PROFITAP

BOOSTER

C8R-X1 / C8P-X1
C8R-X2 / C8P-X2
F8R-X1 / F8P-X1
F8R-X2 / F8P-X2

AGGREGATION TAPS

USER MANUAL

If you have any questions, you can contact us through our website:

www.profitap.com

or by email:

support@profitap.com

For the latest documentation and software, visit our Resource Center:

https://resources.profitap.com/

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1. Overview

1.1. General Overview

Profitap Booster Aggregation TAPs aggregate traffic from up to 8 x 10/100/1000M ports and output this traffic as a 1/10G stream.

- The *Booster In-Line* model aggregates up to 4 x RJ45 in-line links to a single SFP+ output.
- The *Booster In-Line Dual Output* model aggregates up to 4 x RJ45 in-line links and replicates that traffic to two SFP+ outputs.
- The *Booster SPAN* model aggregates up to 8 x SFP SPAN (out-of-band) inputs to a single SFP+ output.
- The *Booster SPAN Dual Output* model aggregates up to 8 x SFP SPAN (out-of-band) inputs and replicates that traffic to two SFP+ outputs.

1.2. Features Overview

The *Booster In-Line* and *Booster In-Line Dual Output* models integrate features specific to in-line links.

1.2.1. Link Failure Propagation

Profitap in-line TAPs transmit link failure errors between ports, allowing the network to activate a redundant path, while the TAP stays available for autonegotiation. LFP ensures less downtime, and is essential for high availability networks.

1.2.2. Fail-Safe

In case of power outage or failure, the TAP activates its fail-safe circuit, connecting network ports A and B together. The monitor port is disabled when the TAP is unpowered.

1.2.3. No Break Fast Failover

When a power transition event occurs, the network devices renegotiate the link. This operation can take up to 5 seconds depending on network configuration and can cause a network topology reconfiguration. No-Break helps reduce this time by trying to keep the link up without renegotiation during the power change event. With No Break, the network path unavailability lasts between 30 and 300 ms.

1.2.4. Galvanic Separation

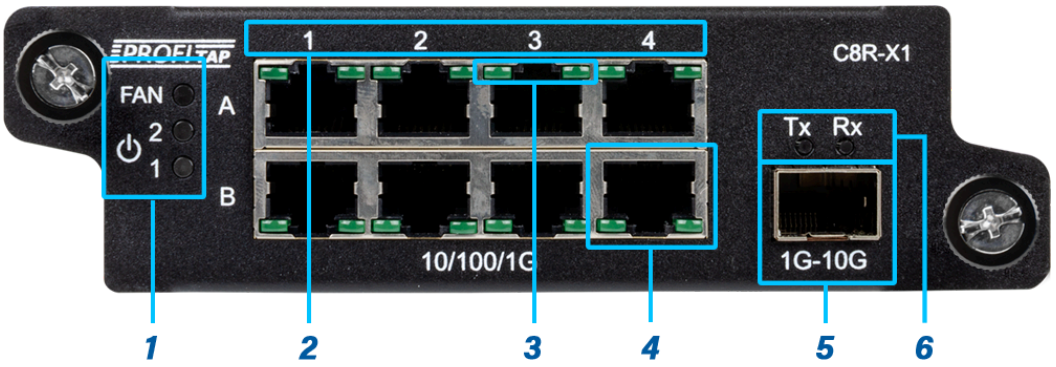
The network ports are galvanically separated from the monitor port to ensure maximum security.

