



InfiniBand Trade Association RoCE Integrators' List

April 2019





IBTA RoCE Integrators' List

April 2019



Manufacturer	Description	Model	Type	Speed	FW	SW
Broadcom	NetXtreme-E 10Gb/25Gb/50Gb/100Gb/200Gb Ethernet PCIe adapter	P2100G	RNIC	100 GbE	215.0.244.0	OFED 4.17
Marvell	FastLinQ Single-Port QSFP28 Ethernet PCIe adapter	QL45611HL	RNIC	100 GbE	8.60.0.37	OFED 4.17
Marvell	FastLinQ Dual-Port QSFP+ Ethernet PCIe adapter	QL45412HL	RNIC	40 GbE	8.40.24.0	OFED 4.17
Marvell	FastLinQ Dual-Port SFP28 Ethernet PCIe adapter	QL45212HL	RNIC	25 GbE	8.37.31.0	OFED 4.17
Marvell	FastLinQ Dual-Port SFP28 Ethernet PCIe adapter	QL41212HL	RNIC	25 GbE	8.37.31.0	OFED 4.17
Marvell	FastLinQ Quad-Port SFP28 Ethernet PCIe adapter	QL41234HL	RNIC	25 GbE	8.37.31.0	OFED 4.17
Mellanox	ConnectX®-5 EN Dual-Port QSFP28 Ethernet PCIe adapter	MCX516A-CCAT	RNIC	100 GbE	16.23.1020	MLNX OFED 4.5-1.0.1.0
Mellanox	ConnectX®-4 VPI adapter, EDR IB and 100GbE, Dual-Port QSFP28	MCX456A-ECAT	RNIC	100 GbE	12.24.1000	MLNX OFED 4.5-1.0.1.0
Mellanox	ConnectX®-5 VPI adapter, EDR IB and 100GbE, Dual-Port QSFP28	MCX556A-EDAT	RNIC	100 GbE	16.24.1000	MLNX OFED 4.5-1.0.1.0
Mellanox	ConnectX®-4 EN Dual-Port QSFP+ Ethernet PCIe adapter	MCX416A-BCAT	RNIC	40 GbE	12.24.1000	MLNX OFED 4.5-1.0.1.0
Mellanox	ConnectX®-4 Lx EN Dual-Port SFP28 Ethernet PCIe adapter	MCX4121A-ACAT	RNIC	50 GbE	14.24.1000	MLNX OFED 4.5-1.0.1.0
Mellanox	ConnectX®-4 EN Dual-Port QSFP28 Ethernet PCIe adapter	MCX4121A-ACAT	RNIC	25 GbE	14.24.1000	MLNX OFED 4.5-1.0.1.0
Mellanox	SwitchX®-2 InfiniBand to Ethernet gateway, 36 QSFP+ ports	MSX6036G-2SFS	Switch	40 GbE	9.4.5110	MLNX OS 3.6.8012
Mellanox	SwitchX®-2 1U Open Ethernet Switch 12 QSFP+ ports	MSX1012B-2BFS	Switch	40 GbE	9.4.5110	MLNX OS 3.6.8012
Mellanox	Spectrum 48 SFP28 ports, 8 QSFP28 ports, Supports 10 to 100GbE	MSN2410-CB2F	Switch	100 GbE	13.1910.0622	3.7.1134

Software	Versions	Performance Software	
Operating System	Cent OS 7.5.1804	HPC-Performance Monitor	HPC-PM-2.0.80
OFED	OFED 4.17	Perftest (OFED)	4.4-0.3.g7a8e409
Mellanox OFED	MLNX OFED 4.4-2.0.7.0	Benchmarks Performed PingPong Gather PingPing Gatherv Sendrecv Scatter Exchange Scatterv Allreduce Alltoall Reduce Alltoallv Reduce_scatter Bcast Allgather Barrier Allgatherv	
Open MPI	Open MPI 3.1.2		
Benchmark	Intel MPI Benchmarks		
Test Plan	Software Forge RoCE Interoperability MOI		
Duration	1-3 minutes		
Conditions for Passing Interoperability Testing			
Performance	Devices must perform at advertised rates and latencies		
Link Status	Link rate and width show expected values - i.e. 100GbE (4x)		
Errors	There must be no errors recorded during any test phases		
MPI Test	The MPI Benchmark must run to completion		



IBTA RoCE Compliance

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Manufacturer	Product Description	Model	FW	SW	Transport	DCB
Broadcom	NetXtreme-E 10Gb/25Gb/50Gb/100Gb/200Gb Ethernet PCIe adapter	P2100G	215.0.245.0	OFED 4.17	✓	✓

