InfiniBand Trade Association
Integrators' List Policy

The InfiniBand Trade Association ("IBTA") publishes an Integrators' List ("IL") following each Plugfest sponsored by the IBTA. IBTA published the first IL after the June 2003 Plugfest. The IL includes a list of devices and cables ("Devices") submitted by Members that were tested at the Plugfest and which such Members state comply with the conditions in this policy. A Member that has signed an IBTA Logo Agreement and has a Device listed on the IL may publish information stating its Device has complied with the terms and conditions in this policy.

By participating in a Plugfest or submitting a Device to the IL, IBTA member companies ("Members") agree to the terms and conditions of this Integrators' List Policy.

Pursuant to the terms of the Plugfest Non-Disclosure Agreement, all Plugfest Device test results are the individual property of Plugfest participants who own such Devices, and will not be disclosed in any form by the IBTA. The Plugfest Non-Disclosure Agreement contains additional terms and conditions governing disclosure of test results by Plugfest participants.

<u>DISCLAIMER</u> - THE IL IS PROVIDED "AS IS" AND WITHOUT ANY WARRANTY OF ANY KIND, INCLUDING, WITHOUT LIMITATION, ANY EXPRESS OR IMPLIED WARRANTY OF NON-INFRINGEMENT, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR COMPLIANCE WITH THIS INTEGRATORS' LIST POLICY. IN NO EVENT SHALL IBTA OR ANY MEMBER OF IBTA BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, EXEMPLARY, PUNITIVE, OR CONSEQUENTIAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

A. General Conditions

1. Testing. To be included in the IL, Devices must pass the requisite tests administered at Plugfest in accordance with Section B. (Tests and Testing Criteria) below. In addition, the software and firmware used at a Plugfest to get a device added to the IL List must be made publically available to the end user.

2. Device Information. Each Device's listing in the IL will include at least the following identification and specification information, which will describe the Device as tested at Plugfest ("Device Information"):

   a. Devices. If the Device is a device, such as an xCA, switch, integrated system, or router:
      i. Product Name
      ii. Product Description
      iii. Model number
      iv. IB Node type, either:
         1) Host Channel Adapter (HCA)
         2) Target Channel Adapter (TCA)
         3) Switch
         4) Integrated System[1]
         5) Router
      v. Hardware version
      vi. Software version
      vii. Additional Capabilities, if applicable (e.g., SM/SA, IPoIB, Atomic, etc.)

   b. Cables. If the Device is a cable:
      i. Product Name
      ii. Part Number
      iii. Width (4x, 12x, etc)
      iv. Attachment (DA, PCB)
      v. Speed (SDR, DDR, QDR, etc)
      vi. Length (meters)
      vii. Signal conductor size, AWG
      viii. Cable Type
         a. Equalized
         b. Passive or Active
         c. Copper or Fiber
      ix. Connector Type (CX4, QSFP, CXP, etc)
      x. Connector Manufacturer
      xi. Paddle Card Manufacturer

[1] An Integrated System is a system that includes more than one (1) IB node type (i.e. HCA, TCA, switch, or router) internally connected together, such that these ports are not externally exposed to the tester and can be connected in an arbitrary topology. Such internal connections can occur within an ASIC, on a PCB as in the case of a system or in a chassis based or blade server system. An Integrated System Internal Port is an IB port of an Integrated System that cannot be accessed physically. An Integrated System External Port is an IB port of an Integrated System that is neither an internal port nor a management port and which is physically accessible.

xii. Bulk Wire Manufacturer
xiii. Wire Part Number

3. Documentation. Each Device's listing in the IL will have a link to a document that clearly describes the testing, and actual tests, performed for such Device.

