



# Fibre Channel Consortium

## Fabric Build Interoperability Test Suite v2.1 Report

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October 31, 2005  
Report Rev. 1.0

Enclosed are the results from the Fabric Build Interoperability testing performed on

Device Under Test (DUT): Switcharoo 5000 24 Port Switch  
Speed Tested: 4 Gigabits/sec  
Hardware Version: 1  
Firmware Version: 2  
Software Version: 3  
WWN: 5000 0000 0000 5555

The test suite referenced in this report is available at the UNH-IOL website:

[ftp://ftp.iol.unh.edu/pub/fcc/test\\_suite/Fabric Build Interoperability Test Suite \(v2.1\).pdf](ftp://ftp.iol.unh.edu/pub/fcc/test_suite/Fabric_Build_Interoperability_Test_Suite_(v2.1).pdf)

Issues Observed While Testing
Test 1.2 – Pass with Comments: Multiple initializations occur before device is seen in all routing tables.
Test 2.4 – FAIL: Switch must be power cycled after device is removed and added to a different port.
Test 3.2 – FAIL: Switch must be power cycled after device is removed and added to a different port.

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

Testing Completed 10/31/2005

Review Completed 10/31/2005

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## Result Key

The following table contains possible results and their meanings:

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

**GROUP 1: E\_Port to E\_Port**

**Test #1.1 Initial Switch Power on**

In this test FC switches are connected and powered on until a Fabric has been built. As each switch is powered on a series of requirements are checked.

**Test #1.2 Inter-switch Link Removal/Reinsertion**

In this test each ISL between the FC switches in the Fabric built in Test 1.1 is removed and reinserted. As each switch is reattached to the fabric a series of requirements are checked.



**Group 1: E\_Port to E\_Port Results**

Operational Switches	Added/Removed Switch	Test #1.1	Test #1.2
Switcharoo 5000	McSwitch 1800	<b>PASS</b>	<b>Not Applicable</b>
Switcharoo 5000 McSwitch 1800	Zwitch 16	<b>PASS</b>	<b>Not Applicable</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16	FastFabric 10	<b>PASS</b>	<b>Not Applicable</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	Switcharoo 5000	<b>Not Applicable</b>	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	McSwitch 1800	<b>Not Applicable</b>	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	Zwitch 16	<b>Not Applicable</b>	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastFabric 10	<b>Not Applicable</b>	<b>PASS with comments</b> see reference #1

Please refer to Appendix A for a diagram of the Test Setup

Test 1.2 Reference #1
<b>Expected Results and Procedural Comments</b>
It is expected that when the switch is reintroduced to the fabric, all other switches in the fabric will be notified and display this information in their routing tables.
<b>Comments on Test Results</b>
When the FastFabric 10 switch was reintroduced to the fabric, multiple link initializations were observed between the FastFabric 10 and switcharoo 5000 switches. However each switch was visible in the routing table of each other switch on the fabric.

## **GROUP 2: Single Pair Testing**

The following tests are performed using one initiator target pair at a time. The initiator target pair is added to the fabric built during the Group 1 tests .

### **Test #2.1 Addition of Target to Fabric**

In this test one target is added to the fabric. It is verified that the target is visible to all switches in the fabric.

### **Test #2.2 Addition of Initiator to Fabric**

In this test one initiator is added to the fabric. It is verified that the target is visible to all switches in the fabric and that the initiator can see the target added to the fabric in Test 2.1.

### **Test #2.3 End Device Fiber Removal/Reinsertion**

In this test each end device has its connection removed and reinserted into the same switch port on the fabric.

### **Test #2.4 End Device Switch Port Change**

In this test each end device has its connection removed and reinserted into a different switch port on the fabric.

