Dedicated Systems' News

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UEILogger™ Series high performance data logger/ recorders now offer faster logging, larger data storage, and additional functionality

Inside this issue:

United Electronic Industries (UEI) is pleased to announce that its popular UEILogger series now offers increased logging speeds, data storage, and functionality. The new logger supports sample rates as high as 500 kilosamples per second for 16-bit samples and 250 kilosamples per second for 18 to 24 bit A/D samples. Regardless of system configuration, the new UEILogger provides at least 320 kS/S (16-bit) or 160 kS/S (18-24 bit). The revision also supports SD cards as large as 32 GByte and includes an 8 GByte SD card as standard. Additional features include an alarming function that allows a digital output or Sync bit to be controlled by alarm conditions of Analog inputs. The new revision also supports logging from the MIL-STD-1553 avionics bus. The latest logger also provides a built-in sample rate self-test feature that measures system performance and sets the system maximum sample rates based on actual system configuration.

Based upon UEI's PowerDNA Ethernet DAQ cubes, the UEILogger is configured to meet the specific needs of a user's application. The Logger Cube contains the controller, network and SD card interface, power supply as well as either three or six I/O slots (UEILogger 300 or 600 respectively). With simple, flexible setup and "real-time" diagnostic display, the UEILogger is suitable for use in a wide variety of industrial, aerospace, in-vehicle and laboratory applications.

Embraer Selects Ada and AdaCore's GNAT Pro

AdaCore, provider of tools and expertise for the mission-critical, safety-critical, and security-critical software communities, announced that Embraer Defence and Security has selected the GNAT Pro Ada development environment from AdaCore as a primary tool set to develop the Operation Flight Program for the AMX Modernization program. GNAT Pro will be used along with Wind River's VxWorks real-time operating system (RTOS) as the foundation to develop this critical software system on the AMX Modernisation effort.

The goal of the modernisation project for the AMX jets, called A-1 by the Brazilian Air Force, is to keep the fleet of 53 on active duty for another 20 years. The AMX is one of the most efficient combat planes in activity in the country and was manufactured by Embraer from 1989 to 2000. The upgrade of the AMX will incorporate the most advanced avionics systems, weaponry and sensors. The modernisation of the aircraft will achieve the same operational level as the most advanced combat planes available on the market.

The Ada language was selected for the AMX Operational Flight Program based on its proven success record in developing mission-critical avionics systems. It is used on flight-critical systems for many commercial and military fly-by-wire aircraft across the world. Ada is used when safety, security and high reliability are needed.

Used for developing embedded and real-time system software, Ada's main features applied by Embraer are strong typing, modularity mechanisms (packages), run-time checking, parallel processing (tasks, synchronous message passing, protected objects and select statements), exception handling and generics.

WIND RIVER

Wind River recognised as Global Embedded Leader

by VDC Research Group

Wind River, a world leader in embedded and mobile software, today announced that it has been recognised as the continued real-time operating system (RTOS) and embedded Linux market leader by VDC Research Group in its 2012 "Embedded/Real-Time Operating Systems" report. The report covers the global market for commercially available RTOSes and non-real-time operating systems and other related bundled products and services used in embedded applications.

In the report, Wind River maintains its longstanding position as the traditional RTOS market leader for its portfolio of products and services, led by its VxWorks RTOS, and is recognized as the embedded Linux market leader for its Wind River Linux platform and related solutions for the fourth consecutive year. Specifically, VDC's market research demonstrated that Wind River led the market for worldwide shipments of both RTOS and embedded Linux and related services in 2011:

- For worldwide shipments of traditional RTOSes and related services, Wind River achieved nearly 40 percent of total market revenue.
- For worldwide shipments of Linux and related services, the company attained more than 50 percent of total market revenue.
- In both categories, Wind River's percent of total market revenue was double that of the closest competitor.

