



Data Sheet

## MDSwitch SN2010

### 22 Port 10/25GbE and 100GbE Mobile Datacenter Switch

The Ethernet Switch MDSwitch SN2010 expands the b-plus AVETO product portfolio with a high performance switch of the data center class for the mobile application, for instance in test vehicles.

Provided with a high performance ASIC, 4 100 GbE and 18 10/25 GbE ports, a flow rate up to 1.7 Tb/s can be achieved. An extremely optimized latency behavior complements this enormous throughput.

22 ports are usable very flexibly in a range from 1 Gb/s to 25 Gb/s. 4 of these ports are usable up to 100 Gb/s.

MDSwitch SN 2010 supports a variable and scalable network of high performance components in a mobile environment.

An unique optional SW-complement like XTSS enlarges the very wide-ranging features of the special TSN-functions in the field of time synchronization. Therefore, it ensures the smooth cooperation, e. g., with AVETO network participants.

The 12 V power supply with a supplementary ignition management simplifies the use in test vehicles significantly.



### Highlights

- Targets ESF (Ethernet Storage Fabric)
  - Combines RoCE support, full buffer utilization and low latency
  - Zero packet loss
  - True cut-through latency
  - Arranged and organized data center
  - Supports speeds of 1/10/25/40/50/56/100 GbE
  - Easy deployment and easy maintenance
- Unprecedented performance
  - Line rate performance on all ports at all packet sizes
  - Storage and server applications run faster
- Software Defined Networking (SDN) support
- Open Ethernet available with Mellanox Onyx

### KEY FEATURES

- Throughput
  - 1.7 Tb/s
  - 1.26 billion packets per second (Bpps)
- Lowest latency
  - 300 nanoseconds for 100 GbE port-to-port
  - Consistently low latency regardless of packet size, or L2 vs L3 forwarding
  - Side by side configuration
  - Small port count
- XTSS TSN Time synchronization feature
- Lowest power: 57 W (ATIS) power consumption
- RoHS compliant





## Features

### Layer 2 Feature Set

- IGMP V2/V3, Snooping, Querier
- VLAN 802.1Q (4K)
- Q-In-Q
- 802.1W Rapid Spanning Tree
- BPDU Filter, Root Guard
- Loop Guard, BPDU Guard
- 802.1Q Multiple STP
- PVRST+ (Rapid Per VLAN STP+)
- 802.3ad Link Aggregation (LAG) & LACP
- 32 Ports/Channel - 64 Groups Per System
- Port Isolation
- LLDP
- Store & Forward / Cut-through mode of work
- HLL
- 10/25/40/50/56/100 GbE
- Jumbo Frames (9216 Bytes)

### Layer 3 Feature Set

- 64 VRFs
- IPv4 & IPv6 Routing inc Route maps:
- BGP4, OSPFv2
- PIM-SM & PIM-SSM (inc PIM-SM over MLAG)
- BFD (BGP, OSPF, static routes)
- VRRP
- DHCPv4/v6 Relay
- Router Port, int Vlan, NULL Interface for Routing
- ECMP, 64-way
- IGMPv2/v3 Snooping Querier

### Synchronization

- XTSS TSN Support
- NTP

### Quality of Service

- 802.3X Flow Control
- WRED, Fast ECN & PFC
- 802.1Qbb Priority Flow Control
- 802.1Qaz ETS
- DCBX – App TLV support
- Advanced QoS - qualification, 802.1AB
- Shared buffer management

### Management & Automation

- ZTP
- Ansible, SALT Stack, Puppet
- FTP \ TFTP \ SCP
- AAA , RADIUS \ TACACS+ \ LDAP
- JSON & CLI , Enhanced Web UI
- SNMP v1,2,3
- In-band Management
- DHCP, SSHv2, Telnet
- SYSLOG
- 10/100/1000 ETH RJ45 MNG ports
- USB Console port for Management
- Dual SW image
- Events history
- ONIE

### Network Virtualization

- VXLAN EVPN – L2 stretch use case
- VXLAN Hardware VTEP – L2 GW
- Integration with VMware NSX & OpenStack, etc.

### Software Defined Network (SDN)

- OpenFlow 1.3:
  - Hybrid
  - Supported controllers: ODL, ONOS, FloodLight, RYU, etc.