**Group 2: Single Pair Testing Results:**

Operational Switches	Initiator	Target	Test #2.1	Test #2.2	Test #2.3	Test #2.4
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastHBA 4100 attached to Switcharoo 5000	SANway FC- SATA Bridge attached to FastFabric 10	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	StoreMore 1000FC attached to McSwitch 1800	Stowaway FC Array attached to Zwitch 16	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	Backitup FC-4 attached to Zwitch 16	Neverdown FC JBOD attached to McSwitch 1800	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	SANway HBA attached to FastFabric 10	SpinFast FC Disk Drive attached to Switcharoo 5000	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>FAIL</b> see reference #1

Please refer to Appendix B for a diagram of the Test Setup

Test 2.4 Reference #1
<b>Expected Results and Procedural Comments</b>
When the target is reattached to the fabric it is expected that all other switches in the fabric will be notified and the target will appear in each switch routing table.
<b>Comments on Test Results</b>
When the SpinFast FC Disk Drive was reintroduced to the Switcharoo 5000 switch it did not appear in the routing table of any switches in the fabric. It appeared that the Switcharoo 5000 did not notify the other switches on the change. The switcharoo 5000 was power cycled. After powerup was complete the SpinFast FC Disk Drive was visible in each switch routing table within the fabric .

### **GROUP 3: Multiple Pair Testing**

The following tests are performed using each initiator target pair tested in Group 2. An initiator target pair is tested on the fabric built during the Group 1 tests while each other initiator target pair transmits data through the fabric.

#### **Test #3.1 End Device Connection Removal/Reinsertion Disruption**

In this test SCSI I/O is started between all initiator target pairs on the fabric. The Initiator and Target from one Initiator Target pair is temporarily removed from the fabric. It is verified that there are no disruptions to the traffic between other Initiator Target Pairs and that when reattached, the Initiator and Target properly reinitialize.

#### **Test #3.2 End Device Switch Port Change Disruption**

In this test SCSI I/O is started between all initiator target pairs on the fabric. The Initiator and Target from one Initiator Target pair is temporarily removed from the fabric. It is verified that there are no disruptions to the traffic between other Initiator Target Pairs and that when reattached to a different switch port, the Initiator and Target properly reinitialize.



**Group 3: Multiple Pair Testing Results:**

Operational Switches	Operational Initiator Target Pairs	Removed/Reinserted Initiator Target Pair	Test #3.1	Test #3.2
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	StoreMore 1000FC and Stowaway FC Array Backup FC-4 and Neverdown FC JBOD SANway HBA and SpinFast FC Disk Drive	SANway FC-SATA Bridge removed from FastFabric 10 port 1 attached to FastFabric 10 port 2  FastHBA 4100 removed from Switcharoo 5000 port 1 attached to Switcharoo 5000 port 2	<b>PASS</b>	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastHBA 4100 and SANway FC-SATA Bridge Backup FC-4 and Neverdown FC JBOD SANway HBA and SpinFast FC Disk Drive	Stowaway FC Array removed from Zwitch 16 port 1 attached to Zwitch 16 port 2  StoreMore 1000FC removed from McSwitch 1800 port 1 attached to McSwitch 1800 port 2	<b>PASS</b>	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastHBA 4100 and SANway FC-SATA Bridge StoreMore 1000FC and Stowaway FC Array SANway HBA and SpinFast FC Disk Drive	Neverdown FC JBOD removed from McSwitch 1800 port 1 attached to McSwitch 1800 port 2  Backup FC-4 removed from Zwitch 16 port 1 attached to Zwitch 16 port 2	<b>PASS</b>	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastHBA 4100 and SANway FC-SATA Bridge StoreMore 1000FC and Stowaway FC Array Backup FC-4 and Neverdown FC JBOD	SpinFast FC Disk Drive removed from Switcharoo 5000 port 1 attached to Switcharoo 5000 port 2  SANway HBA removed from FastFabric 10 port 1 attached to FastFabric 10 port 2	<b>PASS</b>	<b>FAIL</b> see reference #1

Please refer to Appendix C for a diagram of the Test Setup



**Test 3.2 Reference #1**

**Expected Results and Procedural Comments**

When the target is reattached to the fabric it is expected that all other switches in the fabric will be notified and the target will appear in each switch routing table.

