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## GLOSSARY OF TECHNICAL TERMS

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*This glossary contains explanations of certain technical terms used in this document. As such, these terms and their meanings may not correspond to standard industry meanings or usage of these terms.*

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| “AI”        | artificial intelligence                                                                                                                                                                                                                  |
| “BH”        | buried heterostructure, a semiconductor laser design where the narrow-bandgap active region is completely surrounded on all sides by higher-bandgap cladding material                                                                    |
| “CAGR”      | compound annual growth rate                                                                                                                                                                                                              |
| “CAPEX”     | capital expenditure                                                                                                                                                                                                                      |
| “cell”      | a coverage area in a mobile communication network that is served by a base station                                                                                                                                                       |
| “CMOS”      | complementary metal-oxide-semiconductor, semiconductor fabrication process technology widely used for high-volume integrated circuit manufacturing                                                                                       |
| “CPO”       | co-packaged optics, an integration approach where optical components are co-packaged with switching or computing chips to improve bandwidth and energy efficiency                                                                        |
| “CW”        | continuous wave, an electromagnetic wave of constant amplitude and frequency                                                                                                                                                             |
| “CWDM4”     | Coarse Wavelength Division Multiplexing 4-lane, a 4-lane optical transmission standard that uses coarse wavelength division multiplexing                                                                                                 |
| “data rate” | maximum error-free signal transmission rate that the optical components or optical interconnect products could support                                                                                                                   |
| “DFB”       | distributed feedback                                                                                                                                                                                                                     |
| “DSP”       | digital signal processor, dedicated processor for digital signal processing, including equalization, modulation and error correction in high-speed communication systems                                                                 |
| “EIC”       | electronic integrated circuit, a semiconductor chip that handles electrical signal processing, control, and interfacing functions in an optical system, mainly includes transimpedance amplifiers, drivers and digital signal processors |
| “EML”       | electro-absorption modulated laser, integrating a laser diode with an electro-absorption modulator (EAM) in a single chip                                                                                                                |
| “EPON”      | ethernet passive optical network, a PON technology based on IEEE standards, used to provide broadband internet access over optical fiber                                                                                                 |
| “ESG”       | environment, social and governance                                                                                                                                                                                                       |
| “FP”        | Fabry-Pérot, a basic laser that emits multiple wavelengths for short-reach, low-data-rate applications                                                                                                                                   |

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| “front-haul”                       | network segment connecting radio units to centralized or distributed baseband units                                                                                                                                                                                                  |
| “GFA”                              | gross floor area                                                                                                                                                                                                                                                                     |
| “GPON”                             | gigabit passive optical network, a PON technology based on ITU-T standards, capable of delivering gigabit-level internet access over optical fiber                                                                                                                                   |
| “GPU”                              | Graphics Processing Unit                                                                                                                                                                                                                                                             |
| “high-speed optical interconnects” | optical interconnects solutions with data rate of 400G and above                                                                                                                                                                                                                     |
| “IDM”                              | integrated device manufacturer, a company that takes charge of design, manufacturing, packaging, testing and subsequent sales of the finished products                                                                                                                               |
| “IEEE”                             | the Institute of Electrical and Electronics Engineers, the world’s largest technical professional organization dedicated to advancing technology                                                                                                                                     |
| “ITU”                              | the International Telecommunication Union, the United Nations specialized agency for information and communication technologies; and “ITU-T” refers to ITU Telecommunication Standardization Sector                                                                                  |
| “laser chip”                       | a semiconductor device, typically fabricated from compound materials such as indium phosphide or gallium arsenide, that performs electrical-to-optical conversion by generating coherent light through stimulated emission                                                           |
| “LWDM”                             | LAN Wavelength Division Multiplexing, a WDM technology using multiple wavelengths to boost bandwidth and efficiency in local area networks and data centers                                                                                                                          |
| “mechanical parts”                 | the fundamental physical elements that do not actively participate in the conversion or processing of photoelectric signals, while providing essential mechanical support, environmental sealing and electromagnetic interference shielding for the internal core components         |
| “MOCVD”                            | metal-organic chemical vapor deposition, a key technology used for depositing ultra-thin layers of compound semiconductor material onto a semiconductor wafer                                                                                                                        |
| “mW”                               | milliwatts                                                                                                                                                                                                                                                                           |
| “MWDM”                             | Mid-Wavelength Division Multiplexing, an optical transmission technology that increases the capacity of a single fiber pair by transmitting multiple optical signals simultaneously, each on a slightly different wavelength (color) of light within a specific band of the spectrum |
| “nm”                               | nanometer                                                                                                                                                                                                                                                                            |
| “NPO”                              | near-packaged optics, an optical integration approach where optical components are placed close to but not within the same package as electronic chips                                                                                                                               |

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| “OLT”                        | optical line terminal                                                                                                                                                                     |
| “ONU”                        | optical network unit, a device that converts optical signals to electrical signals in a fiber-optic network                                                                               |
| “optical transceiver(s)”     | pluggable module converting electrical signals to optical signals and converting optical signals back to electrical signals                                                               |
| “PAM4”                       | Pulse Amplitude Modulation 4-Level, a signal modulation technique that uses four distinct amplitude levels to encode two bits per symbol, doubling data rate without increasing bandwidth |
| “passive optical components” | optical components are optical devices that do not require electrical power to operate and do not actively amplify, generate, or convert optical signals                                  |
| “PCB”                        | printed circuit board, for electrical interconnection and signal routing                                                                                                                  |
| “PON”                        | passive optical network, a telecommunications technology that uses fiber-optic cables to deliver internet services                                                                        |
| “R&D”                        | research and development                                                                                                                                                                  |
| “RWG”                        | ridge waveguide, a semiconductor laser waveguide structure                                                                                                                                |
| “SiPh”                       | silicon photonics, photonic integration technology using silicon-based processes to integrate optical components on a chip                                                                |
| “scale-across”               | refers to the long-haul, high density and high-speed connection between switches across different data centers, supporting scenarios                                                      |
| “scale-out”                  | refers to the high-bandwidth connections between switches within a data center, which enables the high-speed data exchange between computer nodes                                         |
| “scale-up”                   | refers to the short-reach connections from servers or chips to the ToR switch                                                                                                             |
| “SOA”                        | semiconductor optical amplifier                                                                                                                                                           |
| “sq.m.”                      | square meter                                                                                                                                                                              |
| “SSC”                        | spot size converter, an optical component that enables efficient light coupling between optical fibers and waveguides in photonic integrated circuits                                     |
| “telecommunications”         | telecommunications, communication networks and systems for carrier-grade communications                                                                                                   |
| “TOSA”                       | transmit optical sub-assembly, an optical component which converts electrical signals to optical signals                                                                                  |
| “ToR”                        | a network switch installed at the top of a server rack to interconnect servers within the rack and link them to the broader data center network                                           |

THIS DOCUMENT IS IN DRAFT FORM, INCOMPLETE AND SUBJECT TO CHANGE AND THAT THE INFORMATION MUST BE READ IN CONJUNCTION WITH THE SECTION HEADED “WARNING” ON THE COVER OF THIS DOCUMENT.

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| “ultra-HD” | ultra-high-definition, a system for showing extremely clear pictures on a television or computer screen                                                     |
| “VR”       | virtual reality                                                                                                                                             |
| “WDM”      | a technology which multiplexes a number of optical carrier signals onto a single optical fiber by using different wavelengths (i.e., colors) of laser light |