1.3. Technical Specifications

	Booster In-Line	**Booster In-Line Dual Output**	**Booster SPAN**	**Booster SPAN Dual Output**
Order References	Rack-mountable: **C8R-X1** Portable: **C8P-X1**	Rack-mountable: **C8R-X2** Portable: **C8P-X2**	Rack-mountable: **F8R-X1** Portable: **F8P-X1**	Rack-mountable: **F8R-X2** Portable: **F8P-X2**
Connectors	8 x RJ45 8 pins 1 x SFP+ cage 1 x USB 2.0 type B 2 x 12 VDC input	8 x RJ45 8 pins 2 x SFP+ cage 1 x USB 2.0 type B 2 x 12 VDC input	8 x SFP cage 1 x SFP+ cage 1 x USB 2.0 type B 2 x 12 VDC input	8 x SFP cage 2 x SFP+ cage 1 x USB 2.0 type B 2 x 12 VDC input
LEDs	16 x Speed/link activity 2 x Status/link activity 2 x Power 1 x Fan	16 x Speed/link activity 4 x Status/link activity 2 x Power 1 x Fan	18 x Status/link activity 2 x Power 1 x Fan	20 x Status/link activity 2 x Power 1 x Fan
Max Network Latency	1G: 425 ns 100M: 740 ns 10M: 6000 ns	1G: 425 ns 100M: 740 ns 10M: 6000 ns	—	—
Power Consumption	(12V) 1.5 A max			
Dimensions (WxDxH)	120 x 205 x 41 mm 4.72 x 8.07 x 1.61 in			
Weight	800 g 1.76 lb			
Accessories	1 x 30 W Universal power supply (C14)			
Operating Temperature	0°C to +40°C 32°F to 104°F			
Storage Temperature	-22°C to +70°C -7.6°F to 158°F			
MTBF	150 000 hours			
Relative Humidity	10 to 95%, non-condensing			
Compliance	RoHS CE			

1.4. Interfaces and LED Behavior

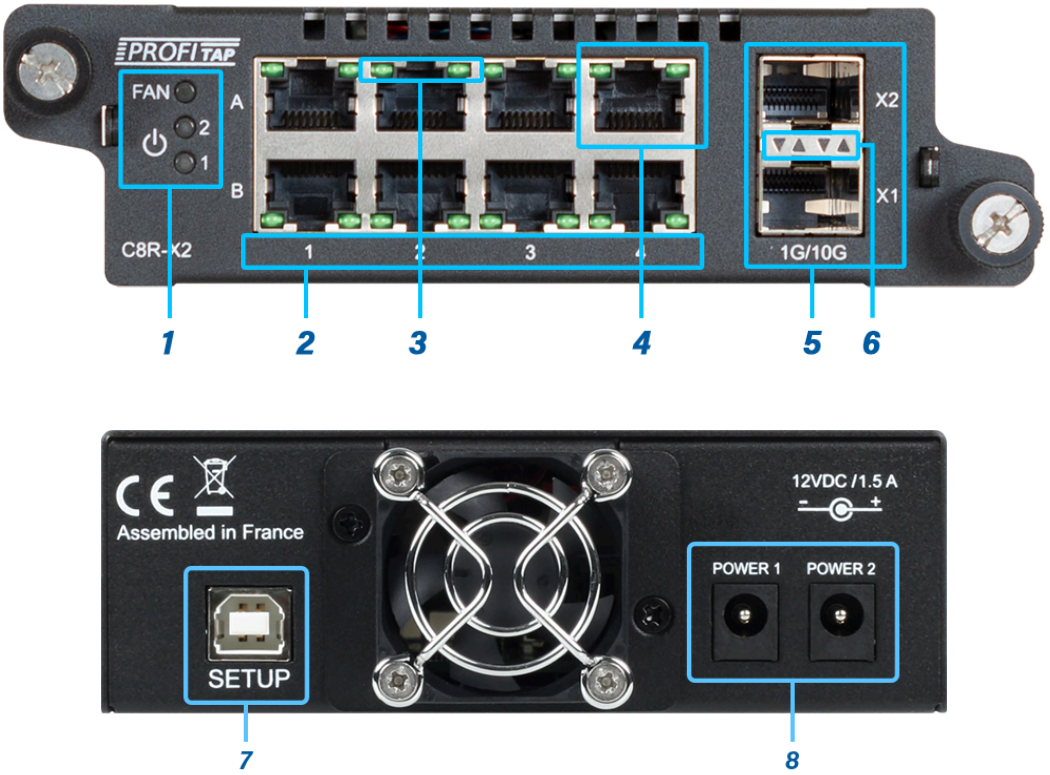
1.4.1. Booster In-Line



1	Power and fan status LEDs	5	1G/10G SFP+ output (Tx only)
2	TAP designator	6	SFP+ status/activity LEDs
3	RJ45 speed/activity LEDs	7	RS232 over USB (115200/8-N-1) setup/update port
4	10/100/1000M RJ45 input (Rx/Tx)	8	Redundant power inputs: 1 input required for operation 2 inputs for redundancy

LED Function	LED State	Description
RJ45 speed/activity LEDs	Left LED green	TAP operating at 10 Mbit/s
	Right LED green	TAP operating at 100 Mbit/s
	Left+Right LEDs green	TAP operating at 1000 Mbit/s
	Blinking	Port is linked up and has Rx/Tx activity
1G/10G SFP+ output Tx LED	Orange	No SFP module or SFP module not initialized
	Green	Normal operation
	Red	Packet drops
	Blinking	Activity

