Beta FDR Integrators' List for Plugfest 20

The IBTA Plugfest 20 held in October 2011 included testing of FDR Cables and Devices. At the time of the event, the IBTA FDR Specification had not been finalized and therefore the **FDR** Integrators' List is considered a Beta list. The following section describes all of the testing that was performed and was used to qualify cables and devices for inclusion on the Beta FDR List.

List of what was tested in PF20

Cable Qualification

1) The cable must pass all of the mandatory Compliance tests for Plugfest 20
   a) General Tests for all cables
      i) Mellanox Eye Opening Test
      ii) EEPROM Memory Map Validation
      iii) EEPROM Mod_Sel Test
      iv) EEPROM Attenuation value versus measured Insertion Loss
      v) EEPROM Length Test
      vi) Maximum Speed supported test
   b) FDR Specific Tests
      i) Passive Copper Cables
         (1) Insertion Loss
         (2) Fitted Insertion Loss
         (3) Insertion Loss Deviation (ILD)
         (4) Integrated Crosstalk Noise (ICN)
         (5) Differential Return Loss (Input and Output)
         (6) Common Mode Return Loss (Input and Output)
      ii) Active Cables
         (1) Differential Return Loss (Input and Output)
         (2) Common Mode Return Loss (Input and Output)
2) Results must be published from any System Interoperability testing done using the cable to be included on the IL.

BETA

Device Qualification

1) A device must pass **119** Mandatory Volume 1 device tests.
2) A device must pass the following Volume 2 Physical Layer test described in FDR TX MOI
   a) Test 1.1 - Common Mode Voltage
   b) Test 1.2 - Common Mode AC Output Voltage
3) Results must be published from any System Interoperability testing done using the device to be included on the IL.

BETA

The IBTA FDR Specification was not ready for PF20 and some test equipment was not available in time for PF20. Therefore some testing was not performed for FDR which is why this is a Beta Integrators' List.

Cables testing not performed

1) Passive copper Cables
   a) Insertion Loss Deviation – RMS
2) Active Cables
   a) Eye Mask *
   b) Jitter *
   c) Integrated Cross Talk measurement *
   d) Common mode output voltage

* The 14 Gb/s pattern generator available at PF20 did not support pre-emphasis and therefore the waveform measured at TP6a was under equalized. There were also no crosstalk aggressors present for testing.

Device testing not performed

1) Test 1.3 – Steady State Output Voltage
2) Receiver testing

The following is a list of Physical Layer Device Tests that will be mandatory for PF21 in April 2012

Parameter	Description	Tested in PF20	Mandatory for PF21
Test 1.1	Single-ended output Voltage	Yes	Yes
Test 1.2	Common Mode AC Output Voltage	Yes	Yes
Test 1.3	Steady State Output Voltage	No	Yes
t_r	Rise Time	No	Yes
t_f	Fall Time	No	Yes
DDPWS	Data Dependent Pulse Width Shrinkage	No	Yes
J2	J2 Jitter	No	Yes
J9	J9 Jitter	No	Yes
X1, X2	Eye limits, time	No	Yes
Y1, Y2	Eye Limits Voltage	No	Yes

BETA

Beta FDR Integrators' List
October 2011 Compliant Devices

HCAs (Host Channel Adapter)

(Device Listing indicates Core Compliance)

Manufacturer	Product Description	Model	HW	FW	SW	Core Compliance	Additional Capabilities				
							SM/SA			IPoIB	
										IPv4	
							SM/SA	Version	Multicast	Unicast	Multicast
Mellanox	ConnectX®-3 VPI card, Dual Port, 4X QSFP 56Gb/s InfiniBand	MCX354A-FCBT	X2	2.10.1050	OFED 1.5.4 RC4	✓	✓	3.3.12	✓	✓	✓
	ConnectX®-3 VPI card, Single Port, 4X QSFP 56Gb/s InfiniBand	MCX353A-FCBT	X2	2.10.1050	OFED 1.5.4 RC4	✓	✓	3.3.12	✓	✓	✓

Beta List

Switches

(Device Listing indicates Core Compliance)

