

## Product Brief: 1G10G Rate Adaptation Smart SFP™

### Overview

The 1G10G Rate Adaptation SFP™ provides a solutions for customers needing an optical 1G interface for newer generation routers and switching systems which only support SFP cages with interface rates such as 10/25/100/400G.

Internally the 1G10G Rate Adaptation Smart SFP™ uses a 1G to 10G bridge function processor to convert the 1GbE optical signal into a 10GbE data rate to the host system and vice-versa.

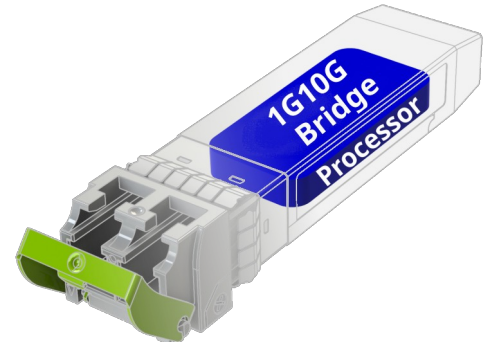
This bridge function is fully transparent for all frames, including jumbo frames, except for pause frames (which will be dropped).

Furthermore, it facilitates bi-directional Synchronous Ethernet to sustain network-wide frequency synchronization among devices.

The 1G10G Rate Adaptation SFP™ is ideal for high-end systems (10G and up) that require connection to installed systems that only support 1 GbE interfaces, such as:

- Management interfaces
- Timing interfaces
- 'Legacy' 1G Ethernet equipment

Having a 1G to 10G bridge function in a Small Form Factor Pluggable (SFP) will give more deployment flexibility, delivering lower rack-space use, lower power & carbon footprint and an overall cost saving.



