Dedicated Systems' News

Issue # 40
June 2014

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S50J-Computing Platform with abundant I/O

The S50J Platform is a versatile computing platform suitable for use in harsh environments. Featuring ample GBit Ethernet and RS 232/422/485 port counts, the system is suitable for applications ranging from industrial control and automation, to mining, agricultural and transportation or anywhere that requires reliable performance in dusty or wet environments exposed to temperature extremes. At its heart is a high performance yet low heat dissipation Intel® Core™ i7 from the Embedded Roadmap with a mobile Intel QM57 Express Chipset. The modular architecture of the S50J Platform combined with Elma's unmatched packaging capabilities allow optional I/O choices that can be easily added and integrated into a chassis that suits your application needs while meeting your SWaP requirements:

- Intel i7-620LE low power, 2.00 GHz CPU, up to 8GB DDR3
- 2 Display Ports, LVDS (dual channel)
- 2 Gigabit Ethernet ports
- 10 USB 2.0 host ports, 2 with extended power capability
- 4 SATA ports with RAID support
- Fan-less conduction cooling with CPU heat spreader plate for maximum thermal conductivity

AdaCore releases GNAT Pro 7.2 for Android

AdaCore announced the release of its latest Ada cross-development environment, **GNAT Pro 7.2, for ARM Cortex** processors running Android. This GNAT Pro product, hosted on Windows and Linux, comprises a complete Ada tool-suite for developing and maintaining Android applications using a mixture of Ada and Java. Developers can now exploit the software engineering benefits of the Ada language, while also taking advantage of the Java libraries and services provided by the Android platform. Applications can also be written solely in Ada, or in a combination of Ada and other "native" languages. Android 2.3 and later versions are supported, on Cortex A8 and above.
A recent trend is the use of COTS portable devices in mission-critical contexts, such as military command and control and industrial process management. In these systems the original OS and consumer-oriented applications are replaced by customised versions that include domain-specific software using proprietary and/or confidential algorithms. GNAT Pro for Android offers developers an attractive solution by generating highly efficient, native ARM code for the algorithms, while giving access to the common Android graphics library for implementing the user interface. And with Ada's strong typing and other compile-time checks, GNAT Pro and supplemental static analysis tools, such as CodePeer, can detect many errors and vulnerabilities early in the development stage, an especially important advantage in embedded systems where recalls or updates may be expensive or impractical.

"Hand-held devices are becoming a natural part of modern software-intensive systems, in both military and civil arenas," said Cyrille Comar, AdaCore Managing Director. "High reliability and security are critical for many of these systems, and developers can now take full advantage of Ada 2012 and SPARK 2014 to help meet these requirements."

Incorporating more than 120 new features, this latest GNAT Pro tool suite implements the Ada 2012 language standard by default.

UEI's popular UEIPAC embedded controller is now available with a VxWorks OS

A key advantage of the UEIPAC is its standalone application deployment. In PowerDNA systems, the VxWorks application is written for, and runs on a host PC that is connected to one or more UEI chassis via Ethernet. In UEIPAC systems, the VxWorks application runs directly on the UEI RACK or Cube. There is no need for a separate host PC, though you can certainly connect one in a monitoring or supervisory role. The new VxWorks support allows these applications to be developed and run in either VxWorks or Linux. This allows smaller, faster, more reliable and higher performance systems. It also eliminates the cost of a dedicated host PC and guarantees long term availability of the identical hardware. This is critical when certifying products through CE or FDA, etc.

You may now take advantage of all the hardware benefits of UEI's popular UEIPAC chassis and continue to develop your applications in VxWorks. This powerful combination provides hard real-time performance, an extremely robust and reliable operating system, allows you to develop your application in a familiar environment and last, but not least, allows you to preserve a great deal of previously written code.

To deploy a UEIPAC application running VxWorks you'll need the following:

- A UEIPAC (any version)
- The UEIPAC VxWorks BSP. You only need to purchase the BSP once, regardless of the number of systems you deploy.
- A VxWorks development system and a VxWorks run-time license for each UEIPAC deployed.

