Dedicated Systems' News

DEDICATED SYSTEMS

Introducing the FLATRACK™ Platform

1U 19" Ethernet I/O Data Acquisition and Control System

United Electronic Industries

The DNF-4-1G FLATRACK is a highly integrated, low-profile DAQ I/O engine developed in response to market demands for a rack-mountable 1U chassis with high-density I/O capabilities.

The DNF-4-1G FLATRACK provides two Gigabit Ethernet (100/10 Base-T compatible) interfaces and four front-loading I/O slots. Over 50 compatible I/O boards can be installed and easily interchanged for blended I/O architectures. The FLATRACK can accommodate up to 100 analog inputs, 128 analog outputs, 192 digital I/O bits, 48 ARINC-429 channels, a four MIL-STD-1553 serial bus, and 32 RS-232/422/485 ports. Users can easily design, configure, test and blend I/O channels to suit any sensor or interface requirement.

The DNF-4-1G FLATRACK features a simple, universal API-friendly layer and full compatibility with common programming languages. The system is compatible with popular OS distributions, including Windows, Linux, RTX, VxWorks and QNX, as well as engineering packages such as MATLAB, LabVIEW, OPC, and ActiveX.

Backed by a 10-year availability guarantee, the FLATRACK delivers 130,000 hour MTBF, vibration tested to 3 g, and shock tested to 50 g – optimised for rugged industrial and military environments and temperatures ranging from -40°C to +70°C. Consuming less than 8 Watts per chassis (not including I/O), AC and DC powered versions of the FLATRACK require either a universal 9V to 36V DC power source or 100VAC to 240VAC, 50 to 60 Hz.

The FLATRACK complements the well known RackTangle 3U 19" system for up to 12 I/O cards and the Cubes for up to 5 I/O cards.

AdaCore brings Ada to Wind River Linux

AdaCore — The GNAT Pro Company

AdaCore announced the availability of the GNAT Pro Ada development environment on the Wind River Linux platform. This new implementation continues a long, successful relationship between AdaCore and Wind River, marked by hundreds of joint customers worldwide, and brings the Ada language's reliability benefits to the increasingly popular Wind River Linux platform. AdaCore offers the industry's leading Ada solution for Wind River's products, including a GNAT Pro implementation for Wind River's VxWorks® real-time operating system (RTOS).

Wind River Linux is the market-leading commercial grade Linux solution for embedded device development. It features an optimised run-time; a flexible, scalable build system; pre-integrated middleware packages for specific device types; an integrated development environment; and a suite of professional open source tools, adapted and extended for embedded development. Programmers can use AdaCore and Wind River products together to develop applications that freely combine modules in Ada, C and C++, and can manipulate and analyse Ada applications through Wind River's Linux browser and tools. Furthermore, this new implementation of GNAT Pro on Wind River Linux supports all versions of Ada (Ada 2012 / 2005 / 95 / 83) and is tightly integrated into the Wind River Workbench development environment.

GNAT Pro for Wind River Linux includes support for the Wind River Linux 4.3 platform, the PowerPC and Power PC e500v2 target platforms, and the Linux host.

WIND RIVER

VxWorks MILS Platform conforms to Separation Kernel Protection Profile

- Latest release of Wind River VxWorks MILS Platform ready for use in security-critical systems that may require system-level high assurance evaluation or certification and accreditation.
- Type 1 hypervisor–based, SKPP-conformant MILS separation kernel–based platform provides high performance, manageability, and scalability.
- Wind River continues to demonstrate its commitment to delivering trusted systems with built-in security capabilities.

Wind River has introduced the latest version of Wind River VxWorks® MILS Platform, a secure separation kernel that is compliant to the Separation Kernel Protection Profile (SKPP). Part of the Wind River portfolio of trusted systems, the Type 1 hypervisor–based, multiple independent levels of security (MILS) platform is ready for use in security-critical systems that may require system-level high assurance evaluation or certification and accreditation (C&A).

"Companies responsible for creating robust infrastructure systems worldwide are demanding increased functionality and secure operation with high assurance of security from inadvertent or intentional errors or threats," said Jim Douglas, senior vice president of marketing at Wind River. "VxWorks MILS can serve as the foundation for security-critical devices and systems in applications ranging from military and aerospace to industrial, medical, and automotive."

