

Product Name: ZX107HSMC-S Altera High Speed Mezzanine Card, HSMC Samtec Logic Analyzer breakout adapter

Product Description: Altera High Speed Mezzanine Card, HSMC test module offering interface to Logic Analyzer probe

- 1- Onboard Samtec QTH / QSH (ASP-122952-01 and ASP-122953-01) connectors interfacing with Altera HSMC platform.
- 2- Full access to ALL differential / single ended signals via accessible Agilent Logic Analyzer Samtec probe, see **page 4** for details.
- 3- Full access to ALL signals via Zebax Breakout Adapter, ZX132 - see **page 4** for details.
- 4- All clocks are accessible via onboard IPEX connectors, see **page 3** for details.
- 5- Accessible JTAG, D0, D1, D2, D3, D4 I2C-SCL, I2C_SDA signals via onboard shunts, see **page 2** for details.
- 6- Accessible +12V, 3.3V and GND signals via onboard 3 pin connector, J3 see **page 2** for details.
- 7- All traces are designed with 50 Ω Ohms trace impedance. 100 Ω Ohms differential signaling.
- 8- Designed in 6 layers PCBoard with improved signal integrity and crosstalk.
- 9- Accessible GND test point, The test point is connected to GND planes and direct interface to the QTH QSH GND blades.
- 10- Ease of interface with single channel and differential scope probes.
- 11- Mates with any height and form factor QSH-090 & ASP-122953-01 ASP-122952-01 connectors.
- 12- ZX107HSMC-S includes 2pc of IPEX to SMA cable assemblies. See ordering information

Electrical:

Insertion loss > -2dB @3GHz
 Trace impedance: 50 Ω
 Operating Temperature: -55°C to +125°C
 Samtec Connector:
 Onboard Connector: QTH-090 (ASP-122952-01) 2rows x 90pins/row
 QSH-090 (ASP-122953-01) 2rows x 90pins/row
 Pitch: 0.0197" (0.50mm) pin to pin pitch
 Plating: Gold Flash
 Header:
 Pitch: 0.1" (2.54mm) pin to pin pitch
 Pin: Square 0.025" (0.635mm)
 Height: 0.24" (6mm)
 Plating: Gold Flash
 Shunt:
 Package: 0402 SMD
 IPEX MHF 35u gold plating receptacle

Application: Bringup, testing, emulation, development, modular design evaluations

Mates with : Samtec QSH090 QSH060(DP) . Fully compatible with Altera High Speed Mezzanine Card HSMC development platform.
 Mates with HSMC Host interfacing ASP-122953-01
 Mates with HSMC Mezzanine card, Target interfacing ASP-122952-01
 Using Zebax ZX132DS breakout adapter, user may use any scope probe for testing.
Agilent Samtec probe E5379A
Agilent Probes: E5378A E5379A E5385A

Ordering options: ZX107HSMC-S HSMC test fixture is available in -S or -T options:

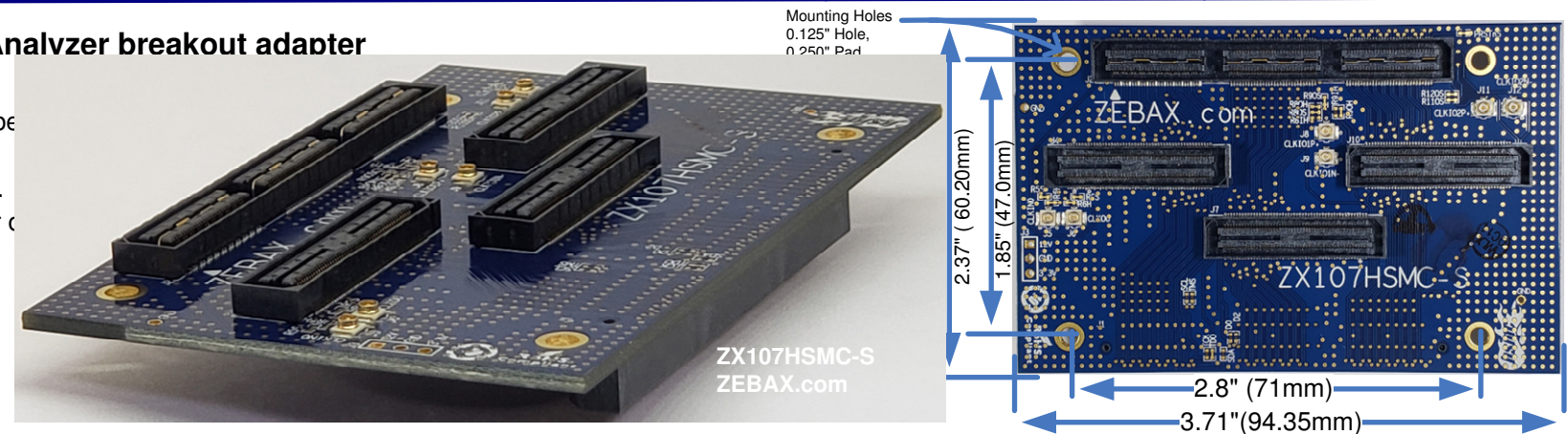
-S option is standard height QTH (ASP-122952-01) connector height.
 -T option is 3mm taller

Please see the ZX107HSMC-cross section diagram

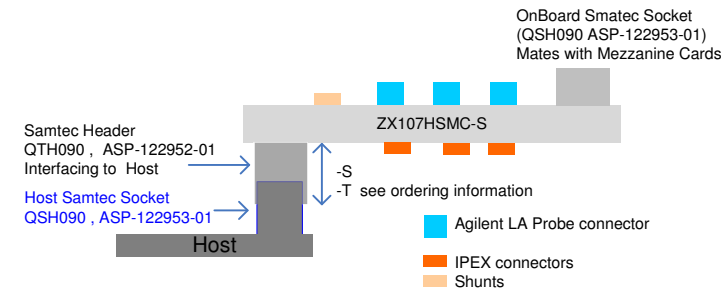
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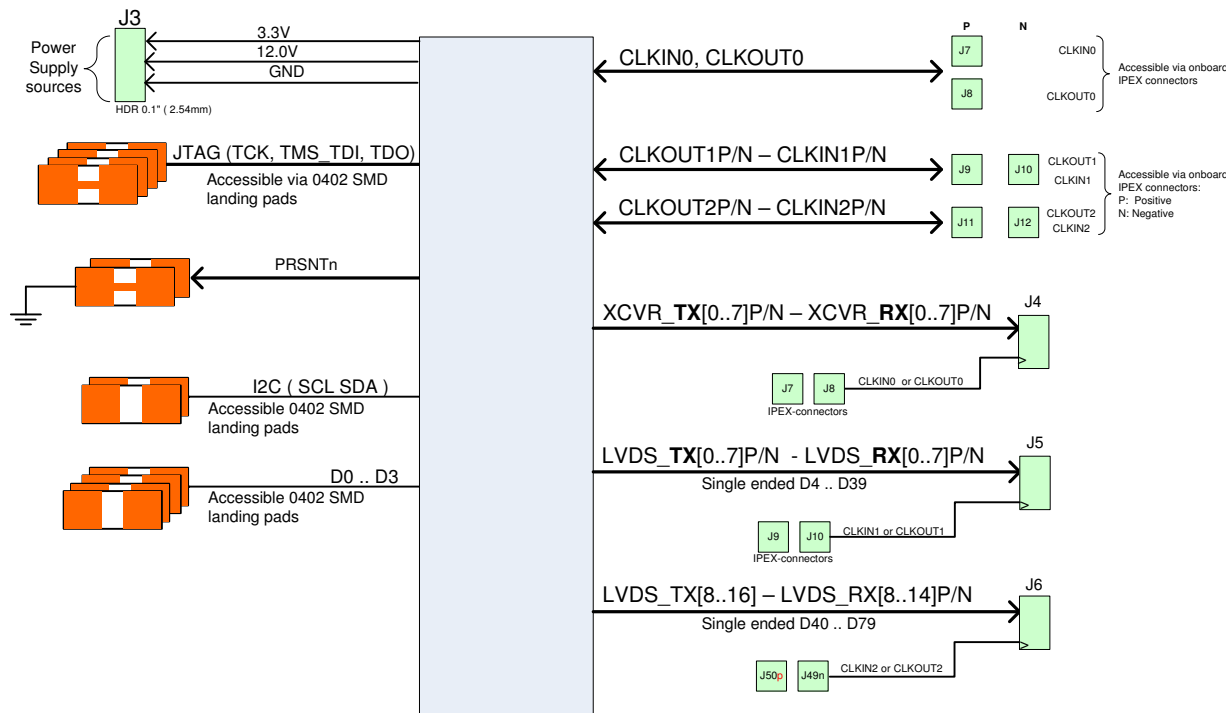
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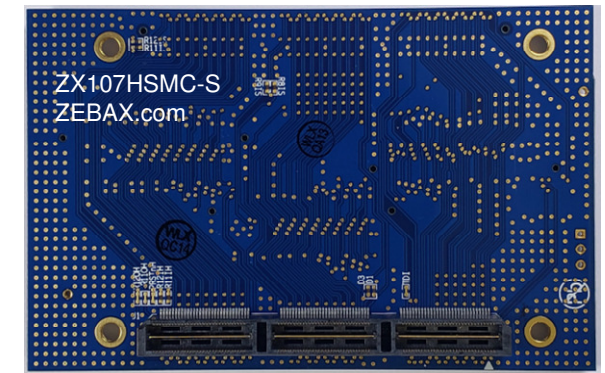
ZX107HSMC-S-x-x Cross section view



