

**Product Name:** ZX181-HSPC FMC+ HSPC Vita 57.4 breakout adapter – passive FPGA Mezzanine Card HSPC

**Product Description:** FPGA Mezzanine card , FMC+ , passive test module meeting VITA 57.4 standard bus interface. Includes 14 rows x 40 pins, totaling 560 pins, High Serial Pin Count, HSPC connector supporting Terminal ( Mezzanine side ) interfacing with host.

**Provides prototype area as well as onboard SMD 0402 footprint for accessing any of the 560 signals.** Ideal breakout mezzanine card for any design utilizing HSPC ( 14x40 ) connector series as well as Vita 57.4 standard design.

Fully compatible with **Vita 57.4 ( FMC+ HSPC )** , and **backward compatible with Vita 57.1 ( both HPC and LPC ) on Mezzanine side.**

Please refer to **Page 2** for full list of accessible signals as listed by Vita 57.4 HSPC bus standard.

The GND access point is offered by 2 onboard GND test points interfacing with test equipment, and host. The GND test points are connected to inner GND planes as well as top/bottom layers fill.

GND exposed copper is provided for installation of SMA or various connectors, interfacing with any of the 560 signals.

Mates with Samtec Molex HI-SPEED HI-DENSITY SEARRAY HSPC design connector.

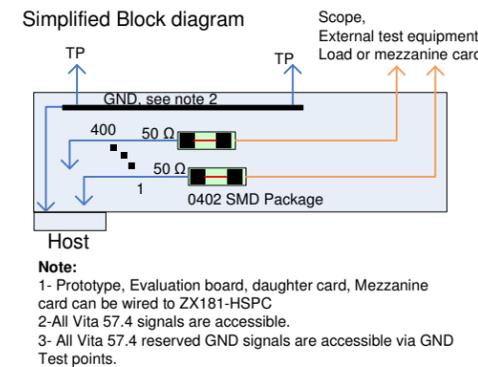
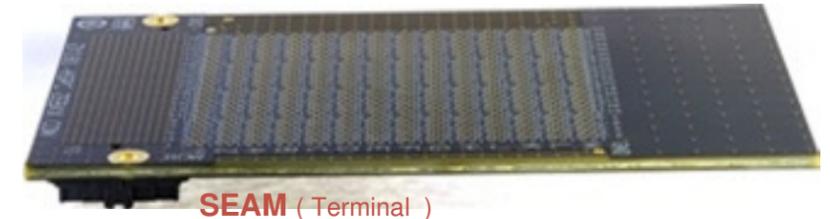
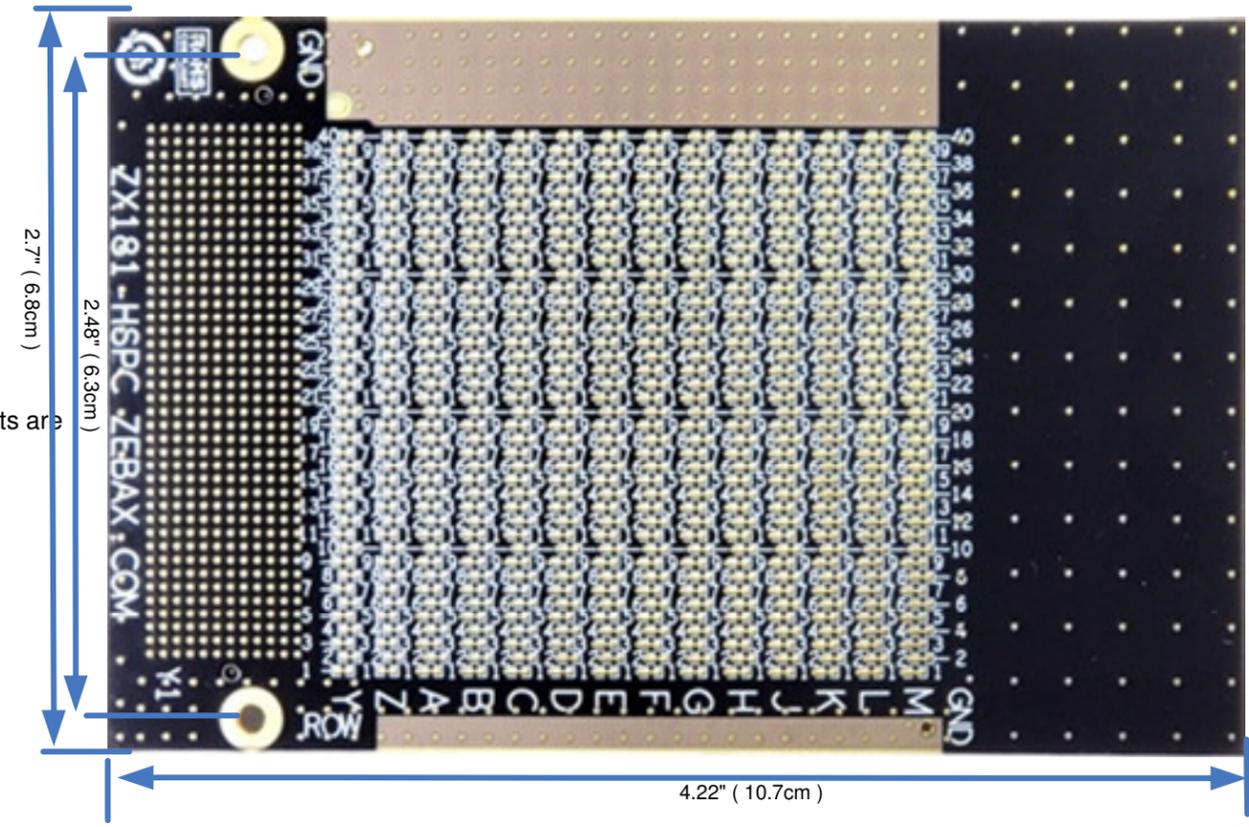
- **Fully** compatible with 14 rows x 40 pins per row single ended or differential pairs design configuration
- Designed in 14 layers PCB stackup
- **All** signals are accessible via onboard standard 0402 SMD footprint.
- All signals ( via 0402 SMD package ) are pass through, enabling user to implement design changes ( cut signal path ), if design changes are required.
- Ideal mezzanine card for loopback applications.
- Improved signal integrity and crosstalk
- Multiple GND test points connecting directly to inner layers GND planes.
- Includes HSPC , SEAM ( Terminal ) connector
- Matching connector's **50Ω** trace impedance on all signals – Reference plane impedance 50Ω for DC to 10GHz bandwidth applications