4. Availability. The IL will be made available to the general public.

5. Disclaimer of Liability by IBTA; Assumption of Risk by Member. EACH MEMBER AGREES THAT IBTA IS NOT LIABLE FOR CLAIMS ARISING FROM OR RELATING TO MEMBER'S PARTICIPATION IN A PLUGFEST OR FROM A MEMBER'S SUBMISSION OF A DEVICE TO THE IL, INCLUDING BUT NOT LIMITED TO ANY FAILURE OF A DEVICE TO MEET TESTING CRITERIA. MEMBER ACKNOWLEDGES AND AGREES THAT IT WILL NOT ASSERT OR PURSUE, AND IBTA IS NOT LIABLE FOR, ANY CLAIMS, LOSS, LIABILITY OR DAMAGE (INCLUDING COURT COSTS AND ATTORNEYS' FEES) ARISING FROM OR RELATING TO MEMBER'S PARTICIPATION IN PLUGFEST OR SUBMISSION OF A DEVICE TO THE IL. EACH MEMBER IS SOLELY RESPONSIBLE FOR DETERMINING THE APPROPRIATENESS OF PARTICIPATING IN PLUGFEST AND SUBMISSION TO THE IL AND ASSUMES ALL RISKS ASSOCIATED IN CONNECTION THEREWITH, INCLUDING BUT NOT LIMITED TO, THE RISKS AND COSTS OF PROGRAM ERRORS, COMPLIANCE WITH APPLICABLE LAWS, DAMAGE TO OR LOSS OF DATA, PROGRAMS OR EQUIPMENT, UNAVAILABILITY OR INTERRUPTION OF OPERATIONS, OR INTELLECTUAL PROPERTY CLAIMS.

6. Expenses. Each Member bears its own expenses for participation in a Plugfest and shall be responsible for any fees charged by IBTA or its authorized vendors.

B. Tests and Testing Criteria

1. Approved List of Tests. The Compliance and Interoperability Working Group ("CIWG") will publish an approved list of IL tests and corresponding past/fail criteria for each Plugfest, which shall include any available tests for device additional capabilities ("Test List"). The Test List and all final approved test implementations for a particular Plugfest should be made available to Members a minimum of 45 days prior to the Plugfest.

2. Registration. Members must register Devices for testing at the Plugfest by submitting Device Information and such other required Device registration information; only the Device corresponding to the Device Information registered in advance will be tested at Plugfest.

3. Device Testing. To be listed on the IL, each device tested at Plugfest must comply with the compliance and interoperability criteria set forth below.

a. Compliance. A device must pass all of the device compliance tests included on the Test List. Members must complete any pre-compliance testing prior to Plugfest. Final compliance testing will be conducted during Plugfest as determined by CIWG.

b. Interoperability. A device must pass all mandatory interoperability procedures defined by the OpenFabrics Alliance Interoperability Working Group ("OFA-IWG"). If one or more of the devices used in interoperability testing does not meet the compliance criteria set forth in subsection a. above, the interoperability results of such device(s) under test ("DUT") will not be accepted. Instead, the interoperability results of the remaining compliant device(s) will be used for the DUT.

c. Testing for Additional Capabilities. Members may elect to have a device tested for optional capabilities, including InfiniBand™ capabilities. To include an additional capability for a device listed in the IL, the device must successfully complete the tests specifically identified for such additional capability on the Test List. Failure to pass certain additional capability tests (e.g., Atomic) will not prevent the device from being listed in the IL.

4. Cable Compliance Testing. To be listed on the IL, each cable tested at Plugfest must comply with the compliance, interoperability and reference cable criteria set forth below.

a. Functionally Identical. Cables can be added to the IL List under the Reference Program and the Rebranding Program if they are functionally identical and meet the criteria of the programs listed below. Examples of "functional" changes that require separate testing of a cable include, but are not limited to changes to the cable connector, paddleboard, equalization systems or wire gauge. Examples of "non-functional" changes include, but are not limited to changes in labeling, color, or informative EEPROM contents (see the table below for the EEPROM contents that can be changed). The CIWG Arbitration Committee will have final say as to whether or not a change is "functional."

Upper 00h	148-163		Vendor name
Upper 00h	165-167		Vendor OUI
Upper 00h	168-183		Vendor part number
Upper 00h	184-185		Vendor revision
Upper 00h	191	7:0	Check sum
Upper 00h	196-211		Vendor serial number
Upper 00h	212-217		Date code
Upper 00h	218-219		Lot code
Upper 00h	223	7:0	Check sum
Upper 00h	224-255		Vendor specific information

b. Compliance. Cables must pass all of the mandatory Physical Layer tests which are included on the test list for the upcoming Plugfest. The test list and the test specifications will be distributed by the CIWG prior to each Plugfest and these documents will identify informative tests and those tests which contain fields that are informative versus mandatory. Cables must comply with all of the mechanical specifications related to that cable type. The CIWG reserves the right to randomly test all cables for compliance to the mechanical spec.

