

Dedicated Systems' News

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DEDICATED
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Easing Integration of Large-Scale Real-Time Systems with DDS Middleware - recorded Webinar

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System designers and integrators in many industries are tasked with creating robust, widely available and secure communications infrastructures. These infrastructures interconnect systems (including systems of systems) nationwide and globally with high fidelity and high performance. To meet these challenging requirements, distributed real-time systems need a well-designed and efficient architecture.

This Webinar reviews the challenges associated with integrating large-scale systems and shows how the Data Distribution Service (DDS) standard from the Object Management Group (OMG) addresses use cases common to defence, financial services and power systems. It includes a discussion of how DDS can meet systems' current and future requirements in terms of performance, scalability, availability and interoperability. This results in dramatically lower integration costs, not just for initial integration but also for future upgrades and expansions.

Speaker:

Rick Warren is a Principal Engineer at Real-Time Innovations, Inc. Rick is an expert in object-oriented and component-oriented software design with a special interest in the integration of distributed systems. Rick is also heavily involved at the Object Management Group (OMG) in the creation of specifications there for the development, integration, and management of real-time distributed applications. He was involved in the Revision Task Force for the DDS specification and co-authored the Robotic Technology Component specification. More recently, he co-authored the forthcoming Extensible and Dynamic Topic Types specification. Rick received his BS in Computer Science with distinction from Stanford University.

Start the Webinar here.

<http://www.dedicatedsystems.com.au/software-news/easing-integration-of-large-scale-real-time-systems-with-dds-middleware/>

An Introduction to COTS & Embedded Systems

A 1 day training course about current and upcoming COTS architectures

Dedicated Systems Australia offers a 1 day training course for

- System integration and software engineers tasked with end-of life upgrades of deployed computer systems.
- System integration and software engineers tasked with designs of new deployed computer systems.
- Project Managers wanting a broad overview of prevailing industry trends in COTS technologies and platforms.

Participants will obtain:

1. An understanding of current and emerging COTS technologies and standards.
2. An appreciation of the drivers which lead to COTS solutions or in-house designs.

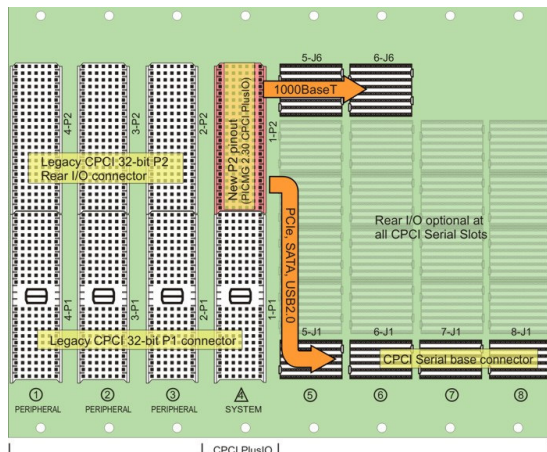
A detailed agenda is here: <http://www.dedicatedsystems.com.au/training/an-introduction-to-cots-embedded-systems/>

CompactPCI Serial / CompactPCI PlusIO systems

Soft Migration to up to 32 Gb/s

CompactPCI Serial (PICMG CompactPCI-S.0), originally known as "**CompactPCI Plus**", is the **successor to CompactPCI**. This **independent specification** is built on entirely serial architecture and offers a data transfer speed of up to 32 Gb/s. However, a **soft migration path from parallel to serial architecture** is possible. For this purpose PICMG has created an additional sub-specification, PICMG 2.30, to CompactPCI (PICMG 2.0), which is also known as **CompactPCI PlusIO**. This route saves customers time and money.

Schroff has developed **systems and backplanes** for this specification. An example is an 8-slot hybrid backplane with three CompactPCI peripheral slots, one CompactPCI PlusIO system slot and four CompactPCI Serial peripheral slots. This backplane has three rear I/O slots in the CompactPCI bus area. This represents the **maximum configuration for hybrid systems** and can therefore be used for the most diverse of applications. Backplanes with fewer slots, e.g. 5, are being developed.

