



# InfiniBand Trade Association RoCE Compliance List



October 2018





# IBTA RoCE Compliance List

## October 2018



Manufacturer	Product Description	Model	FW	SW	Transport	DCB
Broadcom	P150p NetXtreme-E Single-port 40Gb/50Gb Ethernet PCIe Adapter	BCM957414A4140	212.1	OFED 4.17 RC 1	✓	✓
	NetXtreme-E Dual-port 25G RDMA Ethernet PCIe Adapter	BCM957414A4141	212.1	OFED 4.17 RC 1	✓	✓
	P1110p NetXtreme-E Single-port 50Gb/100Gb Ethernet PCIe Adapter	BCM957454A4540	212.1	OFED 4.17 RC 1	✓	✓
	Stingray PS225 Dual-port 25Gb Ethernet SmartNIC PCIe Adapter	BCM958802A8024	214.0	OFED 4.17 RC 1	✓	✓

### Broadcom RoCE RNICs

Model	BCM957414A4140	BCM957414A4141	BCM957454A4540	BCM958802A8024
Date	2018-10-19-01	2018-10-19-01	2018-12-13-01	2018-10-23-01
Firmware Version	212.1.104.0	212.1.104.0	212.1.104.0	214.0.153.0
Overall Results	Pass	Pass	Pass	Pass

Test Class	Name	Number	Results	Results	Results	Results
Transport Layer	RC RDMA Send Only after RDMA Read	C09_027_01	Pass	Pass	Pass	Pass
	RC RDMA Write Only after RDMA Read	C09_027_02	Pass	Pass	Pass	Pass
	RC RDMARead Only after RDMA Read	C09_027_03	Pass	Pass	Pass	Pass
	RC Atomic FetchAdd after RDMA Read	C09_027_04	Pass	Pass	Pass	Pass
	RC Atomic CompSwap after RDMA Read	C09_027_05	Pass	Pass	Pass	Pass
	RC Atomic CompSwap after Atomic CompSwap	C09_027_06	Pass	Pass	Pass	Pass
	RC Atomic FetchAdd after Atomic CompSwap	C09_027_07	Pass	Pass	Pass	Pass
	RC Atomic FetchAdd after Atomic FetchAdd	C09_027_08	Pass	Pass	Pass	Pass
	RC Atomic CompSwap after Atomic FetchAdd	C09_027_09	Pass	Pass	Pass	Pass
	RC RDMA Send Only after Atomic CompSwap	C09_027_10	Pass	Pass	Pass	Pass
	RC RDMA Write Only after Atomic CompSwap	C09_027_11	Pass	Pass	Pass	Pass
	RC RDMA Send Only after Atomic FetchAdd	C09_027_12	Pass	Pass	Pass	Pass
	RC RDMA Write Only after Atomic Fetch Add	C09_027_13	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Send Case	C09_060_01	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Send Case (inverted)	C09_060_01_01	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Write Case	C09_060_03	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Write Case (inverted)	C09_060_03_01	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Read Case	C09_060_05	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Read Case (inverted)	C09_060_05_01	Pass	Pass	Pass	Pass
	Completion Rules - Atomic FetchAdd Case	C09_060_07	N/A	N/A	N/A	N/A
	Completion Rules - Atomic FethcAdd Case (inverted)	C09_060_07_01	Pass	Pass	Pass	Pass
	Completion Rules - Atomic CompSwap Case	C09_060_09	N/A	N/A	N/A	N/A
	Completion Rules - Atomic CompSwap Case (inverted)	C09_060_09_01	Pass	Pass	Pass	Pass
Requester/Responder RNR NAK Behavior	C09_130_01	Pass	Pass	Pass	Pass	
Outstanding Request Timeout	C09_142_01	Pass	Pass	Pass	Pass	
DCB	IEEE 802.1Q	36.2.2#1	Pass	Pass	Pass	Pass



# IBTA RoCE Compliance List

## October 2018



Manufacturer	Product Description	Model	FW	SW	Transport	DCB
Marvell	Low Profile Dual-Port SFP28 25GbE Ethernet PCIe Adapter	QL45212	8.35.41.0	OFED 4.17 RC 1	✓	✓
	Low Profile Dual-Port QSFP+ 40GbE Ethernet PCIe Adapter	QL45412	8.35.41.0	OFED 4.17 RC 1	✓	✓
	Low Profile Single-Port QSFP28 100GbE Ethernet PCIe Adapter	QL45611	8.35.41.0	OFED 4.17 RC 1	✓	✓
	Low Profile Dual-Port SFP28 25GbE Ethernet PCIe Adapter	QL41212	8.35.41.0	OFED 4.17 RC 1	✓	✓
	Low Profile Quad-Port SFP28 25GbE Ethernet PCIe Adapter	QL41234	8.35.41.0	OFED 4.17 RC 1	✓	✓

### Marvell RoCE RNICs

Model	QL41212	QL41234	QL45212	QL45412	QL45611
Date	2018-11-21-01	2018-11-21-01	2018-11-21-01	2018-11-21-01	2018-11-21-01
Firmware Version	08.37.2.0	08.37.2.0	08.37.2.0	08.37.2.0	08.37.2.0
Overall Results	Pass	Pass	Pass	Pass	Pass

