

SmartNICs for Reconfigurable Computing

NT200A01-2x100/40 2-PORT 100/40G PCIe GEN3

100/40 Gbps PACKET CAPTURE AND ANALYSIS

Use cutting-edge network SmartNIC technology to add real-time line rate performance to your application. Napatech dual speed 2-port 100/40 Gbps SmartNICs provide full packet capture and analysis of network data at 200 or 80 Gbps with zero packet loss. The Napatech SmartNIC will capture all frames, including erroneous frames normally discarded by standard NICs. The Napatech NT200A01-2x100/40 can also be used for 40 Gbps in-line application acceleration.

The Napatech SmartNIC allows you to merge data from two ports into a single, time-ordered analysis stream. The compact form factor of the NT200A01 enables 2 x 100G or 2 x 40G applications in 1U server platforms, saving rack space and reducing the overall cost of the solution.

The 12 GB DDR4 RAM buffer allows buffering packets on the SmartNIC to prevent packet loss during peak server loads. Packets are hardware time-stamped when they arrive at the network ports, ensuring that the time stamp is always reliable.

The SmartNIC also comes in a NEBS level 3 compliant variant.

NT200A01-SCC-2x100/40



NT200A01-NEBS-2x100/40

FEATURE HIGHLIGHTS

- Scalable pipeline architecture
- Network ports: 2 x QSFP28
- Capture of Ethernet traffic: Full 2 x 100 Gbps or 2 x 40 Gbps
- Zero packet loss for all frame sizes
- 12 GB DDR4 RAM buffer (500 ms at 200 Gbps or 1280 ms at 80 Gbps)
- Typical CPU load: < 5% of one core
- Addressing up to 1 TB application buffer memory
- Packet or segment delivery to application
- Hardware-accelerated:
 - Multi-port packet merge
 - Load distribution across up to 128 CPU cores
 - 1 ns time stamp resolution
 - Frame and protocol information
 - Filtering based on e.g. L3/L4 criteria
 - GTP, IP-in-IP, GRE and NVGRE tunneling support
 - Slicing at fixed or dynamic offset
 - RMON1 counters, including jumbo frames
- IEEE 1588-2008 PTP and PPS time synchronization
- OS time synchronization
- Easy-to-integrate API
- Linux, Windows, libpcap and WinPcap

NAPATECH-SUPPORTED APPLICATIONS

Napatech SmartNICs enable OEM vendors to build high-performance network appliances based on standard servers. Examples of applications include:

- Revenue and services optimization
- Quality of experience optimization
- Financial latency measurement
- Customer experience analysis
- Data loss prevention
- Virtualized activity analysis
- Cyber defense
- Fraud detection and compliance management
- Infrastructure management and security
- Network and application performance
- Troubleshooting and compliance

SPECIFICATIONS

GENERAL FEATURES

- Full line-rate processing for all frames from 64 bytes to 10,000 bytes - keep or discard erroneous frames
- IEEE standard: IEEE 802.3 100/40 Gbps Ethernet support
- Network interface: 2 x QSFP28 ports
- Supported modules: 100GBASE-SR4 and 100GBASE-LR4 or 40GBASE-SR4, 40GBASE-LR4 and 40GBASE-SR-BiDi or QSFP28/QSFP+
- Data rate: 100/40 Gbps
- Typical CPU load: < 5%
- Time formats: PCAP-ns/-µs and UNIX 10 ns
- Time stamp resolution: 1 ns
- Stratum 3 compliant TCXO
- Pluggable options for IEEE 1588-2008 PTP and PPS time synchronization
- PTP slave in IEEE 1588-2008 default and telecom profiles

SmartNIC SOFTWARE

- Operating systems: Linux, Windows
- Napatech API for high performance and advanced features
- libpcap
- IEEE 1588-2008 PTP stack
- SDK tools included in source code for debugging and prototyping and as application examples

SmartNIC HARDWARE

- Bus type: 16-lane 8 GT/s PCIe Gen3*
- 12 GB onboard DDR4 RAM
- Flash: Support for two boot images
- Built-in thermal protection
- Physical dimensions: ½-length and full-height PCIe
- Weight excluding pluggable modules:
 - NT200A01-SCC-2x100/40: 455 g
 - NT200A01-NEBS-2x100/40: 475 g
- MTBF according to UTE C 80-810:
 - NT200A01-SCC-2x100/40: 317,821 hours
 - NT200A01-NEBS-2x100/40: 311,435 hours

- Power consumption including 2 x QSFP28:
 - NT200A01-SCC-2x100/40: max 75 Watts
 - NT200A01-NEBS-2x100/40: max 75 Watts
- * To enable the throughput of 16-lane PCIe Gen3, the COTS server must support PCIe bifurcation.

ENVIRONMENT FOR NT200A01-SCC-2x100/40

- Operating temperature: 0 °C to 45 °C (32 °F to 113 °F)
- Operating humidity: 20% to 80%

ENVIRONMENT FOR NT200A01-NEBS-2x100/40

- Operating temperature: -5 °C to 55 °C (23 °F to 131 °F) measured around the SmartNIC
- Operating humidity: 5% to 85%

REGULATORY APPROVALS AND COMPLIANCES

- PCI-SIG®, NEBS level 3, CE, CB, RoHS, REACH, cURus (UL), FCC, ICES, VCCI, C-TICK

COMPANY PROFILE

Napatech helps companies to reimagine their business by bringing hyperscale computing benefits to IT organizations of every size. We enhance open and standard virtualized servers to boost innovation and release valuable computing resources that improve services and increase revenue. Our reconfigurable computing platform™ is based on a broad set of FPGA software for leading IT compute, network and security applications that are supported on a wide array of FPGA hardware designs.

Additional information is available at www.napatech.com

Napatech. RECONFIGURABLE COMPUTING

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