In this issue

VME beyond 2025

Artesyn, formerly Motorola the inventor of the VMEbus, confirms «we can continue to offer an extensive portfolio of VME boards up to at least 2025»
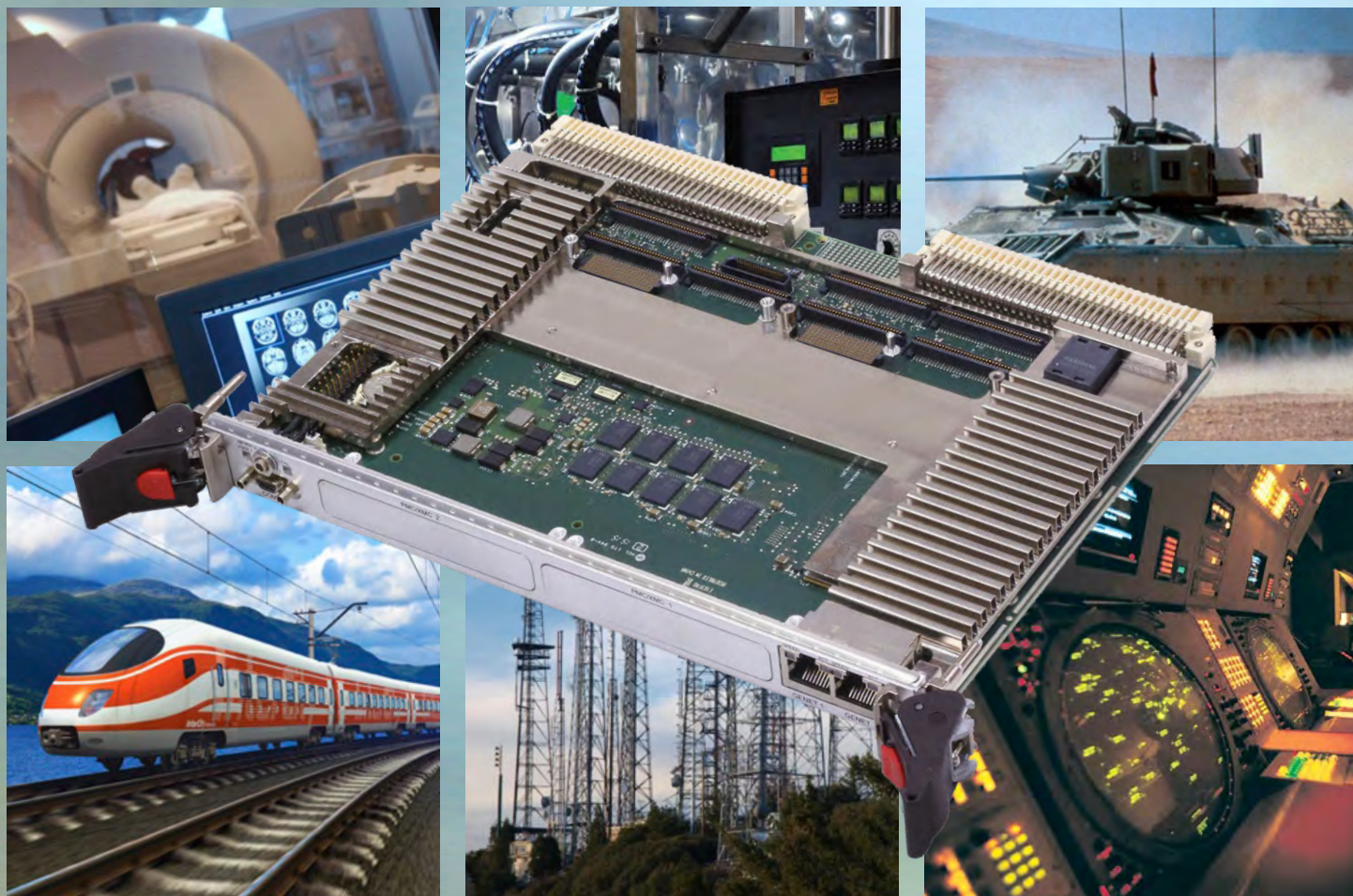
VME is used in applications that are event-driven. These applications – controlling motors and actuators, moving gun turrets and missile launch frames into position – are control system applications.

