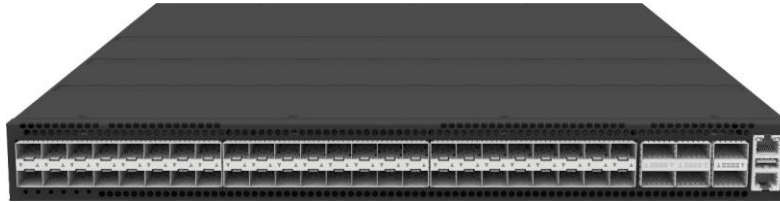


MaestroFusion Inline Packet Broker

Data Sheet



MaestroFusion MF25-48x25G Series

1. Product Overview

The E.C.I. NETWORKS MaestroFusion Inline Packet Broker is a compact 1RU visibility platform that combines 48 × 10/25G SFP28 and 6 × 40/100G QSFP28 ports with a Marvell switching ASIC and up to two internal Marvell OCTEON data processing units (DPUs). The switching ASIC performs packet broker functions such as aggregation, filtering, replication and load balancing at wire speed, while the DPUs add advanced processing including packet de-duplication, SSL decryption, de-identification and NetFlow/IPFIX generation, reducing the load on downstream monitoring and security tools.

MaestroFusion runs an MaestroFusion network operating system, based on SONiC and Linux. A single packet broker Web UI manages both the ASIC-based functions and the advanced DPU functions. Integrated IEEE 1588v2 PTP, SyncE, 1PPS, ToD and 10 MHz timing interfaces provide high-accuracy time synchronization for PTP-precision packet timestamping.

For inline deployments, MaestroFusion is paired with the MaestroFusion Optical Bypass Switch (MF-BYP4-100G-AC), which keeps the production link up by switching to a pure optical bypass path if the packet broker loses power, misses heartbeats or detects abnormal optical power.

2. Key Features

- Compact 1RU, 19-inch rack-mountable platform: 48 × 10/25G SFP28 and 6 × 40/100G QSFP28 fixed ports.
- Marvell switching ASIC: 2.0 Tbps switching capacity, 1332.9 Mpps forwarding rate.
- Up to 2 internal Marvell OCTEON DPUs, each with 8 × 2.5 GHz Arm Neoverse N2 (Armv9) cores and 16 GB DDR5 memory (expandable to 48 GB).
- Wire-speed packet broker functions in the ASIC: aggregation, filtering, replication, load balancing, truncation, timestamping, packet modification and tunnel encapsulation/decapsulation.
- DPU advanced processing: de-duplication, SSL decryption, de-identification, TCP and IP fragment reassembly, signature matching and NetFlow v5/v9 output.

- Precision timing: IEEE 1588v2 (TC and BC), SyncE, 1PPS, ToD and 10 MHz interfaces plus GNSS antenna input.
- Open, SONiC-based software with industry-standard CLI, ZTP, SNMP v1/v2/v3, sFlow, syslog and containerized custom tools.
- Hot-swappable 1+1 power supplies and 3+1 fan modules.

3. System Architecture

The switching ASIC and the control-plane CPU module (COMe) run the MaestroFusion system software. Each DPU connects to the switching ASIC over a 100G internal data path and to the CPU over PCIe, giving the DPUs direct access to mirrored and brokered traffic without consuming front-panel ports. A board management controller (BMC) and internal management switch provide out-of-band control of all components.

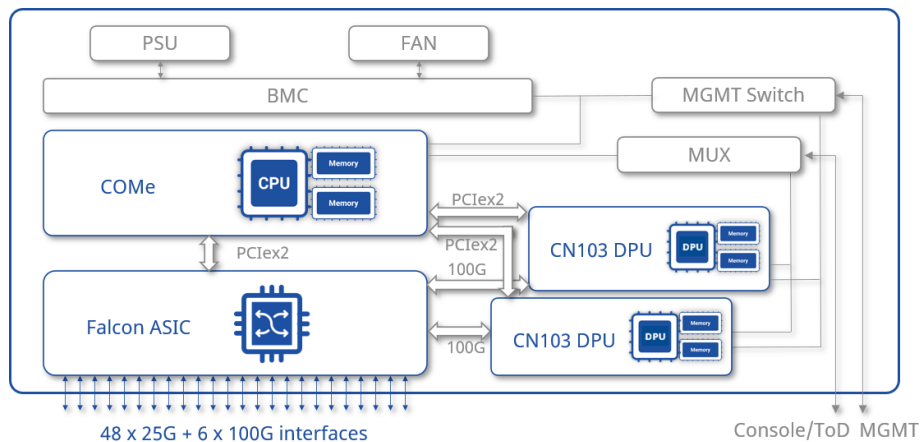


Figure 1. MaestroFusion hardware architecture (DPU-equipped configuration)

