PCIEGEN5_EP_FIREFLY
EH2016002036
Reference Manual

November 2020 ver0.2

E-ELEMENTS

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Revision History

Date	Rev	Comment
Nov. 2020	v0.1	Initial version
Dec. 2020	v0.2	Correct the PMOD connector.

Contents

IMPORTANT!

ESD:

The PCIEGEN5_EP_FIREFLY Card, as with all other electronic equipment, is sensitive to electrostatic discharge (ESD). When handling the transceiver card:

- Transport the card in an ESD bag
- Wear an anti-static wrist strap
- Make sure the work area is equipped with an ESD mat

Warning

Never hot-plug interface cards, daughter boards or cables. Always power down the HAPS® system when adding or removing a board, card, or cable to avoid damage to both the system and peripheral.

Overview

This document is the PCIEGEN5_EP_FIREFLY Reference Manual and describes the functions of the PCIEGEN5_EP_FIREFLY interface card.

The PCIEGEN5_EP_FIREFLY daughter board includes Gen5 PCIe x16 finger, the rate can reach 32 GT/s.

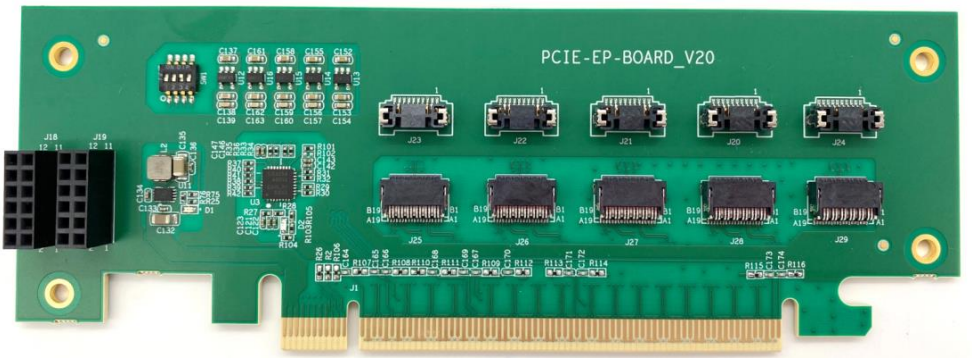

Figure 1: Top View of PCIEGEN5_EP_FIREFLY

Layout

PCIEGEN5_EP_FIREFLY daughter board consists of:

- 5 Firefly connector
- 1 PCIe x16 finger
- 2 12-Pin PMOD connector

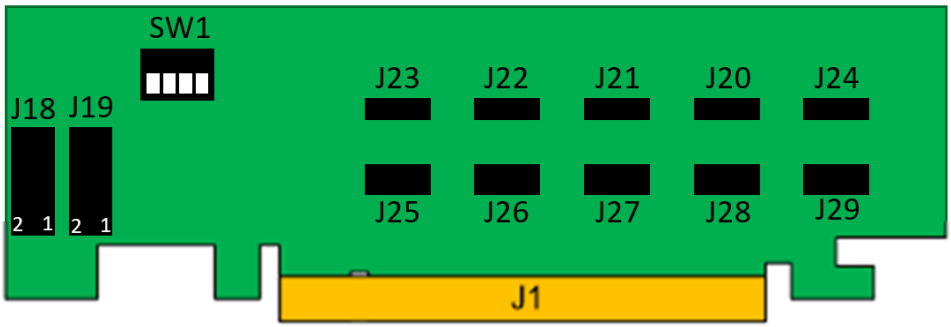

Figure 2: Top PCIEGEN5_EP_FIREFLY Card Layout

Block Diagram

Figure 3 shows the connectivity between the PCIEGEN5_EP_FIREFLY daughter board's headers and connectors.

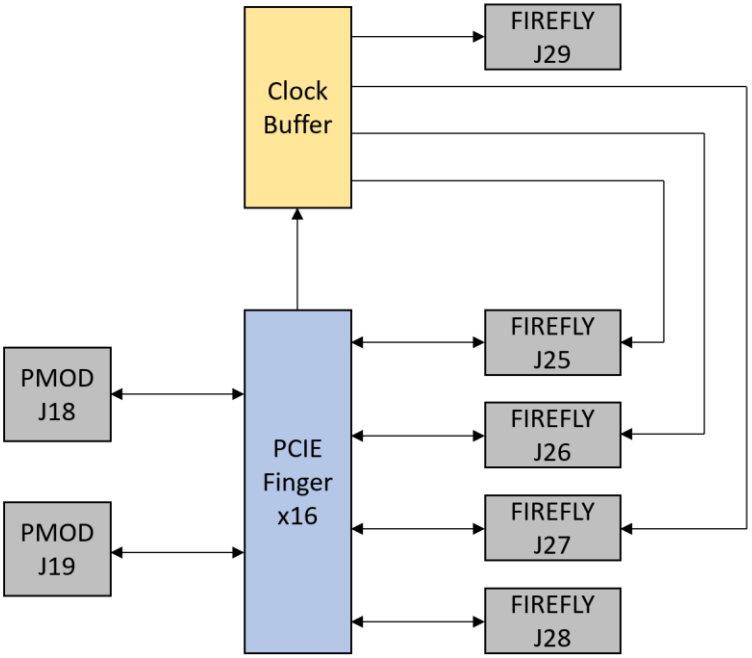

Figure 3: PCIEGEN5_EP_FIREFLY Architecture Block Diagram

Switch

The SW1 is configured the PCIe finger pin of PRSNT_B, it should be turned on of SW1 pin 4. Table 1 is a list of switch connected to.

