

# InfiniBand Trade Association RoCE Integrators' List

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**May 2024 (Plugfest 41)**





# IBTA RoCE Integrators' List

## PlugFest 41 May 2024



Manufacturer	Description	Model	Type	Speed	FW	SW
Arista	Arista 7060X5, 32x800G QSFP-DD switch	DCS-7060DX5-64-F	Switch	800 GbE	4.31.2.F	Arista EOS
Arista	Arista 7060X5, 32x800GbE OSFP switch	DCS-7060PX5-64E-F	Switch	800 GbE		
Arista	Arista 7060X5, 64x400GbE QSFP-DD switch, front-to-rear air, 2xAC	DCS-7060DX5-64S-F	Switch	400 GbE		
Arista	Arista 7060X6, 64 x 800GbE OSFP switch, front-to-rear air, 2xAC	DCS-7060X6-64PE-F	Switch	800 GbE		
Broadcom	PCM957608-N1400GDP00 1x400G OCP (QSFP-DD)	N1400-OCP	RNIC	400 GbE	230.1.38.0	230.1.38.0
Broadcom	BCM957608-P1400GQF00 1x400G PCIE (QSFP-112)	P1400-PCIE	RNIC	400 GbE		
Broadcom	PCM957608-P2200GQF00 2x200G PCIE (QSFP-112)	P2200-PCIE	RNIC	200 GbE		
Broadcom	BCM957508-P1200 1x200G PCIE (QSFP-56)	P1200-PCIE	RNIC	200 GbE		
Intel	Standard PCIe adapter with single QSFP28 interface	E810-CQDA1	RNIC	100 GbE	1.13.43	1.13.7
Intel	Standard PCIe adapter with two QSFP28 interfaces	E810-CQDA2	RNIC	100 GbE	1.13.43	
Intel	Standard PCIe adapter with two QSFP28 interfaces	E810-2CQDA2	RNIC	100 GbE	1.13.43	
Nvidia	Nvidia BlueField-3 B3140H 400GbE/NDR IB, Single-port QSFP112	900-9D3D4-00EN-HA0	RNIC	400 GbE	32.40.100	MLNX-OS 24.01-0.3.3.1
Nvidia	NVIDIA ConnectX-7 400GbE/ NDR IB, Single-port QSFP112	MCX715105AS-WEAT	RNIC	400 GbE	28.40.1000	
Nvidia	NVIDIA ConnectX-7 400GbE/NDR IB Single-port OSFP	MCX75310AAS-NEAT	RNIC	400 GbE	28.40.1000	
Nvidia	Spectrum-3 32 QSFPDD ports Supports 10 to 400GbE Onyx OS	MSN4700-WS2F	Switch	400 GbE	30.2010.4208	Onyx 3.10.4206
Nvidia	Spectrum 18 SFP28 ports 4 QSFP28 ports Supports 25 to 100GbE	MSX2010-CB2F	Switch	100 GbE	13.2010.4208	
Nvidia	Spectrum 48 SFP28 ports 8 QSFP28 ports Supports 10 to 100GbE	MSN2410-CB2F	Switch	100 GbE	13.2010.4208	

Software	Versions	Benchmarks Performed	
Operating System	<a href="#">Rocky Linux 9.3</a>	PingPong	Gather
INBOX IB Support	<a href="#">Rocky Linux 9.3</a>	PingPing	Gatherv
Mellanox OFED	<a href="#">MLNX_OFED_LINUX-24.01-0.3.3.1-rhel9.3-x86_64.tgz</a>	Sendrecv	Scatter
Open MPI	<a href="#">OpenMPI 5.0.2</a>	Exchange	Scatterv
Benchmark	<a href="#">Intel MPI Benchmarks</a>	Allreduce	Alltoall
Test Plan	<a href="#">Software Forge RoCE Interoperability MOI</a>	Reduce	Alltoallv
Duration	1-3 minutes	Reduce_scatter	Bcast
		Allgather	Barrier
		Allgatherv	
<b>Conditions for Passing Interoperability Testing</b>			
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 Transport Compliance PlugFest 41      May 2024



Manufacturer	Product Description	Model	FW	SW	Transport
Broadcom	PCM957608-N1400GDP00 1x400G OCP (QSFP-DD)	N1400-OCP	230.0.86.0	230.0.86.0	✓
Broadcom	BCM957608-P1400GQF00 1x400G PCIE (QSFP-112)	P1400-PCIE			✓
Broadcom	PCM957608-P2200GQF00 2x200G PCIE (QSFP-112)	P2200-PCIE			✓
Broadcom	BCM957508-P1200 1x200G PCIE (QSFP-56)	P1200-PCIE			✓

Broadcom RoCE NICs		Model	N1400GDP00	P1400GQF00	P2200GQPF00	P1200G
		Date	2024-06-06-01	2024-06-06-01	2024-06-06-01	2024-06-06-07
		Firmware Version	230.0.86.0	230.0.86.0	230.0.86.0	230.0.86.0
		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	Pass	Pass	Pass	Pass
	Completion Rules - Atomic FethcAdd 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	





# IBTA RoCE Transport Compliance Plugfest 41 May 2024



Manufacturer	Product Description	Model	FW	SW	Transport
Intel	Standard PCIe adapter with single QSFP28 interface	E810-2CQDA2	1.71		✓
Intel	Standard PCIe adapter with two QSFP28 interfaces	E810-CQDA1	1.71		✓
Intel	Standard PCIe adapter with two QSFP28 interfaces	E810-CQDA2	1.71		✓

Intel RoCE NICs		Model	E810-2CQDA2	E810-CQDA1	E810-CQDA2
		Date	2024-06-14-01	2024-06-14-01	2024-06-14-01
		Firmware Version	1.71	1.71	1.71
		Overall Results	Pass	Pass	Pass
Test Class	Name	Number	Results	Results	Results
Transport Layer	RC RDMA Send Only after RDMA Read	C09_027_01	Pass	Pass	Pass
	RC RDMA Write Only after RDMA Read	C09_027_02	Pass	Pass	Pass
	RC RDMARead Only after RDMA Read	C09_027_03	Pass	Pass	Pass
	RC Atomic FetchAdd after RDMA Read	C09_027_04	Pass	Pass	Pass
	RC Atomic CompSwap after RDMA Read	C09_027_05	Pass	Pass	Pass
	RC Atomic CompSwap after Atomic CompSwap	C09_027_06	N/A	N/A	N/A
	RC Atomic FetchAdd after Atomic CompSwap	C09_027_07	N/A	N/A	N/A
	RC Atomic FetchAdd after Atomic FetchAdd	C09_027_08	N/A	N/A	N/A
	RC Atomic CompSwap after Atomic FetchAdd	C09_027_09	N/A	N/A	N/A
	RC RDMA Send Only after Atomic CompSwap	C09_027_10	N/A	N/A	N/A
	RC RDMA Write Only after Atomic CompSwap	C09_027_11	N/A	N/A	N/A
	RC RDMA Send Only after Atomic FetchAdd	C09_027_12	N/A	N/A	N/A
	RC RDMA Write Only after Atomic Fetch Add	C09_027_13	N/A	N/A	N/A
	Completion Rules - RC RDMA Send Case	C09_060_01	Pass	Pass	Pass
	Completion Rules - RC RDMA Send Case (inverted)	C09_060_01_01	Pass	Pass	Pass
	Completion Rules - RC RDMA Write Case	C09_060_03	Pass	Pass	Pass
	Completion Rules - RC RDMA Write Case (inverted)	C09_060_03_01	Pass	Pass	Pass
	Completion Rules - RC RDMA Read Case	C09_060_05	Pass	Pass	Pass
	Completion Rules - RC RDMA Read Case (inverted)	C09_060_05_01	Pass	Pass	Pass
	Completion Rules - Atomic FetchAdd Case	C09_060_07	N/A	N/A	N/A
	Completion Rules - Atomic FetchAdd Case (inverted)	C09_060_07_01	N/A	N/A	N/A
	Completion Rules - Atomic CompSwap Case	C09_060_09	N/A	N/A	N/A
	Completion Rules - Atomic CompSwap Case (inverted)	C09_060_09_01	N/A	N/A	N/A
	Requester/Responder RNR NAK Behavior	C09_130_01	Pass	Pass	Pass
	Outstanding Request Timeout	C09_142_01	Pass	Pass	Pass



# IBTA RoCE Transport Compliance Plugfest 41      May 2024



Manufacturer	Product Description	Model	FW	SW	Transport
NVIDIA	NVIDIA ConnectX-7 HHHL Adapter Card, 400GbE/NDR IB, Single-port QSFP112	MCX715105AS-WEAT	28.40.1000	MLNX_OFED_LINUX-24.01-0.3.3.1	✓
NVIDIA	NVIDIA ConnectX-7 HHHL Adapter Card, 400GbE/NDR IB, Single-port OSFP	MCX75310AAS-NEAT	28.40.1000	MLNX_OFED_LINUX-24.01-0.3.3.1	✓
NVIDIA	Nvidia BlueField-3 B3140H E-series HHHL SuperNIC, 400GbE/NDR IB, Single-port QSFP112	900-9D3D4-00EN-HA0	32.40.1000	MLNX_OFED_LINUX-24.01-0.3.3.1	✓

