Gryphon Systems Engineering

Developing rapid prototypes is all in a day's work for Gryphon Systems Engineering

"When we heard about Altium and the buzz around the Innovation Station, it sounded too good to be true. But now that we have seen that it actually works, we are converts. The Innovation Station really is a paradigm shift that has changed our design processes for the better."

Peter Stephens

Technical Director,
Gryphon Systems Engineering

Contract engineers tread a fine line. They need to balance numerous project requirements with budget, time and functionality, and they must do this in a way that satisfies the customer. For many contract engineers, finding this price/performance combination is difficult and is often achieved though a trial and error process. The only problem with this tactic is that existing design paradigms just don't support this approach.

This is a problem familiar to Peter Stephens, Technical Director at Gryphon Systems Engineering. Peter develops complex measurement and control electronics for high-tech organizations, including blast measurement equipment for mining companies. And before Gryphon Systems Engineering migrated to Altium Designer, Peter was finding that the high cost of prototyping FPGA designs was a real barrier to utilizing their power for small run, novel technologies.

"Our approach with each contract is to start without preconceived notions of what the best solution will be. We like to start each project like a blank sheet. And if something already exists, we will integrate it, if not we will build it," said Peter.

"In the past, this held a lot of risk. It almost always spins out. You think it will be done in a month and it turns out to be eight weeks. And that hurts. Gryphon Systems Engineering is a small business, so it's important we deliver projects when we say we will."

In essence, Peter was finding their existing design processes were locking them into particular devices early in the project. And because Gryphon develops tailored electronic solutions, Peter required much more design freedom in order to develop the right product solutions.

Changing the way design is done

It was at this point that Peter decided to switch to Altium's Innovation Station, the combination of Altium Designer and Altium's Desktop NanoBoard.

"Altium's holistic design environment means we aren't going to be held up on components from any particular brand. It also means we can develop using a 'vertical path'. So, for example, we can start with a mid-range device, which gives us a lot of room: so if the complexity goes up, we can upgrade the device, or pull back if we need to meet a certain price point," comments Peter.

Altium's Innovation Station also provides the freedom to add peripherals and components as they are needed. In particular, Altium Designer's Software Platform Builder simplifies the process of adding drivers for peripherals, making the process almost effortless.

"It is just a knock-out feature. When you design a board, you end up in a situation where you have a lot of peripherals and you have to develop a driver for each of them. Then you have to validate them, which is no trivial task. That is where the Software Platform Builder gives us a huge head start. It basically generates the software platform for you. This means it's easier to write code straight away because you don't have to write the drivers yourself anymore."

When this is combined with Altium Designer's OpenBus feature, it opens up rapid prototyping to a whole new level. Peter can now add new features to the design quickly and effortlessly.

"OpenBus is one of those features that make you think: 'am I going to buy the product for this feature, or is it something I will only use every once in a while?' Then when you actually use it, you see that it works! And you think 'this is amazing'! It really is, because it means that if the design suddenly requires another three serial ports, no problem. You just pull the serial ports into the OpenBus document, then drag and drop the drivers, using the software platform, to get them running. Once you've done that, all you need to do is test it on the NanoBoard. Basically, you can code in ten minutes; it's that easy."

It is this ability to quickly assemble and test ideas that has streamlined Gryphon's electronics

Altium enabling next-generation electronics design

Gryphon Systems Engineering

designs, allowing the designers to quickly prove concepts for their customers.

"It is not unreasonable to get a prototype working within a week and that means having something you can take to a customer and get that 'wow' effect going. It's great to be able to validate the design as an engineer, you can do that inside a day because you know whether or not whether you are heading in the right direction."

Finding success

Moving to Altium's Innovation Station has provided Peter with significant time savings. For example, when prototyping a process controller for a mining application, a VGA interface was required for the design. By using Altium's Innovation Station, Peter was able to use the VGA controller from the bundled IP in Altium Designer and test the design with the components on the Desktop NanoBoard. Then using Altium Designer's Software Platform Builder, Peter was able to quickly develop the drivers. This made the process more efficient, allowing it all to be completed 50% faster, as compared to his previous methods.

And because Altium Designer unifies the electronics design process, Peter can use design rules to find discrepancies between the domains.

"The way Altium Designer links schematic and board designs is great. I don't need as much time to check my design because Altium Designer will actually flag you when you are making a mistake and help you correct it. When starting a new design, this easily can reduce development time by 30%."

"I'm genuinely excited about Altium's Innovation Station: it's not everyday you find a product that changes the paradigm."

About Gryphon Systems Engineering

Gryphon Systems Engineering is an Australian electronics design consultancy that provides high-tech engineering services for industrial control, measurement and automation electronics. Customers include Cochlear, and major Australian mining companies. For more information on Gryphon Systems Engineering and the services it offers, visit **www.gryphonsystems.com.au**

Altium's solutions implemented in the custom electronics industry

About Altium

Altium Limited (ASX:ALU) provides world-leading unified design solutions that break down the barriers to innovation, and help organisations easily harness the latest devices and technologies, to create their next generation of electronic products.

Altium's solutions are unique because they unify the separate processes of electronics design, all within a single electronics design environment, working off a single data model, which links all the aspects of electronics product design into one process.

Founded in 1985, Altium has headquarters in Sydney, Australia, sales offices in the United States, Europe, Japan, China, and resellers in all other major markets. For more information, please visit **www.altium.com**

Altium