1.4.2. Booster In-Line Dual Output



1	Power and fan status LEDs	5	1G/10G SFP+ outputs (Tx only): X1: master X2: slave
2	TAP designator	6	SFP+ status/activity LEDs
3	RJ45 speed/activity LEDs	7	RS232 over USB (115200/8-N-1) setup/update port
4	10/100/1000M RJ45 input (Rx/Tx)	8	Redundant power inputs: 1 input required for operation 2 inputs for redundancy

LED Function	LED State	Description
RJ45 speed/activity LEDs	Left LED green	TAP operating at 10 Mbit/s
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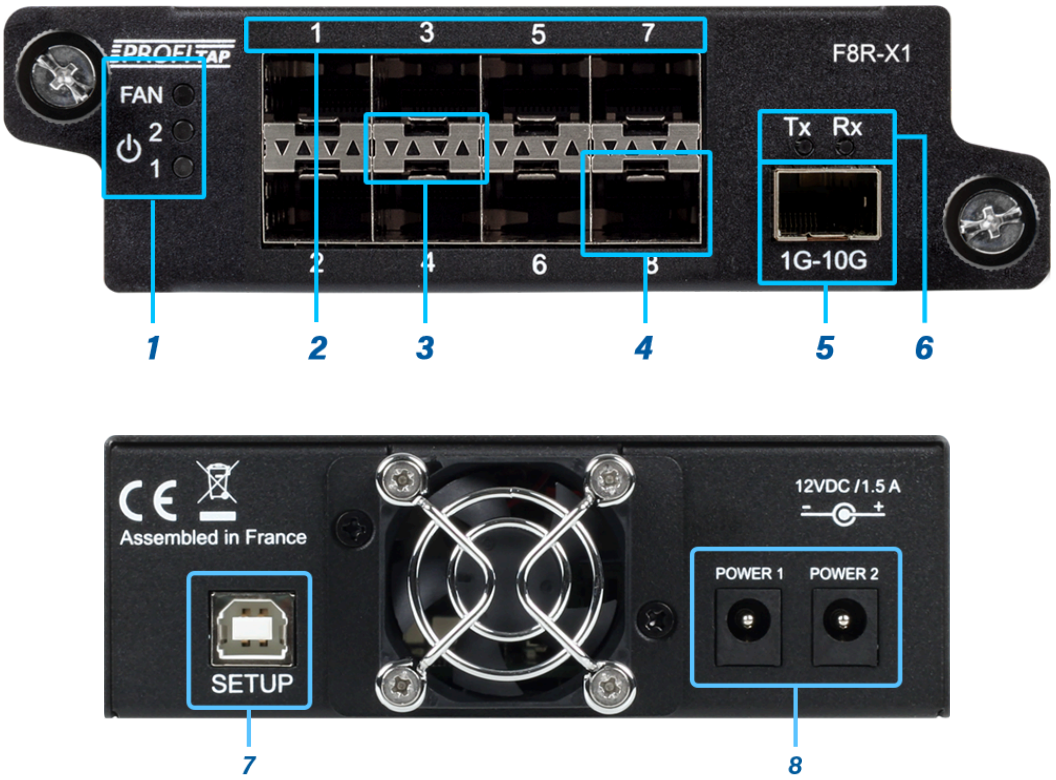
	Blinking	Port is linked up and has Rx/Tx activity
1G/10G SFP+ output Tx LEDs	Orange	No SFP module or SFP module not initialized
	Green	Normal operation
	Red	Packet drops
	Blinking	Activity

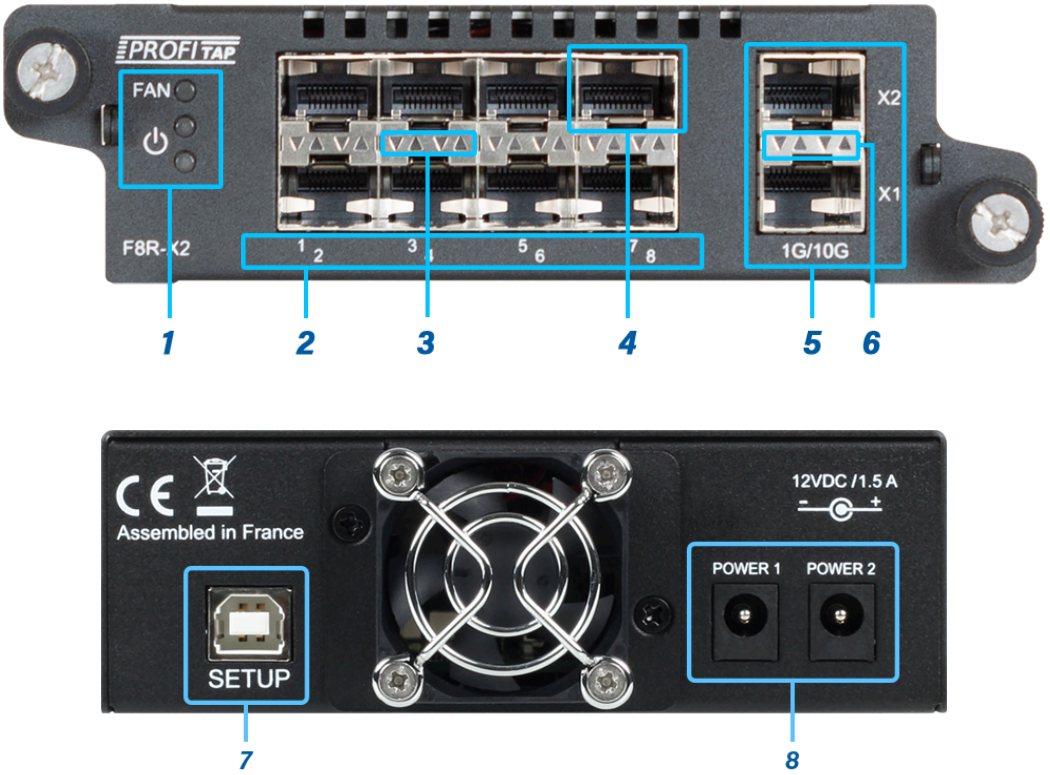
1.4.3. Booster SPAN



1	Power and fan status LEDs	5	1G/10G SFP+ output (Tx)
2	Input designator	6	SFP+ status/activity LEDs
3	SFP status/activity LEDs	7	RS232 over USB (115200/8-N-1) setup/update port
4	10/100/1000M SFP input (Rx)	8	Redundant power inputs: 1 input required for operation 2 inputs for redundancy

LED Function	LED State	Description
SFP status/activity Rx LEDs	Green steady	Link without activity
	Green blinking	Link with activity
1G/10G SFP+ output Tx LED	Orange	No SFP module or SFP module not initialized
	Green	Normal operation
	Red	Packet drops
	Blinking	Activity

1.4.4. Booster SPAN Dual Output



1	Power and fan status LEDs	5	1G/10G SFP+ outputs (Tx): X1: master X2: slave
2	Input designator	6	SFP+ status/activity LEDs
3	SFP status/activity LEDs	7	RS232 over USB (115200/8-N-1) setup/update port
4	10/100/1000M SFP input (Rx)	8	Redundant power inputs: 1 input required for operation 2 inputs for redundancy

LED Function	LED State	Description
SFP status/activity Rx LEDs	Green steady	Link without activity
	Green blinking	Link with activity
1G/10G SFP+ output Tx LEDs	Orange	No SFP module or SFP module not initialized
	Green	Normal operation
	Red	Packet drops
	Blinking	Activity

2. Installation and Configuration

2.1. Hardware Installation

2.1.1. Booster In-Line & Booster In-Line Dual Output

1. Install the TAP with NO power source connected.
2. Power both network devices, do NOT power the TAP yet. Check connectivity between network device A and B.
3. Apply power to the TAP.
4. Check network link between network device A and B and the operational state of the TAP.

2.1.2. Booster In-Line Dual Output & Booster SPAN Dual Output

Important: The Booster *Dual Output* models feature a master (X1) output port and a slave (X2) output port. When using a single output port, port X1 must be used. When using both outputs, the speed of both ports is dictated by port X1. Changing the speed or module type may require a reboot of the unit.

2.2. Driver Installation

Drivers are not required for standard operation. However, they are required in order to use the *Setup* port, for configuration and firmware update purposes.

