napa:tech;
RECONFIGURABLE COMPUTING

Link NT40A01 SmartNIC

4X1G
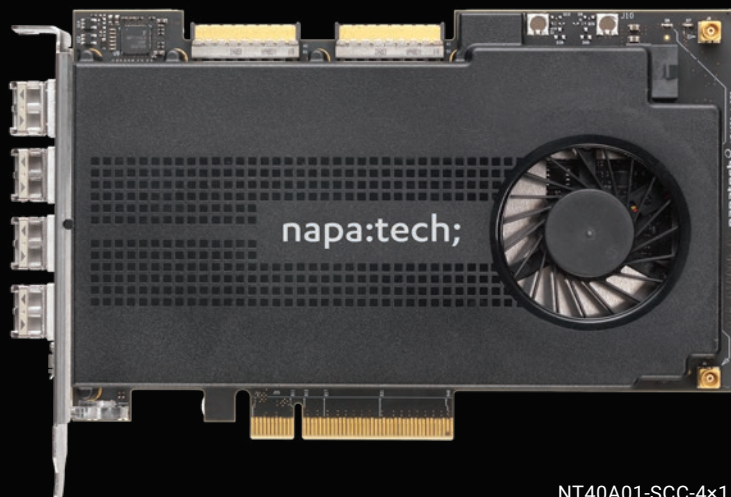
NT40A01-SCC-4×1

APPLICATIONS AND SERVICES

Link Capture Software	Suricata	n2disk	Snort	Bro	TRex
Wireshark	+More	Community	Support	Docs	Tutorials

PACKET CAPTURE AND ANALYSIS

Use cutting-edge network SmartNIC technology to add real-time line-rate performance to your application. The Link NT40A01 SmartNIC provides full packet capture and analysis of network data at 4 Gbps with zero packet loss. The SmartNIC can capture all frames, including erroneous frames normally discarded by standard NICs. The SmartNIC can also be used for in-line application acceleration.

The SmartNIC allows you to merge data from ports into a single, time-ordered analysis stream. It supports 1-128 packet streams using intelligent hardware flow distribution to allow your application to scale to higher packet rates with no packet loss. The SmartNIC will distribute packets based on flow or on e.g. L3/L4 filter criteria. The 4 GB DDR3 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.

Feature Highlights

- Network ports: 4 × SFP+
- Capture of Ethernet traffic: Full 4 × 1 Gbps
- Zero packet loss for all frame sizes
- 4 GB DDR3 RAM buffer (8500 ms at 4 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
  - IP fragment handling
  - Slicing at fixed or dynamic offset
  - Deduplication in Hardware
  - RMON1 counters, including jumbo frames
- IEEE 1588-2008 PTP and PPS time synchronization
- OS time synchronization
- Easy-to-integrate API
- Linux, Windows, libpcap, WinPcap and DPDK

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

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 1 Gbps or 100 Mbps Ethernet support
- Network interface: 4 × SFP+ ports
- Supported SFP modules: 1000BASE-SX, 1000BASE-LX, 1000BASE-ZX, 1000BASE-T or 100/1000BASE-T
- Supported dual-rate SFP+ modules: Multi-mode SR and single-mode LR
- Data rate: 4 x 1 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, power, enterprise and telecom profiles

SmartNIC Software

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

SmartNIC Hardware

- Bus type: 8-lane 8 GT/s PCIe Gen3
- 4 GB onboard DDR3 RAM
- Flash: Support for two boot images
- Built-in thermal protection
- Physical dimensions: ½-length and full-height PCIe
- Weight excluding pluggable modules:
  - NT40A01-SCC-4×1: 260 g
  - NT40A01-NEBS-4×1: 285 g
- MTBF according to UTE C 80-810:
  - NT40A01-SCC-4×1: 297,993 hours
  - NT40A01-NEBS-4×1: 367,807 hours
- Power consumption including SFP LX modules:
  - NT40A01-SCC-4×1: max 27 Watts
  - NT40A01-NEBS-4×1: max 30 Watts

Environment for NT40A01-SCC-4×1

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

Environment for NT40A01-NEBS-4×1

- Operating temperature: −5 °C to 55 °C (23 °F to 131 °F) measured around the SmartNIC
- Operating humidity: 5% to 85%
- Altitude: < 1,800 m
- Airflow: >= 2.5 m/s

Regulatory Approvals and Compliances

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

NAPATECH RECONFIGURABLE COMPUTING

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