NVIDIA RoCE NICs		Model	MCX715105AS-WEAT	MCX75310AAS-NEAT	900-9D3D4-00EN-HA0
		Date	2024-05-31-01	2024-05-31-01	2024-05-31-03
		Firmware Version	28.40.1000	28.40.1000	32.40.1000
		Overall Results	Pass	Pass	Pass
Test Class	Name	Number	Results	Results	Results
Transport Layer	RC RDMA Send Only after RDMA Read	C09_027_01	Pass	Pass	Pass
	RC RDMA Write Only after RDMA Read	C09_027_02	Pass	Pass	Pass
	RC RDMARead Only after RDMA Read	C09_027_03	Pass	Pass	Pass
	RC Atomic FetchAdd after RDMA Read	C09_027_04	Pass	Pass	Pass
	RC Atomic CompSwap after RDMA Read	C09_027_05	Pass	Pass	Pass
	RC Atomic CompSwap after Atomic CompSwap	C09_027_06	Pass	Pass	Pass
	RC Atomic FetchAdd after Atomic CompSwap	C09_027_07	Pass	Pass	Pass
	RC Atomic FetchAdd after Atomic FetchAdd	C09_027_08	Pass	Pass	Pass
	RC Atomic CompSwap after Atomic FetchAdd	C09_027_09	Pass	Pass	Pass
	RC RDMA Send Only after Atomic CompSwap	C09_027_10	Pass	Pass	Pass
	RC RDMA Write Only after Atomic CompSwap	C09_027_11	Pass	Pass	Pass
	RC RDMA Send Only after Atomic FetchAdd	C09_027_12	Pass	Pass	Pass
	RC RDMA Write Only after Atomic Fetch Add	C09_027_13	Pass	Pass	Pass
	Completion Rules - RC RDMA Send Case	C09_060_01	Pass	Pass	Pass
	Completion Rules - RC RDMA Send Case (inverted)	C09_060_01_01	Pass	Pass	Pass
	Completion Rules - RC RDMA Write Case	C09_060_03	Pass	Pass	Pass
	Completion Rules - RC RDMA Write Case (inverted)	C09_060_03_01	Pass	Pass	Pass
	Completion Rules - RC RDMA Read Case	C09_060_05	Pass	Pass	Pass
	Completion Rules - RC RDMA Read Case (inverted)	C09_060_05_01	Pass	Pass	Pass
	Completion Rules - Atomic FetchAdd Case	C09_060_07	Pass	Pass	Pass
	Completion Rules - Atomic FetchAdd Case (inverted)	C09_060_07_01	Pass	Pass	Pass
	Completion Rules - Atomic CompSwap Case	C09_060_09	Pass	Pass	Pass
	Completion Rules - Atomic CompSwap Case (inverted)	C09_060_09_01	Pass	Pass	Pass
	Requester/Responder RNR NAK Behavior	C09_130_01	Pass	Pass	Pass
Outstanding Request Timeout	C09_142_01	Pass	Pass	Pass	

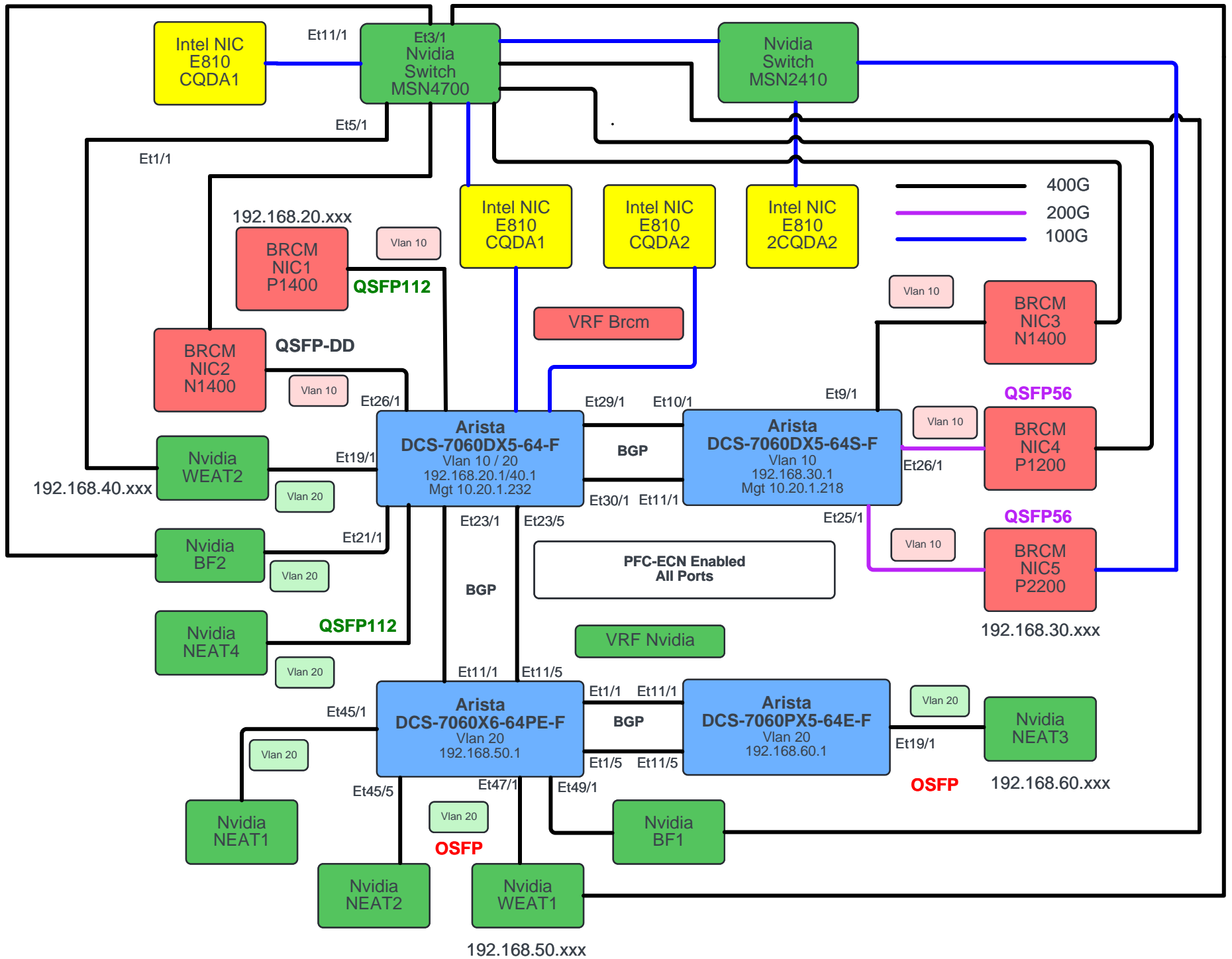
# IBTA PF41 RoCE Interoperability Scenarios

Scenario	RNIC-1	Switch-1	Switch-2	RNIC-2	Speed	Status
Interop 01	N1400-OCF	DCS-7060DX5-64-F	DCS-7060DX5-64S-F	N1400-OCF	400	Done
Interop 02	P1400-PCIE	DCS-7060DX5-64-F	DCS-7060DX5-64S-F	P1200-PCIE	200	Done
Interop 03	P1400-PCIE	DCS-7060DX5-64-F	DCS-7060DX5-64S-F	P2200-PCIE	200	Done
Interop 04	MCX75310AAS-NEAT	DCS-7060X6-64PE-F	DCS-7060PX5-64E-F	MCX75310AAS-NEAT	400	Done
Interop 05a	MCX75310AAS-NEAT	DCS-7060X6-64PE-F	DCS-7060PX5-64E-F	MCX75310AAS-NEAT	400	Done
Interop 05b	MCX75310AAS-NEAT	DCS-7060X6-64PE-F	DCS-7060PX5-64E-F	MCX75310AAS-NEAT	400	Done
Interop 05c	MCX75310AAS-NEAT	DCS-7060X6-64PE-F	DCS-7060PX5-64E-F	MCX75310AAS-NEAT	400	Done
Interop 05d	MCX75310AAS-NEAT	DCS-7060X6-64PE-F	DCS-7060PX5-64E-F	MCX75310AAS-NEAT	400	Done
Interop 06	MCX715105AS-WEAT	DCS-7060X6-64PE-F	DCS-7060DX5-64-F	MCX715105AS-WEAT	400	Done
Interop 07	900-9D3D4-00EN-HA0	DCS-7060X6-64PE-F	DCS-7060DX5-64-F	900-9D3D4-00EN-HA0	400	Done
Interop 08	MCX75310AAS-NEAT	DCS-7060X6-64PE-F	DCS-7060DX5-64-F	MCX75310AAS-NEAT	400	Done
Interop 09	E810-CQDA1	MSN4700		E810-CQDA1	100	Done
Interop 10	E810-CQDA1	MSN2410		P2200-PCIE	100	Done
Interop 11	E810-CQDA1	DCS-7060DX5-64-F		MCX715105AS-WEAT	100	Done
Interop 12	MCX75310AAS-NEAT	DCS-7060X6-64PE-F		MCX75310AAS-NEAT	400	Done
Interop 13	P2200-PCIE	MSN2410	MSN4700	P1200-PCIE	100	Done
Interop 14	N1400-OCF	MSN4700		N1400-OCF	400	Done
Interop 15	944-1419	DCS-7060X6-64PE-F	DCS-7060PX5-64E-F	944-1419	400	Done
Interop 16	944-1425	DCS-7060DX5-64-F	DCS-7060DX5-64-F	944-1425	400	Done
Interop 17	MCX715105AS-WEAT	MSN4700		MCX715105AS-WEAT	200	Done
Interop 18	MCX715105AS-WEAT			MCX715105AS-WEAT	400	Done
Interop 19	900-9D3D4-00EN-HA0	MSN4700		900-9D3D4-00EN-HA0	200	Done
Interop 20	900-9D3D4-00EN-HA0	DCS-7060DX5-64-F		900-9D3D4-00EN-HA0	400	Done
Interop 21	MCX715105AS-WEAT	DCS-7060DX5-64-F		P1400-PCIE	400	Done
Interop 22	900-9D3D4-00EN-HA0	DCS-7060DX5-64-F		N1400-OCF	400	Done
Interop 23	MCX75310AAS-NEAT	DCS-7060DX5-64-F		P2200-PCIE	200	Done
Interop 24	N1400-OCF	DCS-7060DX5-64S-F		N1400-OCF	400	Done
Interop 25	E810-CQDA2	DCS-7060DX5-64-F		P2200-PCIE	100	Done
Interop 26	E810-2CQDA2	MSN2410		P2200-PCIE	100	Done

