

GLOSSARY OF TECHNICAL TERMS

This glossary of technical terms contains definitions of certain terms used in this document in connection with our Company and our business. The terms and their meanings may not always correspond to standard industry meaning or usage of these terms, and may not be directly comparable to similarly titled terms adopted by other companies operating in the same industries as our Company.

“1G”	1 gigabit per second
“1.6T”	1.6 terabits per second
“10G”	10 gigabits per second
“100G”	100 gigabits per second
“25G”	25 gigabits per second
“2DR4”	distance reach and optical interface specification using four parallel single-mode fiber lanes, i.e. a specification for achieving an aggregate data rate of 200 Gbps over a transmission distance of up to approximately 500 meters using four parallel single-mode fibers lanes
“2FR4”	fiber reach, an optical interface specification using 4 single-mode fiber lanes, typically transmitting 50 Gbps per lane to achieve an aggregate data rate of 200 Gbps over a transmission distance of up to approximately two kilometers
“2LR4”	long reach, an optical interface specification using 4 single-mode fiber lanes, typically transmitting 50 Gbps per lane to achieve an aggregate data rate of 200 Gbps over a transmission distance of up to approximately 10 kilometers
“3.2T”	3.2 terabits per second
“400G”	400 gigabits per second
“5G”	fifth generation mobile network
“800G”	800 gigabits per second
“AI”	artificial intelligence
“AOI”	automated optical inspection, an automated visual inspection technology that uses cameras and image-processing algorithms to detect defects, misalignment, contamination or assembly errors during manufacturing
“COB”	chip-on-board, a transceiver packaging technology

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“COC”	chip-on-carrier, a transceiver packaging technology
“CPO”	co-packaged optics technology
“CRM”	customer relationship management
“Datacom”	data communications, the transmission of digital data within or between data centers and campus networks
“dB”	decibel
“dBm”	decibel milliwatt
“DCI”	data center interconnect
“DR1”	distance reach, an optical interface specification, using one parallel single-mode fiber lane to achieve an aggregate data rate of 100 gigabits per second
“DR4”	distance reach, an optical interface specification, using four parallel single-mode fiber lanes (each typically transmitting 100 Gbps or 200 Gbps) to achieve an aggregate data rate of 400 Gbps or 800 Gbps over a transmission distance of up to approximately 500 meters
“Ethernet”	a family of networking technologies widely used in data centers and enterprise networks for packet-based data transmission
“ELSFP”	external laser small form-factor pluggable cable assemblies
“ELSFP MSA”	External Laser Small Form-Factor Pluggable Multi-Source Agreement
“EMI”	electromagnetic interference
“EML”	electro-absorption modulated laser, an integrated optoelectronic semiconductor component that combines a continuous-wave laser diode (typically a DFB laser) and electro-absorption modulator (EAM) on a single chip, used primarily for high-speed optical signal transmission in optical transceivers
“ER4”	extended reach, an optical interface specification using single-mode fiber lanes, typically transmitting 25 Gbps or 100 Gbps to achieve an aggregate data rate of 100 Gbps or 400 Gbps over a transmission distance of up to approximately 40 kilometers

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“ESD”	electrostatic discharge, the sudden flow of electricity between electrically charged objects. In optical module manufacturing, ESD control measures are implemented to prevent electrostatic damage to sensitive semiconductor and optoelectronic components
“FQC”	final quality control, the final inspection process conducted before shipment to verify that finished products meet quality specifications and customer requirements
“FRO”	full retimed optics, a type of optical transceiver module equipped with digital signal processors (DSPs) on both the transmit and receive paths that can retime, reshape, and reamplify data signals to ensure maximum signal integrity in high-speed network communications
“FR1”	fiber reach, an optical interface specification using one single-mode fiber lane, typically transmitting 100 Gbps to achieve an aggregate data rate of 100 Gbps over a transmission distance of up to approximately two kilometers
“FR4”	fiber reach, an optical interface specification, using single-mode fiber lane (typically transmitting 100 Gbps or 200 Gbps) to achieve an aggregate data rate of 400 Gbps or 800 Gbps over a transmission distance of up to approximately two kilometers
“GFA”	gross floor area
“InfiniBand”	a high-speed, low-latency interconnect technology commonly used in high-performance computing and AI data center clusters
“IMDD”	intensity modulation and direct detection, an optical transmission technology that encodes data in the intensity of an optical signal and directly detects the optical power at the receiver
“IT”	information technology
“LPO”	linear pluggable optics
“LPO MSA”	Linear Pluggable Optics Multi-Source Agreement
“LR”	long reach, an optical interface specification using 1 single-mode fiber lane, typically transmitting 10 Gbps to achieve an aggregate data rate of 10 Gbps over a transmission distance of up to approximately 10 kilometers

