Mellanox
TECHNOLOGIES

NP-5™ Network Processor

240Gbps NPU for Carrier Ethernet Applications

Mellanox's NP-5 is a highly-flexible network processor with integrated traffic management, targeting Carrier Ethernet Switches and Routers (CESR) and other Carrier Ethernet platforms that require high performance, flexible packet processing and fine-grained traffic management.

TARGET APPLICATIONS

NP-5's flexibility and integration allows system vendors to deliver cost effective solutions that can easily adapt to changing market requirements.

Typical applications include:
- Line cards in modular chassis:
- Edge and Core Routers
- Transport Switches
- Data Center Switches
- 3G/4G Wireless Infrastructure Equipment

Stand-alone pizza box solutions:
- Ethernet Aggregation Nodes
- Server Load Balancing Switches
- Multi-10Gbps Firewalls & VPN
- Intrusion Detection Appliances
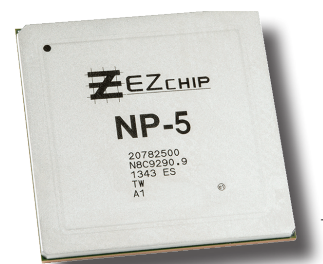- Network Monitoring and Analysis Services

SOFTWARE TOOLS

Mellanox supplies a comprehensive set of software tools to facilitate system design for NP-5 based products. The toolset manages the data plane and allows designers to edit, build and debug microcode applications for the Mellanox's network processors with a unified GUI. Designers can quickly develop and test the microcode using cycle-accurate simulation and debugging tools including breakpoints, single-step program execution and access to internal resources.

APPLICATIONS LIBRARY

Mellanox offers a library featuring production code and tested reference code to help its customers simplify their development efforts and expedite the time-to-market of their system products. The library includes:
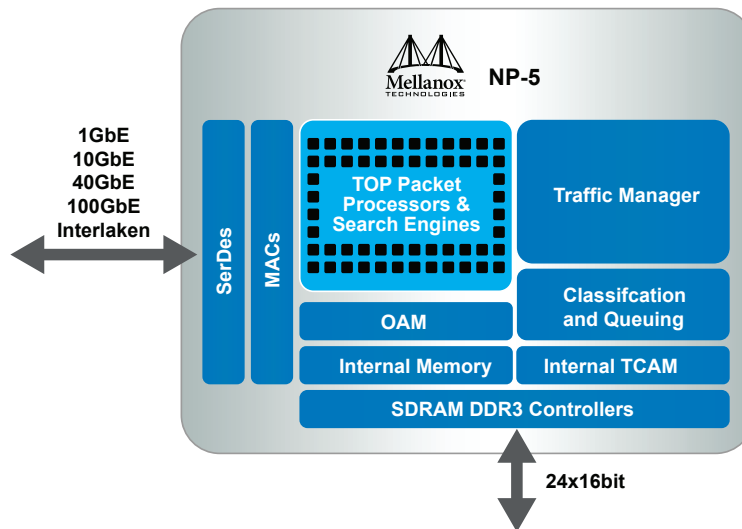
- L2 switching
- Metro Ethernet
- MPLS LER and SER
- IPv4/IPv6 routing
- Access Control Lists (ACL)

- IEEE 1588 1-step implementation
- Fragmentation and defragmentation
- Multicasting
- L23 QoS

HIGHLIGHTS

- 240Gbps wire-speed network processor aimed at Carrier Ethernet applications

- Integrated 240Gbps traffic management providing granular bandwidth control

- Up to 480Gbps peak processing data path and CoS classification

- Suited for line card, services card and pizza box applications

- On-chip control CPU for host CPU offload

- Power management for minimizing line card and system power dissipation

- Operations, Administration and Management (OAM) processing offload

- Synchronous Ethernet and IEEE1588v2 offload for Circuit Emulation Services

- IP reassembly for advanced packet processing offload

- Integrated serial interfaces with support for 64x1GE, 48x10GE, 12x40GE and 4x100GE

- Utilizing DDR3 DRAM memory chips for minimizing power and cost

- SW compatible with Mellanox's NP-4 network processor

†For illustration only. Actual products may vary.

Figure 1. Interfaces Diagram

SAMPLE APPLICATIONS

Figure 2.
NP-5 line card with 2x100GE, 6x40GE or 24x10GE network ports, and a dual Interlaken interconnect to a switch fabric. The Traffic Manager is 240Gbps providing 240Gbps egress scheduling or Virtual Output Queuing.
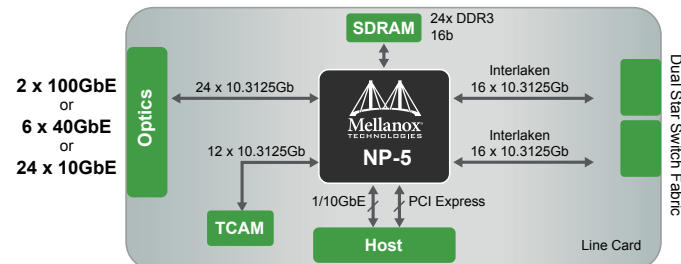

Figure 3.
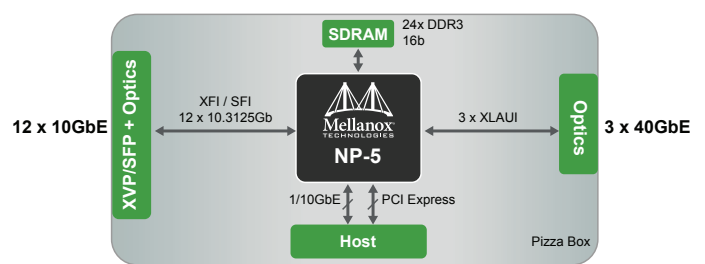**Pizza box with 12x 10GE and 3x 40GE network interfaces**

Table 1 - Part Numbers and Descriptions

OPN	Description
20782503	NP-5 RoHS 240Gbps Network Processor with integrated Traffic Manager; RoHS model, Phase 2.2

53042PB
Rev 2.1