NIWC Pacific AI Program to Guide Next-Generation Chip Development

From Darian Wilson, Naval Information Warfare Center, March 16, 2026

SAN DIEGO – A Naval Information Warfare Center (NIWC) Pacific artificial intelligence program is poised to help guide the development of a new generation of American-made microchips, following a high-level summit hosted by the University of Arizona on Feb. 18.

A new coalition of leaders from academia, venture capital, and the semiconductor industry has identified a NIWC Pacific AI program as a lead use case for developing revolutionary chips that would merge electronics and photonics. The effort aims to create processors that could dramatically reduce power consumption and heat while increasing processing power, a critical need for deploying advanced AI in resource-constrained military environments.

The “Summit on Photonics Heterogeneous Integration” brought together approximately 25 experts from top universities and tech companies to rally behind a national security imperative. A presentation on a NIWC Pacific AI initiative was given by John Wood, lead systems engineer for the NIWC Pacific Command and Control Department. “Bringing together this ecosystem of academic and industry leaders is a pivotal moment,” said Wood. “When we presented the vision for our in-house AI program, it helped crystallize the national security imperative driving this innovation. We’re not just talking about faster chips; we’re talking about securing a technological advantage for the nation.”

The NIWC Pacific program, which is developing a future AI commander-assist system, was seen as an ideal testbed. According to Wood, its near-term development goals and low initial production volume make it a perfect springboard for demonstrating the new chip technology.

The proposed hybrid chips are designed to solve two major hurdles for AI adoption on military platforms: high power draw and immense heat dissipation. By integrating light-based photonics directly with electronics, these new designs are expected to run faster and far more efficiently. This could make it feasible to run complex AI applications aboard ships and other platforms where power and cooling are inherently limited. A key goal of the coalition is to design and fabricate the new chips entirely in the United States, strengthening supply chain security for critical defense components.

“For the Navy, this is another exciting step toward making heavy AI processing a reality aboard our ships,” said Wood. “These new chips could be the key to deploying advanced AI capabilities directly to the fleet, right where they’re needed most.”

The group plans to hold semi-annual summits, alternating between the University of Arizona and Stanford, to track progress and tackle challenges, according to Wood. The long-term goal is to mature the technology through the NIWC Pacific use case before scaling it for widespread adoption in both military and mainstream AI processors.

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