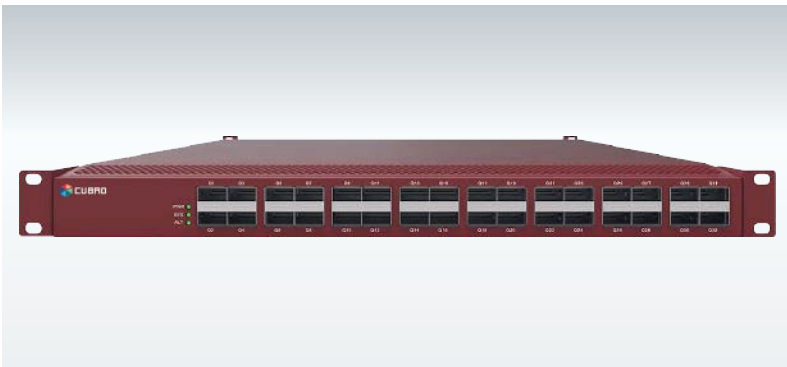


Cubro Packetmaster EX32100

PRODUCT OVERVIEW



The Packetmaster EX32100 is a network packet broker and network controller switch that aggregates, filters and load balances network traffic sent to network monitoring, security and management tools. The Packetmaster EX32100 filters and load balances traffic from 40 or 100 Gbps links to multiple 40 Gbps monitoring tools or aggregates multiple 1 Gbps links to 10 or 100 Gbps monitoring tools. Packetmaster EX32100 also supports traffic modification as well as changing, removing and adding VLANs, MPLS, VXLAN, NVGRE/MLAG/GENEVE.

Functions / Benefits:

- Lifetime of rules: Rules can be set with a live time counter. If the counter becomes 0, the rule will be removed automatically
- Load balancing: L2 / L3 / L4 hash based load balancing, up to 16 load balancing groups.
- GRE Tunnel support: The device can work as end device for a GRE tunnel, for back hauling applications.
- AAA Radius support: User identification
- VXLAN Tunnel support: The device can work as end device for a VXLAN tunnel, for back hauling applications.
- Stacking of units: One Packetmaster can control several other Packetmasters. This gives the possibility to extend the amount of ports per unit.

Network Packet Broker (NPB) At a glance

Definition

A network packet broker (NPB) is a tool that receives data from number of network links; duplicates, aggregates and filters that data for the monitoring tools.

Advantages of EX32100

- Filters and load-balances traffic from 40 or 100 Gbps links to multiple 40-Gbps monitoring tools
- Aggregates multiple 10 Gbps links to 40 or 100 Gbps monitoring tools
- Supports traffic modification as well as changing, removing and adding VLANs, MPLS, VXLAN, NVGRE/MLAG/GENEVE
- No additional software costs, all applications included in the unit price

Extended Functions:

The management host controller of the EX32100 is a cavium multicore processor unit which runs a full featured Cubro OS as operating system. On this host, script languages like Python, Perl, TCL, or simple Linux shells are available to run 3rd party applications which extend the function of the Packetmaster. These applications can be developed by Cubro or the customer.

- | | |
|---|---|
| <ul style="list-style-type: none"> • Software defined Counters • Flexible Key Creation (Parse) • Flexible Tables (Lookup) • Flexible Packet editing (Modify) • Integrated Traffic Management (Queue) • Create new metrics (Count) | <p>Amount of rules:</p> <ul style="list-style-type: none"> • L2 FDB 320.000 • IPV4 Host 160.000 • IPV6 Host 80.000 • MPLS Labels (unified) 160.000 • (IP conversations accurate) 80.000 |
|---|---|

