

InfiniBand Trade Association RoCE Integrators' List

May 2021





IBTA RoCE Integrators' List

PlugFest 38 May 2021



Manufacturer	Description	Model	Type	Speed	FW	SW
Broadcom	NetXtreme®-E BCM57508 Dual-Port 100G PCIe 4.0	BCM957508-P2100G	RNIC	100 GbE	218.0.219.0	218.0.219.0
Broadcom	NetXtreme®-E BCM57504 Quad-Port 25G PCIe 4.0	BCM957504-P425G	RNIC	25 GbE	218.0.219.0	218.0.219.0
Marvell	FastLinQ Single-Port QSFP28 PCIe3.0	QL45611HLCU	RNIC	100 GbE	8.55.35.0	8.55.6.3
Marvell	FastLinQ Dual-Port QSFP+ PCIe3.0	QL45412HLCU	RNIC	40 GbE	8.55.35.0	8.55.6.3
Marvell	FastLinQ Dual-Port SFP28 PCIe3.0	QL45212HLCU	RNIC	25 GbE	8.55.35.0	8.55.6.3
Marvell	FastLinQ Dual-Port SFP28 PCIe3.0	QL41212HLCU	RNIC	25 GbE	8.55.35.0	8.55.6.3
Nvidia	ConnectX®-6 Dx EN Single-port QSFP56 PCIe 4.0	MCX623105AC-VDA	RNIC	200 GbE	22.30.1004	MLNX OFED 5.3-1.0.0.1
Nvidia	ConnectX®-6 EN Single-port QSFP56 Socket Direct 2x PCIe3.0	MCX614105A-VCA	RNIC	200 GbE	20.30.1004	MLNX OFED 5.3-1.0.0.1
Nvidia	ConnectX®-5 EN Dual-Port QSFP28 PCIe3.0	MCX516A-CCA	RNIC	100 GbE	16.30.1004	MLNX OFED 5.3-1.0.0.1
Nvidia	ConnectX®-5 EN Dual-Port QSFP28 PCIe3.0	MCX516A-CDA	RNIC	100 GbE	16.30.1004	MLNX OFED 5.3-1.0.0.1
Nvidia	BlueField®-2 E-Series DPU VPI Dual-Port QSFP56 PCIe 4.0	MBF2M516A-EEEEO	RNIC	100 GbE	22.30.1005	MLNX OFED 5.3-1.0.0.1
Nvidia	Spectrum-3 32 QSFPDD ports Supports 10 to 400GbE Onyx OS	MSN4700-WS2F	Switch	400 GbE	30.2008.2214	MLNX OS 3.9.2110
Nvidia	Spectrum 18 SFP28 ports 4 QSFP28 ports Supports 25 to 100GbE	MSX2010-CB2F	Switch	100 GbE	30.2008.2214	MLNX OS 3.9.2110
Nvidia	Spectrum 48 SFP28 ports 8 QSFP28 ports Supports 10 to 100GbE	MSN2410-CB2F	Switch	100 GbE	30.2008.2214	MLNX OS 3.9.2110
Nvidia	Spectrum 32 QSFP28 ports Supports 10 to 100GbE	MSN2700-WS2F	Switch	100 GbE	30.2008.2214	MLNX OS 3.9.2110
Software	Versions	Performance Software				
Operating System	CentOS 8.3	HPC-Performance Monitor		HPC-PM-2.0.80		
INBOX IB Support	CentOS 8.3	Perftest (OFED)		4.4-0.9		
Mellanox OFED	MLNX OFED 5.3-1.0.0.1					
Open MPI	Open MPI 4.1.1					
Benchmark	Intel MPI Benchmarks					
Test Plan	Software Forge RoCE Interoperability MOI					
Duration	1-3 minutes					
Conditions for Passing Interoperability Testing		Benchmarks Performed				
Performance	Devices must perform at advertised rates and latencies	PingPong		Gather		
Link Status	Link rate and width show expected values - i.e. 100GbE (4x)	PingPing		Gatherv		
Errors	There must be no errors recorded during any test phases	Sendrecv		Scatter		
MPI Test	The MPI Benchmark must run to completion	Exchange		Scatterv		
		Allreduce		Alltoall		
		Reduce		Alltoallv		
		Reduce_scatter		Bcast		
		Allgather		Barrier		
		Allgatherv				



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Manufacturer	Product Description	Model	FW	SW	Transport	DCB
Broadcom	NetXtreme®-E BCM57508 Dual-Port 100G PCIe 4.0	BCM957508-P2100G	218.0.219.0	218.0.219.0	✓	✓
	NetXtreme®-E BCM57504 Quad-Port 25G PCIe 4.0	BCM957504-P425G	218.0.219.0	218.0.219.0	✓	✓