Broadcom RoCE RNICs		Model	P2100G
		Date	2019-08-07-01
		Firmware Version	215.0.245.0
		Overall Results	Pass
Test Class	Name	Number	Results
Transport Layer	RC RDMA Send Only after RDMA Read	C09_027_01	Pass
	RC RDMA Write Only after RDMA Read	C09_027_02	Pass
	RC RDMARead Only after RDMA Read	C09_027_03	Pass
	RC Atomic FetchAdd after RDMA Read	C09_027_04	Pass
	RC Atomic CompSwap after RDMA Read	C09_027_05	Pass
	RC Atomic CompSwap after Atomic CompSwap	C09_027_06	Pass
	RC Atomic FetchAdd after Atomic CompSwap	C09_027_07	Pass
	RC Atomic FetchAdd after Atomic FetchAdd	C09_027_08	Pass
	RC Atomic CompSwap after Atomic FetchAdd	C09_027_09	Pass
	RC RDMA Send Only after Atomic CompSwap	C09_027_10	Pass
	RC RDMA Write Only after Atomic CompSwap	C09_027_11	Pass
	RC RDMA Send Only after Atomic FetchAdd	C09_027_12	Pass
	RC RDMA Write Only after Atomic Fetch Add	C09_027_13	Pass
	Completion Rules - RC RDMA Send Case	C09_060_01	Pass
	Completion Rules - RC RDMA Send Case (inverted)	C09_060_01_01	Pass
	Completion Rules - RC RDMA Write Case	C09_060_03	Pass
	Completion Rules - RC RDMA Write Case (inverted)	C09_060_03_01	Pass
	Completion Rules - RC RDMA Read Case	C09_060_05	Pass
	Completion Rules - RC RDMA Read Case (inverted)	C09_060_05_01	Pass
	Completion Rules - Atomic FetchAdd Case	C09_060_07	Pass
	Completion Rules - Atomic FetchAdd Case (inverted)	C09_060_07_01	Pass
	Completion Rules - Atomic CompSwap Case	C09_060_09	Pass
	Completion Rules - Atomic CompSwap Case (inverted)	C09_060_09_01	Pass
	Requester/Responder RNR NAK Behavior	C09_130_01	Pass
	Outstanding Request Timeout	C09_142_01	Pass
	DCB	IEEE 802.1Q	36.2.2#1



IBTA RoCE Compliance

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Manufacturer	Product Description	Model	FW	SW	Transport	DCB
Marvell	Low Profile Single-Port QSFP28 100GbE Ethernet PCIe Adapter	QL45611	8.60.0.37	OFED 4.17	✓	✓
	Low Profile Dual-Port QSFP+ 40GbE Ethernet PCIe Adapter	QL45412	8.40.24.0	OFED 4.17	✓	✓
	Low Profile Dual-Port SFP28 25GbE Ethernet PCIe Adapter	QL45212	8.50.6.0	OFED 4.17	✓	✓
	Low Profile Dual-Port SFP28 25GbE Ethernet PCIe Adapter	QL41212	8.50.6.0	OFED 4.17	✓	✓
	Low Profile Quad-Port SFP28 25GbE Ethernet PCIe Adapter	QL41234	8.50.6.0	OFED 4.17	✓	✓

Marvell RoCE RNICs		Model	QL45611	QL45412	QL45212	QL41212	QL41234
		Date	8/21/2019	8/30/2019	8/30/2019	9/3/2019	9/3/2019
		Firmware Version	8.60.0.37	8.40.24.0	8.50.6.0	8.50.6.0	8.50.6.0
		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



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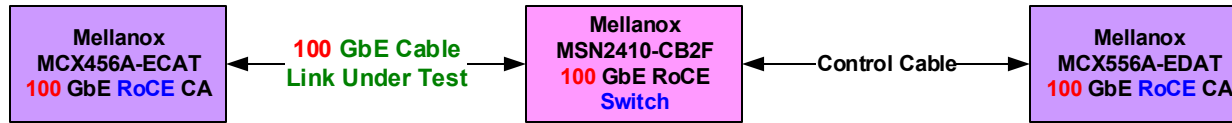
Manufacturer	Product Description	Model	FW	SW	Transport	DCB
Mellanox	ConnectX®-4 EN Dual-Port QSFP28 50GbE Ethernet PCIe Adapter	MCX414A-GCAT	12.22.1002	MLNX_OFED 4.5-1.0.1.0	✓	✓
	ConnectX®-4 EN Dual-Port QSFP28 40GbE Ethernet PCIe Adapter	MCX416A-BCAT	12.24.1000	MLNX_OFED 4.5-1.0.1.0	✓	✓
	ConnectX®-4 Lx EN Dual-Port SFP28 25GbE Ethernet PCIe Adapter	MCX4121A-ACAT	14.23.1020	MLNX_OFED 4.5-1.0.1.0	✓	✓
	ConnectX®-5 EN Dual-Port QSFP28 100GbE Ethernet PCIe Adapter	MCX516A-CCAT	16.23.1020	MLNX_OFED 4.5-1.0.1.0	✓	✓

Mellanox RoCE RNICs		Model	MCX414A-GCAT	MCX416A-BCAT	MCX4121A-ACAT	MCX516A-CCAT
		Date	5/7/2019	5/7/2019	5/6/2019	5/6/2019
		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 FetchAdd 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