Test Class	Name	Number	Results	Results	Results	Results	Results
Transport Layer	RC RDMA Send Only after RDMA Read	C09_027_01	Pass	Pass	Pass	Pass	Pass
	RC RDMA Write Only after RDMA Read	C09_027_02	Pass	Pass	Pass	Pass	Pass
	RC RDMARead Only after RDMA Read	C09_027_03	Pass	Pass	Pass	Pass	Pass
	RC Atomic FetchAdd after RDMA Read	C09_027_04	Pass	Pass	Pass	Pass	Pass
	RC Atomic CompSwap after RDMA Read	C09_027_05	Pass	Pass	Pass	Pass	Pass
	RC Atomic CompSwap after Atomic CompSwap	C09_027_06	Pass	Pass	Pass	Pass	Pass
	RC Atomic FetchAdd after Atomic CompSwap	C09_027_07	Pass	Pass	Pass	Pass	Pass
	RC Atomic FetchAdd after Atomic FetchAdd	C09_027_08	Pass	Pass	Pass	Pass	Pass
	RC Atomic CompSwap after Atomic FetchAdd	C09_027_09	Pass	Pass	Pass	Pass	Pass
	RC RDMA Send Only after Atomic CompSwap	C09_027_10	Pass	Pass	Pass	Pass	Pass
	RC RDMA Write Only after Atomic CompSwap	C09_027_11	Pass	Pass	Pass	Pass	Pass
	RC RDMA Send Only after Atomic FetchAdd	C09_027_12	Pass	Pass	Pass	Pass	Pass
	RC RDMA Write Only after Atomic Fetch Add	C09_027_13	Pass	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Send Case	C09_060_01	Pass	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Send Case (inverted)	C09_060_01_01	Pass	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Write Case	C09_060_03	Pass	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Write Case (inverted)	C09_060_03_01	Pass	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Read Case	C09_060_05	Pass	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Read Case (inverted)	C09_060_05_01	Pass	Pass	Pass	Pass	Pass
	Completion Rules - Atomic FetchAdd Case	C09_060_07	N/A	N/A	N/A	N/A	N/A
	Completion Rules - Atomic FetchAdd Case (inverted)	C09_060_07_01	Pass	Pass	Pass	Pass	Pass
	Completion Rules - Atomic CompSwap Case	C09_060_09	N/A	N/A	N/A	N/A	N/A
	Completion Rules - Atomic CompSwap Case (inverted)	C09_060_09_01	Pass	Pass	Pass	Pass	Pass
	Requester/Responder RNR NAK Behavior	C09_130_01	Pass	Pass	Pass	Pass	Pass
	Outstanding Request Timeout	C09_142_01	Pass	Pass	Pass	Pass	Pass
DCB	IEEE 802.1Q	36.2.2#1	Pass	Pass	Pass	Pass	Pass



# IBTA RoCE Compliance List

## October 2018



Manufacturer	Product Description	Model	FW	SW	Transport	DCB
Mellanox	ConnectX®-3 Pro EN Dual-Port SFP+ 10GbE Ethernet PCIe Adapter	MCX312B-XCCT	2.42.5000	MLNX_OFED 4.4-2.0.7.0	✓	✓
	ConnectX®-4 EN Dual-Port QSFP28 40GbE Ethernet PCIe Adapter	MCX416A-BCAT	12.23.1020	MLNX_OFED 4.4-2.0.7.0	✓	✓
	ConnectX®-4 Lx EN Dual-Port SFP28 25GbE Ethernet PCIe Adapter	MCX4121A-ACAT	14.23.1020	MLNX_OFED 4.4-2.0.7.0	✓	✓
	ConnectX®-5 EN Dual-Port QSFP28 100GbE Ethernet PCIe Adapter	MCX516A-CCAT	16.23.1020	MLNX_OFED 4.4-2.0.7.0	✓	✓

### Mellanox RoCE RNICs

Model	MCX312B-XCCT	MCX4121A-ACAT	MCX416A-BCAT	MCX516A-CCAT
Date	2018-12-20-01	2018-12-19-01	2018-12-19-01	2018-12-18-01
Firmware Version	2.42.5000	14.23.1020	12.23.1020	16.23.1020
Overall Results	Pass	Pass	Pass	Pass

Test Class	Name	Number	Results	Results	Results	Results
Transport Layer	RC RDMA Send Only after RDMA Read	C09_027_01	Pass	Pass	Pass	Pass
	RC RDMA Write Only after RDMA Read	C09_027_02	Pass	Pass	Pass	Pass
	RC RDMARead Only after RDMA Read	C09_027_03	Pass	Pass	Pass	Pass
	RC Atomic FetchAdd after RDMA Read	C09_027_04	Pass	Pass	Pass	Pass
	RC Atomic CompSwap after RDMA Read	C09_027_05	Pass	Pass	Pass	Pass
	RC Atomic CompSwap after Atomic CompSwap	C09_027_06	Pass	Pass	Pass	Pass
	RC Atomic FetchAdd after Atomic CompSwap	C09_027_07	Pass	Pass	Pass	Pass
	RC Atomic FetchAdd after Atomic FetchAdd	C09_027_08	Pass	Pass	Pass	Pass
	RC Atomic CompSwap after Atomic FetchAdd	C09_027_09	Pass	Pass	Pass	Pass
	RC RDMA Send Only after Atomic CompSwap	C09_027_10	Pass	Pass	Pass	Pass
	RC RDMA Write Only after Atomic CompSwap	C09_027_11	Pass	Pass	Pass	Pass
	RC RDMA Send Only after Atomic FetchAdd	C09_027_12	Pass	Pass	Pass	Pass
	RC RDMA Write Only after Atomic Fetch Add	C09_027_13	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Send Case	C09_060_01	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Send Case (inverted)	C09_060_01_01	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Write Case	C09_060_03	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Write Case (inverted)	C09_060_03_01	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Read Case	C09_060_05	Pass	Pass	Pass	Pass
	Completion Rules - RC RDMA Read Case (inverted)	C09_060_05_01	Pass	Pass	Pass	Pass
	Completion Rules - Atomic FetchAdd Case	C09_060_07	N/A	N/A	N/A	N/A
	Completion Rules - Atomic FethcAdd Case (inverted)	C09_060_07_01	Pass	Pass	Pass	Pass
	Completion Rules - Atomic CompSwap Case	C09_060_09	N/A	N/A	N/A	N/A
	Completion Rules - Atomic CompSwap Case (inverted)	C09_060_09_01	Pass	Pass	Pass	Pass
	Requester/Responder RNR NAK Behavior	C09_130_01	Pass	Pass	Pass	Pass
Outstanding Request Timeout	C09_142_01	Pass	Pass	Pass	Pass	
DCB	IEEE 802.1Q	36.2.2#1	Pass	Pass	Pass	Pass



