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MaxLinear's Telluride PAM4 SoC Selected by ColorChip for Single-Lambda PAM4 Optical Modules

- *ColorChip's new transceiver modules will be on display during OFC at MaxLinear's booth 6509*

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 ColorChip, a global leader in photonic integrated transceivers, has selected MaxLinear's Telluride (MxL935xx) pulse-amplitude-modulation (PAM4) digital signal processing (DSP) systems-on-chip (SoCs) for their next generation 400G-DR4 and 100G-DR1 optical modules.

The new optical modules join ColorChip's multi-generational optical engine platforms, based on proprietary SystemOnGlass™ technology. ColorChip's multi-generational optical engine platform has been refined over several generations of transceivers and can truly cater to the pressing challenges of massive data flows worldwide. ColorChip's PAM4 100G and 400G optical interconnects based on MaxLinear's Telluride family are expected to be commercially available later this year.

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 MxL935xx allows companies like ColorChip to develop a 100/400Gbps optical interconnect module in a compact form factor for intra-datacenter applications with a transmission distance up to 2 kilometers.

"We are excited to see the adoption of our Telluride product family by ColorChip for their 100Gbps QSFP28 and 400Gbps QSFP-DD transceiver modules," said Will Torgerson, Vice President and General Manager of MaxLinear's High-Speed Interconnect Group. "We look forward to working closely with ColorChip to take these designs to production later this year and help address rapidly increasing data loads driving the hyperscale datacenters of the future."

"As the industry transitions to Single Lambda PAM4 based optical solutions, MaxLinear's highly integrated, high-performance PAM4 DSP SoCs along with our ground-breaking uncooled and power efficient EML-based optical engines enabled us to develop our 100G

and 400G optical interconnect modules," commented Eli Arad, VP R&D of ColorChip. "We are excited to partner with MaxLinear to support the immense and ever-evolving mega-datacenter connectivity demands through a cutting-edge family of high-speed optical transceivers."

Technical Details

The Telluride family feature several operating modes allowing them to interface with multiple generations of switch ASICs (128x25G NRZ, 256x25G NRZ or 256x50G PAM4). This versatility enables 3.2Tbps, 6.4Tbps or 12.8Tbps front panel capacity per data center rack unit. These SoCs are suitable for use within QSFP-DD, OSFP and COBO module form factors.

The integrated laser driver delivers greater than 1.8V of single-ended driver output swing necessary for EA-EML lasers. This output swing easily meets the optical modulation amplitude (OMA) specification requirements across the wide operating temperature and bias ranges of all EA-EML lasers. The chip package also includes all the high frequency components required for driver and modulator biasing.

Asynchronous breakout mode clocking is an essential feature for hyperscale data center customers initiating 400G DR4 deployments. MaxLinear's 400G Telluride DSPs (MxL9354x) are currently the only PAM4 DSP SoCs that successfully integrate this clocking requirement.

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 family and ColorChip's new optical interconnect modules 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 ColorChip

ColorChip (www.color-chip.com), established in 2001, is a technology innovator in the field of photonic integrated hybrids whose vision is to break open the optical interconnect bandwidth barrier with high-speed optical transceiver solutions to support the explosive bandwidth demand of the Datacom and Telecom markets. Headquartered in Yokneam, Israel, ColorChip leverages its fully owned, industrialized optics-based FAB dedicated to the production of PLC based SystemOnGlass™ optical engines, whose glass platform is the ideal medium for emerging PAM4 applications. ColorChip has production facilities in Israel and Thailand, and offices in San Jose, California.

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 products, including but not limited to potential market opportunities, functionality, and the benefits of use of such products, alone and in connection with ColorChip'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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MaxLinear Inc. Press Contact:
Debbie Brandenburg
Sr. Marketing Communications Manager
Tel: +1 669-265-6083

dbrandenburg@maxlinear.com

MaxLinear Inc. Corporate Contact:
Will Torgerson
Vice President & General Manager of the High-Speed Interconnect Group
Tel: +1 760-692-0711
wtorgerson@maxlinear.com

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