# RXS RapidIO Switches
High Performance Fabric Switching

FEATURES

- High performance low latency switching
  - 600Gbps non-blocking fabric switching
  - Deterministic low latency
  - ~100ns port-to-port latency
  - Schedulers to optimize traffic flow through fabric
  - Three buffer modes—cut-through, store-through, and store-and-forward operation—optimize packet transfer to minimize packet latency and preserve fabric bandwidth
  - High performance hardware multicast supporting 256 Multicast Groups per port
  - Performance monitoring on individual ports
- Port flexibility fulfills multiple I/O bandwidth requirements:
  - Up to twelve 50Gbps or twenty-four 25Gbps ports
  - Lane frequency configuration from 12.5 Gbps to 1.25 Gbps
  - Support for mixed speed and width configurations
- Error management
  - Extensive event detection
  - Selectable notification methods
  - Packet capture
  - Hardware support of fault isolation to prevent error-induced congestion
  - Hot swap support for recovery from errors
  - Event simulation to simplify software/system verification
- Interoperability
  - RapidIO® interconnect (Revision 3.2 compliant) and prior specifications
  - Lane training and retraining by hardware
  - Lane reversal and lane polarity inversion
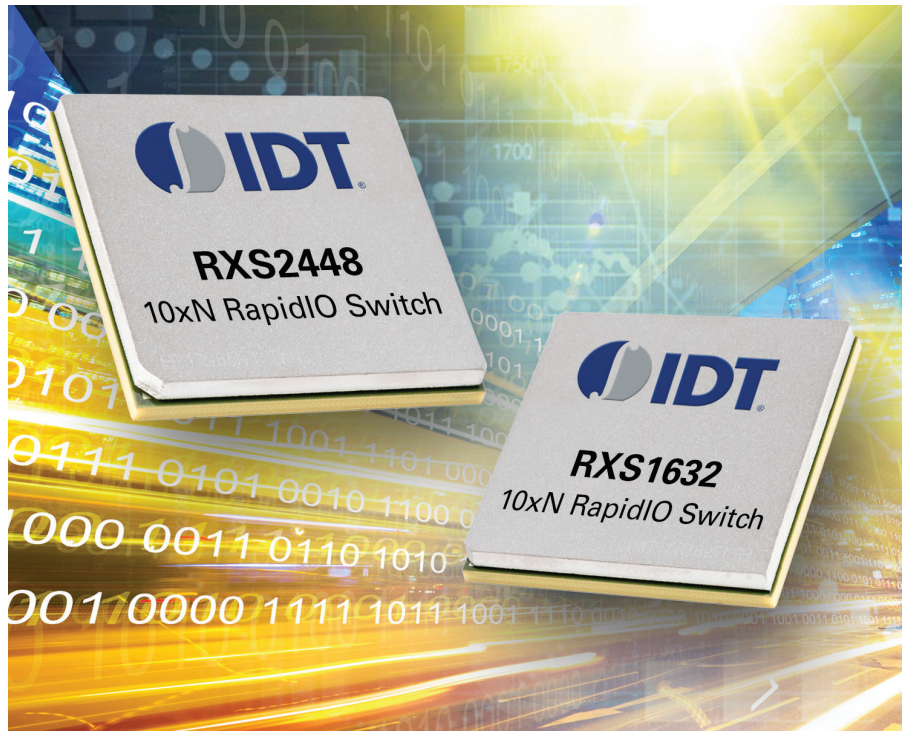
The RXS 10xN family delivers up to 600Gbps fabric switching ideal for mobile infrastructure applications such as 4G+/5G baseband modems, C-RAN, and mobile edge computing. The switch configurations include a 24-port 48-lane (RXS2448) switch and a 16-port 32-lane (RXS1632) switch. These RapidIO® products continue the tradition of delivering the lowest latency (~100ns) through a flexible non-blocking fabric optimized for bandwidth and power (Gbps/W). The RXS family excels at interconnecting heterogeneous processing nodes as demonstrated in mobile infrastructure, mission critical applications (VITA), industrial control (PICMG), and within data center computing such as data analytics and high performance computing.

