LineSpeed Flex Summary
100G PHY Family

PRODUCT BRIEF

LINESPEED FLEX PHY FAMILY SUMMARY

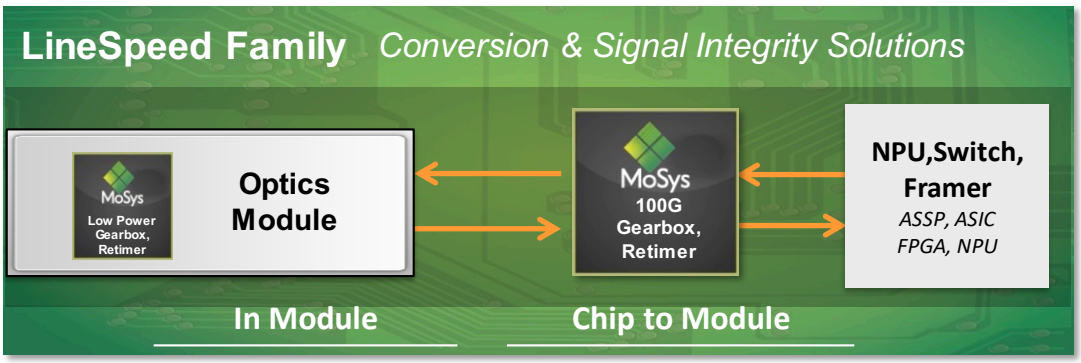
The LineSpeed FLEX is a set of 100G PHY products to support a variety of gearbox and retimer functions typically used on line cards or inside modules to support multiple data rates and standards. The products in the family all share the same register configurations and naming conventions, common package pinouts and are firmware / software compatible.

KEY FEATURES / PRODUCT TYPES

- Supports IEEE and OIF 10, 25, 40 and 100G standards
- Retimers are protocol independent and support a PLL per lane for mixed port speeds
- Self-adapting Rx equalizers for ease of connection
- Optional 100G 802.3bj Clause 91 RS-FEC for IEEE 100GE and optical module MSA support (SR4, CWDM4, PSM4)
- Package and power options for line card, daughter card and module applications
- Evaluation and reference board schematics and layouts

Enables Modules / Adapters To Support:

- 10x10GE SR/LR	(MLG)
- 2x40GE SR/LR	(MLG)
- SR10	(GB)
- Integrated FEC	(Retimer)



In Module	Chip to Module
MSH321 (S) 100G MLG Gearbox	MSH320 100G Gearbox w/FEC
MSH221 (S,F) 100G Octal Retimer w FEC	MSH322 MLG Gearbox
	MSH222 100G Full Duplex Quad Retimer w/FEC
	MSH225 10 Lane Full Duplex Retimer

PRODUCT OPTIONS

100G Gearbox: The Gearbox function translates the formatting of 100G data streams by multiplexing and demultiplexing 10x10G (100G) to 4x25G (100G) for Ethernet and OTN applications. The gearbox function is defined in IEEE 802.3ba.

Multi-Link Gearbox (MLG): The MLG function supports 10 independent 10GE links or 40GE links into a single 4x25G (100GE) link in both the receive and transmit direction. The device supports all lane marking and idle insertion functions defined by OIF MLG1.0 and 2.0.

Protocol Independent Retimer: The Family supports devices with 8 lanes (up to 100G full duplex) and 20 lanes, where each lane is a Rx/Tx pair. Each lane is protocol independent and also has independent PLL per lane.

100GE RS-FEC Option

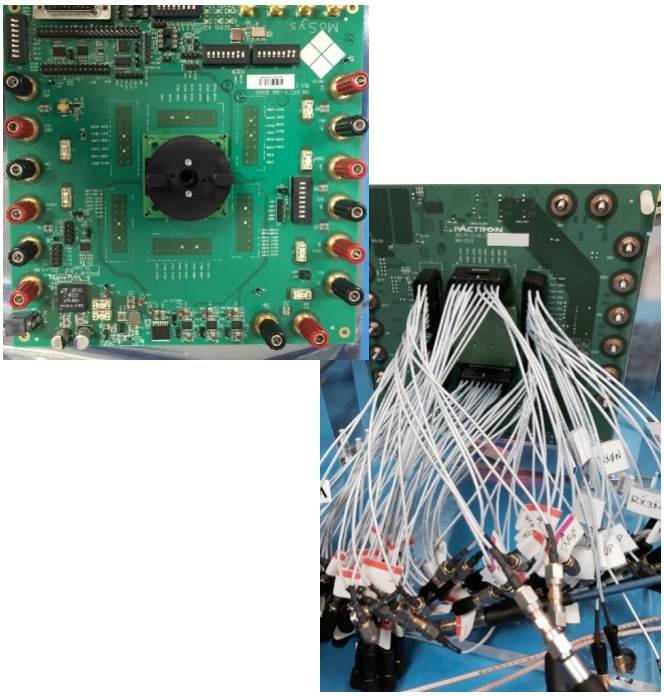
100GE RS-FEC: RS-FEC is supported on the 4x25G lanes on the 100G Gearbox and Retimer devices. The 100GE KR4 RS-FEC is encoded on the 4x25G transmit and decoded and corrected if needed on the 4x25G receive. The RS-FEC implementation follows IEEE 802.3bj Clause 91 specification for interoperability. RS-FEC is specified in 100G MSAs including SR4, CWDM4 and PSM4.

LINESPEED FLEX PRODUCT OPTIONS

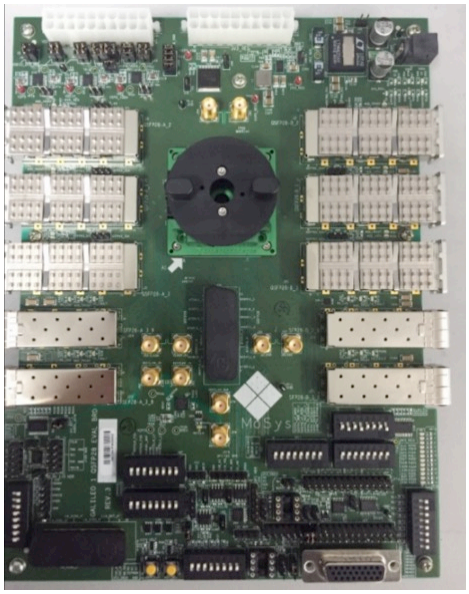
Product Description				Package	Functions / Options				Rates	
	Part Number	Description	Tx/Rx	Pkg Size	Gearbox	MLG	Retimer	RSFEC	10-14	25-28G
Retimers	MSH221SF	100G Octal Retimer with FEC	8	12x12mm			✓	✓	✓	✓
	MSH222S	100G Full Duplex Retimer	8	13x13mm			✓		✓	✓
	MSH222SF	100G Full Duplex Retimer with FEC	8	13x13mm			✓	✓	✓	✓
	MSH225S	10 Lane Full Duplex Retimer	20	17x17mm			✓		✓	✓
	MSH225SF	10 Lane Full Duplex Retimer with FEC	20	17x17mm			✓	✓	✓	✓
Gearbox	MSH320S	100G Gearbox	20	17x17mm	✓		✓		✓	✓
	MSH320SF	100G Gearbox with FEC	20	17x17mm	✓		✓	✓	✓	✓
	MSH321S	100G MLG Gearbox	14	12x12mm	✓	✓			✓	✓
	MSH322S	100G MLG Gearbox	20	17x17mm	✓	✓	✓		✓	✓
	MSH323S	100G Gearbox	14	12x12mm	✓		✓		✓	✓
	MSH323SF	100G Gearbox with FEC	14	12x12mm	✓		✓	✓	✓	✓

Note: Common package sizes are pin compatible

EVALUATION BOARDS & REFERENCE PLATFORMS



Eval Boards with Huber Suhner SMA connectors



17x17mm QSFP28 Evaluation Board and reference

PACKAGE OPTIONS

12x12mm, 0.5mm pitch, 529 Ball FCBGA
13x13mm, 1mm pitch, 144 ball FCBGA
17x17mm, 1mm pitch, 256ball FCBGA

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