	GND	GND	Power	Ground
T26	GND	GND	Power	Ground
T27	MODPRSL	QSFP112G1T_ModPrsL	I, 3.3V CMOS/ 4.7K PU	Module Present, connected to IO Expander 2 Port 2 Low - When module is inserted High - When module is absent
T28	INTL/RXLOS	QSFP112G1T_IntL/RxLOS	I, 3.3V CMOS/ 4.7K PU	Module Interrupt, Connected to IO Expander 1 Port 0. Low - Operational fault High - Normal operation
T29	VCCTX	VCCTX_3V3	O, 3.3V Power	3.3V Transmit Supply Voltage
T29	VCCTX	VCCTX_3V3	O, 3.3V Power	3.3V Transmit Supply Voltage
T30	VCC1	VCCT_3V3	O, 3.3V Power	3.3V Supply Voltage
T31	LPMODE/T XDIS	QSFP112G1T_LPMode/TxDis	O, 3.3V CMOS/ 4.7K PU	Module Low power mode, connected to IO Expander 2 Port 4. High for LpMode Low for TXDIS mode
T32	GND	GND	Power	Ground
T32	GND	GND	Power	Ground
T33	TX3P	GTM_TXP2_202	O, DIFF	QSFP Transmit2 Data Positive
T34	TX3N	GTM_TXN2_202	O, DIFF	QSFP Transmit2 Data Negative
T35	GND	GND	Power	Ground
T35	GND	GND	Power	Ground
T36	TX1P	GTM_TXP0_202	O, DIFF	QSFP Transmit0 Data Positive
T37	TX1N	GTM_TXN0_202	O, DIFF	QSFP Transmit0 Data Negative
T38	GND	GND	Power	Ground
T38	GND	GND	Power	Ground
Bottom				
B1	GND	GND	Power	Ground
B1	GND	GND	Power	Ground
B2	TX2N	GTM_TXN1_205	O, DIFF	QSFP Transmit1 Data Negative
B3	TX2P	GTM_TXP1_205	O, DIFF	QSFP Transmit1 Data Positive
B4	GND	GND	Power	Ground
B4	GND	GND	Power	Ground
B5	TX4N	GTM_TXN3_205	O, DIFF	QSFP Transmit3 Data Negative
B6	TX4P	GTM_TXP3_205	O, DIFF	QSFP Transmit3 Data Positive
B7	GND	GND	Power	Ground
B7	GND	GND	Power	Ground

Pin No	Pin Name	Signal Name	Signal Type/ Termination	Description
B8	MODELL	QSFP112G1B_ModSelL	O, 3.3V CMOS/ 4.7K PU	Mode Select, connected to IO Expander 2 Port 5. Low - Responds to serial communication High - Will not respond to serial communication
B9	RESETL	QSFP112G1B_ResetL	O, 3.3V CMOS/ 4.7K PU	Module Reset, connected to IO Expander 2 Port 6. Low - Module in reset state High (3.3V) - Module in out of reset state
B10	VCCRX	VCCBRX_3V3	O, 3.3V Power	3.3V Receiver Supply Voltage
B10	VCCRX	VCCBRX_3V3	O, 3.3V Power	3.3V Receiver Supply Voltage
B11	SCL	I2C0_SD6_SCL	O, 3.3V CMOS/ 4.7K PU	I2C Clock Connected from port SC6 of I2C Bus Switch
B12	SDA	I2C0_SD6_SDA	IO. 3.3V CMOS /4.7K PU	I2C Data Connected from port SD6 of I2C Bus Switch
B13	GND	GND	Power	Ground
B13	GND	GND	Power	Ground
B14	RX3P	GTM_RXP2_205	I, DIFF	QSFP Receiver2 Data Positive
B15	RX3N	GTM_RXN2_205	I, DIFF	QSFP Receiver2 Data Negative
B16	GND	GND	Power	Ground
B16	GND	GND	Power	Ground
B17	RX1P	GTM_RXP0_205	I, DIFF	QSFP Receiver0 Data Positive
B18	RX1N	GTM_RXN0_205	I, DIFF	QSFP Receiver0 Data Negative
B19	GND	GND	Power	Ground
B19	GND	GND	Power	Ground
B20	GND	GND	Power	Ground
B20	GND	GND	Power	Ground
B21	RX2N	GTM_RXN1_205	I, DIFF	QSFP Receiver1 Data Positive
B22	RX2P	GTM_RXP1_205	I, DIFF	QSFP Receiver1 Data Negative
B23	GND	GND	Power	Ground
B23	GND	GND	Power	Ground
B24	RX4N	GTM_RXN3_205	I, DIFF	QSFP Receiver3 Data Positive
B25	RX4P	GTM_RXP3_205	I, DIFF	QSFP Receiver3 Data Negative
B26	GND	GND	Power	Ground
B26	GND	GND	Power	Ground
B27	MODPRSL	QSFP112G1B_ModPrsL	I, 3.3V CMOS/ 4.7K PU	Module Present, connected to IO Expander 2 Port 7 Low - When module is inserted High - When module is absent

Pin No	Pin Name	Signal Name	Signal Type/ Termination	Description
B28	INTL/RXLOS	QSFP112G1B_IntL/RxLOS	I, 3.3V CMOS/ 4.7K PU	Module Interrupt, Connected to IO Expander 1 Port 2. Low - Operational fault High - Normal operation
B29	VCCTX	VCCBTX_3V3	O, 3.3V Power	3.3V Transmit Supply Voltage
B29	VCCTX	VCCBTX_3V3	O, 3.3V Power	3.3V Transmit Supply Voltage
B30	VCC1	VCCB_3V3	O, 3.3V Power	3.3V Supply Voltage
B31	LPMODE/TXDIS	QSFP112G1B_LPMMode/TxDis	O, 3.3V CMOS/ 4.7K PU	Module Low power mode, connected to IO Expander 2 Port 11 High for LpMode Low for TXDIS mode
B32	GND	GND	Power	Ground
B32	GND	GND	Power	Ground
B33	TX3P	GTM_TXP2_205	O, DIFF	QSFP Transmit2 Data Positive
B34	TX3N	GTM_TXN2_205	O, DIFF	QSFP Transmit2 Data Negative
B35	GND	GND	Power	Ground
B35	GND	GND	Power	Ground
B36	TX1P	GTM_TXP0_205	O, DIFF	QSFP Transmit0 Data Positive
B37	TX1N	GTM_TXN0_205	O, DIFF	QSFP Transmit0 Data Negative
B38	GND	GND	Power	Ground
B38	GND	GND	Power	Ground

2.7.5 SDI Video IN

The Versal Premium development board supports one 3G/12G SDI Video IN interface through HD BNC connector (J19). The Video input signals from HD BNC Connector is directly connected to Adaptive Cable Equalizer chip and then connected to Bank110 Channel3 GTYP receiver of Versal Premium through Board-to-Board connector2.

The Versal Premium development board supports Video Input Lock status LED (D14) for presence and absence of the Video Input signal on HD BNC connector (J19). This LED will glow when the Video Input signal is detected on HD BNC connector (J19). Also, Channel 2 of I2C Bus switch is connected to Adaptive Cable Equalizer chip for control and configuration with I2C address 0x2D. SDI Video IN HD BNC connector (J19) is physically located at the top of the board as shown below.

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

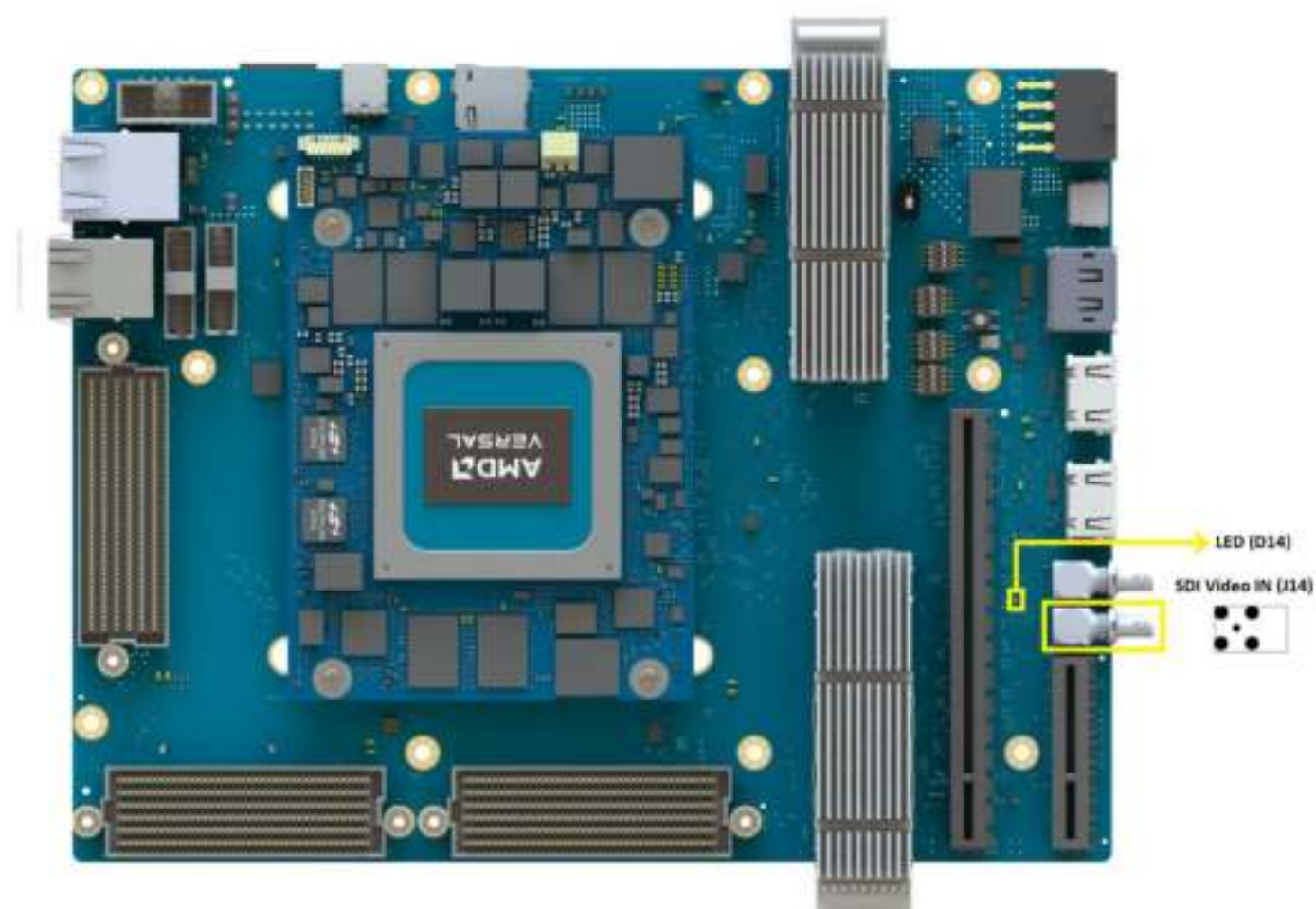


Figure 12:SDI Video IN

2.7.6 SDI Video Out

The Versal Premium development board supports one 3G/12G SDI Video OUT interface through HD BNC connector (J18). Versal Premium's Bank110 Channel3 GTYP transmitter from Board-to-Board connector2 is directly connected to Cable Driver chip and then connected to HD BNC Connector (J18) for Video out.

The Versal Premium development board supports Video Output Lock status LED (D13). This LED will glow when the video signal from Versal GTYP transmitter is detected on Cable Driver chip. Also, Channel 2 of I2C Bus switch is connected to Cable Driver chip for control and configuration with I2C address 0x30. SDI Video OUT HD BNC connector (J18) is physically located at the top of the board as shown below.

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



Figure 13:SDI Video OUT

2.7.7 HDMI IN

The Versal Premium development board supports one HDMI IN interface through HDMI connector (J13). Versal Premium's Bank110 Channel0 to Channel2 GTYP receiver from Board-to-Board connector2 is directly connected from HDMI IN Connector (J13) through AC caps for HDMI IN support. HDMI-IN cable detect feature is supported through PL IO through level translator. HDMI IN connector (J13) is physically located at the top of the board as shown below.

Note: Make sure that SW17 switch position set as OFF in bottom view.



Figure 14:HDMI IN Connector

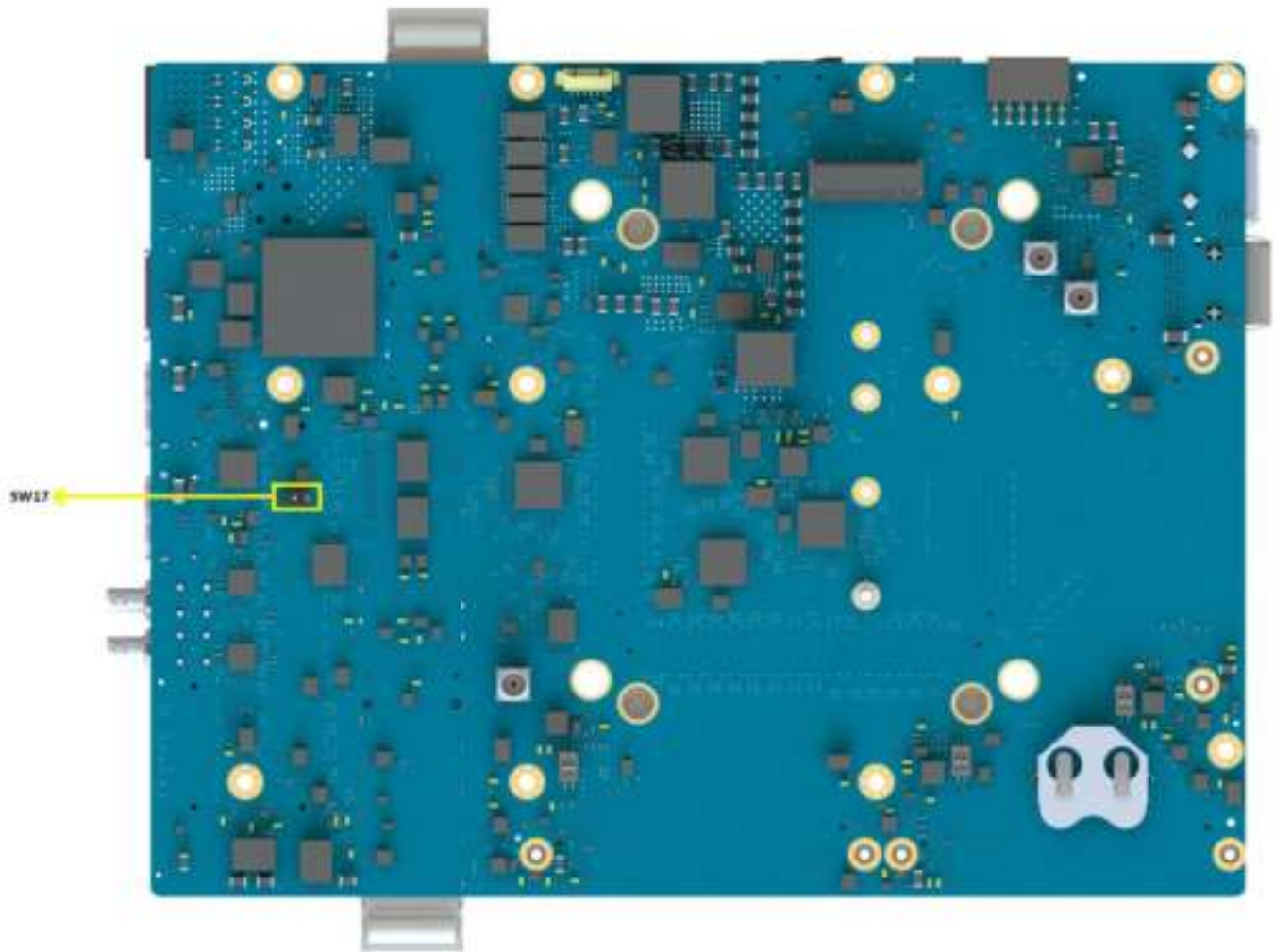


Figure 15: HDMI select switch

2.7.8 HDMI OUT

The Versal Premium development board supports one HDMI OUT interface through HDMI connector (J16). Versal Premium's Bank110 Channel0 to Channel2 GTYP transceiver from Board-to-Board connector2 is directly connected to HDMI Retimer chip (SN65DP159RGZR) through AC caps and then connected to HDMI OUT Connector (J16) for HDMI Video out.

Note: Make sure that SW1 switch position set as OFF in Top view.



Figure 16:HDMI OUT Connector

2.7.9 FMC+ Connector 1

The Versal Premium development board supports one 560Pin FMC+ HSPC connector 1 to support standard ANSI/VITA 57.4 FMC modules.

The FMC+ HSPC Connector 1 (J25) supports the below mentioned interface from Versal Premium SOM module.

- 24 GTY High Speed Transceivers
- 6 GTY Reference Clock
- Up to 38 LVDS IOs/76 Single ended (SE) IOs from XPIO Bank

This 560Pin FMC+ HSPC connector 1 (J25) is physically located at the top of the board as shown below.



Figure 17: FMC+ Connector 1

	M	L	K	J	H	G	F	E	D	C	B	A	Z	Y
1	GND	NC	NC	GND	NC	GND	PG_M2C	GND	PG_C2M	GND	CLK_DIR	GND	HSPC_PRSNT_M2C_L	GND
2	DP23_M2C_P	GND	GND	CLK3_BIDIR_P	PRSNM_M2C_L	CLK1_M2C_P	GND	NC	GND	DPO_C2M_P	GND	DP1_M2C_P	GND	DP23_C2M_P
3	DP23_M2C_N	GND	GND	CLK3_BIDIR_N	GND	CLK1_M2C_N	GND	NC	GND	DPO_C2M_N	GND	DP1_M2C_N	GND	DP23_C2M_N
4	GND	GBTCLK4_M2C_P	CLK2_BIDIR_P	GND	CLK0_M2C_P	GND	NC	GND	GBTCLK0_M2C_P	GND	DP9_M2C_P	GND	DP22_C2M_P	GND
5	GND	GBTCLK4_M2C_N	CLK2_BIDIR_N	GND	CLK0_M2C_N	GND	NC	GND	GBTCLK0_M2C_N	GND	DP9_M2C_N	GND	DP22_C2M_N	GND
6	DP22_M2C_P	GND	GND	NC	GND	LA00_P_CC	GND	NC	GND	DPO_M2C_P	GND	DP2_M2C_P	GND	DP21_C2M_P
7	DP22_M2C_N	GND	NC	NC	LA02_P	LA00_N_CC	NC	NC	GND	DPO_M2C_N	GND	DP2_M2C_N	GND	DP21_C2M_N
8	GND	GBTCLK3_M2C_P	NC	GND	LA02_N	GND	NC	GND	LA01_P_CC	GND	DP8_M2C_P	GND	DP20_C2M_P	GND
9	GND	GBTCLK3_M2C_N	GND	NC	GND	LA03_P	GND	NC	LA01_N_CC	GND	DP8_M2C_N	GND	DP20_C2M_N	GND
10	DP21_M2C_P	GND	NC	NC	LA04_P	LA03_N	NC	NC	GND	LA06_P	GND	DP3_M2C_P	GND	DP10_M2C_P
11	DP21_M2C_N	GND	NC	GND	LA04_N	GND	NC	GND	LA05_P	LA06_N	GND	DP3_M2C_N	GND	DP10_M2C_N
12	GND	GBTCLK2_M2C_P	GND	NC	GND	LA08_P	GND	NC	LA05_N	GND	DP7_M2C_P	GND	DP11_M2C_P	GND
13	GND	GBTCLK2_M2C_N	NC	NC	LA07_P	LA08_N	NC	NC	GND	GND	DP7_M2C_N	GND	DP11_M2C_N	GND
14	DP20_M2C_P	GND	GND	GND	LA07_N	GND	NC	GND	LA09_P	LA10_P	GND	DP4_M2C_P	GND	DP12_M2C_P
15	DP20_M2C_N	GND	GND	NC	GND	LA12_P	GND	NC	LA09_N	LA10_N	GND	DP4_M2C_N	GND	DP12_M2C_N
16	GND	NC	NC	NC	LA11_P	LA12_N	NC	NC	GND	GND	DP6_M2C_P	GND	DP13_M2C_P	GND
17	GND	NC	GND	GND	LA11_N	GND	NC	GND	LA13_P	GND	DP6_M2C_N	GND	DP13_M2C_N	GND
18	DP14_C2M_P	GND	NC	NC	GND	LA16_P	GND	NC	LA13_N	LA14_P	GND	DP5_M2C_P	GND	DP14_M2C_P
19	DP14_C2M_N	GND	NC	NC	LA15_P	LA16_N	NC	NC	GND	LA14_N	GND	DP5_M2C_N	GND	DP14_M2C_N
20	GND	NC	NC	GND	LA15_N	GND	NC	GND	LA17_P_CC	GND	GBTCLK1_M2C_P	GND	GBTCLK5_M2C_P	GND
21	GND	NC	GND	NC	GND	LA20_P	GND	NC	LA17_N_CC	GND	GBTCLK1_M2C_N	GND	GBTCLK5_M2C_N	GND
22	DP15_C2M_P	GND	NC	NC	LA19_P	LA20_N	NC	NC	GND	LA18_P_CC	GND	DP1_C2M_P	GND	DP15_M2C_P
23	DP15_C2M_N	GND	NC	GND	LA19_N	GND	NC	GND	LA23_P	LA18_N_CC	GND	DP1_C2M_N	GND	DP15_M2C_N
24	GND	NC	NC	NC	GND	LA22_P	GND	NC	LA23_N	GND	DP9_C2M_P	GND	DP10_C2M_P	GND
25	GND	NC	NC	NC	LA21_P	LA22_N	NC	NC	GND	GND	DP9_C2M_N	GND	DP10_C2M_N	GND
26	DP16_C2M_P	GND	NC	GND	LA21_N	GND	NC	GND	LA26_P	LA27_P	GND	DP2_C2M_P	GND	DP11_C2M_P
27	DP16_C2M_N	GND	GND	NC	GND	LA25_P	GND	NC	LA26_N	LA27_N	GND	DP2_C2M_N	GND	DP11_C2M_N
28	GND	NC	NC	NC	LA24_P	LA25_N	NC	NC	GND	GND	DP8_C2M_P	GND	DP12_C2M_P	GND
29	GND	NC	GND	GND	LA24_N	GND	NC	GND	TCK	GND	DP8_C2M_N	GND	DP12_C2M_N	GND
30	DP17_C2M_P	GND	NC	NC	GND	LA29_P	GND	NC	TDI	SCL	GND	DP3_C2M_P	GND	DP13_C2M_P
31	DP17_C2M_N	GND	NC	NC	LA28_P	LA29_N	NC	NC	TDO	SDA	GND	DP3_C2M_N	GND	DP13_C2M_N
32	GND	NC	NC	GND	LA28_N	GND	NC	GND	3P3VAUX	GND	DP7_C2M_P	GND	DP16_M2C_P	GND
33	GND	NC	GND	NC	GND	LA31_P	GND	NC	TMS	GND	DP7_C2M_N	GND	DP16_M2C_N	GND
34	DP18_C2M_P	GND	NC	NC	LA30_P	LA31_N	NC	NC	TRST_L	GA0	GND	DP4_C2M_P	GND	DP17_M2C_P
35	DP18_C2M_N	GND	NC	GND	LA30_N	GND	NC	GND	GA1	12P0V	GND	DP4_C2M_N	GND	DP17_M2C_N
36	GND	12P0V	GND	NC	GND	LA33_P	GND	NC	3P3V	GND	DP6_C2M_P	GND	DP18_M2C_P	GND
37	GND	12P0V	NC	NC	GND	LA32_P	NC	NC	GND	12P0V	DP6_C2M_N	GND	DP18_M2C_N	GND
38	DP19_C2M_P	GND	GND	GND	LA32_N	GND	NC	GND	3P3V	GND	GND	DP5_C2M_P	GND	DP19_M2C_P
39	DP19_C2M_N	GND	NC	GND	VADJ	GND	VADJ	GND	GND	3P3V	GND	DP5_C2M_N	GND	DP19_M2C_N
40	GND	12P0V	NC	GND	VADJ	GND	VADJ	GND	3P3V	GND	NC	GND	3P3V	GND

Figure 18:FMC+ Connector 1 Pin Out

Number of Pins - 560

Connector Part Number - ASP-184329-01 from Samtec

Mating Connector - ASP-184330-01 from Samtec

Staking Height - 10mm

Note:

*The FMC+ Adj Voltage is controlled through switch SW14, with a default voltage of 1.2V. When SW14.1 is in the "ON" position and SW14.2 is in the "OFF" position, the voltage is set to 1.2V.

