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
- 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
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

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**Table 1 - Part Numbers and Descriptions**

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<tr>
<th>OPN</th>
<th>Description</th>
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<tbody>
<tr>
<td>20782503</td>
<td>NP-5 RoHS 240Gbps Network Processor with integrated Traffic Manager; RoHS model, Phase 2.2</td>
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