**Application:** FMC+ VITA 57.4 , Vita 57.4 FMC+ HSPC , daughter card Bringup, testing, emulation, Xilinx development interface testing daughter board to host, modular design evaluations

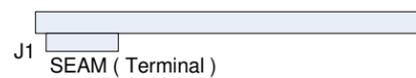
**Access:** All signals ( excluding the GND signals of Vita 57.4 standard ) are accessible via onboard 0402 SMD footprint.

**Pitch:** 1.27mm (0.05") High Speed connector

**Mates with :** Xilinx FPGA development systems connecting daughter board to Host  
Any and all FMC+ High Serial Pin Count, HSPC , VITA 57.4 compliant design.  
ASP-184329-01 ASP-208573-01 Table below lists connectors compatible with ZX181HSPC FMC+ HSPC Vita 57.4 breakout adapter – passive FPGA Mezzanine Card HSPC



ZX181-HSPC , Passive FMC  
VITAL 57.4 breakout adapter

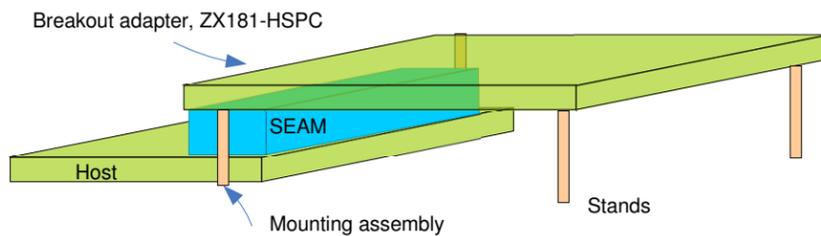


**Note:**  
1- SEAM ( Terminal ) connector type interfaces with HOST.

Typical signal connection: 0402 SMD Package

Break signal path: See Page 2 for more details

**Note**  
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**ZX181-HSPC FMC+ HSPC breakout adapter mates with the following Samtec SEARAY™ VITA 57.4 Connectors**

Samtec PN	VITA 57.4	Description	Mated Stack Height
ASP-184329-01	HSPC	Socket	Standard height
ASP-208573-01	HSPC	Socket	Standard height

Socket : Also known as Female, is usually located on Host or Carrier Side.

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**ASSEMBLY DRAWING**  
ITEM: ZX181-HSPC

**DESCRIPTION:** FMC+ HSPC VITA 57.4 breakout adapter – passive FPGA mezzanine card

**CHECKED:** M. MARINA  
**DRAWN:** SLAVIK  
**REVISION:** 1.0  
**SHEET:** 1 OF 3

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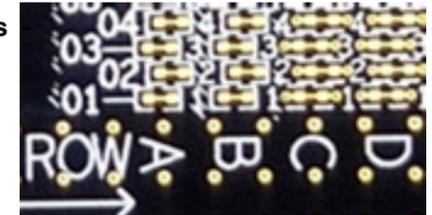
**Ground:** ZX181-HSPC is breakout adapter – test module , offering VITA 57.4 signals. It enables user to implement design changes ( cut signal path ) , or simply access the Vita 57.4 signals for test and measurement purpose.  
The GND access points are offered by 2 onboard GND test points interfacing with test equipment, host and target. It is connected to the module inner GND planes and top & bottom GND fills.



SEAM ( Terminal )

**Access signals:** ZX181-HSPC provides access to all Vita 57.4 signals. Table below lists the Vita 57.4 signals.

0402 landing pads



Vita 57.4 ( FMC+ - HSPC ) 14 x 40														
Vita 57.1 ( FMC - HPC ) 10x40														
Vita 57.1 ( FMC - LPC ) 4x40														
Pin	M	L	K	J	H	G	F	E	D	C	B	A	Z	Y
1	GND	RES1	VREF_B_M2C	GND	VREF_A_M2C	GND	PG_M2C	GND	PG_C2M	GND	CLK_DIR	GND	HBPC_PRSNT_M2C_L	GND
2	DP23_M2C_P	GND	GND	CLK3_BIDIR_P	PRSNM_M2C_L	CLK1_M2C_P	GND	HA01_P_CC	GND	DP0_C2M_P	GND	DP1_M2C_P	GND	DP23_C2M_P
3	DP23_M2C_N	GND	GND	CLK3_BIDIR_N	GND	CLK1_M2C_N	GND	HA01_N_CC	GND	DP0_C2M_N	GND	DP1_M2C_N	GND	DP23_C2M_N
4	GND	GBTCLK4_M2C_P	CLK2_BIDIR_P	GND	CLK0_M2C_P	GND	HA00_P_CC	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	HA00_N_CC	GND	GBTCLK0_M2C_N	GND	DP9_M2C_N	GND	DP22_C2M_N	GND
6	DP22_M2C_P	GND	GND	HA03_P	GND	LA00_P_CC	GND	HA05_P	GND	DP0_M2C_P	GND	DP2_M2C_P	GND	DP21_C2M_P
7	DP22_M2C_N	GND	GND	HA03_N	GND	LA00_N_CC	GND	HA05_N	GND	DP0_M2C_N	GND	DP2_M2C_N	GND	DP21_C2M_N
8	GND	GBTCLK3_M2C_P	HA02_P	HA03_N	LA02_P	LA00_N_CC	HA04_P	HA05_N	GND	DP8_M2C_P	GND	DP20_C2M_P	GND	GND
9	GND	GBTCLK3_M2C_N	HA02_N	HA03_N	LA02_N	GND	HA04_N	HA05_N	GND	DP8_M2C_N	GND	DP20_C2M_N	GND	GND
10	DP21_M2C_P	GND	GND	HA07_P	GND	LA03_P	GND	HA09_P	GND	DP8_M2C_N	GND	DP20_C2M_N	GND	GND
11	DP21_M2C_N	GND	GND	HA07_N	GND	LA03_N	GND	HA09_N	GND	DP8_M2C_P	GND	DP20_C2M_P	GND	GND
12	GND	GBTCLK2_M2C_P	HA06_P	HA07_N	LA04_P	LA03_N	HA08_P	HA09_N	GND	DP7_M2C_P	GND	DP11_M2C_P	GND	GND
13	GND	GBTCLK2_M2C_N	HA06_N	HA07_N	LA04_N	GND	HA08_N	HA09_N	GND	DP7_M2C_N	GND	DP11_M2C_N	GND	GND
14	DP20_M2C_P	GND	GND	HA10_N	HA11_N	LA07_N	HA12_N	HA13_N	GND	DP7_M2C_P	GND	DP11_M2C_P	GND	GND
15	DP20_M2C_N	GND	GND	HA10_N	HA11_N	LA07_N	HA12_N	HA13_N	GND	DP7_M2C_N	GND	DP11_M2C_N	GND	GND