PRODUCT CAPABILITIES / FEATURES

Link/Port Aggregation	Aggregation many to any, and any to many at all link speeds
100 Gbps traffic de-multiplexer	The traffic can be easily de-multiplexed into 40 links to monitor highly loaded 100 Gbps links.
Jumbo Frame Support	The Packetmaster supports jumbo Ethernet frames with a size of up to 16000 bytes.
Support of IPv4 and IPv6	
Ports	32 x QSFP 40 Gbps or QSFP28 100 Gbps 25 Gbps MAS support 1 x 10/100/1000 Base-T (Management) 1 x RS232 Console
Configuration / Communication	Web Telnet and SSH
Bandwidth	3.2 Tbps backplane 1.2 billion Packets per sec forwarding
Aggregation latency	Average < 700 ns for 64-byte frames
MTBF	201.743 hours
Packet Buffer	24 MB
Different Power Designs (Low Power Design)	Dual 100-230 V AC or DC power version available

TECHNICAL DATA / SPECIFICATIONS



Operating specifications:

Operating Temperature: 0°C to 40°C
Storage Temperature: -10°C to 70°C
Relative Humidity: 10% min, 95% max
Non-condensing

Mechanical specifications:

Dimension (WxDxH): 490 x 593 x 42,8 mm
Weight: 10,0 kg
Airflow: Front-back

Electrical specifications:

Input Power: 100-240V
Maximum Power Consumption: 220W

Certifications:

Fully RoHS compliant
CE compliant
Safety - UL 60950-1 / CSA C22.2 60950-1-07 / IEC 60950-1 (2005) EN 60950-1 (2006)

INPUTS*

32 x 40 Gbps / 100 Gbps full duplex SFP Ports for any kind of QSFP/ QSFP28

* Each port can be input and / or output depending on the application and configuration

OUTPUTS*

32 x 40 Gbps / 100 Gbps full duplex SFP Ports for any kind of QSFP/ QSFP+

* Each port can be input and / or output depending on the application and configuration

PERFORMANCE

Performance up to 64000 Gbps
1500 million packets/sec
Non-blocking design
Boot time from power on to working 180 sec
Packet delay through processing constant at 700 ns

MANAGEMENT

Management Port: (1) RJ45
10/100/1000 Mbit Configuration
(CLI) Port: (1) RS-232 DB9
USB for software update

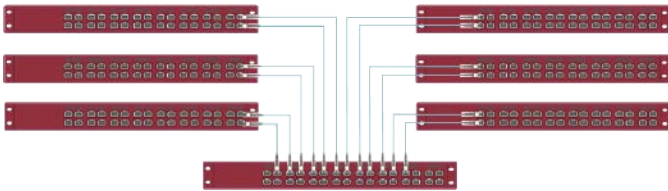
INDICATORS

Per RJ45 port: Speed, Link/ Activity
Per SFP+ port: Status, Rx, Tx, Link
Per Device: Power, Status

APPLICATIONS / SOLUTIONS

Cross connect

100 Gbit port cross connect with central unit

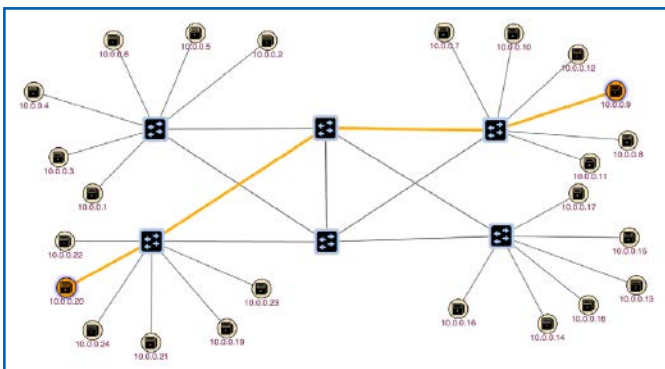


In this application 6 EX32100 are connected to a central unit with 186 available 100 Gbit ports (31 per box).

The interconnection between the boxes can be done with one link or with two and more depending on the bandwidth required.

The table shows the number of units that can be interconnected and the number of ports available.