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

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

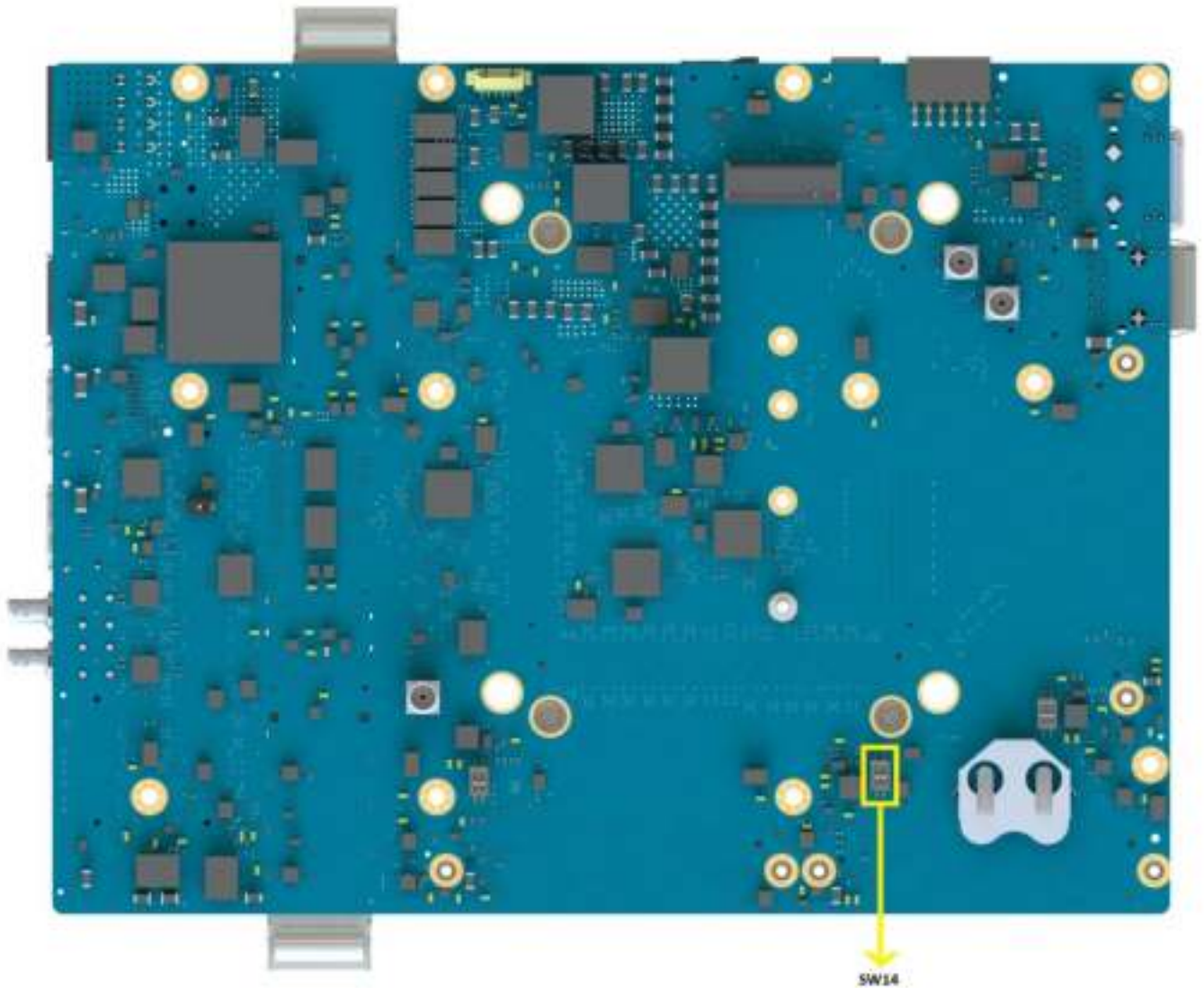


Figure 19: FMC+ Connector 1 ADJ Regulator switch

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
1	A1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
2	A2	DP1_M2C_P	Board to Board Connector 2	B95	GTYP_RXP1_200	200	BM39	GTYP_RXP1_200	I, DIFF	GTYP Bank200 channel1 High speed differential receiver positive.
3	A3	DP1_M2C_N	Board to Board Connector 2	B96	GTYP_RXN1_200	200	BN39	GTYP_RXN1_200	I, DIFF	GTYP Bank200 channel1 High speed differential receiver negative.
4	A4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
5	A5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
6	A6	DP2_M2C_P	Board to Board Connector 2	D92	GTYP_RXP2_200	200	BM41	GTYP_RXP2_200	I, DIFF	GTYP Bank200 channel2 High speed differential receiver positive.
7	A7	DP2_M2C_N	Board to Board Connector 2	D93	GTYP_RXN2_200	200	BN41	GTYP_RXN2_200	I, DIFF	GTYP Bank200 channel2 High speed differential receiver negative.
8	A8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
9	A9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
10	A10	DP3_M2C_P	Board to Board Connector 2	D95	GTYP_RXP3_200	200	BM43	GTYP_RXP3_200	I, DIFF	GTYP Bank200 channel3 High speed differential receiver positive.
11	A11	DP3_M2C_N	Board to Board Connector 2	D96	GTYP_RXN3_200	200	BN43	GTYP_RXN3_200	I, DIFF	GTYP Bank200 channel3 High speed differential receiver negative.
12	A12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
13	A13	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
14	A14	DP4_M2C_P	Board to Board Connector 3	B2	GTYP_RXP0_201	201	BK44	GTYP_RXP0_201	I, DIFF	GTYP Bank201 channel0 High speed differential receiver positive.
15	A15	DP4_M2C_N	Board to Board Connector 3	B3	GTYP_RXN0_201	201	BL44	GTYP_RXN0_201	I, DIFF	GTYP Bank201 channel0 High speed differential receiver negative.
16	A16	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
17	A17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
18	A18	DP5_M2C_P	Board to Board Connector 3	B5	GTYP_RXP1_201	201	BM45	GTYP_RXP1_201	I, DIFF	GTYP Bank201 channel1 High speed differential receiver positive.
19	A19	DP5_M2C_N	Board to Board Connector 3	B6	GTYP_RXN1_201	201	BN45	GTYP_RXN1_201	I, DIFF	GTYP Bank201 channel1 High speed differential receiver negative.
20	A20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
21	A21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
22	A22	DP1_C2M_P	Board to Board Connector 2	A95	GTYP_TXP1_200	200	BG37	GTYP_TXP1_200	O, DIFF	GTYP Bank200 channel1 High speed differential transmitter positive.
23	A23	DP1_C2M_N	Board to Board Connector 2	A96	GTYP_TXN1_200	200	BH37	GTYP_TXN1_200	O, DIFF	GTYP Bank200 channel1 High speed differential transmitter negative.
24	A24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
25	A25	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
26	A26	DP2_C2M_P	Board to Board Connector 2	C92	GTYP_TXP2_200	200	BJ38	GTYP_TXP2_200	O, DIFF	GTYP Bank200 channel2 High speed differential transmitter positive.
27	A27	DP2_C2M_N	Board to Board Connector 2	C93	GTYP_TXN2_200	200	BK38	GTYP_TXN2_200	O, DIFF	GTYP Bank200 channel2 High speed differential transmitter negative.
28	A28	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
29	A29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
30	A30	DP3_C2M_P	Board to Board Connector 2	C95	GTYP_TXP3_200	200	BG39	GTYP_TXP3_200	O, DIFF	GTYP Bank200 channel3 High speed differential transmitter positive.
31	A31	DP3_C2M_N	Board to Board Connector 2	C96	GTYP_TXN3_200	200	BH39	GTYP_TXN3_200	O, DIFF	GTYP Bank200 channel3 High speed differential transmitter negative.
32	A32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
33	A33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
34	A34	DP4_C2M_P	Board to Board Connector 3	A2	GTYP_TXP0_201	201	BJ40	GTYP_TXP0_201	O, DIFF	GTYP Bank201 channel0 High speed differential transmitter positive.
35	A35	DP4_C2M_N	Board to Board Connector 3	A3	GTYP_TXN0_201	201	BK40	GTYP_TXN0_201	O, DIFF	GTYP Bank201 channel0 High speed differential transmitter negative.
36	A36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
37	A37	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
38	A38	DP5_C2M_P	Board to Board Connector 3	A5	GTYP_TXP1_201	201	BG41	GTYP_TXP1_201	O, DIFF	GTYP Bank201 channel1 High speed differential transmitter positive.
39	A39	DP5_C2M_N	Board to Board Connector 3	A6	GTYP_TXN1_201	201	BH41	GTYP_TXN1_201	O, DIFF	GTYP Bank201 channel1 High speed differential transmitter negative.
40	A40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
41	B1	CLK_DIR	NA	NA	NA	NA	NA	NA	I, 3.3V/1K PD	CLK-DIR This Pin is connected to P12 port of IO Expander1.
42	B2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
43	B3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
44	B4	DP9_M2C_P	Board to Board Connector 3	D5	GTYP_RXP1_208	208	R52	GTYP_RXP1_208	I, DIFF	GTYP Bank208 channel1 High speed differential receiver positive.
45	B5	DP9_M2C_N	Board to Board Connector 3	D6	GTYP_RXN1_208	208	R53	GTYP_RXN1_208	I, DIFF	GTYP Bank208 channel1 High speed differential receiver negative.
46	B6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
47	B7	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
48	B8	DP8_M2C_P	Board to Board Connector 3	D2	GTYP_RXP0_208	208	U52	GTYP_RXP0_208	I, DIFF	GTYP Bank208 channel0 High speed differential receiver positive.
49	B9	DP8_M2C_N	Board to Board Connector 3	D3	GTYP_RXN0_208	208	U53	GTYP_RXN0_208	I, DIFF	GTYP Bank208 channel0 High speed differential receiver negative.
50	B10	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
51	B11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
52	B12	DP7_M2C_P	Board to Board Connector 3	B11	GTYP_RXP3_201	201	BM47	GTYP_RXP3_201	I, DIFF	GTYP Bank201 channel3 High speed differential receiver positive.
53	B13	DP7_M2C_N	Board to Board Connector 3	B12	GTYP_RXN3_201	201	BN47	GTYP_RXN3_201	I, DIFF	GTYP Bank201 channel3 High speed differential receiver negative.
54	B14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
55	B15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
56	B16	DP6_M2C_P	Board to Board Connector 3	B8	GTYP_RXP2_201	201	BK46	GTYP_RXP2_201	I, DIFF	GTYP Bank201 channel2 High speed differential receiver positive.
57	B17	DP6_M2C_N	Board to Board Connector 3	B9	GTYP_RXN2_201	201	BL46	GTYP_RXN2_201	I, DIFF	GTYP Bank201 channel2 High speed differential receiver negative.
58	B18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
59	B19	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
60	B20	GBTCLK1_M2C_P	Board to Board Connector 3	A14	GTYP_REFCLK0P_201	201	AR47	GTYP_REFCLK0P_201	I, DIFF	GTYP Bank103 differential reference clock0 positive.
61	B21	GBTCLK1_M2C_N	Board to Board Connector 3	A15	GTYP_REFCLK0N_201	201	AR48	GTYP_REFCLK0N_201	I, DIFF	GTYP Bank103 differential reference clock0 negative.
62	B22	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
63	B23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
64	B24	DP9_C2M_P	Board to Board Connector 3	C5	GTYP_TXP1_208	208	AA47	GTYP_TXP1_208	O, DIFF	GTYP Bank208 channel1 High speed differential transmitter positive.
65	B25	DP9_C2M_N	Board to Board Connector 3	C6	GTYP_TXN1_208	208	AA48	GTYP_TXN1_208	O, DIFF	GTYP Bank208 channel1 High speed differential transmitter negative.
66	B26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
67	B27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
68	B28	DP8_C2M_P	Board to Board Connector 3	C2	GTYP_TXP0_208	208	AB49	GTYP_TXP0_208	O, DIFF	GTYP Bank208 channel0 High speed differential transmitter positive.
69	B29	DP8_C2M_N	Board to Board Connector 3	C3	GTYP_TXN0_208	208	AB50	GTYP_TXN0_208	O, DIFF	GTYP Bank208 channel0 High speed differential transmitter negative.
70	B30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
71	B31	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
72	B32	DP7_C2M_P	Board to Board Connector 3	A11	GTYP_TXP3_201	201	AB49	GTYP_TXP3_201	O, DIFF	GTYP Bank201 channel3 High speed differential transmitter positive.
73	B33	DP7_C2M_N	Board to Board Connector 3	A12	GTYP_TXN3_201	201	AB50	GTYP_TXN3_201	O, DIFF	GTYP Bank201 channel3 High speed differential transmitter negative.
74	B34	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
75	B35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
76	B36	DP6_C2M_P	Board to Board Connector 3	A8	GTYP_TXP2_201	201	BJ42	GTYP_TXP2_201	O, DIFF	GTYP Bank201 channel2 High speed differential transmitter positive.
77	B37	DP6_C2M_N	Board to Board Connector 3	A9	GTYP_TXN2_201	201	BK42	GTYP_TXN2_201	O, DIFF	GTYP Bank201 channel2 High speed differential transmitter negative.
78	B38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
79	B39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
80	B40	RES0	NA	NA	NA	NA	NA	NA	NA	NC.
81	C1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
82	C2	DP0_C2M_P	Board to Board Connector 2	A92	GTYP_TXP0_200	200	BJ36	GTYP_TXP0_200	O, DIFF	GTYP Bank200 channel0 High speed differential transmitter positive.
83	C3	DP0_C2M_N	Board to Board Connector 2	A93	GTYP_TXN0_200	200	BK36	GTYP_TXN0_200	O, DIFF	GTYP Bank200 channel0 High speed differential transmitter negative.
84	C4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
85	C5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
86	C6	DP0_M2C_P	Board to Board Connector 2	B92	GTYP_RXP0_200	200	BM37	GTYP_RXP0_200	I, DIFF	GTYP Bank200 channel0 High speed differential receiver positive.
87	C7	DP0_M2C_N	Board to Board Connector 2	B93	GTYP_RXN0_200	200	BN37	GTYP_RXN0_200	I, DIFF	GTYP Bank200 channel0 High speed differential receiver negative.
88	C8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
89	C9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
90	C10	LA06_P	Board to Board Connector 1	C18	XP_BN24_LVDS704_L5P	704	BN24	IO_L5P_N1P4_M1P64_704	IO, 1.2V	PL Bank704 IO5 differential positive.
91	C11	LA06_N	Board to Board Connector 1	C19	XP_BN25_LVDS704_L5N	704	BN25	IO_L5N_N1P5_M1P65_704	IO, 1.2V	PL Bank704 IO5 differential negative.
92	C12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
93	C13	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
94	C14	LA10_P	Board to Board Connector 1	B20	XP_BK27_LVDS704_L8P	704	BK27	IO_L8P_N2P4_M1P70_704	IO, 1.2V	PL Bank704 IO8 differential positive.
95	C15	LA10_N	Board to Board Connector 1	B21	XP_BL26_LVDS704_L8N	704	BL26	IO_L8N_N2P5_M1P71_704	IO, 1.2V	PL Bank704 IO8 differential negative.
96	C16	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
97	C17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
98	C18	LA14_P	Board to Board Connector 1	C25	XP_BB24_LVDS704_L17P	704	BB24	IO_L17P_N5P4_M1P88_704	IO, 1.2V	PL Bank704 IO17 differential positive.
99	C19	LA14_N	Board to Board Connector 1	C26	XP_BC24_LVDS704_L17N	704	BC24	IO_L17N_N5P5_M1P89_704	IO, 1.2V	PL Bank704 IO17 differential negative.
100	C20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
101	C21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
102	C22	LA18_P_CC	Board to Board Connector 1	D25	XP_AU23_LVDS704_L13P	704	AU23	IO_L13P_N4P2_M1P80_704	IO, 1.2V	PL Bank704 IO13 differential positive.
103	C23	LA18_N_CC	Board to Board Connector 1	D26	XP_AV24_LVDS704_L13N	704	AV24	IO_L13N_N4P3_M1P81_704	IO, 1.2V	PL Bank704 IO13 differential negative.
104	C24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
105	C25	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
106	C26	LA27_P	Board to Board Connector 1	C2	XP_BN19_LVDS703_L3P	703	BN19	IO_L3P_XCC_N1P0_M1P6_703	IO, 1.2V	PL Bank703 IO3 differential positive.
107	C27	LA27_N	Board to Board Connector 1	C3	XP_BN20_LVDS703_L3N	703	BN20	IO_L3N_XCC_N1P1_M1P7_703	IO, 1.2V	PL Bank703 IO3 differential negative.
108	C28	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
109	C29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
110	C30	SCL	NA	NA	NA	NA	NA	NA	O, 3.3V LVCMOS/ 4.7K PU	FMC+ I2C Clock Signal. This Pin is connected from channel1 SCL of I2C Bus switch.
111	C31	SDA	NA	NA	NA	NA	NA	NA	IO, 3.3V LVCMOS/ 4.7K PU	FMC+ I2C Data Signal. This Pin is connected from channel1 SDA of I2C Bus switch.
112	C32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
113	C33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
114	C34	GA0	NA	NA	NA	NA	NA	NA	O, 1K, PD	Geographical address 0
115	C35	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
116	C36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
117	C37	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
118	C38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
119	C39	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
120	C40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
121	D1	PG_C2M	NA	NA	NA	NA	NA	NA	NA	Power Good Signal from Carrier to FMC Module.
122	D2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
123	D3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
124	D4	GBTCLK0_M2C_P	Board to Board Connector 2	A98	GTYP_REFCLK0P_200	200	AW47	GTYP_REFCLK0P_200	I, DIFF	GTYP Bank200 differential reference clock0 positive.
125	D5	GBTCLK0_M2C_N	Board to Board Connector 2	A99	GTYP_REFCLK0N_200	200	AW48	GTYP_REFCLK0N_200	I, DIFF	GTYP Bank200 differential reference clock0 negative.
126	D6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
127	D7	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
128	D8	LA01_P_CC	Board to Board Connector 1	D23	XP_AT22_LVDS704_L12P_GC	704	AT22	IO_L12P_GC_XCC_N4P0_M1P78_704	IO, 1.2V	PL Bank703 IO13 differential positive. Same pin can be configured as Global Clock.
129	D9	LA01_N_CC	Board to Board Connector 1	D24	XP_AT23_LVDS704_L12N_GC	704	AT23	IO_L12N_GC_XCC_N4P1_M1P79_704	IO, 1.2V	PL Bank703 IO13 differential negative. Same pin can be configured as Global Clock.
130	D10	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
131	D11	LA05_P	Board to Board Connector 1	C16	XP_BL23_LVDS704_L3P	704	BL23	IO_L3P_XCC_N1P0_M1P60_704	IO, 1.2V	PL Bank704 IO3 differential positive.
132	D12	LA05_N	Board to Board Connector 1	C17	XP_BM23_LVDS704_L3N	704	BM23	IO_L3N_XCC_N1P1_M1P61_704	IO, 1.2V	PL Bank704 IO3 differential negative.
133	D13	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
134	D14	LA09_P	Board to Board Connector 1	B18	XP_BH25_LVDS704_L7P	704	BH25	IO_L7P_N2P2_M1P68_704	IO, 1.2V	PL Bank704 IO7 differential positive.
135	D15	LA09_N	Board to Board Connector 1	B19	XP_BJ25_LVDS704_L7N	704	BJ25	IO_L7N_N2P3_M1P69_704	IO, 1.2V	PL Bank704 IO7 differential negative.
136	D16	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
137	D17	LA13_P	Board to Board Connector 1	C23	XP_AW23_LVDS704_L15P	704	AW23	IO_L15P_XCC_N5P0_M1P84_704	IO, 1.2V	PL Bank704 IO15 differential positive.
138	D18	LA13_N	Board to Board Connector 1	C24	XP_AY23_LVDS704_L15N	704	AY23	IO_L15N_XCC_N5P1_M1P85_704	IO, 1.2V	PL Bank704 IO15 differential negative.
139	D19	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
140	D20	LA17_P_CC	Board to Board Connector 1	A18	XP_BM26_LVDS704_L11P	704	BM26	IO_L11P_N3P4_M1P76_704	IO, 1.2V	PL Bank704 IO11 differential positive.
141	D21	LA17_N_CC	Board to Board Connector 1	A19	XP_BN26_LVDS704_L11N	704	BN26	IO_L11N_N3P5_M1P77_704	IO, 1.2V	PL Bank704 IO11 differential negative.
142	D22	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
143	D23	LA23_P	Board to Board Connector 1	A27	XP_BD24_LVDS704_L23P	704	BD24	IO_L23P_N7P4_M1P100_704	IO, 1.2V	PL Bank704 IO23 differential positive.
144	D24	LA23_N	Board to Board Connector 1	A28	XP_BE25_LVDS704_L23N	704	BE25	IO_L23N_N7P5_M1P101_704	IO, 1.2V	PL Bank704 IO23 differential negative.
145	D25	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
146	D26	LA26_P	Board to Board Connector 1	D6	XP_BK22_LVDS703_L0P	703	BK22	IO_L0P_XCC_N0P0_M1P0_703	IO, 1.2V	PL Bank703 IO0 differential positive.
147	D27	LA26_N	Board to Board Connector 1	D7	XP_BL21_LVDS703_L0N	703	BL21	IO_L0N_XCC_N0P1_M1P1_703	IO, 1.2V	PL Bank703 IO0 differential negative.
148	D28	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
149	D29	TCK	Board to Board Connector 2	NA	JTAG_TCK	503	B19	TCK_503	I, 3.3V CMOS	JTAG Test Clock. This Pin is connected to A12 pin of Board-to-Board Connector2 (J15) through Voltage level translator.
150	D30	TDI	NA	NA	JTAG_TDI	NA	NA	NA	I, 3.3V CMOS	NC
151	D31	TDO	NA	NA	JTAG_TDO	NA	NA	NA	O, 3.3V CMOS	NC
152	D32	3P3VAUX	NA	NA	VCC_3V3	NA	NA	NA	O, 3.3V Power	Carrier Board Auxiliary Supply Voltage.
153	D33	TMS	Board to Board Connector 2	NA	JTAG_TMS	503	B16	TMS_503	I, 3.3V CMOS	JTAG Test Mode Select. This Pin is connected to A13 pin of Board-to-Board Connector2 (J15) through Voltage level translator.
154	D34	TRST_L	Board to Board Connector 2	NA	NC	NA	NA	NA	I, 3.3V CMOS/ 4.7K PU	NC. This Pin is connected to A11pin of Board-to-Board Connector2 (J15) through Voltage level translator.
155	D35	GA1	NA	NA	NA	NA	NA	NA	O, 1K, PU	Geographical address 1
156	D36	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
157	D37	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
158	D38	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
159	D39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
160	D40	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
161	E1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
162	E2	HA01_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
163	E3	HA01_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
164	E4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
165	E5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
166	E6	HA05_P	NA	NA	NA	NA	NA	NA	NA	NC.
167	E7	HA05_N	NA	NA	NA	NA	NA	NA	NA	NC.
168	E8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
169	E9	HA09_P	NA	NA	NA	NA	NA	NA	NA	NC.
170	E10	HA09_N	NA	NA	NA	NA	NA	NA	NA	NC.
171	E11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
172	E12	HA13_P	NA	NA	NC	NA	NA	NA	NA	NC.
173	E13	HA13_N	NA	NA	NC	NA	NA	NA	NA	NC.
174	E14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
175	E15	HA16_P	NA	NA	NC	NA	NA	NA	NA	NC.
176	E16	HA16_N	NA	NA	NC	NA	NA	NA	NA	NC.
177	E17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
178	E18	HA20_P	NA	NA	NC	NA	NA	NA	NA	NC.
179	E19	HA20_N	NA	NA	NC	NA	NA	NA	NA	NC.
180	E20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
181	E21	HB03_P	NA	NA	NC	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
182	E22	HB03_N	NA	NA	NC	NA	NA	NA	NA	NC.
183	E23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
184	E24	HB05_P	NA	NA	NC	NA	NA	NA	NA	NC.
185	E25	HB05_N	NA	NA	NC	NA	NA	NA	NA	NC.
186	E26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
187	E27	HB09_P	NA	NA	NC	NA	NA	NA	NA	NC.
188	E28	HB09_N	NA	NA	NC	NA	NA	NA	NA	NC.
189	E29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
190	E30	HB13_P	NA	NA	NC	NA	NA	NA	NA	NC.
191	E31	HB13_N	NA	NA	NC	NA	NA	NA	NA	NC.
192	E32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
193	E33	HB19_P	NA	NA	NC	NA	NA	NA	NA	NC.
194	E34	HB19_N	NA	NA	NC	NA	NA	NA	NA	NC.
195	E35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
196	E36	HB21_P	NA	NA	NC	NA	NA	NA	NA	NC.
197	E37	HB21_N	NA	NA	NC	NA	NA	NA	NA	NC.
198	E38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
199	E39	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
200	E40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
201	F1	PG_M2C	NA	NA	NA	NA	NA	NA	I, 3.3V CMOS	Power Good Signal from Carrier to FMC Module.
202	F2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
203	F3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
204	F4	HA00_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
205	F5	HA00_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
206	F6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
207	F7	HA04_P	NA	NA	NA	NA	NA	NA	NA	NC.
208	F8	HA04_N	NA	NA	NA	NA	NA	NA	NA	NC.
209	F9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
210	F10	HA08_P	NA	NA	NA	NA	NA	NA	NA	NC.
211	F11	HA08_N	NA	NA	NA	NA	NA	NA	NA	NC.
212	F12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
213	F13	HA12_P	NA	NA	NA	NA	NA	NA	NA	NC.
214	F14	HA12_N	NA	NA	NA	NA	NA	NA	NA	NC.
215	F15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
216	F16	HA15_P	NA	NA	NA	NA	NA	NA	NA	NC.
217	F17	HA15_N	NA	NA	NA	NA	NA	NA	NA	NC.
218	F18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
219	F19	HA19_P	NA	NA	NC	NA	NA	NA	NA	NC.
220	F20	HA19_N	NA	NA	NC	NA	NA	NA	NA	NC.
221	F21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
222	F22	HB02_P	NA	NA	NC	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
223	F23	HB02_N	NA	NA	NC	NA	NA	NA	NA	NC.
224	F24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
225	F25	HB04_P	NA	NA	NC	NA	NA	NA	NA	NC.
226	F26	HB04_N	NA	NA	NC	NA	NA	NA	NA	NC.
227	F27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
228	F28	HB08_P	NA	NA	NC	NA	NA	NA	NA	NC.
229	F29	HB08_N	NA	NA	NC	NA	NA	NA	NA	NC.
230	F30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
231	F31	HB12_P	NA	NA	NC	NA	NA	NA	NA	NC.
232	F32	HB12_N	NA	NA	NC	NA	NA	NA	NA	NC.
233	F33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
234	F34	HB16_P	NA	NA	NC	NA	NA	NA	NA	NC.
235	F35	HB16_N	NA	NA	NC	NA	NA	NA	NA	NC.
236	F36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
237	F37	HB20_P	NA	NA	NC	NA	NA	NA	NA	NC.
238	F38	HB20_N	NA	NA	NC	NA	NA	NA	NA	NC.
239	F39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
240	F40	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
241	G1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
242	G2	CLK1_M2C_P	Board to Board Connector 1	D9	XP_AY21_LVDS703_L12P_GC	703	AY21	IO_L12P_GC_XCC_N4P0_M1P24_703	IO, 1.2V	PL Bank703 IO12 differential positive.
243	G3	CLK1_M2C_N	Board to Board Connector 1	D10	XP_BA22_LVDS703_L12N_GC	703	BA22	IO_L12N_GC_XCC_N4P1_M1P25_703	IO, 1.2V	PL Bank703 IO12 differential negative.
244	G4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
245	G5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
246	G6	LA00_P_CC	Board to Board Connector 1	A20	XP_BK26_LVDS704_L9P_GC	704	BK26	IO_L9P_GC_XCC_N3P0_M1P72_704	IO, 1.2V	PL Bank704 IO9 differential positive. Same pin can be configured as Global Clock.
247	G7	LA00_N_CC	Board to Board Connector 1	A21	XP_BL25_LVDS704_L9N_GC	704	BL25	IO_L9N_GC_XCC_N3P1_M1P73_704	IO, 1.2V	PL Bank704 IO9 differential negative. Same pin can be configured as Global Clock.
248	G8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
249	G9	LA03_P	Board to Board Connector 1	D18	XP_BJ23_LVDS704_L1P	704	BJ23	IO_L1P_N0P2_M1P56_704	IO, 1.2V	PL Bank704 IO1 differential positive.
250	G10	LA03_N	Board to Board Connector 1	D19	XP_BK23_LVDS704_L1N	704	BK23	IO_L1N_N0P3_M1P57_704	IO, 1.2V	PL Bank704 IO1 differential negative.
251	G11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
252	G12	LA08_P	Board to Board Connector 1	B16	XP_BG26_LVDS704_L6P_GC	704	BG26	IO_L6P_GC_XCC_N2P0_M1P66_704	IO, 1.2V	PL Bank704 IO6 differential positive.
253	G13	LA08_N	Board to Board Connector 1	B17	XP_BH26_LVDS704_L6N_GC	704	BH26	IO_L6N_GC_XCC_N2P1_M1P67_704	IO, 1.2V	PL Bank704 IO6 differential negative.
254	G14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
255	G15	LA12_P	Board to Board Connector 1	D27	XP_AT25_LVDS704_L14P	704	AT25	IO_L14P_N4P4_M1P82_704	IO, 1.2V	PL Bank704 IO14 differential positive.
256	G16	LA12_N	Board to Board Connector 1	D28	XP_AU24_LVDS704_L14N	704	AU24	IO_L14N_N4P5_M1P83_704	IO, 1.2V	PL Bank704 IO14 differential negative.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
257	G17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
258	G18	LA16_P	Board to Board Connector 1	B23	XP_AY26_LVDS704_L20P	704	AY26	IO_L20P_N6P4_M1P94_704	IO, 1.2V	PL Bank704 IO20 differential positive.
259	G19	LA16_N	Board to Board Connector 1	B24	XP_BA25_LVDS704_L20N	704	BA25	IO_L20N_N6P5_M1P95_704	IO, 1.2V	PL Bank704 IO20 differential negative.
260	G20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
261	G21	LA20_P	Board to Board Connector 1	B27	XP_AT26_LVDS704_L18P	704	AT26	IO_L18P_XCC_N6P0_M1P90_704	IO, 1.2V	PL Bank704 IO18 differential positive.
262	G22	LA20_N	Board to Board Connector 1	B28	XP_AU26_LVDS704_L18N	704	AU26	IO_L18N_XCC_N6P1_M1P91_704	IO, 1.2V	PL Bank704 IO18 differential negative.
263	G23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
264	G24	LA22_P	Board to Board Connector 1	A25	XP_BB26_LVDS704_L22P	704	BB26	IO_L22P_N7P2_M1P98_704	IO, 1.2V	PL Bank704 IO22 differential positive.
265	G25	LA22_N	Board to Board Connector 1	A26	XP_BC25_LVDS704_L22N	704	BC25	IO_L22N_N7P3_M1P99_704	IO, 1.2V	PL Bank704 IO22 differential negative.
266	G26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
267	G27	LA25_P	Board to Board Connector 1	D4	XP_BK21_LVDS703_L1P	703	BK21	IO_L1P_N0P2_M1P2_703	IO, 1.2V	PL Bank703 IO1 differential positive.
268	G28	LA25_N	Board to Board Connector 1	D5	XP_BL20_LVDS703_L1N	703	BL20	IO_L1N_N0P3_M1P3_703	IO, 1.2V	PL Bank703 IO1 differential negative.
269	G29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
270	G30	LA29_P	Board to Board Connector 1	C6	XP_BM22_LVDS703_L4P	703	BM22	IO_L4P_N1P2_M1P8_703	IO, 1.2V	PL Bank703 IO4 differential positive.
271	G31	LA29_N	Board to Board Connector 1	C7	XP_BN22_LVDS703_L4N	703	BN22	IO_L4N_N1P3_M1P9_703	IO, 1.2V	PL Bank703 IO4 differential negative.
272	G32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
273	G33	LA31_P	Board to Board Connector 1	B4	XP_BJ20_LVDS703_L11P	703	BJ20	IO_L11P_N3P4_M1P22_703	IO, 1.2V	PL Bank703 IO11 differential positive.
274	G34	LA31_N	Board to Board Connector 1	B5	XP_BK20_LVDS703_L11N	703	BK20	IO_L11N_N3P5_M1P23_703	IO, 1.2V	PL Bank703 IO11 differential negative.
275	G35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
276	G36	LA33_P	Board to Board Connector 1	A2	XP_BG21_LVDS703_L8P	703	BG21	IO_L8P_N2P4_M1P16_703	IO, 1.2V	PL Bank703 IO8 differential positive.
277	G37	LA33_N	Board to Board Connector 1	A3	XP_BH22_LVDS703_L8N	703	BH22	IO_L8N_N2P5_M1P17_703	IO, 1.2V	PL Bank703 IO8 differential negative.
278	G38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
279	G39	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
280	G40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
281	H1	VREF_A_M2C	NA	NA	NC	NA	NA	NA	NA	NC.
282	H2	PRSNT_M2C_L	NA	NA	NA	NA	NA	NA	I,3.3V/10K PU	FMC Module Present Signal. This Pin is connected to P13 port of IO Expander1.
283	H3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
284	H4	CLK0_M2C_P	Board to Board Connector 1	A6	XP_BF22_LVDS703_L6P_GC	703	BF22	IO_L6P_GC_XCC_N2P0_M1P12_703	IO, 1.2V	PL Bank703 IO6 differential positive. Same pin can be configured as Global Clock.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
285	H5	CLK0_M2C_N	Board to Board Connector 1	A7	XP_BG22_LVDS703_L6N_GC	703	BG22	IO_L6N_GC_XCC_N2P1_M1P13_703	IO, 1.2V	PL Bank703 IO6 differential negative. Same pin can be configured as Global Clock.
286	H6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
287	H7	LA02_P	Board to Board Connector 1	D16	XP_BG24_LVDS704_L0P	704	BG24	IO_L0P_XCC_N0P0_M1P54_704	IO, 1.2V	PL Bank704 IO0 differential positive.
288	H8	LA02_N	Board to Board Connector 1	D17	XP_BH24_LVDS704_L0N	704	BH24	IO_L0N_XCC_N0P1_M1P55_704	IO, 1.2V	PL Bank704 IO0 differential negative.
289	H9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
290	H10	LA04_P	Board to Board Connector 1	D20	XP_BJ24_LVDS704_L2P	704	BJ24	IO_L2P_N0P4_M1P58_704	IO, 1.2V	PL Bank704 IO2 differential positive.
291	H11	LA04_N	Board to Board Connector 1	D21	XP_BK25_LVDS704_L2N	704	BK25	IO_L2N_N0P5_M1P59_704	IO, 1.2V	PL Bank704 IO2 differential negative.
292	H12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
293	H13	LA07_P	Board to Board Connector 1	C20	XP_BL24_LVDS704_L4P	704	BL24	IO_L4P_N1P2_M1P62_704	IO, 1.2V	PL Bank704 IO4 differential positive.
294	H14	LA07_N	Board to Board Connector 1	C21	XP_BM24_LVDS704_L4N	704	BM24	IO_L4N_N1P3_M1P63_704	IO, 1.2V	PL Bank704 IO4 differential negative.
295	H15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
296	H16	LA11_P	Board to Board Connector 1	A16	XP_BM27_LVDS704_L10P	704	BM27	IO_L10P_N3P2_M1P74_704	IO, 1.2V	PL Bank704 IO10 differential positive.
297	H17	LA11_N	Board to Board Connector 1	A17	XP_BN27_LVDS704_L10N	704	BN27	IO_L10N_N3P3_M1P75_704	IO, 1.2V	PL Bank704 IO10 differential negative.
298	H18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
299	H19	LA15_P	Board to Board Connector 1	C27	XP_BA24_LVDS704_L16P	704	BA24	IO_L16P_N5P2_M1P86_704	IO, 1.2V	PL Bank704 IO16 differential positive.
300	H20	LA15_N	Board to Board Connector 1	C28	XP_BB23_LVDS704_L16N	704	BB23	IO_L16N_N5P3_M1P87_704	IO, 1.2V	PL Bank704 IO16 differential negative.
301	H21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
302	H22	LA19_P	Board to Board Connector 1	B25	XP_AV25_LVDS704_L19P	704	AV25	IO_L19P_N6P2_M1P92_704	IO, 1.2V	PL Bank704 IO19 differential positive.
303	H23	LA19_N	Board to Board Connector 1	B26	XP_AW26_LVDS704_L19N	704	AW26	IO_L19N_N6P3_M1P93_704	IO, 1.2V	PL Bank704 IO19 differential negative.
304	H24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
305	H25	LA21_P	Board to Board Connector 1	A23	XP_AY24_LVDS704_L21P	704	AY24	IO_L21P_XCC_N7P0_M1P96_704	IO, 1.2V	PL Bank704 IO21 differential positive.
306	H26	LA21_N	Board to Board Connector 1	A24	XP_AW25_LVDS704_L21N	704	AW25	IO_L21N_XCC_N7P1_M1P97_704	IO, 1.2V	PL Bank704 IO21 differential negative.
307	H27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
308	H28	LA24_P	Board to Board Connector 1	D2	XP_BL19_LVDS703_L2P	703	BL19	IO_L2P_N0P4_M1P4_703	IO, 1.2V	PL Bank703 IO2 differential positive.
309	H29	LA24_N	Board to Board Connector 1	D3	XP_BM19_LVDS703_L2N	703	BM19	IO_L2N_N0P5_M1P5_703	IO, 1.2V	PL Bank703 IO2 differential negative.
310	H30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
311	H31	LA28_P	Board to Board Connector 1	C4	XP_BM21_LVDS703_L5P	703	BM21	IO_L5P_N1P4_M1P10_703	IO, 1.2V	PL Bank703 IO5 differential positive.
312	H32	LA28_N	Board to Board Connector 1	C5	XP_BN21_LVDS703_L5N	703	BN21	IO_L5N_N1P5_M1P11_703	IO, 1.2V	PL Bank703 IO5 differential negative.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
313	H33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
314	H34	LA30_P	Board to Board Connector 1	B2	XP_BH20_LVDS703_L9P_GC	703	BH20	IO_L9P_GC_XCC_N3P0_M1P18_703	IO, 1.2V	PL Bank703 IO9 differential positive.
315	H35	LA30_N	Board to Board Connector 1	B3	XP_BJ19_LVDS703_L9N_GC	703	BJ19	IO_L9N_GC_XCC_N3P1_M1P19_703	IO, 1.2V	PL Bank703 IO9 differential negative.
316	H36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
317	H37	LA32_P	Board to Board Connector 1	B6	XP_BH21_LVDS703_L10P	703	BH21	IO_L10P_N3P2_M1P20_703	IO, 1.2V	PL Bank703 IO10 differential positive.
318	H38	LA32_N	Board to Board Connector 1	B7	XP_BJ22_LVDS703_L10N	703	BJ22	IO_L10N_N3P3_M1P21_703	IO, 1.2V	PL Bank703 IO10 differential negative.
319	H39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
320	H40	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
321	J1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
322	J2	CLK3_BIDIR_P	Board to Board Connector 1	D44	XP_J38_LVDS712_L4P	712	J38	IO_L4P_N1P2_712	IO, 1.2V	PL Bank712 IO4 differential positive.
323	J3	CLK3_BIDIR_N	Board to Board Connector 1	D45	XP_J37_LVDS712_L4N	712	J37	IO_L4N_N1P3_712	IO, 1.2V	PL Bank712 IO4 differential negative.
324	J4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
325	J5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
326	J6	HA03_P	NA	NA	NA	NA	NA	NA	NA	NC.
327	J7	HA03_N	NA	NA	NA	NA	NA	NA	NA	NC.
328	J8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
329	J9	HA07_P	NA	NA	NA	NA	NA	NA	NA	NC.
330	J10	HA07_N	NA	NA	NA	NA	NA	NA	NA	NC.
331	J11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
332	J12	HA11_P	NA	NA	NA	NA	NA	NA	NA	NC.
333	J13	HA11_N	NA	NA	NA	NA	NA	NA	NA	NC.
334	J14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
335	J15	HA14_P	NA	NA	NA	NA	NA	NA	NA	NC.
336	J16	HA14_N	NA	NA	NA	NA	NA	NA	NA	NC.
337	J17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
338	J18	HA18_P	NA	NA	NA	NA	NA	NA	NA	NC.
339	J19	HA18_N	NA	NA	NA	NA	NA	NA	NA	NC.
340	J20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
341	J21	HA22_P	NA	NA	NA	NA	NA	NA	NA	NC.
342	J22	HA22_N	NA	NA	NA	NA	NA	NA	NA	NC.
343	J23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
344	J24	HB01_P	NA	NA	NA	NA	NA	NA	NA	NC.
345	J25	HB01_N	NA	NA	NA	NA	NA	NA	NA	NC.
346	J26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
347	J27	HB07_P	NA	NA	NA	NA	NA	NA	NA	NC.
348	J28	HB07_N	NA	NA	NA	NA	NA	NA	NA	NC.
349	J29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
350	J30	HB11_P	NA	NA	NC	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
351	J31	HB11_N	NA	NA	NC	NA	NA	NA	NA	NC.
352	J32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
353	J33	HB15_P	NA	NA	NA	NA	NA	NA	NA	NC.
354	J34	HB15_N	NA	NA	NA	NA	NA	NA	NA	NC.
355	J35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
356	J36	HB18_P	NA	NA	NA	NA	NA	NA	NA	NC.
357	J37	HB18_N	NA	NA	NA	NA	NA	NA	NA	NC.
358	J38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
359	J39	VIO_B_M2C	NA	NA	NA	NA	NA	NA	NA	NC.
360	J40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
361	K1	VREF_B_M2C	NA	NA	NC	NA	NA	NA	NA	NC.
362	K2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
363	K3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
364	K4	CLK2_BIDIR_P	Board to Board Connector 1	D51	XP_T35_LVDS712_L12P_GC	712	T35	IO_L12P_GC_XCC_N4P0_712	IO, 1.2V	PL Bank712 IO12 differential positive. Same pin can be configured as Global Clock.
365	K5	CLK2_BIDIR_N	Board to Board Connector 1	D52	XP_R35_LVDS712_L12N_GC	712	R35	IO_L12N_GC_XCC_N4P1_712	IO, 1.2V	PL Bank712 IO12 differential negative. Same pin can be configured as Global Clock.
366	K6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
367	K7	HA02_P	NA	NA	NA	NA	NA	NA	NA	NC.
368	K8	HA02_N	NA	NA	NA	NA	NA	NA	NA	NC.
369	K9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
370	K10	HA06_P	NA	NA	NA	NA	NA	NA	NA	NC.
371	K11	HA06_N	NA	NA	NA	NA	NA	NA	NA	NC.
372	K12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
373	K13	HA10_P	NA	NA	NA	NA	NA	NA	NA	NC.
374	K14	HA10_N	NA	NA	NA	NA	NA	NA	NA	NC.
375	K15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
376	K16	HA17_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
377	K17	HA17_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
378	K18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
379	K19	HA21_P	NA	NA	NA	NA	NA	NA	NA	NC.
380	K20	HA21_N	NA	NA	NA	NA	NA	NA	NA	NC.
381	K21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
382	K22	HA23_P	NA	NA	NA	NA	NA	NA	NA	NC.
383	K23	HA23_N	NA	NA	NA	NA	NA	NA	NA	NC.
384	K24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
385	K25	HB00_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
386	K26	HB00_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
387	K27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
388	K28	HB06_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
389	K29	HB06_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
390	K30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
391	K31	HB10_P	NA	NA	NA	NA	NA	NA	NA	NC.
392	K32	HB10_N	NA	NA	NA	NA	NA	NA	NA	NC.
393	K33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
394	K34	HB14_P	NA	NA	NA	NA	NA	NA	NA	NC.
395	K35	HB14_N	NA	NA	NA	NA	NA	NA	NA	NC.
396	K36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
397	K37	HB17_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
398	K38	HB17_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
399	K39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
400	K40	VIO_B_M2C	NA	NA	NC	NA	NA	NA	NA	NC.
401	L1	RES1	NA	NA	NC	NA	NA	NA	NA	NC.
402	L2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
403	L3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
404	L4	GBTCLK4_M2C_P	Board to Board Connector 3	C29	GTYP_REFCLK0P_210	210	N47	GTYP_REFCLK0P_210	I, DIFF	GTYP Bank210 differential reference clock0 positive.
405	L5	GBTCLK4_M2C_N	Board to Board Connector 3	C30	GTYP_REFCLK0N_210	210	N48	GTYP_REFCLK0N_210	I, DIFF	GTYP Bank210 differential reference clock0 negative.
406	L6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
407	L7	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
408	L8	GBTCLK3_M2C_P	Board to Board Connector 3	A29	GTYP_REFCLK0P_209	209	R43	GTYP_REFCLK0P_209	I, DIFF	GTYP Bank209 differential reference clock0 positive.
409	L9	GBTCLK3_M2C_N	Board to Board Connector 3	A30	GTYP_REFCLK0N_209	209	R44	GTYP_REFCLK0N_209	I, DIFF	GTYP Bank209 differential reference clock0 negative.
410	L10	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
411	L11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
412	L12	GBTCLK2_M2C_P	Board to Board Connector 3	C14	GTYP_REFCLK0P_208	208	U43	GTYP_REFCLK0P_208	I, DIFF	GTYP Bank208 differential reference clock0 positive.
413	L13	GBTCLK2_M2C_N	Board to Board Connector 3	C15	GTYP_REFCLK0N_208	208	U44	GTYP_REFCLK0N_208	I, DIFF	GTYP Bank208 differential reference clock0 negative.
414	L14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
415	L15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
416	L16	SYNC_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
417	L17	SYNC_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
418	L18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
419	L19	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
420	L20	REFCLK_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
421	L21	REFCLK_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
422	L22	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
423	L23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
424	L24	REFCLK_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
425	L25	REFCLK_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
426	L26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
427	L27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
428	L28	SYNC_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
429	L29	SYNC_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
430	L30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
431	L31	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
432	L32	RES2	NA	NA	NC	NA	NA	NA	NA	NC.
433	L33	RES3	NA	NA	NC	NA	NA	NA	NA	NC.
434	L34	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
435	L35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
436	L36	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
437	L37	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
438	L38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
439	L39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
440	L40	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
441	M1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
442	M2	DP23_M2C_P	Board to Board Connector 3	B41	GTYP_RXP3_211	211	B41	GTYP_RXP3_211	I, DIFF	GTYP Bank211 channel3 High speed differential receiver positive.
443	M3	DP23_M2C_N	Board to Board Connector 3	B42	GTYP_RXN3_211	211	A41	GTYP_RXN3_211	I, DIFF	GTYP Bank211 channel3 High speed differential receiver negative.
444	M4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
445	M5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
446	M6	DP22_M2C_P	Board to Board Connector 3	B38	GTYP_RXP2_211	211	D42	GTYP_RXP2_211	I, DIFF	GTYP Bank211 channel2 High speed differential receiver positive.
447	M7	DP22_M2C_N	Board to Board Connector 3	B39	GTYP_RXN2_211	211	C42	GTYP_RXN2_211	I, DIFF	GTYP Bank211 channel2 High speed differential receiver negative.
448	M8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
449	M9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
450	M10	DP21_M2C_P	Board to Board Connector 3	B35	GTYP_RXP1_211	211	B43	GTYP_RXP1_211	I, DIFF	GTYP Bank211 channel1 High speed differential receiver positive.
451	M11	DP21_M2C_N	Board to Board Connector 3	B36	GTYP_RXN1_211	211	A43	GTYP_RXN1_211	I, DIFF	GTYP Bank211 channel1 High speed differential receiver negative.
452	M12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
453	M13	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
454	M14	DP20_M2C_P	Board to Board Connector 3	B32	GTYP_RXP0_211	211	B45	GTYP_RXP0_211	I, DIFF	GTYP Bank211 channel0 High speed differential receiver positive.
455	M15	DP20_M2C_N	Board to Board Connector 3	B33	GTYP_RXN0_211	211	A45	GTYP_RXN0_211	I, DIFF	GTYP Bank211 channel0 High speed differential receiver negative.
456	M16	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
457	M17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
458	M18	DP14_C2M_P	Board to Board Connector 3	A23	GTYP_TXP2_209	209	K49	GTYP_TXP2_209	O, DIFF	GTYP Bank209 channel2 High speed differential transmitter positive.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
459	M19	DP14_C2M_N	Board to Board Connector 3	A24	GTYP_TXN2_209	209	K50	GTYP_TXN2_209	O, DIFF	GTYP Bank209 channel2 High speed differential transmitter negative.
460	M20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
461	M21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
462	M22	DP15_C2M_P	Board to Board Connector 3	A26	GTYP_TXP3_209	209	H49	GTYP_TXP3_209	O, DIFF	GTYP Bank209 channel3 High speed differential transmitter positive.
463	M23	DP15_C2M_N	Board to Board Connector 3	A27	GTYP_TXN3_209	209	H50	GTYP_TXN3_209	O, DIFF	GTYP Bank209 channel3 High speed differential transmitter negative.
464	M24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
465	M25	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
466	M26	DP16_C2M_P	Board to Board Connector 3	C17	GTYP_TXP0_210	210	F49	GTYP_TXP0_210	O, DIFF	GTYP Bank210 channel0 High speed differential transmitter positive.
467	M27	DP16_C2M_N	Board to Board Connector 3	C18	GTYP_TXN0_210	210	F50	GTYP_TXN0_210	O, DIFF	GTYP Bank210 channel0 High speed differential transmitter negative.
468	M28	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
469	M29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
470	M30	DP17_C2M_P	Board to Board Connector 3	C20	GTYP_TXP1_210	210	G47	GTYP_TXP1_210	O, DIFF	GTYP Bank210 channel1 High speed differential transmitter positive.
471	M31	DP17_C2M_N	Board to Board Connector 3	C21	GTYP_TXN1_210	210	F47	GTYP_TXN1_210	O, DIFF	GTYP Bank210 channel1 High speed differential transmitter negative.
472	M32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
473	M33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
474	M34	DP18_C2M_P	Board to Board Connector 3	C23	GTYP_TXP2_210	210	E46	GTYP_TXP2_210	O, DIFF	GTYP Bank210 channel2 High speed differential transmitter positive.
475	M35	DP18_C2M_N	Board to Board Connector 3	C24	GTYP_TXN2_210	210	D46	GTYP_TXN2_210	O, DIFF	GTYP Bank210 channel2 High speed differential transmitter negative.
476	M36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
477	M37	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
478	M38	DP19_C2M_P	Board to Board Connector 3	C26	GTYP_TXP3_210	210	G45	GTYP_TXP3_210	O, DIFF	GTYP Bank210 channel3 High speed differential transmitter positive.
479	M39	DP19_C2M_N	Board to Board Connector 3	C27	GTYP_TXN3_210	210	F45	GTYP_TXN3_210	O, DIFF	GTYP Bank210 channel3 High speed differential transmitter negative.
480	M40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
481	Y1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
482	Y2	DP23_C2M_P	Board to Board Connector 3	A41	GTYP_TXP3_211	211	E40	GTYP_TXP3_211	O, DIFF	GTYP Bank211 channel3 High speed differential transmitter positive.
483	Y3	DP23_C2M_N	Board to Board Connector 3	A42	GTYP_TXN3_211	211	D40	GTYP_TXN3_211	O, DIFF	GTYP Bank211 channel3 High speed differential transmitter negative.
484	Y4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
485	Y5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
486	Y6	DP21_C2M_P	Board to Board Connector 3	A35	GTYP_TXP1_211	211	G43	GTYP_TXP1_211	O, DIFF	GTYP Bank211 channel1 High speed differential transmitter positive.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
487	Y7	DP21_C2M_N	Board to Board Connector 3	A36	GTYP_TXN1_211	211	F43	GTYP_TXN1_211	O, DIFF	GTYP Bank211 channel1 High speed differential transmitter negative.
488	Y8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
489	Y9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
490	Y10	DP10_M2C_P	Board to Board Connector 3	D8	GTYP_RXP2_208	208	P50	GTYP_RXP2_208	I, DIFF	GTYP Bank208 channel2 High speed differential receiver positive.
491	Y11	DP10_M2C_N	Board to Board Connector 3	D9	GTYP_RXN2_208	208	P51	GTYP_RXN2_208	I, DIFF	GTYP Bank208 channel2 High speed differential receiver negative.
492	Y12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
493	Y13	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
494	Y14	DP12_M2C_P	Board to Board Connector 3	B17	GTYP_RXP0_209	209	L52	GTYP_RXP0_209	I, DIFF	GTYP Bank209 channel0 High speed differential receiver positive.
495	Y15	DP12_M2C_N	Board to Board Connector 3	B18	GTYP_RXN0_209	209	L53	GTYP_RXN0_209	I, DIFF	GTYP Bank209 channel0 High speed differential receiver negative.
496	Y16	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
497	Y17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
498	Y18	DP14_M2C_P	Board to Board Connector 3	B23	GTYP_RXP2_209	209	G52	GTYP_RXP2_209	I, DIFF	GTYP Bank209 channel2 High speed differential receiver positive.
499	Y19	DP14_M2C_N	Board to Board Connector 3	B24	GTYP_RXN2_209	209	G53	GTYP_RXN2_209	I, DIFF	GTYP Bank209 channel2 High speed differential receiver negative.
500	Y20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
501	Y21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
502	Y22	DP15_M2C_P	Board to Board Connector 3	B26	GTYP_RXP3_209	209	E52	GTYP_RXP3_209	I, DIFF	GTYP Bank209 channel3 High speed differential receiver positive.
503	Y23	DP15_M2C_N	Board to Board Connector 3	B27	GTYP_RXN3_209	209	E53	GTYP_RXN3_209	I, DIFF	GTYP Bank209 channel3 High speed differential receiver negative.
504	Y24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
505	Y25	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
506	Y26	DP11_C2M_P	Board to Board Connector 3	C11	GTYP_TXP3_208	208	V49	GTYP_TXP3_208	O, DIFF	GTYP Bank208 channel3 High speed differential transmitter positive.
507	Y27	DP11_C2M_N	Board to Board Connector 3	C12	GTYP_TXN3_208	208	V50	GTYP_TXN3_208	O, DIFF	GTYP Bank208 channel3 High speed differential transmitter negative.
508	Y28	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
509	Y29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
510	Y30	DP13_C2M_P	Board to Board Connector 3	A20	GTYP_TXP1_209	209	M49	GTYP_TXP1_209	O, DIFF	GTYP Bank209 channel1 High speed differential transmitter positive.
511	Y31	DP13_C2M_N	Board to Board Connector 3	A21	GTYP_TXN1_209	209	M50	GTYP_TXN1_209	O, DIFF	GTYP Bank209 channel1 High speed differential transmitter negative.
512	Y32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
513	Y33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
514	Y34	DP17_M2C_P	Board to Board Connector 3	D20	GTYP_RXP1_210	210	B49	GTYP_RXP1_210	I, DIFF	GTYP Bank210 channel1 High speed differential receiver positive.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
515	Y35	DP17_M2C_N	Board to Board Connector 3	D21	GTYP_RXN1_210	210	A49	GTYP_RXN1_210	I, DIFF	GTYP Bank210 channel1 High speed differential receiver negative.
516	Y36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
517	Y37	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
518	Y38	DP19_M2C_P	Board to Board Connector 3	D26	GTYP_RXP3_210	210	B47	GTYP_RXP3_210	I, DIFF	GTYP Bank210 channel3 High speed differential receiver positive.
519	Y39	DP19_M2C_N	Board to Board Connector 3	D27	GTYP_RXN3_210	210	A47	GTYP_RXN3_210	I, DIFF	GTYP Bank210 channel3 High speed differential receiver negative.
520	Y40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
521	Z1	HSPC_PRSENT_M2C_L	NA	NA	NA	NA	NA	NA	I,3.3V/10K PU	FMC+ Module Present Signal.
522	Z2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
523	Z3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
524	Z4	DP22_C2M_P	Board to Board Connector 3	A38	GTYP_TXP2_211	211	G41	GTYP_TXP2_211	O, DIFF	GTYP Bank211 channel2 High speed differential transmitter positive.
525	Z5	DP22_C2M_N	Board to Board Connector 3	A39	GTYP_TXN2_211	211	F41	GTYP_TXN2_211	O, DIFF	GTYP Bank211 channel2 High speed differential transmitter negative.
526	Z6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
527	Z7	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
528	Z8	DP20_C2M_P	Board to Board Connector 3	A32	GTYP_TXP0_211	211	E44	GTYP_TXP0_211	O, DIFF	GTYP Bank211 channel0 High speed differential transmitter positive.
529	Z9	DP20_C2M_N	Board to Board Connector 3	A33	GTYP_TXN0_211	211	D44	GTYP_TXN0_211	O, DIFF	GTYP Bank211 channel0 High speed differential transmitter negative.
530	Z10	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
531	Z11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
532	Z12	DP11_M2C_P	Board to Board Connector 3	D11	GTYP_RXP3_208	208	N52	GTYP_RXP3_208	I, DIFF	GTYP Bank208 channel3 High speed differential receiver positive.
533	Z13	DP11_M2C_N	Board to Board Connector 3	D12	GTYP_RXN3_208	208	N53	GTYP_RXN3_208	I, DIFF	GTYP Bank208 channel3 High speed differential receiver negative.
534	Z14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
535	Z15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
536	Z16	DP13_M2C_P	Board to Board Connector 3	B20	GTYP_RXP1_209	209	J52	GTYP_RXP1_209	I, DIFF	GTYP Bank209 channel1 High speed differential receiver positive.
537	Z17	DP13_M2C_N	Board to Board Connector 3	B21	GTYP_RXN1_209	209	J53	GTYP_RXN1_209	I, DIFF	GTYP Bank209 channel1 High speed differential receiver negative.
538	Z18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
539	Z19	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
540	Z20	GBTCLK5_M2C_P	Board to Board Connector 3	A44	GTYP_REFCLK0P_211	211	M45	GTYP_REFCLK0P_211	I, DIFF	GTYP Bank211 differential reference clock0 positive.
541	Z21	GBTCLK5_M2C_N	Board to Board Connector 3	A45	GTYP_REFCLK0N_211	211	M46	GTYP_REFCLK0N_211	I, DIFF	GTYP Bank211 differential reference clock0 negative.
542	Z22	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
543	Z23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
544	Z24	DP10_C2M_P	Board to Board Connector 3	C8	GTYP_TXP2_208	208	W47	GTYP_TXP2_208	O, DIFF	GTYP Bank208 channel2 High speed differential transmitter positive.
545	Z25	DP10_C2M_N	Board to Board Connector 3	C9	GTYP_TXN2_208	208	W48	GTYP_TXN2_208	O, DIFF	GTYP Bank208 channel2 High speed differential transmitter negative.
546	Z26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
547	Z27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
548	Z28	DP12_C2M_P	Board to Board Connector 3	A17	GTYP_TXP0_209	209	T49	GTYP_TXP0_209	O, DIFF	GTYP Bank209 channel0 High speed differential transmitter positive.
549	Z29	DP12_C2M_N	Board to Board Connector 3	A18	GTYP_TXN0_209	209	T50	GTYP_TXN0_209	O, DIFF	GTYP Bank209 channel0 High speed differential transmitter negative.
550	Z30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
551	Z31	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
552	Z32	DP16_M2C_P	Board to Board Connector 3	D17	GTYP_RXP0_210	210	D50	GTYP_RXP0_210	I, DIFF	GTYP Bank210 channel0 High speed differential receiver positive.
553	Z33	DP16_M2C_N	Board to Board Connector 3	D18	GTYP_RXN0_210	210	C50	GTYP_RXN0_210	I, DIFF	GTYP Bank210 channel0 High speed differential receiver negative.
554	Z34	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
555	Z35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
556	Z36	DP18_M2C_P	Board to Board Connector 3	D23	GTYP_RXP2_210	210	D48	GTYP_RXP2_210	I, DIFF	GTYP Bank210 channel2 High speed differential receiver positive.
557	Z37	DP18_M2C_N	Board to Board Connector 3	D24	GTYP_RXN2_210	210	C48	GTYP_RXN2_210	I, DIFF	GTYP Bank210 channel2 High speed differential receiver negative.
558	Z38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
559	Z39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
560	Z40	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.

