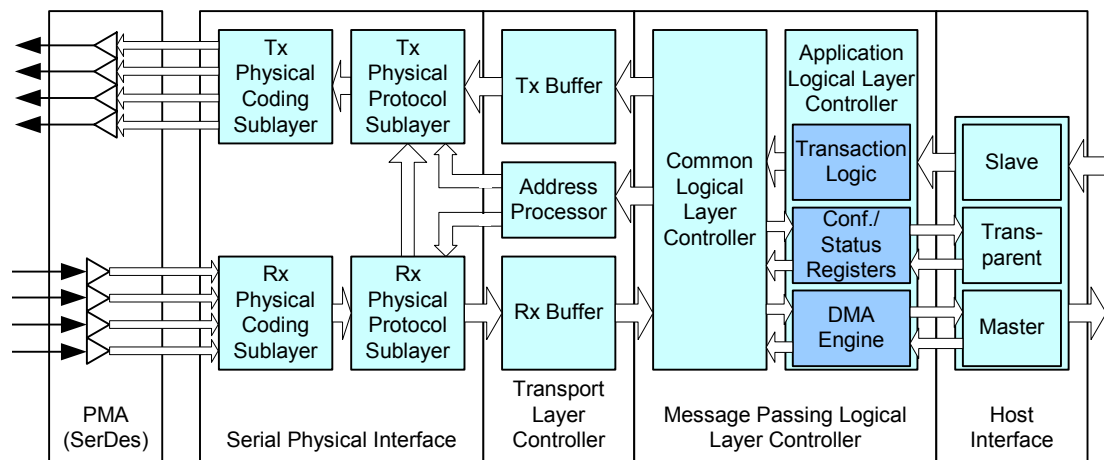


RapidIO Product Line

The Jennic RapidIO system-level IP product line provides a complete range of fully integrated RapidIO interface solutions, intended for integration into SoC semiconductor devices. The RapidIO interface standard has been developed primarily for use in providing the interconnect between embedded processing units such as processors, DSPs etc as used in networking applications such as 3G wireless basestations and Storage Area Networks.

Jennic's RapidIO product line is based around a generic, modular architecture from which a variety of solutions can be easily created to effectively and efficiently address customers specific requirements. The architecture has been partitioned in such a way to support the use of customers own IP, or that of 3rd party IP providers, such as IO cells, SerDes and switch fabrics. The product line contains both Serial and Parallel Physical Interfaces, supports both endpoint and switching applications and the Input/Output and Message Passing Logical Layer standards. It is available with a choice of commonly used Host Interfaces.

BLOCK DIAGRAM



Features

- Conforms to the RapidIO Interconnect Specification – Rev.1.2.
 - Including Errata-Rev.1.
- Serial RapidIO interface capable of supporting full duplex, data rates up to 10Gbps in each direction.
- Provided as a complete, fully integrated and verified RapidIO interface solution consisting of the Physical Interface, the Transport and Logical Layer Controller and a Host Interface.
- **Serial Physical Interface**
 - Utilises customers own, semiconductor vendor or 3rd party PMA (IO cell and SerDes).
 - Operates at 1.25, 2.5 or 3.125Gbaud per lane.
 - 4x lanes, can operate in 1x lane mode
- **Transport Layer Controller**
 - Two versions available
 - o Generic Endpoint
 - o Switching
- **Input/Output Logical Layer Controller (Register)**
 - Provides an efficient RapidIO interface for low bandwidth/small packet applications.
- **Input/Output Logical Layer Controller (Transparent)**
 - Uses host bus snooping to provide a transparent interface suitable for use in bridging applications
- **Message Passing Logical Layer Controller (Queue)**
 - Provides an efficient RapidIO interface for high bandwidth/variable sized packet applications.
 - Contains enhanced DMA engines to transfer data using queue memory structures to reduce overhead on host processor
- Also supports Input/Output Logical Layer functionality
- **Switching Logical Layer Controller**
 - Provides the limited Logical Layer functionality required in switching applications.
- **Host Interfaces**
 - Standard versions to support Register or Queue based Logical Layer Controllers for a variety of common processors and host interfaces.
 - o ARM (AMBA/AHB)
 - o MIPS
 - o PowerPC (CoreConnect)
 - o PCI
 - Enhanced versions to support Transparent Logical Layer Controllers