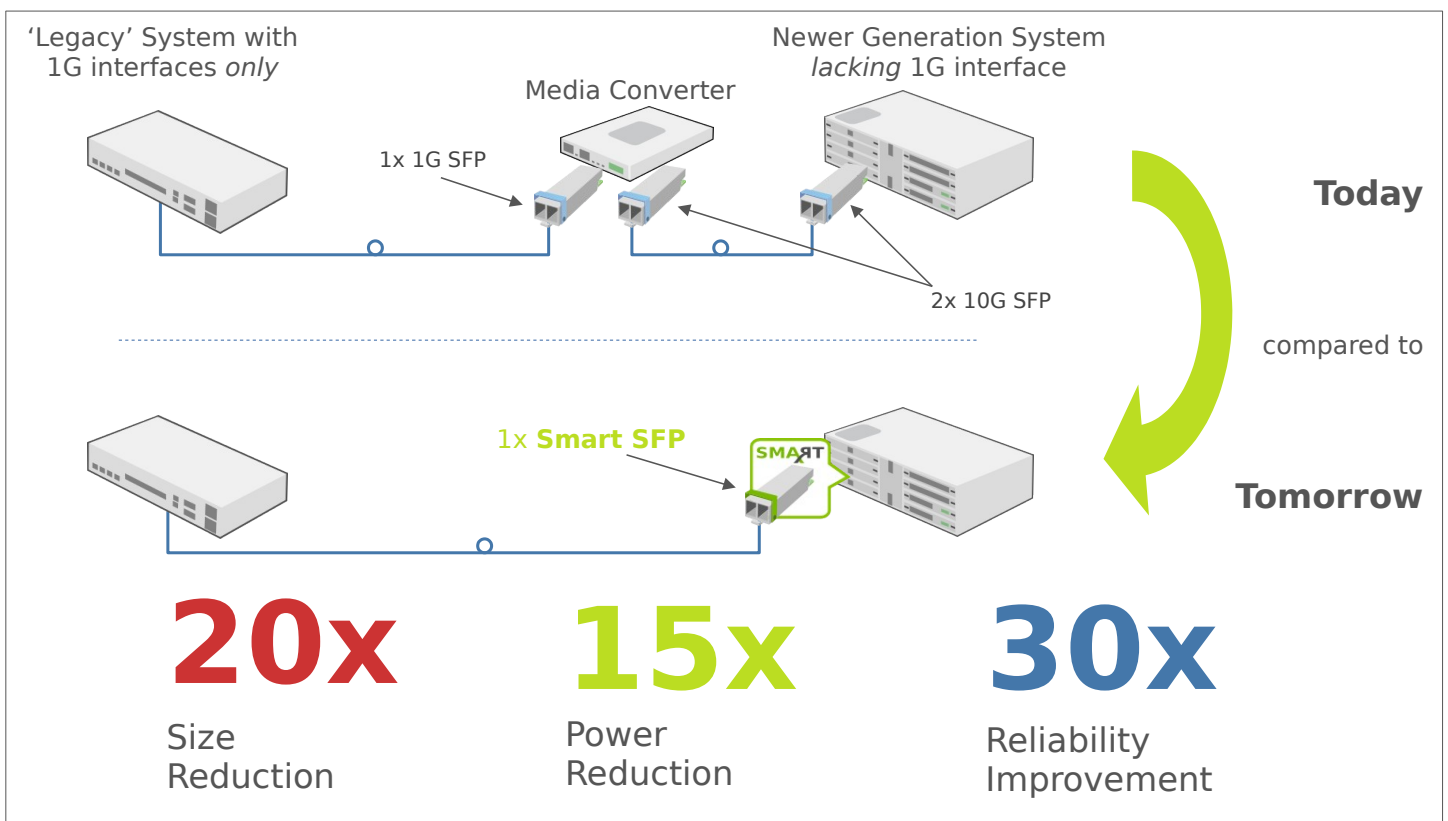
### Application Highlights

- Optical 1GbE interface for systems with 10GbE interfaces and up only

### Benefits

- Simple interface range extension
- Power and noise reduction
- Space saving
- Low carbon footprint
- Total cost reduction

### Application

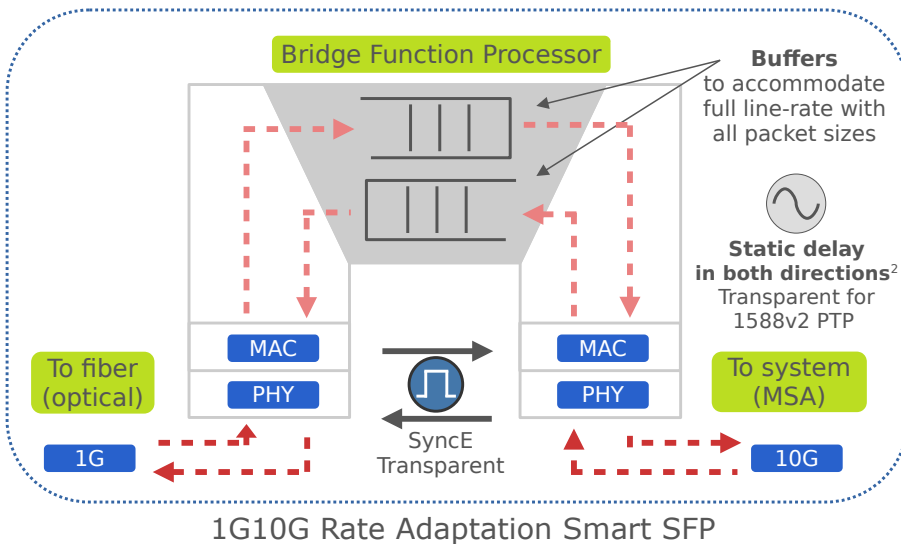


## Installation

The 1G10G Rate Adaptation SFP™ can be used as any regular SFP as the bridge function will be configured and enabled in the factory:

- Whenever the SFP is inserted in a system, it will start the bridge function and can be used directly
- As the SFP does not support pause-frames or the processing of protocols with similar function, rate shaping in the direction 10G to 1G needs to be performed by the host-system.
- Any excess packets that cannot fit the outgoing 1G interface will be dropped
- While management is possible for equipment manufactures by integrating our Titan API into the host system, it is not mandatory. Optional management will give access to, for example, counters, link status information and some configurables.

## Functional overview



## Features

- 1000BASE-LX10 interface
- Internal bridge function processor for rate conversion
- SFP+ MSA SFF-8431 compliant<sup>1</sup>
- DDM SFF-8472 compliant
- Jitter compliant with IEEE 802.3
- Store and forward mode
- Jumbo frame support up to 9600 bytes
- SyncE compliant in both directions
- Optical link failures reported through RxLOS signal on MSA interface
- Low device latency
- Static delay in both directions to be transparent for IEEE 1588v2 PTP<sup>2</sup>

## Interfaces

- LC connector type
- Optical transceiver
  - Duplex fiber
  - up to 10km reach
- Industrial operating temperature range:
  - -40°C to 85°C
- Maximum power consumption:
  - 1.9W

## Contact Information

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<sup>1</sup> Exception: power consumption exceeds MSA limit  
<sup>2</sup> Future release