



## GPS solutions

GPS is no longer for use in specialised positional equipment, it is now an enabling technology that is used for a whole range of applications. Helen Jameson speaks to Vice President of Marketing, Lew Boore at Nemerix, a leading company specialising in solutions for GPS.

**Question: Many thanks for speaking to Satellite Evolution today. Can you begin by introducing yourself and Nemerix to our Readers?**

**Lew Boore:** I am Lew Boore and I am responsible for marketing for Nemerix. Nemerix is a leading fabless semiconductor company specialising in ultra-low-power semiconductors and solutions for GPS (Global Positioning System) and location-based services (LBS). Nemerix focuses on markets requiring high energy efficiency - typically battery-powered wireless and handheld solutions. Our high-performance devices enable battery-powered location determination anywhere and at anytime. This allows its customers to design and manufacture powerful, low cost and truly differentiated products in both consumer and professional markets. Using a unique combination of innovative silicon architectures and proprietary layout techniques, Nemerix integrated circuits are the world's lowest power GPS solution available today.

**Question: Can you please tell us about the multi-sensing capability that has been integrated into your solution and how it works?**

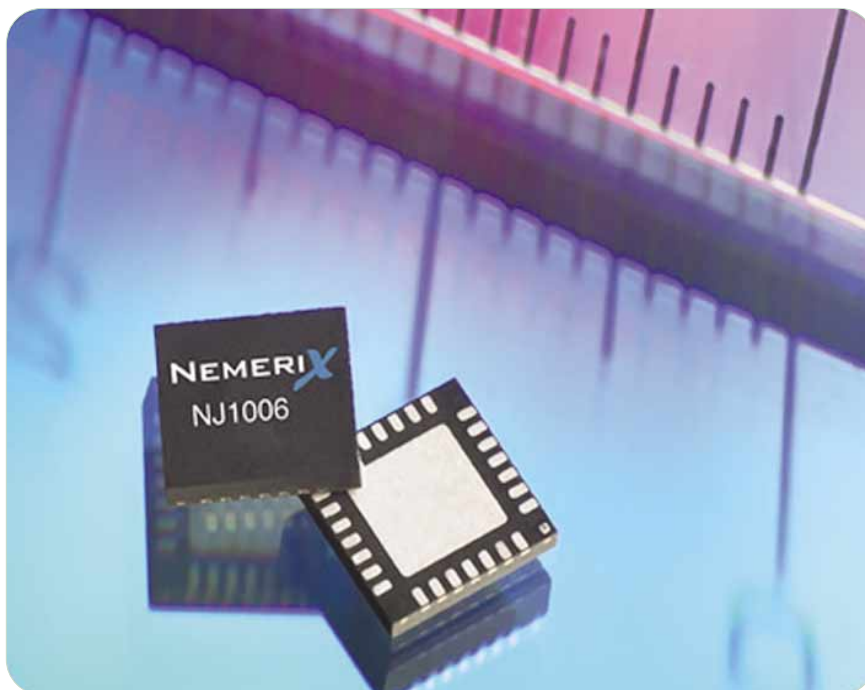
**LB:** At Nemerix our whole ethic is based on extremely low power and high performance. And we focus on a few things. Firstly, user experience so things like always-ready GPS and the ability to navigate controlled conditions and the ability to navigate for longer without having to battery charge.

We also look at customer differentiation so customers who use our products have the ability to add their chosen applications. Part of it is down to using low sensor inputs to further the user experience so what happens is that the location or navigation is migrated from the vehicle to a pedestrian type of environment. So we are migrating the navigation from the vehicle to a location as well as other location-based services which are going to require high accuracy such as social based networking and marketing so you could be walking past your favourite coffee store and it senses where you're at

### ABOUT NEMERIX

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and sends you a certificate for a free coffee if you go into that particular store. In terms of social-based networking it can offer services such as find-a-friend, find-a-family-member, location-based dating etc. They all require high accuracy that, at present is not available in a vehicular solution. So we are looking at terrestrial-based services and putting their various capabilities together with the GPS solution.

**Question: In which markets do you believe the product will be widely used? Is it specifically aimed at consumers or is it also aimed at industry or perhaps defence?**

**LB:** Absolutely. You can use it for anything where location is extremely important. So obviously the biggest market to target would be consumers (and I say consumers because they generally have a handheld wireless appliance that they're going to be using) and so it will be battery operated and low power. However, any situation where the precise location is needed is where we will flourish.

**Question: How has GPS technology developed over the last 10 years?**

**LB:** Part of the way it's developed is that there are more satellites up there than before. The GPS satellite constellation has over thirty satellites that are still operating. The commercial base of GPS with the ecosystem of GPS has also helped.