Broadcom RoCE RNICs		Model	BCM957508-P2100G	BCM957504-P425G
		Date	6/10/2021	6/21/2021
		Firmware Version	218.0.219.0	218.0.219.0
		Overall Results	Pass	Pass
Test Class	Name	Number	Results	Results
Transport Layer	RC RDMA Send Only after RDMA Read	C09_027_01	Pass	Pass
	RC RDMA Write Only after RDMA Read	C09_027_02	Pass	Pass
	RC RDMARead Only after RDMA Read	C09_027_03	Pass	Pass
	RC Atomic FetchAdd after RDMA Read	C09_027_04	N/A - Note	N/A - Note
	RC Atomic CompSwap after RDMA Read	C09_027_05	N/A - Note	N/A - Note
	RC Atomic CompSwap after Atomic CompSwap	C09_027_06	N/A - Note	N/A - Note
	RC Atomic FetchAdd after Atomic CompSwap	C09_027_07	N/A - Note	N/A - Note
	RC Atomic FetchAdd after Atomic FetchAdd	C09_027_08	N/A - Note	N/A - Note
	RC Atomic CompSwap after Atomic FetchAdd	C09_027_09	N/A - Note	N/A - Note
	RC RDMA Send Only after Atomic CompSwap	C09_027_10	N/A - Note	N/A - Note
	RC RDMA Write Only after Atomic CompSwap	C09_027_11	N/A - Note	N/A - Note
	RC RDMA Send Only after Atomic FetchAdd	C09_027_12	N/A - Note	N/A - Note
	RC RDMA Write Only after Atomic Fetch Add	C09_027_13	N/A - Note	N/A - Note
	Completion Rules - RC RDMA Send Case	C09_060_01	Pass	Pass
	Completion Rules - RC RDMA Send Case (inverted)	C09_060_01_01	Pass	Pass
	Completion Rules - RC RDMA Write Case	C09_060_03	Pass	Pass
	Completion Rules - RC RDMA Write Case (inverted)	C09_060_03_01	Pass	Pass
	Completion Rules - RC RDMA Read Case	C09_060_05	Pass	Pass
	Completion Rules - RC RDMA Read Case (inverted)	C09_060_05_01	Pass	Pass
	Completion Rules - Atomic FetchAdd Case	C09_060_07	Pass	Pass
	Completion Rules - Atomic FetchAdd Case (inverted)	C09_060_07_01	N/A - Note	N/A - Note
	Completion Rules - Atomic CompSwap Case	C09_060_09	Pass	Pass
	Completion Rules - Atomic CompSwap Case (inverted)	C09_060_09_01	N/A - Note	N/A - Note
	Requester/Responder RNR NAK Behavior	C09_130_01	Pass	Pass
	Outstanding Request Timeout	C09_142_01	Pass	Pass
	DCB	IEEE 802.1Q	36.2.2#1	Pass

Note: Atomic Please contact Broadcom for drivers if Atomic support is desired.



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Manufacturer	Product Description	Model	FW	SW	Transport	DCB
Marvell	Low Profile Single-Port QSFP28 100GbE Ethernet PCIe Adapter	QL45611	8.50.72.00	8.42.10.0	✓	✓
	Low Profile Dual-Port QSFP+ 40GbE Ethernet PCIe Adapter	QL45412	8.50.72.00	8.42.10.0	✓	✓
	Low Profile Dual-Port SFP28 25GbE Ethernet PCIe Adapter	QL45212	8.50.40.00	8.42.10.0	✓	✓
	Low Profile Dual-Port SFP28 25GbE Ethernet PCIe Adapter	QL41212	8.50.40.00	8.42.10.0	✓	✓

Marvell RoCE RNICs		Model	QL45611	QL45412	QL45212	QL41212
		Date	6/10/2021	6/10/2021	6/10/2021	6/10/2021
		Firmware Version	8.55.35.00	8.55.35.00	8.55.35.00	8.55.35.00
		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	Pass	Pass	Pass	Pass
	Completion Rules - Atomic FetchAdd Case (inverted)	C09_060_07_01	Pass	Pass	Pass	Pass
	Completion Rules - Atomic CompSwap Case	C09_060_09	Pass	Pass	Pass	Pass
	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



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Manufacturer	Product Description	Model	FW	SW	Transport	DCB
NVIDIA	ConnectX®-6 Dx EN Single-port QSFP56 PCIe 4.0	MCX623105AC-VDA	22.30.1004	MLNX OFED 5.3-1.0.0.1	✓	✓
	ConnectX®-6 EN Single-port QSFP56 2x PCIe3.0	MCX614105A-VCA	20.30.1004	MLNX OFED 5.3-1.0.0.1	✓	✓
	ConnectX®-5 EN Dual-Port QSFP28 PCIe3.0	MCX516A-CCA	16.27.2008	MLNX OFED 5.3-1.0.0.1	✓	✓
	ConnectX®-5 EN Dual-Port QSFP28 PCIe3.0	MCX516A-CDA	16.27.2008	MLNX OFED 5.3-1.0.0.1	✓	✓
	BlueField®-2 E-Series DPU VPI Dual-Port QSFP56 PCIe 4.0	MBF2M516A-EEEO	24.30.1004	MLNX OFED 5.3-1.0.0.1	✓	✓

NVIDIA RoCE RNICs		Model	MCX623105AC-VDA	MCX614105A-VCA	MCX516A-CCA	MCX516A-CDA	MBF2M516A-EEEO
		Date	6/10/2021	6/10/2021	6/9/2021	6/10/2021	6/10/2021
		Firmware Version	22.30.1004	20.30.1004	16.27.2008	16.27.2008	24.30.1004
		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	Pass	Pass	Pass	Pass	Pass
	Completion Rules - Atomic FetchAdd Case (inverted)	C09_060_07_01	Pass	Pass	Pass	Pass	Pass
	Completion Rules - Atomic CompSwap Case	C09_060_09	Pass	Pass	Pass	Pass	Pass
	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