**Comments on Test Results**

When the SpinFast FC Disk Drive was reintroduced to the Switcharoo 5000 switch it did not appear in the routing table of any switches in the fabric. It appeared that the Switcharoo 5000 did not notify the other switches on the change. The switcharoo 5000 was power cycled. After powerup was complete the SpinFast FC Disk Drive was visible in each switch routing table within the fabric .



#### **GROUP 4: ISL Disruption**

The following tests involve removing and reattaching ISLs on the fabric while each initiator target pair is running I/O through the fabric. The expectation is that the fabric will re-route all disrupted traffic and I/O between the Initiator Target pairs will continue.

##### **Test #4.1 End Device Connection Removal/Reinsertion Disruption**

In this test one ISL is removed and reinserted to the fabric while I/O is being transmitted.



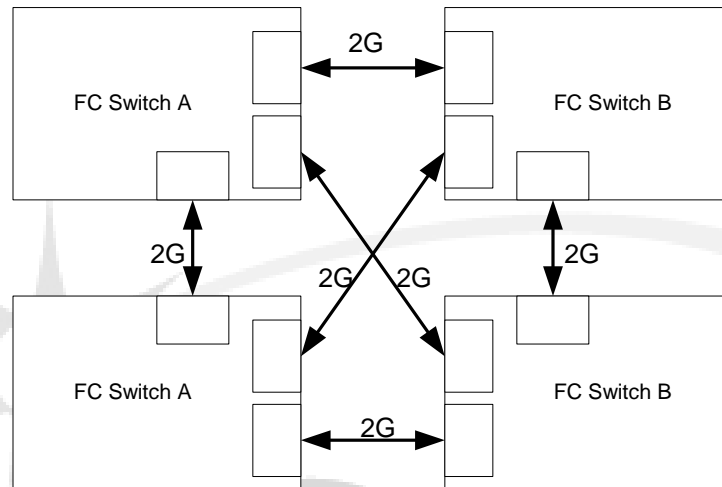
**Group 4: ISL Disruption Results:**

Operational Switches	Operational Initiator Target Pairs	Removed/Reinserted ISL	Test #4.1
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastHBA 4100 and SANway FC-SATA Bridge StoreMore 1000FC and Stowaway FC Array Backitup FC-4 and Neverdown FC JBOD SANway HBA and SpinFast FC Disk Drive	Switcharoo 5000 to McSwitch 1800	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastHBA 4100 and SANway FC-SATA Bridge StoreMore 1000FC and Stowaway FC Array Backitup FC-4 and Neverdown FC JBOD SANway HBA and SpinFast FC Disk Drive	Switcharoo 5000 to Zwitch 16	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastHBA 4100 and SANway FC-SATA Bridge StoreMore 1000FC and Stowaway FC Array Backitup FC-4 and Neverdown FC JBOD SANway HBA and SpinFast FC Disk Drive	Switcharoo 5000 to FastFabric 10	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastHBA 4100 and SANway FC-SATA Bridge StoreMore 1000FC and Stowaway FC Array Backitup FC-4 and Neverdown FC JBOD SANway HBA and SpinFast FC Disk Drive	McSwitch 1800 to Zwitch 16	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastHBA 4100 and SANway FC-SATA Bridge StoreMore 1000FC and Stowaway FC Array Backitup FC-4 and Neverdown FC JBOD SANway HBA and SpinFast FC Disk Drive	McSwitch 1800 to FastFabric 10	<b>PASS</b>
Switcharoo 5000 McSwitch 1800 Zwitch 16 FastFabric 10	FastHBA 4100 and SANway FC-SATA Bridge StoreMore 1000FC and Stowaway FC Array Backitup FC-4 and Neverdown FC JBOD SANway HBA and SpinFast FC Disk Drive	Zwitch 16 to FastFabric 10	<b>PASS</b>

