OpenFabrics Alliance

Interoperability Working Group (OFA-IWG)

March 2008 Interoperability Event Report

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Enclosed are the results from OFA Interoperability testing performed on the following devices under test (DUTs):

Flextronics F-X430066 (8 Port SDR InfiniBand Switch)
Flextronics F-X430044 (24 Port DDR InfiniBand Switch)
Flextronics F-X430081 (144 Port Modular DDR InfiniBand Switch)

The test suite referenced in this report is available at the OFA website, at test time release 1.17 (March 3, 2008) was used:

http://www.iol.unh.edu/services/testing/ofa/testplan.pdf

The following table highlights the Mandatory test results required for the OpenFabrics Interoperability Logo for the DUT per the testplan referenced above and the current OpenFabrics Interoperability Logo Program (OFILP).

Mandatory Test Procedures	IWG Test Status	Result/Notes
10.1: IB Link Initialization	**Mandatory**	Passed – no issues seen
10.2: IB Fabric Initialization	**Mandatory**	Passed – no issues seen
10.3: IB IPoIB Connected Mode	**Mandatory**	Passed – no issues seen
10.9: TI iSER	**Mandatory**	Passed – no issues seen
10.10: SRP	**Mandatory**	Passed – no issues seen
10.11: SDP	**Mandatory**	Passed – no issues seen

For specific details regarding issues please see the corresponding test result.

Summary of all results follows on the second page of this report.

Testing Completed 03/21/2008

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Review Completed 05/05/2008

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Table 1: Result Summary

The following table summarizes all results from the event pertinent to an IB device.

Test Procedures	IWG Test Status	Result/Notes
10.1: IB Link Initialization	**Mandatory**	Passed – no issues seen
10.2: IB Fabric Initialization	**Mandatory**	Passed – no issues seen
10.3: IB IPoIB Connected Mode	**Mandatory**	Passed – no issues seen
10.4: IB IPoIB Datagram Mode	Beta	Not Tested
10.9: TI iSER	**Mandatory**	Passed – no issues seen
10.10: SRP	**Mandatory**	Passed – no issues seen
10.11: SDP	**Mandatory**	Passed – no issues seen
10.12: IB SM Failover and Handover	Beta	Not Tested
10.13: TI MPI - OSU	Beta	Not applicable to DUT
10.14: TI MPI - Intel	Beta	Not applicable to DUT
10.15: HP MPI - HP	Beta	Not applicable to DUT
10.16: TI uDAPL	Beta	Not Tested
10.18: IB FibreChannel Gateway	Beta	Not applicable to DUT
10.19: IB Ethernet Gateway	Beta	Not applicable to DUT
10.20: IB Reliable Datagram Sockets	Beta	Not Tested
10.21: TI Basic RDMA Interoperability	Beta	Not Tested
10.23-24: TI RDMA Operations over Interconnect Components	Beta	Not Tested

For specific details regarding issues please see the corresponding test result.

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Report Revision History

- v1.0 Initial Release
- v1.01 Editorial/formatting improvements

Table 2: Result Key

The following table contains possible results and their meanings:

Result:	Description:
PASS	The Device Under Test (DUT) was observed to exhibit conformant behavior.
PASS with Comments	The DUT was observed to exhibit conformant behavior however an additional explanation of the situation is included, such as due to time limitations only a portion of the testing was performed.
FAIL	The DUT was observed to exhibit non-conformant behavior.
Warning	The DUT was observed to exhibit behavior that is not recommended.
Informative	Results are for informative purposes only and are not judged on a pass or fail basis.
Refer to Comments	From the observations, a valid pass or fail could not be determined. An additional explanation of the situation is included.
Not Applicable	The DUT does not support the technology required to perform this test.
Not Available	Due to testing station limitations or time limitations, the tests could not be performed.
Borderline	The observed values of the specified parameters are valid at one extreme and invalid at the other.
Not Tested	Not tested due to the time constraints of the test period.