IDT's RXS2448 and RXS1632 switches are ideal for heterogeneous computing applications. Applications such as 5G baseband modems, data analytic appliances, and video infrastructure require a true low latency fabric to interconnect OEM ASIC, FPGA, SOC, GPU, CPU and NPU functions seamlessly. The RXS family provides a switch fabric that provides low latency transport that scales from local on-board fabric computing to larger rack-scale data center switching.

RXS RapidIO Switches

KEY BENEFITS

- 50Gbps ports for heterogeneous computing
- Scalable to trillions of nodes
- Low system power per gigabit of data
- Fully backward compatible with prior RapidIO deployments

MARKETS & APPLICATIONS

- Mobile infrastructure including basestation, C-RAN, and mobile edge compute
- Data center for data analytics, and high performance computing (HPC)
- Aerospace
- Industrial control
- Mission critical (VITA, PICMG)
- Video infrastructure including conferencing, broadcast, imaging, trans-/en-coding

SPECIFICATIONS

RXS2448:
- 24 ports, 48 lanes
- 33 x 33 mm 1024-FCBGA

RXS1632:
- 16 ports, 32 lanes
- 29 x 29 mm 784-FCBGA

Rated for commercial and industrial temperatures

Typical Applications

The RXS switching benefits for a wireless application include:

- Very low latency interconnect to meet 5G wireless latency requirements
- Best performance to power ratio allows unprecedented compute density to enable 4G and 5G systems
- Switched architecture allows highly scalable system for micro and macro BT implementations
- Carrier-grade SerDes technology enables backplane-based modular systems and system scaling by inter-chassis cabling
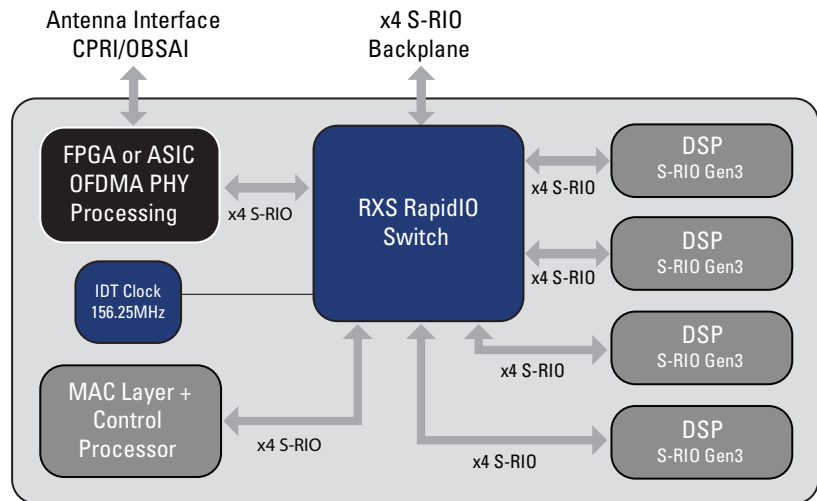
The RXS switching benefits for a high performance computing application include:

- Highly efficient protocol offers high throughput through the switch fabric
- Supports any topology for a highly scalable system
- Uses both messaging and remote memory access semantics
- Very low latency switching to allow for shorter data processing
- Low CPU utilization consumption allowing more CPU execution for processing tasks
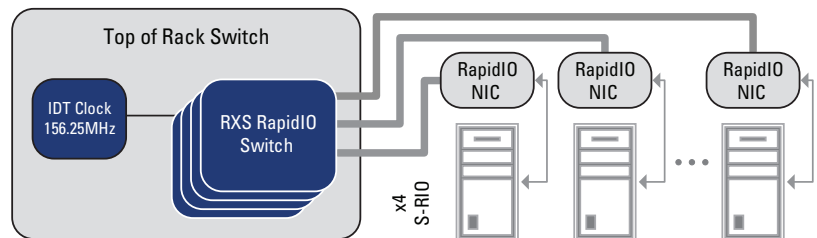
To request samples, download documentation, or learn more, visit: **idt.com/go/10xN**