Legend
AresONE
Arista
Broadcom
Intel
Nvidia

Current Draft 7/1/2024

Status		
100%	Done	29
0%	Open	0
0%	Partial	0
<b>Scenarios</b>	<b>Total</b>	<b>29</b>





# IBTA PF41 RoCE Interoperability

## 400 Gigabit Ethernet

### Scenario 1



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Switch #1	Cable Under Test	Switch #2	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJYEE6-0002	2	26	Copper - Unequalized	QSFP-DD	QSFP-DD	N1400-OCP	DCS-7060DX5-64-F	Cable Under Test	DCS-7060DX5-64S-F	N1400-OCP	8	400	Pass	Pass	Pass
Amphenol	NJYYLK-0003	3	32	Copper - Linear Active	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
Amphenol	NJYYLK-0009	3.5	32	Copper - Linear Active	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
Amphenol	NJYYLR-0004	4	30	Copper - Linear Active	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
BizLink	L45593-K880-C15	1.5	28	Copper - Unequalized	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
BizLink	L45593-K880-C15	1.5	28	Copper - Unequalized	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
BizLink	L45593-K880-C10	1	28	Copper - Unequalized	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
BizLink	L45593-K880-C10	1	28	Copper - Unequalized	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112						4	200	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112						4	200	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56						4	200	Pass	Pass	Pass
BizLink	L45593-D524-B30	3	26	Copper - Unequalized	QSFP56	QSFP56						4	200	Pass	Pass	Pass
BizLink	L45593-K815-C30	3	28	Copper - Passive Eq	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
BizLink	L45593-D815-E20	2	32	Copper - Passive Eq	QSFP112	QSFP112						4	200	Pass	Pass	Pass
BizLink	L45593-D815-C20	2	28	Copper - Passive Eq	QSFP112	QSFP112						4	200	Pass	Pass	Pass
BizLink	L45593-D815-C30	3	28	Copper - Passive Eq	QSFP112	QSFP112						4	200	Pass	Pass	Pass
Molex	1837280010	N/A	N/A	Fiber - Module Only	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
Siemon	D1D-56F10.0-2YQ	15	N/A	Fiber - Active	QSFP-DD	QSFP-DD						8	400	Pass	Pass	Pass
Volex	DQ58BDA20BS	2	28	Copper - Unequalized	QSFP-DD	QSFP-DD	8	400	Pass	Pass	Pass					
Volex	DQ56BDG30BS	3	26	Copper - Unequalized	QSFP-DD	QSFP-DD	8	400	Pass	Pass	Pass					
Volex	DQ66BDA20BS	2	26	Copper - Unequalized	QSFP-DD	QSFP-DD	8	400	Pass	Pass	Pass					

<b>RNIC #1 - Broadcom</b>	400 GbE	<b>SWITCH #1 - Arista</b>	400 GbE	<b>SWITCH #2 - Arista</b>	400 GbE	<b>RNIC #2 - Broadcom</b>
N1400-OCP	Link	DCS-7060DX5-64-F	Cable Under Test	DCS-7060DX5-64S-F	Link	N1400-OCP





# IBTA PF41 RoCE Interoperability

## 400 Gigabit Ethernet

### Scenario 3



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Switch #1	Cable Under Test	Switch #2	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJYYE6-0002	2	26	Copper - Unequalized	QSFP-DD	QSFP-DD	P1400-PCIE	DCS-7060DX5-64-F	NJYYE6-0002	DCS-7060DX5-64S-F	P2200-PCIE	8	400	Pass	Pass	Pass
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112			NJAALR-0003			4	200	Pass	Pass	Pass
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112			NJAALR-0002			4	200	Pass	Pass	Pass
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112			NJAALK-0003			4	200	Pass	Pass	Pass
Amphenol	NJYYLK-0003	3	32	Copper - Linear Active	QSFP-DD	QSFP-DD			NJYYLK-0003			8	400	Pass	Pass	Pass
Amphenol	NJYYLK-0009	3.5	32	Copper - Linear Active	QSFP-DD	QSFP-DD			NJYYLK-0009			8	400	Pass	Pass	Pass
Amphenol	NJYYLR-0004	4	30	Copper - Linear Active	QSFP-DD	QSFP-DD			NJYYLR-0004			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C15	1.5	28	Copper - Unequalized	QSFP-DD	QSFP-DD			L45593-K880-C15			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C15	1.5	28	Copper - Unequalized	QSFP-DD	QSFP-DD			L45593-K880-C15			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C10	1	28	Copper - Unequalized	QSFP-DD	QSFP-DD			L45593-K880-C10			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C10	1	28	Copper - Unequalized	QSFP-DD	QSFP-DD			L45593-K880-C10			8	400	Pass	Pass	Pass
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD			L45593-K279-C30			8	400	Pass	Pass	Pass
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD			L45593-K279-C30			8	400	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112			L45593-D880-B15			4	200	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112			L45593-D880-B15			4	200	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56			L45593-D524-D10			4	200	Pass	Pass	Pass
BizLink	L45593-D524-B30	3	26	Copper - Unequalized	QSFP56	QSFP56			L45593-D524-B30			4	200	Pass	Pass	Pass
BizLink	L45593-K815-C30	3	28	Copper - Passive Eq	QSFP-DD	QSFP-DD			L45593-K815-C30			8	400	Pass	Pass	Pass
Molex	1837280010	N/A	N/A	Fiber - Module Only	QSFP-DD	QSFP-DD			1837280010			8	400	Pass	Pass	Pass
Optomind Inc.	C4S448GA001AZZ	10	N/A	Fiber - Active	QSFP56	QSFP56			C4S448GA001AZZ			4	200	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56			Q1Q-56P03.0-8KB			4	200	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56			Q1Q-56P03.0-4BB			4	200	Pass	Pass	Pass
Siemon	Q1Q-56F10.0-2YQ	15	N/A	Fiber - Active	QSFP56	QSFP56			Q1Q-56F10.0-2YQ			4	200	Pass	Pass	Pass
Siemon	D1D-56F10.0-2YQ	15	N/A	Fiber - Active	QSFP-DD	QSFP-DD			D1D-56F10.0-2YQ			8	400	Pass	Pass	Pass
Volex	DQ58BDA20BS	2	28	Copper - Unequalized	QSFP-DD	QSFP-DD	DQ58BDA20BS	8	400	Pass	Pass	Pass				
Volex	DQ56BDG30BS	3	26	Copper - Unequalized	QSFP-DD	QSFP-DD	DQ56BDG30BS	8	400	Pass	Pass	Pass				

<b>RNIC #1 - Broadcom</b>	<b>400 GbE</b>	<b>SWITCH #1 - Arista</b>	<b>400 GbE</b>	<b>SWITCH #2 - Arista</b>	<b>200 GbE</b>	<b>RNIC #2 - Broadcom</b>
<b>P1400-PCIE</b>	Link	<b>DCS-7060DX5-64-F</b>	<b>Cable Under Test</b>	<b>DCS-7060DX5-64S-F</b>	Link	<b>P2200-PCIE</b>