Table 3: DUT and Test Setup Information

Figure 1: The IB fabric configuration utilized for any tests requiring a multi-switch configuration is shown below.
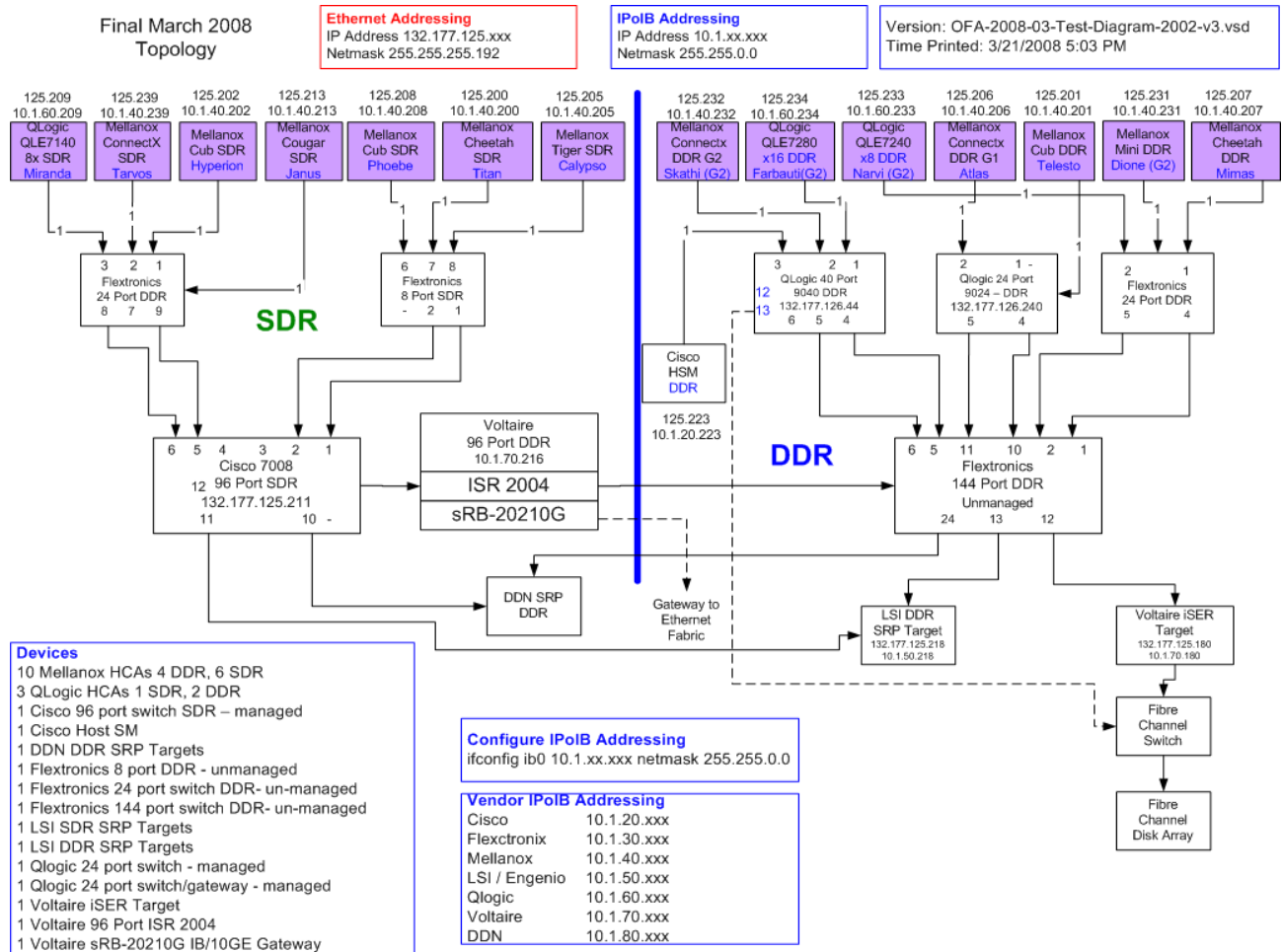
DUT #1 Details			
Manufacturer	Flextronics Ltd.	Firmware Rev	5.6.0
Model	F-X430066	Hardware Rev	A102/8
Speed	SDR 4x	IP Address in Fabric	N/A
Additional Comments/Notes			
Flextronics F-X430066 (8 Port SDR InfiniBand Switch)			

DUT #2 Details			
Manufacturer	Flextronics Ltd.	Firmware Rev	1.0.0
Model	F-X430044	Hardware Rev	I7
Speed	DDR 4x	IP Address in Fabric	N/A
Additional Comments/Notes			
Flextronics F-X430044 (24 Port DDR InfiniBand Switch)			

DUT #3 Details			
Manufacturer	Flextronics Ltd.	Firmware Rev	1.0.0
Model	F-X430081	Hardware Rev	I7
Speed	DDR 4x	IP Address in Fabric	N/A
Additional Comments/Notes			
Flextronics F-X430081 (144 Port Modular DDR InfiniBand Switch)			

Mandatory Tests - IB Device Test Summary Results:

The following tables detail results for tests identified by the OFA-IWG as mandatory tests for the OFA Interoperability Logo Program (OFILP) per the OFA-IWG Interoperability Test Plan Release 1.17 (March 3, 2008)

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 1: IB Link Initialize	Test #1: Phy link up all ports	Phy link is established	**PASS**
Discussion: Test #1: Phy link up all ports			
Physical link initialization was verified between this device and every other InfiniBand device in the fabric. DDR cables were used for all link tests. Link status was observed visually via status lights on the devices.			