Manufacturer	Product Description	Model	Ports	HW	FW	SW	Core Compliance	Advanced Tests		Additional Capabilities							
												SM/SA			IPoIB		
																IPv4	
								Link	Switch/Routing	Enhanced Port 0	Multicast	SM/SA	Version	Multicast	Enhanced Port 0 End Node	Unicast	Multicast
Mellanox	SwitchX® FDR Switch, 36 QSFP ports. Managed	MSX6036F-1SFR	36	X2	9.0.3180		✓	✓	✓	✓	✓	✓	3.3.12	✓	✓	✓	✓
	SwitchX® FDR Switch, 36 QSFP ports	MSX6025F-1SFR	36	X2	9.0.3180		✓	✓	✓							✓	✓

Note: Only two out of the three Physical Layer Tests defined for PF20 were performed.

Beta FDR Integrators' List
October 2011 Compliant Cables

		Cable Information					Integrators' List	Qualification
Part Number	Company	Width	Len (m)	AWG	Equalization	Connector Type	FDR	
9QA0-111-13-0.50	3M	4x	0.5	30	Unequalized	QSFP	Yes	Tested at PF20
9QA0-111-13-2.00	3M	4x	2	30	Unequalized	QSFP	Yes	Tested at PF20
9QA0-111-13-3.00	3M	4x	3	30	Unequalized	QSFP	Yes	Tested at PF20
604210001	Amphenol	4x	1	30	Unequalized	QSFP	Yes	Tested at PF20
604210002	Amphenol	4x	2	28	Unequalized	QSFP	Yes	Tested at PF20
604210003	Amphenol	4x	3	28	Unequalized	QSFP	Yes	Tested at PF20
7170800025	Cinch Connectors Inc.	4x	1	30	Unequalized	QSFP	Yes	Tested at PF20
7170800009	Cinch Connectors Inc.	4x	2	28	Unequalized	QSFP	Yes	Tested at PF20
7170800007	Cinch Connectors Inc.	4x	3	28	Unequalized	QSFP	Yes	Tested at PF20
7170800047	Cinch Connectors Inc.	4x	3	26	Unequalized	QSFP	Yes	Tested at PF20
7170800044	Cinch Connectors Inc.	4x	4	26	Unequalized	QSFP	Yes	Tested at PF20
10119239-2010LF	FCI	4x	1	30	Unequalized	QSFP	Yes	Tested at PF20
2GSPWWB-64G-EF	Foxconn	4x	3	28	Unequalized	QSFP	Yes	Tested at PF20
2GSPWWC-66G-EF	Foxconn	4x	5	24	Unequalized	QSFP	Yes	Tested at PF20
15401M002BKA01	Hitachi Cable Manchester	4x	2	30	Unequalized	QSFP	Yes	Tested at PF20
MC2207130-00A	Mellanox	4x	0.5	30	Unequalized	QSFP	Yes	Tested at PF20
MC2207130-001	Mellanox	4x	1	30	Unequalized	QSFP	Yes	Tested at PF20
MC2207130-0A1	Mellanox	4x	1.5	30	Unequalized	QSFP	Yes	Tested at PF20
MC2207130-002	Mellanox	4x	2	30	Unequalized	QSFP	Yes	Tested at PF20
MC2207128-0A2	Mellanox	4x	2.5	28	Unequalized	QSFP	Yes	Tested at PF20
MC2207128-003	Mellanox	4x	3	28	Unequalized	QSFP	Yes	Tested at PF20
MC2207126-004	Mellanox	4x	4	25	Unequalized	QSFP	Yes	Tested at PF20
MC2207126-005	Mellanox	4x	5	25	Unequalized	QSFP	Yes	Tested at PF20
9846-D-F-01.0	Meritec	4x	1	30	Unequalized	QSFP	Yes	Tested at PF20
9846-D-F-01.0	Meritec	4x	1	30	Unequalized	QSFP	Yes	Tested at PF20
9846-C-F-02.0	Meritec	4x	2	28	Unequalized	QSFP	Yes	Tested at PF20
9846-C-F-02.0	Meritec	4x	2	28	Unequalized	QSFP	Yes	Tested at PF20
9846-B-F-03.0	Meritec	4x	3	26	Unequalized	QSFP	Yes	Tested at PF20
9846-B-F-03.0	Meritec	4x	3	26	Unequalized	QSFP	Yes	Tested at PF20
9846-D-F-04.0	Meritec	4x	4	25	Unequalized	QSFP	Yes	Tested at PF20
1111821206	Molex	4x	2	30	Unequalized	QSFP	Yes	Tested at PF20
1111821306	Molex	4x	3	30	Unequalized	QSFP	Yes	Tested at PF20
1111822306	Molex	4x	3	28	Unequalized	QSFP	Yes	Tested at PF20
1111822406	Molex	4x	4	28	Unequalized	QSFP	Yes	Tested at PF20
VAHS-30-0408	Volex	4x	1	30	Unequalized	QSFP	Yes	Tested at PF20
VAHS-30-0296	Volex	4x	1	30	Unequalized	QSFP	Yes	Tested at PF20
VAHS-30-0409	Volex	4x	2	30	Unequalized	QSFP	Yes	Tested at PF20
VAHS-30-0294	Volex	4x	2	30	Unequalized	QSFP	Yes	Tested at PF20
VAHS-28-0348	Volex	4x	2	28	Unequalized	QSFP	Yes	Tested at PF20
VAHS-26-0226	Volex	4x	2	26	Unequalized	QSFP	Yes	Tested at PF20
VAHS-25-0003	Volex	4x	2	25	Unequalized	QSFP	Yes	Tested at PF20
VAHS-30-0297	Volex	4x	2.5	30	Unequalized	QSFP	Yes	Tested at PF20

