



# RapidIO System Modeling Tool

## Features

- Switch Support
  - IDT *RapidIO 1.3 Specification* compliant devices, including the Tsi56x, the Tsi57x, and the Tsi620
  - IDT *RapidIO Gen2 Specification* compliant devices
  - All performance optimization features
  - Multicast
- RapidIO Support
  - Cycle-accurate modeling of RapidIO packet exchange
  - All RapidIO packet types and priorities
- System Description
  - Any number of endpoints and switches

*IDT's RapidIO System Modeling Tool enables designers to model their entire RapidIO network before finalizing the system architecture.*

- Traffic Modeling
  - Flexible packet request and response modeling
  - Models systolic traffic flows
- System Visualization
  - Statistics for each endpoint, each flow, and each link
  - Statistics for a user-specified period, or for complete execution of the model
  - Import information to Excel or Matlab for easy analysis

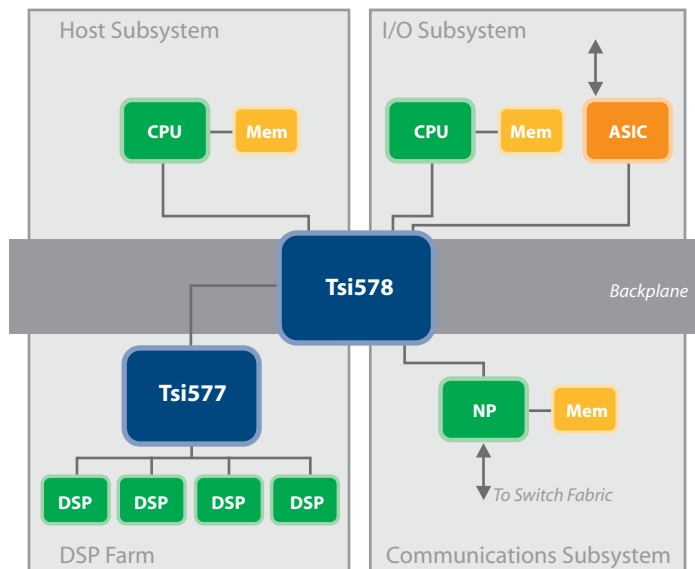
IDT is the industry's leading supplier of RapidIO® switches and is now offering a RapidIO System Modeling Tool. The tool allows IDT RapidIO users in the architectural phase of product development to maximize system-level performance, optimize system topology, and reduce power consumption. This modeling tool is unique to IDT switches and demonstrates customer-proven, non-blocking performance.

The RapidIO System Modeling Tool delivers fast answers to architectural questions about RapidIO system performance. Any system topology can be modeled, including large systems with hundreds of switches and endpoints. Traffic flows are specified using a rich syntax that allows users to define the model to its level of design maturity. Users can specify traffic flow start/stop relationships that enables detailed modeling of data transfers in systolic processing algorithms.

The field-proven tool allows the user to easily understand the performance characteristics of their system on a packet-by-packet and flow-by-flow basis, delivering fast, accurate answers to architectural questions. The execution of the model gives the degree of control necessary to examine system execution down to the nanosecond, while retaining the ability to summarize packet transfer characteristics on a flow-by-flow, endpoint-by-endpoint, and link-by-link basis.

The tool also enables users to gauge performance in advance of systems development, and to identify the overall gains of using RapidIO over existing interconnect technologies.

## Example System



## Benefits

Optimize system architecture to leverage IDT's non-blocking bandwidth, including the following:

- Reduce design costs by minimizing the board BOM
- Select the best IDT RapidIO switch for your design
- Optimize the configuration of the IDT switch to minimize system power
- Select the best port count, link speed and width for your design
- Confirm multiple applications can operate on common hardware

## Target Markets

Applications that can benefit from modeling performance with IDT switches include:

- Wireless: WiMAX, HSPA, and 3G LTE
- Video
- Medical Imaging
- Military: Radar, Sonar, and Navigation Systems
- Storage

## Ordering Information

IDT's RapidIO System Modeling Tool is offered by IDT's world-class applications engineering team in conjunction with RapidIO design support.