2.7.10 FMC+ Connector2

The Versal Premium development board supports one 560Pin FMC+ HSPC connector 2 to support standard ANSI/VITA 57.4 FMC modules.

The FMC+ HSPC Connector 2 (J26) supports the below mentioned interface from Versal Premium SOM module.

- 20 GTY High Speed Transceivers
- 5 GTY Reference Clock
- Up to 38 LVDS IOs/76 Single ended (SE) IOs from XPIO Bank

This 560Pin FMC+ HSPC connector 2 (J26) is physically located at the top of the board as shown below

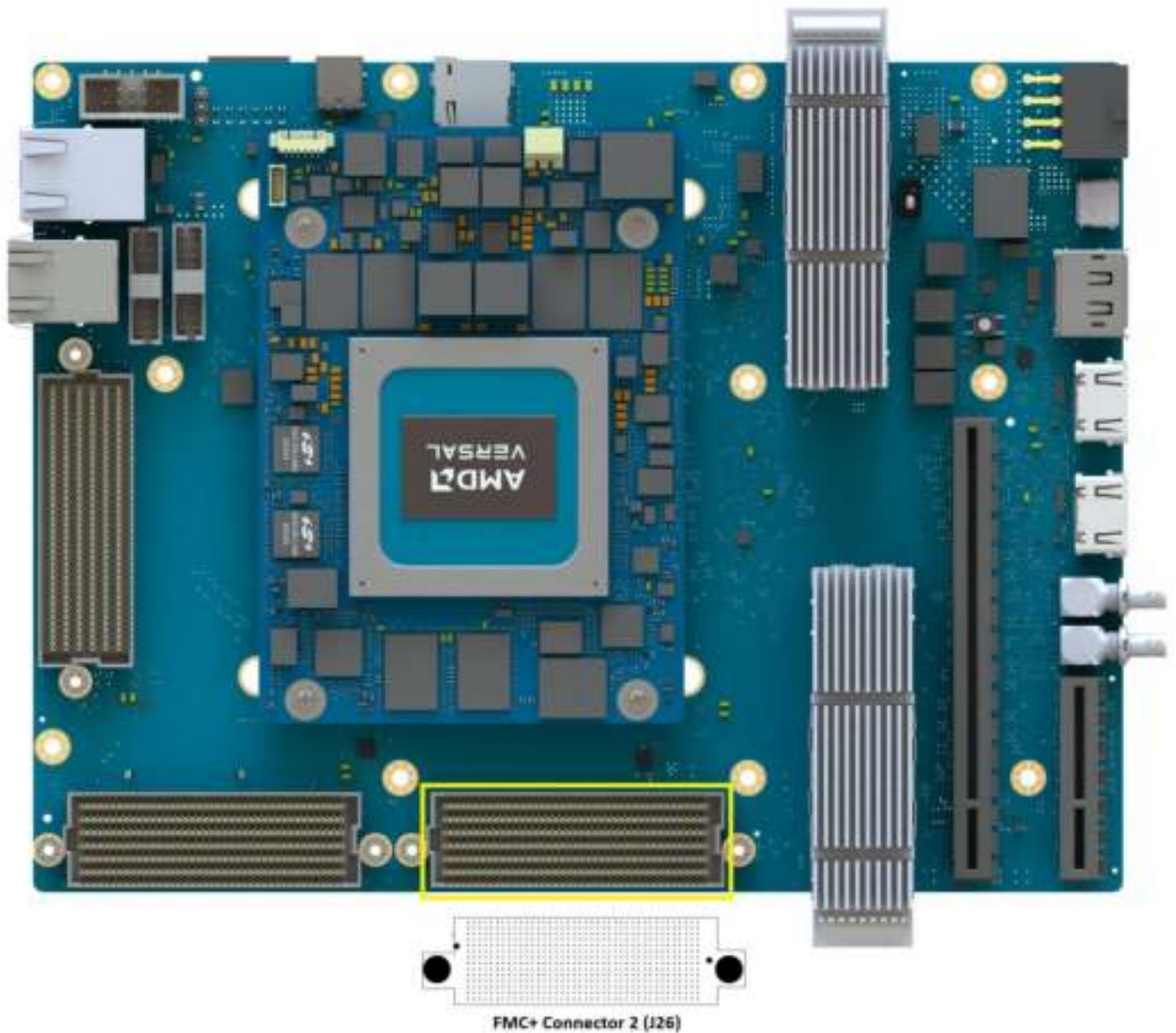


Figure 20:FMC+ Connector 2

	M	L	K	J	H	G	F	E	D	C	B	A	Z	Y
1	GND	NC	NC	GND	NC	GND	PG_M2C	GND	PG_C2M	GND	CLK_DIR	GND	HSPC_PRSENT_M2C_L	GND
2	NC	GND	GND	CLK3_BIDIR_P	PRSENT_M2C_L	CLK1_M2C_P	GND	NC	GND	DP0_C2M_P	GND	DP1_M2C_P	GND	NC
3	NC	GND	GND	CLK3_BIDIR_N	GND	CLK1_M2C_N	GND	NC	GND	DP0_C2M_N	GND	DP1_M2C_N	GND	NC
4	GND	GBCLK4_M2C_P	CLK2_BIDIR_P	GND	CLK0_M2C_P	GND	NC	GND	GBCLK0_M2C_P	GND	DP9_M2C_P	GND	NC	GND
5	GND	GBCLK4_M2C_N	CLK2_BIDIR_N	GND	CLK0_M2C_N	GND	NC	GND	GBCLK0_M2C_N	GND	DP9_M2C_N	GND	NC	GND
6	NC	GND	GND	NC	GND	LA00_P_CC	GND	NC	GND	DP0_M2C_P	GND	DP2_M2C_P	GND	NC
7	NC	GND	NC	NC	LA02_P	LA00_N_CC	NC	NC	GND	DP0_M2C_N	GND	DP2_M2C_N	GND	NC
8	GND	GBCLK3_M2C_P	NC	GND	LA02_N	GND	NC	GND	LA01_P_CC	GND	DP8_M2C_P	GND	NC	GND
9	GND	GBCLK3_M2C_N	GND	NC	GND	LA03_P	GND	NC	LA01_N_CC	GND	DP8_M2C_N	GND	NC	GND
10	NC	GND	NC	NC	LA04_P	LA03_N	NC	NC	GND	LA06_P	GND	DP3_M2C_P	GND	DP10_M2C_P
11	NC	GND	NC	GND	LA04_N	GND	NC	GND	LA05_P	LA06_N	GND	DP3_M2C_N	GND	DP10_M2C_N
12	GND	GBCLK2_M2C_P	GND	NC	GND	LA08_P	GND	NC	LA05_N	GND	DP7_M2C_P	GND	DP11_M2C_P	GND
13	GND	GBCLK2_M2C_N	NC	NC	LA07_P	LA08_N	NC	NC	GND	GND	DP7_M2C_N	GND	DP11_M2C_N	GND
14	NC	GND	NC	GND	LA07_N	GND	NC	GND	LA09_P	LA10_P	GND	DP4_M2C_P	GND	DP12_M2C_P
15	NC	GND	GND	NC	GND	LA12_P	GND	NC	LA09_N	LA10_N	GND	DP4_M2C_N	GND	DP12_M2C_N
16	GND	NC	NC	NC	LA11_P	LA12_N	NC	NC	GND	GND	DP6_M2C_P	GND	DP13_M2C_P	GND
17	GND	NC	NC	GND	LA11_N	GND	NC	GND	LA13_P	GND	DP6_M2C_N	GND	DP13_M2C_N	GND
18	DP14_C2M_P	GND	GND	NC	GND	LA16_P	GND	NC	LA13_N	LA14_P	GND	DP5_M2C_P	GND	DP14_M2C_P
19	DP14_C2M_N	GND	NC	NC	LA15_P	LA16_N	NC	NC	GND	LA14_N	GND	DP5_M2C_N	GND	DP14_M2C_N
20	GND	NC	NC	GND	LA15_N	GND	NC	GND	LA17_P_CC	GND	GBCLK1_M2C_P	GND	GBCLK5_M2C_P	GND
21	GND	NC	GND	NC	GND	LA20_P	GND	NC	LA17_N_CC	GND	GBCLK1_M2C_N	GND	GBCLK5_M2C_N	GND
22	DP15_C2M_P	GND	NC	NC	LA19_P	LA20_N	NC	NC	GND	LA18_P_CC	GND	DP1_C2M_P	GND	DP15_M2C_P
23	DP15_C2M_N	GND	NC	GND	LA19_N	GND	NC	GND	LA23_P	LA18_N_CC	GND	DP1_C2M_N	GND	DP15_M2C_N
24	GND	NC	GND	NC	GND	LA22_P	GND	NC	LA23_N	GND	DP9_C2M_P	GND	DP10_C2M_P	GND
25	GND	NC	NC	NC	LA21_P	LA22_N	NC	NC	GND	GND	DP9_C2M_N	GND	DP10_C2M_N	GND
26	DP16_C2M_P	GND	NC	GND	LA21_N	GND	NC	GND	LA26_P	LA27_P	GND	DP2_C2M_P	GND	DP11_C2M_P
27	DP16_C2M_N	GND	GND	NC	GND	LA25_P	GND	NC	LA26_N	LA27_N	GND	DP2_C2M_N	GND	DP11_C2M_N
28	GND	NC	NC	NC	LA24_P	LA25_N	NC	NC	GND	GND	DP8_C2M_P	GND	DP12_C2M_P	GND
29	GND	NC	NC	GND	LA24_N	GND	NC	GND	TCK	GND	DP8_C2M_N	GND	DP12_C2M_N	GND
30	DP17_C2M_P	GND	GND	NC	GND	LA29_P	GND	NC	TDI	SCL	GND	DP3_C2M_P	GND	DP13_C2M_P
31	DP17_C2M_N	GND	NC	NC	LA28_P	LA29_N	NC	NC	TDO	SDA	GND	DP3_C2M_N	GND	DP13_C2M_N
32	GND	NC	NC	GND	LA28_N	GND	NC	GND	3P3VAUX	GND	DP7_C2M_P	GND	DP16_M2C_P	GND
33	GND	NC	GND	NC	GND	LA31_P	GND	NC	TMS	GND	DP7_C2M_N	GND	DP16_M2C_N	GND
34	DP18_C2M_P	GND	NC	NC	LA30_P	LA31_N	NC	NC	TRST_L	GA0	GND	DP4_C2M_P	GND	DP17_M2C_P
35	DP18_C2M_N	GND	NC	GND	LA30_N	GND	NC	GND	GA1	12POV	GND	DP4_C2M_N	GND	DP17_M2C_N
36	GND	12POV	GND	NC	GND	LA33_P	GND	NC	3P3V	GND	DP6_C2M_P	GND	DP18_M2C_P	GND
37	GND	12POV	NC	NC	LA32_P	LA33_N	NC	NC	GND	12POV	DP6_C2M_N	GND	DP18_M2C_N	GND
38	DP19_C2M_P	GND	NC	GND	LA32_N	GND	NC	GND	3P3V	GND	GND	DP5_C2M_P	GND	DP19_M2C_P
39	DP19_C2M_N	GND	GND	NC	GND	VADJ	GND	VADJ	GND	3P3V	GND	DP5_C2M_N	GND	DP19_M2C_N
40	GND	12POV	NC	GND	VADJ	GND	VADJ	GND	3P3V	GND	NC	GND	3P3V	GND

Figure 21: FMC+ Connector 2 Pin Out

Number of Pins - 560

Connector Part Number - ASP-184329-01 from Samtec

Mating Connector - ASP-184330-01 from Samtec

Staking Height - 10mm

Note:

*The FMC+ Adj Voltage is controlled through switch SW15, with a default voltage of 1.2V. When SW15.1 is in the "ON" position and SW15.2 is in the "OFF" position, the voltage is set to 1.2V.