RDMA over Converged Ethernet (RoCE) Interop Testing

Mellanox MCX456A to Mellanox MSN2410 Switch to Mellanox MCX556A

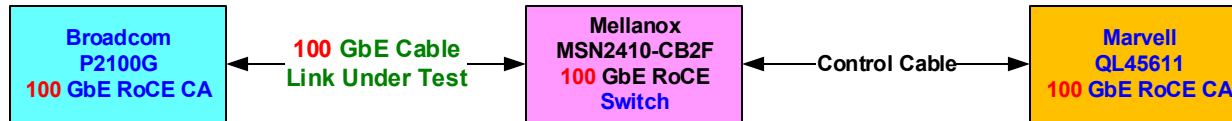
Interop 01



Interop 01

Broadcom P2100G to Mellanox MSN2410 Switch to Marvell QL45611

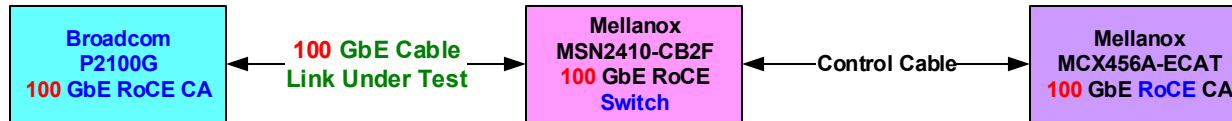
Interop 02



Interop 02

Broadcom P2100G to Mellanox MSN2410 Switch to Mellanox MCX456A

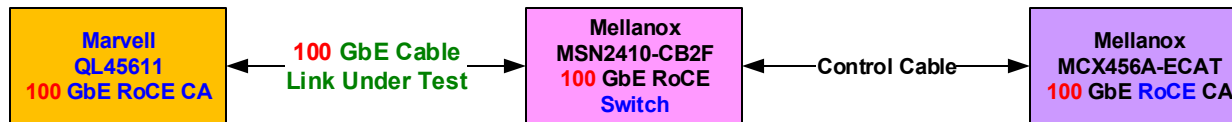
Interop 03



Interop 03

Marvell QL45611 to Mellanox MSN2410 Switch to Mellanox MCX456A

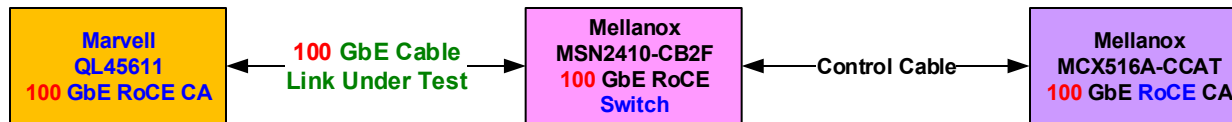
Interop 04



Interop 04

Marvell QL45611 to Mellanox MSN2410 Switch to Mellanox MCX516A

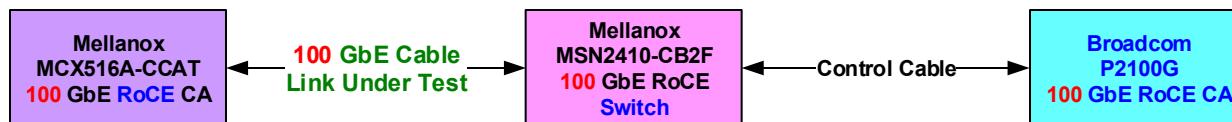
Interop 05



Interop 05

Mellanox MCX516A to Mellanox MSN2410 Switch to Broadcom P2100G

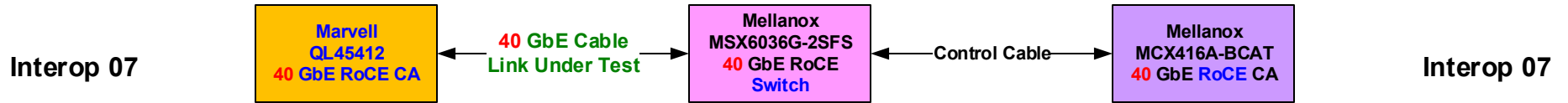
Interop 06



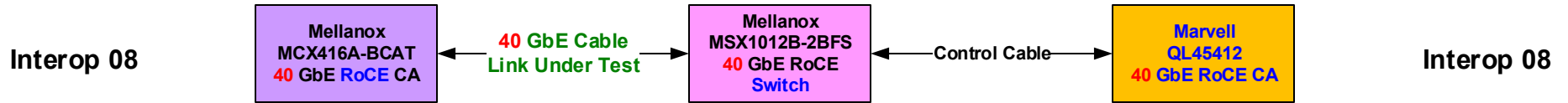
Interop 06

RDMA over Converged Ethernet (RoCE) Interop Testing

Marvell QL45412 to Mellanox MSX6036G Switch to Mellanox MCX416A



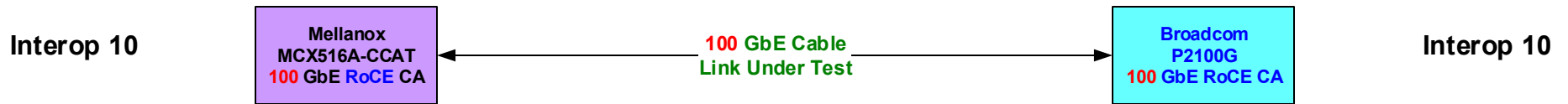
Mellanox MCX416A to Mellanox MSX1012B Switch to Marvell QL45611



