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MaxLinear PAM4 DSP Enables Delta to Develop 400G Optical Module for Hyperscale Data Centers

- *The highly integrated Telluride family of PAM4 DSPs offers superior overall performance, power, and cost in a small QSFP-DD form factor*

CARLSBAD, Calif.--(BUSINESS WIRE)-- MaxLinear, Inc. (NYSE: MXL), a leading provider of radio frequency (RF), analog and mixed-signal integrated circuits for the connected home, wired and wireless infrastructure, and industrial and multimarket applications, today announced that Delta, a global leader in power and thermal management solutions, has selected MaxLinear's Telluride PAM4 DSP to develop its next-generation 400G-DR4 optical module.

The new optical module extends Delta's broad offering of data center connectivity products. Delta's proprietary single mode TOSA/ROSA design and package technology can be extended to DR4 single lambda optical modules. Delta's experience in data center transceiver design and its manufacturing capabilities enables them to meet the growing demands of hyperscale data center customers.

MaxLinear's MxL935xx Telluride family of SoCs are key components in the development of high-speed mega-scale data centers based on 100Gbps single lambda optical interconnects. The MxL935xx Telluride family of chips are the world's first DSP SoCs with integrated electro-absorption modulated laser (EA-EML) drivers for 100/400Gbps optical interconnects and breakout mode clocking support for 400Gbps DR4 optical modules. The MxL93542 400G PAM4 DSP allows companies like Delta to develop a 400Gbps optical interconnect module in a compact form factor for intra-datacenter applications with a transmission distance up to 2 kilometers.

"The highly integrated Telluride DSPs offer superior link-margin performance and industry leading power consumption," said Will Torgerson, Vice President and General Manager of MaxLinear's High-Speed Interconnect Group. "We are pleased to see that these features enabled Delta to deliver their new low power DR4 optical module. These next generation modules will address the intensifying demands for efficient processing of burgeoning internet traffic by enabling hyperscale data centers to transition to 400Gbps optical interconnects."

"We find MaxLinear to be a trust-worthy partner and after surveying the industry for the most competitive and highly integrated solution, we decided to adopt Telluride for our DR4 optical modules," said Ted Kuo, Senior Director of Optical Transceiver Products at Delta. "Telluride met all our criteria for bringing forward a competitive solution to address the needs of hyperscale data centers."

Technical Details

The Telluride family of low-power, high-performance PAM4 DSP SoCs enable 400Gbps/100Gbps optical modules using a 4x100Gbps/1*100Gbps optics interface. These SoCs are suitable for use within QSFP-DD, OSFP and COBO module form factors. The MxL93542 400G PAM4 DSP and MxL93512 100G PAM4 DSP integrate an EA-EML driver with 1.8V PP SE swing. Additional options are available that offer differential 800mV peak-to-peak swing for non EA-EML-based optics.

MaxLinear has engineered a very high-performance DSP engine in both the transmit and receive data paths. The resulting superior link-margin enables single-lane 100Gbps optical wavelength technology by mitigating many of the limitations of mass production optical components.

The devices feature a comprehensive digital pre-distortion (DPD) engine in the transmit direction to compensate for laser non-linearity and to cancel packaging limitations that cause reflections and bandwidth degradation at these extremely high signal frequencies. On the receive path, the DSP includes an auto-adaptive signal enhancement engine, which integrates a continuous time linear equalizer (CTLE), automatic gain control (AGC), a feed forward equalizer (FFE), and a decision feedback equalizer (DFE).

MaxLinear's Telluride PAM4 DSP enables sub-10W, 400G optical module solutions and will be on display at MaxLinear's booth (6509) during the Optical Fiber Communication Conference and Exhibition from March 5-7, 2019. For an appointment, please contact MaxLinear sales at sales@maxlinear.com.

About Delta

Delta, founded in 1971, is a global provider of power and thermal management solutions. Its mission statement, "To provide innovative, clean and energy-efficient solutions for a better tomorrow," focuses on addressing key environmental issues such as global climate change. As an energy-saving solutions provider with core competencies in power electronics and automation, Delta's business categories include Power Electronics, Automation, and Infrastructure. http://www.deltaww.com.

About MaxLinear, Inc.

MaxLinear, Inc. (NYSE: MXL) is a leading provider of radio frequency (RF), analog and mixed-signal integrated circuits for the connected home, wired and wireless infrastructure, and industrial and multimarket applications. MaxLinear is headquartered in Carlsbad, California. For more information, please visit www.maxlinear.com.

Cautionary Note About Forward-Looking Statements

This press release contains “forward-looking” statements within the meaning of federal securities laws. Forward-looking statements include, among others, statements concerning or implying future financial performance, anticipated product performance and functionality, or trends and growth opportunities affecting MaxLinear, in particular statements relating to MaxLinear’s Telluride family of products, including but not limited to potential market opportunities, functionality, and the benefits of use of such products, alone and in connection with Delta’s products. These forward-looking statements involve known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from any future results expressed or implied by these forward-looking statements. We cannot predict whether or to what extent the availability of our Telluride products will affect our future revenues or financial performance. Forward-looking statements are based on management’s current, preliminary expectations and are subject to various risks and uncertainties that could cause actual results to differ materially from those described in the forward-looking statements. Forward-looking statements may contain words such as “will be,” “will,” “expected,” “anticipate,” “continue,” or similar expressions and include the assumptions that underlie such statements. The following factors, among others, could cause actual results to differ materially from those described in the forward-looking statements: intense competition in our industry and product markets; risks relating to the development, testing, and commercial introduction of new products and product functionalities; the ability of our customers to cancel or reduce orders; uncertainties concerning how end user markets for our products will develop; our lack of long-term supply contracts and dependence on limited sources of supply; potential decreases in average selling prices for our products; and the potential for intellectual property litigation, which is prevalent in our industry. In addition to these risks and uncertainties, investors should review the risks and uncertainties contained in MaxLinear’s filings with the United States Securities and Exchange Commission, including risks and uncertainties identified in our Annual Report on Form 10-K for the year ended December 31, 2018. All forward-looking statements are qualified in their entirety by this cautionary statement. MaxLinear is providing this information as of the date of this release and does not undertake any obligation to update any forward-looking statements contained in this release as a result of new information, future events, or otherwise.

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