c. Interoperability. Cables must participate in the Interoperability procedures included on the Test List during Plugfest. If a cable is included on the IL List, the Interoperability results must be published.

d. Reference Cables. Each Member may select specific Active Fiber cables to be tested at Plugfest and may designate such cables as "Reference Cables". Reference cables must be qualified in pairs to establish a minimum and maximum length which have been tested. This will establish the *Reference Pair Range* (RPR). All Active Fiber cables that:

1. have a conductor length that falls within the RPR (RPR length inclusive) either between 1 to 100 meters or 100 to 300 meters i.e. the Reference Pair cannot be 1 and 300 meters.

   and

2. are functionally identical to the Reference Cables (with the exception of the physical cable length and the cable length registers [142 to146] in the I^2C management interface)

will also qualify to be listed on the IL The Member will provide a specification sheet for each cable corresponding to a Reference Cable to document conformance with these conditions. A cable that qualifies by reference cannot replace the results of a cable which has been physically tested at the Plugfest. This program does not apply to copper cables.

e. Cable Rebranding. This program allows Vendor B to add rebranded cables to the IL List which have been tested and certified by Vendor A. Cables must have been supplied by Vendor A for certification and testing at an IBTA Plugfest or during On-Demand testing and must meet all of the current IL Policy guidelines. Rebranded cables must be functionally identical to the certified cables provided by Vendor A. This does not give Vendor B the right to manufacture the cables designed by Vendor A and rebrand them under this program. Vendor B must provide specifications to satisfy the Plugfest Engineers that the cables are functionally identical to the cables provided by Vendor A which have been tested during the Plugfest. The rebranded cables can be added within 30 days of vendor A receiving their Plugfest results provided that Vendor B has provided the necessary

proof that the cables are functionally identical. Both vendors must be members of the IBTA. The fee structure will be determined in advance for each Plugfest and will be published separately.

5. Cable Interoperability Testing

   a. All devices used to test Cable Interoperability must be compliant with the IBTA 1.2.1 or higher autonegotiation protocol. In addition, the software and firmware used by these devices must be publically available to the end user.

   b. The guidelines for cable interoperability testing will be updated for each Plugfest and published in the CIWG Documents repository.

6. Notice of Test Results. Members with Devices that were tested at Plugfest will be notified within 45 days of the conclusion of the event. Notice of test results will include all supporting materials such as traces and log files. For all Devices that have failed to meet the testing criteria set forth above, Members whose test results might be affected by the interoperability results or any subsequent resolution of an Appeal (as set forth in Section 6, below) will also receive notice of such test results.

7. Test Appeals.

   a. Dispute Resolution Committee. The CIWG Dispute Resolution Committee has final, binding authority to resolve any disputes relating either to (1) general test accuracy or (2) the application of the testing criteria set forth above, including any failure of a device to meet such criteria. The Dispute Resolution Committee is chaired by the CIWG Co-chairs and consists of members from CIWG subgroups, test implementers, and/or IBTA architecture working groups. Final decisions are made by the CIWG Co-chairs based on the findings from the Dispute Resolution Committee.

   b. Appeal Period. A Member intending to appeal an adverse test result must notify CIWG in writing of its intent to do so within 14 days after receiving its test results ("Appeal Period"). Any notice of Appeal received by the Dispute Resolution Committee after the Dispute Period is recorded as non-critical and may be reviewed and/or resolved by the Dispute Resolution Committee at the Dispute Resolution Committee's sole discretion.

   c. Appeal Claims. To support an Appeal, a Member must submit traces, log files and, if applicable, waveforms.

   d. Time. Appeals shall be resolved within thirty (30) days after the vendor receives their results, if possible. It is the Member's responsibility to present its case in detail and in time to permit a decision within thirty (30) days.

   e. Effect of Dispute Resolution. If the Dispute Resolution Committee finds that there was a defect in the *application of test criteria to a particular*

Device, there will be a revaluation of the test results and possible listing on the IL, if appropriate. If a defect is found in the *general test accuracy*, the particular test may be nullified. The IL may then be adjusted, if appropriate.

f. Appeal Fee. If a Member chooses to contest a test result and is not successful in the contest, IBTA will charge a minimum $1,000 Appeal Fee. If any more than 10 hours is spent by IBTA, CIWG, or the Dispute Resolution Committee, the Member will be billed at a rate of $100 per hour in excess of ten, in addition to the minimum $1,000. IBTA reserves the right to change the billing rate at any time.

