

# Intel® IXF6402 Broadband Access Processor

## Product Overview

The Intel® IXF6402 is a fourth-generation 64-bit Broadband Access Processor capable of formatting and provisioning a broad range of high-speed network traffic types. These include frames, cells, and packets at broadband data rates of up to 622Mbps full duplex, or up to 2.4Gbps in a multi-engine configuration. Implemented in low-power CMOS process technology, the IXF6402 has a 66/100MHz/64-bit PCI interface and offers a high-speed local memory bus, list and buffer management, DMA, traffic shaping, accounting, tagging, and packet encapsulation engine—all in a single, integrated package.

The Intel® IXF6402 Broadband Access Processor can significantly benefit developers by helping:

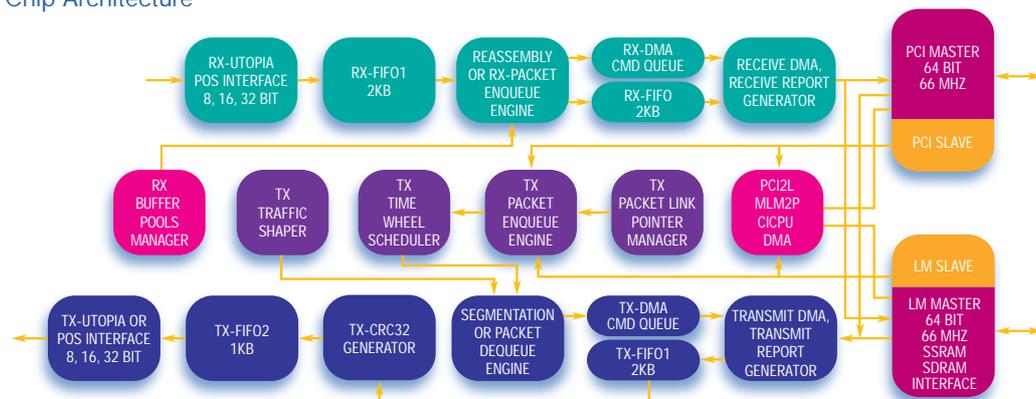
- Minimize research and development cycles
- Provide comprehensive system design
- Enable granular and efficient traffic shaping
- Provide extremely low latency
- Offer connectivity to both SONET and ATM backbones
- Multi-port POS support
- Programmable VC/VP shaping



## Key Applications

- Edge/access devices
- Switches and routers
- DSLAMs
- Internet media servers
- VoIP gateways
- ATM switches
- Storage area networking platforms
- Networking interface cards (NICs)
- Multi-access concentrators

## Chip Architecture



Intel®  
Internet Exchange  
Architecture



## Features

- Integrated ATM OC-12c SAR, multi-chip OC-48
  - Full-duplex line rate operation for 64-byte packets
  - 64-bit state machine architecture
  - Hardware encapsulation and tagging
  - Hardware packet formatting
  - 66/100MHz Local Memory Operation
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- Up to 64K VC/VPs per transmit and receive
  - Traffic shaping resources for CBR, VBR
  - Granularity for rates down to 1 Kbps
  - Time wheel scheduling for ABR and other traffic types
  - Automates FRM cell generation and MCR support for ABR
  - UBR support
  - Dual GCRA policing per VC or VP
  - Weighted fair queuing and dynamic priority arbitration
  - UBR fill-in cells for maximum bandwidth utilization

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- LEC ID, ELAN ID, LLC/SNAP, MPOA, IP encapsulations
  - 64-byte header
  - Programmable header encapsulation and tagging
  - LANE, MPOA, MPLS, and IP protocol assist
  - Support for both packet and VC tagging
  - Support for per-packet tagging in receive
  - Support for 32-bit cell-or-packet counters for receive
  - Ability to report the LSB 16-bit of the 32-bit cell-or-packet counter in the receive buffer report, removing need for an additional read operation
  - Support for transmit per packet offset up to 256 bytes
  - Support for receive start-of-packet offset for per-packet and/or per-buffer

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- AAL types 0, 1, and 3/4, 5
  - TM 4.0 compliant
  - Flow control: UBR-H, UBR, CBR, VBR, VBR-rt, ABR
  - Full 64-byte VC descriptors
  - Scalable to OC-48
  - ATM/POS UTOPIA support
  - Support for multi-port POS

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- Dual-port OC-12c or quad OC-3c
  - Glueless 64-bit SSRAM and SDRAM interface
  - PCI 2.1 compliant 33/66MHz, 32/64-bit operation
  - UTOPIA levels 1, 2, and via mux

