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Friday, March 26, 2010

## Nitronex raises \$16 million to spur expansion

11-year old firm has raised almost \$100 million so far

Triangle Business Journal - by [Frank Vinluan](#)

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DURHAM – Semiconductor company [Nitronex Corp.](#) has raised \$16 million in a private stock offering as the Durham firm lays out plans to expand its operations and build up sales of its chips into both military and commercial applications.

CEO Charlie Shalvoy says the cash infusion comes from Nitronex's four main venture capital backers:

[Alloy Ventures](#), Arch Ventures, [Diamondhead Ventures and Intersouth Partners](#). It's the third round of financing from those investors, who have invested "north of \$50 million" into Nitronex, Shalvoy says. In all, Nitronex has received almost \$100 million in the past decade.



Photo c/o Nitronex

A fully processed 4-inch, GaN-on-silicon wafer made by Nitronex.

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Nitronex fabricates chips with a layer of gallium nitride on top of a silicon wafer. Gallium nitride is a compound that is more robust and can perform at higher frequencies, making it ideal for radar and telecommunications equipment, Shalvoy says. The U.S. Army and Marines use Nitronex chips in equipment that jams signals that could trigger roadside bombs.

Shalvoy says Nitronex is raising money now because customers that had been considering the Nitronex chips are starting to ramp up their purchases as they incorporate the technology into the next generation of products. Commercial applications include telecommunications systems and equipment used by cable television companies to deliver high definition signals. Besides the military, Nitronex customers include [W Harris Corp.](#) and [W General Dynamics.](#)

The company also sees sales opportunities in the cell phone industry as mobile carriers upgrade their towers to 4G, the most advanced networks capable of handling data applications. "A lot of the seeds we planted a year, two years, even three years ago are now starting to sprout," Shalvoy says.

Jim Feldhan, president of Phoenix semiconductor consulting firm [W Semico Research Corp.](#), says gallium nitride is used to make semiconductors for products exposed to harsh conditions, such as devices that might use a lot of power or face exposure to radiation. Because gallium nitride chips can hold up better than silicon chips under such conditions, they are often used in aerospace equipment, Feldhan says. Gallium nitride is also used in telecommunications equipment. But despite its performance, gallium nitride by itself has not eclipsed silicon as a substrate because it costs much more than silicon.

Nitronex doesn't make a pure gallium nitride chip, which would be too expensive, Shalvoy says. The company's innovation was to develop a way to put a layer of gallium nitride on top of silicon without cracking or bowing the wafer. Nitronex was spun out of [W North Carolina State University](#) in 1999. The company's first chips became commercially available in late 2006. But Shalvoy says it's only within the last two years that the company has had measurable sales. [W Hoover](#)'s puts Nitronex's annual revenue at \$5.3 million. Shalvoy declined to specify a revenue figure but he says Nitronex has passed the \$5 million mark.

Nitronex is not the only company that has developed chips with a gallium nitride layer. Durham-based [W Cree](#) and [W RF Micro Devices](#) in Greensboro both make gallium nitride on silicon carbide chips. But Shalvoy says silicon is plentiful and cheap giving it a cost advantage compared to silicon carbide. The global market for silicon chips is \$260 billion, Feldhan says. Shalvoy says the market for chips used in devices with high processing speeds – the market that Nitronex is targeting – is about \$1.1 billion a year.

Shalvoy says Nitronex will be hiring sales and marketing staff as well as engineers for research and development. He declined to say how many the company expects to hire. But Shalvoy says he does plan to hire a sales director for Europe. The company recently hired a sales director for North America. The company also has a Taiwan-based sales director

targeting Asia. Nitronex employs about 60 in Durham, where the company's headquarters and manufacturing facility are located.

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