RDMA over Converged Ethernet (RoCE) Interop Testing

Nvidia MCX623105AC-VDA to Nvidia MSN4700-WS2F Switch to Nvidia MCX614105A-VCA

Interop 01



Interop 01

Nvidia MCX614105A-VCA to Nvidia MSN4700-WS2F Switch to Nvidia MCX623105AC-VDA

Interop 02



Interop 02

Broadcom BCM957508-P2100G to Nvidia MSN2010-CB2F Switch to Marvell QL45611HLCU

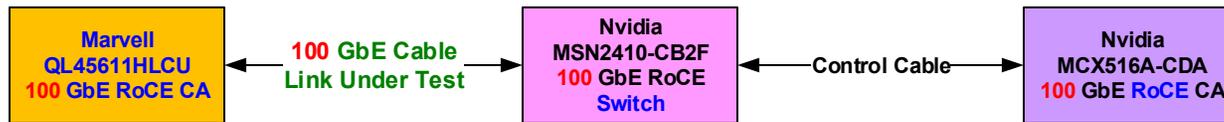
Interop 03



Interop 03

Marvell QL45611HLCU to Nvidia MSN2410-CB2F Switch to Nvidia MCX516A-CDA

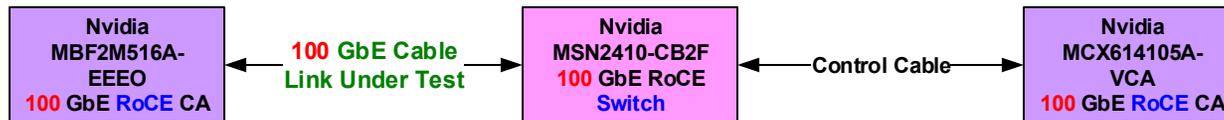
Interop 04



Interop 04

Nvidia MBF2M516A-EEEE to Nvidia MSN2410-CB2F Switch to Nvidia MCX614105A-VCA

Interop 05



Interop 05

Nvidia MCX614105A-VCA to Nvidia MSN2410-CB2F Switch to Nvidia MCX623105AC-VDA

Interop 06



Interop 06

RDMA over Converged Ethernet (RoCE) Interop Testing

Nvidia MCX516A-CCA to Nvidia MSN4700-WS2F Switch to Nvidia MCX516A-CDA



Broadcom BCM957508-P2100G to Nvidia MSN2700-WS2F Switch to Nvidia MCX614105A-VCA



Marvell QL45611HLCU to Nvidia MSN2410-CB2F Switch to Nvidia MCX614105A-VCA



Broadcom BCM957508-P2100G to Nvidia MSN2700-W2SF Switch to Nvidia MCX516A-CDA



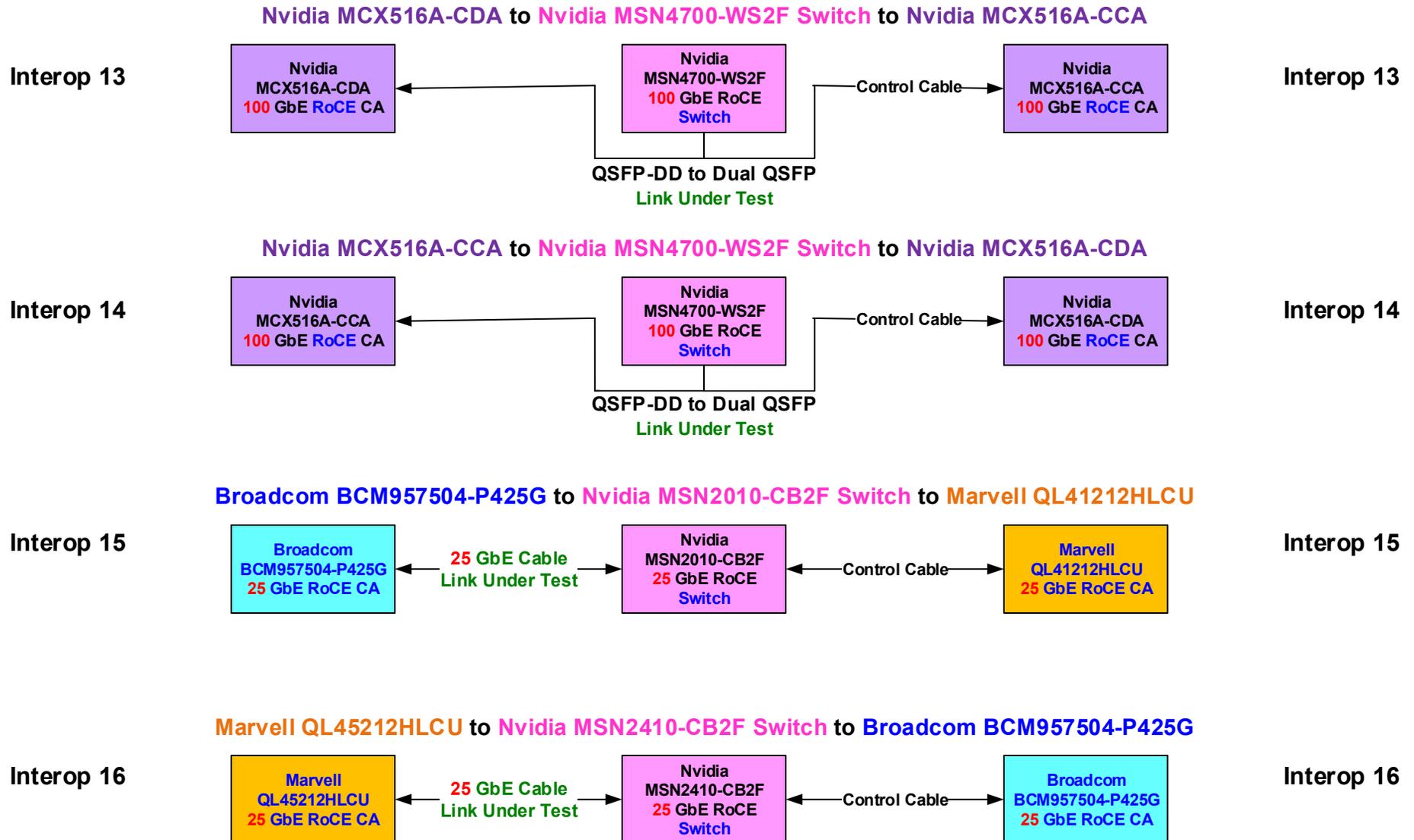
Marvell QL45611HLCU to Nvidia MSN2010-CB2F Switch to Marvell QL45611HLCU