ZX107HSMC-S Block Diagram



- Note:**
- 1- All Clocks are accessible via onboard IPEX connectors
 - 2- All Altera HSMC signals from Host (J1) are connected to the daughter card connector J2.
 - 3- PRSNTn, I2C, JTAG, D0..D3 signals are accessible via onboard shunts.



Ordering INFO: See Page 3 for details.

Compliance:

ISO2001 certified
 RoHS - Lead Free
 EU RoHS2
 UL E111594 document
 ELV- Vehicle Directive (Directive 2000/EC)
 European Union Directive (203/11/EC)
 Halogen Free per IEC-61249-2.21 : 2003
 RoHS Directive 2011/65/EU
 WEEE Directive (2012/12/EU)
 Certificate of Compliance for Radioactive substances
 Certificate of Compliance for Asbestos
 Certificate of Compliance for Ozone Depleting Substances, ODS
 Certificate REACH SVHC
 Certificate of Compliance RoHS_EN_CoC

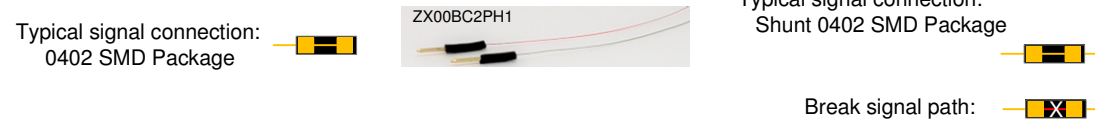
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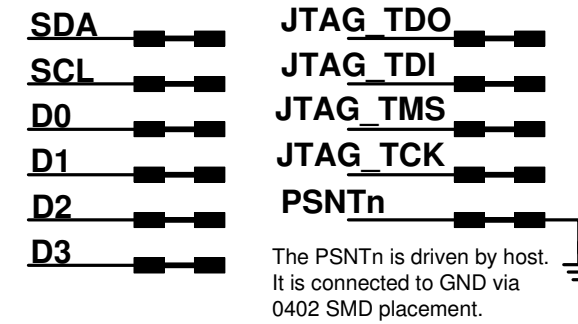
SPECIFIED DIMENSIONS ARE INCHES (MM). ROHS COMPLIANT	ASSEMBLY DRAWING	
	ITEM: ZX107HSMC-S	
DESCRIPTION: Altera High Speed Mezzanine card, HSMC Samtec Logic Analyzer probe breakout adapter		
CHECKED: M. MARINA	DRAWN: SLAVIK	REVISION: 1.0
		SHEET: 1 OF 3

Product Name: ZX107HSMC-S Altera High Speed Mezzanine Card, HSMC Samtec Logic Analyzer breakout adapter

Shunt accessible signals: Table below lists the Altera HSMC accessible signals via onboard shunts. The shunts are standard 0402 SMD package where it can be accessed by any scope probe or probing wire with pin header such as ZX00BC2PH1, see ordering information for details.



Accessible signals via onboard Shunts



Supply Voltage Connector: J3 connector provides access to Altera HSMC 12V, 3.3 and GND signals. J3 is 0.1" (2.54mm) pitch connector. Table below lists the J3 signal assignments.

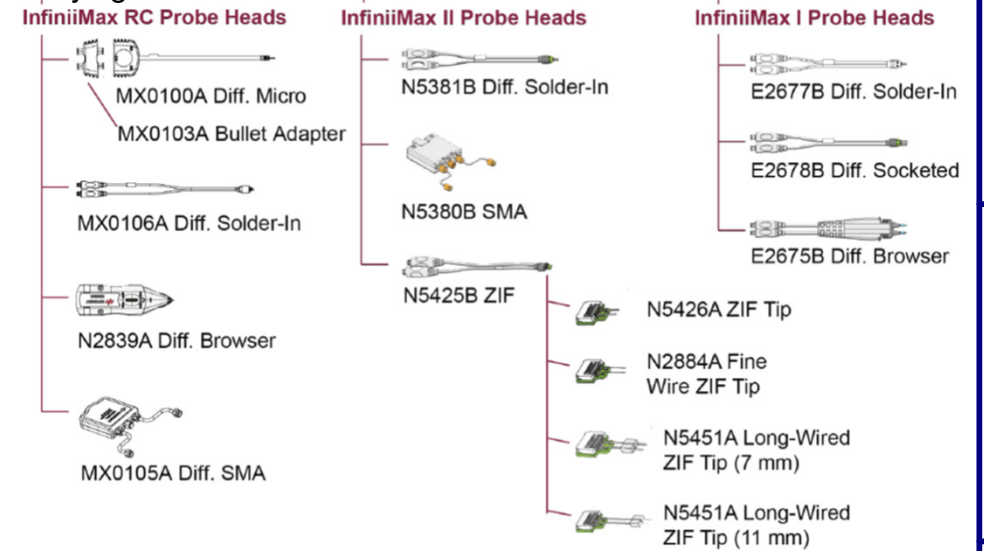
J3	
Pin	Assigned
1	12.0V
2	GND
3	3.3V

Scope Probe wire Installation: ZX107HSMC-S is designed for use with Samtec logic analyzer probes. Additionally, ZX132DS breakout adapter could be used in order to use any scope probe for signal test and measurements.

Clocks : Clocks are routed using IPEX connectors for supporting various stuffing options, enabling Host / Mezzanine card driving the clocks or external stimulus. Please refer to **page 3** for detailed routing options.

Signal listings : Altera HSMC signals are available on J4, J5, and J6 connectors. Please refer to **page 3** for detailed Altera HSMC signal assignments on Samtec connectors.

