

Time-to-market, life cycle, and RoHS top industry concerns

Q & A with CWCEC's Lynn Patterson

Editor's note: Lynn Patterson is VP and general manager for modular solutions at Curtiss-Wright Controls Embedded Computing (CWCEC). I don't get a chance to talk with her very often because of her busy schedule managing the largest group under Curtiss-Wright Controls' expanding Embedded Computing division. In fact, the following is based on a written back-and-forth exchange I recently conducted with her. – Chris A. Ciuffo

VME: To give readers some context, can you briefly describe CWCEC's processor lineup?

PATTERSON: CWCEC offers SBCs to fit any application supporting Freescale and P.A. Semi PowerPC and Intel Core Duo processor families in 6U VME, 3/6U VPX, 3/6U CompactPCI, and Processor PMC (PrPMC) form factors. The company also offers quad PowerPC-based multiprocessor boards and Xilinx Virtex FPGA-based reconfigurable compute engines in 6U VME, VXS, VPX, VPX-REDI, and XMC/PMC form factors. Curtiss-Wright supports long military program life cycles by offering new generation SBCs with backwards compatibility – such as pin-out, software APIs, and so on – to enable easy system upgrades from legacy products.

VME: To what extent does the COTS movement require systems integration as opposed to just providing COTS Line Replaceable Units (LRUs) such as VME or CompactPCI boards?

PATTERSON: The defense and aerospace embedded market is increasingly demanding fully integrated COTS subsystems, to which our customers add their application software. Our customers understand they don't need to be in the subsystem hardware integration business, which is often just a platform for delivering their own application expertise. More companies are discovering the COTS value proposition readily scales to hardware integrated subsystems, and as the larger COTS vendors become more sophisticated, their ability to deliver complete COTS subsystems is being demonstrated repeatedly. As a result, more of our customers are embracing COTS subsystems integration, even to the point that delivering a complete, qualified solution is often a program requirement.

VME: I have written that the strategy behind CWCEC's acquisitions[1] is to reinvent itself as a systems integrator and rejoin the ranks of military prime contractors. To what extent has the company achieved the plan, and what's left to do?

PATTERSON: CWCEC was created to be a single end-to-end supplier of commercial and rugged COTS computing solutions that span the full range of embedded computing technology, from board-level products to fully integrated subsystems. This was done to create a natural bridging of capabilities that already existed in the company, especially between Curtiss-Wright's sensing- and actuation-focused business units.

But we have no intention of becoming a prime contractor. Each acquisition has helped make us a more diversified global supplier to the defense and aerospace market. By providing a full line of solutions, including COTS subsystems, we have expanded

our customer base to include all tiers of DoD contractors. Future acquisitions will broaden our product offerings and complement the capabilities we have today.

VME: The industry has been talking about obsolescence and tech refresh for more than 10 years. What's changed?

PATTERSON: Recently, the discrepancy between the life cycle of electronic components in the commercial world and the much longer development and deployment life cycle of military systems has been further complicated by the RoHS directive's effect on component supply. Today, COTS vendors must work closely with component suppliers to create a controlled environment that ensures the proper usage and identification of lead-tin and lead-free components, as well as tracking product and process change notices for these components.

On to your other question, spiral development is a growing factor in technology refresh. This approach has drastically shortened the time from concept to deployed system, requiring greater leverage of existing products. Also, we are seeing more requests for technology refresh at the box level, as well as customers investigating the possibility of consolidating multiple boxes into a single package.

VME: What's the number one problem facing your customers today? How is this problem being addressed (or not) by the industry?

PATTERSON: Time-to-market pressure amid shrinking R&D budgets is the key problem. Using COTS subsystems gives customers the ability to reduce development time by starting a project with an integrated hardware/software subsystem base. In addition, the development costs of a COTS subsystem are amortized over the combined sales to many customers, which allows the overall cost to any individual customer to be less than developing the subsystem once.

VME: What are the top three issues facing the defense industry and suppliers like you in the next three years?

PATTERSON: We hear different answers to this question depending on whom we ask. It's tough to nail down only three. Increasing thermal limits, secure computing, transition to new bus architectures such as VPX and VPX-REDI, different as well as multicore processor architecture choices, and safety certification are among the issues we hear about most often.

Customers also tell us that when ranking suppliers like us, they care most about support (that is, technical support, qualification and reliability data, and life-cycle and obsolescence management), technology trends, customization, and a flexible business model. This is further evidence that the COTS value proposition has matured far beyond just providing a satisfying technical solution at a reasonable price. Customers now grasp the COTS ROI message. In fact, the latest data from market analysts shows that COTS typically delivers an overall cost

reduction estimated at 31.5 percent, which includes significant reductions in customer R&D costs and hardware and software engineering.

VME: *How has the industry's engagement with COTS vendors changed?*

PATTERSON: The overall technical complexity factor is escalating. This puts a higher demand on COTS and translates to increased expectations for technical support, infrastructure software, and development tools as well as evidence of environmental qualification survivability. One example of escalating technical complexity is the increasing number of customer programs that require DO-254/178B certification. We've made our standard product development processes even more rigorous to ensure that documentation inputs required for certifiability are present in our product building blocks.

Our customers are coming to us without a predetermined solution and looking to us as a brainstorming partner in architecting a solution. Exposure to multiple applications across a wide range of requirements means that COTS vendors have built an IP locker not limited to cards and packaging, but also a wealth of solution options. This provides us with the experience to query customers, looking for the unasked question that ends up driving a more optimized solution. **CS**

References

1. Lau Defense, Vista Controls, Peritek, Synergy Microsystems, Dy 4 Systems, Primagraphics, and Systran. Dy 4 Systems previously acquired Ixthos.



Lynn Patterson is VP and general manager for modular solutions at Curtiss-Wright Controls Embedded Computing. In 1991, Lynn joined Ixthos, a Leesburg-based, DSP-focused business that was subsequently acquired by Dy 4 in 1997. While at Dy 4, she held design and management positions in development, marketing, sales, production, and support. Prior to Dy 4, she worked at Avtec Systems and Westinghouse. Lynn has a BS in Electrical Engineering from Penn State University and an MSEE from George Mason University.

To learn more, contact Lynn at:

Curtiss-Wright Controls Embedded Computing
741-G Miller Dr. SE • Leesburg, VA 20175 • 703-779-7800
sales@curtisswright.com • www.cwembedded.com