Please refer to Appendix C for a diagram of the Test Setup

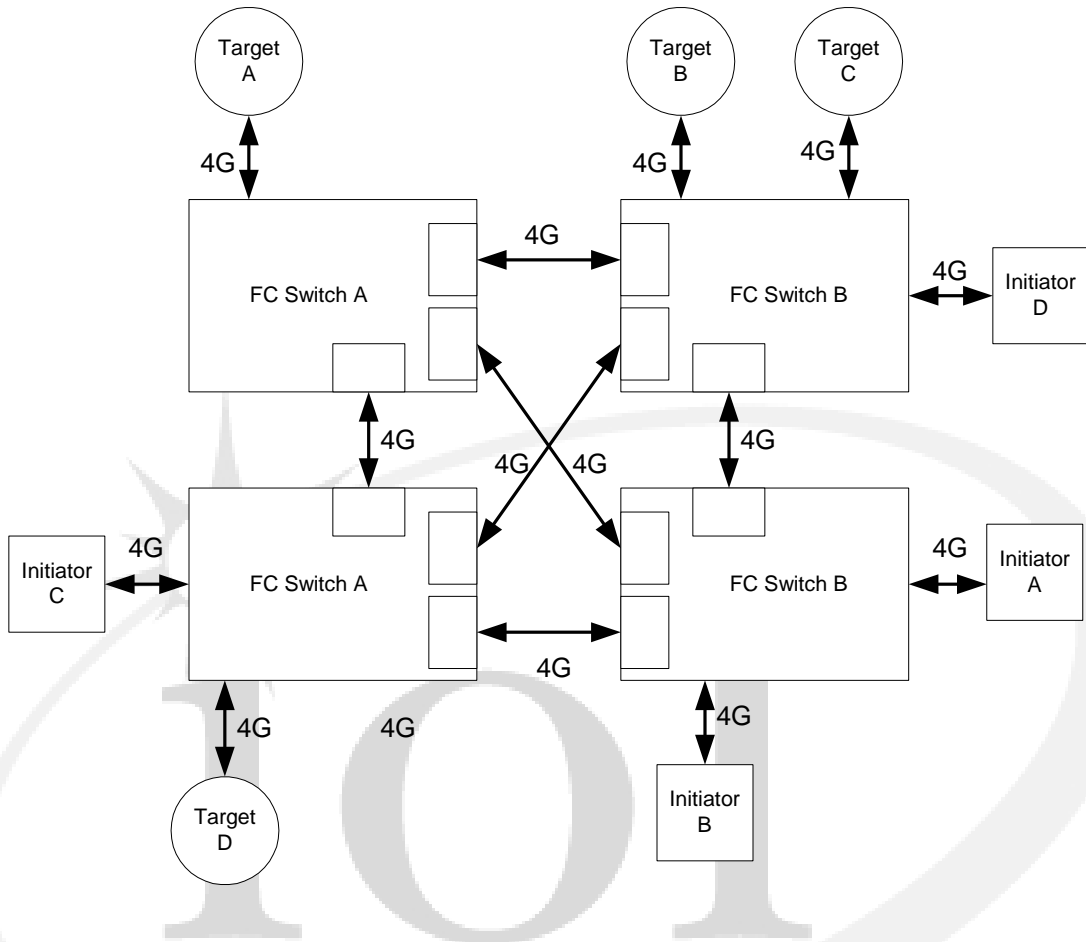
**APPENDIX A:**

Test Setup Diagram for Group 1 tests:



**APPENDIX B:**

Test Setup Diagram for Group 2 tests. Note that only one Initiator/Target pair was present on the fabric at one time:



**APPENDIX C:**

Test Setup Diagram for Group 3 and 4 tests:

