

Cubro Packetmaster EX 48400

Version 1.1 June, 2015



The Packetmaster EX 48400 is the newest high performance Network Packet Broker that aggregates, filters, load balances and generally steers the traffic based on 64000 possible rules.

Network traffic can be sent to network monitoring, security and management tools. Packetmaster EX 48400 allows you to filter and load-balance traffic from a 10 or 100-Gbps link to multiple 1-Gbps monitoring tools or aggregate multiple 1 Gbps links to 10 or 100-Gbps monitoring tools.

Packetmaster EX48400 also supports traffic modification as well as changing, removing and adding VLAN, MPLS, VXLAN, NVGRE, MLA, GENEVE

No additional software costs all applications included in the unit price.

Extended Functions:

The management host controller of every EX unit runs a fully featured Debian Linux as operating system. On this host script languages like Python, Perl, TCL, or simple Linux shells are available to run 3rd party applications to extend the function of the Packetmaster. These applications can be developed by Cubro or the customer.



A python script reads files from a server and sets filters based on this changing data.

A python script changes the filters based on link load information from an other packetmaster.



A shell script pings different devices and changes filter rules based on ping response.

Functions & Features

Link/Port Aggregation

Aggregation many to any, and any to many at all link speeds

100 Gbps traffic demultiplexer

If highly loaded 100 Gbps links have to be monitored the traffic can be easily demultiplexed into 48 low traffic 10 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

48 x 10 Gbps/1 Gbps and
2 x QSFP 40 Gbps
4 x QSFP28 or zQSFP 100 Gbps
or
48 x 10 Gbps/1Gbps and
6 x QSFP 40 Gbps

1 x 10/100/1000 Base-T (Management)
1 x RS232 Console

Configuration / Communication

Web, and SSH

Bandwidth

2.4 Tbps backplane
3200 million Packets per sec

Aggregation latency

Average < 1 μ s for 64-byte frames

MTBF

178,125 hours

Power

230 VAC in single and dual power supply versions available.

Operating Temperature

0 to 45°C

Operating Humidity

90% maximum relative humidity

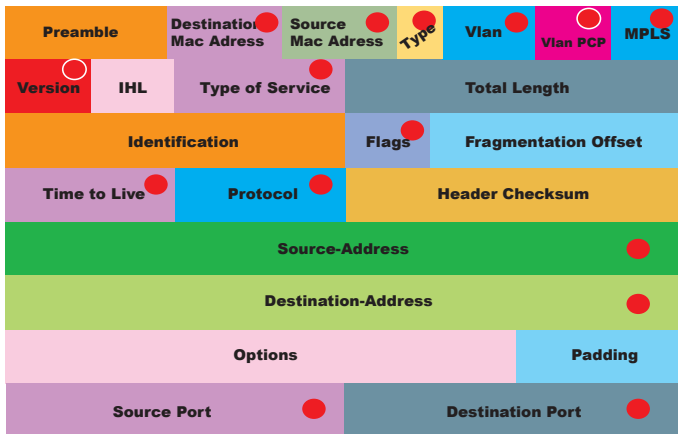
Dimension

W=435.00 mm, L=393.70 mm, H=42.80 mm

General Functions

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

Filtering: 64000 flow rules (filters) can be set in the unit.



The red dot marked fields can be used as a match for a packet, stand-alone, combined or with wild cards. For IP Src and IP Dst super nets are supported.

Available actions functions after a positive match are:

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, VLAN Priority and some more.

Add VLAN: The unit can tag a VLAN on the input to separate the traffic after aggregation

Strip VLAN: VLAN can be removed, Q in Q is supported

Add MPLS: Add an MPLS Tag to a matched packet

Strip MPLS: Remove an MPLS Tag from a matched packet

Stacking of rules: this function gives the option to generate very complex filter rules.

Lifetime of rules: Rules can be set with a live time counter, if the counter becomes 0 the rule will be removed automatically.

Generate nFLOWS and sFLOWS CDRS:

The EX48400 can send standard nFlow or sFlow CDRS to a collector devices to monitor the traffic processed by the EX 48400. These devices can produce graphs and SNMP traps for northbound signaling.

GRE Tunnel support: The device can work as end device for a GRE tunnel, for back hauling applications.

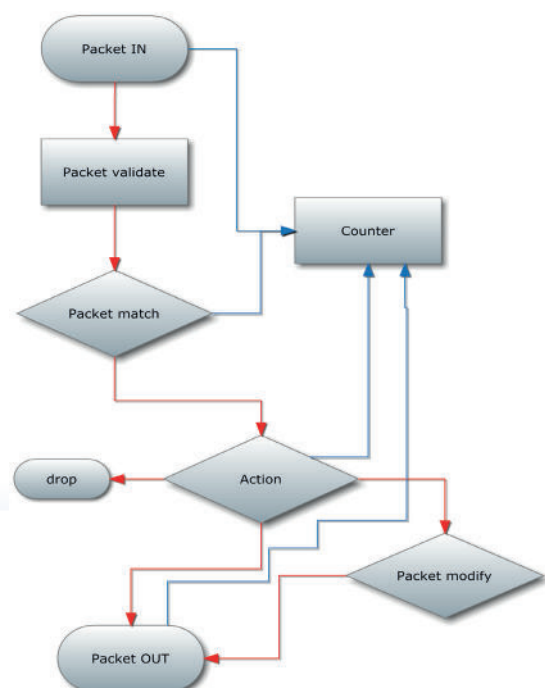
VXLAN Tunnel support: The device can work as end device for a VXLAN tunnel, for back hauling applications.

Load balancing: L2 / L3 hash based load balancing, up to 10 load balancing groups.

AAA Radius support: user identification

Stacking of units: one Packetmaster can control several other Packetmasters. This gives the possibility to extend the amount of ports per unit.

Packet flow inside the Packetmaster:



Technical Data



48 x 1/10 Gbit ports SFP/SFP+

4 x 100 ports QSFP28/zQSFP
2 x 40 ports QSFP
or 6 x 40 ports QSFP



EX48400									
Port	Type	Speed	Mode	Power	Power	Power	Power	Power	Power
1	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
2	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
3	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
4	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
5	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
6	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
7	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
8	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
9	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
10	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
11	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
12	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
13	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
14	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
15	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
16	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
17	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
18	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
19	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
20	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
21	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
22	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
23	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
24	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
25	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
26	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
27	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
28	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
29	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
30	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
31	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
32	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
33	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
34	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
35	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
36	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
37	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
38	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
39	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
40	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
41	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
42	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
43	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
44	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
45	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
46	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
47	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000
48	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000	10/100/1000

Inputs*

48 x 10/1 Gbps full duplex
2 x 40 Gbps QSFP
4 x 100 Gbps full duplex QSFP28 Ports
for any kind of QSFP28

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

Outputs*

48 x 10/1 Gbps full duplex
2 x 40 Gbps QSFP
4 x 100 Gbps full duplex QSFP28 Ports
for any kind of QSFP28

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

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 (HxWxD): 42.8 x 435 x 393.7 mm
Weight : 9.4 kg

Airflow: Front -Back

Electrical Specifications:

Input Power: 100-240V, 2A, 47-63Hz
Maximum power consumption: 350W

Certifications

Fully RoHS compliant
CE compliant
Safety:

UL 60950-1 / CSA C22.2 60950-1-07 / IEC 60950-1 (2005)
EN 60950-1 (2006)

Performance

Performance up to 2400 Gbps 2.4 Tb
3200 million packets/sec
Non blocking design
Boot time from power on to working 180 sec.
Packet delay through processing
less than 1 µs

Management

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

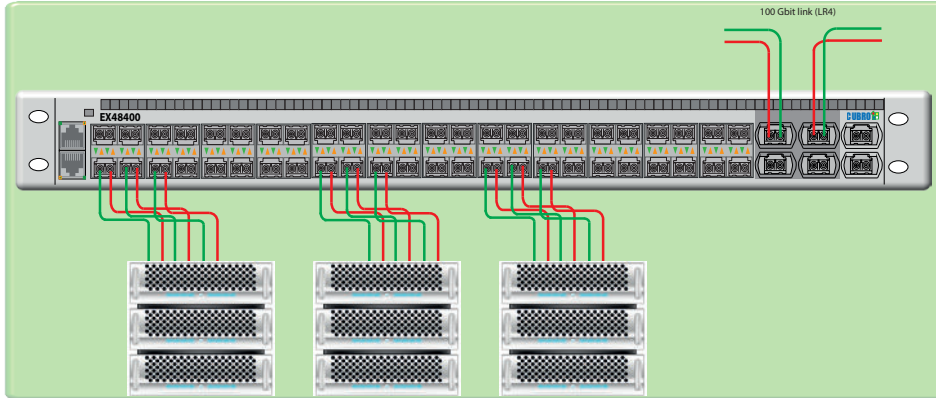
Indicators

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

Applications

App: 100 Gbit load balancing

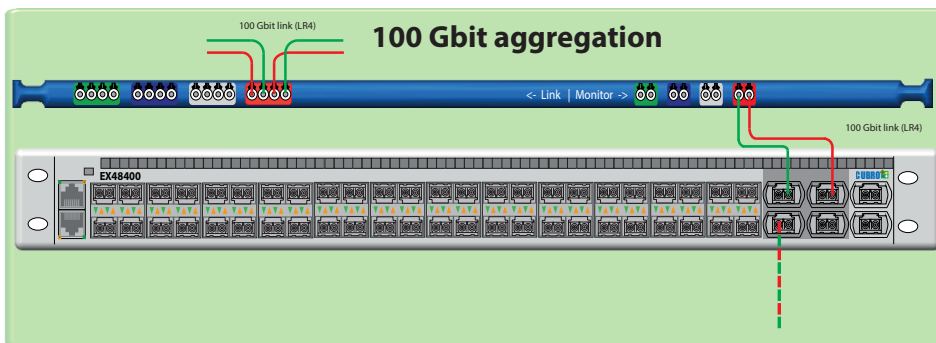
The EX 48400 is connected inline to a 100 Gbit live link. Using the load balancing capability of the Packetmaster EX 48400, to load balance the 100 Gbit traffic to several 10 Gbit ports.



App: 100 Gbit aggregation

The EX 48400 is connected via the Cubro optical TAP to a 100 Gbit live link.

The aggregation feature combines the traffic of the two directions to one 100 Gbit output for monitoring purposes. Using the filtering capability of the Packetmaster EX 48400, the user can select only the portion of the traffic which is needed to solve the network problem.



App: monitoring and trouble shooting

The Packetmaster EX 48400 is supporting 64000 layer 4 + filters. These filters can be used to redirect a small portion of the traffic to a low end, in terms of bandwidth, monitoring tool like a PC with wireshark. To trouble shoot routing issues on 100 Gbit link. It is also possible to feed several monitoring probes with specific traffic.