Beta List

Beta FDR Integrators' List
October 2011 Compliant Cables

		Cable Information					Integrators' List	Qualification
Part Number	**Company**	**Width**	**Len (m)**	**AWG**	**Equalization**	**Connector Type**	**FDR**	
VAHS-28-0349	Volex	4x	3	28	Unequalized	QSFP	Yes	Tested at PF20
VAHS-26-0252	Volex	4x	3	26	Unequalized	QSFP	Yes	Tested at PF20
VAHS-26-0205	Volex	4x	3	26	Unequalized	QSFP	Yes	Tested at PF20
VAHS-25-0007	Volex	4x	3	25	Unequalized	QSFP	Yes	Tested at PF20
VAHS-26-0253	Volex	4x	3.5	26	Unequalized	QSFP	Yes	Tested at PF20
VAHS-26-0206	Volex	4x	3.5	26	Unequalized	QSFP	Yes	Tested at PF20
VAHS-25-0023	Volex	4x	4	25	Unequalized	QSFP	Yes	Tested at PF20
VAHS-25-0002	Volex	4x	4	25	Unequalized	QSFP	Yes	Tested at PF20
VAHS-25-0015	Volex	4x	5	25	Unequalized	QSFP	Yes	Tested at PF20

Note: This list of compliant FDR Cables does not include Active Cables because compliance testing was not fully available and therefore the Active Cables will be retested in PF21

Beta List

Beta FDR Integrators' List
October 2011 Interoperability List

The following Interoperability results are provided as a supplement to the compliance results provided in the Integrators List. The Interoperability results are informative only and are not a pre-requisite for devices or cable assemblies to be listed in the Compliance section of the Integrators List. These results represent system tests and include the testing of the entire environment including device transmitters, cable media and device receivers. The Interoperability results include both FDR devices and cables.

While every effort was made to test worst-case conditions, results may vary with alternative port configurations, device and cable manufacturing variation, device firmware and software, traffic density and data patterns, temperature variation, etc. The following documentation identifies the test conditions used to obtain these Interoperability results.