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“LR4”	long reach, an optical interface specification using 4 single-mode fiber lanes, typically transmitting 25 Gbps per lane to achieve an aggregate data rate of 100 Gbps over a transmission distance of up to approximately 10 kilometers
“LRO”	linear receiver optics
“MES”	manufacturing execution system
“MPO”	multi-fiber push-On/pull-off connector, a fiber optic connector that allows multiple optical fibers to be connected in a single interface, enabling high-density, high-speed data transmission in data centers and telecommunication systems
“MSA”	multi-source agreement, industry agreement defining interoperable specifications across multiple vendors for optical modules and related interfaces
“NIC”	network interface card, a hardware component that connects a server or computing device to a network
“NPO”	near-packaged optics, an optical module architecture that places optical engines in close proximity to the switch ASIC on the circuit board, reducing signal path length, power consumption and latency compared to traditional pluggable modules
“NRZ”	non-return-to-zero, a two-level signaling format that carries one bit per symbol
“OE”	optical engine, a key subassembly in an optical module that integrates optical and electronic components to perform optical transmission and reception functions
“OEM”	original equipment manufacturer, a company that manufactures products or components that are purchased by another company and sold under that purchasing company’s brand name
“OIF”	Optical Internetworking Forum
“OSFP”	octal small form-factor pluggable, a high-density, next-generation optical transceiver form factor designed to support data rates of 400G, 800G, 1.6T and beyond, featuring eight electrical lanes and efficient thermal management
“OSFP-HIS”	OSFP integrated heat sink, an OSFP module type with an integrated heat sink to improve thermal performance

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“OSFP-RHS”	OSFP riding heat sink, an OSFP module type designed to work with a riding heat sink provided by the host system
“OTN”	optical transport network, a telecom transport technology often described as a “digital wrapper” that carries client signals transparently across optical networks
“PAM4”	pulse amplitude modulation 4-level, a signal modulation scheme that encodes two bits of data per symbol using four distinct amplitude levels
“PCB”	printed circuit board, a flat board made of insulating material with conductive copper pathways etched or printed onto it, used to mechanically support and electrically connect electronic components in a circuit
“QIS”	quality information system, a digital system used to collect, manage and analyse quality-related data, supporting quality control, defect tracking and continuous process improvement
“QSFP28”	quad small form-factor pluggable 28, a four-lane pluggable transceiver form factor commonly used for 100G applications, typically using $4 \times 25\text{G}$ electrical lanes
“QSFP-DD”	quad small form factor pluggable double density, i.e., a type of optical transceiver used in high-speed data communication networks
“QSFP112”	quad small form-factor pluggable 112, a QSFP-family form factor designed for four high speed electrical lanes, commonly associated with $4 \times 100\text{G}/112\text{G}$ -class electrical signaling
“RMS”	reliability management system, a system used to manage reliability testing data, equipment performance and product reliability information throughout the manufacturing lifecycle
“R&D”	research and development
“ROSA”	receiver optical sub-assembly, an optical component which converts optical signals to electrical signals
“SAP”	systems, applications and products in data processing, a widely used enterprise resource planning (ERP) system that enables companies to integrate and manage business processes including procurement, production, inventory, logistics, finance and sales

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“SEM”	scanning electron microscopes, a high-resolution imaging instrument used to examine surface morphology and microstructural features of materials
“SFP28”	small form-factor pluggable 28, a compact pluggable transceiver form factor commonly used for 25G applications
“SiPh”	silicon photonics
“SMF”	single-mode fiber
“SPC”	statistical process control
“sq.m.”	square meter
“SRM”	supplier relationship management
“TDECQ”	transmitter and dispersion eye closure quaternary, a standard metric defined by the Institute of Electrical and Electronics Engineers Standard 802.3 to quantify the quality of optical transmitter signals using pulse amplitude modulation 4-level modulation. A lower TDECQ value indicates better signal integrity and lower transmission penalty
“Telecom”	telecommunications, i.e. the broader field encompassing the transmission of voice, data, and video over long distances through wired or wireless means, including services such as mobile, fixed-line, and satellite communications
“TFLN”	thin-film lithium niobate intensity modulator, which is an advanced opto-electric converter device
“TOSA”	transmit optical sub-assembly, an optical component which converts electrical signals to optical signals
“WMS”	warehouse management system
“XPO”	eXtra-dense pluggable optics, a high-density optical interconnect architecture designed to support next-generation AI and data center networks by increasing front-panel bandwidth density and improving power efficiency and scalability
“XPO MSA”	eXtra-dense Pluggable Optics Multi-Source Agreement