VME's interrupt structure is the only architecture that can handle these kinds of applications in real time.

Extensive portfolio of VME boards up to at least 2025 from Artesyn

Dear Reader,

Welcome to Embedded Systems World.

As part of the group of innovative companies that invented VME technology nearly 35 years ago (Motorola and Co), Artesyn has consistently worked to enhance and extend VME technology and now offers arguably the widest range of VME SBCs based on Freescale (now NXP) processors using the Power Architecture.

To underline our commitment, we have been investing heavily in our VME offerings. We have secured a number of critical EOL components, including the Tsi148 VME to PCI-X chip and the Marvell system controller chip, to ensure that **we can continue to offer an extensive portfolio of VME boards up to at least 2025**. While extending the life cycle of our VME products for another 10 years, Artesyn is also planning to develop new VME boards that will enhance our tiered product portfolio, which includes committed research on VME bridge solutions for future portfolio additions.

Artesyn's extensive VME portfolio based on Power Architecture processors offers customers flexibility to migrate between boards when they seek optimal solutions for their applications. With a deep understanding that software compatibility is vital to make a product migration successful, Artesyn always goes the extra mile to provide technical support to help customers migrate seamlessly.

● Artesyn offers the largest range of VME boards to cover all your requirements from the highest performance to the most versatile and the most cost-effective
● Our industry-leading track record of cost, performance, quality and longevity of supply speaks for itself
● Artesyn can help migrate your current applications running on VME (ours or a competitor's) to one of our long life-cycle boards
● No need to change backplanes or technologies, meaning huge savings

Editor note: VME Beyond 2020 from the Top 5 VME Suppliers
Four other vendors have annouced support to VME beyond 2020 with FPGA solutions (may need re-qualification)

More: Click Here

ADLINK Introduces Mobility, Medical, and Industrial Automation IoT Solutions with Intel® Atom™ x5-E8000 Processor

New COM modules and Mini-ITX embedded boards with 14 nm technology offer improved performance and cost-effectiveness

San Jose – March 29, 2016 – ADLINK Technology, Inc., a leading global provider of cloud-based services, intelligent gateways, and embedded building blocks for edge devices that enable the Internet of Things (IoT), today announced the release of four embedded computing solutions designed with the Intel® Atom™ x5-E8000 processor. Built with 14 nm technology, the Intel® Atom™ processor boosts performance and reduces power consumption for mobility, medical, and industrial automation applications. The newly-updated **COM Express**® cExpress-BW, **SMARC®** LEC-BW, **Qseven**® Q7-BW modules, as well as the AmITX-BW-I thin **Mini-ITX** embedded board, now offer better cost-performance ratios as a result of improved computing capability.

The latest Intel® Atom™ SoC, released in Q1 2016, features 64-bit quad-core processing that is ideal for multi-tasking applications. The processor offers a configurable TDP (cTDP) of only 5 watts at 1.04 GHz, enabled by its 14 nm core transistors. With the new processor, ADLINK embedded boards and modules also support up to 8 GB of dual channel DDR3L 1600 MHz memory and up to three independent displays with Intel® HD graphics.

"ADLINK is committed to building the Internet of Things with products that offer exceptional value and performance," said Henk van Bremen, senior director of ADLINK Module Computing Product Segment. "Our latest embedded solutions provide the most efficient design options for low-power yet graphic-intense edge applications, such as mobile tablets, medical carts, and infotainment kiosks."

The new COM modules and Mini-ITX board run graphics processing on a base frequency of 320 MHz with eDP/DP/HDMI interfaces for up to three display ports, an increase in the number of ports over previous COM Express modules. In addition to 4K resolution, Intel® Gen9 Iris Graphics offer excellent 2D/3D hardware acceleration with decoding support for HEVC H.265, MPEG2, MVC, VC-1, WMV9, JPEG, and VP8, and encoding support for HEVC H.265 MVC, and JPEG. Graphics support also includes Open GL for graphics rendering, Intel® Quick Sync Video for fast conversion to mobile format, and Intel® clear Video HD Technology for better quality video.