16	GND	SYNC_C2M_P	HA17-P-CC	HA14_P	LA11_P	LA12_N	HA15_P	HA16_N	GND	DP6_M2C_P	GND	DP13_M2C_P	GND	GND
17	GND	SYNC_C2M_N	HA17-N-CC	HA14_N	LA11_N	GND	HA15_N	HA16_N	GND	DP6_M2C_N	GND	DP13_M2C_N	GND	GND
18	DP14_C2M_P	GND	GND	HA18_P	HA19_P	LA16_P	HA20_P	HA21_N	GND	DP5_M2C_P	GND	DP14_M2C_P	GND	GND
19	DP14_C2M_N	GND	GND	HA18_N	HA19_P	LA16_N	HA20_N	HA21_N	GND	DP5_M2C_N	GND	DP14_M2C_N	GND	GND
20	GND	REFCLK_C2M_P	HA21_N	GND	LA15_N	GND	HA19_N	GND	GBTCLK1_M2C_P	GND	GBTCLK5_M2C_P	GND	GND	GND
21	GND	REFCLK_C2M_N	HA21_N	GND	LA15_N	GND	HA19_N	GND	GBTCLK1_M2C_N	GND	GBTCLK5_M2C_N	GND	GND	GND
22	DP15_C2M_P	GND	GND	HA23_P	HA22_P	LA19_P	LA20_N	HB02_P	HB03_N	GND	DP1_C2M_P	GND	DP15_M2C_P	GND
23	DP15_C2M_N	GND	GND	HA23_N	HA22_P	LA19_N	LA20_N	HB02_N	HB03_N	GND	DP1_C2M_N	GND	DP15_M2C_N	GND
24	GND	REFCLK_M2C_P	GND	HB01_P	GND	LA22_P	GND	HB05_P	LA23_N	GND	DP9_C2M_P	GND	DP10_C2M_P	GND
25	GND	REFCLK_M2C_N	GND	HB01_N	GND	LA22_N	GND	HB05_N	LA23_N	GND	DP9_C2M_N	GND	DP10_C2M_N	GND
26	DP16_C2M_P	GND	GND	HB00-P-CC	GND	LA21_P	GND	HB04_P	LA26_P	GND	DP9_C2M_N	GND	DP10_C2M_N	GND
27	DP16_C2M_N	GND	GND	HB00-N-CC	GND	LA21_N	GND	HB04_N	LA26_N	GND	DP9_C2M_P	GND	DP10_C2M_P	GND
28	GND	SYNC_M2C_P	HB06-P-CC	HB07_N	LA24_P	LA25_N	HB08_P	HB09_N	GND	DP8_C2M_P	GND	DP12_C2M_P	GND	GND
29	GND	SYNC_M2C_N	HB06-N-CC	HB07_N	LA24_N	GND	HB08_N	HB09_N	GND	DP8_C2M_N	GND	DP12_C2M_N	GND	GND
30	DP17_C2M_P	GND	GND	HB11_P	GND	LA29_P	GND	HB13_P	GA1	GND	DP3_C2M_P	GND	DP13_C2M_P	GND
31	DP17_C2M_N	GND	GND	HB11_N	GND	LA29_N	GND	HB13_N	GA1	GND	DP3_C2M_N	GND	DP13_C2M_N	GND
32	GND	RES2	HB10-N	GND	LA28_N	GND	HB12_N	GND	3P3VAUX	GND	DP7_C2M_P	GND	DP16_M2C_P	GND
33	GND	RES3	HB15_P	GND	LA31_P	GND	HB19_P	GND	TMS	GND	DP7_C2M_N	GND	DP16_M2C_N	GND
34	DP18_C2M_P	GND	GND	HB14-P	HB15_N	LA30_P	LA31_N	HB16_P	HB19_N	TRST_L	GND	DP4_C2M_P	GND	DP17_M2C_P
35	DP18_C2M_N	GND	GND	HB14-N	HB15_N	LA30_N	GND	HB16_N	HB19_N	GA1	GND	DP4_C2M_N	GND	DP17_M2C_N
36	GND	12P0V	GND	HB18_P	GND	LA33_P	GND	HB21_P	3P3V	GND	DP6_C2M_P	GND	DP18_M2C_P	GND
37	GND	12P0V	GND	HB18_N	GND	LA33_N	GND	HB21_N	3P3V	GND	DP6_C2M_N	GND	DP18_M2C_N	GND
38	DP19_C2M_P	GND	GND	HB17_P-CC	HB18_N	LA32_P	LA33_N	HB20_P	HB21_N	GND	DP6_C2M_P	GND	DP18_M2C_P	GND
39	DP19_C2M_N	GND	GND	HB17-N-CC	HB18_N	LA32_N	GND	HB20_N	HB21_N	GND	DP6_C2M_N	GND	DP18_M2C_N	GND
40	GND	12P0V	VIO_B_M2C	GND	VADJ	GND	VADJ	GND	VADJ	GND	RES0	GND	3P3V	GND
			VIO_B_M2C	GND	VADJ	GND	VADJ	GND	VADJ	GND	RES0	GND	3P3V	GND
FMC LPC					X	X			X	X				
FMC HPC			X	X	X	X	X	X	X	X	X	X		
FMC+ HSPC	X	X	X	X	X	X	X	X	X	X	X	X	X	X

