FMC to 4* SPF Module
FH1223

User Manual

ALINX

Version Record

Version	Date	Release By	Description
Rev 1.0	2022-04-30	Rachel Zhou	First Release

The English version was translated by **Shanghai Tianhui Trading Company**.If there are any errors, please send email to rachel.zhou@aithtech.com for correction.

Amazon Store: https://www.amazon.com/alinx

Aliexpress Store:

https://alinxfpga.aliexpress.com/store/911112202?spm=a2g0o.detail.1000007.1.704e2bedqLBW90

Ebay Store: https://www.ebay.com/str/alinxfpga

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Part1: FH1223 Module General Description

ALINX FMC to 4* SFP Module FH1223 expands four-channel SPF, and each SFP has a set of TX and a set of RX connected to the transceiver pins.

The FMC interface of FH1223 is a standard HPC interface, used to connect to the FPGA development board, and meets the VITA57.1 standard. The connector model of FMC is: ASP_134488_01.

The FH1223 module is as follows:

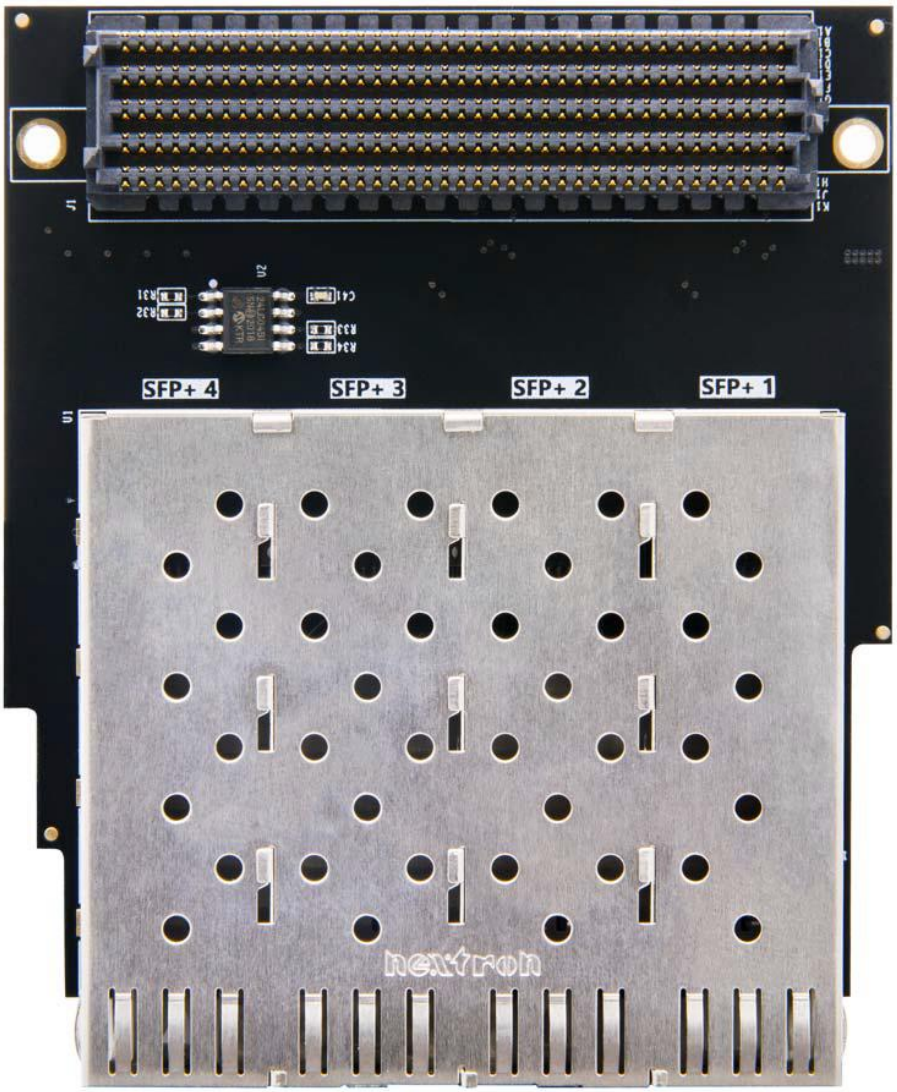

Figure 1-1: FH1223 module product photo

Part 1.1: FH1223 Module Detail Parameter

FH1223 module detail parameter listed as below:

- HPC Connectors
- 4*SFP Connector

Part 1.2: FH1223 Module Form Factors

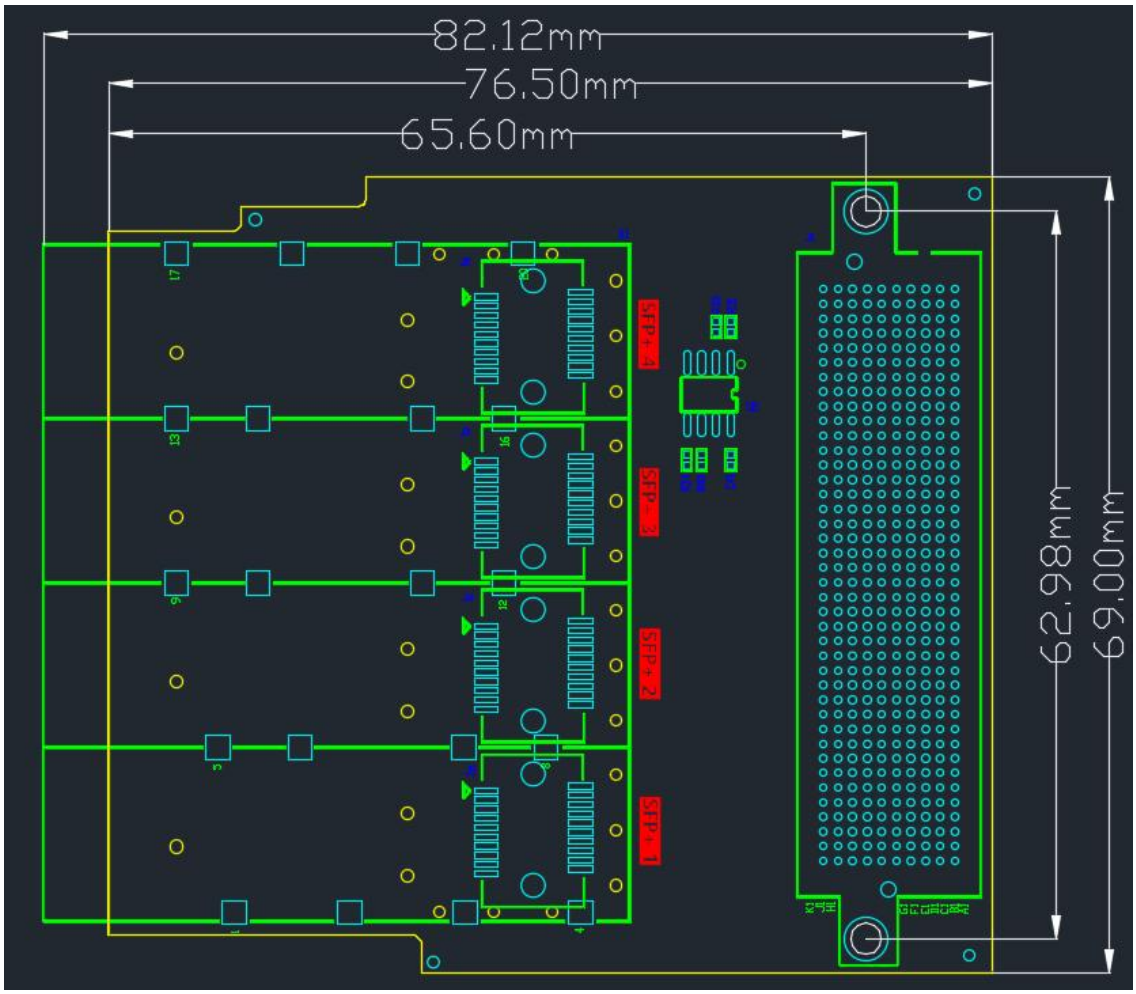

Figure 1-2: FH1223 Module Form Factors

Part 2: FH1223 Module Function Description

Part 2.1 FH1223 Module Block Diagram

Figure 2-1: FH1223 Module Block Diagram as below:

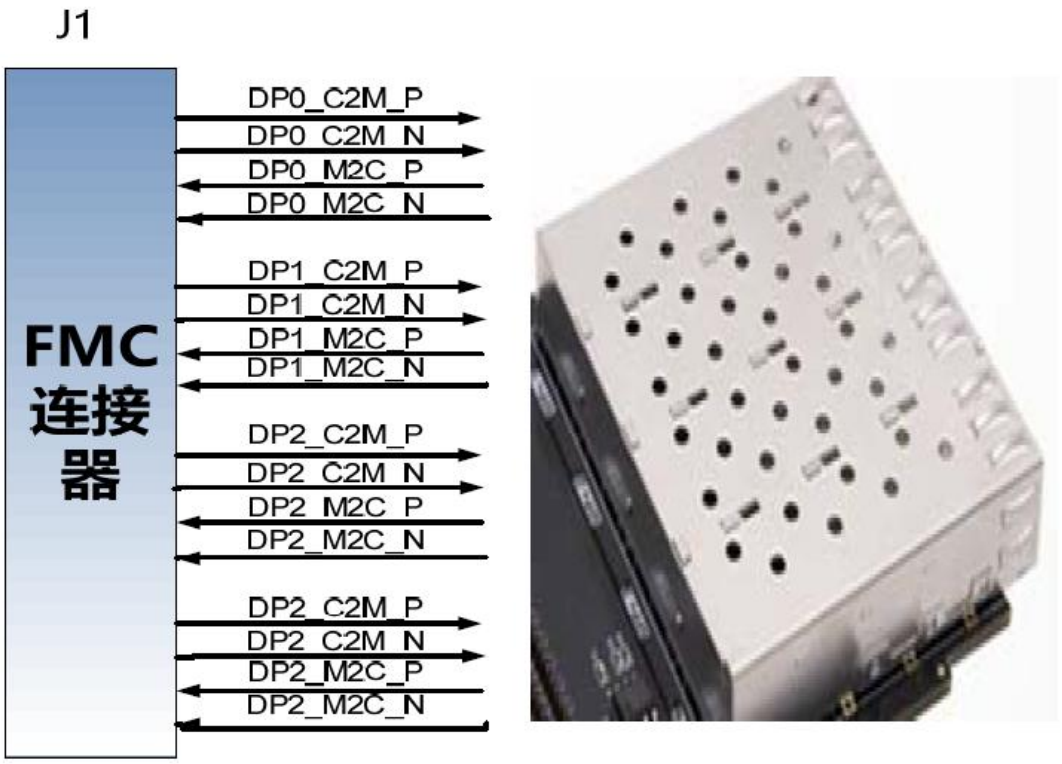

Figure 2-1: FH1223 Module Block Diagram

Part 2.2: FH1223 Module FMC LPC pin assignment

Only the power and interface signals are listed below, and the GND signal is not listed. Users can refer to the schematic diagram.

FMC Pin Name	Network Name	Description
A2	SFP2_RX_P	The 2nd SPF Signal Receive Positive
A3	SFP2_RX_N	The 2nd SPF Signal Receive Negative
A6	SFP3_RX_P	The 3rd SPF Signal Receive Positive
A7	SFP3_RX_N	The 3rd SPF Signal Receive Negative
A10	SFP4_RX_P	The 4th SPF Signal Receive Positive
A11	SFP4_RX_N	The 4th SPF Signal Receive Negative

A14	FMC_DP4_M2C_P	Not Used
A15	FMC_DP4_M2C_N	Not Used
A18	FMC_DP5_M2C_P	Not Used
A19	FMC_DP5_M2C_N	Not Used
A22	SFP2_TX_P	The 2nd SPF Signal Transmit Positive
A23	SFP2_TX_N	The 2nd SPF Signal Transmit Negative
A26	SFP3_TX_P	The 3rd SPF Signal Transmit Positive
A27	SFP3_TX_N	The 3rd SPF Signal Transmit Negative
A30	SFP4_TX_P	The 4th SPF Signal Transmit Positive
A31	SFP4_TX_N	The 4th SPF Signal Transmit Negative
A34	FMC_DP4_C2M_P	Not Used
A35	FMC_DP4_C2M_N	Not Used
A38	FMC_DP5_C2M_P	Not Used
A39	FMC_DP5_C2M_N	Not Used
B12	FMC_DP7_M2C_P	Not Used
B13	FMC_DP7_M2C_N	Not Used
B16	FMC_DP6_M2C_P	Not Used
B17	FMC_DP6_M2C_N	Not Used
B20	FMC_GBTCLK1_M2C_P	Not Used
B21	FMC_GBTCLK1_M2C_N	Not Used
B32	FMC_DP7_C2M_P	Not Used
B33	FMC_DP7_C2M_N	Not Used
B36	FMC_DP6_C2M_P	Not Used
B37	FMC_DP6_C2M_N	Not Used
C2	SFP1_TX_P	The 1st SPF Signal Transmit Positive
C3	SFP1_TX_N	The 1st SPF Signal Transmit Negative
C6	SFP1_RX_P	The 1st SPF Signal Receive Positive
C7	SFP1_RX_N	The 1st SPF Signal Receive Negative
C10	FMC_LA06_P	Not Used
C11	FMC_LA06_N	Not Used
C14	FMC_LA10_P	Not Used
C15	FMC_LA10_N	Not Used
C18	FMC_LA14_P	Not Used
C19	FMC_LA14_N	Not Used
C22	FMC_LA18_CC_P	Not Used
C23	FMC_LA18_CC_N	Not Used
C26	FMC_LA27_P	Not Used
C27	FMC_LA27_N	Not Used
C30	FMC_SCL	EEPROM Clock

C31	FMC_SDA	EEPROM Data
C34	GA0	Low Bit Address of EEPROM
C35	+12V	+12V Power Supply
C37	+12V	+12V Power Supply
C39	+3.3V	+3.3V Power Supply
D4	FMC_GBTCLK0_M2C_P	Not Used
D5	FMC_GBTCLK0_M2C_N	Not Used
D8	FMC_LA01_CC_P	Not Used
D9	FMC_LA01_CC_N	Not Used
D11	FMC_LA05_P	Not Used
D12	FMC_LA05_N	Not Used
D14	FMC_LA09_P	Not Used
D15	FMC_LA09_N	Not Used
D17	FMC_LA13_P	Not Used
D18	FMC_LA13_N	Not Used
D20	FMC_LA17_CC_P	Not Used
D21	FMC_LA17_CC_N	Not Used
D23	FMC_LA23_P	Not Used
D24	FMC_LA23_N	Not Used
D26	FMC_LA26_P	Not Used
D27	FMC_LA26_N	Not Used
D32	+3.3V	+3.3V Power Supply
D35	GA1	High Bit Address of EEPROM
D36	+3.3V	+3.3V Power Supply
D38	+3.3V	+3.3V Power Supply
D40	+3.3V	+3.3V Power Supply
E2	FMC_HA01_CC_P	Not Used
E3	FMC_HA01_CC_N	Not Used
E6	FMC_HA05_P	Not Used
E7	FMC_HA05_N	Not Used
E9	FMC_HA09_P	Not Used
E10	FMC_HA09_N	Not Used
E12	FMC_HA13_P	Not Used
E13	FMC_HA13_N	Not Used
E15	FMC_HA16_P	Not Used
E16	FMC_HA16_N	Not Used
E18	FMC_HA20_P	Not Used
E19	FMC_HA20_N	Not Used
E21	FMC_HB03_P	Not Used

E22	FMC_HB03_N	Not Used
E24	FMC_HB05_P	Not Used
E25	FMC_HB05_N	Not Used
E27	FMC_HB09_P	Not Used
E28	FMC_HB09_N	Not Used
E30	FMC_HB13_P	Not Used
E31	FMC_HB13_N	Not Used
E33	FMC_HB19_P	Not Used
E34	FMC_HB19_N	Not Used
E36	FMC_HB21_P	Not Used
E37	FMC_HB21_N	Not Used
E39	VADJ	VADJ Power Supply
F4	FMC_HA00_CC_P	Not Used
F5	FMC_HA00_CC_N	Not Used
F7	FMC_HA04_P	Not Used
F8	FMC_HA04_N	Not Used
F10	FMC_HA08_P	Not Used
F11	FMC_HA08_N	Not Used
F13	FMC_HA12_P	Not Used
F14	FMC_HA12_N	Not Used
F16	FMC_HA15_P	Not Used
F17	FMC_HA15_N	Not Used
F19	FMC_HA19_P	Not Used
F20	FMC_HA19_N	Not Used
F22	FMC_HB02_P	Not Used
F23	FMC_HB02_N	Not Used
F25	FMC_HB04_P	Not Used
F26	FMC_HB04_N	Not Used
F28	FMC_HB08_P	Not Used
F29	FMC_HB08_N	Not Used
F31	FMC_HB12_P	Not Used
F32	FMC_HB12_N	Not Used
F34	FMC_HB16_P	Not Used
F35	FMC_HB16_N	Not Used
F37	FMC_HB20_P	Not Used
F38	FMC_HB20_N	Not Used
F40	VADJ	VADJ Power Supply
G2	FMC_CLK1_M2C_P	Not Used
G3	FMC_CLK1_M2C_N	Not Used
G6	FMC_LA00_CC_P	Not Used
G7	FMC_LA00_CC_N	Not Used

G9	FMC_LA03_P	Not Used
G10	FMC_LA03_N	Not Used
G12	FMC_LA08_P	Not Used
G13	FMC_LA08_N	Not Used
G15	FMC_LA12_P	Not Used
G16	FMC_LA12_N	Not Used
G18	FMC_LA16_P	Not Used
G19	FMC_LA16_N	Not Used
G21	FMC_LA20_P	Not Used
G22	FMC_LA20_N	Not Used
G24	FMC_LA22_P	Not Used
G25	FMC_LA22_N	Not Used
G27	FMC_LA25_P	Not Used
G28	FMC_LA25_N	Not Used
G30	FMC_LA29_P	Not Used
G31	FMC_LA29_N	Not Used
G33	FMC_LA31_P	Not Used
G34	FMC_LA31_N	Not Used
G36	FMC_LA33_P	Not Used
G37	FMC_LA33_N	Not Used
G39	VADJ	VADJ Power Supply
H4	FMC_CLK0_M2C_P	Not Used
H5	FMC_CLK0_M2C_N	Not Used
H7	FMC_LA02_P	Not Used
H8	FMC_LA02_N	Not Used
H10	FMC_LA04_P	Not Used
H11	FMC_LA04_N	Not Used
H13	FMC_LA07_P	Not Used
H14	FMC_LA07_N	Not Used
H16	FMC_LA11_P	Not Used
H17	FMC_LA11_N	Not Used
H19	FMC_LA15_P	Not Used
H20	FMC_LA15_N	Not Used
H22	FMC_LA19_P	Not Used
H23	FMC_LA19_N	Not Used
H25	FMC_LA21_P	Not Used
H26	FMC_LA21_N	Not Used
H28	FMC_LA24_P	Not Used
H29	FMC_LA24_N	Not Used
H31	FMC_LA28_P	Not Used
H32	FMC_LA28_N	Not Used

H34	FMC_LA30_P	Not Used
H35	FMC_LA30_N	Not Used
H37	FMC_LA32_P	Not Used
H38	FMC_LA32_N	Not Used
H40	VADJ	VADJ Power Supply
J2	FMC_CLK1_C2M_P	Not Used
J3	FMC_CLK1_C2M_N	Not Used
J6	FMC_HA03_P	Not Used
J7	FMC_HA03_N	Not Used
J9	FMC_HA07_P	Not Used
J10	FMC_HA07_N	Not Used
J12	FMC_HA11_P	Not Used
J13	FMC_HA11_N	Not Used
J15	FMC_HA14_P	Not Used
J16	FMC_HA14_N	Not Used
J18	FMC_HA18_P	Not Used
J19	FMC_HA18_N	Not Used
J21	FMC_HA22_P	Not Used
J22	FMC_HA22_N	Not Used
J24	FMC_HB01_P	Not Used
J25	FMC_HB01_N	Not Used
J27	FMC_HB07_P	Not Used
J28	FMC_HB07_N	Not Used
J30	FMC_HB11_P	Not Used
J31	FMC_HB11_N	Not Used
J33	FMC_HB15_P	Not Used
J34	FMC_HB15_N	Not Used
J36	FMC_HB18_P	Not Used
J37	FMC_HB18_N	Not Used
J39	VIO_B	VIO_B Power Supply
K7	FMC_HA02_P	Not Used
K8	FMC_HA02_N	Not Used
K10	FMC_HA06_P	Not Used
K11	FMC_HA06_N	Not Used
K13	FMC_HA10_P	Not Used
K14	FMC_HA10_N	Not Used
K16	FMC_HA17_CC_P	Not Used
K17	FMC_HA17_CC_N	Not Used
K19	FMC_HA21_P	Not Used
K20	FMC_HA21_N	Not Used
K22	FMC_HA23_P	Not Used

K23	FMC_HA23_N	Not Used
K25	FMC_HB00_CC_P	Not Used
K26	FMC_HB00_CC_N	Not Used
K28	FMC_HB06_CC_P	Not Used
K29	FMC_HB06_CC_N	Not Used
K31	FMC_HB10_P	Not Used
K32	FMC_HB10_N	Not Used
K34	FMC_HB14_P	Not Used
K35	FMC_HB14_N	Not Used
K37	FMC_HB17_CC_P	Not Used
K38	FMC_HB17_CC_N	Not Used
K40	VIO_B	VIO_B Power Supply