# IBTA RoCE Interoperability List

## October 2018



Manufacturer	Description	Model	Type	Speed	FW	SW
Broadcom	P150p NetXtreme-E Single-Port QSFP28	BCM957454A4540	RNIC	100 GbE	212.1.104.0	OFED 4.17 RC1
Broadcom	P1110p NetXtreme-E Dual-Port QSFP28	BCM957414A4140	RNIC	50 GbE	212.1.104.0	OFED 4.17 RC1
Broadcom	Stingray PS225 Dual-Port SFP28	BCM958802A8024	RNIC	25 GbE	212.1.104.0	OFED 4.17 RC1
Broadcom	NetXtreme-E Dual-Port SFP28	BCM957414A4141	RNIC	25 GbE	212.1.104.0	OFED 4.17 RC1
Marvell	FastLinQ Single-Port QSFP28	QL45611HL	RNIC	100 GbE	8.37.2.0	OFED 4.17 RC1
Marvell	FastLinQ Dual-Port QSFP+	QL45412HL	RNIC	40 GbE	8.37.2.0	OFED 4.17 RC1
Marvell	FastLinQ Dual-Port SFP28	QL45212HL	RNIC	25 GbE	8.37.2.0	OFED 4.17 RC1
Marvell	FastLinQ Dual-Port SFP28	QL41212HL	RNIC	25 GbE	8.37.2.0	OFED 4.17 RC1
Marvell	FastLinQ Quad-Port SFP28	QL41234HL	RNIC	25 GbE	8.37.2.0	OFED 4.17 RC1
Mellanox	ConnectX@-5 EN Dual-Port QSFP28	MCX516A-CCAT	RNIC	100 GbE	16.23.1020	MLNX OFED 4.4-2.0.7.0
Mellanox	ConnectX@-4 EN Dual-Port QSFP+	MCX416A-BCAT	RNIC	40 GbE	12.23.1020	MLNX OFED 4.4-2.0.7.0
Mellanox	ConnectX@-4 Lx EN Dual-Port SFP28	MCX4121A-ACAT	RNIC	25 GbE	14.23.1020	MLNX OFED 4.4-2.0.7.0
Mellanox	ConnectX@-3 Pro EN Dual-Port SFP+	MCX312B-XCCT	RNIC	10 GbE	2.42.5000	MLNX OFED 4.4-2.0.7.0
Mellanox	SwitchX@-2 InfiniBand to Ethernet gateway, 36 QSFP+ ports	MSX6036G-2SFS	Switch	40 GbE	9.4.5070	MLNX OS 3.6.6003
Mellanox	48 SFP28 ports, 8 QSFP28 ports, Supports 10 to 100GbE	MSN2410-CB2F	Switch	100 GbE	13.1702.0012	Onyx 3.6.6102

Software	Versions	Performance Software	
Operating System	<a href="#">Cent OS 7.5.1804</a>	HPC-Performance Monitor	<a href="#">HPC-PM-2.0.80</a>
OFED	<a href="#">OFED 4.17 RC1</a>	Perftest (OFED)	<a href="#">4.4-0.3.g7a8e409</a>
Mellanox OFED	<a href="#">MLNX OFED 4.4-2.0.7.0</a>	<b>Benchmarks Performed</b>	
Open MPI	<a href="#">Open MPI 3.1.2</a>		
Benchmark	<a href="#">Intel MPI Benchmarks</a>	PingPong	Gather
Test Plan	<a href="#">Software Forge RoCE Interoperability MOI</a>	PingPing	Gatherv
Duration	3-10 minutes	Sendrecv	Scatter
<b>Conditions for Passing Interoperability Testing</b>		Exchange	Scatterv
		Allreduce	Alltoall
Link Width	Link width is @ expected width - i.e. 1x,4x, etc	Reduce	Alltoallv
Link Speed	Link speed is @ expected speed - e.g. 100 GbE	Reduce_scatter	Bcast
Errors	There must be no errors recorded during any test phases	Allgather	Barrier
MPI Test	The MPI Benchmark must run to completion	Allgatherv	



# IBTA PF34 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 01



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Mellanox Switch	Broadcom RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
BizLink	3	30	Copper - Unequalized	QSFP28	QL45611	AEQ123	MSN2410-CB2F	BCM957454A4540	100	Pass	Pass	Pass	Pass	
Finisar	1	n/a	Fiber - Active	QSFP28		FCBN425QE1C01			100	Pass	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05			100	Pass	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP28		FCBN425QE1CX0			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Linear Active	QSFP56		CURDA34DZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Unequalized	QSFP56		CURDA33EZZ40EF-D			100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003			100	Pass	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28	4-2333393-3	100	Pass	Pass	Pass	Pass	Pass			
TE Connectivity	2	30	Copper - Unequalized	QSFP28	4-2333393-5	100	Pass	Pass	Pass	Pass	Pass			
TE Connectivity	1	30	Copper - Unequalized	QSFP28	2333393-3	100	Pass	Pass	Pass	Pass	Pass			
TE Connectivity	2	30	Copper - Unequalized	QSFP28	2333393-5	100	Pass	Pass	Pass	Pass	Pass			

Marvell QL45611 to Mellanox MSN2410 Switch to Broadcom BCM957454A4540





# IBTA PF34 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 02



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Mellanox Switch	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
BizLink	3	30	Copper - Unequalized	QSFP28	QL45611	AEQ123	MSN2410-CB2F	MCX516A-CCAT	100	Pass	Pass	Pass	Pass	
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124			100	Pass	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP28		FCBN425QE1C01			100	Pass	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05			100	Pass	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP28		FCBN425QE1CX0			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Linear Active	QSFP56		CURDA34DZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Unequalized	QSFP56		CURDA33EZZ40EF-D			100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003			100	Pass	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		4-2333393-5			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		2333393-3			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		2333393-5			100	Pass	Pass	Pass	Pass	Pass

