



OpenFabrics Alliance

Interoperability Working Group (OFA-IWG)

March 2008 Interoperability Event Report

UNH-IOL – 121 Technology Drive, Suite 2 – Durham, NH 03824 – +1-603-862-0090
 OpenFabrics Interoperability Logo Group (OFILG) Hosts – ofalab@iol.unh.edu

Oded Bergman
 Voltaire
 Hamanofim 9
 Hertzeliya
 Israel

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

Voltaire ISR 2004 DDR InfiniBand Managed Switch
Voltaire sRB-20210G InfiniBand-Ethernet Gateway switch module for Voltaire ISR 2004

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 – with comments
10.2: IB Fabric Initialization	Mandatory	Passed – with comments
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	Refer to Comments

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

Dustin M. Schoenbrun dustin@iol.unh.edu
 Allen Hubbe ahubbe@iol.unh.edu



Review Completed 04/29/2008

Bob Noseworthy
ren@iol.unh.edu

Table 1: Result Summary

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

Test Procedure	IWG Test Status	Result/Notes
10.1: IB Link Initialization	Mandatory	Passed – with comments
10.2: IB Fabric Initialization	Mandatory	Passed – with comments
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	Refer to Comments
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

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Report Revision History

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

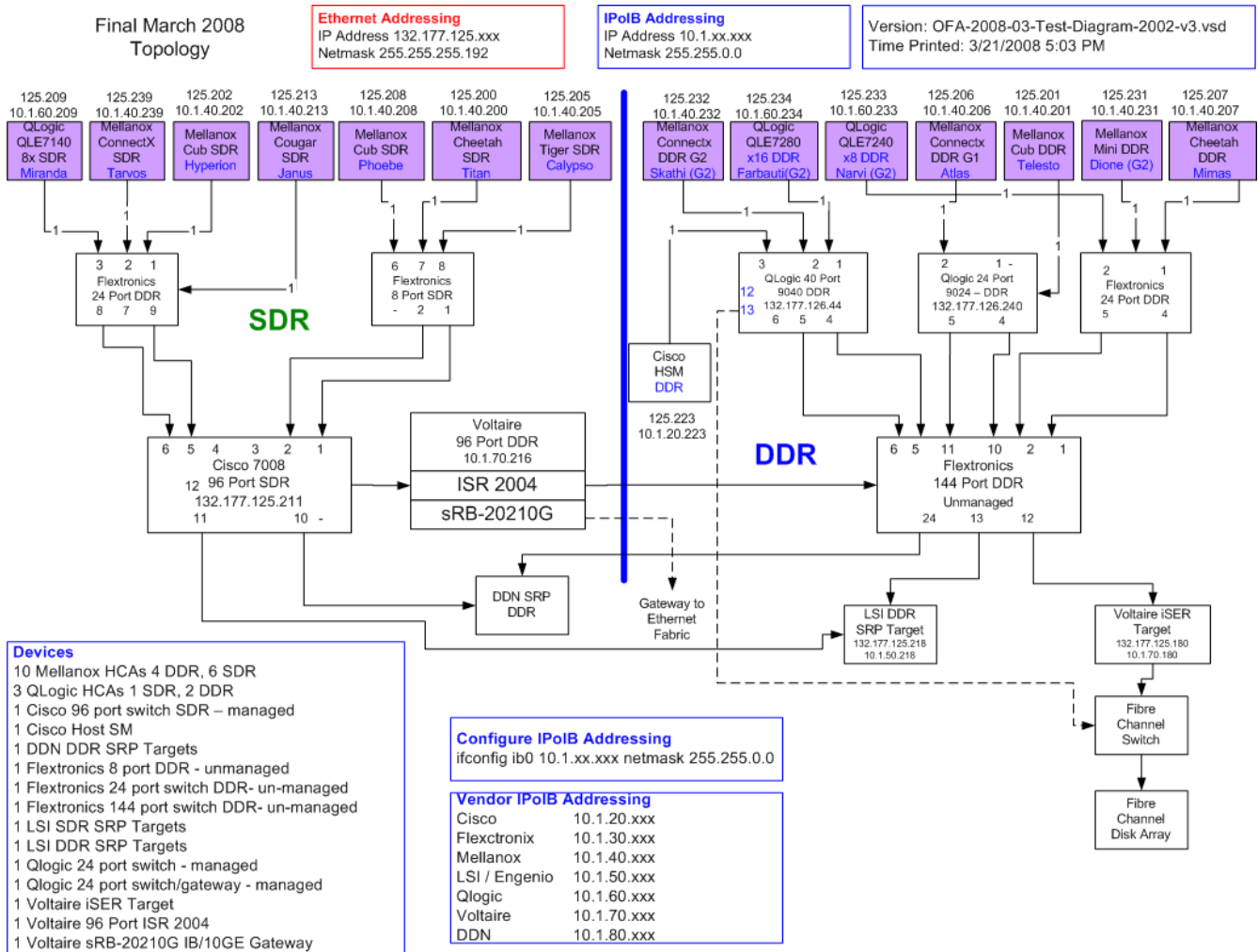
Table 2: Result Key

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	Voltaire	Firmware Rev	Ver 10.16 fw.1.0.0
Model	ISR 2004	Hardware Rev	Switch version 5.0
Speed	DDR 4x	IP Address in Fabric	N/A
Additional Comments/Notes			
Voltaire ISR 2004 DDR InfiniBand Managed Switch			

