

Former Intel Advanced Packaging Chief Dr. Babak Sabi Joins Nitride Global Board of Advisors

The executive who led Intel's assembly and test technology development joins the company as packaging becomes the industry's binding constraint

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EINPresswire.com/ -- [Nitride Global](#),

[Inc.](#) ("Nitride Global") today announced that Dr. Babak Sabi has joined its Board of Advisors. Dr. Sabi served as Senior Vice President and General Manager of Assembly and Test Technology Development (ATTD) at Intel Corporation — the organization responsible for Intel's packaging, assembly and test process technology, and the group that brought the EMIB and Foveros architectures into production.



Few people have directed advanced packaging development at that scale. The appointment gives Nitride Global access to the qualification, reliability and manufacturability judgment that determines whether a new material ever reaches production — and it comes as the constraints on semiconductor performance move decisively into the package.

The Bottleneck Has Moved

For two decades the limiting factor in semiconductor performance was the transistor. It is now the package. Industry reporting through 2026 has consistently identified advanced packaging capacity, rather than wafer fabrication, as the binding constraint on AI accelerator supply, with leading 2.5D packaging lines booked out well in advance. The reason is structural. An AI accelerator is no longer a single die but a compute die surrounded by stacks of high-bandwidth memory, and system performance now turns on how much data can be moved between them — and how much heat can be pulled out of the assembly while doing it.

The same pressure is reshaping the network. As switch bandwidth scales toward 1.6 terabits, the electrical channel between a switch ASIC and a front-panel optical module — a few centimeters of printed circuit board — imposes insertion loss that no practical trace or cable can overcome. The answer is co-packaged optics: moving the optical engine onto the same substrate as the ASIC, shortening the electrical reach from centimeters to millimeters. The efficiency case is

decisive. Pluggable optical modules draw roughly 15 watts per 800 Gb/s port, against roughly 5.5 watts for early co-packaged implementations — a threefold reduction, and hundreds of watts on a single fully loaded switch.

That answer, however, converts a networking problem into a packaging problem. Optical engines are far more temperature-sensitive than the silicon they now sit beside, with laser efficiency and wavelength stability both degrading as temperature rises, and co-packaging places them on a shared interposer alongside a high-power ASIC — where removing heat is precisely what dense integration makes hardest. Co-packaged optics consequently demands materials that deliver optical function, electrical isolation and a thermal path at the same time. Very few do.

Layered over both is a supply question. The United States remains limited in conventional and advanced packaging capacity alike. The CHIPS-funded National Advanced Packaging Manufacturing Program was established with roughly \$3 billion to address that gap, and domestic packaging capacity is nonetheless projected to reach only about 10 percent of the global total by 2032. Differentiated packaging technology developed and manufactured in the United States is scarce, and weighted accordingly.

One Deposited Material, Several Functions

Nitride Global's aluminum oxynitride (ALON) technology is aimed at that convergence. ALON is a dense, amorphous, conformal dielectric deposited by reactive magnetron sputtering directly onto metals, silicon, sapphire, glass and composite substrates — with no adhesion layer, at substrate temperatures below roughly 300 °C, in thicknesses from 100 nanometers to tens of microns. Because the film bonds chemically to the surface rather than being attached as a laminated or bonded layer, adhesion testing fails cohesively within the material rather than at the interface, avoiding the thermal resistance and delamination risk that another bonded interface introduces.

The commercial consequence is consolidation. One deposited film can serve as substrate dielectric, as conformal gap fill between stacked die, as a passivation and environmental barrier, and — because composition also governs refractive index, with measured values near 2.05 at 1310 nm — as an optical layer at telecom wavelengths. Functions that conventionally require several distinct materials, each carrying its own interfaces, process steps and failure modes, are addressed by a single process. In a package where interfaces are the enemy of both thermal performance and yield, eliminating them is the whole point.

The low deposition temperature matters independently. It allows the film to be applied to assemblies and organic constructions that ceramic processing would destroy, which is what makes conformal gap fill practical rather than theoretical.

A Career Spent on the Question That Decides Adoption

Dr. Sabi joined Intel in 1984 and spent more than three decades with the company, leading its Corporate Quality Network from 2002 to 2009 with responsibility for product reliability and

quality practices across the corporation before taking leadership of ATTD in 2009. He holds a Ph.D. in solid state electronics from The Ohio State University, has authored [ten] papers on reliability physics, holds [two] patents, and received five Intel Achievement Awards. In 2022 he was inducted into the International Semiconductor Executive Summit Hall of Fame. His career has centered on the question that decides whether any packaging material is adopted: not whether it performs, but whether it can be qualified, yielded and manufactured at volume.

Leadership Perspectives

"A material that claims to do this many things invites skepticism, and it should. The discipline that answers skepticism is qualification and reliability engineering, and Babak has practiced it at the highest level in this industry for three decades. Having him willing to put his name alongside ours is the most meaningful external validation this company has received. We intend to earn it."

— Mahyar Khosravi, P.Eng., Chief Executive Officer, Nitride Global, Inc.

"The industry's limits are now set by the package, and increasingly by thermal and isolation constraints within it. What interested me about Nitride Global is a conformal dielectric that can be deposited on nearly any surface at low temperature and tuned across electrical, thermal and optical requirements from a single process — with a domestic supply position that is rare in this field. I look forward to helping the team take it toward qualification and production."

— Dr. Babak Sabi, Board of Advisors, Nitride Global, Inc.

About Nitride Global, Inc.

Nitride Global, Inc., headquartered in Wichita, Kansas, develops aluminum oxynitride (ALON), a conformal deposited dielectric used for substrates, gap fill, passivation and optical layers across power electronics, RF, 3D packaging and photonics, alongside ultra-wide bandgap aluminum nitride (AlN) semiconductor substrates. One of only four companies worldwide with AlN crystal growth expertise, and the only remaining fully domestically owned one, the company holds exclusive global rights within the electronics industry to ALON/AlN magnetron sputtering deposition technology developed jointly with the Fraunhofer FEP Institute. For more information, visit www.nitrideglobal.com.

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