"Once again, our research shows that Wind River is the embedded industry market-share leader for its traditional RTOS and Linux platforms," said Jared Weiner, analyst at VDC Research Group. "As one of the few vendors that offer both RTOS and Linux, Wind River's leadership can also be attributed to offering a wide range of products and services used to optimise device development across multiple industries and applications."

In addition to continued recognition for its operating systems, Wind River was named multicore market leader and garnered the highest share of the market for commercially available virtualization technologies that enable multiple operating systems to run simultaneously on a single or multicore processor in VDC's 2011 "Embedded Software Engineering Market Technologies and Statistics" report series.

Wind River has a unique advantage within the embedded industry with its comprehensive software portfolio, which comprises run-time technologies including VxWorks, Wind River Linux and Wind River Platform for Android, development tools, embedded testing solutions, and virtual systems development as well as a wide range of proven industry-specific software solutions, combined with global professional services and support.

New Industrial Grade Storage Cards:

32GB CF and 32GB CFAST

ATP has added a 32GB version to their series of Industrial grade CompactFlash Cards based on SLC flash memory. The ATP Industrial Grade CF card also incorporates the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) function which monitors various parameters of endurance and reliability, indicating activity that is out of the normal range. operating temperature range.

Technical Details can be found here:

http://www.dedicatedsystems.com.au/hardware/industrial-flash/

With a form factor similar to CompactFlash card and a faster and more advanced SATA interface, an ATP Industrial Grade CFast card is the ideal replacement of CompactFlash card. The ATP Industrial Grade CFast card is fully compliant with CFA CFast specification version 1.1 with a SATA 3Gb/s interface. The CFast card contains a 24-pin connector consisting of a SATA compatible 7-pin signal connector and a 17-pin power and control connector. Compared to traditional CompactFlash card with ATA/IDE interface, ATP CFast card features high-speed data transfer capability of up to 142MB/s read speed, and a 112MB/s write speed.

Webinar: High-Performance Interoperable Architecture for Information Dominance

Suppliers of C4I, C2, Cyber, ISR and sensor and weapons platforms are challenged to meet commercial pressure from defence procurement for more capability at lower cost, and from acquisition officials for increasing interoperability across their combat systems in order to be able to enable new system capability through Information Dominance.

RTI presents an architecture and its Connext solution, designed to meet these twin imperatives. Built upon proven open technology, Connext is a foundational system architecture that delivers significant productivity gains in integration, while also enabling discovery and rapid assimilation of existing system entities, potentially from 3rd party suppliers or already deployed in the field of operation.

Given the unique requirements of tactical system-of-systems, the architecture must support both real-time combat systems as well as brigade and command HQ enterprise style systems, bringing them together in a scalable, dynamic, and flexible framework. Connext addresses the performance and scale impedance mismatch between these disparate systems types, and delivers the ability to develop a common infrastructure that runs over DIL (Disconnected Intermittent Loss) communications as well as it does over Ethernet, putting minimal strain on the communications interfaces and maximizing information exchange.

The Connext foundation is in use in over 400 defence programs globally with over 350,000 licensed deployments. It has been approved by the US DoD to TRL9 (Technology Readiness Level).

View this webinar to see why this technology is already mandated in multiple defence programs worldwide, and to understand why building interoperability into your systems architecture will enhance your position in future defence program bids.

Here is the link to the webinar replay: http://ecast.opensystemsmedia.com/320

New 3U OpenVPX Mini ATR provides flexibility in a Small Footprint

Elma Electronic Inc., a leading supplier of embedded products and systems solutions built on open standards-based platforms like VME, VPX, CompactPCI and ATCA, now offers the 3U VPX Mini ATR in a rugged OpenVPX platform designed for use in harsh environments where SWaP is critical. Measuring only 133 mm high x 180 mm wide x 250 mm deep, the compact unit is ideal for space constrained environments.

