

Mirocom QXI interconnect

The Mirocom Quick Looped Interconnect (QXI) is the standard for Network-on-Chip interconnects within the Mirocom space.

Terminology

Ringstop:

A ringstop is an single interconnecting endpoint on a ringbus and is responsible for handling time-division multiplexing of the ingress passdown link and passdown injection to the egress passdown link.

Passdown link:

A passdown link is an connection that passes through one ringstop to the next, forming a feedback loop that allows the bus to circularly propagate packets.

Passdown injection:

Passdown injection allows for a node on the bus to inject its own packets into a ringstop.

Architectural overview

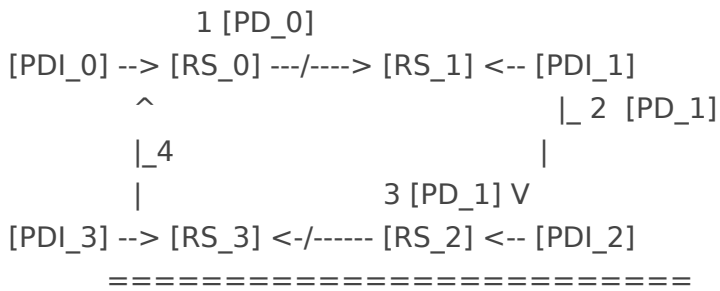
The Mirocom QXI fabric is a high-performance dual ring interconnect that incorporates zero-relative addressing such that each node can be identified with a 5-bit region identifier and addressed with a 27-bit offset, both of which are encoded in a 32-bit physical address. In a typical configuration, one ring will be going clockwise and meant for requests while the other ring goes counter clockwise and meant for data responses.

The QXI fabric is considered a Network-on-Chip that speaks QXI packets. A QXI packet frame encapsulates metadata such as a CRC32 checksum, sequence number, packet kind, destination node, source node as well as the packet payload and more.

Physical address format

```
offset region
+-----+-----+
| 31:5   | 4:0   | bits
+-----+-----+
```

High-level diagrammatic representation of a single ring



Where:

- RS_N => Ringstop
- PD_N => Passdown link
- PDI_N => Passdown link injection

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