

IXF1002 Dual-Port Gigabit Ethernet MAC

Product Highlights

- Two full-duplex independent 1-Gbps MACs
- GMII or GPCS physical layer interface
- VLAN tags: add/strip/replace on transmit
- IEEE 802.3x and 802.3z compatible for auto-negotiation and flow control
- 30 to 85 MHz IX Bus speed (5.44 Gbps @ 85 MHz)
- 8-bit or 16-bit CPU interface
- Handles SNMP and RMON counters
- Independent 4 Kbyte Rx FIFO and 2 Kbyte Tx FIFO for each MAC
- 304-pin BGA package
- Low Power – 3.6W with 3.3V power supply and 5V tolerant I/O



Intel®
Internet Exchange
Architecture

www.intel.com/IXA

Product Line Overview

Gigabit Ethernet technology in server and high-end desktop PC network environments is being accelerated by the introduction of Gigabit Ethernet copper PHY (Physical Layer) devices. At the same time, the expanding Internet economy requires shorter design cycles to meet the continuing demand for value-added features. New blades for existing chassis-based routers and switches have a fixed form-factor and limited power budgets. At the same time, designers must meet the demand for increased port density. The IXF1002 dual-port Gigabit Ethernet MAC provides the ideal solution for these design requirements, enabling faster time-to-market, with reduced development costs. For network switch vendors, the IXF1002 dual-port Gigabit Ethernet MAC provides a gigabit Ethernet uplink for 10/100 Mbps switches.

The IXF1002 is the industry's first integrated solution of its kind for router and switch applications. The IXF1002 integrates two MAC ports to simplify board design, while helping to reduce board real estate requirements, power

dissipation, and overall solution cost. In addition, it enhances system performance by implementing programmable features in hardware to offload tasks from the switch or router engine. Both unidirectional and bi-directional IX Bus modes provide options for implementing a variety of switch system architectures. Unique features such as VLAN tag replace, strip, add capability, and header pre-processing enable the IXF1002 to offload tasks from the switch or router engine. A “multi-packet” mode improves small packet throughput by increasing the maximum number of packets in the transmit FIFO from two to sixteen. Redundancy is a required feature of Gigabit Ethernet systems. The IXF1002 meets this requirement through the integration of two MACs on one device.

The glueless interface to the IXP1200 Network Processor enables designers to easily build a router engine with Gigabit Ethernet backbone connectivity and then enhance it with a growing family of optional IX bus support peripherals and development tools. These include the IXF1002 dual port gigabit Ethernet MAC and the IXP12DE network processor development environment. Whether used alone in a network system design, or as a companion to the IXP1200 network processor, the IXF1002 simplifies system design and enables glueless Gigabit Ethernet backbone connectivity.

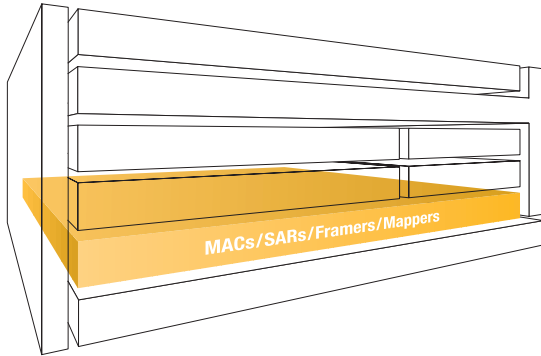


Features

- Two full-duplex independent 1-Gbps controllers
- Up to 85 MHz IX Bus speed
- IX Bus 32-bit or 64-bit bi-directional and 32-bit unidirectional modes
- VLAN tag, replace, and add capabilities on transmit
- Glueless interface to IXP1200 network processor
- GMII or GPCS physical layer interface
- IEEE 802.3x and 802.3z compatible

Benefits

- Helps simplify hardware design, reduce board space, reduce time-to-market, reduce risk and power dissipation
- Helps to eliminate data flow bottlenecks
- Implements various architectures and optimizes performance
- Offloads switch/router engine from performing these tasks
- Helps to reduce system development time, system cost, risk, and time-to-market
- Interfaces to standard transceivers, such as the Intel® LXT1000
- Supports auto-negotiation and flow-control support



Intel® Internet Exchange Architecture

Intel® Internet Exchange Architecture (IXA) is an end-to-end family of high-performance, flexible and scalable hardware and software development building blocks designed to meet the growing performance requirements of today's networks. Based on programmable silicon and software building blocks, Intel® IXA solutions enable faster development, more cost-effective deployment and future upgradability of network and communications systems. Additional information can be found at www.intel.com/IXA.

Ordering Information

Contact an authorized Intel distributor for complete ordering details.

To order the IXF1002 dual-port Gigabit Ethernet MAC specify part number GCIXF1002ED

Product Specifications

Power supply	3.3V
Operating temperature range	0°C to 70°C
Storage temperature range	-55°C to 125°C
Power dissipation	3.6W @ 85 MHz
Package	304-pin ESBGA

Intel Access

Developer's Site	developer.intel.com
Intel Internet Exchange Architecture Home Page	www.intel.com/IXA
Networking and Communications Building Blocks Site	www.intel.com/design/network
Other Intel Support:	developer.intel.com/design/litcenter
Intel Literature Center	(800) 548-4725 7 a.m. to 7 p.m. CST (U.S. and Canada) International locations please contact your local sales office.
General Information Hotline	(800) 628-8686 or (916) 356-3104 5 a.m. to 5 p.m. PST

Information in this document is provided in connection with Intel products. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Intel's Terms and Conditions of Sale for such products, Intel assumes no liability whatsoever, and Intel disclaims any express or implied warranty, relating to sale and/or use of Intel products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. Intel products are not intended for use in medical, life saving, or life sustaining applications. Intel may make changes to specifications and product descriptions at any time, without notice.

Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "unrefined." Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them.

*Third-party marks and names are the property of their respective owners.



For more information, visit the Intel Web site at: developer.intel.com

UNITED STATES AND CANADA
Intel Corporation
Robert Noyce Bldg.
2200 Mission College Blvd.
P.O. Box 58119
Santa Clara, CA 95052-8119
USA

EUROPE
Intel Corporation (UK) Ltd.
Pipers Way
Swindon
Wiltshire SN3 1RJ
UK

ASIA-PACIFIC
Intel Semiconductor Ltd.
32/F Two Pacific Place
88 Queensway, Central
Hong Kong, SAR

JAPAN
Intel Kabushiki Kaisha
P.O. Box 115 Tsukuba-gakuen
5-6 Tokodai, Tsukuba-shi
Ibaraki-ken 305
Japan

SOUTH AMERICA
Intel Semicondutores do Brasil
Rue Florida, 1703-2 and CJ22
CEP 04565-001 Sao Paulo-SP
Brazil