The core architecture of the new unit leverages Elma's extensive experience with ATR design for harsh environments that has been proven in hundreds of field-use applications. The new Mini ATR ships configured with a 3-slot, 3U OpenVPX backplane, designed to VITA 65, and can be configured with solid state storage and a 250 W power supply. The unit can be modified to accommodate a plug-in version of the power supply module, providing up to 350 W.

The 3U VPX Mini ATR platform is targeted at applications requiring a high level of processing capability in a small footprint, such as UAS image processing, radar signal processing and other applications that require high bandwidth signal processing and data communications.

If a standard OpenVPX backplane profile cannot support the needs of the end application, a custom target application profile can be defined and manufactured to meet the application requirements.

All of the board products used in the pre-configured Mini ATR platform have been selected and tested for interoperability. Elma is partnered with industry leading single board computer manufacturers, and can ship this unit fully integrated with the SBC.

Pricing for the Mini ATR depends on the complement of boards and configuration.

Upgrading COTS Legacy Systems (Part 2)

Our blog is open for your feedback.

We sometimes have customers asking for spare parts for 10-20 year old COTS embedded control systems. Most of them still work fine, but when spares become unavailable, the next failure can prove very costly when a system becomes non operational for many weeks or months. Sooner or later you have no choice but to upgrade.

Do you move to a new modern architecture or do you stick to the old and proven one? Choosing the right COTS standard can be difficult – there are many on offer like VME, VPX, VXS,CPCI, CPSB, CPCI Serial, microTCA, ATCA.

Before we go into discussing pros and cons for each (in the editions to come), lets look at some key factors that should be considered when determining which way to go:

Parallel Bus backplanes:

Do not discount proven technology. These backplanes (like VME and CPCI) will continue to be successful in control applications where moderate data transfer across backplanes is required. A very big plus is that every slot is basically equal and it is straight forward to plan for future upgrades or added functionality. All one has to do is to estimate how many slots may be needed for future expansion and of course budget for power and cooling.

High Speed Serial (HSS) point-to-point backplanes:

High speed serial protocols like PCIe, SRIO, Gbit Ethernet and others have driven the move from parallel backplanes to HSS types. Highest data rates and multiple simultaneous transfers are key. However not every slot is equal any more and one has to consider topologies carefully, especially when thinking about future upgrades. Adding slots for a switch card (or 2) usually buys some flexibility. For example microTCA always requires a switch whereas VXS and VPX topologies can be switch-less.

Redundancy:

A requirement for board level redundancy eliminates VME, VPX, CPCI and CPCI Serial. CPSB (also known as PICMG2.16) and microTCA are definitely candidates. While CPSB will be a bigger 6U solution, microTCA can be quite small since cards can be smaller than 3U.

Ruggedness and SWaP:

If this is an issue, then 3U VPX, 3U CPCI, CPCI Serial and microTCA are candidates. They could be looked at in this order for high to lower levels of ruggedness and survivability in environmentally challenging environments.

Conduction cooling:

VME and VPX are the clear winners. Even though conduction cooled 6U VME cards are still being designed, we believe the future will be with 3U VPX.

With over 30 years combined experience, we are intimately familiar with embedded software and COTS hardware. We can help you to reduce your design risk, navigate pitfalls and achieve better outcomes.

DB4-Eagle: XMC 3+1 x USB 3.0 SuperSpeed Controller

The DB4-EAGLE is a single-width mezzanine card according to the popular VITA XMC standard, equipped with a PCI Express® to USB 3.0 quad-port controller. Three USB 3.0 receptacles are available from the front bezel for attachment of external devices. As an option, an additional USB 3.0 connector can be populated on-board, for system-internal usage.

The USB controller supports all USB data transfer protocols on any connector, SuperSpeed (USB 3.0 xHCI) as well as high-speed, full-speed, and low-speed. Since the DB4-EAGLE requires only a single PCI Express® lane (Gen2 for optimum performance), the module can be combined with any XMC carrier card.