With faster I/O processing and a rich selection of I/O features, ADLINK's latest computer-on-modules satisfy the requirements for a wide range of applications. The cExpress-BW COM Express Compact Size Type 6 module offers four USB 3.0 ports, an increase over the two ports in the previous model. All new modules offer three or more USB 2.0 ports, three single-lane PCIe expansion slots, and two SATA 6 Gb/s interfaces. The AmITX-BW-I board features high connectivity with four USB 3.0 and four USB 2.0 ports, HDMI, and one single-lane and one Mini PCIe slot. With its thin Mini-ITX form factor, this embedded board serves as a space-saving solution for infotainment, industrial, and medical applications. The Q7-BW Qseven Standard Size module and LEC-BW SMARC Short Size module each offer support for two MIPI camera serial interfaces, making them ideal for stand-alone image-capture edge applications.

ADLINK embedded boards and modules are equipped with ADLINK's Smart Embedded Management Agent (SEMA) to provide detailed system data at the device level, including temperature, voltage, power consumption, and other key information. Access to system activities allows operators to identify inefficiencies and malfunctions in real-time, thus preventing failures and minimizing downtime. ADLINK's SEMA-equipped devices connect seamlessly to the SEMA Cloud to enable remote monitoring. All collected data, including sensor measurements and management commands, are accessible from any place, at any time through an encrypted connection.

For more information on ADLINK's offerings built with the latest Intel® Atom™ x5-E8000 SoC, please visit www.adlinktech.com

congatec presents roadmap for SMARC 2.0, Qseven 2.1 and COM Express 3.0

congatec fully supports the upcoming new SGET and PICMG Computer-on-Module specifications

Deggendorf, Germany, 23 February 2016 * * * congatec, a leading technology company for embedded computer modules, single board computers (SBCs) and embedded design & manufacturing (EDM) services, announced at Embedded World that it fully supports the upcoming new SGET and PICMG Computer-on-Module specifications SMARC 2.0, Qseven 2.1 and COM Express 3.0. Modules complying with these standards are already in development and will be announced in time with the launch of the next processor generations.
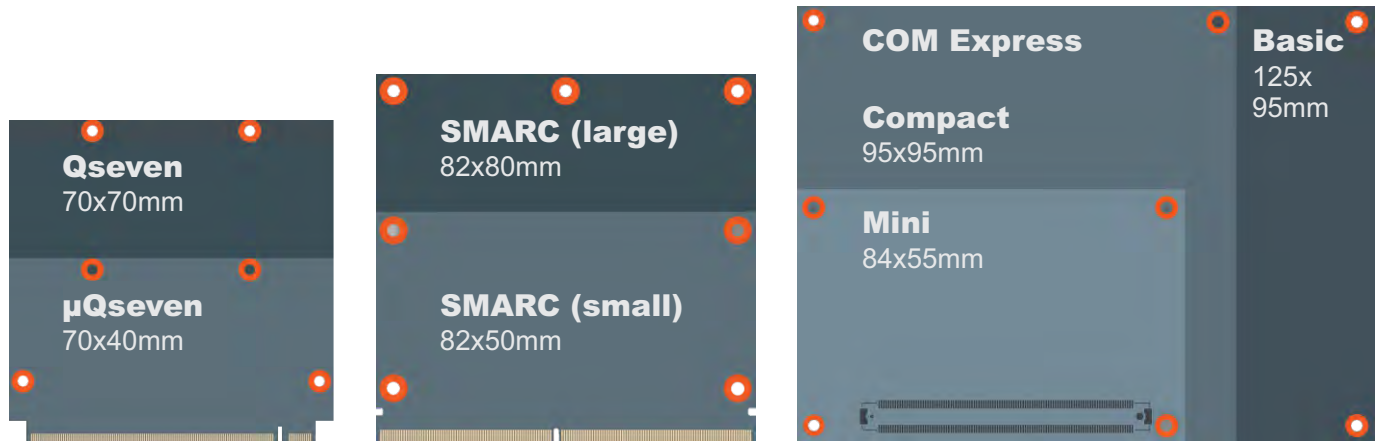
SMARC and Qseven roadmap

congatec will fully support the SMARC 2.0 specification. SMARC 2.0 modules will become available for the full range of relevant processor technologies – from the Intel® Atom™ processor to various ARM designs.

congatec continues to support all current low-power processors for Qseven 2.1 designs as well.

