



# LineSpeed™ Flex MSH322

## 100G Multi-Link Gearbox for Line Cards

### PRODUCT BRIEF

#### MSH322 DEVICE OVERVIEW

The MoSys® LineSpeed Flex 100G Multi-Link Gearbox (MLG) is a single chip CMOS device that enables high-density, independent 10GE and 40GE interfaces to be multiplexed into a single 100GE interface.

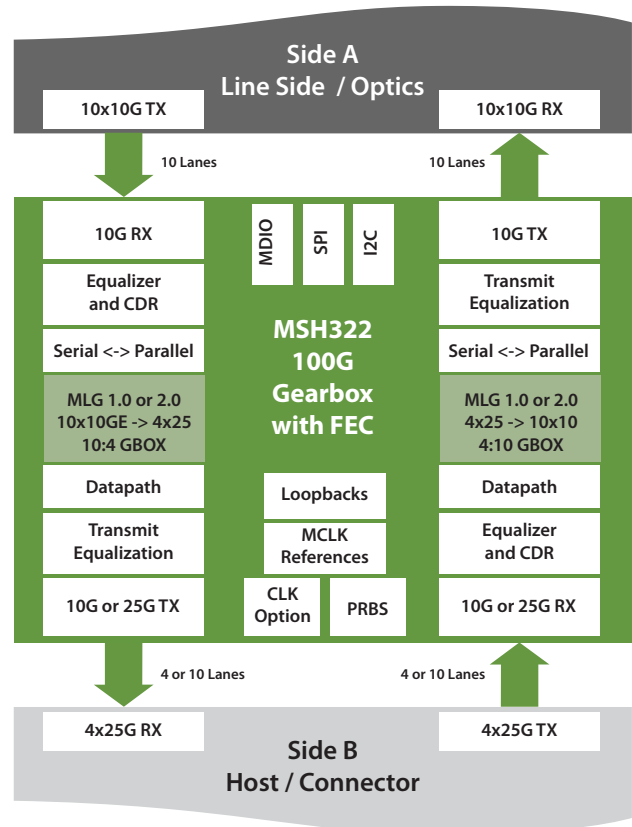
The device supports both OIF MLG-1.0 and MLG-2.0 standards that aggregate a combination of 10GE and 40GE links, up to 100G total bandwidth, and converts that to a single 100GE (4x25G) link. As physical interfaces on switching and packet processing ICs move to 25G PHY interfaces for performance and board density, the MLG function allows large scale systems built with these devices to support higher port counts of 10GE and 40GE interfaces.

#### MSH322 DEVICE DESCRIPTION

The MSH322 100G MLG Gearbox device performs all alignment marker insertion and awareness, idle insertion and deletion, and data alignment required by the OIF MLG standards. The MSH322 also supports an option for the IEEE802.3ba standard gearbox function. The electrical interfaces support IEEE and OIF-CEI-3.0 10G and 25/28G specifications.

Configuration of the device is supported through an I2C, MDIO or SPI interface.

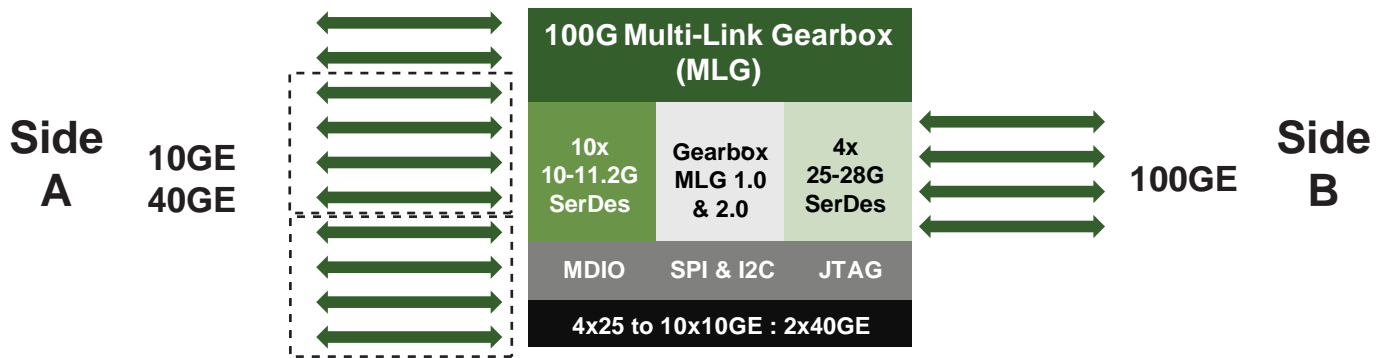
The device supports extensive test and monitor functions including PRBS Generators and checkers, error and eye quality monitors and MLG link monitor registers.



#### FEATURES

- Supports OIF MLG 1.0 and MLG 2.0 Standards
  - 10 Independent 10GE links into 100GE (4x25G)
  - Mix of 10GE and 40GE links into 100GE (4x25G)
- Supports IEEE and OIF 10, 40, and 100G standards
- Self adapting equalizer - eye opening capability
- Integrated Rx 100 ohm termination resistors and AC coupling
- Flexible power and configuration options
- Transmitter and TX pre-emphasis
- Per lane PRBS generator and bit error rate checker
- Reverse polarity control on all inputs and outputs
- Monitor and reference clock support
- Internal registers can be accessed by I2C, MDIO or SPI ports
- Base register configuration and FW provided for ease of use
- Pin compatible with MSH320 Gearbox and MSH225 Retimer

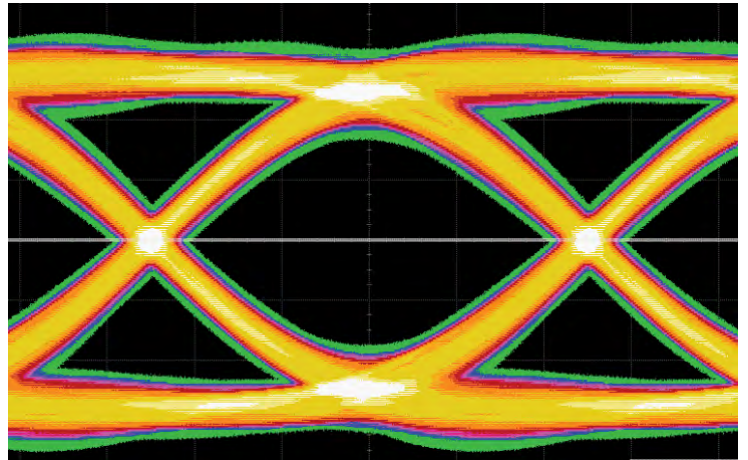
## MSH322 APPLICATION EXAMPLE



## MSH322 DEVICE SIGNAL INTEGRITY

To ensure signal integrity for 10G and 25G interfaces, the MSH322 has the following circuits:

- Opening the eye: A combined analog and digital RX Equalizer
- Retiming: A data slicer plus a clock and data recovery circuit
- Bit stream alignment: Deserializer, frame sync and deskew functions
- Clock synchronization: An elastic buffer for data alignment
- Pre-distortion compensation: A serializer and transmit equalization circuit



## PACKAGING

- 17mm x 17mm 256 FCBGA (1.0mm)
- Pin compatible with LineSpeed Flex 17mm Devices



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