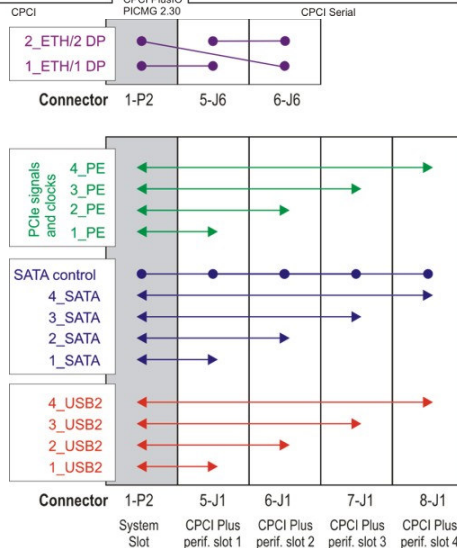


For **CompactPCI Serial** Schroff initially also developed a system in maximum configuration with 9 slots - one system slot (left) and eight peripheral slots. Here again the widest variety of applications are possible. **Four different backplane versions** (single-star with/without rear I/O and full-mesh with/without rear I/O) are defined, such that PCIe, USB and SATA (serial ATA enables direct connection of hard disks to the backplane) are realised as single-star. The backplane versions differ only in terms of Gigabit Ethernet. One version provides this as **single-star** and the other as **full-mesh**. The latter arrangement is suited to e.g. **processor farms or clusters**.

The mechanical construction of the **hybrid system** and of the **CompactPCI Serial system** matches the Schroff 8-slot CompactPCI 3+1 system with built-in 1 U fan drawer. Two PSU types are available for the power supply, according to customer preference. The **19" PSU** (3 U, 8 HP, 160 HP) with an output capacity of 250 W and rear IEC mains input socket makes even the tolerances set out by the specification for limiting values of currents, voltages etc, still smaller. This is of particular benefit where **multicore processors** are present. This PSU is also available in a 48 V version for custom applications. A low-cost alternative is the option of an **ATX PSU**.

Optimal **cooling of the system** is assured by a **hot-swap fan drawer** under the board cage that pulls out to the front. This can optionally be upgraded with a filter mat. Depending on the PSU selected, the drawer is fitted with either two or three fans that can be quickly replaced when necessary.

Dedicated Systems Australia can assist in selecting suitable Single Board Computers, IO Cards and CPCI Serial Storage Cards.

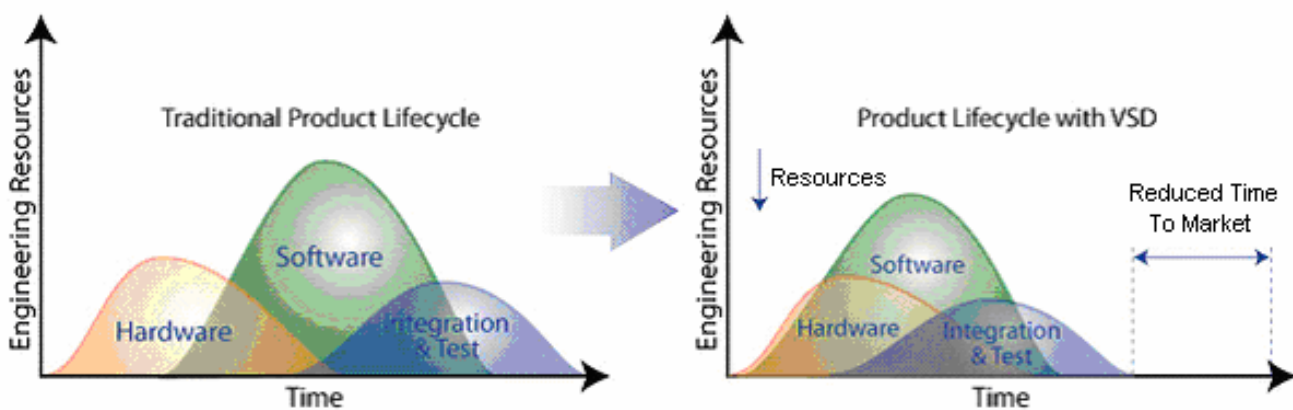


WIND RIVER Wind River Simics - Virtualised Systems Development

Wind River Simics creates a high-performance virtual environment in which any electronic system—from a single board all the way up to complex, heterogeneous, multi-core systems—can be defined, developed, and deployed.

Within this fast and accurate virtual environment, engineering, integration, and test teams can use approaches and techniques that are simply not possible on physical hardware. For example, developers can freeze, save, email, and restore the whole system; they can view and modify every device, register, or memory location; and they can run the whole system in reverse to find the source of a bug.

Simics enables companies to adopt new approaches to the product development life cycle, resulting in dramatic reduction in project risks and development costs and improvement to product quality.



Virtual: Better Than Real?