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- Full scatter/gather DMA for SAR
  - Extensive transmit and receive buffering
  - Two-dimensional link-list packet queuing
  - 64K internal transmit product descriptor and packet buffer pools; 36K internal buffer
  - Multiple buffer sizes and cell splitting
  - Support for four-bank structured SDRAM

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- 2.5V/3.3V tolerant I/Os
  - 0.25µm CMOS design, 2.5V
  - 352-pin EBGA/ABGA package (Industrial or Commercial Temp) -40° to 85°C
  - Pin compatible with Intel® IXF6401

## Benefits

- Highest performance
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- Extensive traffic shaping and policing

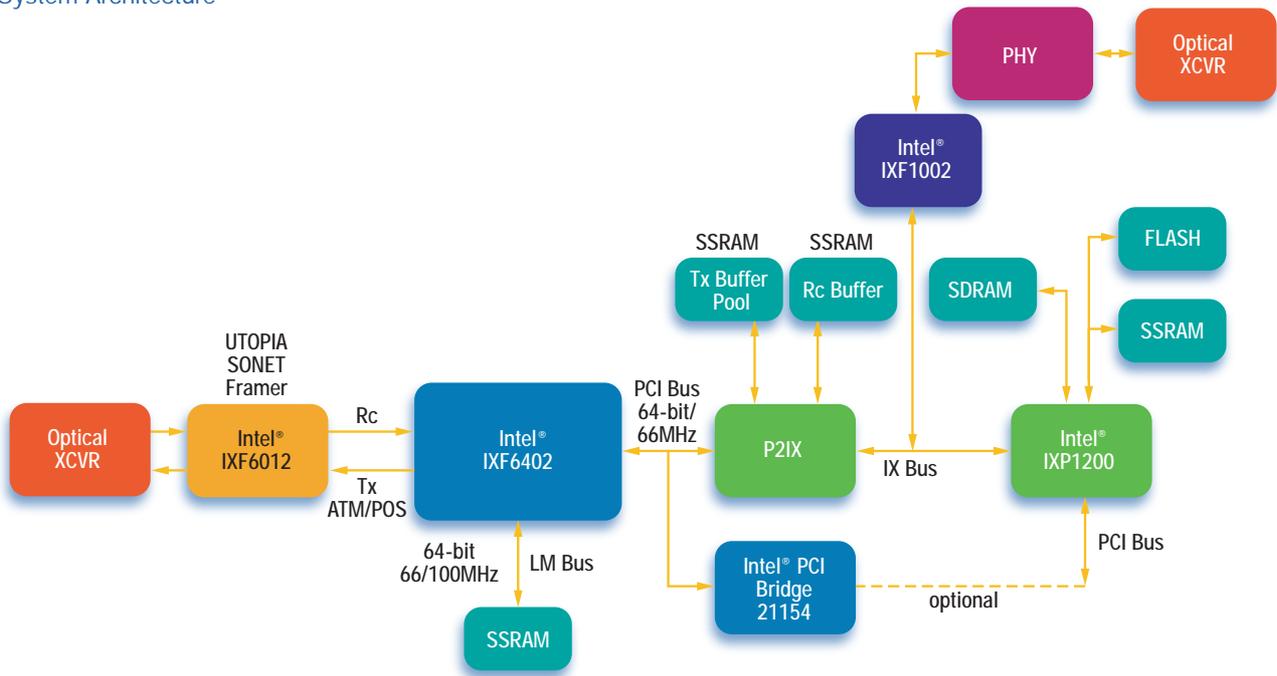
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- Upper Layer Assist

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- Feature rich

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- Multiple interfaces for flexible options

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- Sophisticated buffer management

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- State-of-the-art process technology

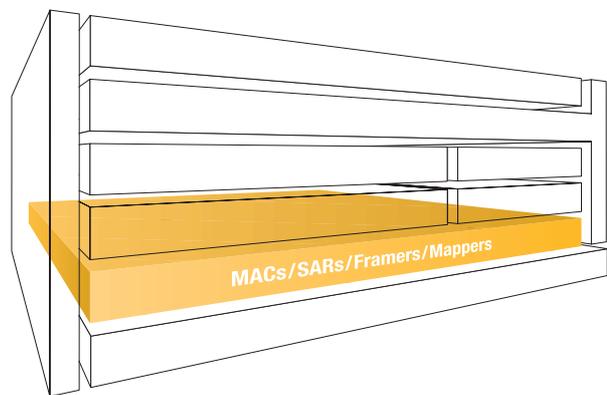


Support Collateral/Tools

Item	Description	Order Number
Data Sheet	■ IXF6402 Broadband Access Processor	273472
Developers Manual	■ IXF6402	273453

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](http://www.intel.com/IXA).



Intel Access

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