



Dense 10GbE Breakout from a 100G (4x25G) Port Using Multi-Link Gearbox



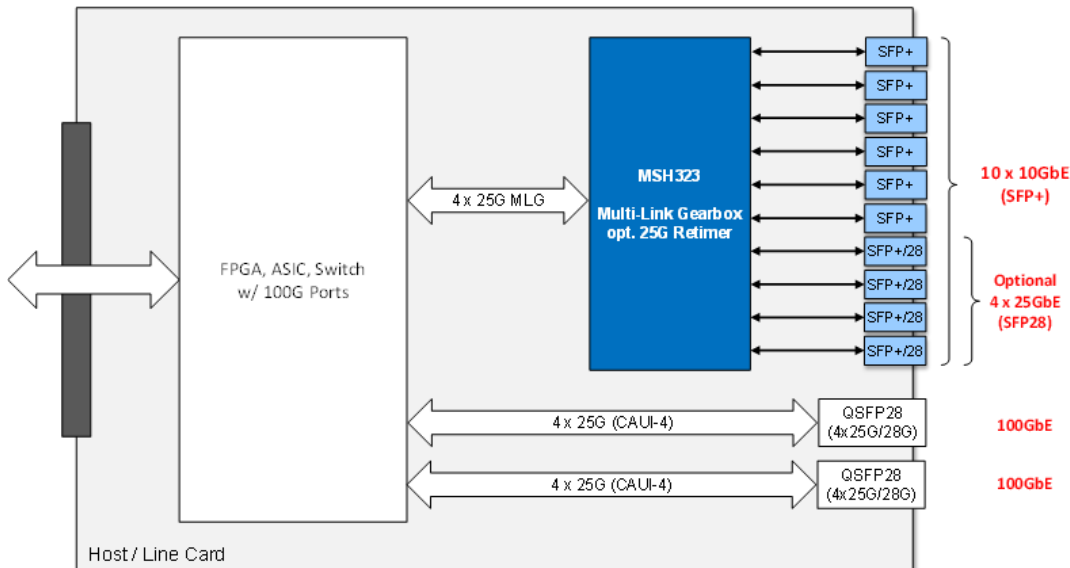
KEY CHALLENGES:

Even as network equipment vendors implement higher port-rates at 100G and above, the need remains to support 10Gb Ethernet (10GbE) ports. While a 100G port (i.e., 4 x 25Gb/s) can be run at 4 x 10Gb/s, this effectively downgrades to only 40% of the bandwidth available for that switch, ASIC, or FPGA port, which in turn, reduces the aggregate switching, routing, or processing throughput.

Equipment vendors are therefore forced to choose between downgraded aggregate performance or implementing dedicated 10GbE port functions which limits field deployment flexibility of the network platform.

KEY SYSTEM CONSIDERATIONS:

- Support industry communication standards
- Support Retimer capability for 25Gb Ethernet and non-Ethernet standards (e.g., OTN)
- Flexible clocking to support distributed network timing models
- Strong signal integrity ensuring reliable data transfer
- Automatic RX adaptation to simplify system implementation
- Cost effective solution





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Use Case

THE MOSYS SOLUTION:

The MoSys MSH322S device is the best fit for 100GE optical interfaces.

- Supports critical industry standards, such as:
 - IEEE and OIF 10G, 25G, 100G electrical standards
 - OIF Multi-Link Gearbox (MLG) 1.0 standard
 - Compatible with pluggable module interfaces (e.g., SFP, QSFP, CFP)
- Each MSH322S supports 10 independent 10GbE links aggregated per 100G port
 - Maintains 100Gb/s port bandwidth while supporting dense 10GbE breakout
- Supports 10-11Gb/s and 25-28Gb/s retiming for 25Gb Ethernet and OTN applications
- Supports Synchronous Ethernet (SyncE) network timing
 - RX recovered clocks for output retiming and direct output clock
 - Programmable / selectable clock source from any lane
- Signal integrity is key to ensuring reliable transfer of data
 - MoSys self-adapting RX equalizers for ease of connection
 - Reduces board design and bring-up time by eliminating per-lane “tuning”
- Board power is always an issue in a system
 - The MSH322S has an excellent power/performance ratio
- Cost/performance must be considered in any system design:
 - Devices available in high volume at around \$100 each

KEY POINTS SUMMARY:

- Adherence to industry standards for interoperability with other available industry devices and interfaces.
- Single device supports breakout to 10 x 10GbE interconnections
- Strong signal integrity for ease of system design/bring-up and reliable operation
- Synchronous Ethernet (SyncE) network timing support

TYPICAL APPLICATIONS:

- Data Centers and Cloud Computing
- Datacom, Telecom, 5G Systems
- 100G Line Cards and Switches

ADDITIONAL RESOURCES:

- [Linespeed Product Line](#)
- [Linespeed Product Brief](#)
- [Linespeed Press Release](#)

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Document Number:
UC_LS_10GbE_Breakout_2108010