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MaxLinear and Airgain Partner on 64T64R Massive MIMO Radio Unit Reference Design

- *Partnership combines Airgain's Antenna Arrays with MaxLinear's RF Transceivers and Beamforming Algorithms*

CARLSBAD, Calif.--(BUSINESS WIRE)-- [MaxLinear](#), Inc. (NASDAQ: MXL), an industry leader in silicon solutions for 5G wireless infrastructure, announced today a key partnership with [Airgain](#), Inc. to develop a reference design for Massive MIMO Radio Units (RU) with improved spectrum reuse through the use of their respective high performance technologies. The partnership pairs Airgain's latest 64T64R antenna array with MaxLinear's MXL1550 8T8R transceiver and innovative new AI/ML-powered beamforming algorithms in support of a growing global Massive MIMO market estimated to reach US\$9.62B by 2026, according to Market Data Forecast.

As enterprise and consumer demand for faster and more reliable wireless service continues to explode, mobile operators must adopt new technologies to meet this ever-growing need. Massive MIMO radios, which use a much larger number of antennas, have yet to realize their full potential as the key radio technology that will dramatically increase wireless network capacity. However, while Massive MIMO RUs can theoretically improve spectral efficiency by up to 10X when compared with traditional Macro RUs, deployments to date have only shown a fraction of those benefits. This has caused some in the industry to question their true potential.

The Massive MIMO reference design developed in partnership by Airgain and MaxLinear seeks to address the performance deficits of current radios. The design will combine Airgain's leading edge 5G antenna arrays and other wireless systems with MaxLinear's highly integrated, power-efficient RAN transceiver silicon to create a radio hardware platform that will showcase innovative new Massive MIMO beamforming algorithms developed by MaxLinear using AI and ML improvement and optimization techniques.

"We believe there is great opportunity through this key partnership to improve the performance of Massive MIMO radio units," said Brendan Walsh, MaxLinear's Vice President, Wireless Infrastructure. "The introduction of this new reference design will enable us to boost the adoption of high performance, next-gen radio units, thereby improving 5G infrastructure."

"Massive MIMO technologies have shown significant spectral efficiencies over MIMO systems," says Dr. Ali Sadri, Chief Technology Officer at Airgain. "By combining the unique expertise of both Airgain and MaxLinear, we believe we can help customers experience the

real benefit of Massive MIMO systems. We are thrilled to work with the team at MaxLinear to bring this exciting technology to market.”

About MaxLinear’s MXL1550 RF Transceiver

The MXL1550 is an 8T8R RF transceiver for wireless infrastructure radios. Its powerful combination of high integration, high performance, ultra-low power dissipation, and software defined programmability makes it an optimal solution for 4G and 5G radio platforms. The MXL1550 device integrates eight transmitters (Tx), eight receivers (Rx), and two feedback receivers (FBRX). It supports up to 400MHz signal bandwidth and an RF frequency range from 680 to 5925MHz.

About Airgain’s 64T64R MIMO antenna array

Airgain’s MIMO antenna array operates from 3400MHz to 3800MHz, is one of the lightest on the market at only 2.4kg, and has excellent isolation at >22 dB. Some of its other unique features include:

- It boasts wide scanning angles at AZ: $\pm 45^\circ$ / EL: $\pm 4.6^\circ$
- The array design enables digital beamforming in a two-dimensional fashion
- 64T64R refers to 64 Transmit and 64 Receive antenna ports, combining a 3-element dual-polarized antenna subarray into 2 ports
- It uses the subarray as a unit cell to create an 8 x 4 (row x column) macro array
- It supports maximally 64 RF Transceiver units, and each is mapped to a port of subarray
- The subarray uses two perpendicular polarizations to transmit/receive independent data streams
- The subarray arrangement along the column leads to larger dimension and provides more antenna gain and communication range

MaxLinear will be conducting briefings on MaxLinear’s radio solutions at Mobile World Congress – Hall 2, meeting rooms 2A2MR and 2A3MR – from February 27 through March 2, 2023.