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

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

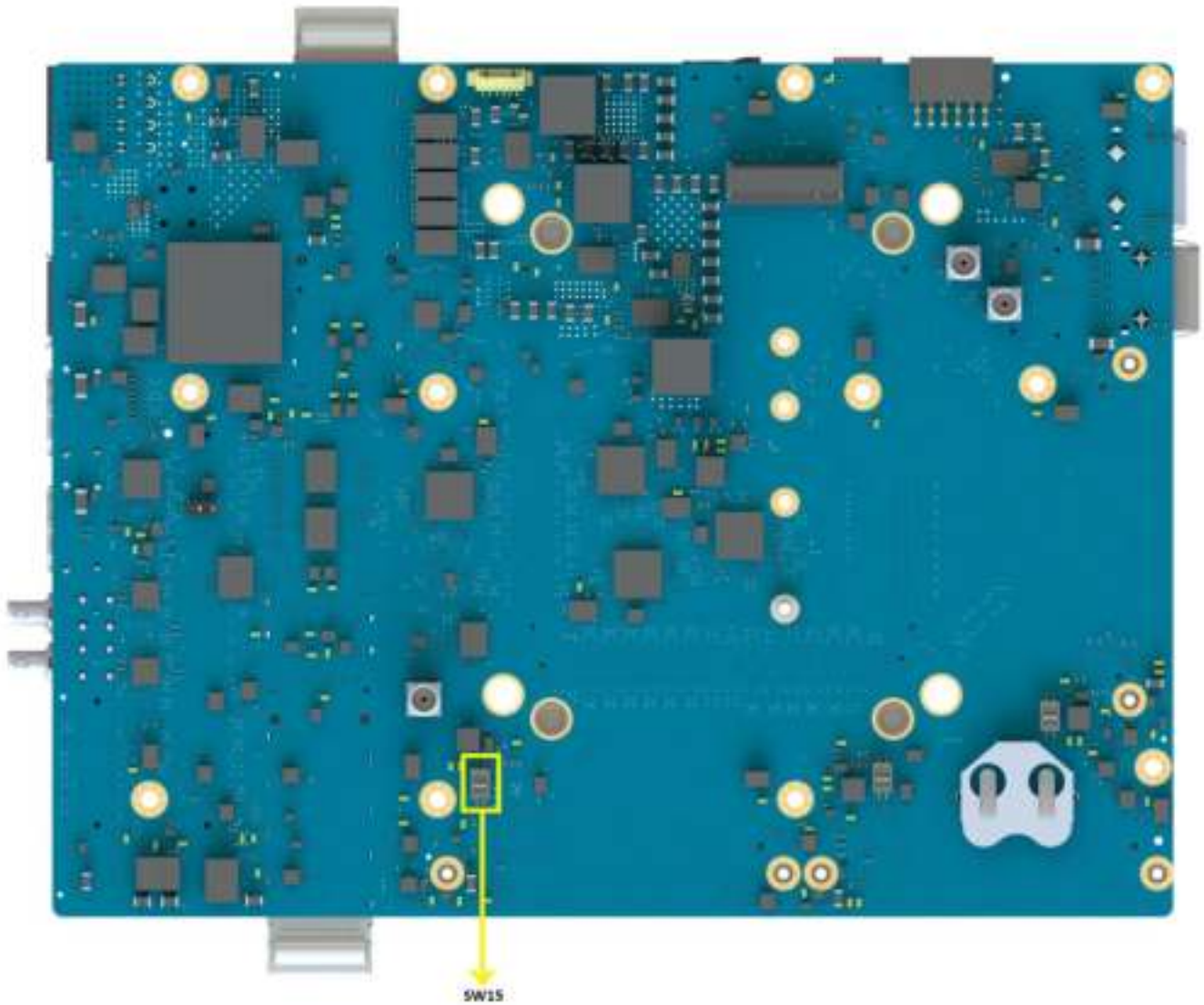


Figure 22: FMC+ Connector 2 ADJ Regulator switch

Versal Premium SOM DevKit Hardware Datasheet

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
1	A1	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
2	A2	DP1_M2C_P	Board to Board Connector 3	B65	GTYP_RXP1_109	109	L2	GTYP_RXP1_109	I, DIFF	GTYP Bank109 channel1 High speed differential receiver positive.
3	A3	DP1_M2C_N	Board to Board Connector 3	B66	GTYP_RXN1_109	109	L1	GTYP_RXN1_109	I, DIFF	GTYP Bank109 channel1 High speed differential receiver negative.
4	A4	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
5	A5	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
6	A6	DP2_M2C_P	Board to Board Connector 3	B68	GTYP_RXP2_109	109	J2	GTYP_RXP2_109	I, DIFF	GTYP Bank109 channel2 High speed differential receiver positive.
7	A7	DP2_M2C_N	Board to Board Connector 3	B69	GTYP_RXN2_109	109	J1	GTYP_RXN2_109	I, DIFF	GTYP Bank109 channel2 High speed differential receiver negative.
8	A8	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
9	A9	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
10	A10	DP3_M2C_P	Board to Board Connector 3	B71	GTYP_RXP3_109	109	H4	GTYP_RXP3_109	I, DIFF	GTYP Bank109 channel3 High speed differential receiver positive.
11	A11	DP3_M2C_N	Board to Board Connector 3	B72	GTYP_RXN3_109	109	H3	GTYP_RXN3_109	I, DIFF	GTYP Bank109 channel3 High speed differential receiver negative.
12	A12	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
13	A13	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
14	A14	DP4_M2C_P	Board to Board Connector 3	D62	GTM_RXP0_203	203	BG52	GTM_RXP0_203	I, DIFF	GTM Bank203 channel0 High speed differential receiver positive.
15	A15	DP4_M2C_N	Board to Board Connector 3	D63	GTM_RXN0_203	203	BG53	GTM_RXN0_203	I, DIFF	GTM Bank203 channel0 High speed differential receiver negative.
16	A16	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
17	A17	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
18	A18	DP5_M2C_P	Board to Board Connector 3	D65	GTM_RXP1_203	203	BE52	GTM_RXP1_203	I, DIFF	GTM Bank203 channel1 High speed differential receiver positive.
19	A19	DP5_M2C_N	Board to Board Connector 3	D66	GTM_RXN1_203	203	BE53	GTM_RXN1_203	I, DIFF	GTM Bank203 channel1 High speed differential receiver negative.
20	A20	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
21	A21	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
22	A22	DP1_C2M_P	Board to Board Connector 3	A65	GTYP_TXP1_109	109	U7	GTYP_TXP1_109	O, DIFF	GTYP Bank109 channel1 High speed differential transmitter positive.
23	A23	DP1_C2M_N	Board to Board Connector 3	A66	GTYP_TXN1_109	109	U6	GTYP_TXN1_109	O, DIFF	GTYP Bank109 channel1 High speed differential transmitter negative.
24	A24	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
25	A25	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
26	A26	DP2_C2M_P	Board to Board Connector 3	A68	GTYP_TXP2_109	109	R7	GTYP_TXP2_109	O, DIFF	GTYP Bank109 channel2 High speed differential transmitter positive.
27	A27	DP2_C2M_N	Board to Board Connector 3	A69	GTYP_TXN2_109	109	R6	GTYP_TXN2_109	O, DIFF	GTYP Bank109 channel2 High speed differential transmitter negative.
28	A28	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
29	A29	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
30	A30	DP3_C2M_P	Board to Board Connector 3	A71	GTYP_TXP3_109	109	P5	GTYP_TXP3_109	O, DIFF	GTYP Bank109 channel3 High speed differential transmitter positive.
31	A31	DP3_C2M_N	Board to Board Connector 3	A72	GTYP_TXN3_109	109	P4	GTYP_TXN3_109	O, DIFF	GTYP Bank109 channel3 High speed differential transmitter negative.
32	A32	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
33	A33	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
34	A34	DP4_C2M_P	Board to Board Connector 3	C62	GTM_TXP0_203	203	NA	GTM_TXP0_203	O, DIFF	GTM Bank203 channel0 High speed differential transmitter positive.
35	A35	DP4_C2M_N	Board to Board Connector 3	C63	GTM_TXN0_203	203	NA	GTM_TXN0_203	O, DIFF	GTM Bank203 channel0 High speed differential transmitter negative.
36	A36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
37	A37	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
38	A38	DP5_C2M_P	Board to Board Connector 3	C65	GTM_TXP1_203	203	BD49	GTM_TXP1_203	O, DIFF	GTM Bank203 channel1 High speed differential transmitter positive.
39	A39	DP5_C2M_N	Board to Board Connector 3	C66	GTM_TXN1_203	203	BD50	GTM_TXN1_203	O, DIFF	GTM Bank203 channel1 High speed differential transmitter negative.
40	A40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
41	B1	CLK_DIR	NA	NA	NA	NA	NA	NA	NA	CLK-DIR This Pin is connected to 17th pin of IO Expander1 (U46).
42	B2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
43	B3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
44	B4	DP9_M2C_P	Board to Board Connector 3	B80	GTYP_RXP1_111	111	B6	GTYP_RXP1_111	I, DIFF	GTYP Bank111 channel1 High speed differential receiver positive.
45	B5	DP9_M2C_N	Board to Board Connector 3	B81	GTYP_RXN1_111	111	A6	GTYP_RXN1_111	I, DIFF	GTYP Bank111 channel1 High speed differential receiver Negative.
46	B6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
47	B7	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
48	B8	DP8_M2C_P	Board to Board Connector 3	B77	GTYP_RXP0_111	111	D5	GTYP_RXP0_111	I, DIFF	GTYP Bank111 channel0 High speed differential receiver positive.
49	B9	DP8_M2C_N	Board to Board Connector 3	B78	GTYP_RXN0_111	111	C5	GTYP_RXN0_111	I, DIFF	GTYP Bank111 channel0 High speed differential receiver negative.
50	B10	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
51	B11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
52	B12	DP7_M2C_P	Board to Board Connector 3	D71	GTM_RXP3_203	203	BA52	GTM_RXP3_203	I, DIFF	GTM Bank203 channel3 High speed differential receiver positive.
53	B13	DP7_M2C_N	Board to Board Connector 3	D72	GTM_RXN3_203	203	BA53	GTM_RXN3_203	I, DIFF	GTM Bank203 channel3 High speed differential receiver negative.
54	B14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
55	B15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
56	B16	DP6_M2C_P	Board to Board Connector 3	D68	GTM_RXP2_203	203	BC52	GTM_RXP2_203	I, DIFF	GTM Bank203 channel2 High speed differential receiver positive
57	B17	DP6_M2C_N	Board to Board Connector 3	D69	GTM_RXN2_203	203	BC53	GTM_RXN2_203	I, DIFF	GTM Bank203 channel2 High speed differential receiver negative.
58	B18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
59	B19	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
60	B20	GBTCLK1_M2C_P	Board to Board Connector 3	C74	GTM_REFCLK0P_203	203	AF45	GTM_REFCLK0P_203	I, DIFF	GTM Bank203 differential reference clock0 positive.
61	B21	GBTCLK1_M2C_N	Board to Board Connector 3	C75	GTM_REFCLK0N_203	203	AF46	GTM_REFCLK0N_203	I, DIFF	GTM Bank203 differential reference clock0 negative.
62	B22	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
63	B23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
64	B24	DP9_C2M_P	Board to Board Connector 3	A80	GTYP_TXP1_111	111	G8	GTYP_TXP1_111	O, DIFF	GTYP Bank111 channel1 High speed differential Transmitter positive.
65	B25	DP9_C2M_N	Board to Board Connector 3	A81	GTYP_TXN1_111	111	F8	GTYP_TXN1_111	O, DIFF	GTYP Bank111 channel1 High speed differential Transmitter Negative.
66	B26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
67	B27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
68	B28	DP8_C2M_P	Board to Board Connector 3	A77	GTYP_TXP0_111	111	G6	GTYP_TXP0_111	O, DIFF	GTYP Bank111 channel0 High speed differential transmitter positive.
69	B29	DP8_C2M_N	Board to Board Connector 3	A78	GTYP_TXN0_111	111	F6	GTYP_TXN0_111	O, DIFF	GTYP Bank111 channel0 High speed differential transmitter negative.
70	B30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
71	B31	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
72	B32	DP7_C2M_P	Board to Board Connector 3	C71	GTM_TXP3_203	203	BB49	GTM_TXP3_203	O, DIFF	GTM Bank203 channel3 High speed differential transmitter positive.
73	B33	DP7_C2M_N	Board to Board Connector 3	C72	GTM_TXN3_203	203	BB50	GTM_TXN3_203	O, DIFF	GTM Bank203 channel3 High speed differential transmitter negative.
74	B34	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
75	B35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
76	B36	DP6_C2M_P	Board to Board Connector 3	C68	GTM_TXP2_203	203	BC47	GTM_TXP2_203	O, DIFF	GTM Bank203 channel2 High speed differential transmitter positive.
77	B37	DP6_C2M_N	Board to Board Connector 3	C69	GTM_TXN2_203	203	BC48	GTM_TXN2_203	O, DIFF	GTM Bank203 channel2 High speed differential transmitter negative.
78	B38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
79	B39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
80	B40	RES0	NA	NA	NA	NA	NA	NA	NA	NC.
81	C1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
82	C2	DPO_C2M_P	Board to Board Connector 3	A62	GTYP_TXP0_109	109	W7	GTYP_TXP0_109	O, DIFF	GTYP Bank109 channel0 High speed differential transmitter positive.
83	C3	DPO_C2M_N	Board to Board Connector 3	A63	GTYP_TXN0_109	109	W6	GTYP_TXN0_109	O, DIFF	GTYP Bank109 channel0 High speed differential transmitter negative.
84	C4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
85	C5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
86	C6	DPO_M2C_P	Board to Board Connector 3	B62	GTYP_RXP0_109	109	M4	GTYP_RXP0_109	I, DIFF	GTYP Bank109 channel0 High speed differential receiver positive.
87	C7	DPO_M2C_N	Board to Board Connector 3	B63	GTYP_RXN0_109	109	M3	GTYP_RXN0_109	I, DIFF	GTYP Bank109 channel0 High speed differential receiver negative.
88	C8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
89	C9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
90	C10	LA06_P	Board to Board Connector 1	C32	XP_BL30_LVDS705_L3P	705	BL30	IO_L3P_XCC_N1P0_M1P114_705	IO, 1.2V	PL Bank705 IO3 differential positive.
91	C11	LA06_N	Board to Board Connector 1	C33	XP_BM29_LVDS705_L3N	705	BM29	IO_L3N_XCC_N1P1_M1P115_705	IO, 1.2V	PL Bank705 IO3 differential negative.
92	C12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
93	C13	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
94	C14	LA10_P	Board to Board Connector 1	B34	XP_BF27_LVDS705_L7P	705	BF27	IO_L7P_N2P2_M1P122_705	IO, 1.2V	PL Bank705 IO7 differential positive.
95	C15	LA10_N	Board to Board Connector 1	B35	XP_BG28_LVDS705_L7N	705	BG28	IO_L7N_N2P3_M1P123_705	IO, 1.2V	PL Bank705 IO7 differential negative.
96	C16	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
97	C17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
98	C18	LA14_P	Board to Board Connector 1	C39	XP_BD28_LVDS705_L17P	705	BD28	IO_L17P_N5P4_M1P142_705	IO, 1.2V	PL Bank705 IO17 differential positive.
99	C19	LA14_N	Board to Board Connector 1	C40	XP_BE28_LVDS705_L17N	705	BE28	IO_L17N_N5P5_M1P143_705	IO, 1.2V	PL Bank705 IO17 differential negative.
100	C20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
101	C21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
102	C22	LA18_P_CC	Board to Board Connector 1	D39	XP_AY29_LVDS705_L13P	705	AY29	IO_L13P_N4P2_M1P134_705	IO, 1.2V	PL Bank705 IO13 differential positive.
103	C23	LA18_N_CC	Board to Board Connector 1	D40	XP_BA28_LVDS705_L13N	705	BA28	IO_L13N_N4P3_M1P135_705	IO, 1.2V	PL Bank705 IO13 differential negative.
104	C24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
105	C25	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
106	C26	LA27_P	Board to Board Connector 1	C13	XP_BB19_LVDS703_L17P	703	BB19	IO_L17P_N5P4_M1P34_703	IO, 1.2V	PL Bank703 IO17 differential positive.
107	C27	LA27_N	Board to Board Connector 1	C14	XP_BB20_LVDS703_L17N	703	BB20	IO_L17N_N5P5_M1P35_703	IO, 1.2V	PL Bank703 IO17 differential negative.
108	C28	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
109	C29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
110	C30	SCL	NA	NA	NA	NA	NA	NA	O, 3.3V LVCMOS	FMC+ I2C Clock Signal. This Pin is connected from 7th pin of I2C Bus switch (U50).
111	C31	SDA	NA	NA	NA	NA	NA	NA	IO, 3.3V LVCMOS	FMC+ I2C Data Signal. This Pin is connected from 6th pin of I2C Bus switch (U50).
112	C32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
113	C33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
114	C34	GA0	NA	NA	NA	NA	NA	NA	O, 1K, PU	Geographical address 0
115	C35	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
116	C36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
117	C37	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
118	C38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
119	C39	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
120	C40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
121	D1	PG_C2M	NA	NA	NA	NA	NA	NA	O, 3.3V	Power Good Signal from Carrier to FMC Module.
122	D2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
123	D3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
124	D4	GBTCLK0_M2C_P	Board to Board Connector 3	A74	GTYP_REFCLK0P_109	109	T9	GTYP_REFCLK0P_109	I, DIFF	GTYP Bank109 differential reference clock0 positive.
125	D5	GBTCLK0_M2C_N	Board to Board Connector 3	A75	GTYP_REFCLK0N_109	109	T8	GTYP_REFCLK0N_109	I, DIFF	GTYP Bank109 differential reference clock0 negative.
126	D6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
127	D7	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
128	D8	LA01_P_CC	Board to Board Connector 1	D37	XP_AY30_LVDS705_L12P_GC	705	AY30	IO_L12P_GC_XCC_N4P0_M1P132_705	IO, 1.2V	PL Bank705 IO12 differential positive. Same pin can be configured as Global Clock.
129	D9	LA01_N_CC	Board to Board Connector 1	D38	XP_BA30_LVDS705_L12N_GC	705	BA30	IO_L12N_GC_XCC_N4P1_M1P133_705	IO, 1.2V	PL Bank705 IO12 differential negative. Same pin can be configured as Global Clock.
130	D10	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
131	D11	LA05_P	Board to Board Connector 1	C30	XP_BN29_LVDS705_L5P	705	BN29	IO_L5P_N1P4_M1P118_705	IO, 1.2V	PL Bank705 IO5 differential positive.
132	D12	LA05_N	Board to Board Connector 1	C31	XP_BN30_LVDS705_L5N	705	BN30	IO_L5N_N1P5_M1P119_705	IO, 1.2V	PL Bank705 IO5 differential negative.
133	D13	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
134	D14	LA09_P	Board to Board Connector 1	B32	XP_BH30_LVDS705_L8P	705	BH30	IO_L8P_N2P4_M1P124_705	IO, 1.2V	PL Bank705 IO8 differential positive.
135	D15	LA09_N	Board to Board Connector 1	B33	XP_BJ30_LVDS705_L8N	705	BJ30	IO_L8N_N2P5_M1P125_705	IO, 1.2V	PL Bank705 IO8 differential negative.
136	D16	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
137	D17	LA13_P	Board to Board Connector 1	C37	XP_BB28_LVDS705_L16P	705	BB28	IO_L16P_N5P2_M1P140_705	IO, 1.2V	PL Bank705 IO16 differential positive.
138	D18	LA13_N	Board to Board Connector 1	C38	XP_BC29_LVDS705_L16N	705	BC29	IO_L16N_N5P3_M1P141_705	IO, 1.2V	PL Bank705 IO16 differential negative.
139	D19	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
140	D20	LA17_P_CC	Board to Board Connector 1	A32	XP_BH29_LVDS705_L10P	705	BH29	IO_L10P_N3P2_M1P128_705	IO, 1.2V	PL Bank705 IO10 differential positive.
141	D21	LA17_N_CC	Board to Board Connector 1	A33	XP_BJ29_LVDS705_L10N	705	BJ29	IO_L10N_N3P3_M1P129_705	IO, 1.2V	PL Bank705 IO10 differential negative.
142	D22	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
143	D23	LA23_P	Board to Board Connector 1	A11	XP_AU20_LVDS703_L20P	703	AU20	IO_L20P_N6P4_M1P40_703	IO, 1.2V	PL Bank703 IO20 differential positive.
144	D24	LA23_N	Board to Board Connector 1	A12	XP_AV21_LVDS703_L20N	703	AV21	IO_L20N_N6P5_M1P41_703	IO, 1.2V	PL Bank703 IO20 differential negative.
145	D25	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
146	D26	LA26_P	Board to Board Connector 1	C11	XP_BB22_LVDS703_L16P	703	BB22	IO_L16P_N5P2_M1P32_703	IO, 1.2V	PL Bank703 IO16 differential negative.
147	D27	LA26_N	Board to Board Connector 1	C12	XP_BC21_LVDS703_L16N	703	BC21	IO_L16N_N5P3_M1P33_703	IO, 1.2V	PL Bank703 IO16 differential negative.
148	D28	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
149	D29	TCK	Board to Board Connector 2	NA	JTAG_TCK	503	B19	TCK_503	I, 3.3V CMOS	JTAG Test Clock. This Pin is connected to A12 th pin of Board-to-Board Connector2 (J15) through Voltage level translator.
150	D30	TDI	NA	NA	NA	NA	NA	NA	NA	NC.
151	D31	TDO	NA	NA	NA	NA	NA	NA	NA	NC.
152	D32	3P3VAUX	NA	NA	VCC_3V3	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage
153	D33	TMS	NA	NA	JTAG_TMS	503	B16	TMS_503	I, 3.3V CMOS	JTAG Test Mode Select. This Pin is connected to A13 th pin of Board-to-Board Connector2 (J15) through Voltage level translator.
154	D34	TRST_L	Board to Board Connector 2	NA	NC	NA	NA	NA	I, 3.3V CMOS/ 4.7K PU	NC. This Pin is connected to A11pin of Board-to-Board Connector2 (J15) through Voltage level translator.
155	D35	GA1	NA	NA	NA	NA	NA	NA	O, 1K, PD	Geographical address 1
156	D36	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage
157	D37	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
158	D38	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage
159	D39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
160	D40	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage
161	E1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
162	E2	HA01_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
163	E3	HA01_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
164	E4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
165	E5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
166	E6	HA05_P	NA	NA	NA	NA	NA	NA	NA	NC.
167	E7	HA05_N	NA	NA	NA	NA	NA	NA	NA	NC.
168	E8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
169	E9	HA09_P	NA	NA	NA	NA	NA	NA	NA	NC.
170	E10	HA09_N	NA	NA	NA	NA	NA	NA	NA	NC.
171	E11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
172	E12	HA13_P	NA	NA	NA	NA	NA	NA	NA	NC.
173	E13	HA13_N	NA	NA	NA	NA	NA	NA	NA	NC.
174	E14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
175	E15	HA16_P	NA	NA	NA	NA	NA	NA	NA	NC.
176	E16	HA16_N	NA	NA	NA	NA	NA	NA	NA	NC.
177	E17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
178	E18	HA20_P	NA	NA	NA	NA	NA	NA	NA	NC.
179	E19	HA20_N	NA	NA	NA	NA	NA	NA	NA	NC.
180	E20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
181	E21	HB03_P	NA	NA	NA	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
182	E22	HB03_N	NA	NA	NA	NA	NA	NA	NA	NC.
183	E23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
184	E24	HB05_P	NA	NA	NA	NA	NA	NA	NA	NC.
185	E25	HB05_N	NA	NA	NA	NA	NA	NA	NA	NC.
186	E26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
187	E27	HB09_P	NA	NA	NA	NA	NA	NA	NA	NC.
188	E28	HB09_N	NA	NA	NA	NA	NA	NA	NA	NC.
189	E29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
190	E30	HB13_P	NA	NA	NA	NA	NA	NA	NA	NC.
191	E31	HB13_N	NA	NA	NA	NA	NA	NA	NA	NC.
192	E32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
193	E33	HB19_P	NA	NA	NA	NA	NA	NA	NA	NC.
194	E34	HB19_N	NA	NA	NA	NA	NA	NA	NA	NC.
195	E35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
196	E36	HB21_P	NA	NA	NA	NA	NA	NA	NA	NC.
197	E37	HB21_N	NA	NA	NA	NA	NA	NA	NA	NC.
198	E38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
199	E39	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.8V Power	Carrier Board Supply Voltage.
200	E40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
201	F1	PG_M2C	NA	NA	NA	NA	NA	NA	NA	Power Good Signal from Carrier to FMC Module.
202	F2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
203	F3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
204	F4	HA00_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
205	F5	HA00_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
206	F6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
207	F7	HA04_P	NA	NA	NA	NA	NA	NA	NA	NC.
208	F8	HA04_N	NA	NA	NA	NA	NA	NA	NA	NC.
209	F9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
210	F10	HA08_P	NA	NA	NA	NA	NA	NA	NA	NC.
211	F11	HA08_N	NA	NA	NA	NA	NA	NA	NA	NC.
212	F12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
213	F13	HA12_P	NA	NA	NA	NA	NA	NA	NA	NC.
214	F14	HA12_N	NA	NA	NA	NA	NA	NA	NA	NC.
215	F15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
216	F16	HA15_P	NA	NA	NA	NA	NA	NA	NA	NC.
217	F17	HA15_N	NA	NA	NA	NA	NA	NA	NA	NC.
218	F18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
219	F19	HA19_P	NA	NA	NA	NA	NA	NA	NA	NC.
220	F20	HA19_N	NA	NA	NA	NA	NA	NA	NA	NC.
221	F21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
222	F22	HB02_P	NA	NA	NA	NA	NA	NA	NA	NC.
223	F23	HB02_N	NA	NA	NA	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
224	F24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
225	F25	HB04_P	NA	NA	NA	NA	NA	NA	NA	NC.
226	F26	HB04_N	NA	NA	NA	NA	NA	NA	NA	NC.
227	F27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
228	F28	HB08_P	NA	NA	NA	NA	NA	NA	NA	NC.
229	F29	HB08_N	NA	NA	NA	NA	NA	NA	NA	NC.
230	F30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
231	F31	HB12_P	NA	NA	NA	NA	NA	NA	NA	NC.
232	F32	HB12_N	NA	NA	NA	NA	NA	NA	NA	NC.
233	F33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
234	F34	HB16_P	NA	NA	NA	NA	NA	NA	NA	NC.
235	F35	HB16_N	NA	NA	NA	NA	NA	NA	NA	NC.
236	F36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
237	F37	HB20_P	NA	NA	NA	NA	NA	NA	NA	NC.
238	F38	HB20_N	NA	NA	NA	NA	NA	NA	NA	NC.
239	F39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
240	F40	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.8V Power	Carrier Board Supply Voltage
241	G1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
242	G2	CLK1_M2C_P	Board to Board Connector 1	D11	XP_AY20_LVDS703_L14P	703	AY20	IO_L14P_N4P4_M1P28_703	IO, 1.2V	PL Bank703 IO14 differential positive.
243	G3	CLK1_M2C_N	Board to Board Connector 1	D12	XP_BA21_LVDS703_L14N	703	BA21	IO_L14N_N4P5_M1P29_703	IO, 1.2V	PL Bank703 IO14 differential negative.
244	G4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
245	G5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
246	G6	LA00_P_CC	Board to Board Connector 1	A34	XP_BH27_LVDS705_L9P_GC	705	BH27	IO_L9P_GC_XCC_N3P0_M1P126_705	IO, 1.2V	PL Bank705 IO9 differential positive. Same pin can be configured as Global Clock.
247	G7	LA00_N_CC	Board to Board Connector 1	A35	XP_BJ27_LVDS705_L9N_GC	705	BJ27	IO_L9N_GC_XCC_N3P1_M1P127_705	IO, 1.2V	PL Bank705 IO9 differential negative. Same pin can be configured as Global Clock.
248	G8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
249	G9	LA03_P	Board to Board Connector 1	D32	XP_BK30_LVDS705_L2P	705	BK30	IO_L2P_N0P4_M1P112_705	IO, 1.2V	PL Bank705 IO2 differential positive.
250	G10	LA03_N	Board to Board Connector 1	D33	XP_BL29_LVDS705_L2N	705	BL29	IO_L2N_N0P5_M1P113_705	IO, 1.2V	PL Bank705 IO2 differential negative.
251	G11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
252	G12	LA08_P	Board to Board Connector 1	B30	XP_BG30_LVDS705_L6P_GC	705	BG30	IO_L6P_GC_XCC_N2P0_M1P120_705	IO, 1.2V	PL Bank705 IO6 differential positive.
253	G13	LA08_N	Board to Board Connector 1	B31	XP_BH31_LVDS705_L6N_GC	705	BH31	IO_L6N_GC_XCC_N2P1_M1P121_705	IO, 1.2V	PL Bank705 IO6 differential negative.
254	G14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
255	G15	LA12_P	Board to Board Connector 1	D41	XP_BB30_LVDS705_L14P	705	BB30	IO_L14P_N4P4_M1P136_705	IO, 1.2V	PL Bank705 IO14 differential positive.
256	G16	LA12_N	Board to Board Connector 1	D42	XP_BC30_LVDS705_L14N	705	BC30	IO_L14N_N4P5_M1P137_705	IO, 1.2V	PL Bank705 IO14 differential negative.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
257	G17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
258	G18	LA16_P	Board to Board Connector 1	B37	XP_AT29_LVDS705_L18P	705	AT29	IO_L18P_XCC_N6P0_M1P144_705	IO, 1.2V	PL Bank705 IO18 differential positive.
259	G19	LA16_N	Board to Board Connector 1	B38	XP_AU30_LVDS705_L18N	705	AU30	IO_L18N_XCC_N6P1_M1P145_705	IO, 1.2V	PL Bank705 IO18 differential negative.
260	G20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
261	G21	LA20_P	Board to Board Connector 1	B41	XP_AU29_LVDS705_L20P	705	AU29	IO_L20P_N6P4_M1P148_705	IO, 1.2V	PL Bank705 IO20 differential positive.
262	G22	LA20_N	Board to Board Connector 1	B42	XP_AV28_LVDS705_L20N	705	AV28	IO_L20N_N6P5_M1P149_705	IO, 1.2V	PL Bank705 IO20 differential negative.
263	G23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
264	G24	LA22_P	Board to Board Connector 1	A39	XP_AV30_LVDS705_L22P	705	AV30	IO_L22P_N7P2_M1P152_705	IO, 1.2V	PL Bank705 IO22 differential positive.
265	G25	LA22_N	Board to Board Connector 1	A40	XP_AW29_LVDS705_L22N	705	AW29	IO_L22N_N7P3_M1P153_705	IO, 1.2V	PL Bank705 IO22 differential negative.
266	G26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
267	G27	LA25_P	Board to Board Connector 1	C9	XP_BA19_LVDS703_L15P	703	BA19	IO_L15P_XCC_N5P0_M1P30_703	IO, 1.2V	PL Bank703 IO15 differential positive.
268	G28	LA25_N	Board to Board Connector 1	C10	XP_BB18_LVDS703_L15N	703	BB18	IO_L15N_XCC_N5P1_M1P31_703	IO, 1.2V	PL Bank703 IO15 differential negative.
269	G29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
270	G30	LA29_P	Board to Board Connector 1	B11	XP_AV19_LVDS703_L23P	703	AV19	IO_L23P_N7P4_M1P46_703	IO, 1.2V	PL Bank703 IO23 differential positive.
271	G31	LA29_N	Board to Board Connector 1	B12	XP_AW20_LVDS703_L23N	703	AW20	IO_L23N_N7P5_M1P47_703	IO, 1.2V	PL Bank703 IO23differential negative.
272	G32	GND	NA	GND	GND	NA	NA		Power	Ground.
273	G33	LA31_P	Board to Board Connector 1	A9	XP_AT20_LVDS703_L18P	703	AT20	IO_L18P_XCC_N6P0_M1P36_703	IO, 1.2V	PL Bank703 IO18 differential positive.
274	G34	LA31_N	Board to Board Connector 1	A10	XP_AU21_LVDS703_L18N	703	AU21	IO_L18N_XCC_N6P1_M1P37_703	IO, 1.2V	PL Bank703 IO18 differential negative.
275	G35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
276	G36	LA33_P	Board to Board Connector 1	D55	XP_U34_LVDS712_L13P	712	U34	IO_L13P_N4P2_712	IO, 1.2V	PL Bank712 IO13 differential positive.
277	G37	LA33_N	Board to Board Connector 1	D56	XP_T34_LVDS712_L13N	712	T34	IO_L13N_N4P3_712	IO, 1.2V	PL Bank712 IO13 differential negative.
278	G38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
279	G39	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.8V Power	Carrier Board Supply Voltage
280	G40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
281	H1	VREF_A_M2C	NA	NA	NA	NA	NA	NA	NA	NC.
282	H2	PRSNT_M2C_L	NA	NA	NA	NA	NA	NA	I,3.3V/10K PU	Module Present Signal. This Pin is connected to 18th pin of IO1 Expander (U46).
283	H3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
284	H4	CLK0_M2C_P	Board to Board Connector 1	A4	XP_BG20_LVDS703_L7P	703	BG20	IO_L7P_N2P2_M1P14_703	IO, 1.2V	PL Bank703 IO7 differential positive.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
285	H5	CLK0_M2C_N	Board to Board Connector 1	A5	XP_BH19_LVDS703_L7N	703	BH19	IO_L7N_N2P3_M1P15_703	IO, 1.2V	PL Bank703 IO7 differential negative.
286	H6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
287	H7	LA02_P	Board to Board Connector 1	D30	XP_BL28_LVDS705_L1P	705	BL28	IO_L1P_N0P2_M1P110_705	IO, 1.2V	PL Bank705 IO1 differential positive.
288	H8	LA02_N	Board to Board Connector 1	D31	XP_BM28_LVDS705_L1N	705	BM28	IO_L1N_N0P3_M1P111_705	IO, 1.2V	PL Bank705 IO1 differential negative.
289	H9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
290	H10	LA04_P	Board to Board Connector 1	D34	XP_BK31_LVDS705_L0P	705	BK31	IO_L0P_XCC_N0P0_M1P108_705	IO, 1.2V	PL Bank705 IO0 differential positive.
291	H11	LA04_N	Board to Board Connector 1	D35	XP_BL31_LVDS705_L0N	705	BL31	IO_L0N_XCC_N0P1_M1P109_705	IO, 1.2V	PL Bank705 IO0 differential negative.
292	H12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
293	H13	LA07_P	Board to Board Connector 1	C34	XP_BM31_LVDS705_L4P	705	BM31	IO_L4P_N1P2_M1P116_705	IO, 1.2V	PL Bank705 IO4 differential positive.
294	H14	LA07_N	Board to Board Connector 1	C35	XP_BN31_LVDS705_L4N	705	BN31	IO_L4N_N1P3_M1P117_705	IO, 1.2V	PL Bank705 IO4 differential negative.
295	H15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
296	H16	LA11_P	Board to Board Connector 1	A30	XP_BJ28_LVDS705_L11P	705	BJ28	IO_L11P_N3P4_M1P130_705	IO, 1.2V	PL Bank705 IO11 differential positive.
297	H17	LA11_N	Board to Board Connector 1	A31	XP_BK28_LVDS705_L11N	705	BK28	IO_L11N_N3P5_M1P131_705	IO, 1.2V	PL Bank705 IO11 differential negative.
298	H18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
299	H19	LA15_P	Board to Board Connector 1	C41	XP_BB27_LVDS705_L15P	705	BB27	IO_L15P_XCC_N5P0_M1P138_705	IO, 1.2V	PL Bank705 IO15 differential positive.
300	H20	LA15_N	Board to Board Connector 1	C42	XP_BC28_LVDS705_L15N	705	BC28	IO_L15N_XCC_N5P1_M1P139_705	IO, 1.2V	PL Bank705 IO15 differential negative.
301	H21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
302	H22	LA19_P	Board to Board Connector 1	B39	XP_AT28_LVDS705_L19P	705	AT28	IO_L19P_N6P2_M1P146_705	IO, 1.2V	PL Bank705 IO19 differential positive.
303	H23	LA19_N	Board to Board Connector 1	B40	XP_AU27_LVDS705_L19N	705	AU27	IO_L19N_N6P3_M1P147_705	IO, 1.2V	PL Bank705 IO19 differential negative.
304	H24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
305	H25	LA21_P	Board to Board Connector 1	A37	XP_AV27_LVDS705_L21P	705	AV27	IO_L21P_XCC_N7P0_M1P150_705	IO, 1.2V	PL Bank705 IO21 differential positive.
306	H26	LA21_N	Board to Board Connector 1	A38	XP_AW28_LVDS705_L21N	705	AW28	IO_L21N_XCC_N7P1_M1P151_705	IO, 1.2V	PL Bank705 IO21 differential negative.
307	H27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
308	H28	LA24_P	Board to Board Connector 1	D13	XP_AY18_LVDS703_L13P	703	AY18	IO_L13P_N4P2_M1P26_703	IO, 1.2V	PL Bank703 IO13 differential positive.
309	H29	LA24_N	Board to Board Connector 1	D14	XP_BA18_LVDS703_L13N	703	BA18	IO_L13N_N4P3_M1P27_703	IO, 1.2V	PL Bank703 IO13 differential negative.
310	H30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
311	H31	LA28_P	Board to Board Connector 1	B9	XP_AV18_LVDS703_L21P	703	AV18	IO_L21P_XCC_N7P0_M1P42_703	IO, 1.2V	PL Bank703 IO21 differential positive.
312	H32	LA28_N	Board to Board Connector 1	B10	XP_AW19_LVDS703_L21N	703	AW19	IO_L21N_XCC_N7P1_M1P43_703	IO, 1.2V	PL Bank703 IO21 differential negative.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
313	H33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
314	H34	LA30_P	Board to Board Connector 1	B13	XP_AV22_LVDS703_L22P	703	AV22	IO_L22P_N7P2_M1P44_703	IO, 1.2V	PL Bank703 IO22 differential positive.
315	H35	LA30_N	Board to Board Connector 1	B14	XP_AW22_LVDS703_L22N	703	AW22	IO_L22N_N7P3_M1P45_703	IO, 1.2V	PL Bank703 IO22 differential negative.
316	H36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
317	H37	LA32_P	Board to Board Connector 1	C44	XP_L36_LVDS712_L1P	712	L36	IO_L1P_N0P2_712	IO, 1.2V	PL Bank712 IO1 differential positive.
318	H38	LA32_N	Board to Board Connector 1	C45	XP_K37_LVDS712_L1N	712	K37	IO_L1N_N0P3_712	IO, 1.2V	PL Bank712 IO1 differential negative.
319	H39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
320	H40	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.8V Power	Carrier Board Supply Voltage.
321	J1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
322	J2	CLK3_BIDIR_P	Board to Board Connector 1	D46	XP_J35_LVDS712_L3P	712	J35	IO_L3P_XCC_N1P0_712	IO, 1.2V	PL Bank712 IO3 differential positive.
323	J3	CLK3_BIDIR_N	Board to Board Connector 1	D47	XP_J34_LVDS712_L3N	712	J34	IO_L3N_XCC_N1P1_712	IO, 1.2V	PL Bank712 IO3 differential negative.
324	J4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
325	J5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
326	J6	HA03_P	NA	NA	NA	NA	NA	NA	NA	NC
327	J7	HA03_N	NA	NA	NA	NA	NA	NA	NA	NC
328	J8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
329	J9	HA07_P	NA	NA	NA	NA	NA	NA	NA	NC
330	J10	HA07_N	NA	NA	NA	NA	NA	NA	NA	NC
331	J11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
332	J12	HA11_P	NA	NA	NA	NA	NA	NA	NA	NC
333	J13	HA11_N	NA	NA	NA	NA	NA	NA	NA	NC
334	J14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
335	J15	HA14_P	NA	NA	NA	NA	NA	NA	NA	NC.
336	J16	HA14_N	NA	NA	NA	NA	NA	NA	NA	NC.
337	J17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
338	J18	HA18_P	NA	NA	NA	NA	NA	NA	NA	NC
339	J19	HA18_N	NA	NA	NA	NA	NA	NA	NA	NC.
340	J20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
341	J21	HA22_P	NA	NA	NA	NA	NA	NA	NA	NC.
342	J22	HA22_N	NA	NA	NA	NA	NA	NA	NA	NC.
343	J23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
344	J24	HB01_P	NA	NA	NA	NA	NA	NA	NA	NC.
345	J25	HB01_N	NA	NA	NA	NA	NA	NA	NA	NC.
346	J26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
347	J27	HB07_P	NA	NA	NA	NA	NA	NA	NA	NC.
348	J28	HB07_N	NA	NA	NA	NA	NA	NA	NA	NC.
349	J29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
350	J30	HB11_P	NA	NA	NA	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
351	J31	HB11_N	NA	NA	NA	NA	NA	NA	NA	NC.
352	J32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
353	J33	HB15_P	NA	NA	NA	NA	NA	NA	NA	NC.
354	J34	HB15_N	NA	NA	NA	NA	NA	NA	NA	NC.
355	J35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
356	J36	HB18_P	NA	NA	NA	NA	NA	NA	NA	NC.
357	J37	HB18_N	NA	NA	NA	NA	NA	NA	NA	NC.
358	J38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
359	J39	VIO_B_M2C	NA	NA	NA	NA	NA	NA	NA	NC.
360	J40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
361	K1	VREF_B_M2C	NA	NA	NA	NA	NA	NA	NA	NC.
362	K2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
363	K3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
364	K4	CLK2_BIDIR_P	Board to Board Connector 1	D53	XP_T36_LVDS712_L14P	712	T36	IO_L14P_N4P4_712	IO, 1.2V	PL Bank712 IO14 differential positive
365	K5	CLK2_BIDIR_N	Board to Board Connector 1	D54	XP_R36_LVDS712_L14N	712	R36	IO_L14N_N4P5_712	IO, 1.2V	PL Bank712 IO14 differential negative
366	K6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
367	K7	HA02_P	NA	NA	NA	NA	NA	NA	NA	NC.
368	K8	HA02_N	NA	NA	NA	NA	NA	NA	NA	NC
369	K9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
370	K10	HA06_P	NA	NA	NA	NA	NA	NA	NA	NC.
371	K11	HA06_N	NA	NA	NA	NA	NA	NA	NA	NC
372	K12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
373	K13	HA10_P	NA	NA	NA	NA	NA	NA	NA	NC
374	K14	HA10_N	NA	NA	NA	NA	NA	NA	NA	NC
375	K15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
376	K16	HA17_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
377	K17	HA17_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
378	K18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
379	K19	HA21_P	NA	NA	NA	NA	NA	NA	NA	NC.
380	K20	HA21_N	NA	NA	NA	NA	NA	NA	NA	NC.
381	K21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
382	K22	HA23_P	NA	NA	NA	NA	NA	NA	NA	NC.
383	K23	HA23_N	NA	NA	NA	NA	NA	NA	NA	NC.
384	K24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
385	K25	HB00_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
386	K26	HB00_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
387	K27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
388	K28	HB06_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
389	K29	HB06_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
390	K30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
391	K31	HB10_P	NA	NA	NA	NA	NA	NA	NA	NC.
392	K32	HB10_N	NA	NA	NA	NA	NA	NA	NA	NC.
393	K33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
394	K34	HB14_P	NA	NA	NA	NA	NA	NA	NA	NC.
395	K35	HB14_N	NA	NA	NA	NA	NA	NA	NA	NC.
396	K36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
397	K37	HB17_P_CC	NA	NA	NA	NA	NA	NA	NA	NC.
398	K38	HB17_N_CC	NA	NA	NA	NA	NA	NA	NA	NC.
399	K39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
400	K40	VIO_B_M2C	NA	NA	NA	NA	NA	NA	NA	NC.
401	L1	RES1	NA	NA	NA	NA	NA	NA	NA	NC.
402	L2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
403	L3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
404	L4	GBTCLK4_M2C_P	Board to Board Connector 3	A98	GTYP_REFCLK0P_200	200	AW47	GTYP_REFCLKP0_200	I, DIFF	GTYP Bank200 differential reference clock0 positive.
405	L5	GBTCLK4_M2C_N	Board to Board Connector 3	A99	GTYP_REFCLK0N_200	200	AW48	GTYP_REFCLKN0_200	I, DIFF	GTYP Bank200 differential reference clock0 negative.
406	L6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
407	L7	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
408	L8	GBTCLK3_M2C_P	Board to Board Connector 3	C89	GTYP_REFCLK0P_112	112	AD9	GTYP_REFCLKP0_112	I, DIFF	GTYP Bank112 differential reference clock0 positive.
409	L9	GBTCLK3_M2C_N	Board to Board Connector 3	C90	GTYP_REFCLK0N_112	112	AD8	GTYP_REFCLKN0_112	I, DIFF	GTYP Bank112 differential reference clock0 negative.
410	L10	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
411	L11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
412	L12	GBTCLK2_M2C_P	Board to Board Connector 3	A89	GTYP_REFCLK0P_111	111	M9	GTYP_REFCLKP0_111	I, DIFF	GTYP Bank111 differential reference clock0 positive.
413	L13	GBTCLK2_M2C_N	Board to Board Connector 3	A90	GTYP_REFCLK0N_111	111	M8	GTYP_REFCLKN0_111	I, DIFF	GTYP Bank111 differential reference clock0 Negative.
414	L14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
415	L15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
416	L16	SYNC_C2M_P	NA	NA	NA	NA	NA	NA	NA	NC.
417	L17	SYNC_C2M_N	NA	NA	NA	NA	NA	NA	NA	NC.
418	L18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
419	L19	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
420	L20	REFCLK_C2M_P	NA	NA	NA	NA	NA	NA	NA	NC.
421	L21	REFCLK_C2M_N	NA	NA	NA	NA	NA	NA	NA	NC.
422	L22	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
423	L23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
424	L24	REFCLK_M2C_P	NA	NA	NA	NA	NA	NA	NA	NC.
425	L25	REFCLK_M2C_N	NA	NA	NA	NA	NA	NA	NA	NC.
426	L26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
427	L27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
428	L28	SYNC_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC
429	L29	SYNC_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC
430	L30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
431	L31	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
432	L32	RES2	NA	NA		NA	NA	NA	NA	NC.
433	L33	RES3	NA	NA		NA	NA	NA	NA	NC.
434	L34	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
435	L35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
436	L36	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage
437	L37	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage
438	L38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
439	L39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
440	L40	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage
441	M1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
442	M2	DP23_M2C_P	NA	NA	NA	NA	NA	NA	NA	NC
443	M3	DP23_M2C_N	NA	NA	NA	NA	NA	NA	NA	NC
444	M4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
445	M5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
446	M6	DP22_M2C_P	NA	NA	NA	NA	NA	NA	NA	NC
447	M7	DP22_M2C_N	NA	NA	NA	NA	NA	NA	NA	NC
448	M8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
449	M9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
450	M10	DP21_M2C_P	NA	NA	NA	NA	NA	NA	NA	NC
451	M11	DP21_M2C_N	NA	NA	NA	NA	NA	NA	NA	NC
452	M12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
453	M13	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
454	M14	DP20_M2C_P	NA	NA	NA	NA	NA	NA	NA	NC
455	M15	DP20_M2C_N	NA	NA	NA	NA	NA	NA	NA	NC
456	M16	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
457	M17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
458	M18	DP14_C2M_P	Board to Board Connector 3	C83	GTYP_TXP2_112	112	G14	GTYP_TXP2_112	O, DIFF	GTYP Bank112 channel2 High speed differential transmitter positive.
459	M19	DP14_C2M_N	Board to Board Connector 3	C84	GTYP_TXN2_112	112	F14	GTYP_TXN2_112	O, DIFF	GTYP Bank112 channel2 High speed differential transmitter negative.
460	M20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
461	M21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
462	M22	DP15_C2M_P	Board to Board Connector 3	C86	GTYP_TXP3_112	112	E15	GTYP_TXP3_112	O, DIFF	GTYP Bank112 channel3 High speed differential transmitter positive.
463	M23	DP15_C2M_N	Board to Board Connector 3	C87	GTYP_TXN3_112	112	D15	GTYP_TXN3_112	O, DIFF	GTYP Bank112 channel3 High speed differential transmitter negative.
464	M24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
465	M25	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
466	M26	DP16_C2M_P	Board to Board Connector 3	A92	GTYP_TXP0_212	212	G39	GTYP_TXP0_212	O, DIFF	GTYP Bank212 channel0 High speed differential transmitter positive.
467	M27	DP16_C2M_N	Board to Board Connector 3	A93	GTYP_TXN0_212	212	F39	GTYP_TXN0_212	O, DIFF	GTYP Bank212 channel0 High speed differential transmitter negative.
468	M28	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
469	M29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
470	M30	DP17_C2M_P	Board to Board Connector 3	A95	GTYP_TXP1_212	212	E38	GTYP_TXP1_212	O, DIFF	GTYP Bank212 channel1 High speed differential transmitter positive.
471	M31	DP17_C2M_N	Board to Board Connector 3	A96	GTYP_TXN1_212	212	D38	GTYP_TXN1_212	O, DIFF	GTYP Bank212 channel1 High speed differential transmitter negative.
472	M32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
473	M33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
474	M34	DP18_C2M_P	Board to Board Connector 3	C92	GTYP_TXP2_212	212	G37	GTYP_TXP2_212	O, DIFF	GTYP Bank212 channel2 High speed differential transmitter positive.
475	M35	DP18_C2M_N	Board to Board Connector 3	C93	GTYP_TXN2_212	212	F37	GTYP_TXN2_212	O, DIFF	GTYP Bank212 channel2 High speed differential transmitter negative.
476	M36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
477	M37	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
478	M38	DP19_C2M_P	Board to Board Connector 3	C95	GTYP_TXP3_212	212	G35	GTYP_TXP3_212	O, DIFF	GTYP Bank212 channel3 High speed differential transmitter positive.
479	M39	DP19_C2M_N	Board to Board Connector 3	C96	GTYP_TXN3_212	212	F35	GTYP_TXN3_212	O, DIFF	GTYP Bank212 channel3 High speed differential transmitter negative.
480	M40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
481	Y1	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
482	Y2	DP23_C2M_P	NA	NA	NA	NA	NA	NA	NA	NC
483	Y3	DP23_C2M_N	NA	NA	NA	NA	NA	NA	NA	NC
484	Y4	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
485	Y5	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
486	Y6	DP21_C2M_P	NA	NA	NA	NA	NA	NA	NA	NC
487	Y7	DP21_C2M_N	NA	NA	NA	NA	NA	NA	NA	NC
488	Y8	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
489	Y9	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
490	Y10	DP10_M2C_P	Board to Board Connector 3	B83	GTYP_RXP2_111	111	D7	GTYP_RXP2_111	I, DIFF	GTYP Bank111 channel2 High speed differential receiver positive.
491	Y11	DP10_M2C_N	Board to Board Connector 3	B84	GTYP_RXN2_111	111	C7	GTYP_RXN2_111	I, DIFF	GTYP Bank111 channel2 High speed differential receiver Negative.
492	Y12	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
493	Y13	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
494	Y14	DP12_M2C_P	Board to Board Connector 3	D77	GTYP_RXP0_112	112	B10	GTYP_RXP0_112	I, DIFF	GTYP Bank112 channel0 High speed differential receiver positive.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
495	Y15	DP12_M2C_N	Board to Board Connector 3	D78	GTYP_RXN0_112	112	A10	GTYP_RXN0_112	I, DIFF	GTYP Bank112 channel0 High speed differential receiver negative.
496	Y16	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
497	Y17	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
498	Y18	DP14_M2C_P	Board to Board Connector 3	D83	GTYP_RXP2_112	112	B12	GTYP_RXP2_112	I, DIFF	GTYP Bank112 channel2 High speed differential receiver positive.
499	Y19	DP14_M2C_N	Board to Board Connector 3	D84	GTYP_RXN2_112	112	A12	GTYP_RXN2_112	I, DIFF	GTYP Bank112 channel2 High speed differential receiver negative.
500	Y20	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
501	Y21	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
502	Y22	DP15_M2C_P	Board to Board Connector 3	D86	GTYP_RXP3_112	112	B14	GTYP_RXP3_112	I, DIFF	GTYP Bank112 channel3 High speed differential receiver positive.
503	Y23	DP15_M2C_N	Board to Board Connector 3	D87	GTYP_RXN3_112	112	A14	GTYP_RXN3_112	I, DIFF	GTYP Bank112 channel3 High speed differential receiver negative.
504	Y24	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
505	Y25	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
506	Y26	DP11_C2M_P	Board to Board Connector 3	A86	GTYP_TXP3_111	111	G10	GTYP_TXP3_111	O, DIFF	GTYP Bank111 channel3 High speed differential Transmitter positive.
507	Y27	DP11_C2M_N	Board to Board Connector 3	A87	GTYP_TXN3_111	111	F10	GTYP_TXN3_111	O, DIFF	GTYP Bank111 channel3 High speed differential Transmitter Negative.
508	Y28	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
509	Y29	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
510	Y30	DP13_C2M_P	Board to Board Connector 3	C80	GTYP_TXP1_112	112	E13	GTYP_TXP1_112	O, DIFF	GTYP Bank112 channel1 High speed differential transmitter positive.
511	Y31	DP13_C2M_N	Board to Board Connector 3	C81	GTYP_TXN1_112	112	D13	GTYP_TXN1_112	O, DIFF	GTYP Bank112 channel1 High speed differential transmitter negative.
512	Y32	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
513	Y33	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
514	Y34	DP17_M2C_P	Board to Board Connector 3	B95	GTYP_RXP1_212	212	B37	GTYP_RXP1_212	I, DIFF	GTYP Bank212 channel1 High speed differential receiver positive.
515	Y35	DP17_M2C_N	Board to Board Connector 3	B96	GTYP_RXN1_212	212	A37	GTYP_RXN1_212	I, DIFF	GTYP Bank212 channel1 High speed differential receiver negative.
516	Y36	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
517	Y37	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
518	Y38	DP19_M2C_P	Board to Board Connector 3	D95	GTYP_RXP3_212	212	B35	GTYP_RXP3_212	I, DIFF	GTYP Bank212 channel3 High speed differential receiver positive.
519	Y39	DP19_M2C_N	Board to Board Connector 3	D96	GTYP_RXN3_212	212	A35	GTYP_RXN3_212	I, DIFF	GTYP Bank212 channel3 High speed differential receiver negative.
520	Y40	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
521	Z1	HSPC_PRSENT_M2C_L	NA	NA	NA	NA	NA	NA	I,3.3V/10K PU	FMC+ Module Present Signal.
522	Z2	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
523	Z3	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