Broadcom P2100G to Marvell QL45611



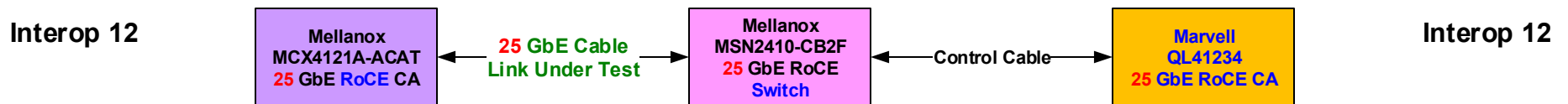
Mellanox MCX516A to Broadcom P2100G



Marvell QL45611 to Mellanox MCX516A



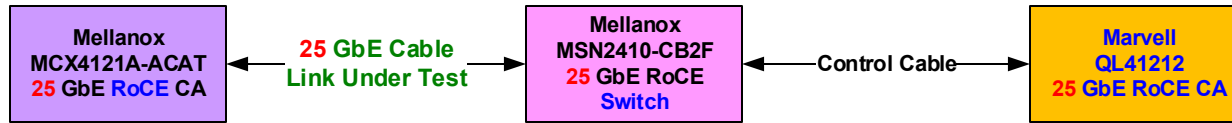
Mellanox MCX4121A to Mellanox MSN2410 Switch to Marvell QL41234



RDMA over Converged Ethernet (RoCE) Interop Testing

Mellanox MCX4121A to Mellanox MSN2410 Switch to Marvell QL41212

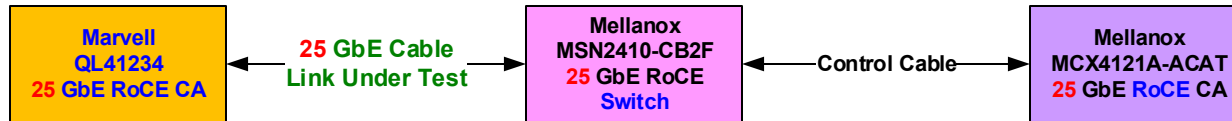
Interop 13



Interop 13

Marvell QL41234 to Mellanox MSN2410 Switch to Mellanox MCX4121A

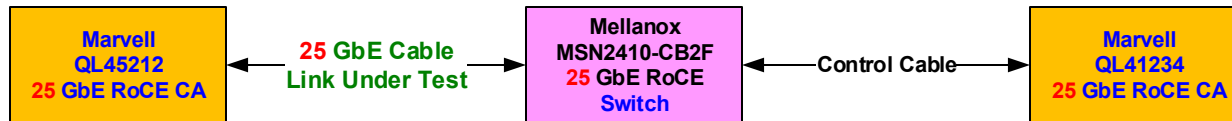
Interop 14



Interop 14

Marvell QL45212 to Mellanox MSN2410 Switch to Marvell QL41234

Interop 15



Interop 15



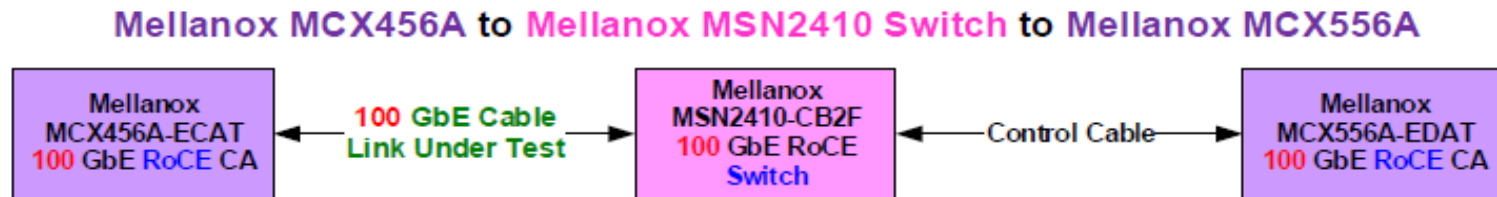
IBTA PF35 RoCE Interoperability

100 Gigabit Ethernet

Scenario 01



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Mellanox Switch	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
ConnPro	1	30	Copper - Unequalized	QSFP28	MCX456A-ECAT	RIEF4TF4T10001	MSN2410-CB2F	MCX556A-EDAT	100	Pass	Pass	Pass	Pass	
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001			100	Pass	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003			100	Pass	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001			100	Pass	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001			100	Pass	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003			100	Pass	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003			100	Pass	Pass	Pass	Pass	Pass
ConnPro	30	NA	Fiber - Active	QSFP28		AE4AF4F4L30TXX			100	Pass	Pass	Pass	Pass	Pass
ConnPro	50	NA	Fiber - Active	QSFP28		AE4AF4F4L50TXX			100	Pass	Pass	Pass	Pass	Pass
ConnPro	100	NA	Fiber - Active	QSFP28		AE4CF4F4L10HXX			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			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	NA	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Mellanox	30	NA	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Volex	2.5	30	Copper - Unequalized	QSFP28	VQ2830YP250	100	Pass	Pass	Pass	Pass	Pass			





