Lockheed Martin, Ayar Labs Partner To Advance Microchip Connectivity For Next Generation Sensory Systems

New era of defense platforms with optical I/O aim to support faster decision making in the most agile, mission-critical scenarios while advancing domestic semiconductor capabilities

BETHESDA, Md. and SANTA CLARA, Calif. – Oct. 12, 2022 – Lockheed Martin, (NYSE: LMT) and Ayar Labs, a leader in chip-to-chip optical connectivity, today announced a strategic collaboration to develop future sensory platforms that leverage Ayar Labs' advanced optical input-output (I/O) microchips that use light to transfer data faster, at a lower latency, and at a fraction of the power of existing electrical I/O solutions. The new platforms could be used across Department of Defense (DoD) applications to capture, digitize, transport, and process spectral information.

"As the complexity and amount of data grows on the battlefield, faster decision-making is essential. New innovative system architectures, coupled with AI and machine learning techniques, are needed for our customers' mission success," said Steve Walker, chief technology officer and vice president, Engineering & Technology at Lockheed Martin. "Ayar Labs' optical interconnect solution provides the necessary technology to process spectral information with greater speed and lower latency for next-generation system designs."

Lockheed Martin is partnering with Ayar Labs in developing multi-chip package (MCP) solutions which place high-density, high-efficiency optical I/O chiplets in the same microelectronics package as the radio frequency processing devices. The development and integration of Ayar Labs' TeraPHY™ optical I/O chiplets and SuperNova™ light source represent a faster, more efficient, and more reliable transfer of data throughout the platform. This is important for next-generation architectures that will use phased array apertures to connect systems and people to make smarter, faster decisions.

"Our advances in interconnect density, latency, reach and power efficiency represent a significant advantage for extreme-edge sensing applications, which is critical for enabling next-generation architectures and systems," said Charles Wuischpard, CEO of Ayar Labs. "For example, our optical I/O solution will provide a 5x power reduction and 12x size reduction versus a representative mid-board optical solution."

Lockheed Martin and Ayar Labs co-authored a paper entitled 'Converged RF Phased Arrays enabled by Silicon Photonics' that will be presented at the IEEE International Symposium on Phased Array Systems and Technology, Thursday, Oct. 13, 2:50 p.m. EDT.

To learn more about Ayar Labs' chip-to-chip optical technology and mission, please visit: https://ayarlabs.com/

About Lockheed Martin Advanced Technology Laboratories
Lockheed Martin Advanced Technology Laboratories (ATL) is an applied research and development center for scientific advancement in the areas of spectrum operations, advanced computing, artificial intelligence, command & control, and cyber. ATL engineers and scientists develop and apply leading edge technologies to our customers' most difficult problems and needs, redefining global security and transforming emerging ideas into solutions.

About Lockheed Martin
Headquartered in Bethesda, Maryland, Lockheed Martin Corporation is a global security and aerospace company that employs approximately 114,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

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About Ayar Labs
Ayar Labs is disrupting the traditional performance, cost, and efficiency curves of the semiconductor and computing industries by driving a 1000x improvement in interconnect bandwidth density at 10x lower power. Ayar Labs' patented approach uses industry standard cost-effective silicon processing techniques to develop high speed, high density, low power optical based interconnect "chiplets" and lasers to replace traditional electrical based I/O. The company was founded in 2015 and is funded by a number of domestic and international venture capital firms as well as strategic investors. Ayar Labs is a portfolio member company of Lockheed Martin Ventures. For more information, visit www.ayarlabs.com.

Media Contacts:
Richard Sant, manager, Global Media Relations, +1 301-538-1165, richard.b.sant@lmco.com

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