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### Scenario 4



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Switch #1	Cable Under Test	Switch #2	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJMME-0016	4	25	Copper - Unequalized	OSFP-IHS	OSFP-IHS	ConnectX-7-OSFP	DCS-7060X6-64PE-F	NJMME-0016	DCS-7060PX5-64E-F	ConnectX-7-OSFP	8	400	Pass	Pass	Pass
Amphenol	NJMME-0015	3.5	25	Copper - Unequalized	OSFP-IHS	OSFP-IHS			NJMME-0015			8	400	Pass	Pass	Pass
Amphenol	NJMME-0003	3	25	Copper - Unequalized	OSFP-IHS	OSFP-IHS			NJMME-0003			8	400	Pass	Pass	Pass
Amphenol	NJMME-0005	2.5	25	Copper - Unequalized	OSFP-IHS	OSFP-IHS			NJMME-0005			8	400	Pass	Pass	Pass
Amphenol	NJMME-0002	2	25	Copper - Unequalized	OSFP-IHS	OSFP-IHS			NJMME-0002			8	400	Pass	Pass	Pass
Amphenol	NJMME-0004	1.5	30	Copper - Unequalized	OSFP-IHS	OSFP-IHS			NJMME-0004			8	400	Pass	Pass	Pass
Amphenol	NJMMLR-0008	2.5	30	Copper - Linear Active	OSFP-IHS	OSFP-IHS			NJMMLR-0008			8	400	Pass	Pass	Pass
Amphenol	NJMMLR-0003	3	30	Copper - Linear Active	OSFP-IHS	OSFP-IHS			NJMMLR-0003			8	400	Pass	Pass	Pass
Amphenol	NDVVYF-0002	2	30	Copper - Unequalized	OSFP-IHS	OSFP-IHS			NDVVYF-0002			8	400	Pass	Pass	Pass
Amphenol	NJMMRU-0001	1	26	Copper - Unequalized	OSFP-IHS	OSFP-IHS			NJMMRU-0001			8	400	Pass	Pass	Pass
Amphenol	NJMMRU-0007	1.5	26	Copper - Unequalized	OSFP-IHS	OSFP-IHS			NJMMRU-0007			8	400	Pass	Pass	Pass
BizLink	L45593-L880-C10	1	28	Copper - Unequalized	OSFP-IHS	OSFP-IHS			L45593-L880-C10			8	400	Pass	Pass	Pass
BizLink	L45593-L880-C10	1	28	Copper - Unequalized	OSFP-IHS	OSFP-IHS			L45593-L880-C10			8	400	Pass	Pass	Pass
BizLink	L45593-L279-C30	3	28	Copper - Unequalized	OSFP-IHS	OSFP-IHS			L45593-L279-C30			8	400	Pass	Pass	Pass
BizLink	L45593-L279-C30	3	28	Copper - Unequalized	OSFP-IHS	OSFP-IHS			L45593-L279-C30			8	400	Pass	Pass	Pass
Cisco Systems	CMUIAX5CAA	2000	N/A	Fiber - Active	OSFP-IHS	OSFP-IHS			CMUIAX5CAA			4	400	Pass	Pass	Pass
Cisco Systems	CMUIAX5CAA	2000	N/A	Fiber - Active	OSFP-IHS	OSFP-IHS			CMUIAX5CAA			4	400	Pass	Pass	Pass
Cloud Light	8654-W1-1302	50	N/A	Fiber - Module Only	OSFP-IHS	OSFP-IHS			8654-W1-1302			8	400	Pass	Pass	Pass
CONNPRO.Ind.	RINF9TF9T10002	1	28	Copper - Unequalized	OSFP-IHS	OSFP-IHS			RINF9TF9T10002			8	400	Pass	Pass	Pass
FIT Electronics	CUKKP72-CZZ10-EF	2.5	26	Copper - Passive Eq	OSFP-IHS	OSFP-IHS			CUKKP72-CZZ10-EF			8	400	Pass	Pass	Pass
FIT Electronics	CUKKP72-2ZZ10-EF	2	26	Copper - Passive Eq	OSFP-IHS	OSFP-IHS			CUKKP72-2ZZ10-EF			8	400	Pass	Pass	Pass
FIT Electronics	CUKKP72-BZZ10-EF	1.5	26	Copper - Passive Eq	OSFP-IHS	OSFP-IHS			CUKKP72-BZZ10-EF			8	400	Pass	Pass	Pass
FIT Electronics	CUKKP73-BZZ10-EF	1.5	28	Copper - Passive Eq	OSFP-IHS	OSFP-IHS			CUKKP73-BZZ10-EF			8	400	Pass	Pass	Pass
FIT Electronics	CUKKP73-1ZZ10-EF	1	28	Copper - Passive Eq	OSFP-IHS	OSFP-IHS			CUKKP73-1ZZ10-EF			8	400	Pass	Pass	Pass
FIT Electronics	CUKKP74-1ZZ10-EF	1	30	Copper - Passive Eq	OSFP-IHS	OSFP-IHS			CUKKP74-1ZZ10-EF			8	400	Pass	Pass	Pass
Molex	1837290000	N/A	N/A	Fiber - Module Only	OSFP-IHS	OSFP-IHS			1837290000			4	400	Pass	Pass	Pass
Nvidia	MMA4Z00-NS	0	0	Fiber - Module Only	OSFP-IHS	OSFP-IHS			MMA4Z00-NS			4	400	Pass	Pass	Pass
Nvidia	MMS4X00-NS	0	0	Fiber - Module Only	OSFP-IHS	OSFP-IHS			MMS4X00-NS			4	400	Pass	Pass	Pass
Optomind Inc.	T8F8NHFN000DZZ	50	N/A	Fiber - Active	OSFP-IHS	OSFP-IHS			T8F8NHFN000DZZ			4	400	Pass	Pass	Pass
Siemon	F1F112F10.0-2YQ	15	N/A	Fiber - Active	OSFP-IHS	OSFP-IHS			F1F112F10.0-2YQ			4	400	Pass	Pass	Pass
Volex	O1O56V28VP200D	2	28	Copper - Unequalized	OSFP-IHS	OSFP-IHS	O1O56V28VP200D	8	400	Pass	Pass	Pass				
Volex	DE66BDG20BS	2	26	Copper - Unequalized	OSFP-IHS	OSFP-IHS	DE66BDG20BS	8	400	Pass	Pass	Pass				

<b>RNIC #1 - NVIDIA</b>	<b>400 GbE</b>	<b>SWITCH - Arista</b>	<b>400 GbE</b>	<b>SWITCH - Arista</b>	<b>400 GbE</b>	<b>RNIC #2 - NVIDIA</b>
<b>ConnectX-7-OSFP</b>	Link	<b>DCS-7060X6-64PE-F</b>	<b>Cable Under Test</b>	<b>DCS-7060PX5-64E-F</b>	Link	<b>ConnectX-7-OSFP</b>



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### Scenario 5



Scenario 5a									
RNIC #1 - NVIDIA	Nvidia Transceivers		SWITCH #1 - Arista Networks	Molex Transceivers		SWITCH #2 - Arista Networks	Nvidia Transceivers		RNIC #2 - NVIDIA
ConnectX-7-OSFP	MMA4Z00-NS400	MMA4Z00-NS	DCS-7060X6-64PE-F	1837290000	1837290000	DCS-7060PX5-64E-F	MMA4Z00-NS	MMA4Z00-NS400	ConnectX-7-OSFP

Scenario 5b									
RNIC #1 - NVIDIA	Nvidia Transceivers		SWITCH #1 - Arista Networks	Molex Transceivers		SWITCH #2 - Arista Networks	Nvidia Transceivers		RNIC #2 - NVIDIA
ConnectX-7-OSFP	MMS4X00-NS400	MMS4X00-NS	DCS-7060X6-64PE-F	1837290000	1837290000	DCS-7060PX5-64E-F	MMS4X00-NS	MMS4X00-NS400	ConnectX-7-OSFP

Scenario 5c									
RNIC #1 - NVIDIA	Nvidia Transceivers		SWITCH #1 - Arista Networks	Molex Transceivers		SWITCH #2 - Arista Networks	Nvidia Transceivers		RNIC #2 - NVIDIA
ConnectX-7-OSFP	MMS4X00-NS400	MMA4Z00-NS	DCS-7060X6-64PE-F	1837290000	1837290000	DCS-7060PX5-64E-F	MMS4X00-NS	MMS4X00-NS400	ConnectX-7-OSFP

Scenario 5d									
RNIC #1 - NVIDIA	Nvidia Transceivers		SWITCH #1 - Arista Networks	Molex Transceivers		SWITCH #2 - Arista Networks	Nvidia Transceivers		RNIC #2 - NVIDIA
ConnectX-7-OSFP	MMA4Z00-NS400	MMA4Z00-NS	DCS-7060X6-64PE-F	1837290000	1837290000	DCS-7060PX5-64E-F	MMS4X00-NS	MMS4X00-NS400	ConnectX-7-OSFP

Transceiver Legend			
Molex	1837290000	800G (2x400GSR4)	IHS
Nvidia	MMA4Z00-NS	800G (2x400GSR4)	IHS
Nvidia	MMS4X00-NS	800G (2x400GDR4)	IHS
Nvidia	MMA4Z00-NS400	400G SR4	RHS
Nvidia	MMS4X00-NS400	400G DR4	RHS



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### Scenario 6



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Switch #1	Cable Under Test	Switch #2	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJMYE6-0001	1	26	Copper - Unequalized	OSFP-IHS	QSFP-DD	ConnectX-7-QSFP	DCS-7060X6-64PE-F	NJMYE6-0001	DCS-7060DX5-64-F	ConnectX-7-QSFP	4	400	Pass	Pass	Pass
Amphenol	NJMYE6-0007	1.5	26	Copper - Unequalized	OSFP-IHS	QSFP-DD			NJMYE6-0007			4	400	Pass	Pass	Pass
BizLink	L45593-M880-C15	1.5	28	Copper - Unequalized	OSFP-IHS	QSFP-DD			L45593-M880-C15			4	400	Pass	Pass	Pass
Cloud Light	8654-W1-1302	50	N/A	Fiber - Module Only	OSFP-IHS	QSFP112			8654-W1-1302			4	400	Pass	Pass	Pass
Molex	1837150087	N/A	N/A	Fiber - Module Only	QSFP112	OSFP-IHS			1837150087			4	400	Pass	Pass	Pass
Nvidia	MMA4Z00-NS	0	0	Fiber - Module Only	OSFP-IHS	QSFP112			MMA4Z00-NS			4	400	Pass	Pass	Pass
<b>RNIC #1 - NVIDIA</b>		<b>400 GbE</b>	<b>SWITCH #1 - Arista</b>				<b>400 GbE</b>		<b>SWITCH #2 - Arista</b>		<b>400 GbE</b>	<b>RNIC #2 - NVIDIA</b>				
<b>ConnectX-7-QSFP</b>		Link	<b>DCS-7060X6-64PE-F</b>				<b>Cable Under Test</b>		<b>DCS-7060DX5-64-F</b>		Link	<b>ConnectX-7-QSFP</b>				