The essential difference between the two standards is the number of supported interfaces with Qseven providing up to 230, and SMARC 2.0 up to 314 pins. SMARC is intended to interface richer systems with the smallest footprints; while Qseven is ideal for slimmer and less complex module and carrier board designs.

congatec has played a significant and active role in the development of all standards. For the Qseven and SMARC specifications congatec even assumed the role of editor and is consequently a key technology provider for highly compact SFF designs based on Computer-on-Modules – a market where congatec has established itself as the industry leader.

Christian Eder, director marketing at congatec, SGET board member and SMARC spec editor states, "By taking the big step from SMARC 1.1 to 2.0, we have succeeded in giving this standard a clear perspective for the future. This major leap has brought many new interfaces and eliminated a lot of outdated features. Although designs based on 1.1 may no longer be compatible with 2.0, users are compensated by numerous new features."

The COM Express roadmap

COM Express 3.0 will primarily offer a new pinout type specifically for Server-on-Modules. The server-focused Intel® Xeon® and Intel Core™ processors as well as the AMD Embedded R-Series processors are prime targets, with ARM based platforms another possible option.

"All new specifications provide developers with support for the latest interfaces and many detail improvements. Next to the all-new SMARC 2.0 for highly compact multifunction systems, the new COM Express pinout for Server-on-Modules is particularly innovative. It enables us to target the new markets for decentralized, real-time edge servers that are used in media streaming as well as IoT, M2M, medical and automation applications," explains Martin Danzer, product director at congatec.

With congatec's personal integration service, developers will find it easy to integrate the new revisions into future system designs. Since most features are backward compatible, it is in many cases possible to upgrade existing carrier boards with new modules. This gives OEMs investment protection for existing system designs.

More: http://www.congatec.com/en.html

This Solution Brief was written for Aerospace and Defense Applications but is fully applicable to Industrial Control, Medical & Transportation Applications by using Commercial Grade Products instead of Ruggedized.

SOLUTION BRIEF

High Performance COTS Products for Aerospace and Defense Applications

Artesyn Benefits

- Standards-based, proven architectures
- Long lifecycle support
- Multi-blade chassis options optimize mix of I/O, compute & acceleration resources
- Hardened system enclosures
- Designed to withstand harsh environmental and vibration conditions
- High bandwidth Interconnect
- Rack footprint ranges from 3U to 18U
- Perfect for mobile battlefield compute, shipboard C4ISR, Radar/Sonar, SIGINT, weapons control and more

The migration of military tactical systems to higher performance technologies like **Advanced Telecom Computing Architecture (ATCA®)** and dense microservers have reduced the total space required for the computational element of these weapon systems. The **Centellis®** platforms from Artesyn Embedded Technologies are ideal for these applications, having gone through certifications for surviving harsh environmental and vibration conditions (i.e., NEBS Level 3*), and delivering latest technology, multiple 100 Gbit ingress/egress and blades with a variety of application profiles. When placed in a Mil/Aero ruggedized enclosure, taking advantage of COTS architecture with rugged features has never been easier!

*stringent requirements on electromagnetic interference (EMI), shock and vibration (earthquake proof) for telecommunication network deployments

As applications migrate from legacy **VMEbus**, I/O remains an integral part to many of these systems but requires a large amount of rack space and is expensive to maintain. Most, if not all of these interface functions today, are available in a standardized **PCI Express** card form factor as well. The Artesyn **MaxCore™** platform enables consolidating these I/O cards into a single 3U rack with the added flexibility of separating the I/O into separate root domains using multiple Artesyn microserver cards. Less power and proper cooling in this dense microserver design certified for harsh environmental conditions allows military applications to reach similar or better levels of reliability, shock and vibration at a lower price. Faster bus speeds and the ability to use modern add-on cards in the same environment are an added benefit.