Legend used in Interoperability results	
Interop Legend	**Description**
M2M HCA 2 SW	Mellanox HCA to Mellanox Switch
M2M SW 2 SW	Mellanox Switch to Mellanox Switch

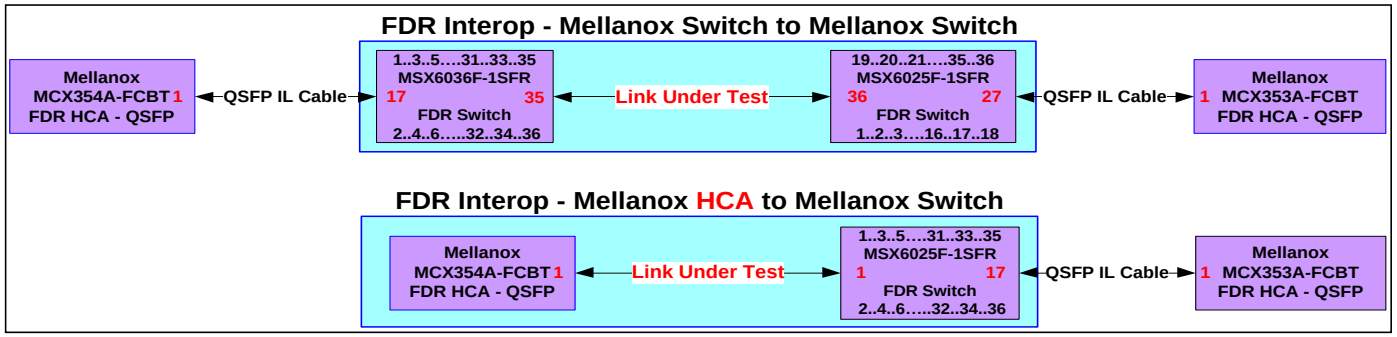
Conditions for passing Interop	
Link Width	Link width is @ expected width - i.e. 1x,4x, etc
Link Speed	Link speed is @ expected speed - i.e. FDR
Link Recovery	There must be no errors during the MPI Run
Port Receive Errors	There must be no errors during the MPI Run
Symbol Errors	There must be no errors during the MPI Run
Port xmit Discard	There must be no discards during the MPI Run
MPI Test	The MPI test must run to completion without error

Manufacturer	Description of Hardware	Model	Type	HW	FW	SW	Speed	Status
Mellanox	ConnectX®-3 VPI card, Dual Port, 4X QSFP 56Gb/s	MCX354A-FCBT	HCA	X2	2.10.1050	1.5.4 RC	FDR	Compliant
Mellanox	ConnectX®-3 VPI card, Single Port, 4X QSFP 56Gb/s	MCX353A-FCBT	HCA	X2	2.10.1050	1.5.4 RC	FDR	Compliant
Mellanox	SwitchX® FDR Switch, 36 QSFP ports. Managed	MSX6036F-1SFR	Switch	X2	9.0.3180	1.1.2500	FDR	Compliant
Mellanox	SwitchX® FDR Switch, 36 QSFP ports	MSX6025F-1SFR	Switch	X2	9.0.3180	1.1.2500	FDR	Compliant

Software	Versions
OFED Version	OFED 1.5.4 RC4
Open MPI Used	Open MPI 1.4.3-1
Test Plan version	OFA-IWG Interoperability Test Plan Release 1.40
Test Duration	3-15 minutes