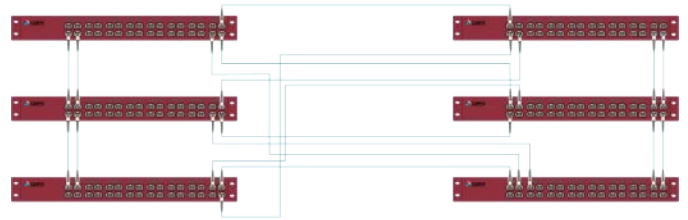
Amount of units	100 Gbit	200 Gbit	300 Gbit	400 Gbit
6	186 ports	180 ports	174 ports	168 ports
7	217 ports	210 ports	203 ports	196 ports
8	248 ports	240 ports	232 ports	224 ports
9	279 ports	270 ports	261 ports	XXX
10	310 ports	300 ports	290 ports	XXX



This is the screen shot of the management console of this cross connect application. The user must only define the connected endpoint and the application finds the best and shortest way to the endpoint. It is also possible to define a hard-coded way. The route is shown as a highlighted

path by clicking on a point. The application supports any combination of layout, full mesh, central and any combinations and it is self-learning in how the units are connected. Also, we provide any type of traffic statistics.

Application 100 Gbit port cross connect full mash



In this application 6 EX32100 are connected to a fully meshed cross connect with 162 available 100 Gbit ports (27 per box). The interconnection between the boxes can be done with one link or with two and more depending on the bandwidth that is needed.

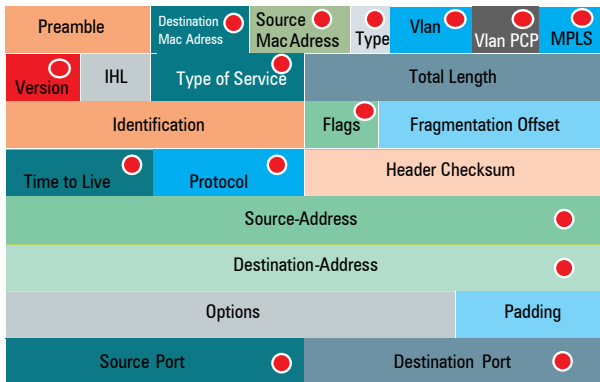
The table shows how many units can be interconnected and how many ports are available.

Amount of units	100 Gbit	200 Gbit	300 Gbit	400 Gbit
6	162 ports	132 ports	102 ports	72 ports
7	182 ports	140 ports	98 ports	56 ports
8	200 ports	144 ports	88 ports	32 ports
9	192 ports	128 ports	72 ports	XXX



Aggregation

Traffic aggregation from many input ports to one or many output ports. This also works with different link speed up to 100 Gbps.



Available actions after a positive match include

- **Send out:** To one or more ports - even the same as the input is possible
- **Drop:** Delete the specific packet
- **Modify:** Modify specific fields in the matched packets, VLAN, MPLS, MAC SRC, MAC DST, PORT, VLA, Priority and some more
- **Add VLAN:** The unit can tag a VLAN on the input to separate the traffic after aggregation



Load balancing

L2 / L3 / L4 hash based load balancing, up to 16 load balancing groups.



Filtering

Up to 160,000 flow rules (filters) can be set in an active unit. It is possible to filter in any layer of the OSI model, because the unit has the capability to add relatively simple new keys. These keys are extension to the packet parser to detect fields which are not integrated in the standard setup.

- **Strip VLAN:** VLAN can be removed, Q in Q is supported
- **Add MPLS:** Add an MPLS Tag to a matched packet
- **Strip MPLS:** Remove
- **Stacking of rules:** This function gives the option to generate very complex filter rules

ORDERING INFORMATION

Part Number	Description
CUB.PM-EX32100	Packetmaster EX32100, 32x100G QSFP28
CUB.PS-EX32100	CUB.PS-EX32100
CUB.RR19-1U	Universal Rackrail Kit for 1U 19" units (Packet/Sessionmaster)