Marvell QL45611 to Mellanox MSN2410 Switch to Mellanox MCX516A





# IBTA PF34 RoCE Interoperability

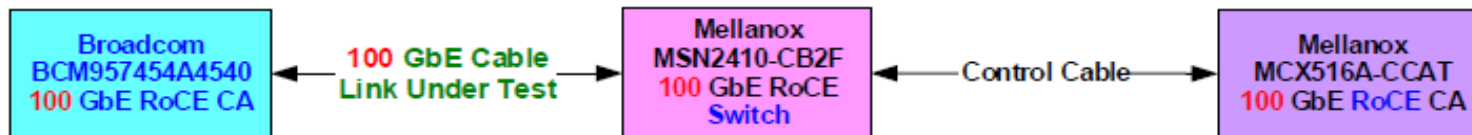
## 100 Gigabit Ethernet

### Scenario 03



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Mellanox Switch	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
BizLink	3	30	Copper - Unequalized	QSFP28	BCM957454A4540	AEQ123	MSN2410-CB2F	MCX516A-CCAT	100	Pass	Pass	Pass	Pass	
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124			100	Pass	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP28		FCBN425QE1C01			100	Pass	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05			100	Pass	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP28		FCBN425QE1CX0			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Linear Active	QSFP56		CURDA34DZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Unequalized	QSFP56		CURDA33EZZ40EF-D			100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	4	n/a	Fiber - Active	QSFP28		FPD-208R008-04			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	5	n/a	Fiber - Active	QSFP28		FPD-208R008-05			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	100	n/a	Fiber - Active	QSFP28		FPD-208R008-A0			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003			100	Pass	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		4-2333393-5			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		2333393-3			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		2333393-5			100	Pass	Pass	Pass	Pass	Pass

### Broadcom BCM957454A4540 to Mellanox MSN2410 Switch to Mellanox MCX516A







# IBTA PF34 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 04



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Mellanox Switch	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
BizLink	3	30	Copper - Unequalized	QSFP28	BCM957454A4540	AEQ123	MSN2410-CB2F	QL45611	100	Pass	Pass	Pass	Pass	
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124			100	Pass	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP28		FCBN425QE1C01			100	Pass	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05			100	Pass	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP28		FCBN425QE1CX0			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Linear Active	QSFP56		CURDA34DZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Unequalized	QSFP56		CURDA33EZZ40EF-D			100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	4	n/a	Fiber - Active	QSFP28		FPD-208R008-04			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	5	n/a	Fiber - Active	QSFP28		FPD-208R008-05			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	100	n/a	Fiber - Active	QSFP28		FPD-208R008-A0			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003			100	Pass	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		4-2333393-5			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		2333393-3			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		2333393-5			100	Pass	Pass	Pass	Pass	Pass

### Broadcom BCM957454A4540 to Mellanox MSN2410 Switch to Marvell QL45611





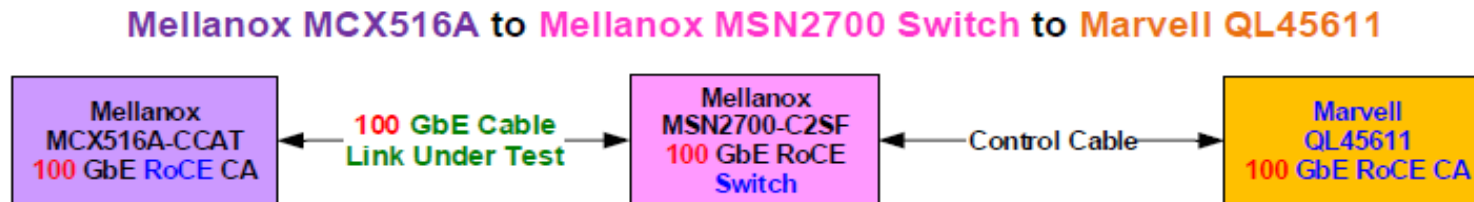
# IBTA PF34 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 05



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Mellanox Switch	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
BizLink	3	30	Copper - Unequalized	QSFP28	MCX516A-CCAT	AEQ123	MSN2410-CB2F	QL45611	100	Pass	Pass	Pass	Pass	
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124			100	Pass	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP28		FCBN425QE1C01			100	Pass	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05			100	Pass	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP28		FCBN425QE1CX0			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Linear Active	QSFP56		CURDA34DZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	4	n/a	Fiber - Active	QSFP28		FPD-208R008-04			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	5	n/a	Fiber - Active	QSFP28		FPD-208R008-05			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	100	n/a	Fiber - Active	QSFP28		FPD-208R008-A0			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003			100	Pass	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		4-2333393-5			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		2333393-3			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		2333393-5			100	Pass	Pass	Pass	Pass	Pass





# IBTA PF34 RoCE Interoperability

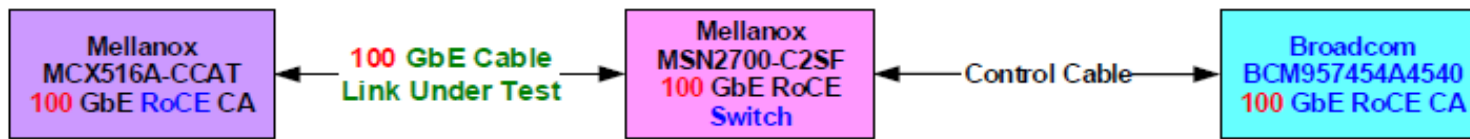
## 100 Gigabit Ethernet

### Scenario 06



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Mellanox Switch	Broadcom RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
BizLink	3	30	Copper - Unequalized	QSFP28	MCX516A-CCAT	AEQ123	MSN2410-CB2F	BCM957454A4540	100	Pass	Pass	Pass	Pass	
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124			100	Pass	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP28		FCBN425QE1C01			100	Pass	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05			100	Pass	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP28		FCBN425QE1CX0			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D			100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Linear Active	QSFP56		CURDA34DZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	4	n/a	Fiber - Active	QSFP28		FPD-208R008-04			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	5	n/a	Fiber - Active	QSFP28		FPD-208R008-05			100	Pass	Pass	Pass	Pass	Pass
Fujitsu	100	n/a	Fiber - Active	QSFP28		FPD-208R008-A0			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002			100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003			100	Pass	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		4-2333393-5			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		2333393-3			100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		2333393-5			100	Pass	Pass	Pass	Pass	Pass