For more information about the RapidIO System Modeling Tool for your design, visit [www.IDT.com](http://www.IDT.com).

## Using the Modeling Tool

IDT's RapidIO System Modeling Tool improves end-to-end packet transfer by modeling not only the switch fabric, but also the behavior of the endpoints in the system. As a result, this enables designers to plan and examine the behavior of end-to-end packet transactions.

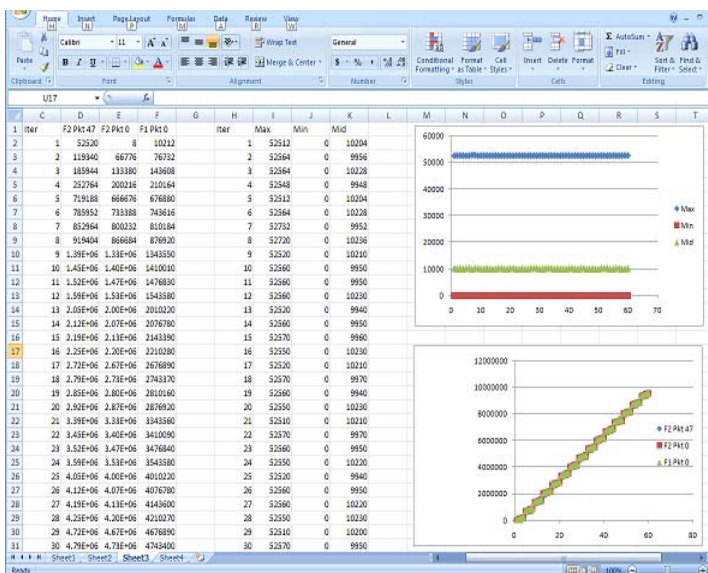
Users can simulate various traffic flows throughout the system to find the optimum priorities for system traffic-flow performance.

## Execution Environment

```

5332      M13:MYSWITCH DONE > RR M13F2M23 0 4
5332      M14:MYSWITCH DONE > RR M14F2M23 0 4
5336      M12:MYSWITCH DONE > RR M12F2M23 0 4
5337.6    MYSWITCH ACK 8 TX M13F2M23 0 4
5340      M11:MYSWITCH DONE > RR M11F2M23 0 4
5340.8    MYSWITCH ACK 4 RR M13F2M23 0 4
5350.4    M23:MYSWITCH START < TX M13F2M23 0 4
5363.2    MYSWITCH D_ACK 7 RR M23F2M12 0 4
5363.2    M24:MYSWITCH DONE > RR M24F2M14 0 4
5366.4    MYSWITCH ACK 3 TX M22F2M13 0 4
5366.4    MYSWITCH D_ACK 8 RR M21F2M13 0 4
5366.4    M23:MYSWITCH DONE > RR M23F2M14 0 4
5369.6    MYSWITCH ACK 5 TX M24F2M14 0 4
5369.6    MYSWITCH ACK 8 RR M22F2M13 0 4
5372      M22:MYSWITCH DONE > RR M22F2M14 0 4
5372.8    M3:MYSWITCH DONE > RR M3F3M23 0 4
5372.8    MYSWITCH ACK 9 RR M24F2M14 0 4
5376      M21:MYSWITCH DONE > RR M21F2M14 0 4
5376      M22:MYSWITCH DONE < RR M13F2M22 0 4
5380      M11:MYSWITCH DONE < RR M21F2M11 0 4
5384      M14:MYSWITCH START < TX M24F2M14 0 4
5388.8    MYSWITCH ACK 6 TX M11F2M22 0 4
5388.8    MYSWITCH D_ACK 3 RR M15F2M22 0 4
5392      MYSWITCH ACK 3 RR M11F2M22 0 4
5392      M3:MYSWITCH DONE > RR M4F1M3 0 4
    
```

## Information Analysis



The tool, along with the expertise of IDT Application Engineers, allows designers to simulate the performance of multiple systems while reusing a single hardware platform.

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