IBTA PF35 RoCE Interoperability

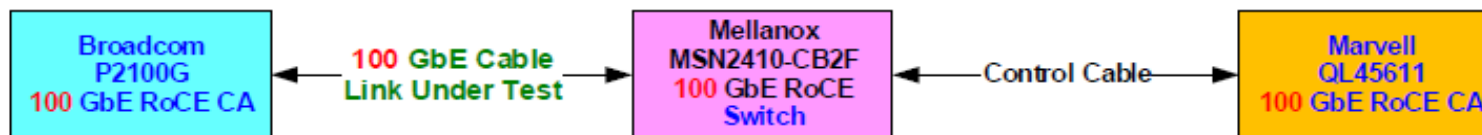
100 Gigabit Ethernet

Scenario 02



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
ConnPro	1	30	Copper - Unequalized	QSFP28	P2100G	RIEF4TF4T10001	MSN2410-CB2F	QL45611	100	Pass	Pass	Pass	Pass
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001			100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003			100	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001			100	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001			100	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003			100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003			100	Pass	Pass	Pass	Pass
ConnPro	30	NA	Fiber - Active	QSFP28		AE4AF4F4L30TXX			100	Pass	Pass	Pass	Pass
ConnPro	50	NA	Fiber - Active	QSFP28		AE4AF4F4L50TXX			100	Pass	Pass	Pass	Pass
ConnPro	100	NA	Fiber - Active	QSFP28		AE4CF4F4L10HXX			100	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30			100	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30			100	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			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	NA	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass
Mellanox	30	NA	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass
Volex	2.5	30	Copper - Unequalized	QSFP28	VQ2830YP250	100	Pass	Pass	Pass	Pass			

Broadcom P2100G to Mellanox MSN2410 Switch to Marvell QL45611





IBTA PF35 RoCE Interoperability

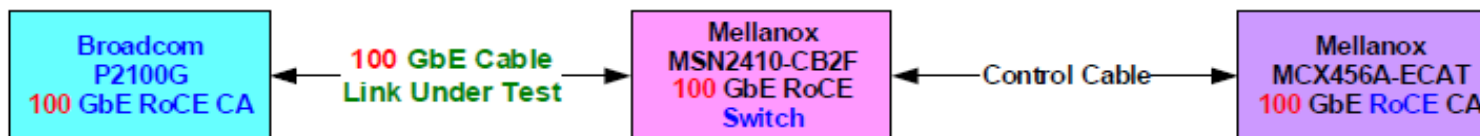
100 Gigabit Ethernet

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	
ConnPro	1	30	Copper - Unequalized	QSFP28	P2100G	RIEF4TF4T10001	MSN2410-CB2F	MCX456A-ECAT	100	Pass	Pass	Pass	Pass	
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001			100	Pass	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003			100	Pass	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001			100	Pass	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001			100	Pass	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003			100	Pass	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003			100	Pass	Pass	Pass	Pass	Pass
ConnPro	30	NA	Fiber - Active	QSFP28		AE4AF4F4L30TXX			100	Pass	Pass	Pass	Pass	Pass
ConnPro	50	NA	Fiber - Active	QSFP28		AE4AF4F4L50TXX			100	Pass	Pass	Pass	Pass	Pass
ConnPro	100	NA	Fiber - Active	QSFP28		AE4CF4F4L10HXX			100	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30			100	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			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	NA	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Mellanox	30	NA	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Volet	2.5	30	Copper - Unequalized	QSFP28	VQ2830YP250	100	Pass	Pass	Pass	Pass	Pass			

Broadcom P2100G to Mellanox MSN2410 Switch to Mellanox MCX456A





IBTA PF35 RoCE Interoperability

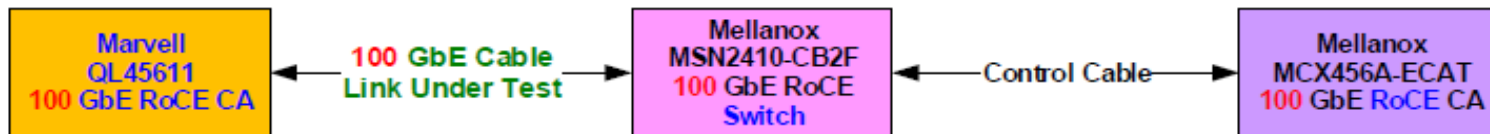
100 Gigabit Ethernet

Scenario 04



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
ConnPro	1	30	Copper - Unequalized	QSFP28	QL45611	RIEF4TF4T10001	MSN2410-CB2F	MCX456A-ECAT	100	Pass	Pass	Pass	Pass
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001			100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003			100	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001			100	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001			100	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003			100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003			100	Pass	Pass	Pass	Pass
ConnPro	30	NA	Fiber - Active	QSFP28		AE4AF4F4L30TXX			100	Pass	Pass	Pass	Pass
ConnPro	50	NA	Fiber - Active	QSFP28		AE4AF4F4L50TXX			100	Pass	Pass	Pass	Pass
ConnPro	100	NA	Fiber - Active	QSFP28		AE4CF4F4L10HXX			100	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30			100	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30			100	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			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	NA	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass
Mellanox	30	NA	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass
Volex	2.5	30	Copper - Unequalized	QSFP28	VQ2830YP250	100	Pass	Pass	Pass	Pass			