### Mellanox MCX516A to Mellanox MSN2700 Switch to Broadcom BCM957454A4540





# IBTA PF34 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 07



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
BizLink	3	30	Copper - Unequalized	QSFP28	BCM957454A4540	AEQ123	QL45611	100	Pass	Pass	Pass	Pass	
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124		100	Pass	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP28		FCBN425QE1C01		100	Pass	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05		100	Pass	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP28		FCBN425QE1CX0		100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D		100	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Linear Active	QSFP56		CURDA34DZZ40EF-C		100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Unequalized	QSFP56		CURDA33EZZ40EF-D		100	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C		100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R		100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R		100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R		100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002		100	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003		100	Pass	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30		100	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30		100	Pass	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30		100	Pass	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26		100	Pass	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26		100	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26		100	Pass	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052		100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3		100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		4-2333393-5		100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		2333393-3		100	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		2333393-5		100	Pass	Pass	Pass	Pass	Pass

### Broadcom BCM957454A4540 to Marvell QL45611





# IBTA PF34 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 08



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
BizLink	3	30	Copper - Unequalized	QSFP28	BCM957454A4540	AEQ123	MCX516A-CCAT	100	Pass	Pass	Pass	Pass
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124		100	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP28		FCBN425QE1C01		100	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05		100	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP28		FCBN425QE1CX0		100	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D		100	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Linear Active	QSFP56		CURDA34DZZ40EF-C		100	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Unequalized	QSFP56		CURDA33EZZ40EF-D		100	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C		100	Pass	Pass	Pass	Pass
Fujitsu	4	n/a	Fiber - Active	QSFP28		FPD-208R008-04		100	Pass	Pass	Pass	Pass
Fujitsu	5	n/a	Fiber - Active	QSFP28		FPD-208R008-05		100	Pass	Pass	Pass	Pass
Fujitsu	100	n/a	Fiber - Active	QSFP28		FPD-208R008-A0		100	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R		100	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R		100	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R		100	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002		100	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003		100	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30		100	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30		100	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30		100	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56	MCP1650-H002E26	100	Pass	Pass	Pass	Pass		
Mellanox	2.5	26	Copper - Unequalized	QSFP56	MCP1650-H02AE26	100	Pass	Pass	Pass	Pass		
Mellanox	3	26	Copper - Unequalized	QSFP56	MCP1650-H003E26	100	Pass	Pass	Pass	Pass		
Molex LLC	0.5	30	Copper - Unequalized	QSFP56	205898-1052	100	Pass	Pass	Pass	Pass		
TE Connectivity	1	30	Copper - Unequalized	QSFP28	4-2333393-3	100	Pass	Pass	Pass	Pass		
TE Connectivity	2	30	Copper - Unequalized	QSFP28	4-2333393-5	100	Pass	Pass	Pass	Pass		
TE Connectivity	1	30	Copper - Unequalized	QSFP28	2333393-3	100	Pass	Pass	Pass	Pass		
TE Connectivity	2	30	Copper - Unequalized	QSFP28	2333393-5	100	Pass	Pass	Pass	Pass		

### Broadcom BCM957454A4540 to Mellanox MCX516A





# IBTA PF34 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 09



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
BizLink	3	30	Copper - Unequalized	QSFP28	MCX516A-CCAT	AEQ123	QL45611	100	Pass	Pass	Pass	Pass
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124		100	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP28		FCBN425QE1C01		100	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05		100	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP28		FCBN425QE1CX0		100	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D		100	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Unequalized	QSFP56		CURDA33EZZ40EF-D		100	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R		100	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R		100	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R		100	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002		100	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003		100	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30		100	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30		100	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30		100	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26		100	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26		100	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26		100	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052		100	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3		100	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28	4-2333393-5	100	Pass	Pass	Pass	Pass		
TE Connectivity	1	30	Copper - Unequalized	QSFP28	2333393-3	100	Pass	Pass	Pass	Pass		
TE Connectivity	2	30	Copper - Unequalized	QSFP28	2333393-5	100	Pass	Pass	Pass	Pass		

### Mellanox MCX516A to Marvell QL45611





# IBTA PF34 RoCE Interoperability

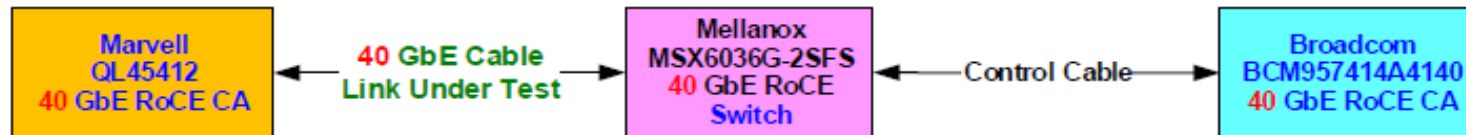
## 40 Gigabit Ethernet

### Scenario 10



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Mellanox Switch	Broadcom RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
BizLink	5	26	Copper - Unequalized	QSFP28	QL45412	AEQ124	MSX6036G-2SFS	BCM957414A4140	40	Pass	Pass	Pass	Pass	
Finisar	1	n/a	Fiber - Active	QSFP+		FCBN410QD3C01			40	Pass	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP+		FCBN410QD3CX0			40	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D			40	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C			40	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R			40	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R			40	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R			40	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002			40	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003			40	Pass	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			40	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			40	Pass	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			40	Pass	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			40	Pass	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			40	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			40	Pass	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052			40	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3			40	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		4-2333393-5			40	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		2333393-3			40	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28	2333393-5	40	Pass	Pass	Pass	Pass	Pass			