4. Packet Broker Capabilities

4.1 Inline Network Packet Broker (MF-INPB-LIC)

With the Inline Network Packet Broker license, the switching ASIC performs basic visibility functions at wire speed:

- Traffic aggregation, filtering, replication and load balancing to monitoring tools.
- Packet (message) truncation and timestamping.
- Packet modification and tunnel encapsulation/decapsulation.
- Other basic traffic processing and packet pre-processing functions.

4.2 DPU Advanced Processing (MF-DPU-ADV-LIC)

On DPU-equipped systems, the DPU Advanced Processing license adds the following functions, managed from the same packet broker Web UI:

- Packet de-duplication, with optional ignoring of TTL, MAC, L2, DSCP, interface (CPU interface), TCP (including TCP seq_num and ack_num, TCP checksum), IPID, FCS, and

optional fields (sport, dport, sip, dip, smac, dmac).

- Timestamping with PTP precision.
- Outer MAC address modification.
- TCP out-of-order reassembly, with bidirectional reassembly of transmit and receive traffic.
- Packet truncation, including forwarding only the network- and transport-layer headers of the original packets.
- SSL decryption.
- Packet de-identification.
- IP fragmentation reassembly for both outer and inner IP fragments.
- Fixed-offset signature matching, full-packet offset range matching, and dynamic front-section pattern matching.

4.3 NetFlow and Flow Visibility

- DPU-based NetFlow processing designed to process every packet at line rate for full traffic visibility.
- NetFlow v5, NetFlow v9, IPFIX and sFlow output.
- Sampling based on 5-tuple or rule matches; sampling ratio is configurable.
- NetFlow load-balanced output when a single collector cannot handle the full flow volume.
- NetFlow duplication output so records can be sent to more than one type of tool.

4.4 Open DPU Platform

Open DPU environment supporting Arm64 Linux, containerized applications, DPDK/VPP, and customer-developed packet-processing functions.

5. Deployment Scenarios

5.1 Visibility and Tool Optimization

MaestroFusion collects traffic from TAPs, SPAN ports and inline links, applies ASIC-based filtering and load balancing, and passes selected traffic through the DPUs for advanced processing before delivering optimized streams to each monitoring and security tool. In larger environments, multiple MaestroFusion systems can be arranged in a tap-leaf / spine / tool-leaf visibility fabric.