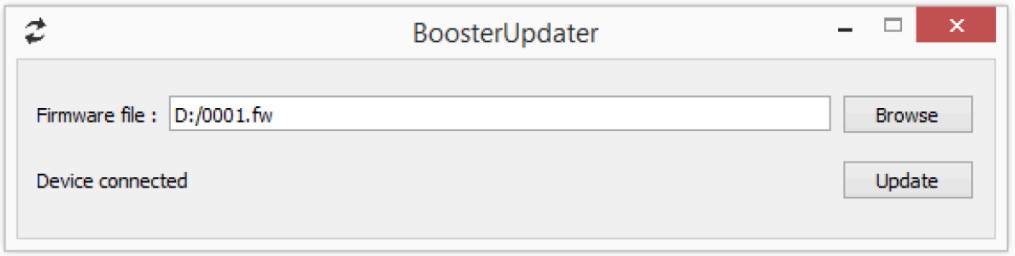
Visit https://resources.profitap.com/ to download the latest drivers and software.

The *BoosterUpdater* package is available for Windows 7 / 8 / 10 (32-bit and 64-bit). It contains both the Booster drivers, and the *BoosterUpdater* software used for firmware updates.

2.3. Firmware Update

In order to update the Booster firmware, perform the following steps:

- Run the *BoosterUpdater* software
- Select the firmware file (****.fw)
- Click the Update button
- Wait for the operation to complete
- Reboot the Booster



2.4. Command Line Interface

In standard operation, the USB port works as a virtual COM port (115200/8-N-1). Use your preferred terminal software.

The list of commands can be obtained using the *help* command.

2.5. Port Tagging

The Booster is able to insert VLAN tags to ingress packets. That way, the source port information of each packet is forwarded to the analyzer.

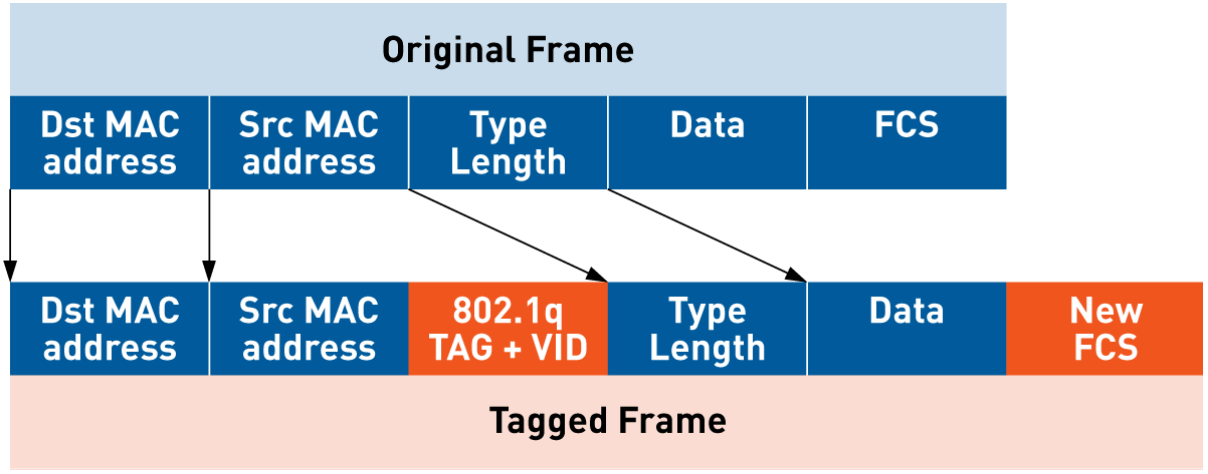
The port tagging feature is controlled by the following commands:

Command	Parameter	Description
tag enable	–	Enable VLAN tag insertion.
tag disable	–	Disable VLAN tag insertion.
set tag -n	Integer (0-4095)	Set VID for inserted 802.1q and 802.1ad tags on port 1. Other ports use an increment of this.
set tag -i	p/g/n **p**: port **g**: group **n**: none	Set VID increment method to one per [p]ort, per [g]roup or [n]o increment.
set tag -q	hh hh hh hh (4 x 8-bit hexadecimal)	Set 802.1q tag to insert. VID field is ignored. Use 'set tag -n' to set VID number.
set tag -ad	hh hh hh hh (4 x 8-bit hexadecimal)	Set 802.1ad tag to insert. VID field is ignored. Use 'set tag -n' to set VID number.
set tag -1	hhhh (16-bit hexadecimal)	Set TPID field to detect. If either -1 or -2 is detected, 802.1ad tag is inserted. Otherwise, 802.1q tag is inserted.
set tag -2	hhhh (16-bit hexadecimal)	
get tag	–	Display currently used configuration.
tag save	–	Save current configuration as power on defaults.
tag load	–	Load configuration from power on defaults.
tag default	–	Load factory default configuration.
help	–	Display this help.