**Marvell QL45412 to Mellanox MSX6036G Switch to Broadcom BCM957414A4140**





# IBTA PF34 RoCE Interoperability

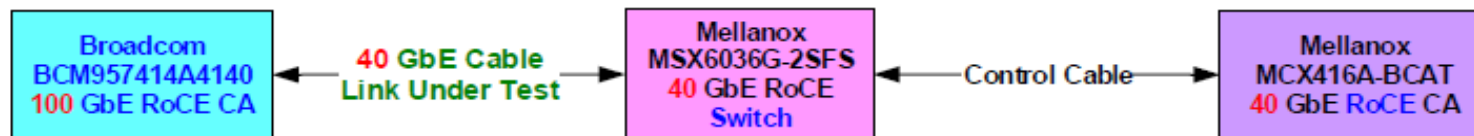
## 40 Gigabit Ethernet

### Scenario 11



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Mellanox Switch	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
BizLink	3	30	Copper - Unequalized	QSFP28	BCM957414A4140	AEQ123	MSX6036G-2SFS	MCX416A-BCAT	40	Pass	Pass	Pass	Pass	
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124			40	Pass	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05			40	Pass	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP+		FCBN410QD3C01			40	Pass	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP+		FCBN410QD3CX0			40	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D			40	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Unequalized	QSFP56		CURDA33EZZ40EF-D			40	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C			40	Pass	Pass	Pass	Pass	Pass
Fujitsu	4	n/a	Fiber - Active	QSFP28		FPD-208R008-04			40	Pass	Pass	Pass	Pass	Pass
Fujitsu	5	n/a	Fiber - Active	QSFP28		FPD-208R008-05			40	Pass	Pass	Pass	Pass	Pass
Fujitsu	100	n/a	Fiber - Active	QSFP28		FPD-208R008-A0			40	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R			40	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R			40	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R			40	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002			40	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003			40	Pass	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			40	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			40	Pass	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			40	Pass	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			40	Pass	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			40	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			40	Pass	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052			40	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3			40	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		4-2333393-5			40	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		2333393-3			40	Pass	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		2333393-5			40	Pass	Pass	Pass	Pass	Pass

Broadcom BCM957414A4140 to Mellanox MSX6036G Switch to Mellanox MCX416A







# IBTA PF34 RoCE Interoperability

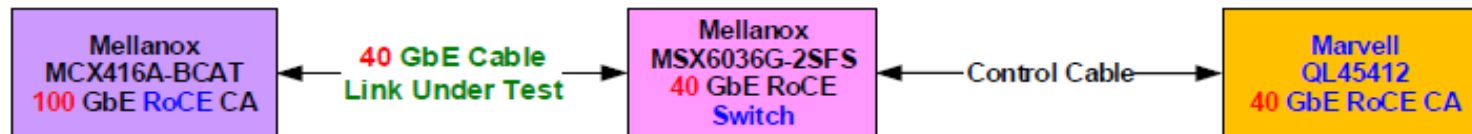
## 40 Gigabit Ethernet

### Scenario 12



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Mellanox Switch	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
BizLink	3	30	Copper - Unequalized	QSFP28	MCX416A-BCAT	AEQ123	MSX6036G-2SFS	QL45412	40	Pass	Pass	Pass	Pass
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124			40	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP28		FCBN425QE1C01			40	Pass	Pass	Pass	Pass
Finisar	5	n/a	Fiber - Active	QSFP28		FCBN425QB1C05			40	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP28		FCBN425QE1CX0			40	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP+		FCBN410QD3C01			40	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP+		FCBN410QD3CX0			40	Pass	Pass	Pass	Pass
Fujitsu	4	n/a	Fiber - Active	QSFP28		FPD-208R008-04			40	Pass	Pass	Pass	Pass
Fujitsu	5	n/a	Fiber - Active	QSFP28		FPD-208R008-05			40	Pass	Pass	Pass	Pass
Fujitsu	100	n/a	Fiber - Active	QSFP28		FPD-208R008-A0			40	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R			40	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R			40	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R			40	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002			40	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003			40	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			40	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			40	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			40	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			40	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			40	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			40	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052			40	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3			40	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28	4-2333393-5	40	Pass	Pass	Pass	Pass			
TE Connectivity	1	30	Copper - Unequalized	QSFP28	2333393-3	40	Pass	Pass	Pass	Pass			
TE Connectivity	2	30	Copper - Unequalized	QSFP28	2333393-5	40	Pass	Pass	Pass	Pass			

Mellanox MCX416A to Mellanox MSX6036G Switch to Marvell QL45412





# IBTA PF34 RoCE Interoperability

## 40 Gigabit Ethernet

### Scenario 13



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
Finisar	1	n/a	Fiber - Active	QSFP+	BCM957414A4140	FCBN410QD3C01	QL45412	40	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP+		FCBN410QD3CX0		40	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D		40	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C		40	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R		40	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R		40	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R		40	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A002		40	Pass	Pass	Pass	Pass
Luxshare-ICT	100	n/a	Fiber - Active	QSFP28		PCRQQ1904-SD-R/A891A003		40	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30		40	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30		40	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30		40	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26		40	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26		40	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26		40	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052		40	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3		40	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		4-2333393-5		40	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		2333393-3		40	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		2333393-5		40	Pass	Pass	Pass	Pass

### Broadcom BCM957414A4140 to Marvell QL45412





# IBTA PF34 RoCE Interoperability

## 40 Gigabit Ethernet

### Scenario 14



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result		
BizLink	3	30	Copper - Unequalized	QSFP28	BCM957414A4140	AEQ123	MCX416A-BCAT	40	Pass	Pass	Pass	Pass		
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124		40	Pass	Pass	Pass	Pass	Pass	
Finisar	1	n/a	Fiber - Active	QSFP+		FCBN410QD3C01		40	Pass	Pass	Pass	Pass	Pass	
Finisar	100	n/a	Fiber - Active	QSFP+		FCBN410QD3CX0		40	Pass	Pass	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D		40	Pass	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Unequalized	QSFP56		CURDA33EZZ40EF-D		40	Pass	Pass	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C		40	Pass	Pass	Pass	Pass	Pass	Pass
Fujitsu	4	n/a	Fiber - Active	QSFP28		FPD-208R008-04		40	Pass	Pass	Pass	Pass	Pass	Pass
Fujitsu	5	n/a	Fiber - Active	QSFP28		FPD-208R008-05		40	Pass	Pass	Pass	Pass	Pass	Pass
Fujitsu	100	n/a	Fiber - Active	QSFP28		FPD-208R008-A0		40	Pass	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R		40	Pass	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R		40	Pass	Pass	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R		40	Pass	Pass	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30		40	Pass	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30		40	Pass	Pass	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30		40	Pass	Pass	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26		40	Pass	Pass	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26		40	Pass	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26		40	Pass	Pass	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052		40	Pass	Pass	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28	4-2333393-3	40	Pass	Pass	Pass	Pass	Pass	Pass		
TE Connectivity	2	30	Copper - Unequalized	QSFP28	4-2333393-5	40	Pass	Pass	Pass	Pass	Pass	Pass		
TE Connectivity	1	30	Copper - Unequalized	QSFP28	2333393-3	40	Pass	Pass	Pass	Pass	Pass	Pass		
TE Connectivity	2	30	Copper - Unequalized	QSFP28	2333393-5	40	Pass	Pass	Pass	Pass	Pass	Pass		

### Broadcom BCM957414A4140 to Mellanox MCX416A





# IBTA PF34 RoCE Interoperability

## 40 Gigabit Ethernet

### Scenario 15



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
BizLink	3	30	Copper - Unequalized	QSFP28	MCX416A-BCAT	AEQ123	QL45412	40	Pass	Pass	Pass	Pass
BizLink	5	26	Copper - Unequalized	QSFP28		AEQ124		40	Pass	Pass	Pass	Pass
Finisar	1	n/a	Fiber - Active	QSFP+		FCBN410QD3C01		40	Pass	Pass	Pass	Pass
Finisar	100	n/a	Fiber - Active	QSFP+		FCBN410QD3CX0		40	Pass	Pass	Pass	Pass
Foxconn	5	30	Copper - Unequalized	QSFP56		CURDA34DZZ40EF-D		40	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Unequalized	QSFP56		CURDA33EZZ40EF-D		40	Pass	Pass	Pass	Pass
Foxconn	7	28	Copper - Linear Active	QSFP56		CURDA33EZZ40EF-C		40	Pass	Pass	Pass	Pass
Luxshare-ICT	1	30	Copper - Unequalized	QSFP56		LA0QF122-SD-R		40	Pass	Pass	Pass	Pass
Luxshare-ICT	2	28	Copper - Unequalized	QSFP56		LA0QF123-SD-R		40	Pass	Pass	Pass	Pass
Luxshare-ICT	2.5	26	Copper - Unequalized	QSFP56		LA0QF105-SD-R		40	Pass	Pass	Pass	Pass
Mellanox	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30		40	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30		40	Pass	Pass	Pass	Pass
Mellanox	1.5	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30		40	Pass	Pass	Pass	Pass
Mellanox	2	26	Copper - Unequalized	QSFP56		MCP1650-H002E26		40	Pass	Pass	Pass	Pass
Mellanox	2.5	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26		40	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26		40	Pass	Pass	Pass	Pass
Molex LLC	0.5	30	Copper - Unequalized	QSFP56		205898-1052		40	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		4-2333393-3		40	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28		4-2333393-5		40	Pass	Pass	Pass	Pass
TE Connectivity	1	30	Copper - Unequalized	QSFP28		2333393-3		40	Pass	Pass	Pass	Pass
TE Connectivity	2	30	Copper - Unequalized	QSFP28	2333393-5	40	Pass	Pass	Pass	Pass		

### Mellanox MCX416A to Marvell QL45412





# IBTA PF34 RoCE Interoperability

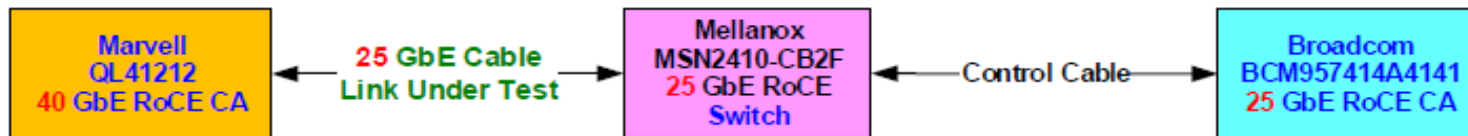
## 25 Gigabit Ethernet

### Scenario 16



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Mellanox Switch	Broadcom RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
TE Connectivity	2	30	Copper - Unequalized	SFP28	QL41212	4-2821224-5	MSN2410-CB2F	BCM957414A4141	25	Pass	Pass	Pass	Pass
Molex LLC	1	30	Copper - Unequalized	SFP28		205896-1052			25	Pass	Pass	Pass	Pass
Molex LLC	2	26	Copper - Unequalized	SFP28		205896-3302			25	Pass	Pass	Pass	Pass

Marvell QL41212 to Mellanox MSN2410 Switch to Broadcom BCM957414A4141





# IBTA PF34 RoCE Interoperability

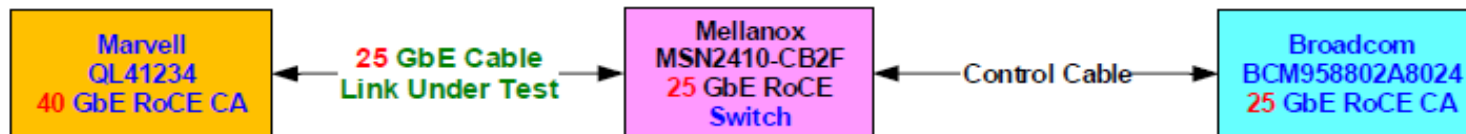
## 25 Gigabit Ethernet

### Scenario 17



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Mellanox Switch	Broadcom RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
TE Connectivity	2	30	Copper - Unequalized	SFP28	QL41234	4-2821224-5	MSN2410-CB2F	BCM958802A8024	25	Pass	Pass	Pass	Pass
Molex LLC	1	30	Copper - Unequalized	SFP28		205896-1052			25	Pass	Pass	Pass	Pass
Molex LLC	2	26	Copper - Unequalized	SFP28		205896-3302			25	Pass	Pass	Pass	Pass