Marvell QL45611 to Mellanox MSN2410 Switch to Mellanox MCX456A





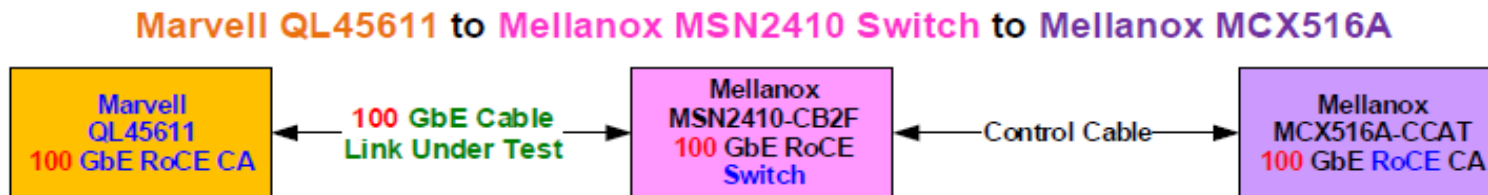
IBTA PF35 RoCE Interoperability

100 Gigabit Ethernet

Scenario 05



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
ConnPro	1	30	Copper - Unequalized	QSFP28	QL45611	RIEF4TF4T10001	MSN2410-CB2F	MCX516A-CCAT	100	Pass	Pass	Pass	Pass
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001			100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003			100	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001			100	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001			100	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003			100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003			100	Pass	Pass	Pass	Pass
ConnPro	30	NA	Fiber - Active	QSFP28		AE4AF4F4L30TXX			100	Pass	Pass	Pass	Pass
ConnPro	50	NA	Fiber - Active	QSFP28		AE4AF4F4L50TXX			100	Pass	Pass	Pass	Pass
ConnPro	100	NA	Fiber - Active	QSFP28		AE4CF4F4L10HXX			100	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30			100	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30			100	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			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	NA	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass
Mellanox	30	NA	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass
Volex	2.5	30	Copper - Unequalized	QSFP28	VQ2830YP250	100	Pass	Pass	Pass	Pass			





IBTA PF35 RoCE Interoperability

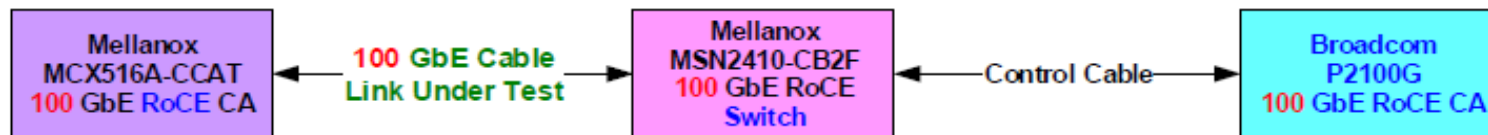
100 Gigabit Ethernet

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
ConnPro	1	30	Copper - Unequalized	QSFP28	MCX516A-CCAT	RIEF4TF4T10001	MSN2410-CB2F	P2100G	100	Pass	Pass	Pass	Pass
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001			100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003			100	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001			100	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001			100	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003			100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003			100	Pass	Pass	Pass	Pass
ConnPro	30	NA	Fiber - Active	QSFP28		AE4AF4F4L30TXX			100	Pass	Pass	Pass	Pass
ConnPro	50	NA	Fiber - Active	QSFP28		AE4AF4F4L50TXX			100	Pass	Pass	Pass	Pass
ConnPro	100	NA	Fiber - Active	QSFP28		AE4CF4F4L10HXX			100	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30			100	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30			100	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			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	NA	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass
Mellanox	30	NA	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass
Volex	2.5	30	Copper - Unequalized	QSFP28	VQ2830YP250	100	Pass	Pass	Pass	Pass			

Mellanox MCX516A to Mellanox MSN2410 Switch to Broadcom P2100G





IBTA PF35 RoCE Interoperability

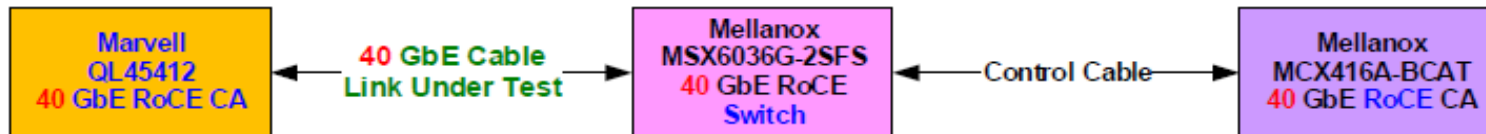
40 Gigabit Ethernet

Scenario 07



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	
ConnPro	1	30	Copper - Unequalized	QSFP28	QL45412	RIEF4TF4T10001	MSX6036G-2SFS	MCX416A-BCAT	40	Pass	Pass	Pass	Pass	
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001			40	Pass	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			40	Pass	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003			40	Pass	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001			40	Pass	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001			40	Pass	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003			40	Pass	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003			40	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30			40	Pass	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30			40	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			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
Volex	2.5	30	Copper - Unequalized	QSFP28		VQ2830YP250			40	Pass	Pass	Pass	Pass	Pass