8. On-Demand Program

a. This program allows a vendor to test products between IBTA Plugfests and allows those products to be added to the IL List. It also allows a vendor to test devices prior to the Plugfest and then test again during the next Plugfest.

b. Technical Requirements: The DUT must pass all applicable tests mandated by the current IL Policy. The specific tests will be posted on the CIWG Documents folder. Plugfests provide considerable benefit to the community by providing an opportunity to meet with other engineers to exchange ideas and create new test procedures. In order to protect the integrity of the Plugfest, on-demand testing will not be allowed within 2 months of the projected date of the next Plugfest. On-Demand testing after a Plugfest will be scheduled based on the availability of equipment and engineering resources. Compiling Plugfest results and producing the updated IL List will always take priority over on-demand testing. Testing will be based on the IBTA Specification that is approved as of the date of testing.

c. IL List Considerations: DUTs which successfully pass all mandatory testing will be added to the current IL List and will remain on the IL List for a maximum of one year. The DUT will be removed under two conditions: 1) when all of the other comparable devices are removed that were certified at the previous Plugfest. 2) A new test specification or IBTA Specification is released and therefore all comparable devices must be tested at the next available Plugfest.

d. Financial Requirements: A separate document will be maintained indicating the current fees associated with testing cables and devices. This list is subject to change and therefore not included in this document. Cable testing requires significant setup and calibration time and therefore there will be a base setup fee in addition to a per cable fee. The list will be posted to the CIWG Documents folder.

C. Accessing the IL

1. All current and archived lists will be accessible from the IBTA IL web page (http://www.infinibandta.org/content/pages.php?pg=integrators_list_overview)

    2. Current IL. This list will include all Devices that have passed the tests conducted at the either the most recent Plugfest or the previous Plugfest as long as there have been no material changes to the Test Plan. In the event that the Test Plan has been updated, only those devices tested at the most recent Plugfest will appear on the Current IL List. The CIWG Dispute Resolution Committee will have final binding authority to determine if the Test Plan has been materially updated. This Policy goes into effect with the start of April 2009 IBTA Plugfest and so the April 2009 IL List will not include any devices or cables listed on previous IL Lists.

    3. Archives. This section of the IBTA IL web page will include all past Integrator's Lists. At the conclusion of a Plugfest, the previous IL will be placed with the other archived Integrator's Lists.

D. IBTA Integrators Logo

1. Only those devices which are listed on the Current IL or are functionally identical to devices listed on the current IL may use the IBTA Integrators Logo provided that they comply with all conditions listed in both the IBTA Integrators Logo License Agreement* and the IBTA Integrators List Logo Usage Guidelines. Furthermore, the IBTA retains the right to require proof (under NDA) that a device not on the current IL, but sold bearing the IBTA Integrators Logo, is functionally identical to a device on the current IL. 3rd party resellers should maintain a list that traces a device back to its original manufacturer in order to verify that devices sold bearing the logo comply with this policy.

   ***Note**: The Logo License Agreement allows the licensee to sell *their* "Certified Product" bearing the InfiniBand logo. Therefore, devices bearing the logo should be labeled such that the logo program licensee is identifiable. The following two examples address two cases where a company wants to sell a certified product bearing the InfiniBand logo, but built by a separate manufacturer.

   Example 1: If the manufacturer is the logo licensee, then the cable will be listed on the IBTA Integrators List as the manufacturer's "Certified Product". The resold product should identify the original manufacturer and their part number so that the cable can be traced back to the Integrators List

   Example 2: If the seller does not want the label to identify the original manufacturer, then the seller should act as the logo licensee and submit the cable to the IBTA for testing or, if the manufacturer has already submitted the cable for testing, have the cable rebranded as their own. This way, the resold cable becomes the "Certified Product" of the seller

E. IBTA reserves the right to amend or add to this Policy at any time with or without notice.

Revision History

Document Name	Date	By	Description
IL Policy 2011-10-v2.doc	9/7/11	RSD	Eliminate PBR for copper cables and limit the length applicable for fiber cables.