Nvidia MBF2M516A-EEEE to Nvidia MSN4700-WS2F Switch to Nvidia MCX516A-CCA



RDMA over Converged Ethernet (RoCE) Interop Testing





IBTA PF38 RoCE Interoperability

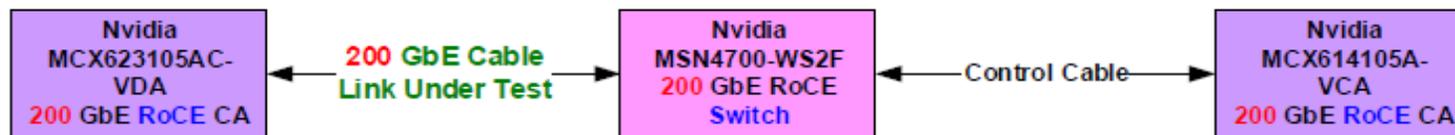
200 Gigabit Ethernet

Scenario 01



Company	Length Meters	AWG	Equalization	Connector Type	Nvidia RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
Nvidia	0.5	30	Copper - Unequalized	QSFP56	MCX623105AC-VDA	MCP1650-H00AE30	MSN4700-WS2F	MCX614105A-VCA	200	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			200	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			200	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			200	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			200	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			200	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP56		MFS1S00-H003E			200	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP56		MFS1S00-H030E			200	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP56		MFS1S00-H050E			200	Pass	Pass	Pass	Pass
Nvidia	100	N/A	Fiber - Active	QSFP56		MFS1S00-H100E			200	Pass	Pass	Pass	Pass

Nvidia MCX623105AC-VDA to Nvidia MSN4700-WS2F Switch to Nvidia MCX614105A-VCA





IBTA PF38 RoCE Interoperability

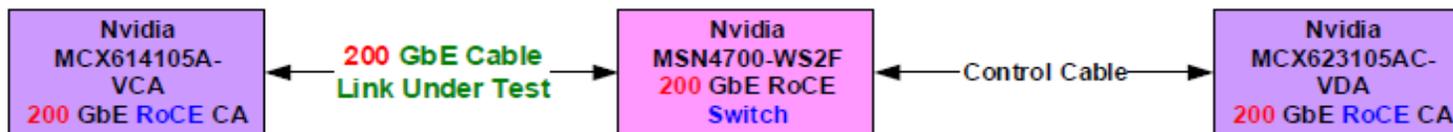
200 Gigabit Ethernet

Scenario 02



Company	Length Meters	AWG	Equalization	Connector Type	Nvidia RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
Nvidia	0.5	30	Copper - Unequalized	QSFP56	MCX614105A-VCA	MCP1650-H00AE30	MSN4700-WS2F	MCX623105AC-VDA	200	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			200	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			200	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			200	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			200	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			200	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP56		MFS1S00-H003E			200	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP56		MFS1S00-H030E			200	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP56		MFS1S00-H050E			200	Pass	Pass	Pass	Pass
Nvidia	100	N/A	Fiber - Active	QSFP56		MFS1S00-H100E			200	Pass	Pass	Pass	Pass

Nvidia MCX614105A-VCA to Nvidia MSN4700-WS2F Switch to Nvidia MCX623105AC-VDA





IBTA PF38 RoCE Interoperability

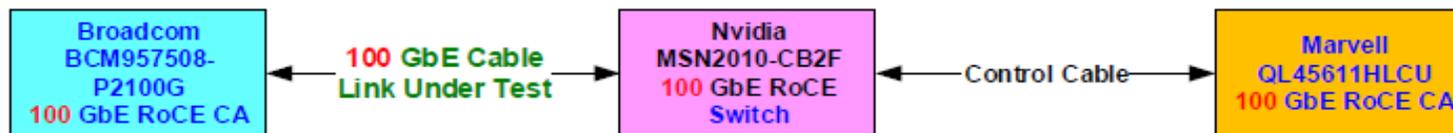
100 Gigabit Ethernet

Scenario 03



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Nvidia Switch	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
CONNPRO,Ind.	2.5	30	Copper - Unequalized	QSFP28	BCM957508-P2100G	RIEF4TF4T25001	MSN2010-CB2F	QL45611HCLU	100	Pass	Pass	Pass	Pass	
CONNPRO,Ind.	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2	30	Copper - Unequalized	QSFP56		RIHF7TF7T20001			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	4	26	Copper - Unequalized	QSFP56		RIHF7TF7T40003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	30	NA	Fiber - Active	QSFP28		AIEAF7F7L30TXX			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP28		MCP1600-E00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP28		MCP1600-E001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	30	Copper - Unequalized	QSFP28		MCP1600-E01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	30	Copper - Unequalized	QSFP28		MCP1600-E002E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2.5	26	Copper - Unequalized	QSFP28		MCP1600-E02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	4	26	Copper - Unequalized	QSFP28		MCP1600-E004E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP28	MFA1A00-E050	100	Pass	Pass	Pass	Pass	Pass			
Nvidia	100	N/A	Fiber - Active	QSFP28	MFA1A00-E100	100	Pass	Pass	Pass	Pass	Pass			

Broadcom BCM957508-P2100G to Nvidia MSN2010-CB2F Switch to Marvell QL45611HLCU





IBTA PF38 RoCE Interoperability

100 Gigabit Ethernet

Scenario 04



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
CONNPRO,Ind.	2.5	30	Copper - Unequalized	QSFP28	QL45611HCLU	RIEF4TF4T25001	MSN2410-CB2F	MCX516A-CDA	100	Pass	Pass	Pass	Pass	
CONNPRO,Ind.	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2	30	Copper - Unequalized	QSFP56		RIHF7TF7T20001			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	4	26	Copper - Unequalized	QSFP56		RIHF7TF7T40003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	30	NA	Fiber - Active	QSFP28		AIEAF7F7L30TXX			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP28		MCP1600-E00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP28		MCP1600-E001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	30	Copper - Unequalized	QSFP28		MCP1600-E01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	30	Copper - Unequalized	QSFP28		MCP1600-E002E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2.5	26	Copper - Unequalized	QSFP28		MCP1600-E02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	4	26	Copper - Unequalized	QSFP28		MCP1600-E004E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP28	MFA1A00-E050	100	Pass	Pass	Pass	Pass	Pass			
Nvidia	100	N/A	Fiber - Active	QSFP28	MFA1A00-E100	100	Pass	Pass	Pass	Pass	Pass			





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Scenario 05



Company	Length Meters	AWG	Equalization	Connector Type	Nvidia RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
CONNPRO,Ind.	2.5	30	Copper - Unequalized	QSFP28	MBF2M516A-EENO	RIEF4TF4T25001	MSN2410-CB2F	MCX614105A-VCA	100	Pass	Pass	Pass	Pass	
CONNPRO,Ind.	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2	30	Copper - Unequalized	QSFP56		RIHF7TF7T20001			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	4	26	Copper - Unequalized	QSFP56		RIHF7TF7T40003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	30	NA	Fiber - Active	QSFP28		AIEAF7F7L30TXX			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP28		MCP1600-E00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP28		MCP1600-E001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	30	Copper - Unequalized	QSFP28		MCP1600-E01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	30	Copper - Unequalized	QSFP28		MCP1600-E002E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2.5	26	Copper - Unequalized	QSFP28		MCP1600-E02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	4	26	Copper - Unequalized	QSFP28		MCP1600-E004E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP28	MFA1A00-E050	100	Pass	Pass	Pass	Pass	Pass			
Nvidia	100	N/A	Fiber - Active	QSFP28	MFA1A00-E100	100	Pass	Pass	Pass	Pass	Pass			

Nvidia MBF2M516A-EEEE to Nvidia MSN2410-CB2F Switch to Nvidia MCX614105A-VCA





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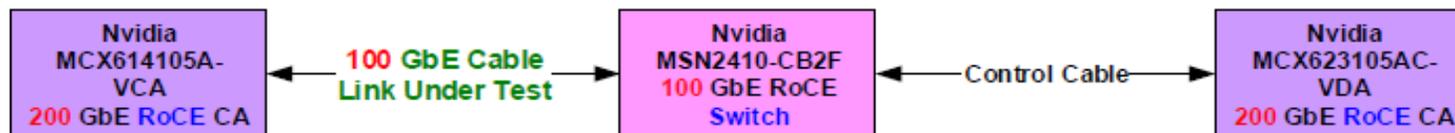
100 Gigabit Ethernet

Scenario 06



Company	Length Meters	AWG	Equalization	Connector Type	Nvidia RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
CONNPRO,Ind.	2.5	30	Copper - Unequalized	QSFP28	MCX614105A-VCA	RIEF4TF4T25001	MSN2410-CB2F	MCX623105AC-VDA	100	Pass	Pass	Pass	Pass	
CONNPRO,Ind.	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2	30	Copper - Unequalized	QSFP56		RIHF7TF7T20001			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	4	26	Copper - Unequalized	QSFP56		RIHF7TF7T40003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	30	NA	Fiber - Active	QSFP28		AIEAF7F7L30TXX			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP28		MCP1600-E00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP28		MCP1600-E001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	30	Copper - Unequalized	QSFP28		MCP1600-E01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	30	Copper - Unequalized	QSFP28		MCP1600-E002E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2.5	26	Copper - Unequalized	QSFP28		MCP1600-E02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	4	26	Copper - Unequalized	QSFP28		MCP1600-E004E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP28	MFA1A00-E050	100	Pass	Pass	Pass	Pass	Pass			
Nvidia	100	N/A	Fiber - Active	QSFP28	MFA1A00-E100	100	Pass	Pass	Pass	Pass	Pass			

Nvidia MCX614105A-VCA to Nvidia MSN2410-CB2F Switch to Nvidia MXC623105AC-VDA





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100 Gigabit Ethernet

Scenario 07



Company	Length Meters	AWG	Equalization	Connector Type	Nvidia RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
CONNPRO,Ind.	2.5	30	Copper - Unequalized	QSFP28	MCX516A-CCA	RIEF4TF4T25001	MSN4700-WS2F	MCX516A-CDA	100	Pass	Pass	Pass	Pass	
CONNPRO,Ind.	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2	30	Copper - Unequalized	QSFP56		RIHF7TF7T20001			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	4	26	Copper - Unequalized	QSFP56		RIHF7TF7T40003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	30	NA	Fiber - Active	QSFP28		AIEAF7F7L30TXX			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP28		MCP1600-E00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP28		MCP1600-E001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	30	Copper - Unequalized	QSFP28		MCP1600-E01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	30	Copper - Unequalized	QSFP28		MCP1600-E002E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2.5	26	Copper - Unequalized	QSFP28		MCP1600-E02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	4	26	Copper - Unequalized	QSFP28		MCP1600-E004E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP28	MFA1A00-E050	100	Pass	Pass	Pass	Pass	Pass			
Nvidia	100	N/A	Fiber - Active	QSFP28	MFA1A00-E100	100	Pass	Pass	Pass	Pass	Pass			





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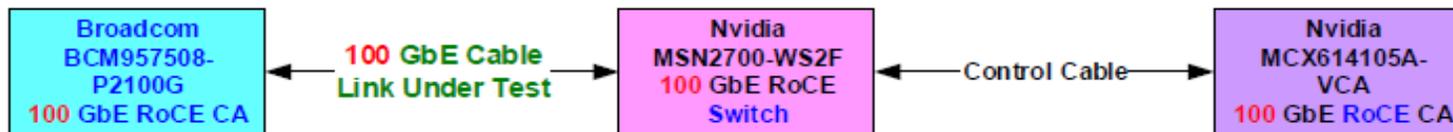
100 Gigabit Ethernet

Scenario 08



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
CONNPRO,Ind.	2.5	30	Copper - Unequalized	QSFP28	BCM957508-P2100G	RIEF4TF4T25001	MSN2700-WS2F	MCX614105A-VCA	100	Pass	Pass	Pass	Pass	
CONNPRO,Ind.	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2	30	Copper - Unequalized	QSFP56		RIHF7TF7T20001			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	4	26	Copper - Unequalized	QSFP56		RIHF7TF7T40003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	30	NA	Fiber - Active	QSFP28		AIEAF7F7L30TXX			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP28		MCP1600-E00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP28		MCP1600-E001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	30	Copper - Unequalized	QSFP28		MCP1600-E01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	30	Copper - Unequalized	QSFP28		MCP1600-E002E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2.5	26	Copper - Unequalized	QSFP28		MCP1600-E02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	4	26	Copper - Unequalized	QSFP28		MCP1600-E004E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP28	MFA1A00-E050	100	Pass	Pass	Pass	Pass	Pass			
Nvidia	100	N/A	Fiber - Active	QSFP28	MFA1A00-E100	100	Pass	Pass	Pass	Pass	Pass			

Broadcom BCM957508-P2100G to Nvidia MSN2700-WS2F Switch to Nvidia MCX614105A-VCA





IBTA PF38 RoCE Interoperability

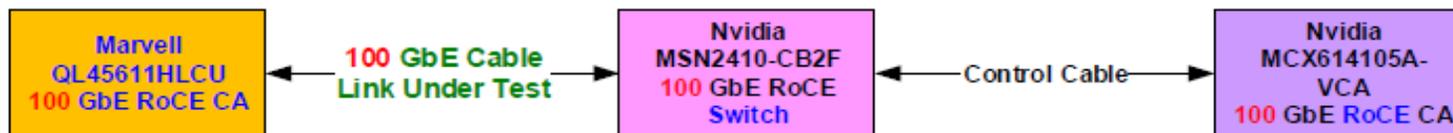
100 Gigabit Ethernet

Scenario 09



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
CONNPRO,Ind.	2.5	30	Copper - Unequalized	QSFP28	QL45611HCLU	RIEF4TF4T25001	MSN2410-CB2F	MCX614105A-VCA	100	Pass	Pass	Pass	Pass	
CONNPRO,Ind.	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2	30	Copper - Unequalized	QSFP56		RIHF7TF7T20001			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	4	26	Copper - Unequalized	QSFP56		RIHF7TF7T40003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	30	NA	Fiber - Active	QSFP28		AIEAF7F7L30TXX			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP28		MCP1600-E00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP28		MCP1600-E001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	30	Copper - Unequalized	QSFP28		MCP1600-E01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	30	Copper - Unequalized	QSFP28		MCP1600-E002E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2.5	26	Copper - Unequalized	QSFP28		MCP1600-E02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	4	26	Copper - Unequalized	QSFP28		MCP1600-E004E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP28	MFA1A00-E050	100	Pass	Pass	Pass	Pass	Pass			
Nvidia	100	N/A	Fiber - Active	QSFP28	MFA1A00-E100	100	Pass	Pass	Pass	Pass	Pass			

Marvell QL45611HCLU to Nvidia MSN2410-CB2F Switch to Nvidia MCX614105A-VCA





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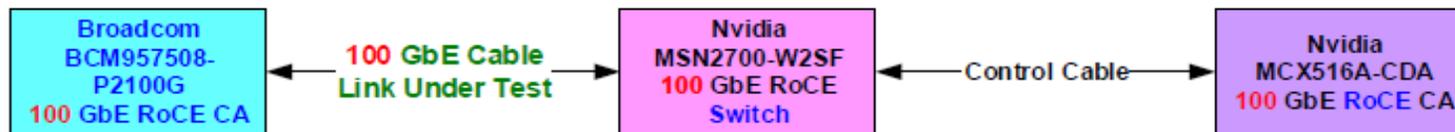
100 Gigabit Ethernet

Scenario 10



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
CONNPRO,Ind.	2.5	30	Copper - Unequalized	QSFP28	BCM957508-P2100G	RIEF4TF4T25001	MSN2700-W2SF	MCX516A-CDA	100	Pass	Pass	Pass	Pass	
CONNPRO,Ind.	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2	30	Copper - Unequalized	QSFP56		RIHF7TF7T20001			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	4	26	Copper - Unequalized	QSFP56		RIHF7TF7T40003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	30	NA	Fiber - Active	QSFP28		AIEAF7F7L30TXX			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP28		MCP1600-E00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP28		MCP1600-E001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	30	Copper - Unequalized	QSFP28		MCP1600-E01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	30	Copper - Unequalized	QSFP28		MCP1600-E002E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2.5	26	Copper - Unequalized	QSFP28		MCP1600-E02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	4	26	Copper - Unequalized	QSFP28		MCP1600-E004E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP28	MFA1A00-E050	100	Pass	Pass	Pass	Pass	Pass			
Nvidia	100	N/A	Fiber - Active	QSFP28	MFA1A00-E100	100	Pass	Pass	Pass	Pass	Pass			

Broadcom BCM957508-P2100G to Nvidia MSN2700-W2SF Switch to Nvidia MCX516A-CDA





IBTA PF38 RoCE Interoperability

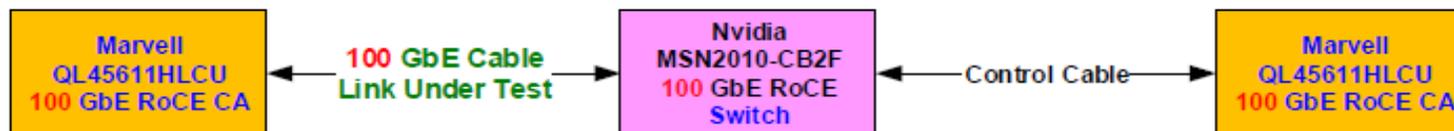
100 Gigabit Ethernet

Scenario 11



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Nvidia Switch	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
CONNPRO,Ind.	2.5	30	Copper - Unequalized	QSFP28	QL45611HCLU	RIEF4TF4T25001	MSN2010-CB2F	QL45611HCLU	100	Pass	Pass	Pass	Pass	
CONNPRO,Ind.	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2	30	Copper - Unequalized	QSFP56		RIHF7TF7T20001			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	4	26	Copper - Unequalized	QSFP56		RIHF7TF7T40003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	30	NA	Fiber - Active	QSFP28		AIEAF7F7L30TXX			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP28		MCP1600-E00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP28		MCP1600-E001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	30	Copper - Unequalized	QSFP28		MCP1600-E01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	30	Copper - Unequalized	QSFP28		MCP1600-E002E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2.5	26	Copper - Unequalized	QSFP28		MCP1600-E02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	4	26	Copper - Unequalized	QSFP28		MCP1600-E004E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP28	MFA1A00-E050	100	Pass	Pass	Pass	Pass	Pass			
Nvidia	100	N/A	Fiber - Active	QSFP28	MFA1A00-E100	100	Pass	Pass	Pass	Pass	Pass			

Marvell QL45611HLCU to Nvidia MSN2010-CB2F Switch to Marvell QL45611HLCU





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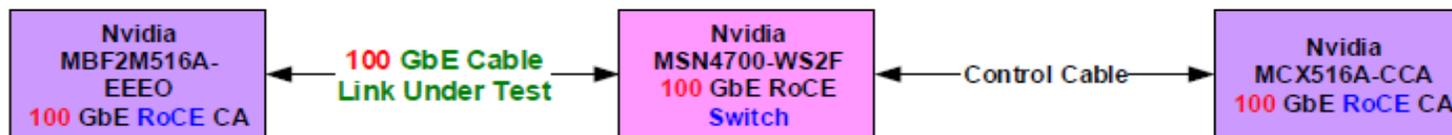
100 Gigabit Ethernet

Scenario 12



Company	Length Meters	AWG	Equalization	Connector Type	Nvidia RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result	
CONNPRO,Ind.	2.5	30	Copper - Unequalized	QSFP28	MBF2M516A-EEEE	RIEF4TF4T25001	MSN4700-WS2F	MCX516A-CCA	100	Pass	Pass	Pass	Pass	
CONNPRO,Ind.	3	26	Copper - Unequalized	QSFP28		RIEF4TF4T30003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2	30	Copper - Unequalized	QSFP56		RIHF7TF7T20001			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	4	26	Copper - Unequalized	QSFP56		RIHF7TF7T40003			100	Pass	Pass	Pass	Pass	Pass
CONNPRO,Ind.	30	NA	Fiber - Active	QSFP28		AIEAF7F7L30TXX			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP28		MCP1600-E00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP28		MCP1600-E001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	30	Copper - Unequalized	QSFP28		MCP1600-E01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	30	Copper - Unequalized	QSFP28		MCP1600-E002E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2.5	26	Copper - Unequalized	QSFP28		MCP1600-E02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP28		MCP1600-E003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	4	26	Copper - Unequalized	QSFP28		MCP1600-E004E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	0.5	30	Copper - Unequalized	QSFP56		MCP1650-H00AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H001E30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1	30	Copper - Unequalized	QSFP56		MCP1650-H01AE30			100	Pass	Pass	Pass	Pass	Pass
Nvidia	1.5	26	Copper - Unequalized	QSFP56		MCP1650-H002E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	2	26	Copper - Unequalized	QSFP56		MCP1650-H02AE26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	26	Copper - Unequalized	QSFP56		MCP1650-H003E26			100	Pass	Pass	Pass	Pass	Pass
Nvidia	3	N/A	Fiber - Active	QSFP28		MFA1A00-E003			100	Pass	Pass	Pass	Pass	Pass
Nvidia	30	N/A	Fiber - Active	QSFP28		MFA1A00-E030			100	Pass	Pass	Pass	Pass	Pass
Nvidia	50	N/A	Fiber - Active	QSFP28	MFA1A00-E050	100	Pass	Pass	Pass	Pass	Pass			
Nvidia	100	N/A	Fiber - Active	QSFP28	MFA1A00-E100	100	Pass	Pass	Pass	Pass	Pass			

Nvidia MBF2M516A-EEEE to Nvidia MSN4700-WS2F Switch to Nvidia MCX516A-CCA





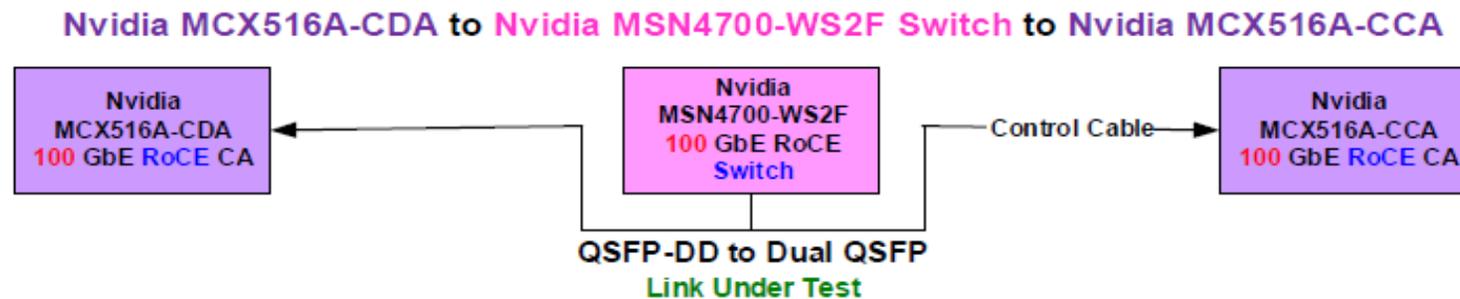
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100 Gigabit Ethernet