Beta FDR Integrators' List
October 2011 Interoperability List

FDR Interoperability Test Environments



Beta FDR Integrators' List
October 2011 Interoperability List

		Cable Information					FDR Interop		Qualification
Part Number	Company	Width	Len (m)	AWG	Equalization	Connector Type	M2M HCA 2 SW	M2M SW 2 SW	
9QA0-111-13-0.50	3M	4x	0.5	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
9QA0-111-13-2.00	3M	4x	2	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
9QA0-111-13-3.00	3M	4x	3	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
604210001	Amphenol	4x	1	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
604210002	Amphenol	4x	2	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
604210003	Amphenol	4x	3	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
7170800025	Cinch Connectors Inc.	4x	1	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
7170800009	Cinch Connectors Inc.	4x	2	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
7170800007	Cinch Connectors Inc.	4x	3	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
7170800047	Cinch Connectors Inc.	4x	3	26	Unequalized	QSFP	Yes	Yes	Tested at PF20
7170800044	Cinch Connectors Inc.	4x	4	26	Unequalized	QSFP	Yes	Yes	Tested at PF20
ALLT10FQPA	Emcore Corporation	4x	10	N/A	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
ALLTAAFQPA	Emcore Corporation	4x	100	N/A	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
10119239-2010LF	FCI	4x	1	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
FCBG414QB1CX0	Finisar	4x	100	N/A	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
2GSPWWB-64G-EF	Foxconn	4x	3	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
2GSPWWC-66G-EF	Foxconn	4x	5	24	Unequalized	QSFP	Yes	Yes	Tested at PF20
15401M002BKA01	Hitachi Cable Manchester	4x	2	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
MC2207310-003	Mellanox	4x	3	N/A	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
MC2207310-030	Mellanox	4x	30	N/A	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
MC2207310-050	Mellanox	4x	50	N/A	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
MC2207310-100	Mellanox	4x	100	N/A	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
MC2207130-00A	Mellanox	4x	0.5	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
MC2207130-001	Mellanox	4x	1	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
MC2207130-0A1	Mellanox	4x	1.5	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
MC2207130-002	Mellanox	4x	2	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
MC2207128-0A2	Mellanox	4x	2.5	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
MC2207128-003	Mellanox	4x	3	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
MC2207126-004	Mellanox	4x	4	25	Unequalized	QSFP	Yes	Yes	Tested at PF20
MC2207126-005	Mellanox	4x	5	25	Unequalized	QSFP	Yes	Yes	Tested at PF20
9846-D-F-01.0	Meritec	4x	1	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
9846-D-F-01.0	Meritec	4x	1	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
9846-C-F-02.0	Meritec	4x	2	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
9846-C-F-02.0	Meritec	4x	2	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
9846-B-F-03.0	Meritec	4x	3	26	Unequalized	QSFP	Yes	Yes	Tested at PF20
9846-B-F-03.0	Meritec	4x	3	26	Unequalized	QSFP	Yes	Yes	Tested at PF20
9846-D-F-04.0	Meritec	4x	4	25	Unequalized	QSFP	Yes	Yes	Tested at PF20
1111821206	Molex	4x	2	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
1111821306	Molex	4x	3	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
1111822306	Molex	4x	3	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
1111822406	Molex	4x	4	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
QSFP-56G-001-02	Samtec	4x	1	NA	Active - Fiber	QSFP	Yes	Yes	Tested at PF20

Beta List

Beta FDR Integrators' List
October 2011 Interoperability List

		Cable Information					FDR Interop		Qualification
Part Number	**Company**	**Width**	**Len (m)**	**AWG**	**Equalization**	**Connector Type**	**M2M HCA 2 SW**	**M2M SW 2 SW**	
QSFP-56G-010-02	Samtec	4x	10	NA	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
QSFP-56G-030-02	Samtec	4x	30	NA	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
QSFP-56G-100-02	Samtec	4x	100	NA	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
2123603-2	TE Connectivity	4x	3	N/A	Active - Fiber	QSFP	Yes	Yes	Tested at PF20
VAHS-30-0408	Volex	4x	1	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-30-0296	Volex	4x	1	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-30-0409	Volex	4x	2	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-30-0294	Volex	4x	2	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-28-0348	Volex	4x	2	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-26-0226	Volex	4x	2	26	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-25-0003	Volex	4x	2	25	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-30-0297	Volex	4x	2.5	30	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-28-0349	Volex	4x	3	28	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-26-0252	Volex	4x	3	26	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-26-0205	Volex	4x	3	26	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-25-0007	Volex	4x	3	25	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-26-0253	Volex	4x	3.5	26	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-26-0206	Volex	4x	3.5	26	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-25-0023	Volex	4x	4	25	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-25-0002	Volex	4x	4	25	Unequalized	QSFP	Yes	Yes	Tested at PF20
VAHS-25-0015	Volex	4x	5	25	Unequalized	QSFP	Yes	Yes	Tested at PF20

Beta List