Options

- Support for Error Management and Flow Control Extensions.
- 1x lane Serial Physical Interface
- Parallel Physical Interface
- Optimised version available in FPGA for evaluation purposes

Product Brief

RapidIO Product Line

Jennic's RapidIO IP product line provides a range of RapidIO solutions intended for use in a variety of applications including generic endpoint and multi-port switches. The RapidIO standard has been defined using a layered approach, with a number of options, in terms of features and supported functionality, for each layer. This layered approach is reflected within the architecture of Jennic's product line, where, for each layer in the architecture, we can offer a number of different IP blocks, each with different capabilities, focussed towards a particular application.

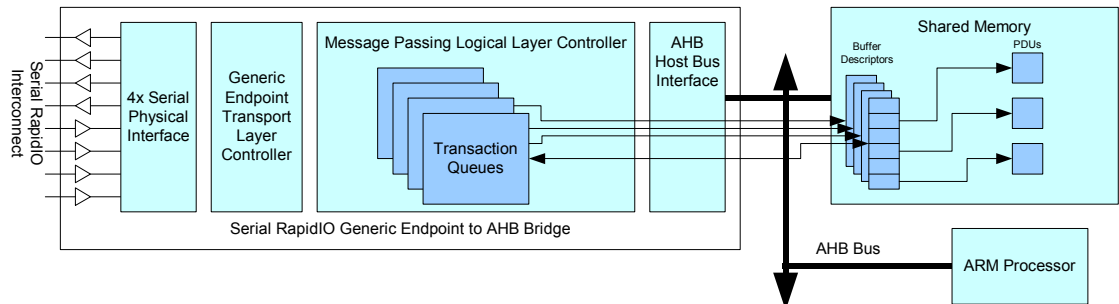
Interfaces supporting both types of physical interface currently defined in the standard are available. The Serial Physical Interface contains a PMA (IO cell and SerDes) provided either by the customer, semiconductor vendor or a 3rd party IP provider.

Two types of Transport Layer Controller are available, one for Generic Endpoint applications and one for switching applications.

A number of different types of the Logical Layer Controller are available: For relatively simple, generic endpoint applications, where the main purpose is to extend a Host Processors read/write capability across the RapidIO network, the Input/Output Logical Layer Controller would be adequate. However, for applications that require the transfer of large amounts of packet data, without the intervention of the Host Processor, the Message Passing Logical Layer Controller would be more appropriate. This uses the concept of queues contained in shared memory, which are managed through buffer descriptors and DMA engines, to off load the overhead from the Host Processor.

The capability to incorporate additional features and functionality, either as a result of specific customer requirements or as future revisions and extensions to the RapidIO standard, has been accommodated throughout the architecture. Examples of this include support for Error Management, Flow Control Extensions and Dataplane Logical Layer functionality.

APPLICATION DIAGRAM



Serial RapidIO providing a high-speed packet interconnect to an embedded processor.

Product Options

- Single/Multi Use Licences
- Soft IP Core: RTL Source Code, Synthesis scripts, etc
- Hard IP Core: LEF/DEF Format, GDSII Netlist
- Functional verification test bench
- Production test vectors
- FPGA Implementation
- Comprehensive documentation package

Jennic is a leading provider of Intellectual Property and silicon design services to the broadband communications market. Jennic combines its system expertise, advanced Intellectual Property portfolio and skills in digital, software, mixed-signal and SoC design to deliver performance, cost and time-to-market advantages to its system OEMs and semiconductor customers. Jennic's Intellectual Property portfolio includes physical layer framers and bus bridges for wide and metro area networks, access network co-processors, line-card connectivity solutions and cellular, low power wireless and data mixed-signal systems.

Jennic

TECHNOLOGY FOR A CHANGING WORLD

Jennic Ltd.

Furnival Street, Sheffield, S1 4QT, UK

Tel: +44 (0) 114 281 2655

Fax: +44 (0) 114 281 2951

Email: info@jennic.com Web: www.jennic.com