### Docker Container

- Full SDK access through the container
- Persistent container & shared storage

### Monitoring & Telemetry

- What Just Happened (WJH)
- sFlow
- Real time queue depth histograms & thresholds
- Port mirroring (SPAN & RSPAN)
- Enhanced Link & Phy Monitoring
- BER degradation monitor
- Enhanced health mechanism
- 3rd party integration (Splunk, etc.)

### Security

- USA Department of Defense certification – UC APL
- System secure mode – FIPS 140-2 compliance
- Storm Control
- Access Control Lists (ACLs L2-L4 & user defined)
- 802.1X - Port Based Network Access Control
- SSH server strict mode – NIST 800-181A
- CoPP (IP filter)
- Port isolation

## XTSS TSN Features

### Specification Support

- Time synchronization according to IEEE 802.1AS-2020
- Time synchronization according to IEEE 1588 with UDP as communication protocol and “peer to peer” or “end to end” as delay measurement mechanism
- Multi time domain support – up to 10 domains simultaneously
- Extended configuration options to support devices not fully compliant with IEEE 802.1AS or IEEE 1588

### Setup and Logging

- Service runs in dedicated docker container
- Detailed logging of events (e.g. new grandmaster) and configuration changes (e.g. priority changed)
- Remote monitoring of service-related parameter (port states, priorities, grandmaster ID, ...) via console application (Windows and Linux support)

### Configuration

- Remote configuration via graphical user interface (Windows and Linux support)
- Possibility to enable or disable time synchronization distribution of any interface separately
- Varying protocol types for different interfaces (e.g., 802.1AS on interface 1 and 1588 UDP – “peer to peer” on interface 2)



## Specifications

### Power Specifications

Typical power with passive cables (ATIS):  
57 W

Input voltage: 12 V DC

### Physical Characteristics

Dimensions:

44 mm H x 320 mm W x 350 mm D

Weight: 4.5 kg

### Supported Modules and Cables

- QSFP+/QSFP28 short and long range optics
- QSFP+/QSFP28 to QSFP28 DAC cable
- QSFP breakout cables
  - 100 GbE to 4x 25 GbE DAC, optical
  - 100 GbE to 2x 50 GbE DAC, optical
- QSFP+ breakout cables 40GbE to 4x10GbE DAC, optical
- QSFP+/QSFP28 AOC
- SFP 10GBase-T via QSFP to SFP Adaptor
- 1000BASE-T and 1000BASE-SX/LX/ZX modules

- SFP+/SFP28 short and long range optics
- SFP+ to SFP+ DAC cable 0,5 m to 5 m
- SFP+/SFP28 AOC
- 1000BASE-T and 1000BASE-SX/LX/ZX modules
- 10GBASE-T module
- SFP28 to SFP28 DAC cables
  - For server ports:
    - 0.5 m-1.5 m: Any DAC
    - 2 m: MCP2M00-A002E30N
    - 2.5 m: MCP2M00-A02AE26N
    - 3 m: MCP2M00-A003E26N
  - For SN2010 to SN2010 connection (only use ports 3, 6, 9, 12, 15, 18):
    - 2 m: Any DAC
- For connection with other switches:
  - AOCs/transceivers only

## Order Information

Name	Part Number	Description
MDSwitch SN2010	B24043-MDS-004-0001	Ethernet Switch 22 Port 10/25GbE & 100GbE Onyx OS 12VDC

## Order Information Accessories

Name	Part Number	Description
QSFP+ to SFP+ Adapter	B24004-ICO-002-0111	QSFP+ to SFP+ Adapter
10GBASE-T SFP+ 30M	B24004-ICO-001-0111	10GBASE-T SFP+ Copper RJ45 30 m Transceiver / xDSwitch
100G DAC Cable 0,5m	B24004-ICO-003-0105	DAC Ethernet cable, QSFP28 100 Gb/s, 0.5 m, black
360W AC/DC Power Supply	B09003-PWR-002-0360	360 W AC/DC Power Supply, 13.8 V/26 A Out
BRICK installation set 44mm for ITEM Profile 20	B17575-BIM-001-0044	BRICK installation set 44 mm for ITEM Profile 20

Other QSFP and SFP-modules or cables and mechanical integration kits on request.