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SYSGO partners with WBIP

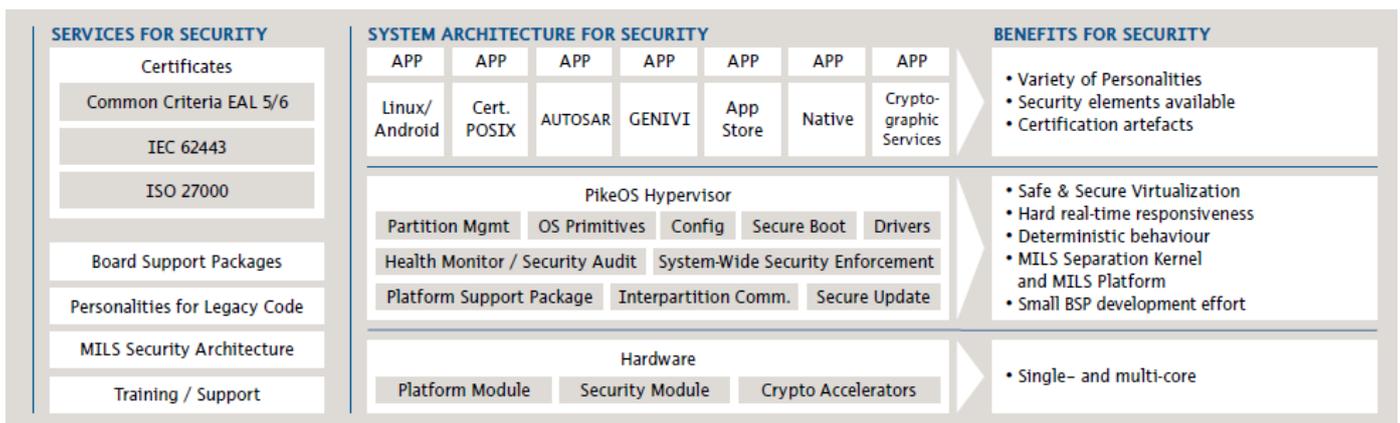
to present PikeOS for Safety & Security Critical Applications

About SYSGO

Since 1991, SYSGO provides operating systems and services for embedded systems. In the late 90’s, SYSGO pioneered the use of Linux in the embedded market with the ELinOS distribution. For safety and security critical devices, SYSGO offers PikeOS, the world’s first SIL 4 certified hypervisor for multi-core processors, which builds the foundation for smart devices in the Internet-of-Things. With its product portfolio, SYSGO is the leading non-US RTOS-supplier with customers like Samsung, Airbus, Thales, Continental and many more. Markets include Aerospace & Defence, Industrial Automation, Automotive, Railway, Medical and Network Infrastructure. SYSGO is part of the Thales Group and has facilities in Germany, France, Czech Republic, UK and North America. It maintains a global distribution network and supports its customers in formal certification according to international safety and security standards.

About PikeOS Hypervisor

PikeOS is a hypervisor intended for embedded systems with safety and security requirements. It is certified to the highest standards, such as DO-178B or IEC 61508. With real-time virtualisation and partitioning, PikeOS provides all the features needed to build today’s multi-functional and highly-integrated devices. The PikeOS architecture creates a foundation for critical systems, enabling official approval by avionics authorities for safety and security standards. Note that in addition to supporting security standard Common Criteria EAL 5/6 evaluation, PikeOS is also the first RTOS/hypervisor SIL 4 certified on a multi-core processor.



[Whitepaper: Safe and Secure Virtualisation in a Microkernel](#)

[More Information about SYSGO](#)

SYSGO, a leading supplier of software solutions for the world’s most demanding safety and security embedded applications, achieved to certify its PikeOS™ realtime OS and hypervisor within a multi-core platform according to EN 50128 SIL 4. The certificate has been delivered by TÜV-SÜD.

Safety critical systems deployed on a multi-core processor have been so far using only a single core and made the other cores inactive. The complexity and the potential non-determinism introduced by such architectures were the main reasons that prevented, and still prevent in many cases, safety-critical developers to certify their multi-core based systems at the highest level. Operating system vendors in particular have long been trying to solve this problem in order that their customers may harness the performance of today’s dual-core and multi-core processors.