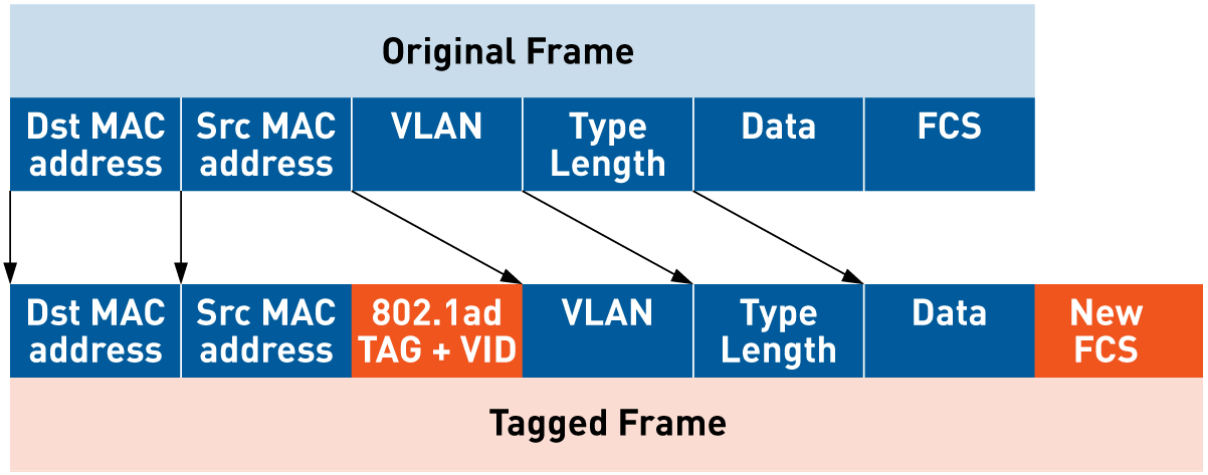
2.6. Port Tagging System

When port tagging is enabled, the Booster tags all incoming packets with the tag configured by -q or -ad parameter and the VID + port number.

When the original packet does not match the TPID fields configured by -1 or -2 parameters, the packets are tagged according to the -q and VID + port number parameters:



When the original packet matches the TPID fields configured by -1 or -2 parameters, the packets are tagged according to the -ad and VID + port number parameters:



In the case of multiple VLAN present in the original packet, the first TPID field is compared with TPID -1 and -2 parameters. The original VLAN tags are not altered.

All parameters are configurable and can be stored in nonvolatile memory using the ’tag save’ command. Saved setup is automatically loaded at startup. By default, values are:

- Tagging DISABLED
- VID: 0
- TPID 1: 8100
- TPID 2: 88a8
- 802.1q tag: 81 00 00 00
- 802.1ad tag: 88 a8 00 00

2.7. Aggregation

Network traffic from the 8 input ports is aggregated and forwarded to the output SFP+ port(s).

On the In-Line models, the 8 input ports are triple speed 10/100/1000BASE-T ports.

On the SPAN models, the 8 input ports are 10/100/1000 SFP ports.

The Booster SPAN's input SFP cages support:

- 1000BASE-SX module
- 1000BASE-LX module
- 100BASE-FX module (Source Photonics)
- 1000BASE-CX 1GE copper cable
- 1000BASE-T module
- 100BASE-TX module
- 10BASE-T module

The output SFP/SFP+ cage supports:

- 10GBASE-LRM module
- 10GBASE-SR module
- 10GBASE-LR module
- 10GBASE-ER module
- 10GBASE-R passive direct attach cable
- 10GBASE-R active direct attach cable
- 10GBASE-T module
- 1000BASE-SX module
- 1000BASE-LX module
- 1000BASE-CX 1GE copper cable
- 1000BASE-T module

When using dual rate 1/10G SFPs, the Booster will use the highest speed (10G).

Changing the output module type may require a reboot.

The Booster embeds 1 Mb of shared memory for burst absorption, in case the output port speed is lower than the sum of input bandwidth. In this case, packet drops are indicated in red by the output port Tx LED.

The Booster aggregates and forwards any packets from 50 Byte to 10 KByte, including CRC error packets.

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