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### Scenario 7



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Switch #1	Cable Under Test	Switch #2	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJMYE6-0001	1	26	Copper - Unequalized	OSFP-IHS	QSFP-DD	BlueField-3	DCS-7060X6-64PE-F	NJMYE6-0001	DCS-7060DX5-64-F	BlueField-3	8	400	Pass	Pass	Pass
Amphenol	NJMYE6-0007	1.5	26	Copper - Unequalized	OSFP-IHS	QSFP-DD			NJMYE6-0007			8	400	Pass	Pass	Pass
Molex	1837150087	N/A	N/A	Fiber - Module Only	QSFP112	OSFP-IHS			1837150087			4	400	Pass	Pass	Pass
Nvidia	MMA4Z00-NS	0	0	Fiber - Module Only	OSFP-IHS	QSFP112			MMA4Z00-NS			4	400	Pass	Pass	Pass
Optomind Inc.	T8F8NHFN000DZZ	50	N/A	Fiber - Active	OSFP-IHS	QSFP112			T8F8NHFN000DZZ			4	400	Pass	Pass	Pass

<b>RNIC #1 - NVIDIA</b>	<b>400 GbE</b>	<b>SWITCH #1 - Arista</b>	<b>400 GbE</b>	<b>SWITCH #2 - Arista</b>	<b>400 GbE</b>	<b>RNIC #2 - NVIDIA</b>
BlueField-3	Link	DCS-7060X6-64PE-F	Cable Under Test	DCS-7060DX5-64-F	Link	BlueField-3





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### Scenario 8



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Switch #1	Cable Under Test	Switch #2	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJMYE6-0001	1	26	Copper - Unequalized	OSFP-IHS	QSFP-DD	ConnectX-7-OSFP	DCS-7060X6-64PE-F	NJMYE6-0001	DCS-7060DX5-64-F	ConnectX-7-OSFP	8x	400	Pass	Pass	Pass
Amphenol	NJMYE6-0007	1.5	26	Copper - Unequalized	OSFP-IHS	QSFP-DD			NJMYE6-0007			8x	400	Pass	Pass	Pass
BizLink	L45593-M880-C15	1.5	28	Copper - Unequalized	OSFP-IHS	QSFP-DD			L45593-M880-C15			8x	400	Pass	Pass	Pass
Molex	1837150087	N/A	N/A	Fiber - Module Only	QSFP112	OSFP-IHS			1837150087			4x	400	Pass	Pass	Pass
Optomind Inc.	T8F8NHFN000DZZ	50	N/A	Fiber - Active	OSFP-IHS	QSFP112			T8F8NHFN000DZZ			8x	400	Pass	Pass	Pass

<b>RNIC #1 - NVIDIA</b>	<b>400 GbE</b>	<b>SWITCH #1 - Arista</b>	<b>400 GbE</b>	<b>SWITCH #2 - Arista</b>	<b>400 GbE</b>	<b>RNIC #2 - NVIDIA</b>
ConnectX-7-OSFP	Link	DCS-7060X6-64PE-F	Cable Under Test	DCS-7060DX5-64-F	Link	ConnectX-7-OSFP



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## 400 Gigabit Ethernet

### Scenario 12



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Cisco Systems	CMUIAX5CAA	2000	N/A	Fiber - Active	OSFP-IHS	OSFP-RHS	ConnectX-7-OSFP	CMUIAX5CAA	DCS-7060X6-64PE-F	ConnectX-7-OSFP	4	400	Pass	Pass	Pass
Cisco Systems	CMUIAX5CAA	2000	N/A	Fiber - Active	OSFP-IHS	OSFP-RHS		CMUIAX5CAA			4	400	Pass	Pass	Pass
Nvidia	MCP7Y00-N002	2	26	Copper - Unequalized	OSFP-IHS	Hybrid - OSFP-IHS-2-OSFP-RHS		MCP7Y00-N002			4	400	Pass	Pass	Pass
Nvidia	MCP7Y00-N002	2	26	Copper - Unequalized	OSFP-IHS	Hybrid - OSFP-IHS-2-OSFP-RHS		MCP7Y00-N002			4	400	Pass	Pass	Pass
Siemon	F2R112F10.0-2YQ	15	N/A	Fiber - Active	OSFP-IHS	Hybrid - OSFP-IHS-2-OSFP-RHS		F2R112F10.0-2YQ			4	400	Pass	Pass	Pass

<b>RNIC #1 - NVIDIA</b>	<b>400 GbE</b>	<b>SWITCH - Arista</b>	<b>400 GbE</b>	<b>RNIC #2 - NVIDIA</b>
<b>ConnectX-7-OSFP</b>	<b>Cable Under Test</b>	<b>DCS-7060X6-64PE-F</b>	<b>Link</b>	<b>ConnectX-7-OSFP</b>



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### Scenario 14



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJYYE6-0002	2	26	Copper - Unequalized	QSFP-DD	QSFP-DD	N1400-OCF	NJYYE6-0002	MSN4700	N1400-OCF	8	400	Pass	Pass	Pass
Amphenol	NJYYLK-0003	3	32	Copper - Linear Active	QSFP-DD	QSFP-DD		NJYYLK-0003			8	400	Pass	Pass	Pass
Amphenol	NJYYLK-0009	3.5	32	Copper - Linear Active	QSFP-DD	QSFP-DD		NJYYLK-0009			8	400	Pass	Pass	Pass
Amphenol	NJYYLR-0004	4	30	Copper - Linear Active	QSFP-DD	QSFP-DD		NJYYLR-0004			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C15	1.5	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K880-C15			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C15	1.5	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K880-C15			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C10	1	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K880-C10			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C10	1	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K880-C10			8	400	Pass	Pass	Pass
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K279-C30			8	400	Pass	Pass	Pass
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K279-C30			8	400	Pass	Pass	Pass
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K279-C30			8	400	Pass	Pass	Pass
BizLink	L45593-K815-C30	3	28	Copper - Passive Eq	QSFP-DD	QSFP-DD		L45593-K815-C30			8	400	Pass	Pass	Pass
Siemon	D1D-56F10.0-2YQ	15	N/A	Fiber - Active	QSFP-DD	QSFP-DD		D1D-56F10.0-2YQ			8	400	Pass	Pass	Pass
Volex	DQ58BDA20BS	2	28	Copper - Unequalized	QSFP-DD	QSFP-DD		DQ58BDA20BS			8	400	Pass	Pass	Pass
Volex	DQ56BDG30BS	3	26	Copper - Unequalized	QSFP-DD	QSFP-DD		DQ56BDG30BS			8	400	Pass	Pass	Pass
Volex	DQ66BDA20BS	2	26	Copper - Unequalized	QSFP-DD	QSFP-DD		DQ66BDA20BS			8	400	Pass	Pass	Pass

RNIC #1 - Broadcom	400 GbE	SWITCH - NVIDIA	RNIC #2 - Broadcom
N1400-OCF	Cable Under Test	MSN4700	N1400-OCF



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### Scenario 18



Company	Part Number	Length Meters	AWG	Equalization	Connector Type	Connector Type	RNIC #1	Cable Under Test	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112	ConnectX-7-QSFP	L45593-D880-B15	ConnectX-7-QSFP	4	400	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15		4	400	Pass	Pass	Pass
Molex	1837150087	N/A	N/A	Fiber - Module Only	QSFP112	QSFP112		1837150087		4	400	Pass	Pass	Pass
Molex	1837280024	N/A	N/A	Fiber - Module Only	QSFP112	QSFP112		1837280024		4	400	Pass	Pass	Pass

<b>RNIC #1 - NVIDIA</b>	<b>400 GbE</b>	<b>RNIC #2 - NVIDIA</b>
<b>ConnectX-7-QSFP</b>	<b>Cable Under Test</b>	<b>ConnectX-7-QSFP</b>



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### Scenario 20



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112	BlueField-3	L45593-D880-B15	DCS-7060DX5-64-F	BlueField-3	4	400	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4	400	Pass	Pass	Pass
Molex	1837150087	N/A	N/A	Fiber - Module Only	QSFP112	QSFP112		1837150087			4	400	Pass	Pass	Pass

<b>RNIC #1 - NVIDIA</b>	<b>400 GbE</b>	<b>SWITCH - Arista</b>	<b>400 GbE</b>	<b>RNIC #2 - NVIDIA</b>
BlueField-3	Cable Under Test	DCS-7060DX5-64-F	Link	BlueField-3