VxWorks MILS Platform partitions a single processor among multiple software components, with time and space resource allocation, information flow control, and fault isolation -- all strictly enforced to conform to security policies defined by security architects and system integrators. It can also host a wide range of guest operating systems, and provides high performance, standards-based management, and high scalability for Intel and PowerPC architecture processors. Use of the MILS architecture enables reduction of size, weight, power (SWaP) through hardware consolidation, and streamlines multi-supplier development and deployment with support for DO-297 role-based processes.

For security-critical avionics systems, Wind River plans to enhance VxWorks MILS Platform to be aligned with the Future Airborne Capability Environment (FACE™) Technical Standard, an open standard published by the FACE Consortium, a managed consortium of The Open Group. VxWorks MILS Platform will also have high assurance security evaluation evidence, based on the Common Criteria, and DO-178C DAL A avionics safety certification evidence available.

Underscoring the company's commitment to delivering trusted systems with built-in security, Wind River also introduced Wind River Solution Accelerators for Android Security, which include Security Enhanced (SE) Android, lightweight partitioning, and secure boot.

Wind River VxWorks MILS Platform 3.0 is available now. Additionally, a multi-core enabled version of the VxWorks MILS Platform is currently available as an early-access release.

Schroff®

Small industrial subracks for control cabinets

For small measurement, control and instrumentation units that are built into control cabinets along with a PLC controller, Pentair has developed a compact Schroff industrial subrack. This is based on the established europacPRO platform of 19" subracks and is 3U high, 205 mm deep and just 28 HP wide.

The mounting brackets of the subrack feature keyholes for easy fixing the subrack to the mounting plate on which appropriate bolts or screws are provided. The subrack is available with or without a rear hood. A drilled plate is inserted to provide a top cover. A bolt-on cover plate is also available as an option. The new industrial subrack is available in two versions. One version is prepared to accommodate a backplane, while the other is designed for the use of connectors. Fitted with a suitable backplane, power supply unit and ventilation unit, this subrack can be used for example as a small CompactPCI system with up to five plug-in boards.

Two new 3U CPCI Serial Boards from EKF

SN1: 5-Port Gigabit Ethernet NIC

The SN1-REVERB is a peripheral slot card for CompactPCI® Serial systems. The board is equipped with five independent PCI Express® based Gigabit Ethernet controllers, wired to associated RJ45 front panel jacks. The Intel® I210IT Ethernet NICs provide latest networking technology, e.g. power management for increased efficiency and Audio-Video Bridging (AVB) for tightly controlled media stream synchronisation, buffering, and reservation. The on-board PCI Express® packet switch allows for operation of the SN1-REVERB either in a CompactPCI® Serial fat pipe peripheral slot, or even a standard peripheral backplane slot. The optimum performance can be achieved with a PCIe x 4 link via the backplane connector P1.

The SN1-REVERB is well suited for high performance industrial networking applications. Drivers are available for all major operation systems.

SB1: 4x USB 3.0 & eSATA Hostadapter

The SB1-OBOE is a peripheral slot board for PICMG® CompactPCI® Serial systems, equipped with four USB3/ eSATA front panel combo connectors. The card is comprised of an USB 3.0 SuperSpeed controller, and a SATA III RAID controller. Hence each front panel connector is suitable for attachment of either USB 3.0, USB 2.0 or eSATA based peripheral devices. The SB1-OBOE is provided with a PCI Express® 2.0 package switch, and can be installed into any peripheral slot of a CompactPCI® Serial backplane. A single PCIe lane would be sufficient for operation, but the optimum performance will be achieved when the SB1-OBOE is inserted into a CompactPCI® Serial fat pipe slot.

VBUS (+5V) 1.5A high current for each port eliminates the need for external power supplies.

Webinar "Repeat Success, not Mistakes; Use DDS Best Practices to Design Your Complex Distributed Systems"

Viewers will learn how to get the most out of RTI Connext™ Data Distribution Service (DDS) and common pitfalls to avoid when developing distributed systems.