The commercial acceptance of GPS means that it is one of the fastest growing, high-tech consumer electronics markets in the world today. So, what we are able to do now because of solutions like Nemerix is make the accuracy better, the user experience better and because of that the consumer pull is there. Like most things hi-tech it started out as a military-industrial science project that has migrated into a consumer device.

I think it's a misnomer to think that the more satellites the more accurate GPS is because it all has to do with the algorithms. With more satellites it means that the GPS receivers can find a satellite faster. One of things a sensor does is give you more accurate positioning. In the future, you're going to need a very, very accurate location and that is one of Nemerix's primary points of focus.

It is being able to give not only the X and Y but also the three dimensional positioning through a navigation provider to use in our solution.

**Question: The Galileo project is facing funding problems at present and there is talk of the whole project being shelved. What would this mean for the GPS industry in Europe?**

**LB:** Personally, I think it would be tragic if it

were to be shelved. I think that we, as a European company, believe in Galileo as it was structured. I think that we need to think of the harsh ramifications of shelving the project. Since Galileo was brought up as a concept, other countries around the world have decided upon their own GPS solution in competition to the United States. So I think it will hurt from the standpoint of competition – I know it will hurt from the standpoint of competition.

Do I think it will perpetually harm navigation in Europe? No, not at all. But I think it would be tragic for us here in Europe not to have that goal.

**Question: What are Nemerix's aims for the next 12 months? What in the way of new applications are on the horizon?**

**LB:** Our focus is on applications that require high precision, that require small form factors and long battery life and so we are focused on mobile handsets and global wireless appliances and Personal Navigaton Devices (PNDs).

PNDs are the largest market right now. We believe that migration to a handset for a pedestrian will be a revolution and so we are focused on a high performance, low power, highly accurate solution for those type of applications.

**Nemerix delivers the industry's best performing A-GPS technology to customers, free of charge**

Nemerix has made available NeX (Nemerix Extended Ephemeris) Assisted GPS technology on all Nemerix NX3 GPS platforms. Via its patent-pending approach, Nemerix's NeX A-GPS technology significantly shortens the time it takes for a GPS receiver to acquire satellites and compute an accurate position, even in deep-indoor or harsh multi-path environments.

To calculate a position, a GPS receiver must locate a minimum of four satellites. Once connected, downloads can take over 30 seconds, even under optimal signal conditions. Nemerix's NeX technology accelerates this process by storing location data for all functional GPS satellites, for seven days. Satellite data is then transferred at one time to a mobile handset or personal navigation device via an extremely small file. The uniquely small file size means it can be delivered via a variety of transmission methods, or updated each time a user turns on their handset. Storing satellite location data in this fashion boosts performance 2X for GPS receivers, by reducing the time it takes to calculate a position on the ground

Nemerix's NeX delivers a 2-20 second Time-to-First-Fix (TTFF) capability, under hot-, warm-, and cold-start conditions. This represents a 2X advantage over competitive offerings. NeX also features 33 percent better accuracy and a file size one third the size of other offerings. NeX is also compliant with SUPL, enabling it to be integrated into any GPS device. Server independent, NeX is offered at no additional cost on Nemerix platforms.

"With the enormous growth in PNDs and more than 900 million handsets sold yearly, the opportunity to provide location based services to this marketplace is enormous for providers who can address consumers' needs in an easy and affordable way," said Lew Boore, VicePresident of Marketing for Nemerix. "Nemerix has built its entire GPS product line on addressing the needs of our customers to provide the market with differentiated solutions that provide the optimal user experience. We're offering NeX for free to fit the business models of cellular operators, handset manufacturers and PND customers."

Research by several leading analysts suggests that the expectations for Location Based Services differ throughout the value chain. Consumers care more about performance - finding a location immediately, the first time, and every time they use their device; whereas operators and handset manufacturers must also take into account power consumption, cost, and the size of the GPS receiver.

Nemerix's GPS platforms meet the expectations of consumers, operators and handset manufacturers, by providing the lowest power, highest-performance GPS ICs available in the industry today. Nemerix's roadmap of solutions is targeted toward the needs of customers and consumers in the dynamic location-based world of tomorrow.

Nemerix's NeX technology supports SUPL, C-Plane and is compatible with RRLP and RRC. It is also interoperable with independent third-party server-side technologies. The out-of-coverage A-GPS capabilities provided by NeX enable handset manufacturers to develop new and differentiated location-based services with enhanced assisted operation outside of cellular coverage areas. This "navigate always" technology provides GPS positioning in the most difficult of environments - such as deep indoors, parking garages, in deep urban canyons, and under dense overhead environments - which significantly enhances the user experience and overall customer satisfaction.