

RapidIO Specification Versions 1.2 and 1.3
Differences Summary
November 23, 2008



The Embedded Fabric Choice

Some Points About Interoperability



RapidIO 1.3 devices are backwards compatible with 1.2 devices.

RapidIO 1.2 devices are forwards compatible with 1.3 devices.

RapidIO 1.2 devices and RapidIO 1.3 devices are interoperable.

The following differences are enhancements to the 1.2 specification or errata fixes.

All changes are prefixed with the showing number that describes the change in more detail. These showings are available on the RapidIO web site for members of the Technical Working Group.

Register Additions



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|-----------------|--|
| 03-01-00002.006 | Definition of standard registers for programming switch routing tables. |
| 03-03-00002.002 | Extension of standard registers to allow programming 4 routing table entries at a time. |
| 03-12-00000.002 | Add Software Assisted Error Registers for RapidIO switch devices. These are the same registers previously specified for endpoints. |
| 04-02-00001.002 | Addition of source operations register for switches, to communicate ability to originate port-write transactions. |
| 04-08-00013.002 | Addition of the Enumeration Boundary bit |
| 04-08-00015.003 | Addition of the linear multicast destination IDs programming model |
| 04-09-00020.001 | Addition of guidelines for the software use of the Enumeration Boundary bit |
| 04-09-00022.002 | Addition of a bit to clear unacknowledged packets to the software assisted error recovery registers. |

Register Modifications



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|-----------------|---|
| 03-05-00006.001 | Removal of the Write Port CSR, Doorbell CSR, Mailbox CSR, and the Mailbox and Doorbell bits of the Processing Element Features CAR |
| 03-03-00004.002 | Loss of lane synchronization is now detected by 3 single-bit errors within 256 symbols, instead of just 2. This change was made to account for error propagation in 8B/10B, since a single incorrect bit can cause two errors to be detected. |
| 04-02-00000.001 | If the Port Width Override bit value is changed, the port goes through the link initialization sequence again with the new port width value. |
| 04-02-00002.001 | Add a bit to determine if the destination ID for a port-write should use 8-bit or 16-bit destination IDs |

Logical Layer Enhancements



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| 01-09-002.002 | Addition of new ATOMIC Swap and Compare-and-swap operations to the Logical Layer |
| 02-05-00013.001 | Allow up to 64 mailboxes to be used for for single packet messages |
| 03-07-00001.001 | Editorial change to clarify use of RESPONSE packets for DOORBELL requests. |
| 03-12-00001.001 | Editorial change to clarify the use of the Address field within Logical I/O packets. |
| 04-05-00001.002 | Allow originator of Doorbell and Message packets to decide if they should be sent again. This allows for a timeout on Doorbell and Message packet transmission. |
| 04-05-00002.002 | To indicate support for the Messaging Logical Layer, only one mailbox need be supported. |
| 04-05-00005.001 | Corrections to the addition of new ATOMIC Swap and Compare-and-swap operations to the Logical Layer |
| 04-09-00023.001 | Host destination ID filtering requirements for enumeration |

Other Modifications



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|-----------------|---|
| 02-03-00003.004 | Removal of the ability to suppress retransmission of packets based on priority. |
| 02-06-00001.004 | The optional Critical Request Flow (CRF) bit was added to double the number of priorities supported by a RapidIO system. |
| 03-07-00000.002 | The serial electrical specification was enhanced to require that each line in a differential pair should have a characteristic impedance of 50 Ohms (100 differential) |
| 03-07-00002.001 | Restrict embedded control symbols to be sent only on 4-byte boundary. |
| 03-07-00003.001 | Enhance the 1x/4x Init state machine to be more robust. These changes do not impact interoperability between 1.2 and 1.3 compliant devices. |
| 03-12-00002.004 | Specification clarification of reset implementation. |
| 04-03-00000.001 | Interoperability Platform specification editorial change |
| 04-05-00000.003 | The ackID field of a packet-not-accepted control symbol can be any value, as the packet-no-accepted control symbol can indicate that an error occurred in the transmission of a packet. |
| 04-05-00006.002 | Allow a 4x/1x port to cease transmission on one of the redundant lanes when the port has degraded to 1x operation. It is recommended that this function be under software control. |
| 04-05-00007.001 | Correct the example polynomial used to generate the IDLE sequence. This change does not impact interoperability between 1.2 and 1.3 compliant devices. |
| 04-09-00019.004 | Ensure that when operation on lane 2 is forced, it is possible to force operation on either lane 0 or lane 2. This change does not impact interoperability between 1.2 and 1.3 compliant devices. |