Keysight Probe Head accessories



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CHECKED: M. MARINA	DRAWN: SLAVIK	REVISION: 1.0 SHEET: 2 OF 3

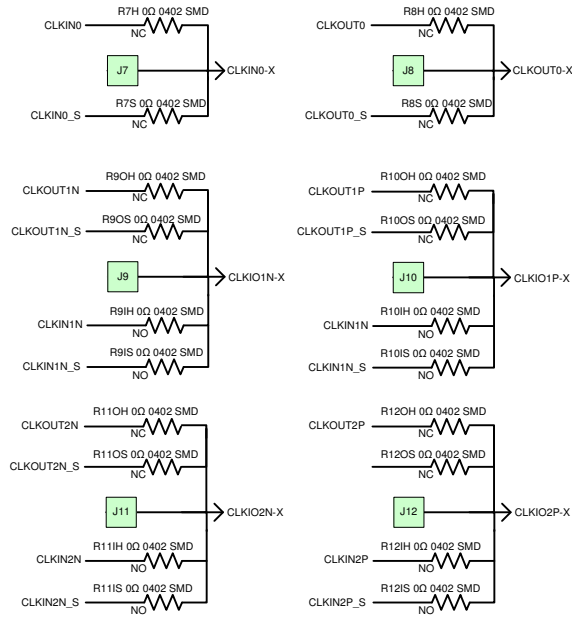
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Clock routing: Clocks are routed using IPEX connectors for supporting various stuffing options, enabling Host / Mezzanine card driving the clocks or external stimulus. The RjS, RjH ("NC" Normally Connected, "NO" Normally Open Shunts) are clock routing stuffing options where j is the connector number and "S" for signal sourced from the Socket (Mezzanine card) whereas the "H" is for signal sourced from the Header (Host).



Typical SS signal connection using 0402 SMD Package



Break signal path:



ZX107HSMC-S-X-X Package includes:

Part number	Quantity	Description
ZX107HSMC-S-X-X	1	HSMC breakout adapter
ZX00SMA-IPEX37-X	2	SMA to IPEX-37 cable assembly
ZX00BC2PH1	0	36AWG Bare Copper wire to pin header wire assembly
ZX132DS	0	Samtec Breakout Adapter

ZX00SMA-IPEX37-J/P for ordering the SMA-IPEX cable assembly
ZX132x for ordering the ZX132x breakout module

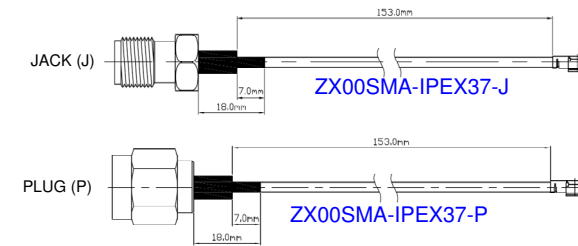
Ordering INFO:

Part Number ZX107HSMC-S-X-X options

J : Jack SMA to IPEX cable assembly
P : Plug SMA to IPEX cable assembly

S : 0.2861"(7.264mm) height QTH (Standard)
T : 0.4043" (10.269mm) height QTH

-S & -T options mate with any height QSH QTH - ASP-122953-01 - ASP-122952-01



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J4					
Assigned	Pin	Signal	Signal	Pin	Assigned
GND	1	GND	GND	2	GND
NC	3	NC	NC	4	NC
GND	5	GND	GND	6	GND
XCVR_TXN0	7	D0-	D0+	8	XCVR_TXP0
GND	9	GND	GND	10	GND
XCVR_TXN1	11	D1-	D1+	12	XCVR_TXP1
GND	13	GND	GND	14	GND
XCVR_TXN2	15	D2-	D2+	16	XCVR_TXP2
GND	17	GND	GND	18	GND
XCVR_TXN3	19	D3-	D3+	20	XCVR_TXP3
GND	21	GND	GND	22	GND
XCVR_TXN4	23	D4-	D4+	24	XCVR_TXP4
GND	25	GND	GND	26	GND
XCVR_TXN5	27	D5-	D5+	28	XCVR_TXP5
GND	29	GND	GND	30	GND
XCVR_TXN6	31	D6-	D6+	32	XCVR_TXP6
GND	33	GND	GND	34	GND
XCVR_TXN7	35	D7-	D7+	36	XCVR_TXP7
GND	37	GND	GND	38	GND
XCVR_RXN0	39	D8-	D8+	40	XCVR_RXP0
GND	41	GND	GND	42	GND
XCVR_RXN1	43	D9-	D9+	44	XCVR_RXP1
GND	45	GND	GND	46	GND
XCVR_RXN2	47	D10-	D10+	48	XCVR_RXP2
GND	49	GND	GND	50	GND
XCVR_RXN3	51	D11-	D11+	52	XCVR_RXP3
GND	53	GND	GND	54	GND
XCVR_RXN4	55	D12-	D12+	56	XCVR_RXP4
GND	57	GND	GND	58	GND
XCVR_RXN5	59	D13-	D13+	60	XCVR_RXP5
GND	61	GND	GND	62	GND
XCVR_RXN6	63	D14-	D14+	64	XCVR_RXP6
GND	65	GND	GND	66	GND
XCVR_RXN7	67	D15-	D15+	68	XCVR_RXP7
GND	69	GND	GND	70	GND
NC	71	NC	NC	72	NC
GND	73	GND	GND	74	GND
NC	75	NC	NC	76	NC
GND	77	GND	GND	78	GND
CLKIN0-X (J7)	79	D16-CLK-	D16-CLK+	80	CLKOUT0-X (J8)
GND	81	GND	GND	82	GND
NC	83	NC	NC	84	NC
GND	85	GND	GND	86	GND
NC	87	NC	NC	88	NC
NC	89	NC	NC	90	NC
NC	91	NC	NC	92	NC
NC	93	NC	NC	94	NC
GND	95	GND	GND	96	GND
GND	97	NC	NC	98	NC
NC	99	NC	NC	100	NC

J5					
Assigned	Pin	Signal	Signal	Pin	Assigned
GND	1	GND	GND	2	GND
NC	3	NC	NC	4	NC
GND	5	GND	GND	6	GND
LVDS_TXN0_D6	7	D0-	D0+	8	LVDS_TXP0_D4
GND	9	GND	GND	10	GND
LVDS_TXN1_D10	11	D1-	D1+	12	LVDS_TXP1_D8
GND	13	GND	GND	14	GND
LVDS_TXN2_D14	15	D2-	D2+	16	LVDS_TXP2_D12
GND	17	GND	GND	18	GND
LVDS_TXN3_D18	19	D3-	D3+	20	LVDS_TXP3_D16
GND	21	GND	GND	22	GND
LVDS_TXN4_D22	23	D4-	D4+	24	LVDS_TXP4_D20
GND	25	GND	GND	26	GND
LVDS_TXN5_D26	27	D5-	D5+	28	LVDS_TXP5_D24
GND	29	GND	GND	30	GND
LVDS_TXN6_D30	31	D6-	D6+	32	LVDS_TXP6_D28
GND	33	GND	GND	34	GND
LVDS_TXN7_D34	35	D7-	D7+	36	LVDS_TXP7_D32
GND	37	GND	GND	38	GND
LVDS_RXN0_D7	39	D8-	D8+	40	LVDS_RXP0_D5
GND	41	GND	GND	42	GND
LVDS_RXN1_D11	43	D9-	D9+	44	LVDS_RXP1_D9
GND	45	GND	GND	46	GND
LVDS_RXN2_D15	47	D10-	D10+	48	LVDS_RXP2_D13
GND	49	GND	GND	50	GND
LVDS_RXN3_D19	51	D11-	D11+	52	LVDS_RXP3_D17
GND	53	GND	GND	54	GND
LVDS_RXN4_D23	55	D12-	D12+	56	LVDS_RXP4_D21
GND	57	GND	GND	58	GND
LVDS_RXN5_D27	59	D13-	D13+	60	LVDS_RXP5_D25
GND	61	GND	GND	62	GND
LVDS_RXN6_D31	63	D14-	D14+	64	LVDS_RXP6_D29
GND	65	GND	GND	66	GND
LVDS_RXN7_D35	67	D15-	D15+	68	LVDS_RXP7_D33
GND	69	GND	GND	70	GND
NC	71	NC	NC	72	NC
GND	73	GND	GND	74	GND
NC	75	NC	NC	76	NC
GND	77	GND	GND	78	GND
CLKIN1N(D39)-X or CLKOUT1N(D38)-X (J9)	79	D16-CLK-	D16-CLK+	80	CLKIN1P(D37)-X or CLKOUT1P(D36)-X (J10)
GND	81	GND	GND	82	GND
NC	83	NC	NC	84	NC
GND	85	GND	GND	86	GND
NC	87	NC	NC	88	NC
NC	89	NC	NC	90	NC
NC	91	NC	NC	92	NC
GND	93	GND	GND	94	GND
GND	95	GND	GND	96	GND
NC	97	NC	NC	98	NC
NC	99	NC	NC	100	NC

LVDS_xxxx_Dzz: LVDS_xxxx differential signal assignment, Dzz: Single ended signal CLKxxy(Dzz): Dzz is the single ended Data assignment name

J6					
Assigned	Pin	Signal	Signal	Pin	Assigned
GND	1	GND	GND	2	GND
NC	3	NC	NC	4	NC
GND	5	GND	GND	6	GND
LVDS_TXN8_D42	7	D0-	D0+	8	LVDS_TXP8_D40
GND	9	GND	GND	10	GND
LVDS_TXN9_D46	11	D1-	D1+	12	LVDS_TXP9_D44
GND	13	GND	GND	14	GND
LVDS_TXN10_D50	15	D2-	D2+	16	LVDS_TXP10_D48
GND	17	GND	GND	18	GND
LVDS_TXN11_D54	19	D3-	D3+	20	LVDS_TXP11_D52
GND	21	GND	GND	22	GND
LVDS_TXN12_D58	23	D4-	D4+	24	LVDS_TXP12_D56
GND	25	GND	GND	26	GND
LVDS_TXN13_D62	27	D5-	D5+	28	LVDS_TXP13_D60
GND	29	GND	GND	30	GND
LVDS_TXN14_D66	31	D6-	D6+	32	LVDS_TXP14_D64
GND	33	GND	GND	34	GND
LVDS_TXN15_D70	35	D7-	D7+	36	LVDS_TXP15_D68
GND	37	GND	GND	38	GND
LVDS_TXN16_D74	39	D8-	D8+	40	LVDS_TXP16_D72
GND	41	GND	GND	42	GND
LVDS_RXN8_D43	43	D9-	D9+	44	LVDS_RXP8_D41
GND	45	GND	GND	46	GND
LVDS_RXN9_D47	47	D10-	D10+	48	LVDS_RXP9_D45
GND	49	GND	GND	50	GND
LVDS_RXN10_D51	51	D11-	D11+	52	LVDS_RXP10_D49
GND	53	GND	GND	54	GND
LVDS_RXN11_D55	55	D12-	D12+	56	LVDS_RXP11_D53
GND	57	GND	GND	58	GND
LVDS_RXN12_D59	59	D13-	D13+	60	LVDS_RXP12_D57
GND	61	GND	GND	62	GND
LVDS_RXN13_D63	63	D14-	D14+	64	LVDS_RXP13_D61
GND	65	GND	GND	66	GND
LVDS_RXN14_D67	67	D15-	D15+	68	LVDS_RXP14_D65
GND	69	GND	GND	70	GND
NC	71	NC	NC	72	NC
GND	73	GND	GND	74	GND
NC	75	NC	NC	76	NC
GND	77	GND	GND	78	GND
CLKIN2N(D79)-X or CLKOUT2N(D78)-X (J11)	79	D16-CLK-	D16-CLK+	80	CLKIN2P(D77)-X or CLKOUT2P(D76)-X (J12)
GND	81	GND	GND	82	GND
NC	83	NC	NC	84	NC
GND	85	GND	GND	86	GND
NC	87	NC	NC	88	NC
NC	89	NC	NC	90	NC
NC	91	NC	NC	92	NC
GND	93	GND	GND	94	GND
GND	95	GND	GND	96	GND
NC	97	NC	NC	98	NC
NC	99	NC	NC	100	NC

LVDS_xxxx_Dzz: LVDS_xxxx differential signal assignment, Dzz: Single ended signal CLKxxy(Dzz): Dzz is the single ended Data assignment name

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