PCIe/104—PCI/104-Express Rugged Avionics Databus Interface Card

The **PE1000** family of PCIe/104 and PCI/104-Express cards enable embedded computers to interface with a variety of avionics data buses. The family includes models with single and multiple protocols in an assortment of channel counts and functionalities.

MIL-STD-1553

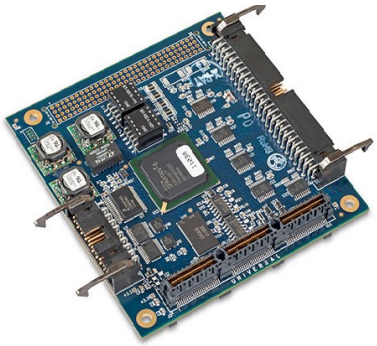
- Up to 2 dual-redundant channels
- BC/RT/MON (Single- or Multi-Function)
- Hardware controlled transmit scheduling
- CH/TA/SA filtering
- Sequential monitor

ARINC 429/575

- Up to 20 receive channels
- Up to 8 transmit channels
- Periodic and asynchronous messages
- Hardware controlled transmit scheduling
- Receive message filtering (Label/SDI)
- Sequential monitor

ARINC 708/453

- Up to 4 channels (2R2T)
- Hardware controlled transmit scheduling
- Receive message filtering
- Sequential monitor



ARINC 717/573

- Up to 4 channels (2R2T)
- Biphase/Bipolar
- Transmit and receive
- Sub-frame and super-frame support
- 64, 128, 256, 512, 1024, 2048, 4096, 8192 wps
- Sequential monitor

Enhanced Bit Rate 1553 (EBR-1553)

- Up to 4 ports (1 channel)
- Contact factory for availability

RS-422/485 Serial

- Up to 4 channels
- Contact factory for availability

Differential Discretes

- Up to 4 Differential Discrete I/O

SmartWard Pty Ltd selects AdaCore Tools for Hospital Information System Development

Ada chosen for benefits in reliability, safety, and security

AdaCore has announced the adoption of its GNAT Pro Ada Development Environment and CodePeer static analysis tool by the Australian healthcare informatics company SmartWard Pty Ltd for use in implementing its state-of-the-art patient care management system. The SmartWard system needs to be highly reliable and secure from unauthorised access, it has to provide real-time response and 24x7 availability, and it also must be easy to use by hospital staff. After evaluating alternative potential approaches, the company selected the Ada language and AdaCore software development tools as the best solution for meeting these requirements.

The SmartWard system replaces a paper-based, manual approach that is time-consuming and error prone. It runs on computers at each patient bedside and at all other points-of-care, providing up-to-date information on scheduled activities, patient alerts and vital signs and allowing real time entry of treatment records. It presents patient histories in user-friendly charts with decision support data and validates medication and patient identity automatically via smart sensors. With its long history of successful usage for many types of safety-critical and high-security software, Ada was chosen as the implementation language for the SmartWard system. Many errors that would only be detected through significant debugging effort in other languages are caught at compile time in Ada, and features such as Ada 2012's contract-based programming help embed low-level requirements into the source program as assertions that can be checked at run time or verified statically.

AdaCore's GNAT Pro development environment, along with several complementary tools, are being used to implement the SmartWard software. With its sophisticated data- and control-flow analysis, the CodePeer automated code review and validation tool helps in identifying potential logic errors, including "off by 1" bugs in loops and other more subtle problems. CodePeer's static analysis can be conducted both during a system's initial development, and also retrospectively to find potential vulnerabilities in existing code. Another AdaCore tool that is proving useful to SmartWard is the Ada Web Server (AWS). Its web-socket implementation is being used for communication between the SmartWard system's front-end and back-end.

"Different language technologies have different strengths," said Cyrille Comar, AdaCore Managing Director. "Ada was specifically designed for systems where the concept of a 'fatal error' may be literally true, and we're pleased to see Ada adopted for medical applications such as SmartWard where reliability, safety and security are so critical."

