

IXF1002

Dual Port Gigabit Ethernet MAC

Product Brief

Level One™ performance

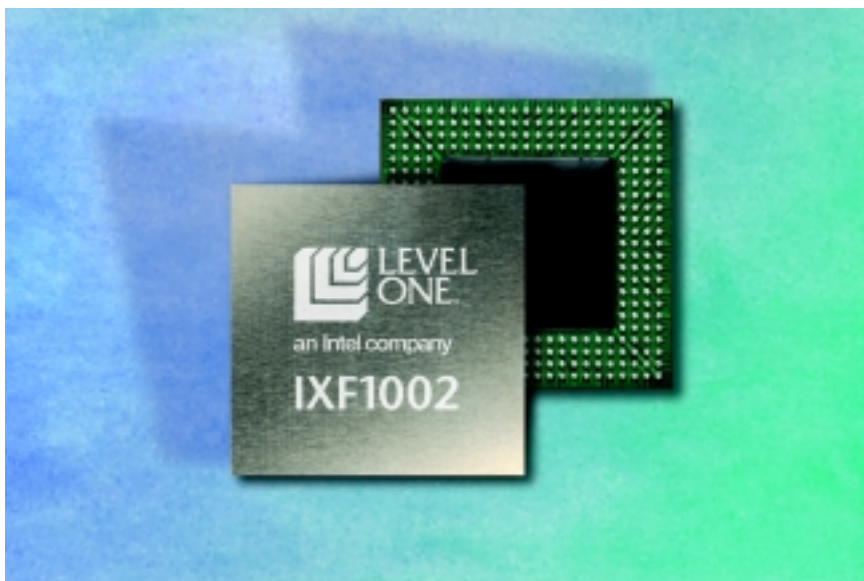
The IXF1002 dual port Gigabit Ethernet Media Access Controller (MAC) is the industry's first integrated solution of its kind for router and switch applications. Whether used alone in network system design, or as a companion to the IXP1200 Network Processor, the Level One™ IXF1002 dual port Gigabit Ethernet MAC:

- Simplifies system design
- Enables glueless Gigabit Ethernet backbone connectivity
- Enhances system performance by implementing a set of programmable features in hardware to offload tasks from the switch or router engine.

The IXF1002 integrates two MAC ports. It simplifies board design and helps reduce board area, power dissipation, and your overall solution cost. Both unidirectional and bi-directional IX bus modes of operation provide you with options for implementing various 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.

Specifications

Power supply 3.3V
Operating temperature range
0°C to 70°C
Storage temperature range
-55°C to 125°C
Power dissipation
3W @ 80 MHz
Package
304-pin ESBGA



Features

- Two full-duplex independent 1-Gbps controllers
- Up to 80 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 Gigabit Ethernet standard transceivers
- Supports auto-negotiation and flow-control support

Easier builds for Gigabit Ethernet switches and routers

The growing use of Fast Ethernet to desktops and servers creates a great need for higher-speed technology at the backbone and server levels. As a result, Gigabit Ethernet technology has become the preferred LAN backbone technology for connecting servers, switches, edge routers, and remote access concentrators. Now, the penetration of Gigabit Ethernet technology to servers and high-end desktop PCs is being accelerated by the introduction of Gigabit Ethernet copper PHY (OSI Physical Layer) devices. At the same time, a rapidly evolving internet economy is forcing the need to speed up development, shorten time-to-market, and meet ever-growing demands for value-added features.

For network switch vendors, the IXF1002 dual port Gigabit Ethernet MAC performs as a Gigabit Ethernet up-link for 10/100 Mbps switches. New blades for existing chassis-based routers and switches have a fixed form-factor and limited power dissipation budgets, as well as a demand to increase port density. Yet, network designers are striving to integrate more and more ports. In these types of designs, the IXF1002 helps reduce your system development cost, while facilitating faster time-to-market.

As Gigabit Ethernet technology is deployed in LAN campus backbones, redundancy is a required feature of Gigabit Ethernet systems. The IXF1002's integration of two MACs on one device gives you the capability to build systems that require redundancy.

Flexible options and enhancements

You can easily build a router engine with Gigabit Ethernet backbone connectivity based on the powerful IXP1200 Network Processor. Then, enhance your offerings with a

growing family of optional IX bus support peripherals and development tools, including the IXB3208 IX bus scaling fabric device, the IXF1002 dual-port Gigabit Ethernet MAC, the IXF440 dual-speed multiport Ethernet MAC, the IXP12DE Network Processor Development Environment, the IXP12EB Ethernet Evaluation Kit, and more.

Glueless interface to the IXP1200 Network Processor makes these peripherals a natural selection whenever you require gigabit Ethernet connectivity. With reduced time-to-market, system cost, and risk, you can focus efforts on adding differentiating features to your product.

A new development approach

Level One Communications and its parent, Intel Corporation, are meeting today's market challenges with a range of new solutions in a cohesive set of standard building blocks for network systems — the Intel® Internet Exchange™ (IX) architecture.

The unique silicon and software components that comprise the Intel IX architecture facilitate your development of relevant solution platforms - with scalable performance, flexible handling of multiple protocols and world-class development tools. Level One's growing suite of silicon and software building blocks were designed to offer you:

- Cost effectiveness
- Development efficiencies
- Seamless interoperability

Level One and the Intel IX architecture are providing a complete solution now *and* for the future of your business.

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 80 MHz IX bus speed (5.12 Gbps @ 80 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 3.3V with 5V tolerance CMOS device

For more information, visit the Level One Web site at: www.level1.com

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