Scenario 13



Company	Length Meters	AWG	Equalization	Connector Type	Nvidia RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
CONNPRO,Ind.	1M	30	Copper - Unequalized	QSFP-DD - 2x QSFP	MCX516A-CDA	RIHF8TF7210001	MSN4700-WS2F	MCX516A-CCA	100	Pass	Pass	Pass	Pass
CONNPRO,Ind.	1.5M	30	Copper - Unequalized	QSFP-DD - 2x QSFP		RIHF8TF7215001			100	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2M	30	Copper - Unequalized	QSFP-DD - 2x QSFP		RIHF8TF7220001			100	Pass	Pass	Pass	Pass





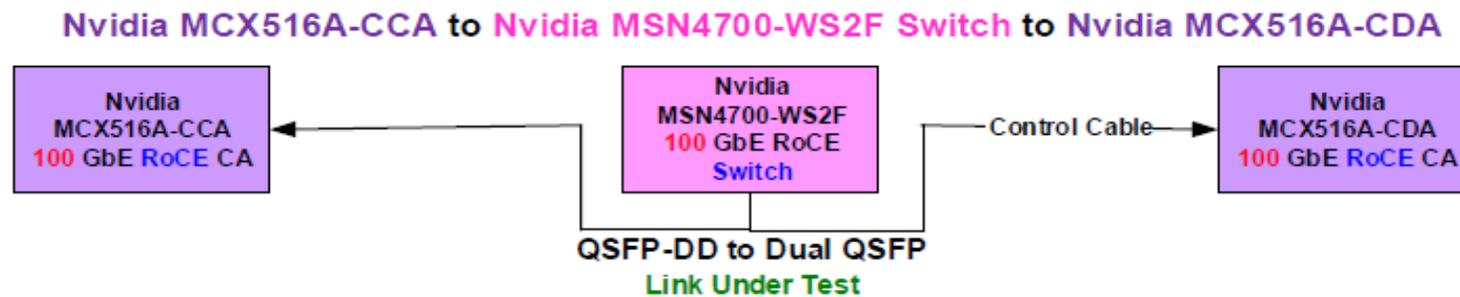
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100 Gigabit Ethernet

Scenario 14



Company	Length Meters	AWG	Equalization	Connector Type	Nvidia RNIC	Cable Under Test	Nvidia Switch	Nvidia RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
CONNPRO,Ind.	1M	30	Copper - Unequalized	QSFP-DD - 2x QSFP	MCX516A-CCA	RIHF8TF7210001	MSN4700-WS2F	MCX516A-CDA	100	Pass	Pass	Pass	Pass
CONNPRO,Ind.	1.5M	30	Copper - Unequalized	QSFP-DD - 2x QSFP		RIHF8TF7215001			100	Pass	Pass	Pass	Pass
CONNPRO,Ind.	2M	30	Copper - Unequalized	QSFP-DD - 2x QSFP		RIHF8TF7220001			100	Pass	Pass	Pass	Pass





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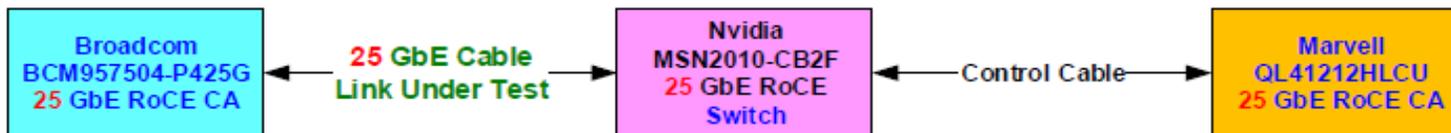
25 Gigabit Ethernet

Scenario 15



Company	Length Meters	AWG	Equalization	Connector Type	Broadcom RNIC	Cable Under Test	Nvidia Switch	Marvell RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
Known Good Test Cable	1	28	Copper - Unequalized	SFP28	BCM957504-P425G	KGTC-PF38-1	MSN2010-CB2F	QL41212HCLU	25	Pass	Pass	Pass	Pass
Known Good Test Cable	1.5	28	Copper - Unequalized	SFP28		KGTC-PF38-2			25	Pass	Pass	Pass	Pass
Known Good Test Cable	2	30	Copper - Unequalized	SFP28		KGTC-PF38-3			25	Pass	Pass	Pass	Pass

Broadcom BCM957504-P425G to Nvidia MSN2010-CB2F Switch to Marvell QL41212HLCU





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25 Gigabit Ethernet

Scenario 16



Company	Length Meters	AWG	Equalization	Connector Type	Marvell RNIC	Cable Under Test	Nvidia Switch	Broadcom RNIC	Link Speed	Device Link	SFI_Perf Testing	Open MPI + IMB Testing	Overall Result
Known Good Test Cable	1	28	Copper - Unequalized	SFP28	QL45212HCLU	KGTC-PF38-1	MSN2410-CB2F	BCM957504-P425G	25	Pass	Pass	Pass	Pass
Known Good Test Cable	1.5	28	Copper - Unequalized	SFP28		KGTC-PF38-2			25	Pass	Pass	Pass	Pass
Known Good Test Cable	2	30	Copper - Unequalized	SFP28		KGTC-PF38-3			25	Pass	Pass	Pass	Pass

Marvell QL45212HLCU to Nvidia MSN2410-CB2F Switch to Broadcom BCM957504-P425G