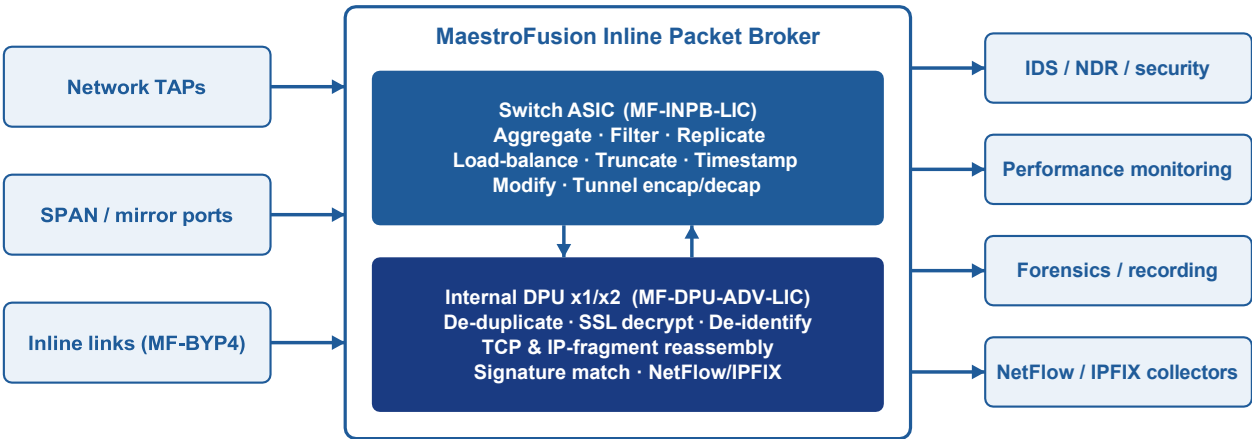


Figure 2. MaestroFusion traffic flow from collection to tool delivery

5.2 Inline Deployment with Optical Bypass

When MaestroFusion is placed in the path of production traffic, the MF-BYP4-100G-AC Optical Bypass Switch protects the link. In normal operation, traffic passes through the packet broker. If the bypass detects power loss, heartbeat loss or an optical-power alarm, it switches to a pure 1:1 optical path between the two network segments in 50 ms or less, with less than 1.5 dB insertion loss.

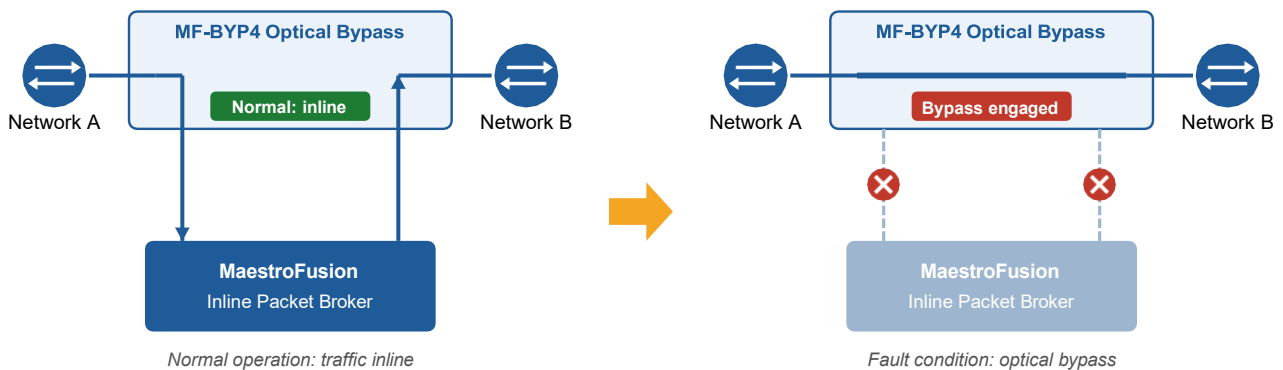


Figure 3. Inline deployment with MF-BYP4 optical bypass protection

6. System Software Features

Category	Features
Layer 2	4K VLANs, Voice VLAN, MSTP, QinQ, LACP, MC-LAG, VLAN trunking, LLDP, port isolation, jumbo frames (9216 bytes), IGMP snooping, storm control, Monitor Link
Layer 3	IPv4/IPv6 dual stack, OSPF v2/v3, BGP, MP-BGP, policy-based routing, resilient ECMP, ARP-to-Host, VRF, BFD, IGMP v2/v3, route map, VRRP, GRE
Virtualization	VXLAN centralized/distributed gateway, EVPN Type 2/3/5
Security	Service ACLs, ACL logging and counters, CoPP, Dynamic ARP Inspection, IP Source Guard v4/v6, DHCPv4/v6 relay, DHCPv4/v6 snooping, ND snooping, 802.1X, portal authentication, MAC Authentication Bypass, dynamic VLAN assignment, TACACS+, RADIUS
QoS	8 queues per port, 802.1p and DSCP classification, strict priority queueing, DWRR scheduling, policing/shaping, rate limiting
Management and monitoring	Industry-standard CLI, ZTP, SNMP v1/v2/v3, sFlow, port mirroring, syslog, log management, PTP IEEE 1588v2 (TC and BC), containerized custom tools

7. Specifications

Parameter	MaestroFusion MF25-48x25G Series
Network interfaces	
25G ports	48 × 10/25G SFP28 (10GE SFP+ compatible)
100G ports	6 × 40/100G QSFP28 (40GE QSFP+ compatible)
Switching	
Switching chip	Marvell
Switching capacity	2.0 Tbps
Forwarding rate	1332.9 Mpps
Control plane CPU	
CPU	Broadwell-DE D-1508
Memory	16 GB DDR4, expandable to 96 GB
Storage	128 GB M.2 SATA SSD
DPU (DPU1 / DPU2 configurations)	
DPU slots	2
DPU model	Marvell OCTEON
DPU cores	8 × Arm Neoverse N2 (Armv9) cores, 2.5 GHz
DPU memory	16 GB DDR5, expandable to 48 GB