Marvell QL45412 to Mellanox MSX6036G Switch to Mellanox MCX416A





IBTA PF35 RoCE Interoperability

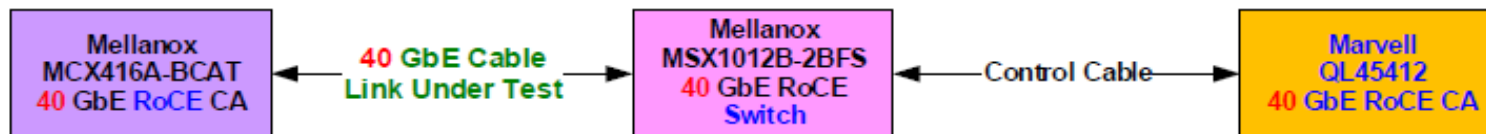
40 Gigabit Ethernet

Scenario 08



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	
ConnPro	1	30	Copper - Unequalized	QSFP28	MCX416A-BCAT	RIEF4TF4T10001	MSX1012B-2BFS	QL45412	40	Pass	Pass	Pass	Pass	
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001			40	Pass	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			40	Pass	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003			40	Pass	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001			40	Pass	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001			40	Pass	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003			40	Pass	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003			40	Pass	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30			40	Pass	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30			40	Pass	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			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	NA	Fiber - Active	QSFP28		MFA1A00-E003			40	Pass	Pass	Pass	Pass	Pass
Mellanox	30	NA	Fiber - Active	QSFP28		MFA1A00-E030			40	Pass	Pass	Pass	Pass	Pass
Volex	2.5	30	Copper - Unequalized	QSFP28		VQ2830YP250			40	Pass	Pass	Pass	Pass	Pass

Mellanox MCX416A to Mellanox MSX1012B Switch to Marvell QL45611





IBTA PF35 RoCE Interoperability

100 Gigabit Ethernet

Scenario 09



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
ConnPro	1	30	Copper - Unequalized	QSFP28	P2100G	RIEF4TF4T10001	QL45611	100	Pass	Pass	Pass	Pass
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001		100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003		100	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003		100	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001		100	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001		100	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003		100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003		100	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30		100	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30		100	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26		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	NA	Fiber - Active	QSFP28		MFA1A00-E003		100	Pass	Pass	Pass	Pass
Mellanox	30	NA	Fiber - Active	QSFP28		MFA1A00-E030		100	Pass	Pass	Pass	Pass
Volex	2.5	30	Copper - Unequalized	QSFP28		VQ2830YP250		100	Pass	Pass	Pass	Pass

Broadcom P2100G to Marvell QL45611





IBTA PF35 RoCE Interoperability

100 Gigabit Ethernet

Scenario 10



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Broadcom RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
ConnPro	1	30	Copper - Unequalized	QSFP28	MCX516A-CCAT	RIEF4TF4T10001	P2100G	100	Pass	Pass	Pass	Pass
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001		100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003		100	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003		100	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001		100	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001		100	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003		100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003		100	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30		100	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30		100	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26		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	NA	Fiber - Active	QSFP28		MFA1A00-E003		100	Pass	Pass	Pass	Pass
Mellanox	30	NA	Fiber - Active	QSFP28		MFA1A00-E030		100	Pass	Pass	Pass	Pass
Volex	2.5	30	Copper - Unequalized	QSFP28		VQ2830YP250		100	Pass	Pass	Pass	Pass

Mellanox MCX516A to Broadcom P2100G





IBTA PF35 RoCE Interoperability

100 Gigabit Ethernet

Scenario 11



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
ConnPro	1	30	Copper - Unequalized	QSFP28	QL45611	RIEF4TF4T10001	MCX516A-CCAT	100	Pass	Pass	Pass	Pass
ConnPro	2	30	Copper - Unequalized	QSFP28		RIEF4TF4T20001		100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003		100	Pass	Pass	Pass	Pass
ConnPro	5	26	Copper - Unequalized	QSFP28		RIEF4TF4T50003		100	Pass	Pass	Pass	Pass
ConnPro	1	30	Copper - Unequalized	QSFP56		RIHF7TF7T10001		100	Pass	Pass	Pass	Pass
ConnPro	1.5	30	Copper - Unequalized	QSFP56		RIHF7TF7T15001		100	Pass	Pass	Pass	Pass
ConnPro	2	26	Copper - Unequalized	QSFP56		RIHF7TF7T20003		100	Pass	Pass	Pass	Pass
ConnPro	3	26	Copper - Unequalized	QSFP56		RIHF7TF7T30003		100	Pass	Pass	Pass	Pass
Mellanox	1	30	Copper - Unequalized	QSFP28		MCP1600-E001A30		100	Pass	Pass	Pass	Pass
Mellanox	2	30	Copper - Unequalized	QSFP28		MCP1600-E002A30		100	Pass	Pass	Pass	Pass
Mellanox	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26		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	NA	Fiber - Active	QSFP28		MFA1A00-E003		100	Pass	Pass	Pass	Pass
Mellanox	30	NA	Fiber - Active	QSFP28		MFA1A00-E030		100	Pass	Pass	Pass	Pass
Volex	2.5	30	Copper - Unequalized	QSFP28		VQ2830YP250		100	Pass	Pass	Pass	Pass

