

MetaApp 32

An adaptable platform that enables intelligence at the network edge leveraging FPGA, x86_64 server and 5 ns layer 1 switching technology.

fast
simple
adaptable



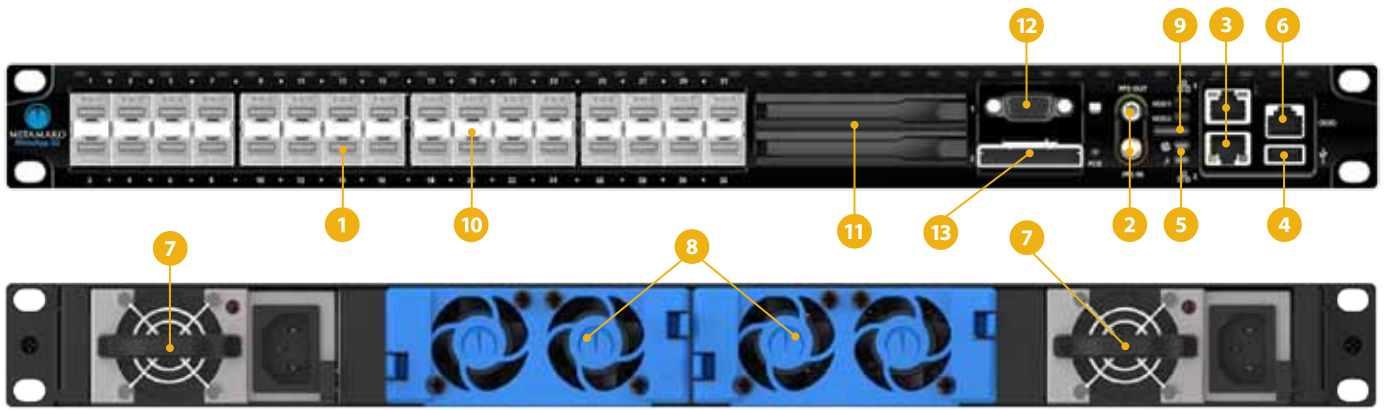
MetaApp 32 is an adaptable application platform which brings intelligence to the network edge catering to the most demanding and latency critical networks such as high frequency trading and analytics.

It is multiple devices in one – performing layer 1+ switching in only 5 ns, enabling unrestricted access to an onboard FPGA and containing an x86_64 server MetaApp creating one powerful device that can be used to trade directly with exchanges. MetaApp leverages the foundations of

MetaConnect, providing layer 1+ configurable features such as dynamic patching, tapping, one-to-many replication, media conversion, packet stats and precise timestamping. In addition MetaMux and MetaFilter applications can be used as a simple extension to MetaApp; providing layer 2 multiplexing/aggregation and filtering.

MetaApp's adaptable approach means that the possibilities for the device are limitless. Negligible latency where required, the fastest multiplexing and filtering when required and an application platform for edge networking development.

FEATURE	BENEFIT
Application Platform	Develop or load applications on the onboard FPGA and/or x86_64 server bringing your application logic to the network edge. Use existing development tools to build FPGA applications.
Powerful hardware features	32GB RAM, external PCI Express, board management, integrated storage and integrated 10/40GbE networking provide the building blocks for powerful applications.
Compatibility	Run applications developed for the MetaMux platform including MetaMux and MetaFilter.
Integrated layer 1 switching	Patching, media conversion, tapping, replication, packet statistics. Wire-once to reduce visits to the data centre. Use Layer 1 broadcast to implement a return path with a latency of just 5 ns and virtually no jitter.
Flexible SFP/SFP+ support	Use inexpensive modules and direct attached copper cables, that are boosted by MetaMux's high performance signal recovery and regeneration.
Precision timestamping with synchronisation	Precisely timestamps packets on ingress using PPS or PTP synchronisation.
Protocol flexibility	Protocol agnostic at layer 1 while layer 2 packet features support 1GbE and 10GbE with 100M. 100M Ethernet and rate conversion are planned for a future software release.
Packet statistics	Advanced monitoring. Captures high-level packet statistics across all ports. Supports detailed switch statistics via SNMP or CLI. Provides tcpdump and LLDP on every port.
x86-64 Linux management	Uses open standards platform and MOS operating software to provide user extensible solutions.



