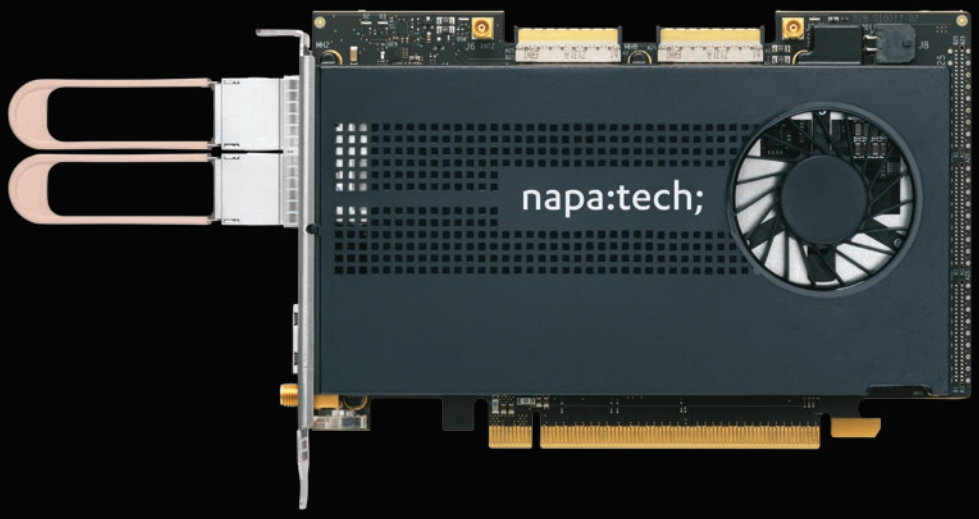
napa:tech;
RECONFIGURABLE COMPUTING

NT200A02 SmartNIC with Link-Virtualization™ Software

2×10/25G

DATA SHEET



The NT200A02 SmartNIC is a full-height, half-length QSFP28 PCIe card. By taking advantage of the programmability in the FPGA, the NT200A02 can be reconfigured to support specific SmartNIC functionality, to add new features, and to extend its capacity to continually accommodate data growth and changing industry standards.

Open vSwitch (OVS) Hardware Offload
NT200A02 comes with fully qualified software, compliant with popular operating systems to enable easy qualification and quick deployment.

Combined with Napatech Link™ Virtualization Software, the NT200A02 SmartNIC provides a hardware-based solution for full Open vSwitch (OVS) offload - dramatically increasing performance while reducing CPU utilization.

Link™ Virtualization Software supports a broad range of applications and use cases and can quickly improve an organization's ability to monetize virtualized applications.

Highlighted features
- OpenStack support
- OVS/DPDK hardware offload
- VirtIO w/vDPA
- Live Migration
- VM Monitoring, North-South & East-West packet forward to local or remote destination

Open vSwitch DPDK OpenStack

FEATURE HIGHLIGHTS AND SPECIFICATIONS

Features
- Full OVS-DPDK hardware offload
- Switching performance @ 64B
  - 300Mpps P2P
  - 65Mpps PVP (ideal)
  - 38Mpps PVP (0.001% drop-limit)
- OpenStack support (Victoria & Train)
- VirtIO
  - Fully accelerated VirtIO 1.1 with vDPA
  - Transparent 0.95/1.0 support
- Live Migration (VirtIO 1.1)
- OVS statistics
- VM-to-VM mirroring for analytics, SLA monitoring, regulatory compliance
- Non-degrading HW Megaflow cache for tracking billions of flows
- Extensive and configurable match processing for L2-4 packet headers
- VLAN/VXLAN encapsulation/decapsulation
- Q-in-Q
- RSS load balancing
- Link aggregation (active/active and active/standby)
- Jumbo frame support
- Quality of Service (QoS)
- IPv4/v6
- Hardware QoS

Supported pluggable modules
- 10GBASE-SR, CR, LR, ER
- 25GBASE-SR, LR, LR-BiDi

Software
- Host OS: RedHat 8, Ubuntu Server LTS (On Request)
- Client VM supports
  - Data Plane Development Kit (DPDK)
  - Linux NetDev (Kernel 5.0+)

Hardware
- Xilinx XCVU5P FPGA
- 12 GB DDR4 SDRAM
- PCIe Gen3 16 lanes @ 8 GT/s
- 2 × QSFP28 network ports
- RJ45-F 100/1000BASE-T IEEE1588 PTP
- SMA-F PPS input/output
- 2 × internal MCX-F PPS and NT-TS time sync
- Stratum-3 [1] compliant TCXO
- Flash memory with support for two boot images
- Built-in thermal protection
- Physical dimensions: ½-length and full-height PCIe
- Weight (excl. pluggable modules):
  - NT200A02-SCC: 355 g
  - NT200A02-NEBS: 350 g
- MTBF according to UTE C 80-810:
  - NT200A02-SCC: 317,821 hours
  - NT200A02-NEBS: 398,565 hours
- Power consumption including 25GBASE-SR modules and typical traffic load:
  - NT200A02-SCC: 33 Watts
  - NT200A02-NEBS: 33 Watts

Board Management
- Built-in thermal protection

Environment for NT200A02-SCC
- Operating temperature: 0 °C to 45 °C (32 °F to 113 °F)
- Operating humidity: 20% to 80%

Environment for NT200A02-NEBS
- 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

Orderable port speed configurations

Product	Data Rate
NT200A02-2x10/25	2×10/25 Gbps

[1] Stratum 3E compliant TCXO option supported by HW

DN-1293 Rev. 4