FMC LCP : Vita 57.1 Low Pin Count , LPC, signals  
FMC HPC : Vita 57.4 High Pin Count, HPC , signals.  
FMC+ HSPC : FMC+ High Serial Pin Count, HSPC , signals.

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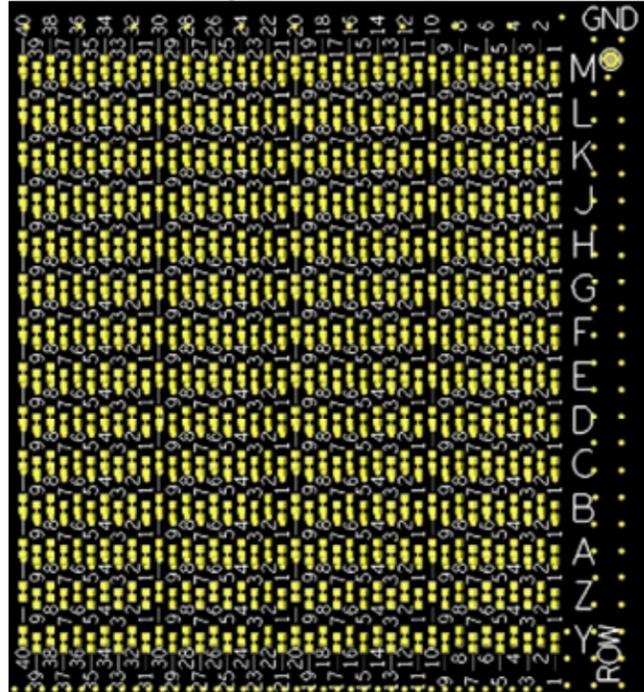
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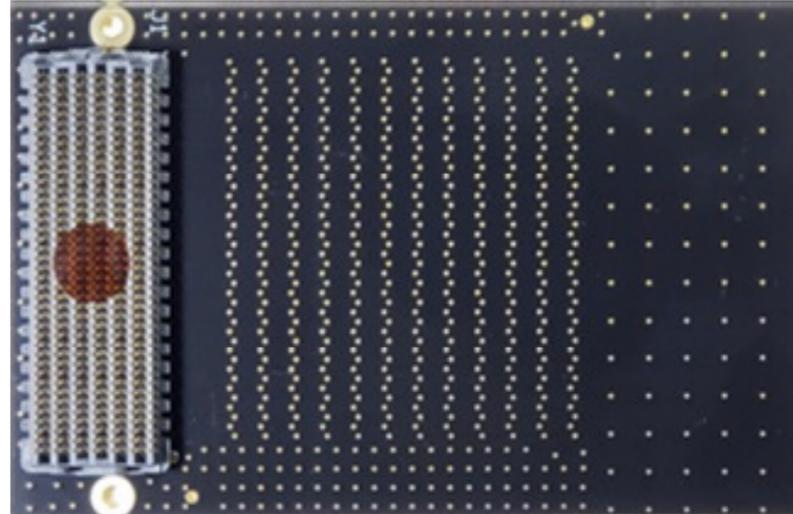
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**Access point:** All the Vita 57.4 signals are accessing via onboard 0402 landing pads from top side of the ZX181-HSPC. Below is cross matrix outline of the signals in reference to row and column matrix.

Vita 57.4 HSPC signal access matrix



ZX181-HSPC – Bottom view



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