Marvell QL45611 to Mellanox MCX516A





IBTA PF35 RoCE Interoperability

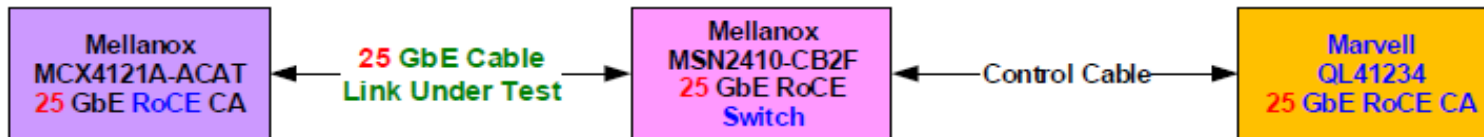
25 Gigabit Ethernet

Scenario 12



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Mellanox Switch	Marvel RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Interop Result
Mellanox	2	30	Copper - Unequalized	SFP28	MCX4121A-ACAT	MCP2M00-A002	MSN2410-CB2F	QL41234	25	Pass	Pass	Pass	Pass
Volex	1	30	Copper - Unequalized	SFP28		VAHS-30-0573			25	Pass	Pass	Pass	Pass
Volex	2	26	Copper - Unequalized	SFP28		VAHS-26-0356			25	Pass	Pass	Pass	Pass

Mellanox MCX4121A to Mellanox MSN2410 Switch to Marvell QL41234





IBTA PF35 RoCE Interoperability

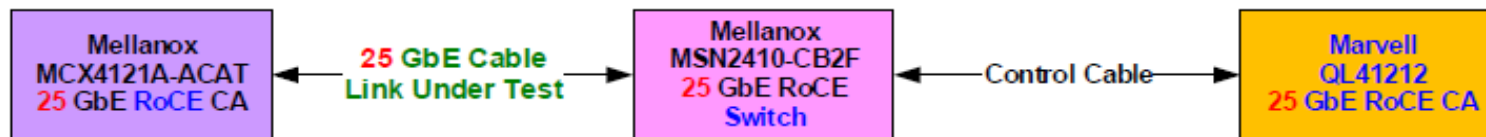
25 Gigabit Ethernet

Scenario 13



Company	Length Meters	AWG	Equalization	Connector Type	Mellanox RNIC	Cable Under Test	Mellanox Switch	Marvel RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Interop Result
Mellanox	2	30	Copper - Unequalized	SFP28	MCX4121A-ACAT	MCP2M00-A002	MSN2410-CB2F	QL41212	25	Pass	Pass	Pass	Pass
Volex	1	30	Copper - Unequalized	SFP28		VAHS-30-0573			25	Pass	Pass	Pass	Pass
Volex	2	26	Copper - Unequalized	SFP28		VAHS-26-0356			25	Pass	Pass	Pass	Pass

Mellanox MCX4121A to Mellanox MSN2410 Switch to Marvell QL41212





IBTA PF35 RoCE Interoperability

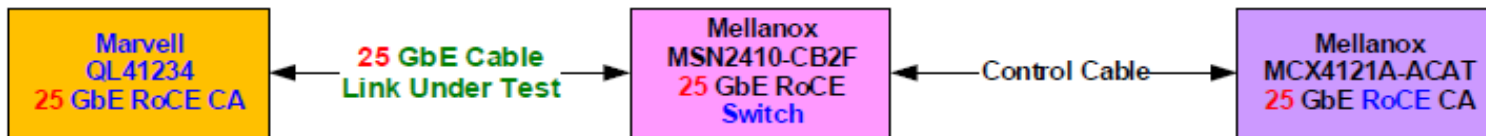
25 Gigabit Ethernet

Scenario 14



Company	Length Meters	AWG	Equalization	Connector Type	Marvel RNIC	Cable Under Test	Mellanox Switch	Mellanox RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Interop Result
Mellanox	2	30	Copper - Unequalized	SFP28	QL41234	MCP2M00-A002	MSN2410-CB2F	MCX4121A-ACAT	25	Pass	Pass	Pass	Pass
Volex	1	30	Copper - Unequalized	SFP28		VAHS-30-0573			25	Pass	Pass	Pass	Pass
Volex	2	26	Copper - Unequalized	SFP28		VAHS-26-0356			25	Pass	Pass	Pass	Pass

Marvell QL41234 to Mellanox MSN2410 Switch to Mellanox MCX4121A





IBTA PF35 RoCE Interoperability

25 Gigabit Ethernet

Scenario 15



Company	Length Meters	AWG	Equalization	Connector Type	Marvel RNIC	Cable Under Test	Mellanox Switch	Marvel RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Interop Result
Mellanox	2	30	Copper - Unequalized	SFP28	QL45212	MCP2M00-A002	MSN2410-CB2F	QL41234	25	Pass	Pass	Pass	Pass
Volex	1	30	Copper - Unequalized	SFP28		VAHS-30-0573			25	Pass	Pass	Pass	Pass
Volex	2	26	Copper - Unequalized	SFP28		VAHS-26-0356			25	Pass	Pass	Pass	Pass

Marvell QL45212 to Mellanox MSN2410 Switch to Marvell QL41234