Versal Premium SOM DevKit Hardware Datasheet

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
524	Z4	DP22_C2M_P	NA	NA	NA	NA	NA	NA	NA	NC
525	Z5	DP22_C2M_N	NA	NA	NA	NA	NA	NA	NA	NC
526	Z6	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
527	Z7	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
528	Z8	DP20_C2M_P	NA	NA	NA	NA	NA	NA	NA	NC
529	Z9	DP20_C2M_N	NA	NA	NA	NA	NA	NA	NA	NC
530	Z10	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
531	Z11	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
532	Z12	DP11_M2C_P	Board to Board Connector 3	B86	GTYP_RXP3_111	111	B8	GTYP_RXP3_111	I, DIFF	GTYP Bank111 channel3 High speed differential receiver positive.
533	Z13	DP11_M2C_N	Board to Board Connector 3	B87	GTYP_RXN3_111	111	A8	GTYP_RXN3_111	I, DIFF	GTYP Bank111 channel3 High speed differential receiver Negative.
534	Z14	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
535	Z15	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
536	Z16	DP13_M2C_P	Board to Board Connector 3	D80	GTYP_RXP1_112	112	D11	GTYP_RXP1_112	I, DIFF	GTYP Bank112 channel1 High speed differential receiver positive.
537	Z17	DP13_M2C_N	Board to Board Connector 3	D81	GTYP_RXN1_112	112	C11	GTYP_RXN1_112	I, DIFF	GTYP Bank112 channel1 High speed differential receiver negative.
538	Z18	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
539	Z19	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
540	Z20	GBTCLK5_M2C_P	NA	NA	NA	NA	NA	NA	NA	NC
541	Z21	GBTCLK5_M2C_N	NA	NA	NA	NA	NA	NA	NA	NC
542	Z22	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
543	Z23	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
544	Z24	DP10_C2M_P	Board to Board Connector 3	A83	GTYP_TXP2_111	111	E9	GTYP_TXP2_111	O, DIFF	GTYP Bank111 channel2 High speed differential Transmitter positive.
545	Z25	DP10_C2M_N	Board to Board Connector 3	A84	GTYP_TXN2_111	111	D9	GTYP_TXN2_111	O, DIFF	GTYP Bank111 channel2 High speed differential Transmitter Negative.
546	Z26	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
547	Z27	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
548	Z28	DP12_C2M_P	Board to Board Connector 3	C77	GTYP_TXP0_112	112	G12	GTYP_TXP0_112	O, DIFF	GTYP Bank112 channel0 High speed differential transmitter positive.
549	Z29	DP12_C2M_N	Board to Board Connector 3	C78	GTYP_TXN0_112	112	F12	GTYP_TXN0_112	O, DIFF	GTYP Bank112 channel0 High speed differential transmitter negative.
550	Z30	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
551	Z31	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
552	Z32	DP16_M2C_P	Board to Board Connector 3	B92	GTYP_RXP0_212	212	B39	GTYP_RXP0_212	I, DIFF	GTYP Bank212 channel0 High speed differential receiver positive.
553	Z33	DP16_M2C_N	Board to Board Connector 3	B93	GTYP_RXN0_212	212	A39	GTYP_RXN0_212	I, DIFF	GTYP Bank212 channel0 High speed differential receiver negative.
554	Z34	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
555	Z35	GND	NA	GND	GND	NA	NA	NA	Power	Ground.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
556	Z36	DP18_M2C_P	Board to Board Connector 3	D92	GTYP_RXP2_212	212	D36	GTYP_RXP2_212	I, DIFF	GTYP Bank212 channel2 High speed differential receiver positive.
557	Z37	DP18_M2C_N	Board to Board Connector 3	D93	GTYP_RXN2_212	212	C36	GTYP_RXN2_212	I, DIFF	GTYP Bank212 channel2 High speed differential receiver negative.
558	Z38	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
559	Z39	GND	NA	GND	GND	NA	NA	NA	Power	Ground.
560	Z40	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage

2.7.11 FMC+ Connector 3

The Versal Premium development board supports one 560Pin FMC+ HSPC connector 3 to support standard ANSI/VITA 57.4 FMC modules.

The FMC+ HSPC Connector 3 (J17) supports the below mentioned interface from Versal Premium SOM module.

- 4 GTM High Speed Transceivers
- 2 GTM Reference Clock
- Up to 32 LVDS IOs/65 Single ended (SE) IOs from HP Bank

This 560Pin FMC+ HSPC connector 3(J17) is physically located at the top of the board as shown below

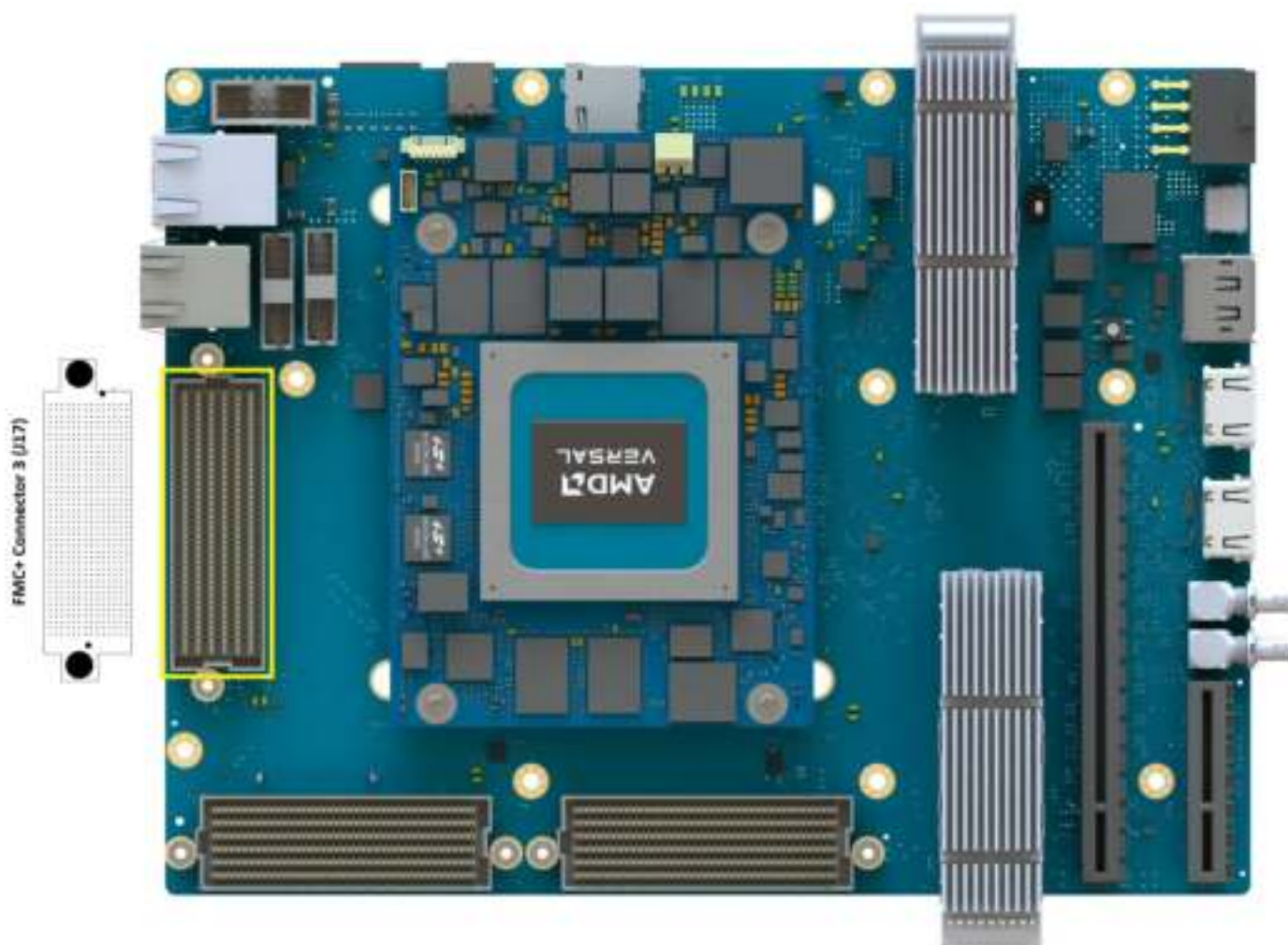


Figure 23: FMC+ Connector 3

	M	L	K	J	H	G	F	E	D	C	B	A	Z	Y
1	GND	NC	NC	GND	NC	GND	PG_M2C	GND	PG_C2M	GND	CLK_DIR	GND	HSPC_PRSENT_M2C_L	GND
2	NC	GND	GND	NC	PRSENT_M2C_L	NC	GND	NC	GND	NC	GND	NC	GND	NC
3	NC	GND	GND	NC	GND	NC	GND	NC	GND	NC	GND	NC	GND	NC
4	GND	NC	NC	GND	NC	GND	NC	GND	NC	GND	NC	GND	NC	GND
5	GND	NC	NC	GND	NC	GND	NC	GND	NC	GND	NC	GND	NC	GND
6	NC	GND	GND	HA03_P	GND	LA00_P_CC	GND	HA05_P	GND	NC	GND	NC	GND	NC
7	NC	GND	HA02_P	HA03_N	LA02_P	LA00_N_CC	HA04_P	HA05_P	GND	NC	GND	NC	GND	NC
8	GND	NC	HA02_N	GND	LA02_N	GND	HA04_N	GND	LA01_P_CC	GND	NC	GND	NC	GND
9	GND	NC	GND	HA07_P	GND	LA03_P	GND	HA09_P	LA01_N_CC	GND	NC	GND	NC	GND
10	NC	GND	NC	HA07_N	LA04_P	LA03_N	HA08_P	HA09_N	GND	LA06_P	GND	NC	GND	NC
11	NC	GND	NC	GND	LA04_N	GND	HA08_N	GND	LA05_P	LA06_N	GND	NC	GND	NC
12	GND	NC	GND	HA11_P	GND	LA08_P	GND	HA13_P	LA05_N	GND	NC	GND	NC	GND
13	GND	NC	HA10_P	HA11_N	LA07_P	LA08_N	HA12_P	HA13_N	GND	GND	NC	GND	NC	GND
14	NC	GND	HA10_N	GND	LA07_N	GND	HA12_N	GND	LA09_P	LA10_P	GND	NC	GND	NC
15	NC	GND	GND	HA14_P	GND	LA12_P	GND	HA16_P	LA09_N	LA10_N	GND	NC	GND	NC
16	GND	NC	HA17_P_CC	HA14_N	LA11_P	LA12_N	HA15_P	HA16_N	GND	GND	NC	GND	NC	GND
17	GND	NC	NC	GND	LA11_N	GND	HA15_N	GND	LA13_P	GND	NC	GND	NC	GND
18	NC	GND	GND	NC	GND	LA16_P	GND	NC	LA13_N	LA14_P	GND	NC	GND	NC
19	NC	GND	NC	NC	LA15_P	LA16_N	NC	NC	GND	LA14_N	GND	NC	GND	NC
20	GND	NC	NC	GND	LA15_N	GND	NC	GND	LA17_P_CC	GND	NC	GND	NC	GND
21	GND	NC	GND	NC	GND	LA20_P	GND	NC	LA17_N_CC	GND	NC	GND	NC	GND
22	NC	GND	NC	NC	LA19_P	LA20_N	NC	NC	GND	LA18_P_CC	GND	NC	GND	NC
23	NC	GND	NC	GND	LA19_N	GND	NC	GND	NC	LA18_N_CC	GND	NC	GND	NC
24	GND	NC	GND	NC	GND	NC	GND	NC	NC	GND	NC	GND	NC	GND
25	GND	NC	NC	NC	LA21_P	NC	NC	NC	GND	GND	NC	GND	NC	GND
26	NC	GND	NC	GND	LA21_N	GND	NC	GND	NC	NC	GND	NC	GND	NC
27	NC	GND	GND	NC	GND	NC	GND	NC	NC	NC	GND	NC	GND	NC
28	GND	NC	NC	NC	NC	NC	NC	NC	GND	GND	NC	GND	NC	GND
29	GND	NC	NC	GND	NC	GND	NC	GND	TCK	GND	NC	GND	NC	GND
30	NC	GND	GND	NC	GND	LA29_P	GND	NC	TDI	SCL	GND	NC	GND	NC
31	NC	GND	NC	NC	LA28_P	LA29_N	NC	NC	TDO	SDA	GND	NC	GND	NC
32	GND	NC	NC	GND	LA28_N	GND	NC	GND	3P3VAUX	GND	NC	GND	NC	GND
33	GND	NC	GND	NC	GND	LA31_P	GND	NC	TMS	GND	NC	GND	NC	GND
34	NC	GND	NC	NC	LA30_P	LA31_N	NC	NC	TRST_L	GA0	GND	NC	GND	NC
35	NC	GND	NC	GND	LA30_N	GND	NC	GND	GA1	12P0V	GND	NC	GND	NC
36	GND	12P0V	GND	NC	GND	LA33_P	GND	NC	3P3V	GND	NC	GND	NC	GND
37	GND	12P0V	NC	NC	LA32_P	LA33_N	NC	NC	GND	12P0V	NC	GND	NC	GND
38	NC	GND	NC	GND	LA32_N	GND	NC	GND	3P3V	GND	NC	GND	NC	GND
39	NC	GND	GND	NC	GND	VADJ	GND	VADJ	GND	3P3V	GND	NC	GND	NC
40	GND	12P0V	NC	GND	VADJ	GND	VADJ	GND	3P3V	GND	NC	GND	3P3V	GND

Figure 24:FMC+ Connector 3 Pin Out

Number of Pins - 560

Connector Part Number - ASP-184329-01 from Samtec

Mating Connector - ASP-184330-01 from Samtec

Staking Height - 10mm

Note:

*The FMC+ Adj Voltage is controlled through switch SW16, with a default voltage of 1.2V. When SW16.1 is in the "ON" position and SW16.2 is in the "OFF" position, the voltage is set to 1.2V.

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

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

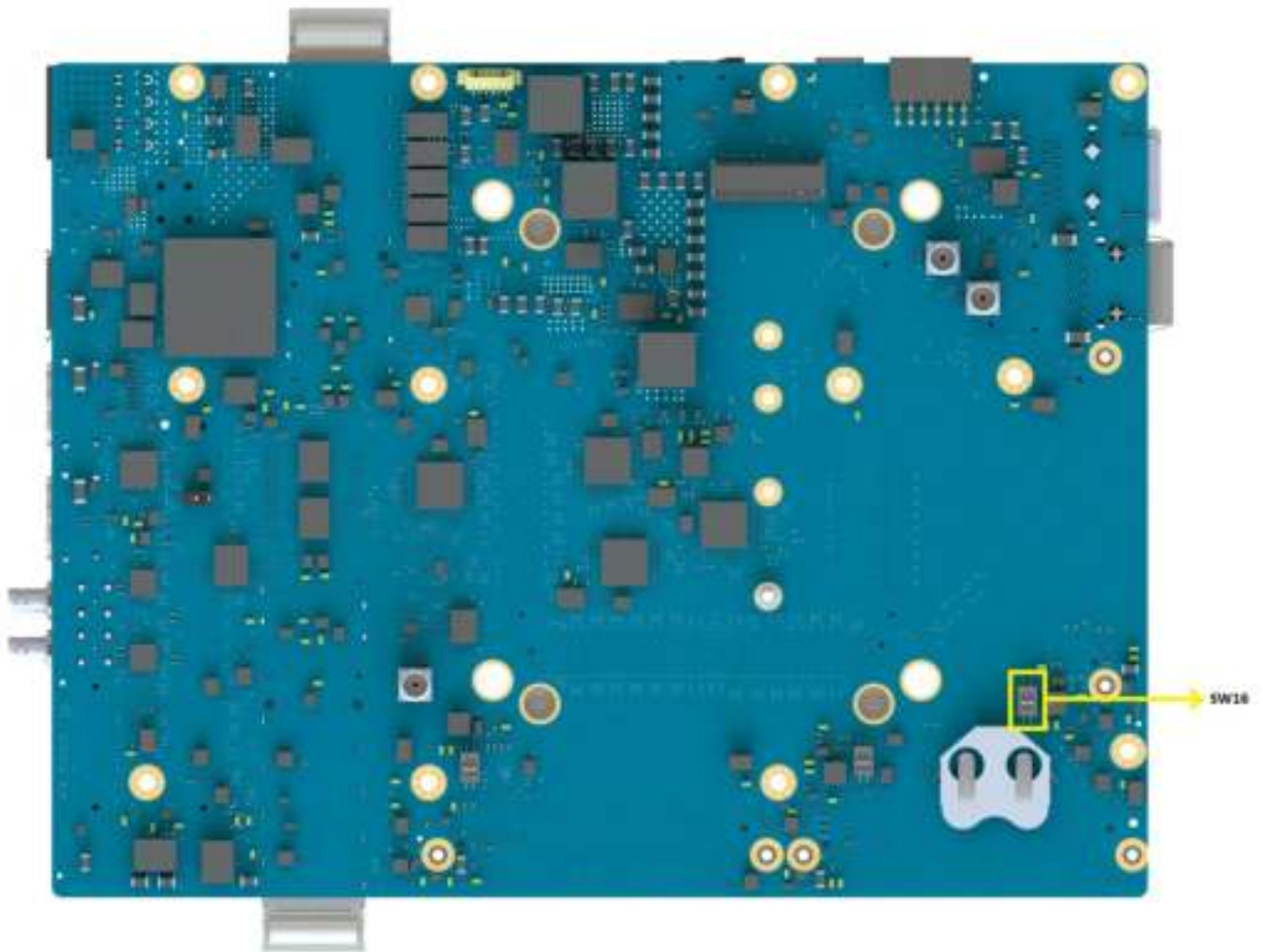


Figure 25: FMC+ Connector 3 ADJ Regulator switch

Versal Premium SOM DevKit Hardware Datasheet

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
1	A1	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
2	A2	DP1_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
3	A3	DP1_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
4	A4	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
5	A5	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
6	A6	DP2_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
7	A7	DP2_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
8	A8	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
9	A9	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
10	A10	DP3_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
11	A11	DP3_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
12	A12	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
13	A13	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
14	A14	DP4_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
15	A15	DP4_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
16	A16	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
17	A17	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
18	A18	DP5_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
19	A19	DP5_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
20	A20	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
21	A21	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
22	A22	DP1_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
23	A23	DP1_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
24	A24	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
25	A25	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
26	A26	DP2_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
27	A27	DP2_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
28	A28	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
29	A29	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
30	A30	DP3_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
31	A31	DP3_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
32	A32	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
33	A33	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
34	A34	DP4_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
35	A35	DP4_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
36	A36	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
37	A37	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
38	A38	DP5_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
39	A39	DP5_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
40	A40	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
41	B1	CLK_DIR	NA	NA	NA	NA	NA	NA	I, 3.3V/1K PD	CLK-DIR This Pin is connected to 15th pin of IO Expander2 (U43).

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
42	B2	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
43	B3	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
44	B4	DP9_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
45	B5	DP9_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
46	B6	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
47	B7	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
48	B8	DP8_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
49	B9	DP8_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
50	B10	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
51	B11	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
52	B12	DP7_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
53	B13	DP7_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
54	B14	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
55	B15	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
56	B16	DP6_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
57	B17	DP6_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
58	B18	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
59	B19	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
60	B20	GBTCLK1_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
61	B21	GBTCLK1_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
62	B22	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
63	B23	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
64	B24	DP9_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
65	B25	DP9_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
66	B26	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
67	B27	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
68	B28	DP8_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
69	B29	DP8_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
70	B30	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
71	B31	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
72	B32	DP7_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
73	B33	DP7_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
74	B34	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
75	B35	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
76	B36	DP6_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
77	B37	DP6_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
78	B38	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
79	B39	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
80	B40	RES0	NA	NA	NA	NA	NA	NA	NA	NC.
81	C1	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
82	C2	DPO_C2M_P	NA	NA	NA	NA	NA	NA	NA	NA
83	C3	DPO_C2M_N	NA	NA	NA	NA	NA	NA	NA	NA
84	C4	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
85	C5	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

Versal Premium SOM DevKit Hardware Datasheet

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
86	C6	DPO_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
87	C7	DPO_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
88	C8	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
89	C9	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
90	C10	LA06_P	Board to Board Connector 1	B67	HDIO_J43_LVDS613_L9P	613	J43	IO_L9P_613	IO, 1.8V	PL Bank613 IO9 differential positive.
91	C11	LA06_N	Board to Board Connector 1	B68	HDIO_J42_LVDS613_L9N	613	J42	IO_L9N_613	IO, 1.8V	PL Bank613 IO9 differential negative.
92	C12	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
93	C13	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
94	C14	LA10_P	Board to Board Connector 1	D63	HDIO_AB39_LVDS612_L1P	612	AB39	IO_L1P_612	IO, 1.8V	PL Bank612 IO1 differential positive.
95	C15	LA10_N	Board to Board Connector 1	D64	HDIO_AA39_LVDS612_L1N	612	AA39	IO_L1N_612	IO, 1.8V	PL Bank612 IO1 differential negative.
96	C16	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
97	C17	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
98	C18	LA14_P	Board to Board Connector 1	B79	HDIO_L41_LVDS613_L7P	613	L41	IO_L7P_613	IO, 1.8V	PL Bank613 IO7 differential positive.
99	C19	LA14_N	Board to Board Connector 1	B80	HDIO_K42_LVDS613_L7N	613	K42	IO_L7N_613	IO, 1.8V	PL Bank613 IO7 differential negative.
100	C20	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
101	C21	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
102	C22	LA18_P_CC	Board to Board Connector 1	B95	HDIO_L39_LVDS613_L5P_HDGC	613	L39	IO_L5P_HDGC_613	IO, 1.8V	PL Bank613 IO5 differential positive. Same pin can be configured as Global Clock input.
103	C23	LA18_N_CC	Board to Board Connector 1	B96	HDIO_K40_LVDS613_L5N_HDGC	613	K40	IO_L5N_HDGC_613	IO, 1.8V	PL Bank613 IO5 differential negative. Same pin can be configured as Global Clock input.
104	C24	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
105	C25	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
106	C26	LA27_P	Board to Board Connector 1	A87	NC	NA	NA	NA	NA	NC
107	C27	LA27_N	Board to Board Connector 1	A88	NC	NA	NA	NA	NA	NC
108	C28	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
109	C29	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
110	C30	SCL	NA	NA	NA	NA	NA	NA	O, 3.3V LVCMOS/ 4.7K PU	FMC+ I2C Clock Signal. This Pin is connected from 7th pin of I2C Bus switch (U50).
111	C31	SDA	NA	NA	NA	NA	NA	NA	IO, 3.3V LVCMOS/ 4.7K PU	FMC+ I2C Data Signal. This Pin is connected from 6th pin of I2C Bus switch (U50).
112	C32	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
113	C33	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
114	C34	GA0	NA	NA	NA	NA	NA	NA	O, 1K, PU	Geographical address 0
115	C35	12POV	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
116	C36	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
117	C37	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
118	C38	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
119	C39	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
120	C40	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
121	D1	PG_C2M	NA	NA	NA	NA	NA	NA	O, 3.3V	Power Good Signal from Carrier to FMC Module.
122	D2	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
123	D3	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
124	D4	GBTCLK0_M2C_P	NA	NA	NA	NA	NA	NA	NA	NA
125	D5	GBTCLK0_M2C_N	NA	NA	NA	NA	NA	NA	NA	NA
126	D6	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
127	D7	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
128	D8	LA01_P_CC	Board to Board Connector 1	A95	HDIO_L40_LVDS613_L6P_HDGC	613	L40	IO_L6P_HDGC_613	IO, 1.8V	PL Bank613 IO6 differential positive. Same pin can be configured as Global Clock input.
129	D9	LA01_N_CC	Board to Board Connector 1	A96	HDIO_K41_LVDS613_L6N_HDGC	613	K41	IO_L6N_HDGC_613	IO, 1.8V	PL Bank613 IO6 differential negative. Same pin can be configured as Global Clock input.
130	D10	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
131	D11	LA05_P	Board to Board Connector 1	C67	HDIO_U39_LVDS612_L8P	612	C27	IO_L8P_612	IO, 1.8V	PL Bank612 IO8 differential positive.
132	D12	LA05_N	Board to Board Connector 1	C68	HDIO_T40_LVDS612_L8N	612	B28	IO_L8N_612	IO, 1.8V	PL Bank612 IO8 differential negative.
133	D13	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
134	D14	LA09_P	Board to Board Connector 1	C79	HDIO_T38_LVDS612_L10P	612	T38	IO_L10P_612	IO, 1.8V	PL Bank612 IO10 differential positive.
135	D15	LA09_N	Board to Board Connector 1	C80	HDIO_R38_LVDS612_L10N	612	R38	IO_L10N_612	IO, 1.8V	PL Bank612 IO10 differential negative.
136	D16	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
137	D17	LA13_P	Board to Board Connector 1	B83	HDIO_L43_LVDS613_L8P	613	L43	IO_L8P_613	IO, 1.8V	PL Bank613 IO8 differential positive.
138	D18	LA13_N	Board to Board Connector 1	B84	HDIO_K43_LVDS613_L8N	613	K43	IO_L8N_613	IO, 1.8V	PL Bank613 IO8 differential negative.
139	D19	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
140	D20	LA17_P_CC	Board to Board Connector 1	B59	HDIO_W39_LVDS612_L5P_HDGC	612	W39	IO_L5P_HDGC_612	IO, 1.8V	PL Bank612 IO8 differential positive. Same pin can be configured as Global Clock input.
141	D21	LA17_N_CC	Board to Board Connector 1	B60	HDIO_V39_LVDS612_L5N_HDGC	612	V39	IO_L5N_HDGC_612	IO, 1.8V	PL Bank612 IO8 differential negative. Same pin can be configured as Global Clock input.
142	D22	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
143	D23	LA23_P	Board to Board Connector 1	A71	NC	NA	NA	NA	NA	NC
144	D24	LA23_N	Board to Board Connector 1	A72	NC	NA	NA	NA	NA	NC
145	D25	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
146	D26	LA26_P	Board to Board Connector 1	B87	NC	NA	NA	NA	NA	NC

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
147	D27	LA26_N	Board to Board Connector 1	B88	NC	NA	NA	NA	NA	NC
148	D28	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
149	D29	TCK	Board to Board Connector 2	NA	JTAG_TCK	503	B19	TCK_503	I, 3.3V CMOS	JTAG Test Clock. This Pin is connected to A12 th pin of Board-to-Board Connector2 (J15) through Voltage level translator.
150	D30	TDI	NA	NA	NA	NA	NA	NA	NA	NC.
151	D31	TDO	NA	NA	NA	NA	NA	NA	NA	NC.
152	D32	3P3VAUX	NA	NA	VCC_3V3	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage
153	D33	TMS	NA	NA	JTAG_TMS	503	B16	TMS_503	I, 3.3V CMOS	JTAG Test Mode Select. This Pin is connected to A13 th pin of Board-to-Board Connector2 (J15) through Voltage level translator.
154	D34	TRST_L	Board to Board Connector 2	NA	NC	NA	NA	NA	I, 3.3V CMOS/ 4.7K PU	NC. This Pin is connected to A11pin of Board-to-Board Connector2 (J15) through Voltage level translator.
155	D35	GA1	NA	NA	NA	NA	NA	NA	O, 1K, PU	Geographical address 1
156	D36	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
157	D37	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
158	D38	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
159	D39	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
160	D40	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.
161	E1	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
162	E2	HA01_P_CC	Board to Board Connector 1	C95	NC	NA	NA	NA	NA	NC
163	E3	HA01_N_CC	Board to Board Connector 1	C96	NC	NA	NA	NA	NA	NC
164	E4	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
165	E5	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
166	E6	HA05_P	Board to Board Connector 1	A91	GTM_RXP3_107	107	N2	GTM_RXP3_107	I, DIFF	GTM Bank107 channel3 High speed differential receiver positive.
167	E7	HA05_N	Board to Board Connector 1	A92	GTM_RXN3_107	107	N1	GTM_RXN3_107	I, DIFF	GTM Bank107 channel3 High speed differential receiver negative.
168	E8	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
169	E9	HA09_P	Board to Board connector 1	C53	XP_T31_LVDS712_L17P	712	T31	IO_L17P_N5P4_712	IO, 1.2V	PL Bank712 IO17 differential positive.
170	E10	HA09_N	Board to Board connector 1	C54	XP_R31_LVDS712_L17N	712	R31	IO_L17N_N5P5_712	IO, 1.2V	PL Bank712 IO17 differential negative.
171	E11	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
172	E12	HA13_P	Board to Board connector 1	B55	XP_V36_LVDS712_L20P	712	V36	IO_L20P_N6P4_712	IO, 1.2V	PL Bank712 IO20 differential positive.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
173	E13	HA13_N	Board to Board connector 1	B56	XP_U36_LVDS712_L20N	712	U36	IO_L20N_N6P5_712	IO, 1.2V	PL Bank712 IO20 differential negative.
174	E14	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
175	E15	HA16_P	Board to Board connector 1	A55	XP_V37_LVDS712_L22P	712	V37	IO_L22P_N7P2_712	IO, 1.2V	PL Bank712 IO22 differential positive.
176	E16	HA16_N	Board to Board connector 1	A56	XP_U37_LVDS712_L22N	712	U37	IO_L22N_N7P3_712	IO, 1.2V	PL Bank712 IO22 differential negative.
177	E17	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
178	E18	HA20_P	NA	NA	NC	NA	NA	NA	NA	NC.
179	E19	HA20_N	NA	NA	NC	NA	NA	NA	NA	NC.
180	E20	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
181	E21	HB03_P	NA	NA	NC	NA	NA	NA	NA	NC.
182	E22	HB03_N	NA	NA	NC	NA	NA	NA	NA	NC.
183	E23	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
184	E24	HB05_P	NA	NA	NC	NA	NA	NA	NA	NC.
185	E25	HB05_N	NA	NA	NC	NA	NA	NA	NA	NC.
186	E26	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
187	E27	HB09_P	NA	NA	NC	NA	NA	NA	NA	NC.
188	E28	HB09_N	NA	NA	NC	NA	NA	NA	NA	NC.
189	E29	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
190	E30	HB13_P	NA	NA	NC	NA	NA	NA	NA	NC.
191	E31	HB13_N	NA	NA	NC	NA	NA	NA	NA	NC.
192	E32	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
193	E33	HB19_P	NA	NA	NC	NA	NA	NA	NA	NC.
194	E34	HB19_N	NA	NA	NC	NA	NA	NA	NA	NC.
195	E35	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
196	E36	HB21_P	NA	NA	NC	NA	NA	NA	NA	NC.
197	E37	HB21_N	NA	NA	NC	NA	NA	NA	NA	NC.
198	E38	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
199	E39	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
200	E40	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
201	F1	PG_M2C	NA	NA	NA	NA	NA	NA	NA	Power Good Signal from Carrier to FMC Module.
202	F2	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
203	F3	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
204	F4	HA00_P_CC	Board to Board Connector 1	C59	NC	NA	NA	NA	NA	NC
205	F5	HA00_N_CC	Board to Board Connector 1	C60	NC	NA	NA	NA	NA	NC
206	F6	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
207	F7	HA04_P	Board to Board Connector 1	B91	GTM_RXP2_107	107	R2	GTM_RXP2_107	I, DIFF	GTM Bank107 channel2 High speed differential receiver positive.
208	F8	HA04_N	Board to Board Connector 1	B92	GTM_RXN2_107	107	R1	GTM_RXN2_107	I, DIFF	GTM Bank107 channel2 High speed differential receiver negative.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
209	F9	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
210	F10	HA08_P	Board to Board Connector 1	C51	XP_R33_LVDS712_L15P	712	R33	IO_L15P_XCC_N5P0_712	IO, 1.2V	PL Bank712 IO15 differential positive.
211	F11	HA08_N	Board to Board Connector 1	C52	XP_P33_LVDS712_L15N	712	P33	IO_L15N_XCC_N5P1_712	IO, 1.2V	PL Bank712 IO15 differential negative.
212	F12	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
213	F13	HA12_P	Board to Board Connector 1	B53	XP_V35_LVDS712_L18P	712	V35	IO_L18P_XCC_N6P0_712	IO, 1.2V	PL Bank712 IO18 differential positive.
214	F14	HA12_N	Board to Board Connector 1	B54	XP_V34_LVDS712_L18N	712	V34	IO_L18N_XCC_N6P1_712	IO, 1.2V	PL Bank712 IO18 differential negative.
215	F15	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
216	F16	HA15_P	Board to Board Connector 1	A53	XP_U33_LVDS712_L23P	712	U33	IO_L23P_N7P4_712	IO, 1.2V	PL Bank712 IO23 differential positive.
217	F17	HA15_N	Board to Board Connector 1	A54	XP_T33_LVDS712_L23N	712	T33	IO_L23N_N7P5_712	IO, 1.2V	PL Bank712 IO23 differential negative.
218	F18	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
219	F19	HA19_P	Board to Board Connector 1	D99	NC	NA	NA	NA	NA	NC
220	F20	HA19_N	Board to Board Connector 1	D100	NC	NA	NA	NA	NA	NC
221	F21	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
222	F22	HB02_P	NA	NA	NC	NA	NA	NA	NA	NC.
223	F23	HB02_N	NA	NA	NC	NA	NA	NA	NA	NC.
224	F24	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
225	F25	HB04_P	NA	NA	NC	NA	NA	NA	NA	NC.
226	F26	HB04_N	NA	NA	NC	NA	NA	NA	NA	NC.
227	F27	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
228	F28	HB08_P	NA	NA	NC	NA	NA	NA	NA	NC.
229	F29	HB08_N	NA	NA	NC	NA	NA	NA	NA	NC.
230	F30	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
231	F31	HB12_P	NA	NA	NC	NA	NA	NA	NA	NC.
232	F32	HB12_N	NA	NA	NC	NA	NA	NA	NA	NC.
233	F33	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
234	F34	HB16_P	NA	NA	NC	NA	NA	NA	NA	NC.
235	F35	HB16_N	NA	NA	NC	NA	NA	NA	NA	NC.
236	F36	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
237	F37	HB20_P	NA	NA	NC	NA	NA	NA	NA	NC.
238	F38	HB20_N	NA	NA	NC	NA	NA	NA	NA	NC.
239	F39	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
240	F40	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
241	G1	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
242	G2	CLK1_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
243	G3	CLK1_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
244	G4	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
245	G5	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
246	G6	LA00_P_CC	Board to Board Connector 1	A59	HDIO_V41_LVDS612_L6P_HDGC	612	V41	IO_L6P_HDGC_612	IO, 1.8V	PL Bank612 IO6 differential positive. Same pin can be configured as Global Clock.
247	G7	LA00_N_CC	Board to Board Connector 1	A60	HDIO_V40_LVDS612_L6N_HDGC	612	V40	IO_L6N_HDGC_612	IO, 1.8V	PL Bank612 IO6 differential negative. Same pin can be configured as Global Clock.
248	G8	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
249	G9	LA03_P	Board to Board Connector 1	A63	HDIO_U38_LVDS612_L9P	612	U38	IO_L9P_612	IO, 1.8V	PL Bank612 IO9 differential positive.
250	G10	LA03_N	Board to Board Connector 1	A64	HDIO_T39_LVDS612_L9N	612	T39	IO_L9N_612	IO, 1.8V	PL Bank612 IO9 differential negative.
251	G11	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
252	G12	LA08_P	Board to Board Connector 1	D79	HDIO_U41_LVDS612_L7P	612	U41	IO_L7P_612	IO, 1.8V	PL Bank612 IO7 differential positive.
253	G13	LA08_N	Board to Board Connector 1	D80	HDIO_T41_LVDS612_L7N	612	T41	IO_L7N_612	IO, 1.8V	PL Bank612 IO7 differential negative.
254	G14	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
255	G15	LA12_P	Board to Board Connector 1	C83	HDIO_N41_LVDS613_L4P	613	N41	IO_L4P_613	IO, 1.8V	PL Bank613 IO4 differential signal.
256	G16	LA12_N	Board to Board Connector 2	C84	HDIO_M41_LVDS613_L4N	613	M41	IO_L4N_613	IO, 1.8V	PL Bank613 IO4 differential signal.
257	G17	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
258	G18	LA16_P	Board to Board Connector 1	D83	HDIO_R41_LVDS613_L0P	613	R41	IO_L0P_613	IO, 1.8V	PL Bank613 IO0 differential positive.
259	G19	LA16_N	Board to Board Connector 1	D84	HDIO_P40_LVDS613_L0N	613	P40	IO_L0N_613	IO, 1.8V	PL Bank613 IO0 differential negative.
260	G20	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
261	G21	LA20_P	Board to Board Connector 1	D71	HDIO_R40_LVDS613_L1P	613	R40	IO_L1P_613	IO, 1.8V	PL Bank613 IO1 differential positive.
262	G22	LA20_N	Board to Board Connector 1	D72	HDIO_P39_LVDS613_L1N	613	P39	IO_L1N_613	IO, 1.8V	PL Bank613 IO1 differential negative.
263	G23	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
264	G24	LA22_P	Board to Board Connector 1	B71	NC	NA	NA	NA	NA	NC
265	G25	LA22_N	Board to Board Connector 1	B72	NC	NA	NA	NA	NA	NC
266	G26	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
267	G27	LA25_P	Board to Board Connector 1	C87	NC	NA	NA	NA	NA	NC
268	G28	LA25_N	Board to Board Connector 1	C88	NC	NA	NA	NA	NA	NC
269	G29	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
270	G30	LA29_P	Board to Board Connector 1	C75	GTM_TXP1_107	107	AB9	GTM_TXP1_107	O, DIFF	GTM Bank107 channel1 High speed differential Transmitter positive.
271	G31	LA29_N	Board to Board Connector 1	C76	GTM_TXN1_107	107	AB8	GTM_TXN1_107	O, DIFF	GTM Bank107 channel1 High speed differential Transmitter Negative.
272	G32	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
273	G33	LA31_P	Board to Board Connector 1	A75	GTM_TXP3_107	107	Y5	GTM_TXP3_107	O, DIFF	GTM Bank107 channel3 High speed differential Transmitter positive.
274	G34	LA31_N	Board to Board Connector 1	A76	GTM_TXN3_107	107	Y4	GTM_TXN3_107	O, DIFF	GTM Bank107 channel3 High speed differential Transmitter Negative.
275	G35	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
276	G36	LA33_P	Board to Board Connector 1	C91	GTM_RXP1_107	107	T4	GTM_RXP1_107	I, DIFF	GTM Bank107 channel1 High speed differential receiver positive.
277	G37	LA33_N	Board to Board Connector 1	C92	GTM_RXN1_107	107	T3	GTM_RXN1_107	I, DIFF	GTM Bank107 channel1 High speed differential receiver negative.
278	G38	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
279	G39	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
280	G40	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
281	H1	VREF_A_M2C	NA	NA	NC	NA	NA	NA	NA	NC.
282	H2	PRSNT_M2C_L	NA	NA	NA	NA	NA	NA	I,3.3V/10K PU	Module Present Signal. This Pin is connected to 16th pin of IO Expander2 (U43).
283	H3	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
284	H4	CLK0_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
285	H5	CLK0_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
286	H6	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
287	H7	LA02_P	Board to Board Connector 1	B63	HDIO_AC40_LVDS612_L0P	612	AC40	IO_L0P_612	IO, 1.8V	PL Bank612 IO0 differential positive.
288	H8	LA02_N	Board to Board Connector 2	B64	HDIO_AC39_LVDS612_L0N	612	AC39	IO_L0N_612	IO, 1.8V	PL Bank612 IO0 differential negative.
289	H9	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
290	H10	LA04_P	Board to Board Connector 1	D67	HDIO_Y41_LVDS612_L4P	612	Y41	IO_L4P_612	IO, 1.8V	PL Bank612 IO4 differential positive.
291	H11	LA04_N	Board to Board Connector 1	D68	HDIO_W40_LVDS612_L4N	612	W40	IO_L4N_612	IO, 1.8V	PL Bank612 IO4 differential negative.
292	H12	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
293	H13	LA07_P	Board to Board Connector 1	A67	HDIO_AA41_LVDS612_L3P	612	AA41	IO_L3P_612	IO, 1.8V	PL Bank612 IO3 differential positive.
294	H14	LA07_N	Board to Board Connector 1	A68	HDIO_Y40_LVDS612_L3N	612	Y40	IO_L3N_612	IO, 1.8V	PL Bank612 IO3 differential negative.
295	H15	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
296	H16	LA11_P	Board to Board Connector 1	C63	HDIO_AB41_LVDS612_L2P	612	AB41	IO_L2P_612	IO, 1.8V	PL Bank612 IO2 differential positive.
297	H17	LA11_N	Board to Board Connector 1	C64	HDIO_AA40_LVDS612_L2N	612	AA40	IO_L2N_612	IO, 1.8V	PL Bank612 IO2 differential negative.
298	H18	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
299	H19	LA15_P	Board to Board Connector 1	A79	HDIO_J40_LVDS613_L10P	613	J40	IO_L10P_613	IO, 1.8V	PL Bank613 IO10 differential positive.
300	H20	LA15_N	Board to Board Connector 1	A80	HDIO_J39_LVDS613_L10N	613	J39	IO_L10N_613	IO, 1.8V	PL Bank613 IO10 differential negative.
301	H21	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
302	H22	LA19_P	Board to Board Connector 1	A83	HDIO_P38_LVDS613_L2P	613	P38	IO_L2P_613	IO, 1.8V	PL Bank613 IO2 differential positive.
303	H23	LA19_N	Board to Board Connector 1	A84	HDIO_N39_LVDS613_L2N	613	N39	IO_L2N_613	IO, 1.8V	PL Bank613 IO2 differential negative.
304	H24	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
305	H25	LA21_P	Board to Board Connector 1	C71	HDIO_N40_LVDS613_L3P	613	N40	IO_L3P_613	IO, 1.8V	PL Bank613 IO3 differential positive.
306	H26	LA21_N	Board to Board Connector 1	C72	HDIO_M39_LVDS613_L3N	613	M39	IO_L3N_613	IO, 1.8V	PL Bank613 IO3 differential negative.
307	H27	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
308	H28	LA24_P	Board to Board Connector 1	D87	NC	NA	NA	NA	NA	NC
309	H29	LA24_N	Board to Board Connector 1	D88	NC	NA	NA	NA	NA	NC
310	H30	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
311	H31	LA28_P	Board to Board Connector 1	D75	GTM_TXP0_107	107	AC7	GTM_TXP0_107	O, DIFF	GTM Bank107 channel0 High speed differential Transmitter positive.
312	H32	LA28_N	Board to Board Connector 1	D76	GTM_TXN0_107	107	AC6	GTM_TXN0_107	O, DIFF	GTM Bank107 channel0 High speed differential Transmitter Negative.
313	H33	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
314	H34	LA30_P	Board to Board Connector 1	B75	GTM_TXP2_107	107	AA7	GTM_TXP2_107	O, DIFF	GTM Bank107 channel2 High speed differential Transmitter positive.
315	H35	LA30_N	Board to Board Connector 1	B76	GTM_TXN2_107	107	AA6	GTM_TXN2_107	O, DIFF	GTM Bank107 channel2 High speed differential Transmitter Negative.
316	H36	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
317	H37	LA32_P	Board to Board Connector 1	D91	GTM_RXP0_107	107	U2	GTM_RXP0_107	I, DIFF	GTM Bank107 channel0 High speed differential receiver positive.
318	H38	LA32_N	Board to Board Connector 1	D92	GTM_RXN0_107	107	U1	GTM_RXN0_107	I, DIFF	GTM Bank107 channel0 High speed differential receiver negative.
319	H39	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
320	H40	VADJ	NA	NA	VCC_FMC+_ADJ	NA	NA	NA	O, 1.2V Power	Carrier Board Supply Voltage.
321	J1	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
322	J2	CLK3_BIDIR_P	NA	NA	NC	NA	NA	NA	NA	NC.
323	J3	CLK3_BIDIR_N	NA	NA	NC	NA	NA	NA	NA	NC.
324	J4	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
325	J5	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
326	J6	HA03_P	Board to Board Connector 1	D95	GTM_REFCLK0P_107	107	V9	GTM_REFCLKP0_107	I, DIFF	GTM Bank107 differential reference clock0 positive.
327	J7	HA03_N	Board to Board Connector 1	D96	GTM_REFCLK0N_107	107	V8	GTM_REFCLKN0_107	I, DIFF	GTM Bank107 differential reference clock0 negative.
328	J8	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
329	J9	HA07_P	Board to Board Connector 1	D48	XP_K33_LVDS712_L5P	712	K33	IO_L5P_N1P4_712	IO, 1.2V	PL Bank712 IO5 differential positive.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
330	J10	HA07_N	Board to Board Connector 1	D49	XP_J33_LVDS712_L5N	712	J33	IO_L5N_N1P5_712	IO, 1.2V	PL Bank712 IO5 differential negative.
331	J11	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
332	J12	HA11_P	Board to Board Connector 1	B51	XP_V32_LVDS712_L19P	712	V32	IO_L19P_N6P2_712	IO, 1.2V	PL Bank712 IO19 differential positive.
333	J13	HA11_N	Board to Board Connector 1	B52	XP_U32_LVDS712_L19N	712	U32	IO_L19N_N6P3_712	IO, 1.2V	PL Bank712 IO19 differential negative.
334	J14	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
335	J15	HA14_P	Board to Board Connector 1	A51	XP_V31_LVDS712_L21P	712	V31	IO_L21P_XCC_N7P0_712	IO, 1.2V	PL Bank712 IO21 differential positive.
336	J16	HA14_N	Board to Board Connector 1	A52	XP_U31_LVDS712_L21N	712	U31	IO_L21N_XCC_N7P1_712	IO, 1.2V	PL Bank712 IO21 differential negative.
337	J17	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
338	J18	HA18_P	Board to Board Connector 1	B99	NC	NA	NA	NA	NA	NC.
339	J19	HA18_N	Board to Board Connector 1	B100	NC	NA	NA	NA	NA	NC.
340	J20	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
341	J21	HA22_P	NA	NA	NC	NA	NA	NA	NA	NC.
342	J22	HA22_N	NA	NA	NC	NA	NA	NA	NA	NC.
343	J23	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
344	J24	HB01_P	NA	NA	NC	NA	NA	NA	NA	NC.
345	J25	HB01_N	NA	NA	NC	NA	NA	NA	NA	NC.
346	J26	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
347	J27	HB07_P	NA	NA	NC	NA	NA	NA	NA	NC.
348	J28	HB07_N	NA	NA	NC	NA	NA	NA	NA	NC.
349	J29	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
350	J30	HB11_P	NA	NA	NC	NA	NA	NA	NA	NC.
351	J31	HB11_N	NA	NA	NC	NA	NA	NA	NA	NC.
352	J32	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
353	J33	HB15_P	NA	NA	NC	NA	NA	NA	NA	NC.
354	J34	HB15_N	NA	NA	NC	NA	NA	NA	NA	NC.
355	J35	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
356	J36	HB18_P	NA	NA	NC	NA	NA	NA	NA	NC.
357	J37	HB18_N	NA	NA	NC	NA	NA	NA	NA	NC.
358	J38	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
359	J39	VIO_B_M2C	NA	NA	NC	NA	NA	NA	NA	NC.
360	J40	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
361	K1	VREF_B_M2C	NA	NA	NC	NA	NA	NA	NA	NC.
362	K2	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
363	K3	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
364	K4	CLK2_BIDIR_P	NA	NA	NA	NA	NA	NA	NA	NC.
365	K5	CLK2_BIDIR_N	NA	NA	NA	NA	NA	NA	NA	NC.
366	K6	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
367	K7	HA02_P	Board to Board Connector 1	D59	GTM_REFCLK1P_107	107	U11	GTM_REFCLKP1_107	I, DIFF	GTM Bank107 differential reference clock1 positive.
368	K8	HA02_N	Board to Board Connector 1	D60	GTM_REFCLK1N_107	107	U10	GTM_REFCLKN1_107	I, DIFF	GTM Bank107 differential reference clock1 negative.
369	K9	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
370	K10	HA06_P	Board to Board Connector 1	C99	NC	NA	NA	NA	NA	NC
371	K11	HA06_N	Board to Board Connector 1	C100	NC	NA	NA	NA	NA	NC
372	K12	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
373	K13	HA10_P	Board to Board Connector 1	C55	XP_R37_LVDS712_L16P	712	R37	IO_L16P_N5P2_712	IO, 1.2V	PL Bank712 IO16 differential positive.
374	K14	HA10_N	Board to Board Connector 1	C56	XP_P37_LVDS712_L16N	712	P37	IO_L16N_N5P3_712	IO, 1.2V	PL Bank712 IO16 differential negative.
375	K15	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
376	K16	HA17_P_CC	Board to Board Connector 1	C46	XP_L38_LVDS712_L2P	712	R23	IO_L2P_N0P4_712	IO, 1.2V	PL Bank712 IO2 Single ended positive.
377	K17	HA17_N_CC	NA	NA	NC	NA	NA	NA	NA	NC.
378	K18	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
379	K19	HA21_P	NA	NA	NC	NA	NA	NA	NA	NC.
380	K20	HA21_N	NA	NA	NC	NA	NA	NA	NA	NC.
381	K21	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
382	K22	HA23_P	NA	NA	NC	NA	NA	NA	NA	NC.
383	K23	HA23_N	NA	NA	NC	NA	NA	NA	NA	NC.
384	K24	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
385	K25	HB00_P_CC	NA	NA	NC	NA	NA	NA	NA	NC.
386	K26	HB00_N_CC	NA	NA	NC	NA	NA	NA	NA	NC.
387	K27	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
388	K28	HB06_P_CC	NA	NA	NC	NA	NA	NA	NA	NC.
389	K29	HB06_N_CC	NA	NA	NC	NA	NA	NA	NA	NC.
390	K30	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
391	K31	HB10_P	NA	NA	NC	NA	NA	NA	NA	NC.
392	K32	HB10_N	NA	NA	NC	NA	NA	NA	NA	NC.
393	K33	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
394	K34	HB14_P	NA	NA	NC	NA	NA	NA	NA	NC.
395	K35	HB14_N	NA	NA	NC	NA	NA	NA	NA	NC.
396	K36	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
397	K37	HB17_P_CC	NA	NA	NC	NA	NA	NA	NA	NC.
398	K38	HB17_N_CC	NA	NA	NC	NA	NA	NA	NA	NC.
399	K39	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
400	K40	VIO_B_M2C	NA	NA	NC	NA	NA	NA	NA	NC.
401	L1	RES1	NA	NA	NC	NA	NA	NA	NA	NC.
402	L2	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
403	L3	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
404	L4	GBTCLK4_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
405	L5	GBTCLK4_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
406	L6	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
407	L7	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
408	L8	GBTCLK3_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
409	L9	GBTCLK3_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
410	L10	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
411	L11	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
412	L12	GBTCLK2_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
413	L13	GBTCLK2_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
414	L14	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
415	L15	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
416	L16	SYNC_C2M_P	Board to Board Connector 2	D12	1PPS_CLK_OUT	NA	NA	NA	O, SE	1PPS output clock from clock synthesizer U32
417	L17	SYNC_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
418	L18	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
419	L19	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
420	L20	REFCLK_C2M_P	Board to Board Connector 2	D11	10M_CLK_OUT	NA	NA	NA	O, SE	10MHz output clock from clock synthesizer U32
421	L21	REFCLK_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
422	L22	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
423	L23	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
424	L24	REFCLK_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
425	L25	REFCLK_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
426	L26	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
427	L27	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
428	L28	SYNC_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
429	L29	SYNC_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
430	L30	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
431	L31	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
432	L32	RES2	NA	NA	NC	NA	NA	NA	NA	NC.
433	L33	RES3	NA	NA	NC	NA	NA	NA	NA	NC.
434	L34	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
435	L35	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
436	L36	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
437	L37	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
438	L38	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
439	L39	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
440	L40	12P0V	NA	NA	VCC_12V_FMC+	NA	NA	NA	O, 12V Power	Carrier Board Supply Voltage.
441	M1	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
442	M2	DP23_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
443	M3	DP23_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
444	M4	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
445	M5	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
446	M6	DP22_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
447	M7	DP22_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
448	M8	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
449	M9	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
450	M10	DP21_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
451	M11	DP21_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
452	M12	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
453	M13	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
454	M14	DP20_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
455	M15	DP20_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
456	M16	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
457	M17	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
458	M18	DP14_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
459	M19	DP14_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
460	M20	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
461	M21	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
462	M22	DP15_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
463	M23	DP15_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
464	M24	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
465	M25	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
466	M26	DP16_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
467	M27	DP16_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
468	M28	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
469	M29	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
470	M30	DP17_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
471	M31	DP17_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
472	M32	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
473	M33	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
474	M34	DP18_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
475	M35	DP18_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
476	M36	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
477	M37	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
478	M38	DP19_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
479	M39	DP19_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
480	M40	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
481	Y1	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
482	Y2	DP23_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
483	Y3	DP23_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
484	Y4	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

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Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/ Termination	
485	Y5	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
486	Y6	DP21_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
487	Y7	DP21_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
488	Y8	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
489	Y9	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
490	Y10	DP10_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
491	Y11	DP10_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
492	Y12	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
493	Y13	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
494	Y14	DP12_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
495	Y15	DP12_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
496	Y16	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
497	Y17	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
498	Y18	DP14_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
499	Y19	DP14_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
500	Y20	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
501	Y21	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
502	Y22	DP15_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
503	Y23	DP15_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
504	Y24	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
505	Y25	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
506	Y26	DP11_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
507	Y27	DP11_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
508	Y28	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
509	Y29	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
510	Y30	DP13_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
511	Y31	DP13_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
512	Y32	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
513	Y33	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
514	Y34	DP17_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
515	Y35	DP17_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
516	Y36	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
517	Y37	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
518	Y38	DP19_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
519	Y39	DP19_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
520	Y40	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
521	Z1	HSPC_PRSNT_M2C_L	NA	NA	NA	NA	NA	NA	I,3.3V/10K PU	FMC+ Module Present Signal.
522	Z2	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
523	Z3	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
524	Z4	DP22_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
525	Z5	DP22_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
526	Z6	GND	NA	NA	GND	NA	NA	NA	Power	Ground.

Sl.no	FMC+ Connector VITA		Board to Board Connectors			Versal Premium SOM				Description
	FMC+ Connector Pin No	FMC+ Connector Pin Name	Board to Board Connector Number	Board to Board Connector Pin Number	Board to Board Connector Signal Name (SOM)	SoC Bank	SoC Pin No	SoC Pin Name	Signal Type/Termination	
527	Z7	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
528	Z8	DP20_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
529	Z9	DP20_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
530	Z10	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
531	Z11	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
532	Z12	DP11_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
533	Z13	DP11_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
534	Z14	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
535	Z15	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
536	Z16	DP13_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
537	Z17	DP13_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
538	Z18	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
539	Z19	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
540	Z20	GBTCLK5_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
541	Z21	GBTCLK5_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
542	Z22	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
543	Z23	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
544	Z24	DP10_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
545	Z25	DP10_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
546	Z26	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
547	Z27	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
548	Z28	DP12_C2M_P	NA	NA	NC	NA	NA	NA	NA	NC.
549	Z29	DP12_C2M_N	NA	NA	NC	NA	NA	NA	NA	NC.
550	Z30	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
551	Z31	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
552	Z32	DP16_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
553	Z33	DP16_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
554	Z34	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
555	Z35	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
556	Z36	DP18_M2C_P	NA	NA	NC	NA	NA	NA	NA	NC.
557	Z37	DP18_M2C_N	NA	NA	NC	NA	NA	NA	NA	NC.
558	Z38	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
559	Z39	GND	NA	NA	GND	NA	NA	NA	Power	Ground.
560	Z40	3P3V	NA	NA	VCC_3V3_FMC+	NA	NA	NA	O, 3.3V Power	Carrier Board Supply Voltage.

2.7.12 Pmod Host Port Connector

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

The Versal Premium development board supports one 12pin Pmod host port connector for plugging Pmod module. Since Pmod interface specification requires 3.3V IO level, the signals from Board-to-Board connector are connected to Pmod Connectors through Voltage level translator. Pmod Host port connector (J27) is physically located at the bottom of the board as shown below.

