



# Gowin Serial RapidIO IP

## **Release Note**

RN1023-1.0E, 08/18/2023

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**Revision History**

| Date       | Version | Description                |
|------------|---------|----------------------------|
| 08/18/2023 | 1.0E    | Initial version published. |

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# 1 About This Release

This release includes Gowin Serial RapidIO IP user guide and reference design.

Gowin Serial RapidIO IP reference designs are available at Gowin Website. The reference design can be used for simulation and overall synthesis, placement & routing after the instantiation with user design.

# 2 Feature and Enhancement Summary

The functions and enhancement items are as follows:

| Function                                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Front-end synthesis tool: GowinSynthesis                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Supported Serial RapidIO                                                      | <ul style="list-style-type: none"> <li>● Designed in accordance with RapidIO protocol V2.1, including Logical Layer, Transport Layer, and Physical Layer</li> <li>● Supports RX/TX for read transactions (NREAD), write transactions (NWRITE), write transactions with response (NWRITE_R), stream write transactions (SWRITE), response transactions (RESPONSE), message transactions (MESSAGE), doorbell transactions (DOORBELL), Atomic transactions, and maintenance transactions (MAINTENANCE).</li> <li>● Can select fixed priority or round robin mode for Arbiter</li> <li>● Supports device ID (DeviceID) with 8 bits, 16 bit widths</li> <li>● Supports x1, 2x, x4, lanes</li> <li>● Supports line rates: 1.25Gbps, 2.5Gbps, 3.125Gbps, 5.0Gbps</li> <li>● Supports receiver flow control</li> <li>● Supports IDLE1</li> <li>● Supports buffer depth with 8/16/32</li> <li>● Supports dynamic release of packet buffer resources</li> <li>● Supports packet retransmission</li> <li>● Supports packet error recovery</li> </ul> |
| Back-end placement and routing tool: Gowin Software (V1.9.9.Beta-2 and above) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Enhancements                                                                  | –                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

# 3 Documentation

The released IP manuals are listed in the table below. You can download the PDF manuals at Gowin website or read online.

| Documents                                                    | Description |
|--------------------------------------------------------------|-------------|
| <a href="#">IPUG1023, Gowin Serial RapidIO IP User Guide</a> | Online, PDF |
| RN1023, Gowin Serial RapidIO IP Release Note                 | Online, PDF |

# 4 IP Support

Since the requirements of user design and the maximum frequency are different, the reference design does not include FPGA specific location (.cst) and timing constraints (.sdc) documents, and you can determine the location and timing constraints on your own.

For the customized IP design and support, please contact Gowin sales and support.

Official Website: [www.gowinsemi.com](http://www.gowinsemi.com)

Email: [support@gowinsemi.com](mailto:support@gowinsemi.com)