RTI Connext DDS addresses the sophisticated Data Bus requirements of complex systems. DDS is the leading data-centric publish/subscribe (DCPS) messaging standard for integrating distributed real-time applications. Connext DDS is the dominant industry implementation with benefits including an Object Management Group (OMG) compliant DDS API, advanced features to address complex systems, advanced Quality of Service (QoS) support, comprehensive platform and network transport support and seamless interoperability with Connext Micro (certified and small-footprint version) and Connext Messaging.

Hosted by Rose Wahlin, principal software engineer at RTI, this webinar will provide a deep dive into how to apply the best practices RTI has developed to use Connext DDS in ways that will enable systems to scale effectively with optimal performance, while avoiding missteps that can cause poor performance, non-determinism and scalability problems.

View the webinar here: http://ecast.opensystemsmedia.com/403

View the slides here: http://www.slideshare.net/RealTimeInnovations/best-practices-using-rti-connext-dds

BittWare Joins Altera Preferred Board Partner Program for OpenCL

PCIe COTS FPGA board offered as part of a turnkey OpenCL Developer's Bundle at a special introductory price.

BittWare, the leader in Altera-based FPGA COTS boards, is pleased to announce that they have joined the Altera Preferred Board Partner Program for OpenCL. BittWare's S5-PCIe-HQ (S5PH-Q) PCIe COTS board is optimised for the most current Altera device architectures and design software and is supported by Altera's SDK for OpenCL. The S5PH-Q is a half-length PCIe card based on Altera's high-performance 28-nm Stratix® V FPGAs, providing a versatile and efficient solution for high-performance network processing, signal processing and data acquisition. BittWare is offering the S5PH-Q as part of their "OpenCL Developer's Bundle". The BittWare OpenCL Developer's bundle provides users the highest quality out-of-box development environment based on Altera hardware, FPGA development tools, and peripheral hardware and software.

"BittWare has been working diligently with Altera to provide an optimised, fully-tested, deployable Stratix V FPGA-based COTS board that is supported by the Altera SDK for OpenCL," said Darren Taylor, BittWare Senior Vice President of Worldwide Sales & Marketing. "We are pleased to be a part of Altera's Preferred Board Partner Program for OpenCL, giving us the ability to offer our customers a validated COTS PCI Express board complete with an OpenCL programming environment."

"Altera and BittWare continue to work together to deliver high-end, FPGA board-level solutions that significantly reduce technology risk and time-to-market for our mutual customers," said Alex Grbic, director of software, DSP and IP Marketing at Altera. "BittWare has consistently leveraged the latest technology from Altera, which now includes an SDK for OpenCL, to dramatically reduce the design complexity for applications in the computing, financial and military markets."

Benefits of OpenCL for FPGAs:

- Faster time-to-market using the OpenCL C-based parallel programming language as opposed to a low-level hardware description language (HDL).
- Quick design exploration by working at a higher level of design abstraction.
- Easy design re-use by re-targeting existing OpenCL C code to current and future FPGAs.
- Faster design completion by generating an FPGA implementation of OpenCL C code in a single step, bypassing the manual timing closure efforts and implementation of communication interfaces between the FPGA, host, and external memories.
- Increased performance by offloading performance-intensive functions from the host processor to the FPGA.
- Significantly lower power by using the Altera SDK for OpenCL which generates only the logic needed to deliver the required application.

BittWare's OpenCL Developer's Bundle includes:

- BittWare S5-PCIe-HQ Altera Stratix V half-length PCIe board with two banks of 4GByte DDR3 SDRAM
- S5PH-Q Board Support Package
- BittWare BittWorks II Toolkit application development software for BittWare COTS boards
- BittWare Breakout Board (BWBO) providing front panel access to signals and interfaces on the S5PH-Q (two RS-232 connectors, an RJ-45 Ethernet jack, and a micro-USB shell that are all accessible via the front panel)
- One year license for the Altera Quartus® II software, Developer's Kit Edition
- One year license for the Altera SDK for OpenCL
- Altera USB Byte Blaster to download configuration or program data into the Stratix V