INTEL® NETWORK BUILDERS PARTNER

ARTESYN™
EMBEDDED TECHNOLOGIES

	VMEbus Products	MaxCore™ Platform PCI Express-based	Centellis® Platforms ATCA-based
Click on the Pictures to go directly to the Specific Web Page	MVME8105 One of the latest addition to the VME Product Line Freescale QorIQ™ P5020 2.0 GHz processor, the MVME8105 provides 4 GB soldered DDR3-1333 MHz ECC memory, 512 K MRAM non-volatile memory and 8 GB eMMC NAND Flash	SharpServer™ Intel® Xeon® Processor D Microserver card SharpServer™ 3U with 15 slots	
System Height	6U typical	3U	3U - 7U - 15U 2 - 6 - 14 Slot
Harsh Environments MIL Spec	YES	YES	YES
Commercial & Industrial Grade	YES	YES	YES
Compute Core Density	System dependent	Up to 480 cores / 3U	Up to 432 cores/13U
Compute Architecture	Freescale QorIQ - PPC	Intel x86 - Latest Xeon Freescale (planned)	Intel x86 DSP
Bus Architecture	VME - parallel	PCI Express - serial	Ethernet
Interconnect Speed	Up to 320 MB/s	50 GB/s	(2x-4x) 40G Ethernet

Product Application Fit

ATCA - AdvancedTCA

Centellis® Platforms AdvancedTCA technology is widely deployed in defense applications and is ideally suited for bandwidth-hungry, high-performance applications that cannot allow for downtime such as land or ship based control systems and compute farms that combine sensor data or have the need to execute massive calculations.

MaxCore™ Platform - PCIE-based

The MaxCore platform brings high performance and high density to air, vehicle and field-based applications where rapid installation, mobility and ruggedization are paramount. Based on PCI Express, almost any I/O requirement can easily be met using suitable I/O cards.

VMEbus Products

The historic yet very lively champion of military computing is far from the end of its life. Proven in applications ranging from ground-based to airborne, space and ship board, VME still remains a cornerstone of modern design. For developers it remains a solid choice with its enduring advantages of low power, small system size and experience in deployment.

Tip of the Day
Request a Free Phone Call mgt@e2mos.com
A Technical Specialist will call you

ARTESYN™
EMBEDDED TECHNOLOGIES

10 KWatt Laser Gun

PRESS RELEASE 19 February 2016

Rheinmetall and Bundeswehr conduct successful test of HEL effector on the high seas

Rheinmetall and the German Bundewehr have successfully tested a high-energy laser effector installed on a German warship operating on the high seas.

To carry out the test, Rheinmetall mounted a 10-kilowatt high-energy laser (HEL) effector on a MLG 27 light naval gun.

The test programme included tracking of potential targets, including unmanned aerial vehicles (UAVs) and very small surface craft. Furthermore, the HEL effector was also tested against stationary targets on land.

Besides the successful mounting of a 10-kW HEL effector on an MLG 27, the test programme demonstrated for the first time the effectiveness of Rheinmetall HEL effector technology in maritime operations. The test programme revealed insights important for the development of future HEL naval effectors.

More about Rheinmetall
http://www.rheinmetall-defence.com/en/rheinmetall_defence/index.php

imec and iMinds to Merge and Create High-Tech Research Center Driving the Digital Economy

Ghent and Leuven, Belgium - Feb. 19, 2016 - The leading nanoelectronics research center, imec, and digital research and incubation center, iMinds, today announced that its respective board of directors have approved the intention to merge the research centers. Using the imec name, the combined entities will create a world-class, high-tech research center for the digital economy. The transaction is expected to be completed by the end of 2016, with the united organization staged to bring added value to existing partners while further strengthening Flanders' authority as a technology epicenter and region focused on creating a sustainable digital future.

iMinds will be integrated as an additional business unit within imec, resulting in a new research center that will fuse the technology and systems expertise of more than 2,500 imec researchers worldwide with the sophisticated digital competencies of some 1,000 iMinds researchers representing nearly 50 nationalities. The additions of iMinds' flagship open innovation research model -ICON- (in which academic researchers and industry partners jointly develop solutions for specific market needs), iStart entrepreneurship program (supporting start-up businesses), and Living Labs will strengthen the unique capabilities and assets of imec as a research and development center.