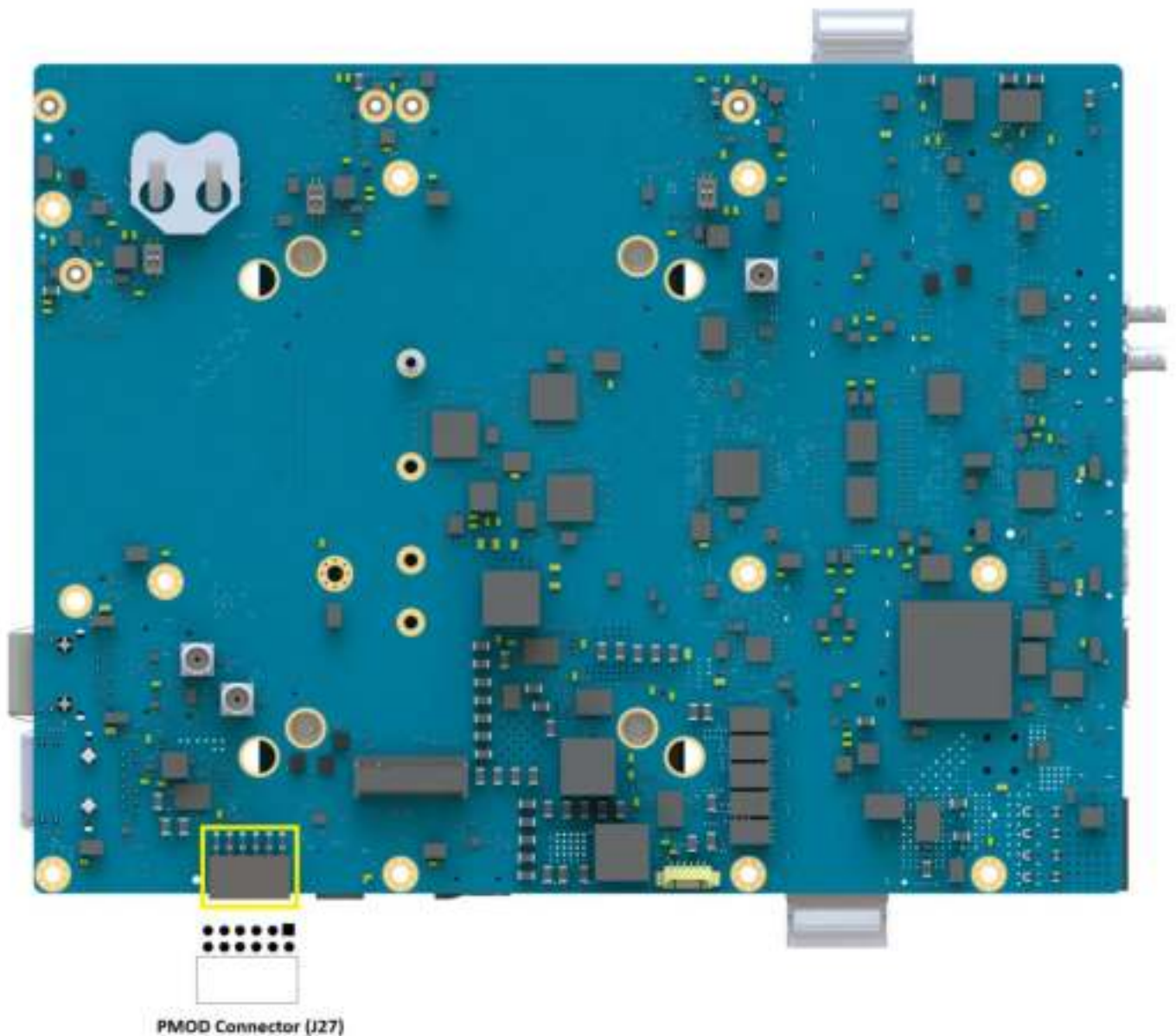


Figure 26: PMOD Host Connector

Table 12: PMOD Connector Pin Assignment

Pin No	Signal Name	SoC Pin Name	SoC Pin Number	Signal Type/ Termination	Description
1	BANK3_IO9N	IO_L7N_N2P3_712	M32	IO, 3V3 LVCMOS	General purpose Input Output.
2	BANK3_IO10N	IO_L11N_N3P5_712	L33	IO, 3V3 LVCMOS	General purpose Input Output.
3	BANK3_IO11N_GCIN2N	IO_L10N_N3P3_712	M38	IO, 3V3 LVCMOS	General purpose Input Output.
4	BANK3_IO12N_GCIN0N	IO_L9N_GC_XCC_N3P1_712	L34	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	BANK3_IO9P	IO_L7P_N2P2_712	N32	IO, 3V3 LVCMOS	General purpose Input Output.
8	BANK3_IO10P	IO_L11P_N3P4_712	M33	IO, 3V3 LVCMOS	General purpose Input Output.
9	BANK3_IO11P_GCIN2P	IO_L10P_N3P2_712	N37	IO, 3V3 LVCMOS	General purpose Input Output.
10	BANK3_IO12P_GCIN0P	IO_L9P_GC_XCC_N3P0_712	M34	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.

2.8 PS Interface Features

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

2.8.1 Gigabit Ethernet Port1

The Versal Premium SOM development board supports Ethernet port through GEM0 interface of Versal Premium PS. Ethernet PHY output signals from Board-to-Board connector2 is directly connected to RJ45 MagJack (J34). The Ethernet supports Speed (Yellow) and Link/Activity (Green) LED indications on RJ45 MagJack connector. This RJ45 MagJack connector (J34) is physically located at the top of the board as shown below.



Figure 27:Gigabit Ethernet Connector1

2.8.2 Gigabit Ethernet Port2

The Versal Premium SOM development board support Ethernet port through GEM1 interface of Versal Premium PS. The MAC is integrated in the Versal Premium PS and connected to the external Gigabit Ethernet PHY “RTL8211FI-VD-CG” on development Board through Board-to-Board Connector2. This PHY is interfaced with GEM1 interface of Versal’s PS through MIO pins and works at 1.8V IO voltage level.

The Gigabit Ethernet PHY also supports MDC, MDIO, Reset and Interrupt Signals for control. These MDC, MDIO and Interrupt signals are used through PS Bank MIO pins from Board-to-Board Connector2 pins C24, C25, & B24 respectively and Reset from XPIO Bank from Board-to-Board Connector2 pin B13. Ethernet PHY output is directly connected to RJ45 MagJack (J8). 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 28: Gigabit Ethernet Connector2

2.8.3 USB Type-C for Debug UART and JTAG

The Versal Premium development board supports a JTAG/UART to USB Module Host through USB Type-C Connector “2012670005”. This interface supports JTAG and Debug UART interface with a single Type-C connector from PS. The JTAG-SMT4 module is a compact, complete, and fully self-contained surface-mount programming module for Xilinx FPGAs. The module can be accessed directly from all Xilinx Tools, including Vivado, and Vitis.

The JTAG-SMT4 uses a 3.3V main power supply (VDD). Since JTAG-SMT4 requires 3.3V IO level, these signals from Board-to-Board connector2 are connector to JTAG-SMT4 module through Voltage level translator. The module routes the USB D+ (DP) and D- (DM) signals directly to the USB Type-C connector. The USB Type-C connector (J36) is located at the top side of the board as shown below.

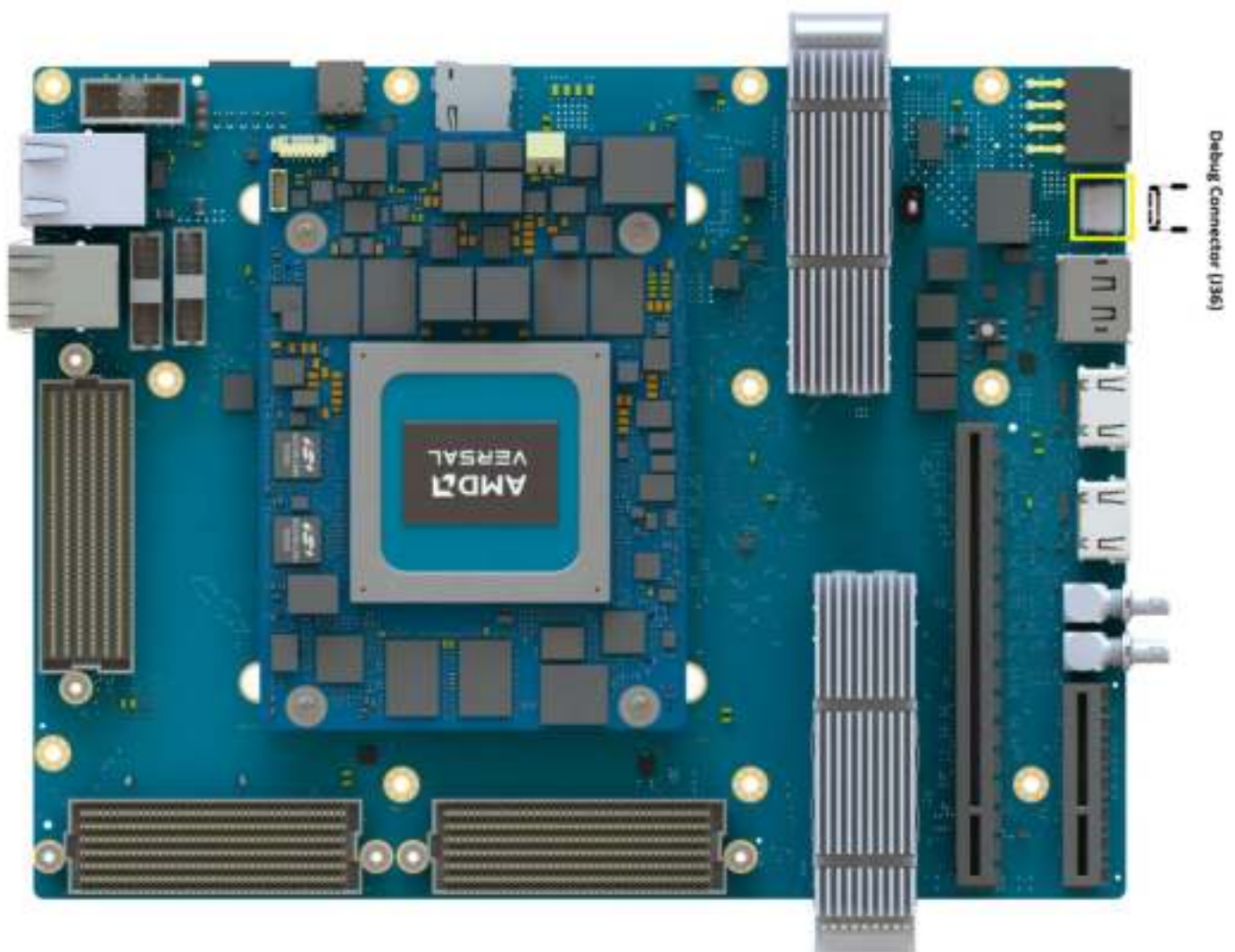


Figure 29: Debug Connector

2.8.4 Micro SD Port

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

The memory card voltage level translator's voltage selection is controlled through SD1_PWR pin from Board-to-Board Connector2 pin A25. If SD1_PWR is set to low, then 3.3V IO level is selected for SD1 signals to SD connector. If SD1_PWR is set to high, then 1.8V IO level is selected for SD1 signals to SD connector. The Micro SD connector (J3) is physically located at the top of the board as shown below.

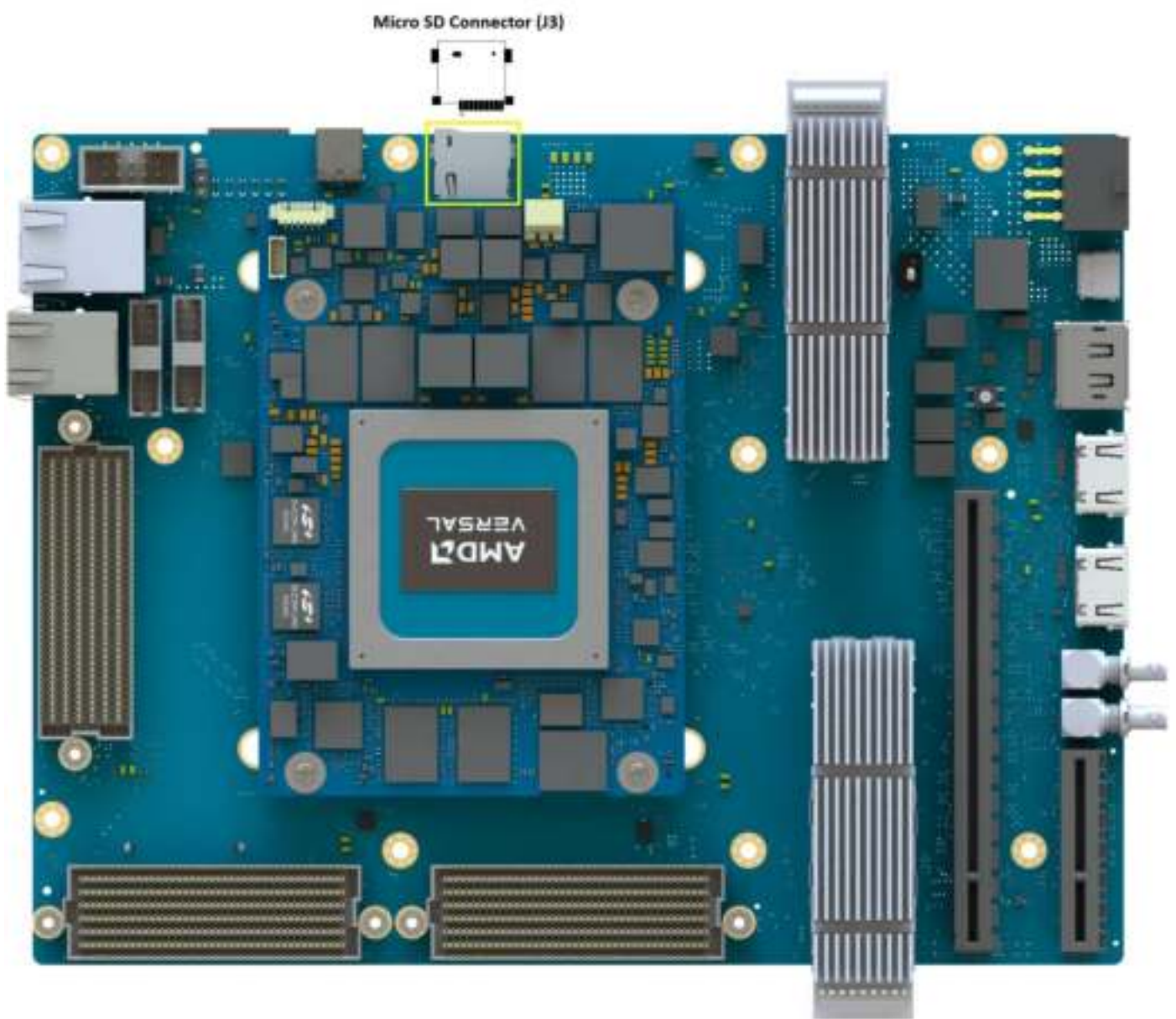


Figure 30:Micro SD Connector

2.8.5 USB2.0 OTG Port

The Versal Premium Development Board supports USB2.0 High Speed OTG interface through USB0 Controller of Versal processor. This USB2.0 OTG interface is supported through USB2.0 Type-C connector (J1). The USB PHY Transceiver output signals from Board-to-Board connector2 is connected to USB2.0 Type-C connector (J1).

The Versal Premium development board supports “FUSB302” USB Type-C controller for port detection & cable orientation and controlled through I2C0 from Port 7 of I2C Bus switch to support double-way plug in on USB Type-C connector. The “FUSB302” IC interrupt connected to IO Expander1 pin P04. The USB C Controller Lane is connected to “FUSB340” 2:1 data Switch which is further connected to USB Type-C connector. The lane selection to Type-C connector (top or bottom port) is controlled through IO Expander3. The VBUS power of this USB2.0 Type-C connector is connected through current limit power switch which can be used to switch On/Off the power based on the device or Host and also limits the current above 500mA in host mode. The USB PHY transceiver in Versal detects the USB functionality through USB_OTG_ID pin (B33rd pin of B2B-2) and controls the power using the USB_PWR_EN pin (B32nd pin of B2B-2). This USB2.0 OTG connector (J1) is physically located at the top of the board as shown below.

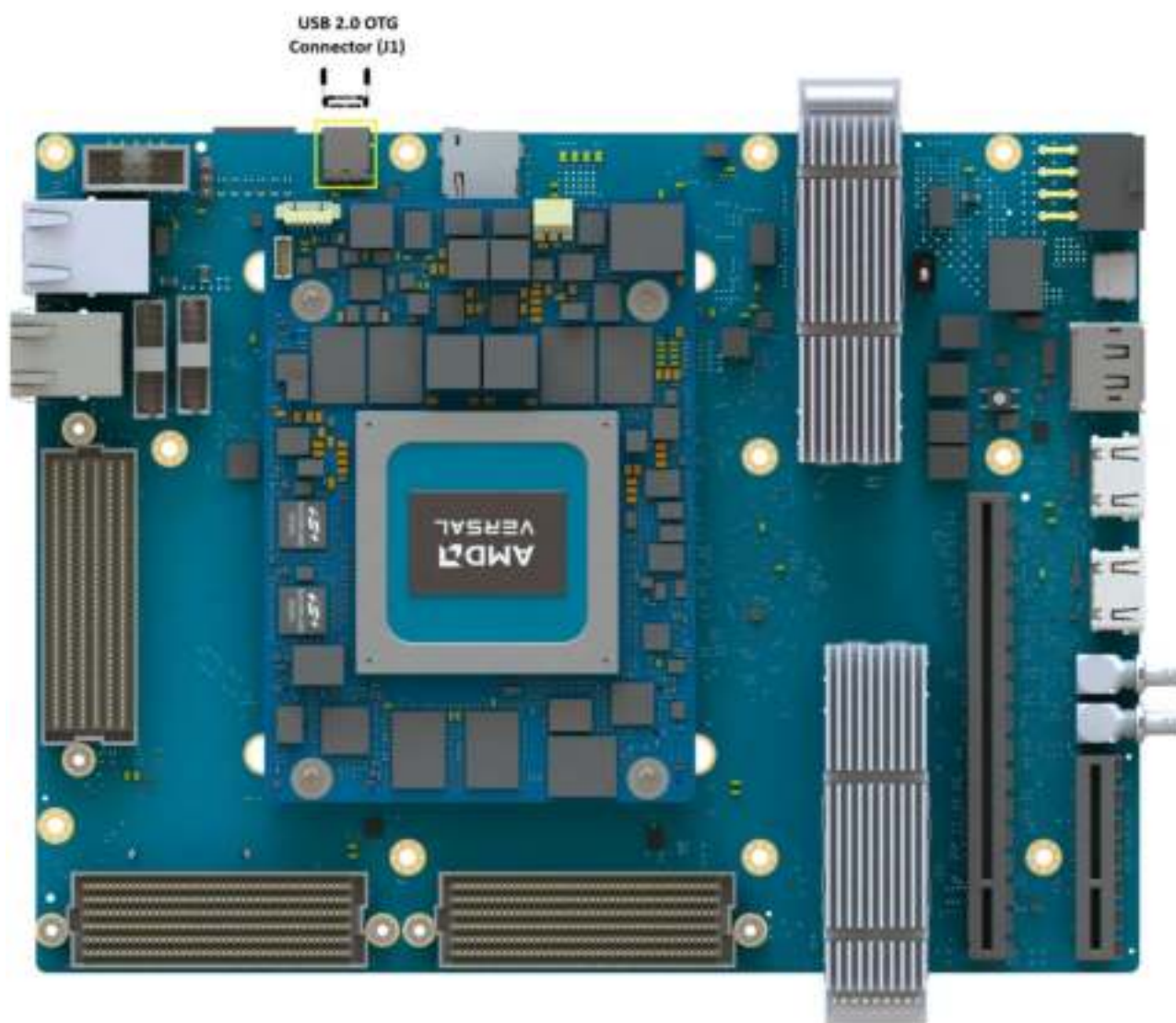


Figure 31:USB OTG Connector

2.8.6 GPIO Header

The Versal Premium development board supports one GPIO Header (J10) for General Purpose. These Header signals are directly connected from Board-to-Board connector 2. These header supports I2C, SPI and CAN, These GPIO Header (J10) is physically located at the top of the board as shown below.



Figure 32:GPIO Header

Table 13:GPIO Header Pin Assignment

Pin No	Soc Pin Name	Signal Name	Signal Type/ Termination	Description
1	NA	VCC_1V8	O, 1.8V Power	1.8V Supply Voltage.
2	NA	VCC_5V	O, 5V Power	5V Supply Voltage.
3	NA	I2C1_SCL	NA	I2C Clock. This Pin is connected to A28 th pin of Board-to-Board Connector2 (J3).
4	NA	CAN0_TX/UART3_TX/Bank 6 IO2N	NA	CAN0 TX. This Pin is connected to D28 th pin of Board-to-Board Connector2 (J3).
5	NA	I2C1_SDA	NA	I2C Data. This Pin is connected to A29 th pin of Board-to-Board Connector2 (J3).
6	NA	CAN0_RX/UART3_RX/Bank 6 IO2P	NA	CAN0 RX. This Pin is connected to D27 th pin of Board-to-Board Connector2 (J3).
7	NA	NA	NA	NA
8	NA	NA	NA	NA
9	NA	NA	NA	NA
10	NA	NA	NA	NA
11	NA	NA	NA	NA
12	NA	NA	NA	NA
13	NA	SPI_SCLK/Bank6 IO10P	NA	SPI Clock. This Pin is connected to B17 th pin of Board-to-Board Connector2 (J3).
14	NA	SPI_SS2_IO2/Bank6 IO11N/GCIN2n	NA	SPI Slave select 2. This Pin is connected to B20 th pin of Board-to-Board Connector2 (J3).
15	NA	SPI_SS0/Bank6 IO12N/GCIN0n	Power	SPI Slave select 0. This Pin is connected to B22 nd pin of Board-to-Board Connector2 (J3).
16	NA	SPI_SS1_IO3/Bank6 IO12P/GCIN0p	Power	SPI Slave select 1. This Pin is connected to B21 st pin of Board-to-Board Connector2 (J3).
17	NA	SPI_MOSI_IO0/Bank6 IO10N	NA	SPI MOSI. This Pin is connected to B18 th pin of Board-to-Board Connector2 (J3).
18	NA	SPI_MISO_IO1/Bank6 IO11P/GCIN2p	NA	SPI MISO. This Pin is connected to B19 th pin of Board-to-Board Connector2 (J3).
19	NA	GND	Power	Ground
20	NA	GND	Power	Ground

2.9 Additional Features

2.9.1 Clock Synthesizers

The Virtex UltraScale+ FPGA development board supports four 10-output Clock Synthesizer “SI5341B-D-GM” for on board clock distribution. This Clock Generator outputs are connected to FPGA-GTY 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 100 Hz to 1028 MHz clock output and configurable through I2C bus switch channel0.

Table 14: Clock Synthesizer 1 Output Clocks

Pin No	Pin Name	Signal Name	Programmed Frequency	Description
24	OUT0	HS_TXVR1_CLK0P	148.5 MHz	Output from OUT0 of Clock Syntesizer1 Input to Reference Clock 0 of GTM Bank 202 through B2B-2 C59 th pin for QSFP112G interface.
23	OUT0b	HS_TXVR1_CLK0N		Output from OUT0b of Clock Syntesizer1 Input to Reference Clock 0 of GTM Bank 202 through B2B-2 C60 th pin for QSFP112G interface.
28	OUT1	HS_TXVR0_CLK1P	297 MHz	NC Output from OUT1 of Clock Syntesizer1
27	OUT1b	HS_TXVR0_CLK1N		Input to Reference Clock 1 of GTYP Bank 110 through B2B-2 (Optional)
31	OUT2	LS_TXVR_REFCLK3P/Bank5 IO23P	135 MHz	NC
30	OUT2b	LS_TXVR_REFCLK3N/Bank5 IO23N		
35	OUT3	LS_TXVR_REFCLK2P/Bank5 IO24P	135 MHz	NC
34	OUT3b	LS_TXVR_REFCLK2N/Bank5 IO24N		
38	OUT4	HS_TXVR14_CLK0P	156.25 MHz	Output from OUT4 of Clock Syntesizer1. Input to Reference Clock 0 of GTYP Bank 207 through B2B-3 C59 th pin for QSFP112G interface.
37	OUT4b	HS_TXVR14_CLK0N		Output from OUT4b of Clock Syntesizer1. Input to Reference Clock 0 of GTYP Bank 207 through B2B-3 C60 th pin for QSFP112G interface.
42	OUT5	HS_TXVR12_CLK0P	156.25 MHz	Output from OUT5 of Clock Syntesizer1. Input to Reference Clock 0 of GTM Bank 205 through B2B-3 C44 th pin for QSFP112G interface.
41	OUT5b	HS_TXVR12_CLK0N		Output from OUT5b of Clock Syntesizer1. Input to Reference Clock 0 of GTM Bank 205 through B2B-3 C45 th pin for QSFP112G interface.
45	OUT6	HS_TXVR13_CLK0P	156.25 MHz	Output from OUT6 of Clock Syntesizer1. Input to Reference Clock 0 of GTM Bank 204 through B2B-3 A59 th pin for QSFP112G interface.
44	OUT6b	HS_TXVR13_CLK0N		Output from OUT6b of Clock Syntesizer1. Input to Reference Clock 0 of GTM Bank 204 through B2B-3 A60 th pin for QSFP112G interface.

Pin No	Pin Name	Signal Name	Programmed Frequency	Description
51	OUT7	HS_TXVR3_CLK0P	156.25 MHz	Output from OUT7 of Clock Syntesizer1 Input to Reference Clock 0 of GTYP Bank 103 through B2B-2 C74 th pin for PClex16 interface.
50	OUT7b	HS_TXVR3_CLK0N		Output from OUT7b of Clock Syntesizer1 Input to Reference Clock 0 of GTYP Bank 103 through B2B-2 C75 th pin for PClex16 interface.
54	OUT8	CLK_GEN1_IN1	125 MHz	Output from OUT8 of Clock Syntesizer1. Connected to Clock Synthesizer 2 input positive
53	OUT8b	CLK_GEN1_IN1b		Output from OUT8b of Clock Syntesizer1. Connected to Clock Synthesizer 2 input negative.
59	OUT9	LS_TXVR_REFCLK1P/Bank6 IO23P	52 MHz	NC Input to Reference Clock 1 of GTYP Bank 106 through B2B-2 (Optional)
58	OUT9b	LS_TXVR_REFCLK1N/Bank6 IO23N		

Table 15:Clock Synthesizer 2 Output Clocks

Pin No	Pin Name	Signal Name	Programmed Frequency	Description
24	OUT0	HS_TXVR6_CLK1P	156.25 MHz	NC Output from OUT0 of Clock Syntesizer2 Input to Reference Clock 1 of GTYP Bank 200 through B2B-2 (Optional)
23	OUT0b	HS_TXVR6_CLK1N		
28	OUT1	HS_TXVR7_CLK1P	156.25 MHz	NC Output from OUT1 of Clock Syntesizer2 Input to Reference Clock 1 of GTYP Bank 201 through B2B-3 (Optional)
27	OUT1b	HS_TXVR7_CLK1N		
31	OUT2	HS_TXVR8_CLK1P	156.25 MHz	NC Output from OUT2 of Clock Syntesizer2 Input to Reference Clock 1 of GTYP Bank 208 through B2B-3 (Optional)
30	OUT2b	HS_TXVR8_CLK1N		
35	OUT3	HS_TXVR9_CLK1P	156.25 MHz	NC Output from OUT3 of Clock Syntesizer2 Input to Reference Clock 1 of GTYP Bank 209 through B2B-3 (Optional)
34	OUT3b	HS_TXVR9_CLK1N		
38	OUT4	HS_TXVR10_CLK1P	156.25 MHz	NC Output from OUT4 of Clock Syntesizer2 Input to Reference Clock 1 of GTYP Bank 210 through B2B-3 (Optional)
37	OUT4b	HS_TXVR10_CLK1N		
42	OUT5	HS_TXVR11_CLK1P	156.25 MHz	NC Output from OUT5 of Clock Syntesizer2 Input to Reference Clock 1 of GTYP Bank 211 through B2B-3 (Optional)
41	OUT5b	HS_TXVR11_CLK1N		
45	OUT6	HS_TXVR15_CLK1P	156.25 MHz	NC Output from OUT6 of Clock Syntesizer2 Input to Reference Clock 1 of GTYP Bank 109 through B2B-3 (Optional)
44	OUT6b	HS_TXVR15_CLK1N		
51	OUT7	HS_TXVR16_CLK1P	156.25 MHz	NC Output from OUT7 of Clock Syntesizer2 Input to Reference Clock 1 of GTM Bank 203 through B2B-3 (Optional)
50	OUT7b	HS_TXVR16_CLK1N		

Pin No	Pin Name	Signal Name	Programmed Frequency	Description
54	OUT8	HS_TXVR17_CLK1P	156.25 MHz	Output from OUT8 of Clock Syntesizer2 Input to Reference Clock 1 of GTYP Bank 111 through B2B-3 B89 th pin for FMC+ Connector2 interface
53	OUT8b	HS_TXVR17_CLK1N		Output from OUT8b of Clock Syntesizer2 Input to Reference Clock 1 of GTYP Bank 111 through B2B-3 B90 th pin for FMC+ Connector2 interface
59	OUT9	CLK_GEN2_IN1	125 MHz	Output from OUT9 of Clock Syntesizer2 Connected to Clock Synthesizer 3 input positive.
58	OUT9b	CLK_GEN2_IN1b		Output from OUT9b of Clock Syntesizer2 Connected to Clock Synthesizer 3 input negative.

Table 16: Clock Synthesizer 3 Output Clocks

Pin No	Pin Name	Signal Name	Programmed Frequency	Description
24	OUT0	HS_TXVR1_CLK1P	156.25 MHz	NC Output from OUT0 of Clock Syntesizer3 Input to Reference Clock 1 of GTM Bank 202 through B2B-2 (Optional).
23	OUT0b	HS_TXVR1_CLK1N		
28	OUT1	HS_TXVR14_CLK1P	156.25 MHz	NC Output from OUT1 of Clock Syntesizer3 Input to Reference Clock 1 of GTYP Bank 207 through B2B-3 (Optional)
27	OUT1b	HS_TXVR14_CLK1N		
31	OUT2	HS_TXVR12_CLK1P	156.25 MHz	NC Output from OUT2 of Clock Syntesizer3 Input to Reference Clock 1 of GTM Bank 205 through B2B-3 (Optional)
30	OUT2b	HS_TXVR12_CLK1N		
35	OUT3	HS_TXVR13_CLK1P	156.25 MHz	NC Output from OUT3 of Clock Syntesizer3 Input to Reference Clock 1 of GTM Bank 204 through B2B-3 (Optional)
34	OUT3b	HS_TXVR13_CLK1N		
38	OUT4	HS_TXVR2_CLK1P	156.25 MHz	NC Output from OUT4 of Clock Syntesizer3 Input to Reference Clock 1 of GTYP Bank 102 through B2B-2 (Optional)
37	OUT4b	HS_TXVR2_CLK1N		
42	OUT5	HS_TXVR3_CLK1P	156.25 MHz	NC Output from OUT5 of Clock Syntesizer3 Input to Reference Clock 1 of GTYP Bank 103 through B2B-2 (Optional)
41	OUT5b	HS_TXVR3_CLK1N		
45	OUT6	HS_TXVR4_CLK1P	156.25 MHz	NC Output from OUT6 of Clock Syntesizer3 Input to Reference Clock 1 of GTYP Bank 104 through B2B-2 (Optional)
44	OUT6b	HS_TXVR4_CLK1N		
51	OUT7	HS_TXVR5_CLK1P	156.25 MHz	NC Output from OUT7 of Clock Syntesizer3 Input to Reference Clock 1 of GTYP Bank 105 through B2B-2 (Optional)
50	OUT7b	HS_TXVR5_CLK1N		

Pin No	Pin Name	Signal Name	Programmed Frequency	Description
54	OUT8	HS_TXVR18_CLK1P	156.25 MHz	Output from OUT8 of Clock Syntesizer3 Input to Reference Clock 1 of GTYP Bank 112 through B2B-3 D89 th pin for FMC+ Connector2 interface
53	OUT8b	HS_TXVR18_CLK1N		Output from OUT8b of Clock Syntesizer3 Input to Reference Clock 1 of GTYP Bank 112 through B2B-3 D90 th pin for FMC+ Connector2 interface
59	OUT9	CLK_GEN3_IN1	125 MHz	Output from OUT9 of Clock Syntesizer3 Connected to Clock Synthesizer 4 input positive
58	OUT9b	CLK_GEN3_IN1b		Output from OUT9b of Clock Syntesizer3 Connected to Clock Synthesizer 4 input negative

Table 17: Clock Synthesizer 4 Output Clocks

Pin No	Pin Name	Signal Name	Programmed Frequency	Description
24	OUT0	HS_TXVR4_CLK0P	156.25 MHz	Output from OUT0 of Clock Syntesizer4 Input to Reference Clock 0 of GTY Bank 226 through B2B-2 A89 th pin for PCIe16 interface
23	OUT0b	HS_TXVR4_CLK0N		Output from OUT0b of Clock Syntesizer4 Input to Reference Clock 0 of GTY Bank 226 through B2B-2 A90 th pin for PCIe16 interface
28	OUT1	HS_TXVR5_CLK0P	156.25 MHz	Output from OUT1 of Clock Syntesizer4 Input to Reference Clock 0 of GTY Bank 227 through B2B-2 C89 th pin for PCIe16 interface
27	OUT1b	HS_TXVR5_CLK0N		Output from OUT1b of Clock Syntesizer4 Input to Reference Clock 0 of GTY Bank 227 through B2B-2 C90 th pin for PCIe16 interface
31	OUT2	HS_TXVR19_CLK1P	156.25 MHz	NC
30	OUT2b	HS_TXVR19_CLK1N		
35	OUT3	ETH_PHY_REFCLK	25 MHz	Connected to development board 1G Ethernet PHY reference clock
34	OUT3b	NC	NA	NC
38	OUT4	CLK3_SYS1_OUT4+	100 MHz	NC
37	OUT4b	CLK3_SYS1_OUT4-		
42	OUT5	SYS_SYNC_CLK_INP	125 MHz	Output from OUT5 of Clock Syntesizer4 Input to on SOM Clock Synthesizer 1 IN positive
41	OUT5b	SYS_SYNC_CLK_INN		Output from OUT5b of Clock Syntesizer4 Input to on SOM Clock Synthesizer 1 IN negative
45	OUT6	PS_PCl_e_REFCLKP_C	100 MHz	NC
44	OUT6b	PS_PCl_e_REFCLKn_C		
51	OUT7	PS_PCl_e_REFCLKP_TXVR	100 MHz	NC
50	OUT7b	PS_PCl_e_REFCLKn_TXVR		
54	OUT8	PL_PCl_e_REFCLKP_C	100 MHz	Output from OUT8 of Clock Syntesizer4 Connected to PCIe16 Connector as reference clock positive

Pin No	Pin Name	Signal Name	Programmed Frequency	Description
53	OUT8b	PL_PCl_e_REFCLKn_C		Output from OUT8b of Clock Synthesizer4 Connected to PCIe16 Connector as reference clock negative
59	OUT9	PL_PCl_e_REFCLKP_TXVR	100 MHz	Output from OUT9 of Clock Synthesizer4 for PCIe transceiver reference clock to GTY Bank 225 positive in Root port configuration.
58	OUT9b	PL_PCl_e_REFCLKN_TXVR		Output from OUT9 of Clock Synthesizer4 for PCIe transceiver reference clock to GTY Bank 225 negative in Root port configuration.