Parameter	MaestroFusion MF25-48x25G Series
DPU storage	Optional PCIe Gen4 x4 NVMe SSD
L2/L3 switching capacity	100 Gbps
Routing capacity	100 Gbps
Firewall capacity	80 Gbps
Encryption/decryption capacity	80 Gbps
Timing	
Protocols	IEEE 1588v2 PTP (TC and BC), SyncE
Time interfaces	1PPS, ToD, 10 MHz, GNSS antenna input
Management interfaces	
USB	1 × USB 2.0
Console	1 × Console / 1PPS+ToD RJ45
Management	2 × MGMT RJ45
Physical	
Form factor	1RU, 19-inch rack-mountable
Dimensions (W × H × D)	440 × 44 × 560 mm
Weight	10 kg
Power and cooling	
Maximum power consumption	480 W
Power supplies	1+1 redundant, hot-swappable
Input voltage	100–240 V AC / 36–72 V DC
Fans	3+1 redundant, hot-swappable
Airflow	Front (port side) to power side
Environmental	
Operating temperature	0 to 45 °C
Relative humidity	5% to 90% non-condensing

8. Ordering Information

Configure a MaestroFusion solution by selecting a system, adding the required software licenses, and adding optical bypass and support options as needed.

Part Number	Description
Systems	
MF25-48x25G-F-AC	MaestroFusion chassis, 48 × 10/25G SFP28 + 6 × 100G QSFP28, dual AC power supplies (base chassis, no DPU)
MF25-48x25G-DPU1-F-AC	MaestroFusion system with 1 × internal DPU (8-core Marvell OCTEON)
MF25-48x25G-DPU2-F-AC	MaestroFusion system with 2 × internal DPUs (8-core Marvell OCTEON)
Software licenses	
MF-INPB-LIC	MaestroFusion Inline Network Packet Broker software license
MF-DPU-ADV-LIC	MaestroFusion DPU Advanced Processing software license (requires a DPU1 or DPU2 system)
External optical bypass	
MF-BYP4-100G-AC	MaestroFusion 4-slot Optical Bypass Switch, 10G/25G/100G transparent transmission, SMF standard / MMF optional, pure 1:1 optical switching, <1.5 dB insertion loss, ≤50 ms switching time, heartbeat/optical-power/power-down protection, manual/automatic operation, redundant AC PSUs
Support	
MF-SUP-STD-1Y	MaestroFusion Standard Support, 1 year
MF-SUP-STD-3Y	MaestroFusion Standard Support, 3 years
MF-SUP-STD-5Y	MaestroFusion Standard Support, 5 years
MF-SUP-PREM-1Y	MaestroFusion Premium Support, 1 year
MF-SUP-PREM-3Y	MaestroFusion Premium Support, 3 years
MF-SUP-PREM-5Y	MaestroFusion Premium Support, 5 years

8.1 Configuration Options

Option	Part Number	Use	Add
Base chassis	MF25-48x25G-F-AC	ASIC-based packet broker	MF-INPB-LIC
1-DPU configuration	MF25-48x25G-DPU1-F-AC	Packet broker + advanced processing on 1 DPU	MF-INPB-LIC, MF-DPU-ADV-LIC
2-DPU configuration	MF25-48x25G-DPU2-F-AC	Packet broker + advanced processing on 2 DPUs	MF-INPB-LIC, MF-DPU-ADV-LIC
Inline deployment (add-on)	MF-BYP4-100G-AC	Fail-safe optical bypass for inline links	Any MaestroFusion system

9. Warranty and Support

Every MaestroFusion system includes a first-year hardware warranty and first-year software technical support. Coverage can be extended with MaestroFusion Standard or Premium Support in 1-, 3- or 5-year terms.

Coverage	Part Numbers	Terms
Year 1	Included	Hardware warranty and software technical support
Standard Support	MF-SUP-STD-1Y / 3Y / 5Y	Renewal at 10% of MSRP annually
Premium Support	MF-SUP-PREM-1Y / 3Y / 5Y	Renewal at 15% of MSRP annually

Contact E.C.I. NETWORKS

For pricing, configuration assistance and availability, contact your E.C.I. NETWORKS account representative or visit www.ecin.ca.

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