

NT4E-STD CAPTURE

# Intelligent Real-time Network Adapters

## 4-port 10 M / 100 M / 1 G Ethernet PCIe

DATA SHEET

### Hardware Acceleration

The NT4E-STD Capture Adapters provide full line-rate data capture and time-stamping capabilities that can accelerate network applications and off-load the server CPU. This enables OEM customers to build or upgrade their products to high-performing 4 Gbps network monitoring/analysis systems by using the NT4E-STD Capture Adapter and a standard Linux, FreeBSD or Windows server.

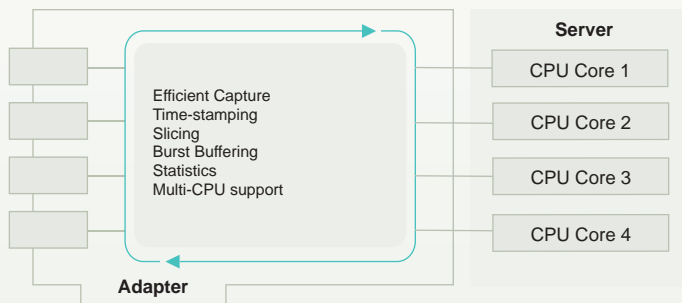
The 4 ports on the NT4E-STD Capture Adapters enable full-duplex monitoring of a network link (Rx and Tx traffic). The frame merging functionality enables Rx and Tx frames to be merged in reception time order simplifying the application processing.



NT4E-4-STD: 4 x 1 Gbps PCIe



NT4E-4T-STD: 4 x 1 Gbps PCIe



On-board memory enables 6 sec. of data burst buffering even on a fully loaded 4 x 1 Gbps network.

High-precision time-stamping with 10 ns resolution is applied to all frames received by the adapter.

The adapter hardware generates an extensive amount of statistics counters. This enables customer applications to retrieve a comprehensive network traffic analysis at virtually zero CPU load.

## FEATURE HIGHLIGHTS AND APPLICATIONS

### Feature Highlights

- 4 x 1 Gbps SFP and/or RJ45 connections
- Full-duplex monitoring
- Full-line-rate capture and processing for all frame sizes
- Efficient capture: < 1% host CPU load
- High-precision 10 ns time-stamping
- Advanced host time synchronization
- 6 sec. of on-board data burst buffering
- 4 Gbps frame processing including fixed slicing, buffering, statistics and multi-CPU support
- On-the-fly fully reconfigurable setup
- Easy-to-integrate API
- LibPCAP and WinPCAP support
- Linux, FreeBSD and Windows support

### Napatech-supported Applications

The Napatech Standard Capture Adapters enable our OEM customers to build cost-effective and value-added appliances to meet requirements for many different solutions. Examples of supported applications are:

- Advanced Frame Analysis and Statistics
- Packet Jitter and Latency Analysis
- Data Recording of network traffic
- Data Retention, Logging and Forensic Analysis
- Lawful Intercept
- Intrusion Detection
- Network QoS Assurance for media streams
- Transaction Performance Analysis

## SPECIFICATIONS

### General Features

- Full-line-rate processing for all frames from 64 bytes to 10000 bytes
- IEEE standard: IEEE 802.3 10 Mbit/s / 100 Mbit/s / 1 Gbit/s Ethernet
- Physical interfaces:
  - NT4E-4-STD: 4 SFP ports
  - NT4E-4T-STD: 4 RJ45 ports
- Supported SFP modules: Multi-mode SR (850 nm), single-mode LR (1310 nm), 1000BASE-T or 10/100/1000BASE-T
- Data rate: 4 x 1 Gbit/s
- PCIe performance: 6.3 Gbit/s
- CPU utilization:
  - < 1% of the CPU is used for any data transfer
  - 0% of the CPU is used for any on-board processing
- Time formats:  
PCAP-ns/-µs, native, NDIS 10 ns/100 ns, UNIX 10 ns

### Software

- Linux kernel 2.6: 32-bit/64-bit
- FreeBSD 6.x and 7.x: 32-bit/64-bit
- Windows Server 2003/2008, XP and Windows 7: 32-bit/64-bit
- API supporting user level applications
- LibPCAP and WinPCAP support
- SDK tools included in source code for debugging and prototyping and as examples of how the adapters are used

### Host Interface

- Bus type: 4-lane 2.5 GHz PCIe Gen1
- Data transfer modes:
  - Bus master DMA
  - Memory write or memory read transactions
- Support for 32-bit/64-bit addressing and host DMA addressing

### Statistics

- RMON1 counters plus Jumbo frame counters per port
- Frame and byte counters per host buffer
- Counter sets always delivered as a consistent time-stamped snapshot

### Adapter Hardware

- Flash: Supports two boot images
- Memory options: Standard SO-DIMM 200-pin 1 GB, 2 GB or 4 GB DDR2 RAM modules
- Physical dimensions: ½-length full-height PCIe

### Environment

- Power consumption: 22 Watts including SFP SR or RJ45 modules
- Operating temperature: 0 - 45 °C, 32 - 113 °F
- Operating humidity: 20 - 80%
- Hardware compliance: RoHS, UL, CE, FCC, CSA, VCCI, C-TICK
- MTBF: 266329 hours according to RIAC-HDBK-217Plus

## ABOUT NPULSE TECHNOLOGIES AND PCAP EXPRESS

nPulse Technologies, LLC is a leading provider of enterprise-class network assurance solutions. Combining open-source-based software technologies with hardware-accelerated performance on multi-core x86-based platforms, nPulse's Packet Capture Express (PCAPX) tools offer easy access to advanced packet capture functions using familiar open software and hardware architectures.

PCAP Express Adapters accelerate monitoring applications to wire-speed, transforming a standard x86 multi-core server into a flexible, high-performance platform processing millions of packets per second per core.

PCAP Express Workbench integrates PCAPX features and performance into a server appliance with pre-packaged applications and

additional tools for line-rate record-to-disk. The custom Workbench libpcap extension seamlessly enables multiple instances of a pcap-enabled application to execute in parallel across up to 32 cores, drastically scaling the throughput of network monitoring, analysis, and cyber security to 10Gbps without code modifications.

PCAP Express solutions are based on Napatech OEM adapter technology. As a value added reseller nPulse markets, sells, and supports Napatech-based solutions to developers, system integrators, and end-users under the Packet Capture Express product line.

For U.S. Federal Government customers, PCAP Express products and services are also available under GSA contract. Contact us directly for details at [gsa@npulsetech.com](mailto:gsa@npulsetech.com).



nPulse Technologies, LLC  
375 Four Leaf Lane, Suite 201  
Charlottesville, VA 22903

Phone: +1 (703) 673-0044  
Email: [sales@pcapexpress.com](mailto:sales@pcapexpress.com)  
Web: [www.pcapexpress.com](http://www.pcapexpress.com)