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### Scenario 21



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112	ConnectX-7-QSFP	NJAALR-0003	DCS-7060DX5-64-F	P1400-PCIE	4	400	Pass	Pass	Pass
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112		NJAALR-0002			4	400	Pass	Pass	Pass
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112		NJAALK-0003			4	200	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4	400	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4	400	Pass	Pass	Pass
BizLink	L45593-D224-D10	1	30	Copper - Unequalized	QSFP28	QSFP28		L45593-D224-D10			4	100	Pass	Pass	Pass
BizLink	L45593-D224-B50	5	26	Copper - Unequalized	QSFP28	QSFP28		L45593-D224-B50			4	100	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-D10			4	200	Pass	Pass	Pass
BizLink	L45593-D524-B30	3	26	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-B30			4	200	Pass	Pass	Pass
Molex	1837150087	N/A	N/A	Fiber - Module Only	QSFP112	QSFP112		1837150087			4	400	Pass	Pass	Pass
Optomind Inc.	C4S448GA001AZZ	10	N/A	Fiber - Active	QSFP56	QSFP56		C4S448GA001AZZ			4	200	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-8KB			4	200	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-4BB			4	200	Pass	Pass	Pass
Siemon	Q1Q-56F10.0-2YQ	15	N/A	Fiber - Active	QSFP56	QSFP56		Q1Q-56F10.0-2YQ			4	200	Pass	Pass	Pass

RNIC #1 - NVIDIA	400GbE	SWITCH - Arista	400GbE	RNIC #2 - Broadcom
ConnectX-7-QSFP	Cable Under Test	DCS-7060DX5-64-F	Link	P1400-PCIE



# IBTA PF41 RoCE Interoperability

## 400 Gigabit Ethernet

### Scenario 22



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112	BlueField-3	NJAALR-0003	DCS-7060DX5-64-F	N1400-OCF	4	400	Pass	Pass	Pass
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112		NJAALR-0002			4	400	Pass	Pass	Pass
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112		NJAALK-0003			4	400	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4	400	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4	400	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-D10			4	200	Pass	Pass	Pass
BizLink	L45593-D524-B30	3	26	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-B30			4	200	Pass	Pass	Pass
BizLink	L45593-D815-E20	2	32	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-E20			4	400	Pass	Pass	Pass
BizLink	L45593-D815-C20	2	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C20			4	400	Pass	Pass	Pass
BizLink	L45593-D815-C30	3	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C30			4	400	Pass	Pass	Pass
Optomind Inc.	C4S448GA001AZZ	10	N/A	Fiber - Active	QSFP56	QSFP56		C4S448GA001AZZ			4	200	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-8KB			4	200	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-4BB			4	200	Pass	Pass	Pass
Siemon	Q1Q-56F10.0-2YQ	15	N/A	Fiber - Active	QSFP56	QSFP56		Q1Q-56F10.0-2YQ			4	200	Pass	Pass	Pass

RNIC #1 - NVIDIA	400 GbE	SWITCH - Arista	400 GbE	RNIC #2 - Broadcom
BlueField-3	Cable Under Test	DCS-7060DX5-64-F	Link	N1400-OCF



# IBTA PF41 RoCE Interoperability

## 400 Gigabit Ethernet

### Scenario 24



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJYYE6-0002	2	26	Copper - Unequalized	QSFP-DD	QSFP-DD	N1400-OCP	NJYYE6-0002	DCS-7060DX5-64S-F	N1400-OCP	8	400	Pass	Pass	Pass
Amphenol	NJYYLK-0003	3	32	Copper - Linear Active	QSFP-DD	QSFP-DD		NJYYLK-0003			8	400	Pass	Pass	Pass
Amphenol	NJYYLK-0009	3.5	32	Copper - Linear Active	QSFP-DD	QSFP-DD		NJYYLK-0009			8	400	Pass	Pass	Pass
Amphenol	NJYYLR-0004	4	30	Copper - Linear Active	QSFP-DD	QSFP-DD		NJYYLR-0004			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C15	1.5	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K880-C15			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C15	1.5	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K880-C15			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C10	1	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K880-C10			8	400	Pass	Pass	Pass
BizLink	L45593-K880-C10	1	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K880-C10			8	400	Pass	Pass	Pass
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K279-C30			8	400	Pass	Pass	Pass
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K279-C30			8	400	Pass	Pass	Pass
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD		L45593-K279-C30			8	400	Pass	Pass	Pass
BizLink	L45593-K815-C30	3	28	Copper - Passive Eq	QSFP-DD	QSFP-DD		L45593-K815-C30			8	400	Pass	Pass	Pass
Molex	1837280010	N/A	N/A	Fiber - Module Only	QSFP-DD	QSFP-DD		1837280010			8	400	Pass	Pass	Pass
Siemon	D1D-56F10.0-2YQ	15	N/A	Fiber - Active	QSFP-DD	QSFP-DD		D1D-56F10.0-2YQ			8	400	Pass	Pass	Pass
Volex	DQ58BDA20BS	2	28	Copper - Unequalized	QSFP-DD	QSFP-DD		DQ58BDA20BS			8	400	Pass	Pass	Pass
Volex	DQ56BDG30BS	3	26	Copper - Unequalized	QSFP-DD	QSFP-DD		DQ56BDG30BS			8	400	Pass	Pass	Pass
Volex	DQ66BDA20BS	2	26	Copper - Unequalized	QSFP-DD	QSFP-DD	DQ66BDA20BS	8	400	Pass	Pass	Pass			

<b>RNIC #1 - Broadcom</b>	<b>400 GbE</b>	<b>SWITCH - Arista</b>	<b>400 GbE</b>
<b>N1400-OCP</b>	<b>Cable Under Test</b>	<b>DCS-7060DX5-64S-F</b>	<b>Link</b>
			<b>RNIC #2 - Broadcom</b>
			<b>N1400-OCP</b>



# IBTA PF41 RoCE Interoperability

## 200 Gigabit Ethernet

### Scenario 2



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Switch #1	Cable Under Test	Switch #2	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJYYE6-0002	2	26	Copper - Unequalized	QSFP-DD	QSFP-DD	P1400-PCIE	DCS-7060DX5-64-F	NJYYE6-0002	DCS-7060DX5-64S-F	P1200-PCIE	4	200	Pass	Pass	Pass
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112			4			200	Pass	Pass	Pass	
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112			4			200	Pass	Pass	Pass	
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112			4			200	Pass	Pass	Pass	
Amphenol	NJYYLK-0003	3	32	Copper - Linear Active	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
Amphenol	NJYYLK-0009	3.5	32	Copper - Linear Active	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
Amphenol	NJYYLR-0004	4	30	Copper - Linear Active	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
BizLink	L45593-K880-C15	1.5	28	Copper - Unequalized	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
BizLink	L45593-K880-C15	1.5	28	Copper - Unequalized	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
BizLink	L45593-K880-C10	1	28	Copper - Unequalized	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
BizLink	L45593-K880-C10	1	28	Copper - Unequalized	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
BizLink	L45593-K279-C30	3	28	Copper - Unequalized	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112			4			200	Pass	Pass	Pass	
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112			4			200	Pass	Pass	Pass	
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56			4			200	Pass	Pass	Pass	
BizLink	L45593-D524-B30	3	26	Copper - Unequalized	QSFP56	QSFP56			4			200	Pass	Pass	Pass	
BizLink	L45593-K815-C30	3	28	Copper - Passive Eq	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
BizLink	L45593-D815-E20	2	32	Copper - Passive Eq	QSFP112	QSFP112			4			200	Pass	Pass	Pass	
BizLink	L45593-D815-C20	2	28	Copper - Passive Eq	QSFP112	QSFP112			4			200	Pass	Pass	Pass	
BizLink	L45593-D815-C30	3	28	Copper - Passive Eq	QSFP112	QSFP112			4			200	Pass	Pass	Pass	
Molex	1837280010	N/A	N/A	Fiber - Module Only	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56			4			200	Pass	Pass	Pass	
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56			4			200	Pass	Pass	Pass	
Siemon	Q1Q-56F10.0-2YQ	15	N/A	Fiber - Active	QSFP56	QSFP56			4			200	Pass	Pass	Pass	
Vollex	DQ58BDA20BS	2	28	Copper - Unequalized	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	
Vollex	DQ56BDG30BS	3	26	Copper - Unequalized	QSFP-DD	QSFP-DD			4			200	Pass	Pass	Pass	

<b>RNIC #1 - Broadcom</b>	<b>400 GbE</b>	<b>SWITCH #1 - Arista</b>	<b>200 GbE</b>	<b>SWITCH #2 - Arista</b>	<b>200 GbE</b>	<b>RNIC #2 - Broadcom</b>
<b>P1400-PCIE</b>	Link	<b>DCS-7060DX5-64-F</b>	<b>Cable Under Test</b>	<b>DCS-7060DX5-64S-F</b>	Link	<b>P1200-PCIE</b>



# IBTA PF41 RoCE Interoperability

## 200 Gigabit Ethernet

### Scenario 17



Company	Part Number	Length Meters	AWG	Equalization	Connector Type	Connector Type	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112	ConnectX-7-QSFP	NJAALR-0003	MSN4700	ConnectX-7-QSFP	4	200	Pass	Pass	Pass
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112		NJAALR-0002			4	200	Pass	Pass	Pass
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112		NJAALK-0003			4	200	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4	200	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4	200	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-D10			4	200	Pass	Pass	Pass
Optomind Inc.	C4S448GA001AZZ	10	N/A	Fiber - Active	QSFP56	QSFP56		C4S448GA001AZZ			4	200	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-8KB			4	200	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-4BB			4	200	Pass	Pass	Pass
Siemon	Q1Q-56F10.0-2YQ	15	N/A	Fiber - Active	QSFP56	QSFP56		Q1Q-56F10.0-2YQ			4	200	Pass	Pass	Pass
Volex	DA66BDG20BS	2	26	Copper - Unequalized	QSFP112	QSFP112		DA66BDG20BS			4	200	Pass	Pass	Pass