Pin	Connected to	Trace Name
1	J1 PRSNT2#_X1 B17	X1_PRSNT2#
2	J1 PRSNT2#_X4 B31	X4_PRSNT2#
3	J1 PRSNT2#_X8 B48	X8_PRSNT2#
4	J1 PRSNT2#_X16 B87	X16_PRSNT2#

Table 1: SW1 Table

LEDs

There are one LED on the PCIEGEN5_EP_FIREFLY.

LED	Function
D1	Power LED

Table 2: LED Table

FIREFLY Connector

FIREFLY Connector J25/J26/J27/J28/J29 to PCIe finger

Connector J25		Connector J25	
Pin	Trace Name	Pin	Trace Name
A1	GND	B1	GND
A2	PET_N0	B2	PET_N1
A3	PET_P0	B3	PET_P1
A4	GND	B4	GND
A5	PET_N2	B5	PET_N3
A6	PET_P2	B6	PET_P3
A7	GND	B7	GND
A8		B8	
A9		B9	
A10	GND	B10	GND
A11		B11	CLK0_N
A12		B12	CLK0_P
A13	GND	B13	GND
A14	PER_P3	B14	PER_P2
A15	PER_N3	B15	PER_N2
A16	GND	B16	GND
A17	PER_P1	B17	PER_P0
A18	PER_N1	B18	PER_N0
A19	GND	B19	GND

Connector J26		Connector J26	
Pin	Trace Name	Pin	Trace Name
A1	GND	B1	GND
A2	PET_N4	B2	PET_N5
A3	PET_P4	B3	PET_P5
A4	GND	B4	GND
A5	PET_N6	B5	PET_N7
A6	PET_P6	B6	PET_P7
A7	GND	B7	GND
A8		B8	
A9		B9	
A10	GND	B10	GND
A11		B11	CLK1_N
A12		B12	CLK1_P
A13	GND	B13	GND
A14	PER_P7	B14	PER_P6
A15	PER_N7	B15	PER_N6
A16	GND	B16	GND
A17	PER_P5	B17	PER_P4
A18	PER_N5	B18	PER_N4
A19	GND	B19	GND

Connector J27		Connector J27	
Pin	Trace Name	Pin	Trace Name
A1	GND	B1	GND
A2	PET_N8	B2	PET_N9
A3	PET_P8	B3	PET_P9
A4	GND	B4	GND
A5	PET_N10	B5	PET_N11
A6	PET_P10	B6	PET_P11
A7	GND	B7	GND
A8		B8	
A9		B9	
A10	GND	B10	GND
A11		B11	CLK2_N
A12		B12	CLK2_P
A13	GND	B13	GND
A14	PER_P11	B14	PER_P10
A15	PER_N11	B15	PER_N10
A16	GND	B16	GND
A17	PER_P9	B17	PER_P8
A18	PER_N9	B18	PER_N8
A19	GND	B19	GND

Connector J28		Connector J28	
Pin	Trace Name	Pin	Trace Name
A1	GND	B1	GND
A2	PET_N12	B2	PET_N13
A3	PET_P12	B3	PET_P13
A4	GND	B4	GND
A5	PET_N14	B5	PET_N15
A6	PET_P14	B6	PET_P15
A7	GND	B7	GND
A8		B8	
A9		B9	
A10	GND	B10	GND
A11		B11	
A12		B12	
A13	GND	B13	GND
A14	PER_P15	B14	PER_P14
A15	PER_N15	B15	PER_N14
A16	GND	B16	GND
A17	PER_P13	B17	PER_P12
A18	PER_N13	B18	PER_N12
A19	GND	B19	GND

Connector J29		Connector J29	
Pin	Trace Name	Pin	Trace Name
A1	GND	B1	GND
A2		B2	
A3		B3	
A4	GND	B4	GND
A5		B5	
A6		B6	
A7	GND	B7	GND
A8		B8	
A9		B9	
A10	GND	B10	GND
A11		B11	CLK3_N
A12		B12	CLK3_P
A13	GND	B13	GND
A14		B14	
A15		B15	
A16	GND	B16	GND
A17		B17	
A18		B18	
A19	GND	B19	GND

PMOD Connector

Connector J19		Connector J19	
Trace Name	Pin	Pin	Trace Name
PCIE_WAKE#	1	2	
PCIE_RESET#	3	4	
PCIE_CLKREQ#	5	6	
	7	8	
GND	9	10	GND
-	11	12	-

Connector J18		Connector J18	
Trace Name	Pin	Pin	Trace Name
SMCLK	1	1	TCK
SMDAT	2	2	TDI
-	3	3	TDO
TRST#	4	4	TMS
GND	5	5	GND
-	6	6	-