DUT #2 Details			
Manufacturer	Voltaire	Firmware Rev	1.0.42
Model	sRB-20210G	Hardware Rev	
Speed	DDR 4x InfiniBand / 10 Gigabit Ethernet	IP Address in Fabric	N/A
Additional Comments/Notes			
Voltaire sRB-20210G InfiniBand-Ethernet Gateway switch module for Voltaire ISR 2004			

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 with Comments
Discussion: Test #1: Phy link up all ports			
Physical link initialization was verified between this device and every other device in the fabric. DDR cables were used for all link tests. Link status was observed visually via status lights on the device.			
Comment #1:			
We observed that a physical connection could not be established between the Voltaire ISR 2004 switch and QLogic QLE7140 SDR HCA. The HCA does not support lane reversal, and is not required to support it.			
Comment #2:			
After updating the firmware on the Voltaire ISR 2004, the switch can establish a link to the QLogic QLE7140 SDR HCA.			

Link Partner Device	Voltaire ISR 2004 with sRB-20210G
QLogic SilverStorm 9024 (Switch)	PASS
QLogic SilverStorm 9040 (Switch)	PASS
Voltaire ISR 2004 (Switch)	PASS (same device)
Cisco 7000D (Switch)	PASS
Flextronics F-X430066 (Switch)	PASS
Flextronics F-X430044 (Switch)	PASS
Flextronics F-X430081 (Switch)	PASS
Voltaire IPSTOR iSER target	PASS
Host: Miranda HCA: QLogic QLE7140 SDR	PASS – With Comments
Host: Tarvos HCA: Mellanox Connectx SDR	PASS
Host: Hyperion HCA: Mellanox LionCub SDR	PASS
Host: Janus HCA: Mellanox Cougar SDR	PASS
Host: Phoebe HCA: Mellanox LionCub SDR	PASS
Host: Titan HCA: Mellanox Cheetah SDR	PASS
Host: Calypso HCA: Mellanox Tiger SDR	PASS
Host: Skathi, G2 PCI Express HCA: Mellanox Connectx DDR	PASS
Host: Farbauti, G2 PCI Express HCA: QLogic QLE7280 DDR	PASS
Host: Narvi, G2 PCI Express HCA: QLogic QLE7240 DDR	PASS
Host: Atlas HCA: Mellanox Connectx DDR	PASS
Host: Telesto HCA: Mellanox LionCub DDR	PASS
Host: Dione, G2 PCI Express HCA: Mellanox LionMini DDR	PASS
Host: Mimas HCA: Mellanox Cheetah DDR	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 with Comments
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.			
Comment #1:			
In performing the procedure in test #1, we observed that the Cisco HSM did not configure the fabric when the Voltaire sRB-20210G InfiniBand-Ethernet gateway device was connected with the fabric. We determined that there are two issues that caused this behavior. First, the Voltaire gateway device was reporting an incorrect link speed for one of its interfaces. Second, the Cisco 7000D did not manage any other links in the fabric while the Voltaire gateway device was connected.			
Comment #2:			
After updating the firmware on the Voltaire sRB-20210G gateway device, the gateway now reports the correct link speed for all of its interfaces. A trial of the procedure in test #1 shows that issue described in comment 1 is resolved.			

For <i>Voltaire ISR 2004</i>	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 #1-3			
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.			

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.			

<i>Voltaire IPSTOR iSER Target</i>	All iSER tests succeeded
Voltaire ISR 2004	PASS
Voltaire sRB-20210G	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.			

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	Not Tested	Not Tested
	Test #3: SCP Procedure	Not Tested	Not Tested
Discussion: Test #1-3			
<p>The automated test scripts were revised since the version published in the 1.17 version of the test plan. Automated test scripts ran 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.</p> <p>The entirety of these modifications occurred following the completion of the Interoperability Event during the report generation phase. These modifications were spurred in part due to the omission of data logs from test #2 and test #3 that failed to be gathered during the Interoperability Event; however, the ISR 2004 and the sRB-20210G Module were shipped back before the need for a retest arose. As a result, parts 2 and 3 of the procedure were not formally logged/tested. No issue is suspected with either of these two test cases based on input from the testers; however, the lack of substantiating logs as evidence to support these suspicions results in the 'not tested' result noted.</p> <p>Despite this omission in logs, UNH-IOL sees no reason not to recommend that the DUT be granted a logo based on the successful completion of part 1.</p> <p>The test log shows that no issues were seen with the Netperf procedure. 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.</p>			

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 #1-3			
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 to DUT	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 to DUT	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 constraints			

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			