<b>RNIC #1 - NVIDIA</b>	<b>200 GbE</b>	<b>SWITCH - NVIDIA</b>	<b>200 GbE</b>	<b>RNIC #2 - NVIDIA</b>
ConnectX-7-QSFP	Cable Under Test	MSN4700	Link	ConnectX-7-QSFP





# IBTA PF41 RoCE Interoperability

## 200 Gigabit Ethernet

### Scenario 19



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112	BlueField-3	NJAALR-0003	MSN4700	BlueField-3	4	200	Pass	Pass	Pass
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112		NJAALR-0002			4	200	Pass	Pass	Pass
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112		NJAALK-0003			4	200	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4	200	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4	200	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-D10			4	200	Pass	Pass	Pass
BizLink	L45593-D524-B30	3	26	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-B30			4	200	Pass	Pass	Pass
BizLink	L45593-D815-E20	2	32	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-E20			4	200	Pass	Pass	Pass
BizLink	L45593-D815-C20	2	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C20			4	200	Pass	Pass	Pass
BizLink	L45593-D815-C30	3	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C30			4	200	Pass	Pass	Pass
Optomind Inc.	C4S448GA001AZZ	10	N/A	Fiber - Active	QSFP56	QSFP56		C4S448GA001AZZ			4	200	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-8KB			4	200	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-4BB			4	200	Pass	Pass	Pass
Siemon	Q1Q-56F10.0-2YQ	15	N/A	Fiber - Active	QSFP56	QSFP56		Q1Q-56F10.0-2YQ			4	200	Pass	Pass	Pass
Volex	DA66BDG20BS	2	26	Copper - Unequalized	QSFP112	QSFP112		DA66BDG20BS			4	200	Pass	Pass	Pass

RNIC #1 - NVIDIA	200 GbE	SWITCH - NVIDIA	200 GbE	RNIC #2 - NVIDIA
BlueField-3	Cable Under Test	MSN4700	Link	BlueField-3



# IBTA PF41 RoCE Interoperability

## 200 Gigabit Ethernet

### Scenario 23



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
BizLink	L45593-M881-C10	1	28	Copper - Unequalized	OSFP-RHS	QSFP-DD	ConnectX-7-OSFP	L45593-M881-C10	DCS-7060DX5-64-F	P2200-PCIE	4	200	Pass	Pass	Pass
BizLink	L45593-M881-C15	1.5	28	Copper - Unequalized	OSFP-RHS	QSFP-DD		L45593-M881-C15			4	200	Pass	Pass	Pass
Molex	1837280010	N/A	N/A	Fiber - Module Only	QSFP-DD	OSFP-RHS		1837280010			4	200	Pass	Pass	Pass
Nvidia	MMA4Z00-NS400	0	0	Fiber - Module Only	OSFP-RHS	QSFP-DD		MMA4Z00-NS400			4	200	Pass	Pass	Pass

<b>RNIC #1 - NVIDIA</b>	<b>200 GbE</b>	<b>SWITCH - Arista</b>	<b>200 GbE</b>	<b>RNIC #2 - Broadcom</b>
<b>ConnectX-7-OSFP</b>	<b>Cable Under Test</b>	<b>DCS-7060DX5-64-F</b>	<b>Link</b>	<b>P2200-PCIE</b>



# IBTA PF41 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 9



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result	
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112	E810-CQDA1	NJAALR-0003	MSN4700	E810-CQDA1	4x	100	Pass	Pass	Pass	
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112		NJAALR-0002			4x	100	Pass	Pass	Pass	Pass
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112		NJAALK-0003			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D224-D10	1	30	Copper - Unequalized	QSFP28	QSFP28		L45593-D224-D10			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D224-B50	5	26	Copper - Unequalized	QSFP28	QSFP28		L45593-D224-B50			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-D10			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D815-E20	2	32	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-E20			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D815-C20	2	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C20			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D815-C30	3	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C30			4x	100	Pass	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-8KB			4x	100	Pass	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-4BB			4x	100	Pass	Pass	Pass	Pass

RNIC #1 - Intel	100 GbE	SWITCH #1 - NVIDIA	E810-CQDA1
E810-CQDA1	Cable Under Test	MSN4700	Link
			RNIC #2 - Intel
			E810-CQDA1



# IBTA PF41 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 10



Company	Part Number	Length Meters	AWG	Equalization	Connector Type	Connector Type	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112	E810-CQDA1	NJAALR-0003	MSN2410-100	P2200-PCIE	4x	100	Pass	Pass	Pass
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112		NJAALR-0002			4x	100	Pass	Pass	Pass
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112		NJAALK-0003			4x	100	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4x	100	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4x	100	Pass	Pass	Pass
BizLink	L45593-D224-D10	1	30	Copper - Unequalized	QSFP28	QSFP28		L45593-D224-D10			4x	100	Pass	Pass	Pass
BizLink	L45593-D224-B50	5	26	Copper - Unequalized	QSFP28	QSFP28		L45593-D224-B50			4x	100	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-D10			4x	100	Pass	Pass	Pass
BizLink	L45593-D815-E20	2	32	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-E20			4x	100	Pass	Pass	Pass
BizLink	L45593-D815-C20	2	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C20			4x	100	Pass	Pass	Pass
BizLink	L45593-D815-C30	3	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C30			4x	100	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-8KB			4x	100	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-4BB			4x	100	Pass	Pass	Pass

RNIC #1 - Intel	100 GbE	SWITCH #1 - NVIDIA	100 GbE	RNIC #2 - Broadcom
E810-CQDA1	Cable Under Test	MSN2410-100	Link	P2200-PCIE



# IBTA PF41 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 11



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result	
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112	E810-CQDA1	NJAALR-0003	DCS-7060DX5-64-F	ConnectX-7-QSFP	4x	100	Pass	Pass	Pass	
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112		NJAALR-0002			4x	100	Pass	Pass	Pass	Pass
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112		NJAALK-0003			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D224-D10	1	30	Copper - Unequalized	QSFP28	QSFP28		L45593-D224-D10			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D224-B50	5	26	Copper - Unequalized	QSFP28	QSFP28		L45593-D224-B50			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-D10			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D524-B30	3	26	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-B30			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D815-E20	2	32	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-E20			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D815-C20	2	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C20			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D815-C30	3	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C30			4x	100	Pass	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-8KB			4x	100	Pass	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-4BB			4x	100	Pass	Pass	Pass	Pass

<b>RNIC #1 - Intel</b>	<b>100 GbE</b>	<b>SWITCH #1 - Arista</b>	<b>100 GbE</b>	<b>RNIC #2 - NVIDIA</b>
<b>E810-CQDA1</b>	<b>Cable Under Test</b>	<b>DCS-7060DX5-64-F</b>	<b>Link</b>	<b>ConnectX-7-QSFP</b>



# IBTA PF41 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 13



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Switch #1	Cable Under Test	Switch #2	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result				
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112	P2200-PCIE	MSN2410-100	NJAALR-0003	MSN4700	P1200-PCIE	4	100	Pass	Pass	Pass				
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112			NJAALR-0002			4	100	Pass	Pass	Pass				
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112			NJAALK-0003			4	100	Pass	Pass	Pass				
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112			L45593-D880-B15			4	100	Pass	Pass	Pass				
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112			L45593-D880-B15			4	100	Pass	Pass	Pass				
BizLink	L45593-D224-D10	1	30	Copper - Unequalized	QSFP28	QSFP28			L45593-D224-D10			4	100	Pass	Pass	Pass				
BizLink	L45593-D224-B50	5	26	Copper - Unequalized	QSFP28	QSFP28			L45593-D224-B50			4	100	Pass	Pass	Pass				
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56			L45593-D524-D10			4	100	Pass	Pass	Pass				
BizLink	L45593-D524-B30	3	26	Copper - Unequalized	QSFP56	QSFP56			L45593-D524-B30			4	100	Pass	Pass	Pass				
BizLink	L45593-D815-E20	2	32	Copper - Passive Eq	QSFP112	QSFP112			L45593-D815-E20			4	100	Pass	Pass	Pass				
BizLink	L45593-D815-C20	2	28	Copper - Passive Eq	QSFP112	QSFP112			L45593-D815-C20			4	100	Pass	Pass	Pass				
BizLink	L45593-D815-C30	3	28	Copper - Passive Eq	QSFP112	QSFP112			L45593-D815-C30			4	100	Pass	Pass	Pass				
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56			Q1Q-56P03.0-8KB			4	100	Pass	Pass	Pass				
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56			Q1Q-56P03.0-4BB			4	100	Pass	Pass	Pass				
<b>RNIC #1 - Broadcom</b>		<b>100 GbE</b>	<b>SWITCH - NVIDIA</b>						<b>100 GbE</b>			<b>SWITCH - NVIDIA</b>			<b>200 GbE</b>	<b>RNIC #2 - Broadcom</b>				
<b>P2200-PCIE</b>		Link	<b>MSN2410-100</b>						Cable Under Test			<b>MSN4700</b>			Link	<b>P1200-PCIE</b>				