SYSGO was able to achieve the first EN 50128 SIL 4 certification of the market on a multi-core system (including SIL 4 certification for IOMMU) thanks to the solid foundation offered by the PikeOS™ core technology, designed from the ground up to be the first SSV (Safe & Secure Virtualisation) RTOS of the market. SIL 4 is the highest possible safety level for the EN 50128 standard.

“With PikeOS™, SYSGO was already the first company on the market to offer a certified hypervisor to the safety-critical application domains”, said Jacques Brygier, VP Marketing at SYSGO. “Making now PikeOS™ certified for a multi-core platform is just the confirmation of the cutting-edge nature of this product, designed to be both an RTOS and a hypervisor. It is also another evidence of the scalability and flexibility of this embedded virtualisation solution that can address different industry sectors with the same core technology.”

The project, a railway application deployed in 2014, is using PikeOS™ 3.4 running on a dual-core Intel® Core™ i7 3U VPX processor board. The technique that allows this high level of certification uses the original and patented architecture of PikeOS™ without modification to provide the necessary determinism.

SYSGO is also involved in different activities related to the certification of multi-core based systems in other industry sectors such as avionics or automotive. The major achievement in the railway domain is an important milestone, as well as invaluable experience, for these areas where developments with key partners are currently in progress.

[Whitepaper: Certifying applications in a multi-core environment](#)



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SBC612—6U VPX SBC with QorIQ™ P4080 processor now supports PikeOS™

- Eight e500mc cores @ up to 1.5 GHz
- Dual-channel DDR3 (up to 8 GB)
- 512 MB NOR Flash
- 4 GB NAND Flash Solid-State Drive
- 512 kB non-volatile MRAM
- 4 off x4 SRIO links from VPX P1
- 4 off x4 PCIe Gen2 links from VPX P2
- 2x PMC/XMC Sites
- AFIX site (SCSI/VGA/1553/Flash drive)
- 4x 10/100/1000 Ethernet
- 2x or 4x RS-232 Debug
- 4x RS-232/422/485 sync/async
- 2x Serial ATA (3 Gbit/s)
- 2x USB 2.0
- 19x Single-Ended GPIO (5V tolerant)
- Front I/O (air-cooled variants only)
- IPMI Baseboard Management Controller



- VITA65 OpenVPX Compatible
- Software Support includes VxWorks, LynxOS, Linux, Integrity and PikeOS

[More information](#)



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New Rugged SBC takes advantage of Intel® 'Broadwell' Processor to deliver Leading-Edge Performance

- **3U OpenVPX SBC347A combines high throughput with minimal size, weight, power**
- **Support for twin 10Gbase-T Ethernet maximises connectivity, minimises expense**
- **Designed for demanding applications in the harshest environments**

GE Intelligent Platforms announced the SBC347A rugged 3U OpenVPX Single Board Computer. Based on the latest 'Broadwell' processor technology from Intel®, it delivers higher performance and greater functionality than previous generations of SBC while maintaining the same power envelope. The SBC347A is the first in a number of Broadwell-based products that GE plans to introduce.

The new SBC is designed for demanding applications in harsh, SWaP (size, weight and power) constrained military environments such as manned and unmanned vehicles, signal processing in ISR (intelligence, surveillance, reconnaissance), sonar, radar, and command/control, as well as the most challenging applications in industry such as energy exploration and transportation.



The SBC347A benefits from two channels of 10Gbase-T connectivity, giving it 10x the Ethernet capability of earlier SBCs. This enables customers upgrading from previous generations of GE's 3U OpenVPX Intel-based platforms to benefit from substantially enhanced connectivity on the Control Plane without needing to undertake disruptive, expensive infrastructure changes.

In line with GE's commitment to maximising long term customer value and return on investment, the SBC347A provides a simple, form/fit/function pin-compatible upgrade path.

The latest Intel Core i7 quad core processor, operating at up to 2.7GHz, can deliver as much as 15% greater CPU performance and 30% greater 3D graphics performance compared with its predecessors. The SBC347A supports up to 16GBytes of soldered ECC memory, and provides the exceptional on-board and off-board bandwidth needed by today's sophisticated applications with its support for PCI Express® Gen3 technology and USB3.0.

The SBC347A is available in five build levels, from benign environment (air cooled) to fully rugged (conduction cooled), and supports Microsoft® Windows, Open Linux® and VxWorks®. It benefits from support by both GE's AXIS Advanced Multiprocessor Integrated Software development environment that minimises program risk and speeds time to market, and from GE's industry-leading Product Lifecycle Management (PLM) programs that are designed to maximise the long term value of customer investments.