About MaxLinear, Inc.

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

About Airgain, Inc.

Airgain simplifies wireless connectivity across a diverse set of devices and markets, from solving complex connectivity issues to speeding time to market to enhancing wireless signals. Our products are offered in three distinct sub-brands: Airgain Embedded, Airgain Integrated and Airgain Antenna+. Our mission is to connect the world through optimized integrated wireless solutions. Airgain's expertise in custom cellular and antenna system design pairs with our focus on high-growth technologies and our dedication to simplify the growing complexity of wireless. With a broad portfolio of products across the value chain,

from embedded components to fully integrated products, we are equipped to solve critical connectivity needs in both the design process and the operating environment across the enterprise, automotive, and consumer markets. Airgain is headquartered in San Diego, California, and maintains design and test centers in the U.S., U.K., and China. For more information, visit airgain.com, or follow Airgain on [LinkedIn](#) and [Twitter](#).

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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 of MaxLinear’s products or products incorporating its products, industry trends and growth opportunities affecting MaxLinear, potential benefits of MaxLinear’s technology include its beamforming technology, potential benefits of Massive MIMO radio units and systems, statements by MaxLinear’s Vice President, Wireless Infrastructure, statements by the Chief Technology Officer at Airgain, statements relating to the anticipated market opportunity of the Massive MIMO market and the expected outcomes of the performance of, and market for, Airgain’s products or those of its partners, the partnership between MaxLinear and Airgain, including the potential benefits relating to such partnership. 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. MaxLinear and Airgain cannot predict whether or to what extent these new and existing products will affect its 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 for MaxLinear: risks related to its partnership with Airgain and others being unsuccessful; risks relating to its proposed merger with Silicon Motion and the risks related to increased indebtedness; the effect of intense and increasing competition; impacts of a global economic downturn and high inflation; its ability to obtain government authorization to export certain of its products or technology; the political and economic conditions of the countries in which it conducts business and other factors related to its international operations; increased tariffs or imposition of other trade barriers; risks related to international geopolitical conflicts; risks related to the loss of, or a significant reduction in orders from major customers; a decrease in the average selling prices of its products; failure to penetrate new applications and markets; development delays and consolidation trends in its industry; inability to make substantial research and development investments; a significant variance in its operating results or rates of growth; claims of intellectual property infringement; its ability to protect its intellectual property; and a failure to manage its relationships with, or negative impacts from, third parties. 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 arising from other factors affecting the business, operating results, and financial condition of MaxLinear, including those set forth in MaxLinear’s most recent

Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, as applicable.

Actual results for Airgain may differ from those set forth in this press release due to the risk and uncertainties inherent in its business, including, without limitation: the market for its products is developing and may not develop as it expects; risks associated with the performance of its products, including bundled solutions with third-party network services; if its partnerships are unsuccessful, it may not be able to bring its product solutions to market successfully or on a timely basis; its products are subject to intense competition, and competitive pressures from existing and new companies may harm its business, sales, growth rates and market share; the COVID-19 pandemic, global supply chain constraints and rising interest rates and inflation may continue to disrupt and otherwise adversely affect its operations and those of its suppliers, partners, distributors and ultimate end customers; risks associated with any regulatory approvals that may be required; risks associated with quality and timing in manufacturing its products and its reliance on third-party manufacturers; it may not be able to maintain strategic collaborations under which its bundled solutions are offered; if it cannot protect its intellectual property rights, its competitive position could be harmed or it could incur significant expenses to enforce its rights; and other risks described in its prior press releases and in its filings with the Securities and Exchange Commission, including under the heading "Risk Factors" in its Annual Report on Form 10-K and any subsequent filings with the SEC. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof, and Airgain undertakes no obligation to revise or update this press release to reflect events or circumstances after the date hereof.

All forward-looking statements are qualified in their entirety by this cautionary statement. MaxLinear and Airgain are 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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