Some of the capabilities of a virtual platform are:

- **Checkpoints/snapshots:** Freeze it, save it, restore it, and run—just as if you had never stopped.
- **Easy sharing, reusing, and deploying:** Models are computer files; so are checkpoints.
- **Full system stop:** Instantly freeze the whole system, in its running state, and then debug.
- **Run-to-run repeatability:** If you've seen a bug once, you can hit it again on the very next run.
- **Reverse execution:** It's easy to solve problems after they've happened. Run the whole system in reverse.
- **System visibility, control, and fault injection:** Nothing is hidden from developers; everything can be modified and controlled.
- **Perform what-if analysis and explore alternate architectures prior to your hardware purchase**
- **Equip every engineer with the development platform or system and support legacy hardware in the field.**

For more information on Wind River Simics visit <http://www.windriver.com/products/simics/>

WIND RIVER

Wind River Introduces First Embedded Linux Operating System to Be Accepted for EAL4+ Certification by NIAP

Wind River Linux Secure Opens New Options for Market Segments Requiring Secure Application Platforms.

Wind River, a world leader in embedded and mobile software, today announced that Wind River Linux Secure, a secure embedded Linux, is in evaluation by the National Information Assurance Partnership (NIAP) to be certified to Common Criteria Evaluation Assurance Level 4+ (EAL4+), conforming to the General Purpose Operating System Protection Profile...

Read the complete story here: <http://www.dedicatedsystems.com.au/category/software-news/>



Rugged MicroTCA for air cooled high speed systems. Higher mechanical and environmental specifications

Rugged MicroTCA evolved from the MicroTCA (Micro Telecommunications Computing Architecture) specification MTCA.0, defined for the telecommunications market and its environment in 2006. From the outset, MicroTCA attracted much interest not only within telecommunications but also from other sectors such as industrial automation, testing and measurement and even defence. These markets frequently involve challenging environmental conditions and thus require enhanced resistance to shock and vibration. To meet this need three MicroTCA sub-specifications were initiated that describe the environments found in these industries:

- PICMG MTCA.1 (Air-cooled rugged MicroTCA) for air-cooled industrial applications,
- PICMG MTCA.2 (Hardened air-cooled MicroTCA) for air-cooled military applications, and
- PICMG MTCA.3 (Hardened conduction-cooled MicroTCA) for conduction-cooled military applications.

The PICMG Rugged MicroTCA specification (MicroTCA.1) was released this year and defines the specifications of a system subjected to greater loading in terms of temperature, shock, vibration and other environmental conditions.

In defining the specification, attention was paid particularly to the use of systems in outdoor situations, in production plant and partly also in transport systems, in aviation and in defence technology. Class DL3 specified by IEC 61587-1 defines peak accelerations of 25 g during shock tests and 3 g in vibrations tests, which are almost 4 and 6 times higher respectively than the requirements set by MicroTCA.0. Systems of this kind are used in situations that involve high levels of vibration, such as occur near rotating machines (e.g. in offset printing) and in railway and maritime applications.

Currently the PICMG working group is developing the MicroTCA.3 specification. Following this it plans to begin work on PICMG MTCA.2 (hardened air-cooled MicroTCA) for air-cooled military applications.



New Two-slot OpenVPX Development Platform Supports Both 3U and 6U Cards

Elma Electronic Systems division, has released a new two-slot VPX/OpenVPX test and development platform that accommodates both 3U and 6U boards via a shelf divider. The new E-Frame Series Test Platform can connect multiple backplanes to efficiently simulate various fabric topologies, eliminating the need for costly custom backplanes and allowing high speed signals to be passed from one slot to the next.

The new E-Frame Series enables developers to power up one or more VPX blades under test and interconnect the J1 fabric connections to emulate the user's application. Signals from an external device can also be introduced through the J1 fabric connector or accessed on the J1 fabric connector using the provided SMA and SATA cable headers.



The use of a standard VPX RTM (rear transition module) plugged into the back provides access to the J0, J2, J3, J4, J5 and J6 connectors, while simultaneously accessing high speed signals in the J1 connector, routed out the side of the backplane. Each slot's J1 "A" channel is broken out into 16 SMA connectors and the "B", "C" and "D" channels into four SATA2 cable headers (12 total per slot).

The new E-Frame Series measures 9U x 42 HP (8.4") x 11.73" and weighs only 18 lbs. Located on the rear of the chassis, power input voltage is 97 VAC to 264 VAC auto-ranging and power input frequency is 47 Hz to 63 Hz. Total power consumption is 580 W. The test platform operates from 0C to +50C at altitudes of up to 6,000 feet. It withstands shock of up to 10 Gs at 11 ms and vibration to 1 G at 10 Hz to 330 Hz in non-condensing humidity from 5% to 95%.