# IBTA PF41 **RoCE** Interoperability

## **100** Gigabit Ethernet

### Scenario 25



Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112	E810-CQDA2	NJAALR-0002	DCS-7060DX5-64-F	P2200-PCIE	4x	100	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4x	100	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4x	100	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-D10			4x	100	Pass	Pass	Pass
BizLink	L45593-D524-B30	3	26	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-B30			4x	100	Pass	Pass	Pass
BizLink	L45593-D815-E20	2	32	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-E20			4x	100	Pass	Pass	Pass
BizLink	L45593-D815-C20	2	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C20			4x	100	Pass	Pass	Pass
BizLink	L45593-D815-C30	3	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C30			4x	100	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-8KB			4x	100	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-4BB			4x	100	Pass	Pass	Pass

<b>RNIC #1 - Intel</b>	<b>100 GbE</b>	<b>SWITCH - Arista</b>	<b>100 GbE</b>	<b>RNIC #2 - Broadcom</b>
<b>E810-CQDA2</b>	<b>Cable Under Test</b>	<b>DCS-7060DX5-64-F</b>	<b>Link</b>	<b>P2200-PCIE</b>





# IBTA PF41 RoCE Interoperability

## 100 Gigabit Ethernet

### Scenario 26

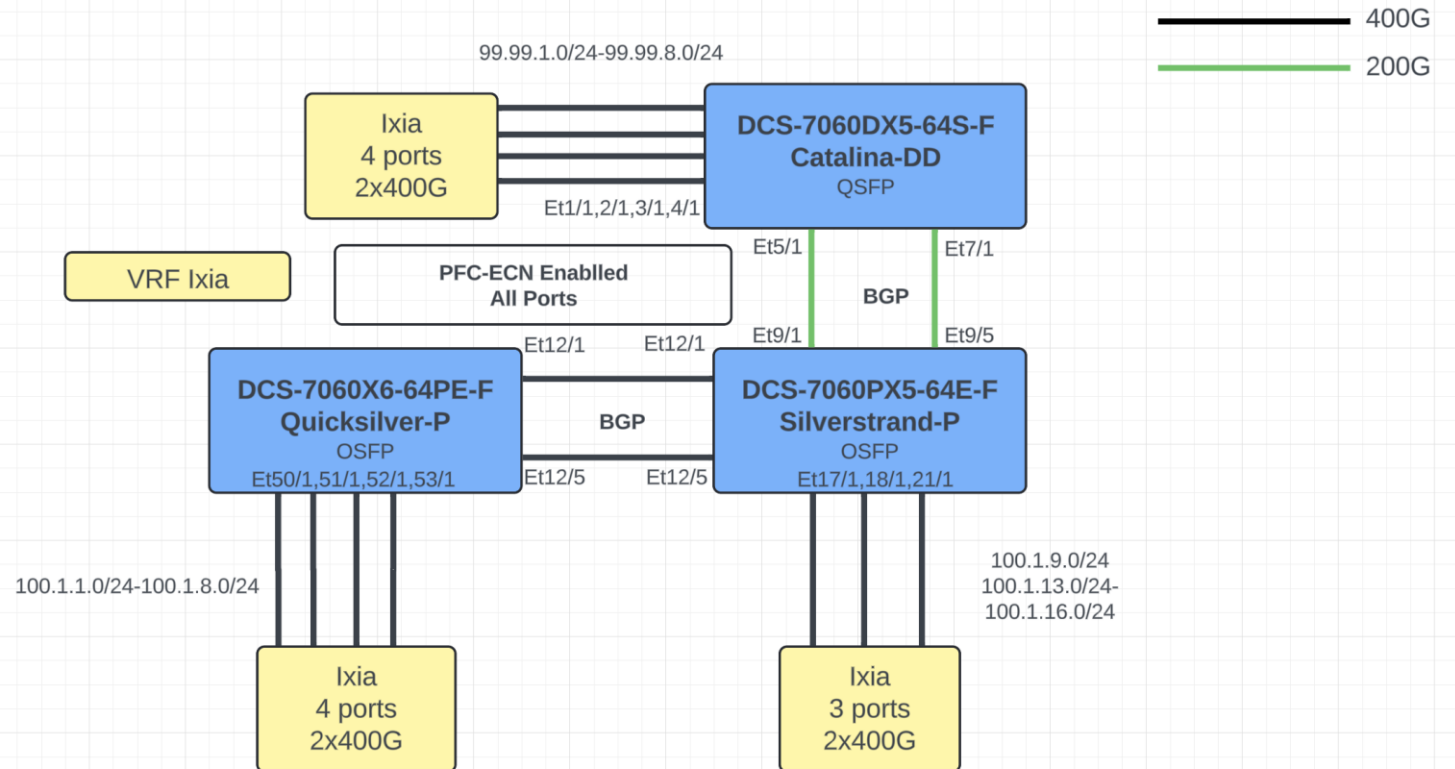


Company	Part Number	Length Meters	AWG	Equalization	Connector Side A	Connector Side B	RNIC #1	Cable Under Test	Switch	RNIC #2	Link Width	Link Speed	Device Link	Open MPI + IMB Testing	Overall Result	
Amphenol	NJAALR-0003	3	30	Copper - Linear Active	QSFP112	QSFP112	E810-2CQDA2	NJAALR-0003	MSN2410-100	P2200-PCIE	4x	100	Pass	Pass	Pass	
Amphenol	NJAALR-0002	2	30	Copper - Linear Active	QSFP112	QSFP112		NJAALR-0002			4x	100	Pass	Pass	Pass	Pass
Amphenol	NJAALK-0003	3	32	Copper - Linear Active	QSFP112	QSFP112		NJAALK-0003			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D880-B15	1.5	26	Copper - Unequalized	QSFP112	QSFP112		L45593-D880-B15			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D224-D10	1	30	Copper - Unequalized	QSFP28	QSFP28		L45593-D224-D10			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D224-B50	5	26	Copper - Unequalized	QSFP28	QSFP28		L45593-D224-B50			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D524-D10	1	30	Copper - Unequalized	QSFP56	QSFP56		L45593-D524-D10			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D815-E20	2	32	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-E20			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D815-C20	2	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C20			4x	100	Pass	Pass	Pass	Pass
BizLink	L45593-D815-C30	3	28	Copper - Passive Eq	QSFP112	QSFP112		L45593-D815-C30			4x	100	Pass	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-8KB	3	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-8KB			4x	100	Pass	Pass	Pass	Pass
Siemon	Q1Q-56P03.0-4BB	15	26	Copper - Unequalized	QSFP56	QSFP56		Q1Q-56P03.0-4BB			4x	100	Pass	Pass	Pass	Pass

RNIC #1 - Intel	100 GbE	SWITCH - NVIDIA	100 GbE	RNIC #2 - Broadcom
E810-2CQDA2	Cable Under Test	MSN2410-100	Link	P2200-PCIE

# Keysight NAS

# Topology Diagram



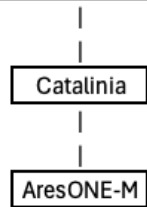
# Interoperability Result

## Hardware used to test Interop

### Interop Legend

**Interop-15:** AresONE 800GE-8P-OSFP-M <-> Quicksilver <-> Silverstrand <-> AresONE 800GE-8P-OSFP-M

**Interop-16:** AresONE 800GE-8P-OSFP-M <-> Quicksilver <-> Silverstrand <-> AresONE 800GE-8P-OSFP-M



### Condition for Successful Interop

Link speed	400Gbps
Latency	Low and consistent across different Q-Pair.
Throughput	Can achieve line rate @400Gbps or target line rate
ECN-CE	Fabric can mark ECN-CE.
PFC	If DCQCN is on - PFC is stable.
	If DCQCN is off - PFC maintains the rate at source.
Errors	Drop packets, outDiscards are not increasing.

Manufacturer	Description of Hardware	IxOS	IxNetwork
Keysight	944-1419 AresONE 800GE-8P-OSFP-M, 8-port, full performance fixed chassis model with OSFP800 800GE interfaces	10.20	10.20
Keysight	944-1425 AresONE 800GE-4P-QDD-M, 4-port, full performance fixed chassis model with QSFP-DD800 800GE interfaces	10.20	10.20
Manufacturer	Description of Hardware	Hardware	Software
Arista	DCS-7060DX5-64-S-F-Catalina-DD (QSFP)	10.12	4.31
Arista	DCS-7060X6-64PE-F-Quicksilver-P (OSFP)	10.12	4.31
Arista	DCS-7060PX5-64E-F-Silverstrand-P (OSFP)	10.12	4.31

### Verification

1. Generate all-to-all RoCEv2 traffic between AresONE-M ports IxNetwork
2. Distribute QP-pair among the ports.
3. Run the traffic and measure fabric throughput and latency
4. Verify throughput achieved and frame loss
5. Verify latency across different QP-pairs would be low and consistent.
6. If DCQCN is turned on, observe for a stable (non-increasing) PFC Pause Frame Receive count.
7. If DCQCN is disabled, observe that the rate control is happening using PFC Pause Frame coming from Fabric.
8. From Fabric side, measure utilization of Fabric – e.g. switch buffer utilization, outDiscards, PFC/ECN counters.