"The use of Ada has helped us significantly in instilling a safety culture within our company," said Dr. Malte Stien, CTO of SmartWard. "We see Ada as a competitive advantage in our market, and the use of the language is a selling point for our product."

Webinar: Is Your Data Secure?

24th June 2014 11:00 AM US-EDT

Odds are good that your data is extremely important to you. Now consider how one secures that data. Typical approaches address access, authentication, integrity, non-repudiation and confidentiality concerns at the domain and link layers, implicitly securing the data. The challenge and need is to move these security specifications to the data itself, and provide explicit security policies on each element of system-identified data.
Why is this level of finesse needed? As you build out your systems, and systems of systems, how do you manage security when individually element of data, the communication links, and domain boundaries have different behaviours? With this level of complexity and risk, it's critical to have awareness at the level that matters – the data level – so you can make the right design and implementation decisions.

At this webinar, learn how to achieve an assured and predictable security footprint by minimising the leak of information or exploitation of data through unintended consequences. Secure DDS offers data-centric configuration policies for content and behaviours. Recognising that security isn't one-size fits all, a standards-based optional plugin SDK allows developers to create custom security plugins.

Please register here.

PC760— Extreme Performance and Scalable Data Acquisition

4DSP announced the release of a new PCI Express product featuring the Xilinx Kintex-7 combined with the highest performance analog I/O card available in the marketplace. With a single-channel 3.6Gsps A/D and single-channel 5.6Gsps D/A combined with state-of-the-art FPGA technology, the PC760 is a commercial off-the-shelf (COTS) card that features advanced Digital Signal Processing (DSP) capabilities. It is designed for a variety of applications, including Software Defined Radio and Baseband Communication Transceivers. The PC760 is an excellent choice for applications that require large-band signal digitisation or generation through the use of accelerated frequency-domain algorithms.

"The PC760 utilises a well-proven and widely adopted PCIe carrier configuration with the highest throughput A/D-D/A capability in the embedded market," said Arnaud Maye, 4DSP Software Manager. "4DSP customers can build incredibly powerful and scalable systems using the PC760. For example, multiple PC760s in a 16 slot PCIe chassis can offer 16 channels of 3.6Gsps analog-to-digital and 5.6Gsps of digital-to-analog throughput. In addition, each chassis can be a node in a much larger system if required, giving users the ability to scale," he added.

Features:

- Kintex-7 XC7K160T, XC7K 325T, XC7K410T FPGAs
- Single Channel 12-bit 3.6Gsps A/D
- Single Channel 14-bit 5.6Gsps D/A1GB DDR3 SDRAM
- Single-ended, AC-coupled analog input and output signals
- PCIe Gen2 x8/4-lane, PCIe Gen3 x4 (softcore)
- Micro SD Flash (32 GB)
- External and internal clock
- Clock Source, Sampling Frequency through SPI communication busses

VME Disk Module replaces SCSI Technology

Replace aging SCSI based VME disk modules with the EDM2 from Elma Electronic. The EDM2 offers the latest in Serial ATA (SATA) drive technology combined with a SCSI to SATA converter, so a system will recognise it in the same way as legacy SCSI hardware. The EDM2 provides a seamless transition to the latest in storage technology, and helps avoid costly end-of-life (EOL) issues associated with SCSI technology. Optional secure erasure and write protection along with conformal coated and extended temperature versions complete the EDM2 feature set to provide years of reliable service.

- Latest SATA drive technology in a legacy footprint
- Optional write protection and hardware enabled secure erasure with front panel activation
- Single or dual rotating or solid state drive configurations
- Available with conformal coating and temperature ranges up to 0°C to +70°C
- Accepts drives up to 12.5 mm thick for up to 2TB of storage in two 6U x 8HP slots
- Ultra320 SCSI interface with front and/or rear Wide SCSI interface connections
- Automatic front / rear I/O termination
- SCSI ID select via front rotary switches
- Software: VxWorks, Linux and Windows.