### Marvell QL41234 to Mellanox MSN2410 Switch to Broadcom BCM958802A8024





# IBTA PF34 RoCE Interoperability

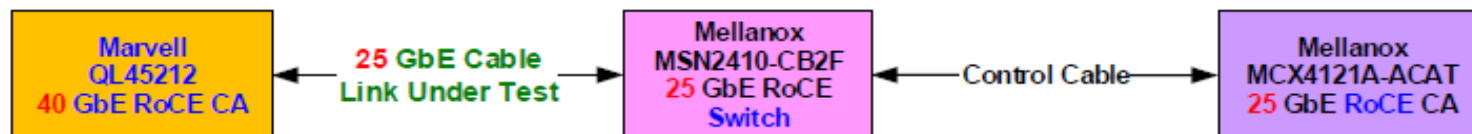
## 25 Gigabit Ethernet

### Scenario 18



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Mellanox Switch	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
TE Connectivity	2	30	Copper - Unequalized	SFP28	QL45212	4-2821224-5	MSN2410-CB2F	MCX4121A-ACAT	25	Pass	Pass	Pass	Pass
Molex LLC	1	30	Copper - Unequalized	SFP28		205896-1052			25	Pass	Pass	Pass	Pass
Molex LLC	2	26	Copper - Unequalized	SFP28		205896-3302			25	Pass	Pass	Pass	Pass

Marvell QL45212 to Mellanox MSN2410 Switch to Mellanox MCX4121A





# IBTA PF34 RoCE Interoperability

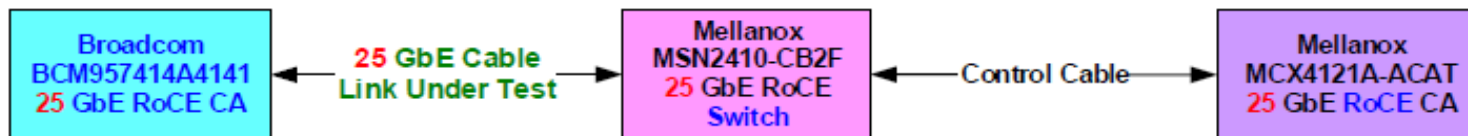
## 25 Gigabit Ethernet

### Scenario 19



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Mellanox Switch	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
TE Connectivity	2	30	Copper - Unequalized	SFP28	BCM957414A4141	4-2821224-5	MSN2410-CB2F	MCX4121A-ACAT	25	Pass	Pass	Pass	Pass
Molex LLC	1	30	Copper - Unequalized	SFP28		205896-1052			25	Pass	Pass	Pass	Pass
Molex LLC	2	26	Copper - Unequalized	SFP28		205896-3302			25	Pass	Pass	Pass	Pass

Broadcom BCM957414A4141 to Mellanox MSN2410 Switch to Mellanox MCX4121A-ACAT







# IBTA PF34 RoCE Interoperability

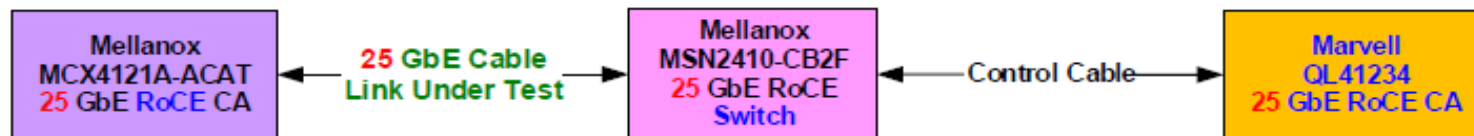
## 25 Gigabit Ethernet

### Scenario 20



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Mellanox Switch	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
TE Connectivity	2	30	Copper - Unequalized	SFP28	MCX4121A-ACAT	4-2821224-5	MSN2410-CB2F	QL41234	25	Pass	Pass	Pass	Pass
Molex LLC	1	30	Copper - Unequalized	SFP28		205896-1052			25	Pass	Pass	Pass	Pass
Molex LLC	2	26	Copper - Unequalized	SFP28		205896-3302			25	Pass	Pass	Pass	Pass

Mellanox MCX4121A-ACAT to Mellanox MSN2410 Switch to Marvell QL41234



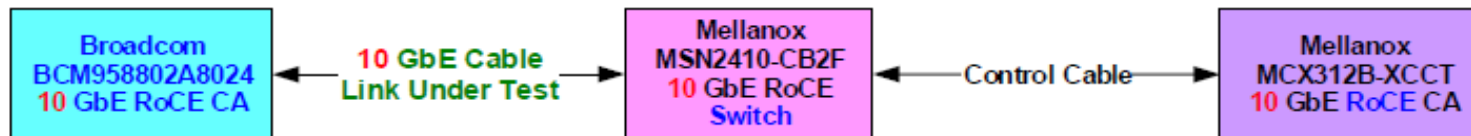


# IBTA PF34 RoCE Interoperability 10 Gigabit Ethernet Scenario 21



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Mellanox Switch	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
TE Connectivity	2	30	Copper - Unequalized	SFP28	BCM958802A8024	4-2821224-5	MSN2410-CB2F	MCX312B-XCCT	10	Pass	Pass	Pass	Pass
Molex LLC	1	30	Copper - Unequalized	SFP28		205896-1052			10	Pass	Pass	Pass	Pass
Molex LLC	2	26	Copper - Unequalized	SFP28		205896-3302			10	Pass	Pass	Pass	Pass

### Broadcom BCM958802A8024 to Mellanox MSN2410 Switch to Mellanox MCX312B





# IBTA PF34 RoCE Interoperability 10 Gigabit Ethernet Scenario 22



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Mellanox Switch	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
TE Connectivity	2	30	Copper - Unequalized	SFP28	MCX312B-XCCT	4-2821224-5	MSN2410-CB2F	QL41212	10	Pass	Pass	Pass	Pass
Molex LLC	1	30	Copper - Unequalized	SFP28		205896-1052			10	Pass	Pass	Pass	Pass
Molex LLC	2	26	Copper - Unequalized	SFP28		205896-3302			10	Pass	Pass	Pass	Pass

## Mellanox MCX312B to Mellanox MSN2410 Switch to Marvell QL41212