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| 1 32 SFP Ports Works with any SFP/SFP+ | 5 Indicator LEDs Fan, power, status | 10 Per-port link and activity LEDs |
| 2 SMA Connector Pulse-per-second input and output | 6 Industry-standard console port | 11 Storage: 2 x 2.5" SSD drive bays |
| 3 Ethernet Management 100/1000 | 7 Dual redundant power supplies | 12 VGA Display |
| 4 USB Upgrades, storage | 8 Dual redundant fan modules | 13 PCI Express |
| | 9 Tri-color status LED for system-wide status | |

Core Features

- 32 SFP/SFP+ front-panel ports from 100M to 11.3Gbps
- Full signal recovery, regeneration and conditioning
- Integrated, 66-port, layer 1 switch connects front panel ports, FPGA and management platform
- 10GbE and 1GbE supported programmable FPGA for user customisation
- 32GB FPGA packet buffer
- Virtex-7 FPGA
- 64GB Internal SSD

Applications Platform

- 32 ports connected to the layer 1+ switch
- External PCI Express connectivity
- Four in-built 10GbE/40GbE interfaces
- Two front-panel 2.5" SATA drive bays suitable for SSD
- VGA output
- Extensive time synchronisation infrastructure
- Application deployment via MOS
- Compatible with any MetaMux applications
- Sample applications and development kit
- Choose MOS, or CentOS 7 operating systems

Ultra Low Latency

- 5 ns layer 1 switching, tapping, replication
- 99 ns layer 2 aggregation
- 100 ps jitter for layer 1, 7 ns jitter when using aggregation

Cable Compatibility

- Compatible with SR, LR, ZR, and LRM SFP+ modules and direct attach cables from 0.5 m to 7 m
- Drive any MSA compliant SFP/SFP+ module
- Read SFP+ statistics like light cable type, power levels, temperatures, drive power
- 100M, 1GbE, 10GbE and many others at layer 1
- SMA connector for PPS input and PPS output at 5 V TTL

Redundancy and data center

- 1 rack unit (1RU)
- Dual management network connections can be configured for redundancy
- Dual redundant, hot-swappable power supplies (DS460S)
- Dual redundant, hot-swappable fans
- Fan and power supply replacement kits are available
- DC option available
- Front-to-back or back-to-front airflow

Monitoring

- Packet statistics captured on every port (valid packets, invalid packets, link state)
- Eye diagram for monitoring and troubleshooting signal quality Front panel LEDs for port activity and status
- Tcpdump can be used on any port to determine connectivity
- LLDP can be used for discovering network topology
- Precise timestamping without latency via separate port or on egress port for non-latency critical paths
- Fully managed SFP+ interface diagnostics including light levels, temperature and voltages

Management platform

- Quad-core 2.4GHz x86-64 CPU
- 8G RAM
- Industry standard command line interface (serial/SSH/telnet) and Web-based GUI
- API to interact with the switch subsystems, load FPGA images, etc
- Extend the platform with custom-built applications
- Linux based (shells, scripting, python, C++)
- Binary compatibility with other x86-64 based systems
- Firmware restore and update via USB, serial and network

Management protocols

- HTTPS, SSH, telnet
- Serial console
- BGP, PIM¹
- PTP, NTP
- SNMP v1, v2, v3, Netconf¹
- DHCP
- Local and remote syslog
- LLDP
- RADIUS, TACACS+ and LDAP authentication¹

Operating environment

- Temperature 0C to 40C
- Humidity: 10% to 85% non-condensing
- Maximum altitude: 3000 m (9800 ft)

Physical and electrical

- Dimensions (h x w x d): 4.3 x 44.8 x 37.9 cm (1.7 x 17.6 x 14.9 in)
- Weight: 8kg (17.6 lbs), depending on configuration
- Maximum power: 290 W
- AC voltage range: 100-240 V, AC frequency: 50/60 Hz
- DC voltage range: 40-72 V



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Contact us today to evaluate Metamako devices: info@metamako.com • www.metamako.com