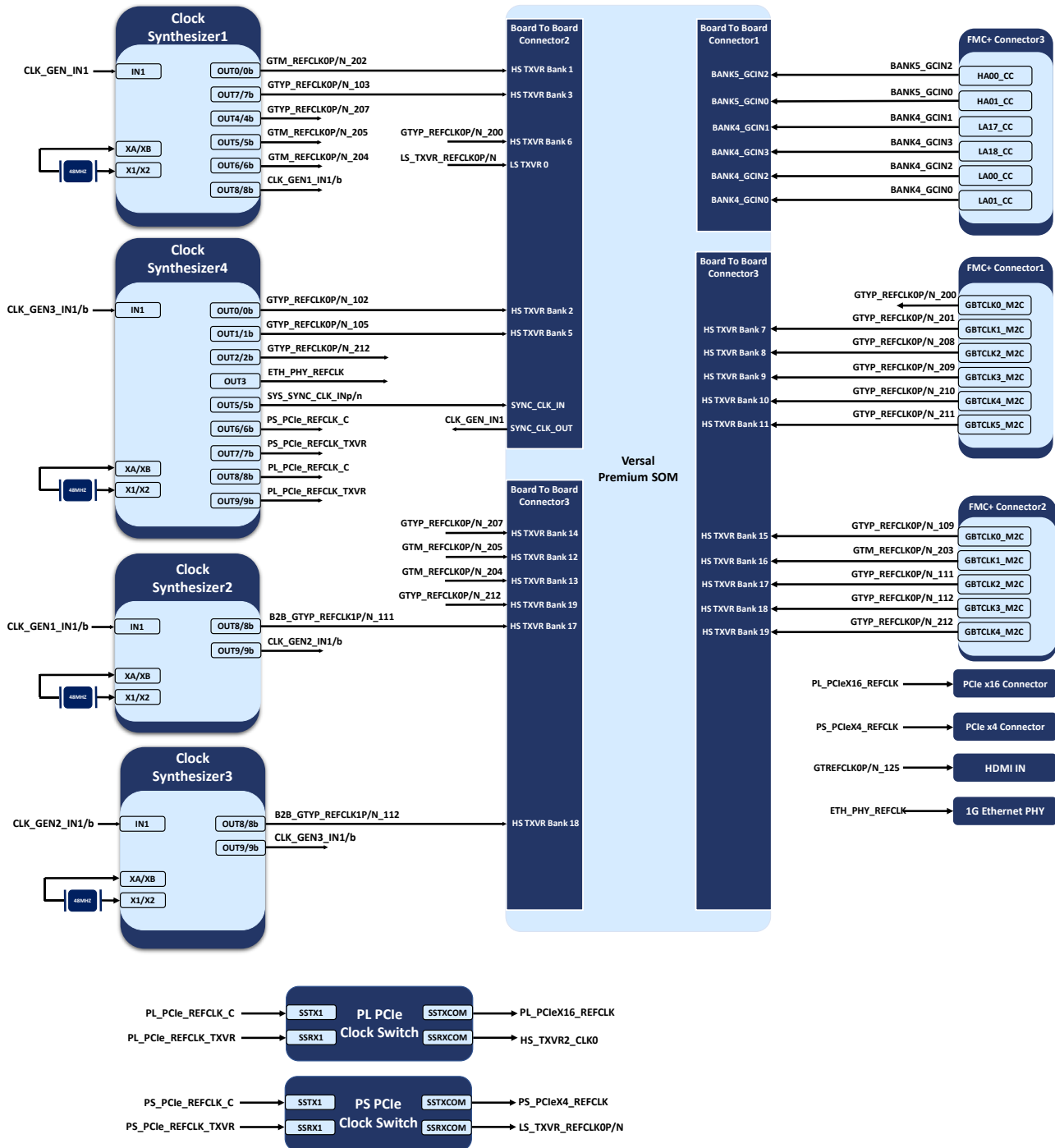


Figure 33: Clock Tree

2.9.2 IO Expanders

The Versal Premium development board supports three GPIO 16-Bit port Expander. IO expanders are configured through I2C of development board I2C mux switch. IO expander 1 & 2 are connected to Channel7 of I2C MUX switch and IO expander 3 is connected to Channel1 of I2C MUX.

Refer below table for IO Expander pin mapping.

Table 18: IO Expander 1 Output

Pin No	Pin Port Name	Signal Name	Signal Type / Termination	Description
IO EXPANDER 1 (TCA6416APWR) - I2C address: 0x21				
4	P00	QSFP112G2T_IntL/RxLOS	I, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 2 Low - Operational fault High - Normal operation
5	P01	QSFP112G1T_ResetL	O, 3.3V CMOS / 4.7K PU	Connected to QSFP Stacked connector 1 If Reset is Low, then QSFP+ DD module in reset state If Reset is High (3.3V), then QSFP+ DD module in out of reset state
6	P02	QSFP112G2B_IntL/RxLOS	I, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 2 Low - Operational fault High - Normal operation
7	P03	QSFP112G1T_IntL/RxLOS	I, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 1 Low - Operational fault High - Normal operation
8	P04	B_USB_3.0_INT	I, 3.3V CMOS / 4.7K PU	Connected from USB Controller IC USB Controller IC Interrupt pin input signal (IO Level - 3.3V) Low - Interrupt Condition High - Normal Condition
9	P05	QSFP112G1B_ModSelL	O, 3.3V CMOS / 4.7K PU	Connected to QSFP Stacked connector 1 If MODESEL is low, then QSFP+ DD module respond to serial communication If MODESEL is High, then QSFP+ DD module will not respond to serial communication
10	P06	QSFP112G1B_ResetL	O, 3.3V CMOS / 4.7K PU	Connected to QSFP Stacked connector 1 If Reset is Low, then QSFP+ DD module in reset state If Reset is High (3.3V), then QSFP+ DD module in out of reset state
11	P07	B_DP_HPD	I, 3.3V CMOS / 100K PD	Connected from DP Connector DP Hot Plug in Detect Low - DP monitor not connected High -DP monitor is connected
13	P10	QSFP112G1B_IntL/RxLOS	I, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 1 Low - Operational fault High - Normal operation

Pin No	Pin Port Name	Signal Name	Signal Type / Termination	Description
14	P11	B_IO_EXP3_INT	I, 3.3V CMOS / 4.7K PU	Connected from IO Expander 3
15	P12	B_FMC+1_CLK_DIR	O, 3.3V CMOS / 1K PD	Connected to FMC+ Connector 1
16	P13	B_FMC+1_PR_M2C_L	O, 3.3V CMOS / 10K PU	Connected to FMC+ Connector 1
17	P14	B_FMC+2_CLK_DIR	O, 3.3V CMOS / 1K PD	Connected to FMC+ Connector 2
18	P15	B_FMC+2_PR_M2C_L	O, 3.3V CMOS / 10K PU	Connected to FMC+ Connector 2
19	P16	B_EEPROM_WC	O, 3.3V CMOS / 4.7K PD	Connected to development board EEPROM Write Protect Low – Not EEPROM Write Protected High -EEPROM Write Protected
20	P17	B_IO_EXP2_INT	I, 3.3V CMOS / 4.7K PU	Connected from IO Expander 2

Table 19: IO Expander 2 Output

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
IO EXPANDER 2 (TCA6416APWR)- I2C address: 0x20				
4	P00	QSFP112G2T_ModSelL	O, 3.3V CMOS / 4.7K PU	Connected to QSFP Stacked connector 2 If MODESEL is low, then QSFP+ DD module respond to serial communication If MODESEL is High, then QSFP+ DD module will not respond to serial communication
5	P01	QSFP112G2T_ResetL	O, 3.3V CMOS / 4.7K PU	Connected to QSFP Stacked connector 2 If Reset is Low, then QSFP+ DD module in reset state If Reset is High (3.3V), then QSFP+ DD module in out of reset state
6	P02	QSFP112G2T_ModPrsL	I, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 2 Low - When module is inserted High - When module is absent
7	P03	QSFP112G1T_ModSelL	O, 3.3V CMOS / 4.7K PU	Connected to QSFP Stacked connector 1 If MODESEL is low, then QSFP+ DD module respond to serial communication If MODESEL is High, then QSFP+ DD module will not respond to serial communication
8	P04	QSFP112G2T_LPMode/TxDis	O, 3.3V CMOS / 4.7K PU	Connected to QSFP Stacked connector 2 High for LpMode Low for TXDIS mode
9	P05	QSFP112G2B_ModSelL	O, 3.3V CMOS / 4.7K PU	Connected to QSFP Stacked connector 2 If MODESEL is low, then QSFP+ DD module respond to serial communication If MODESEL is High, then QSFP+ DD module will not respond to serial communication
10	P06	QSFP112G2B_ResetL	O, 3.3V CMOS / 4.7K PU	Connected to QSFP Stacked connector 2 If Reset is Low, then QSFP+ DD module in reset state If Reset is High (3.3V), then QSFP+ DD module in out of reset state
11	P07	QSFP112G2B_ModPrsL	I, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 2 Low - When module is inserted High - When module is absent
13	P10	QSFP112G1T_ModPrsL	I, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 1 Low - When module is inserted High - When module is absent
14	P11	QSFP112G2B_LPMode/TxDis	O, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 2 High for LpMode Low for TXDIS mode
15	P12	B_FMC+3_CLK_DIR	O, 3.3V CMOS / 1K PD	Connected to FMC+ Connector 3

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
16	P13	B_FMC+3_PR_M2C_L	O, 3.3V CMOS / 10K PU	Connected to FMC+ Connector 3
17	P14	FMC+1_PG	O, 3.3V CMOS	Connected to FMC+ Connector 1
18	P15	FMC+2_PG	O, 3.3V CMOS	Connected to FMC+ Connector 2
19	P16	FMC+3_PG	O, 3.3V CMOS	Connected to FMC+ Connector 3
20	P17	QSFP112G1B_LPMode/TxDis	O, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 1 High for LpMode Low for TXDIS mode

Table 20: IO Expander 3 Output

Pin No	Pin Name	Signal Name	Signal Type / Termination	Description
IO EXPANDER 3 (TCA6416APWR)- I2C address: 0x20				
4	P00	B_EN_FMC+_VADJ1	O, 3.3V CMOS / 10K PD	Connected to FMC+ Connector1 FMC+ ADJ Voltage Regulator
5	P01	B_EN_FMC+_VADJ2	O, 3.3V CMOS / 10K PD	Connected to FMC+ Connector2 FMC+ ADJ Voltage Regulator
6	P02	B_EN_FMC+_VADJ3	O, 3.3V CMOS / 10K PD	Connected to FMC+ Connector3 FMC+ ADJ Voltage Regulator
7	P03	B_FMC+1_12V_EN	O, 3.3V CMOS / 10K PD	Connected to FMC+ Connector 1 12V power sequence control IC
8	P04	B_FMC+2_12V_EN	O, 3.3V CMOS / 10K PD	Connected to FMC+ Connector 2 12V power sequence control IC
9	P05	B_FMC+3_12V_EN	O, 3.3V CMOS / 10K PD	Connected to FMC+ Connector 3 12V power sequence control IC
10	P06	B_FMC+1_3V3_EN	O, 3.3V CMOS / 10K PD	Connected to FMC+ Connector 1 3.3V power sequence control IC
11	P07	B_FMC+2_3V3_EN	O, 3.3V CMOS / 10K PD	Connected to FMC+ Connector 2 3.3V power sequence control IC
13	P10	B_FMC+3_3V3_EN	O, 3.3V CMOS / 10K PD	Connected to FMC+ Connector 3 3.3V power sequence control IC
14	P11	B_HDMI_TX_OE	O, 3.3V CMOS	Connected to HDMI OUT Retimer IC Low: Power-down mode High: Normal operation
15	P12	B_PL_PCI_Wake	O, 3.3V CMOS / 10K PU	Connected to PCIe x16 Connector
16	P13	B_HDMI_TX_CEC	O, 3.3V CMOS	Connected to HDMI TX Connector
17	P14	B_USB3.0_EN	O, 3.3V CMOS	Connected to USB 3.0 Power switch Low - Disable High - Enable
18	P15	IOEXP1_USB3_SW_SEL	O, 3.3V CMOS	Connected to USB 3.0 direction control IC
19	P16	QSFP112G1B_ModPrsL	I, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 1 Low - When module is inserted High - When module is absent
20	P17	QSFP112G1T_LPMode/TxDis	O, 3.3V CMOS / 4.7K PU	Connected from QSFP Stacked connector 1 High for LpMode Low for TXDIS mode

2.9.3 I2C Tree

The Versal Premium development board supports two I2C interfaces from board-to-board connector2. These I2C is supported from Versal Premium processor. To avoid the slave address conflicts the development board support I2C mux switch (TCA9548APWR). for I2C0 port of connector. I2C tree shown below represents the complete I2C connections of development kits

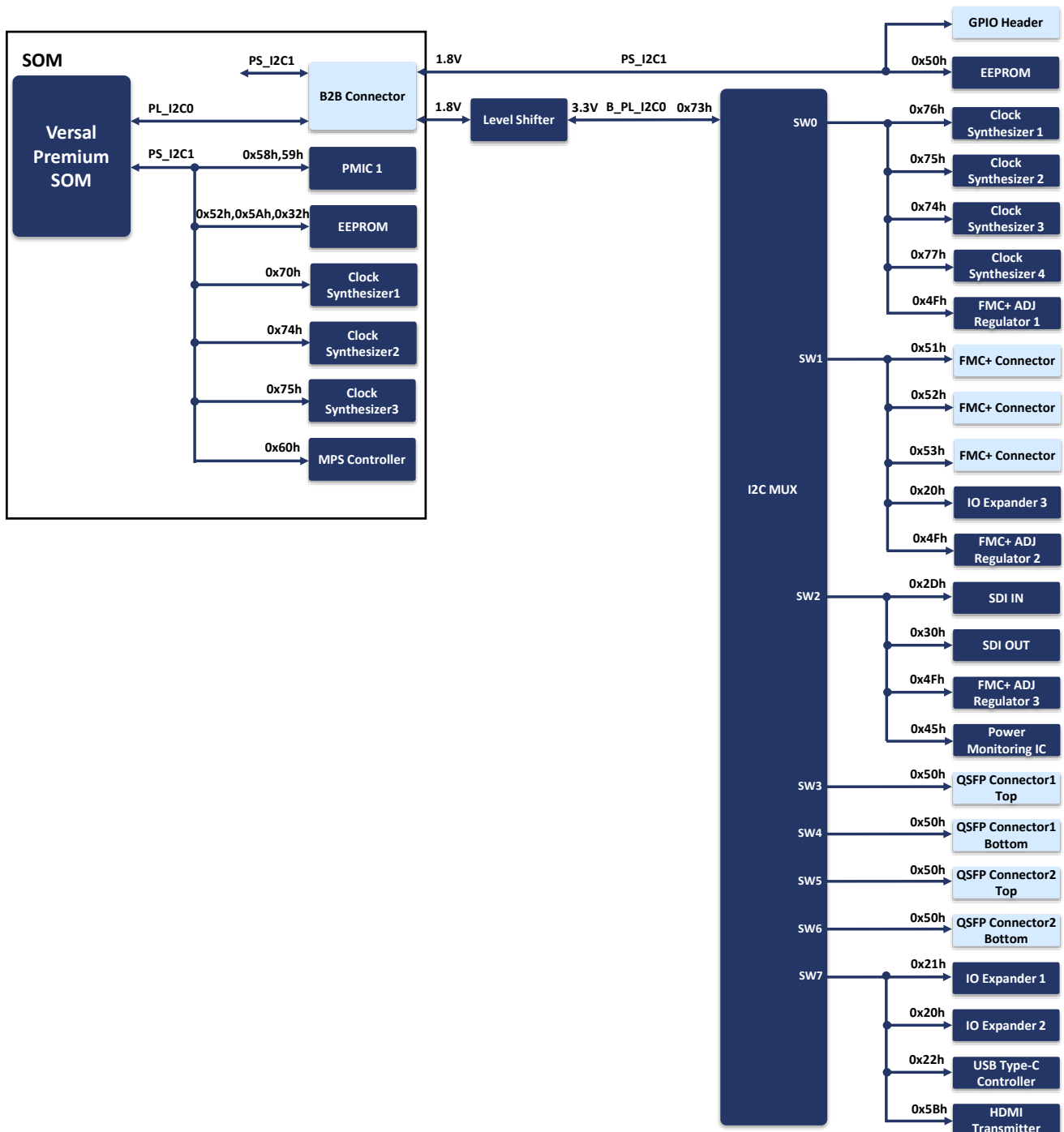


Figure 34: I2C Tree

2.9.4 Power ON/OFF Switch

The Versal Premium development board has power ON/OFF switch (SW3) 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 35: Power On/Off Switch

2.9.5 Reset Switch

The Versal Premium development board supports Push button switch (SW8) to reset the Versal Premium FPGA. Reset signal of Board-to-Board connector2 Pin B14 is directly connected from Reset Push button switch. This Reset Push button switch (SW8) is physically located at the top of the board as shown below.



Figure 36: Reset Switch

2.9.6 RTC Coin Cell Holder

The Versal Premium development board supports Coin Cell Holder to connect “2032” series 3V coin cell. This coin cell voltage is connected to Versal Premium SOM for RTC back up voltage when VCC main power is off. This Coin Cell Holder (J31) is physically located at the bottom of the board as shown below.

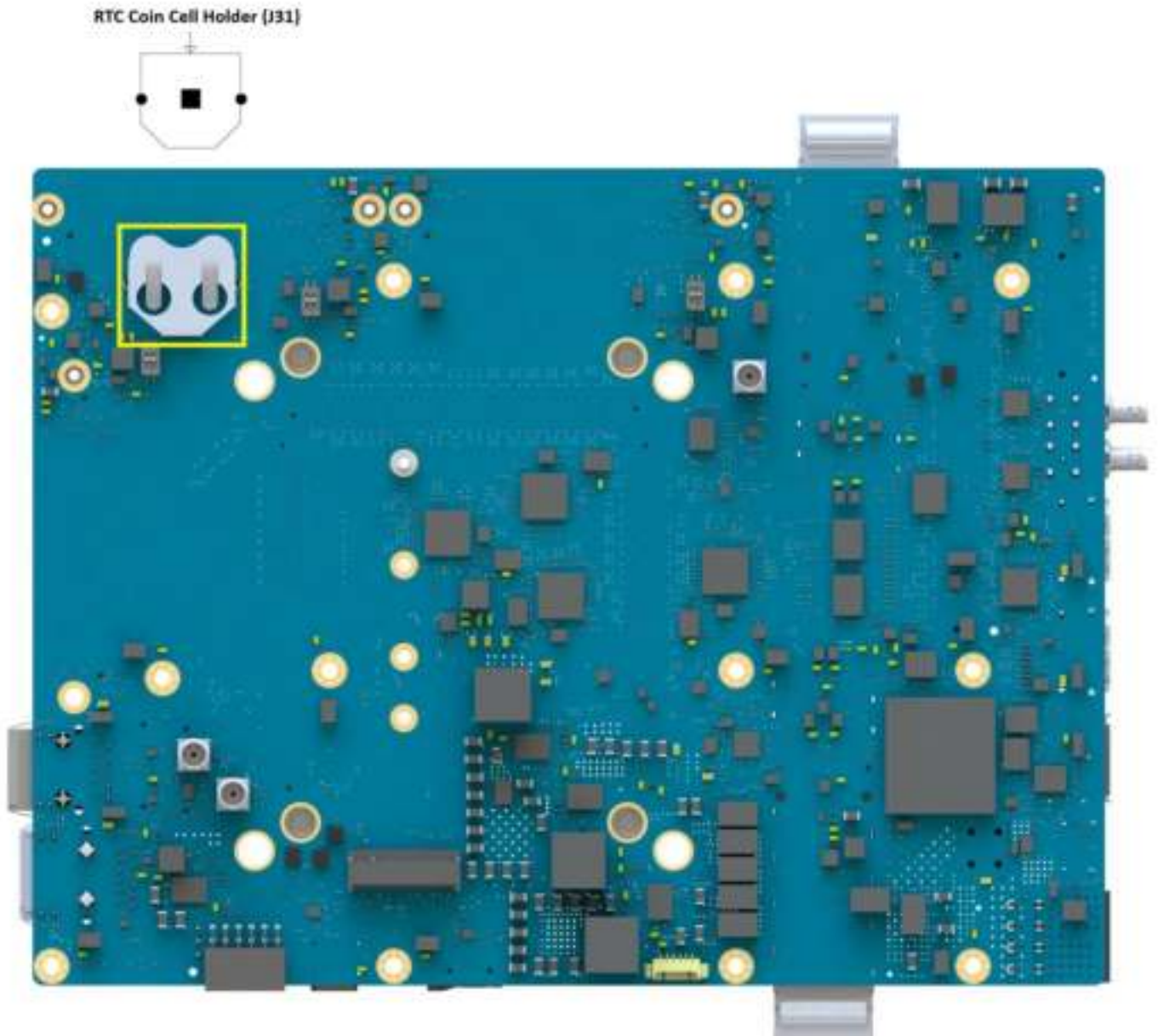


Figure 37: RTC Coin Cell Holder

2.9.7 Power and Program Done LED

The Versal Premium development board supports Power LED and Config Done LED to indicate all powers and programs are successfully completed. The Red LED D7 and D11 indicate all the powers are stable in the development board and Green LED D6 to indicate programs are successfully flashed to FPGA. These LEDs are physically located at the top of the board as shown below.

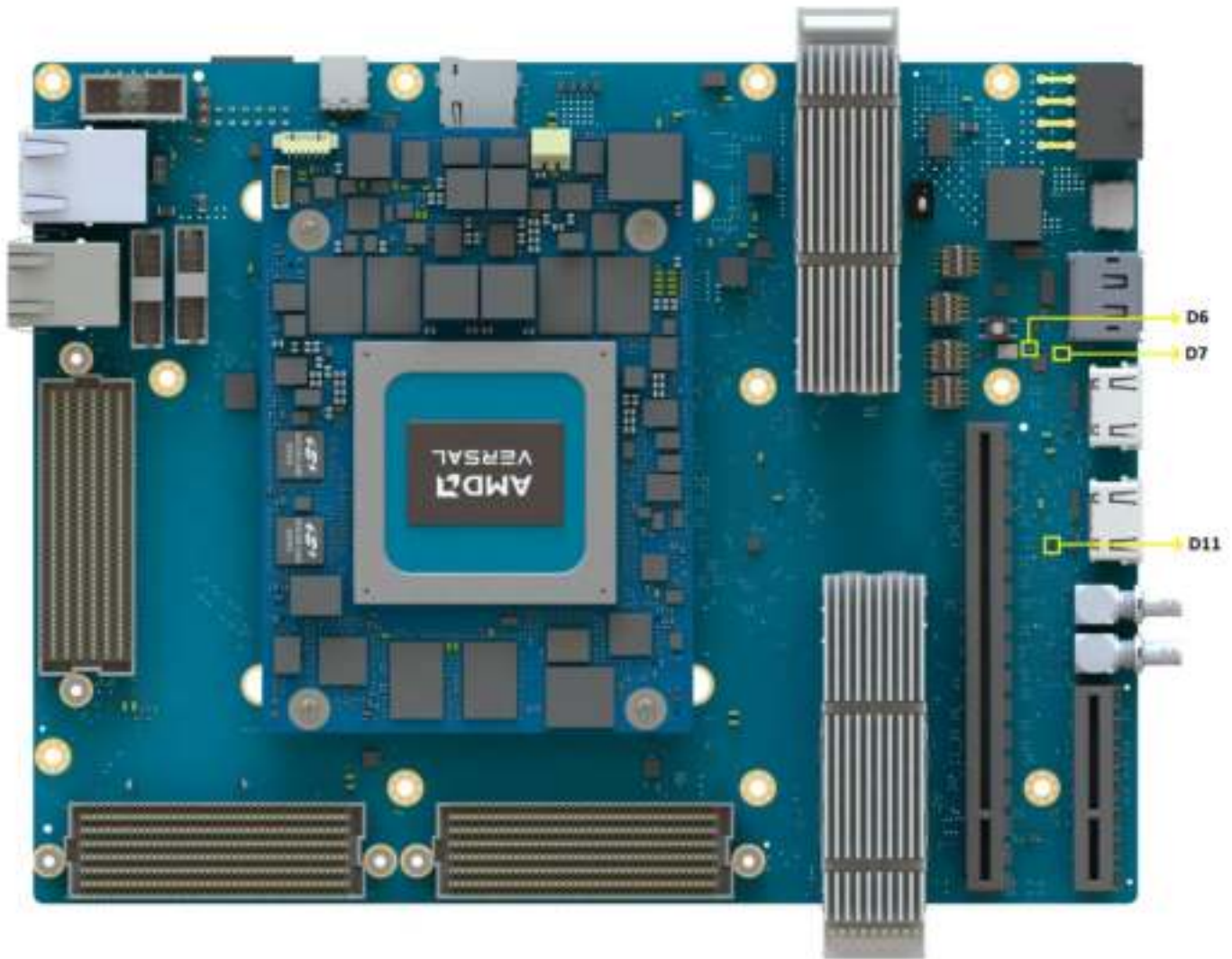


Figure 38: Power and Program Done LED

3. TECHNICAL SPECIFICATION

This section provides detailed information about the Versal Premium development Board technical specification with Electrical, Environmental and Mechanical characteristics.

3.1 Power Input Requirement

The Versal Premium Development Board is designed to work with 15V external power and uses on board voltage regulators for internal power management. 15V power input from an external power supply is connected to the Versal Premium development Board through Power Jack (J4). This connector is physically placed at the top of the board as shown below.



Figure 39: Power Jack

The below table provides the Power Input Requirement Versal Premium Development Board.

Table 21: Power Input Requirement

Sl. No.	Power Rail	Min (V)	Typical (V)	Max(V)	Max Input Ripple
1	VCC_15V	14.25	15V	15.75	±50mV
2	VRTC_3V0 ¹	0	3V	3.15V	±20mV

¹The Versal Premium Devkit uses this voltage as backup power source to On-SOM PMIC RTC controller when VCC is off.

3.2 Power Output Specification

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

The Versal Premium SOM development Board also shares different on-board power to FMC+ connector, Pmod connector and GPIO Headers for its Add-On Module power.

Table 22: Power Output Specification

Sl. No.	Power Rail	Min (V)	Typical (V)	Max(V)	Max Output Current
To Board-to-Board Connector2 (for Versal Premium SOM)					
1	VCC_12V	11.4V	12V	12.6V	40A
2	VRTC_3V0	0V	3V	3.15V	-
To FMC+ Connectors					
1	VCC_FMC+_ADJ	1.14	1.2	1.89	4A
2	VCC_3V3	3.15	3.3	3.45	3A
3	3P3VAUX	3.15	3.3	3.45	100mA
4	VCC_12V	11.75V	12V	12.25V	1A
To Pmod Connector					
1	VCC_3V3	3.15	3.3	3.45	100mA
To QSFP Connectors					
1	VCC_3V3	3.15	3.3	3.45	1A
To GPIO Header					
1	VCC_5V	4.85V	5V	5.15V	500mA
2	VCC_1V8	1.75	1.8	1.85	500mA

3.3 Environmental Characteristics

3.3.1 Environmental Specification

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

Table 23: Environmental Specification

Parameters	Min	Max
Operating temperature range ¹	0°C	85°C

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

3.3.2 RoHS Compliance

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

3.3.3 Electrostatic Discharge

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

3.4 Mechanical Characteristics

3.4.1 Development Board Mechanical Dimensions

The BRYN Development board PCB form factor is 160mm x 210mm and Board mechanical dimension is shown below.

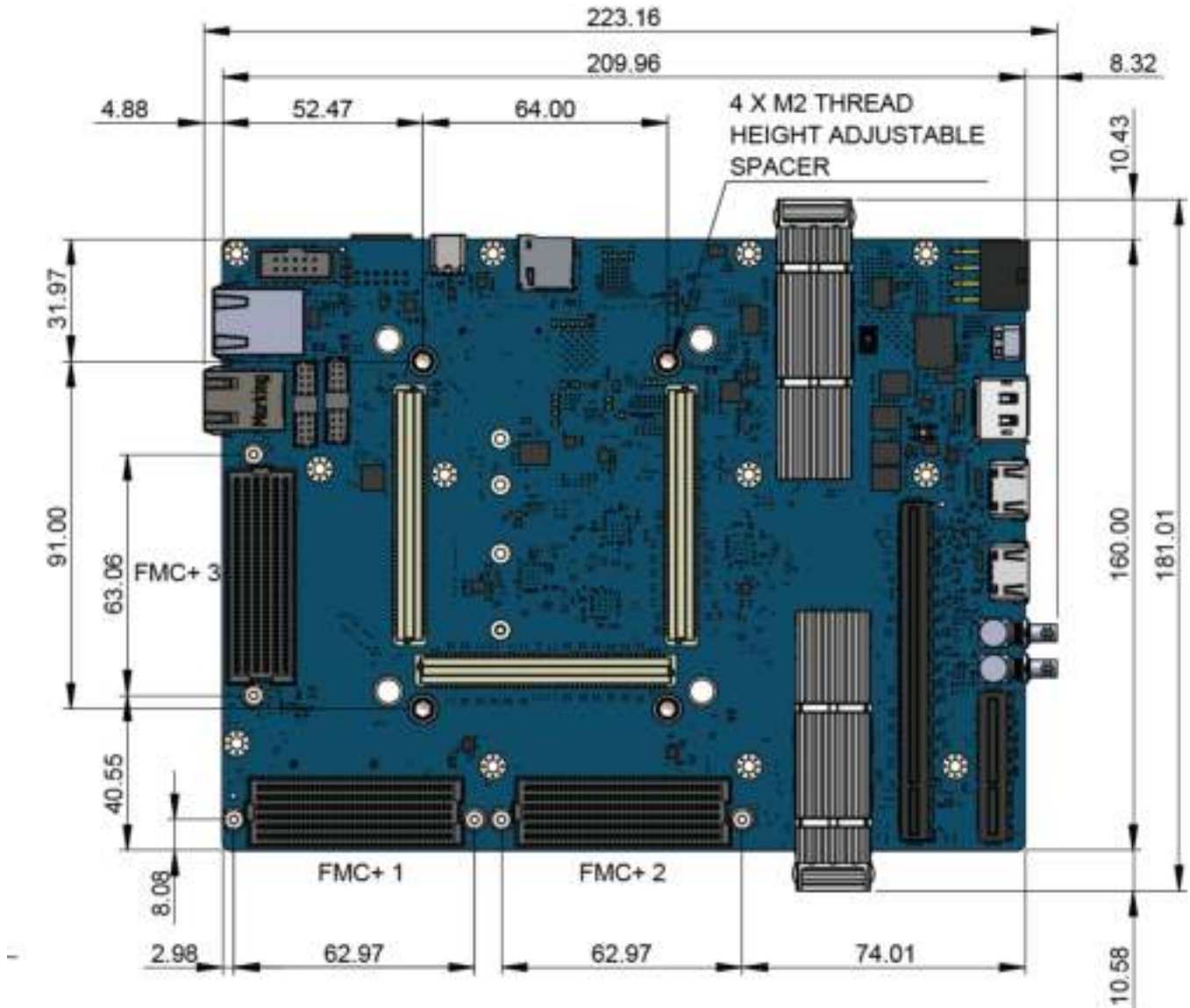


Figure 40: Development board Mechanical dimension – Top View

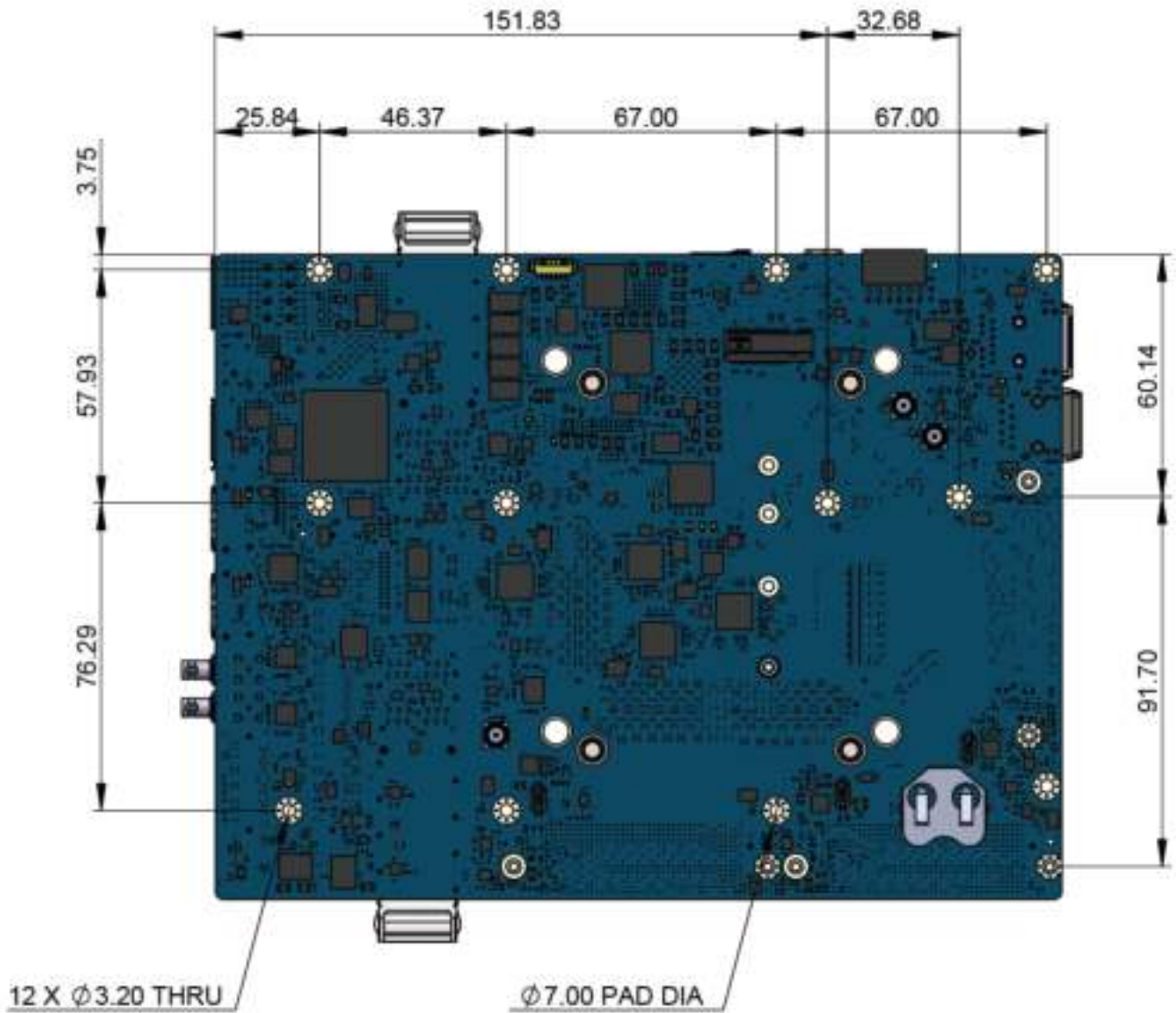


Figure 41: Development board Mechanical dimension – Bottom view

The BRYN Development board PCB thickness is $2\text{mm} \pm 0.1\text{mm}$, top side maximum height component is QSFP Connector (33.00mm) and bottom side maximum height component is Inductor (9.40mm). Please refer the below figure for height details of the Versal Premium SOM development board.



Figure 42: Development board Mechanical dimension – Side View

4. ORDERING INFORMATION

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

Table 24: Orderable Product Part Numbers

Product Part Number	Description	Temperature
TBD	TBD	TBD

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

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