Imec has been a global leader in the domain of nanoelectronics for more than 30 years, and has innovated applications in smart systems for the Internet of Things (IoT), Internet of Health, and Internet of Power. It has built an extensive and worldwide partner network, as well as in Flanders, and has generated successful spin-offs. iMinds' activities span research domains such as the IoT, digital privacy and security, and the conversion of raw data into knowledge. Its software expertise is widely renowned and its entrepreneurship activities in Flanders are first-rate.

"The proliferation of the Internet of Everything has created a need for solutions that integrate both hardware and software. Such innovative products that optimally serve tomorrow's digital economy can only be developed through intense interaction between both worlds. There are infinite opportunities in domains such as sustainable healthcare, smart cities, smart manufacturing, smart finances, smart mobility, smart grids, or in short, smart everything. Research centers such as imec, with its widely acclaimed hardware expertise, and iMinds, an expert in software and ICT applications, are uniquely positioned to bring these concepts to life," stated Luc Van den hove, president and CEO of imec. "Furthermore, iMinds is widely recognized for its business incubation programs and open access to SMEs, and, this merger provides us with a unique opportunity to jointly reach out to the Flemish industry and further elevate Smart Flanders on the global map."

"Flanders faces the enormous challenge of realizing a successful transition towards tomorrow's digital society; a transition that must happen quickly, considering the urgency to reinforce Flanders' industrial position," commented Danny Goderis, CEO of iMinds. "The merger between imec and iMinds is Flanders' answer to this rapidly accelerating digitization trend. We have a clear ambition to pair more than 3,500 top researchers across 70 countries with an ecosystem of Flemish companies and start-ups, thereby significantly increasing our economic and societal impact. Together, we can help Flanders boost its competitiveness and claim a strong international position."

Now that the intention to merge has been approved, the merger protocol will be developed and the integration process of imec and iMinds will be initiated immediately. The current iMinds activities will constitute a third pillar next to imec's units. iMinds will remain headquartered in Ghent with its researchers spread across the Flemish universities. The ambition is to operate as one organization by the end of 2016.

Flemish Minister of Innovation Philippe Muyters welcomes the fact that iMinds and imec join forces: "Thanks to their pioneering work in their respective fields, they have put themselves on the world map. When they were founded, the line between hardware and software was still very clear. Today, and especially in the future, this line is increasingly blurring – with technology, systems and applications being developed in close conjunction. The merger anticipates this trend and creates a high-tech research center for the digital economy that keeps Flanders on the world map. The gradual integration of both research centers, and the agreement to preserve their respective strengths and uniqueness, will make for a bright future."

About imec - world-leading research in nanoelectronics www.imec.be
Imec leverages its scientific knowledge with the innovative power of its global partnerships in ICT, healthcare and energy. Imec delivers industry-relevant technology solutions. In a unique high-tech environment, imec's international top talent is committed to providing the building blocks for a better life in a sustainable society.
Imec is headquartered in Leuven, Belgium, and has offices in Belgium, the Netherlands, Taiwan, USA, China, India and Japan. Its staff of about 2,500 people includes almost 800 industrial residents and guest researchers. In 2014, imec's revenue (P&L) totaled 363 million euro.

About iMinds www.iminds.be
iMinds is Flanders' digital research & entrepreneurship center. It combines the forces of some 1,000 researchers at five Flemish universities to conduct strategic and applied research in areas such as Media, Health, Smart Cities and Manufacturing. Together with its research partners – companies, governments and non-profit organizations – iMinds translates digital know-how into concrete products and services. In addition, iMinds supports researchers and (start-up) entrepreneurs in the successful market introduction of their ideas.