Link Partner Device	F-X430066	F-X430044	F-X430081
QLogic SilverStorm 9024 (Switch)	**PASS**	**PASS**	**PASS**
QLogic SilverStorm 9040 (Switch)	**PASS**	**PASS**	**PASS**
Voltaire ISR 2004 (Switch)	**PASS**	**PASS**	**PASS**
Cisco 7000D (Switch)	**PASS**	**PASS**	**PASS**
Flextronics F-X430066 (Switch)	**PASS (same device)**	**PASS**	**PASS**
Flextronics F-X430044 (Switch)	**PASS**	**PASS (same device)**	**PASS**
Flextronics F-X430081 (Switch)	**PASS**	**PASS**	**PASS (same device)**
Voltaire IPSTOR iSER target	**PASS**	**PASS**	**PASS**
Host: Miranda HCA: QLogic QLE7140 SDR	**PASS**	**PASS**	**PASS**
Host: Tarvos HCA: Mellanox Connectx SDR	**PASS**	**PASS**	**PASS**
Host: Hyperion HCA: Mellanox LionCub SDR	**PASS**	**PASS**	**PASS**
Host: Janus HCA: Mellanox Cougar SDR	**PASS**	**PASS**	**PASS**
Host: Phoebe HCA: Mellanox LionCub SDR	**PASS**	**PASS**	**PASS**
Host: Titan HCA: Mellanox Cheetah SDR	**PASS**	**PASS**	**PASS**
Host: Calypso HCA: Mellanox Tiger SDR	**PASS**	**PASS**	**PASS**
Host: Skathi, G2 PCI Express HCA: Mellanox Connectx DDR	**PASS**	**PASS**	**PASS**
Host: Farbauti, G2 PCI Express HCA: QLogic QLE7280 DDR	**PASS**	**PASS**	**PASS**
Host: Narvi, G2 PCI Express HCA: QLogic QLE7240 DDR	**PASS**	**PASS**	**PASS**
Host: Atlas HCA: Mellanox Connectx DDR	**PASS**	**PASS**	**PASS**
Host: Telesto HCA: Mellanox LionCub DDR	**PASS**	**PASS**	**PASS**
Host: Dione, G2 PCI Express HCA: Mellanox LionMini DDR	**PASS**	**PASS**	**PASS**
Host: Mimas HCA: Mellanox Cheetah DDR	**PASS**	**PASS**	**PASS**

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 2: IB Fabric Initialization	Test #1: Verify all SMs configure fabric	Port is Active with all SMs	**PASS**
Discussion: Test #1: Verify all SMs configure fabric			

The fabric configuration shown in Figure 1 was used for this test. 'ibdiagnet -c 1000' showed no Port errors counters increment. Only one SM is run at a time. All switches are power cycled between SM trials. All links are validated via use of 'ibdiagnet' and on each host 'ibstatus' to validate speed, width and link state. Refer to the table below for SM details.

For *Flextronics F-X430066*	All ports Armed/Active	No Dup GUIDs	No Port errors
OFED OpenSM (SM Only)	**PASS**	**PASS**	**PASS**
QLogic SilverStorm 9024 (Managed Switch)	**PASS**	**PASS**	**PASS**
QLogic SilverStorm 9040 (Managed Switch)	**PASS**	**PASS**	**PASS**
Voltaire ISR 2004 (Managed Switch)	**PASS**	**PASS**	**PASS**
Cisco 7000D (Managed Switch)	**PASS**	**PASS**	**PASS**
Cisco High Performance (SM Only)	**PASS**	**PASS**	**PASS**

For *Flextronics F-X430044*	All ports Armed/Active	No Dup GUIDs	No Port errors
OFED OpenSM (SM Only)	**PASS**	**PASS**	**PASS**
QLogic SilverStorm 9024 (Managed Switch)	**PASS**	**PASS**	**PASS**
QLogic SilverStorm 9040 (Managed Switch)	**PASS**	**PASS**	**PASS**
Voltaire ISR 2004 (Managed Switch)	**PASS**	**PASS**	**PASS**
Cisco 7000D (Managed Switch)	**PASS**	**PASS**	**PASS**
Cisco High Performance (SM Only)	**PASS**	**PASS**	**PASS**

For *Flextronics F-X430081*	All ports Armed/Active	No Dup GUIDs	No Port errors
OFED OpenSM (SM Only)	**PASS**	**PASS**	**PASS**
QLogic SilverStorm 9024 (Managed Switch)	**PASS**	**PASS**	**PASS**
QLogic SilverStorm 9040 (Managed Switch)	**PASS**	**PASS**	**PASS**
Voltaire ISR 2004 (Managed Switch)	**PASS**	**PASS**	**PASS**
Cisco 7000D (Managed Switch)	**PASS**	**PASS**	**PASS**
Cisco High Performance (SM Only)	**PASS**	**PASS**	**PASS**

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 3: IPoIB Connected Mode	Test #1-3	Tests succeeded between all IPoIB devices	**PASS**
Discussion: Test #1-4			

IPoIB capable devices were interoperable over a fabric incorporating this device. All IPoIB connected mode tests completed successfully between all IPoIB enabled devices in the fabric.

	All Tests Succeeded
Flextronics F-X430066	**PASS**
Flextronics F-X430044	**PASS**
Flextronics F-X430081	**PASS**

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 9: TI iSER	Test #1-4	Tests succeeded between all iSER devices	PASS
Discussion: Test #1-4			

All iSER initiators were able to connect and perform data transfer operations with the iSER targets in a fabric incorporating this device. All iSER tests completed successfully.

Voltaire IPStor iSER target	All Tests Succeeded
Flextronics F-X430066	PASS
Flextronics F-X430044	PASS
Flextronics F-X430081	PASS

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 10: IB SRP	Test #1:	Tests succeeded between all SRP devices	PASS
Discussion: Test Result			

All SRP initiators were able to connect and perform data transfer operations with the SRP targets in a fabric incorporating this device. All SRP tests completed successfully.

	All Tests Succeeded
Flextronics F-X430066	PASS
Flextronics F-X430044	PASS
Flextronics F-X430081	PASS

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 11: TI SDP	Test #1: Netperf Procedure	Test Completed without errors	PASS
	Test #2: FTP Procedure	Test Completed without errors	PASS
	Test #3: SCP Procedure	Test Completed without errors	PASS
Discussion: Test #1-4			

The automated test script was revised since the version published in the 1.17 version of the test plan. Automated test scripts run the three parts of the SDP procedure between every possible pair of hosts without the hosts connecting to themselves and records the results to a log. The test logs show that no issues were seen with the procedures. Every operation completed for each pair. However, some hosts were noted to run significantly slower than others during the transfers. This is not a failure as per the current test plan, but it should be noted that this could become a topic of focus in future revisions of the Test Plan.

Beta Tests - IB Device Test Results:

The following table details results for tests identified by the OFA-IWG as beta tests for the OFA Interoperability Logo Program (OFILP) per the OFA-IWG Interoperability Test Plan Release 1.17 (March 3, 2008)

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 4: IPoIB Datagram Mode	Test #1-3		Not Tested
Discussion: Test Results			
Not tested due to time constraints			

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 12: IB SM Failover and Handover	Test #1-4		Not Tested
Discussion: Test Results			
Not tested due to time constraints			

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 13: TI MPI – Ohio State Univ.	Test #1-14		Not Applicable
Discussion: Test Results			

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 14: MPI – Intel	Test #1-21		Not Applicable
Discussion: Test Results			

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 15: MPI – Hewlett-Packard	Test #1-21	Not applicable to DUT	Not Applicable
Discussion: Test Results			

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 16: TI uDAPL	Test #1-10		Not Tested
Discussion: Test Results			
Not tested due to time contraints			

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 18: IB FibreChannel Gateway	Test #1-10	Not applicable to DUT	Not Applicable
Discussion: Test Results			

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 19: IB Ethernet Gateway	Test #1-10	Not applicable to DUT	Not Applicable
Discussion: Test Results			

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 20: IB Reliable Datagram Sockets	Test #1-10		Not Tested
Discussion: Test Results			
Not tested due to time constraints			

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 21: TI Basic RDMA Interoperability	Test #1-10		Not Tested
Discussion: Test Results			
Not tested due to time constraints			

Test Number and Name	Part(s)	Summary Note(s)	Result(s)
Group 23-24: TI RDMA Operations over Interconnect Components	Test #1-10		Not Tested
Discussion: Test Results			
Not tested due to time constraints			