[More information](#)

SCSI to SATA Conversion Module 6U VME with Dual Front Removable Drives

SCSI drives are increasingly scarce but your old interface isn't going away just yet. The 5056 solves that problem by providing either narrow SCSI or SATA interface connectivity in a single card with dual front removable drive canisters. This 6U VME dual slot module utilises leading edge 6Gbps SATA III drives each of which can be accessed via a narrow SCSI interface or via front panel eSATA ports. The 5056 supports your old interface needs and with the flip of a switch it's ready for the future with eSATA connectivity as well.

Features

- Front dual drive removability
- Change over between narrow SCSI and SATA operation via dip switch settings
- Each SATA drive is connected to a separate narrow SCSI bus or SATA port
- Front panel drive activity LEDs are provided for both drives
- Commercial temperature operation from +5°C to +55°C.
- Individual drive sleds are removable and not hot swappable
- Front panel rotary switch to select the SCSI address of each drive
- 2.5" SATA Gen II or Gen III HDD or SSD drives are supported
- One front narrow SCSI port, one rear and dual front eSATA ports
- RoHS Compliant

Benefits

- Maintain your old storage interface while upgrading to leading edge drive technology
- One product supports both legacy and future storage interface requirements
- Eliminates the need for costly device driver and operating software changes
- Eliminates reliance on disappearing SCSI drives
- Addresses high capacity storage needs
- Easy system upgrade, data transport or maintenance with front removability

[More information](#)



DX5-ANT XMC Module—Quad Channel 6G SATA Controller Triple M.2 SATA SSD Module Sockets

The DX5-ANT is a XMC style mezzanine card, equipped with a quad-channel PCI Express® to SATA 6Gbps controller, and three on-board sockets for SATA based M.2 module solid state drives (SSD). M.2 (formerly known as NGFF) is a fast growing storage module form factor, with scalable dimensions, typically 22x42mm2 up to 22x80mm2 . The Marvell® SATA 3.0 on-board controller allows RAID or non RAID operation. A front bezel eSATA connector is provided for attachment of an external SATA storage device.



The DX5-ANT connects up to four SATA III (6G) devices to a PCIe 2.0 host, delivering up to 1 Gigabyte-per-second (GBps) bandwidth when a two-lane 5.0 Gbps interface is available. In addition, hardware RAID level 0/1/10 operation is supported, enabled by an integrated ARM-based processor to offload the host CPU.

With three M.2 SSD modules populated on the DX5-ANT, a Terabyte RAID system can be simply configured.

[More Information](#)



SRS-3201-BLUBOXX CompactPCI® Serial • Small Industrial Rack

Rugged, versatile, economic - the SRS-3201-BLUBOXX series of miniature CompactPCI® Serial IPC systems from EKF is suitable for all industrial requirements, even under harsh conditions. The small rack is built of high-quality 19-inch components. With its low dimensions of only 172mm x 168mm x 208mm (4U/32HP), the BLUBOXX provides space for up to five CompactPCI® Serial boards (single size Eurocard style). The BLUBOXX systems include a bottom mount fan unit and an industrial grade removable power supply.

CompactPCI® Serial (CPCI-S.0) is a PICMG® standard for modular industrial computers, which provides high speed serial I/O (PCI Express®, SATA, USB, Gigabit Ethernet) over the backplane. The SRS-3201-BLUBOXX rack is equipped with a 5-slot backplane. While the system slot is reserved for a CompactPCI® Serial CPU card (4HP or 8HP front panel assembly width), two fat pipe peripheral slots (PCIe x 8) and another two standard peripheral slots are available for I/O cards and storage modules.



[More information](#)



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Getting the most out of ARINC 429

Helping users optimise the venerable bus protocol's performance

In an era when technologies seem to come and go with remarkable frequency, it's reassuring to find some that have stood the test of time over several decades. One such technology is the ARINC 429 avionics bus protocol which is widely used in both commercial and military aerospace applications - and continues to find favour in, for example, Boeing's 787 Dreamliner. In this recent article for Military Embedded Systems, GE Intelligent Platforms looks at how ARINC 429 users are being supported.

The ARINC 429 data bus is a straightforward, legacy bus. It is a one-direction communications channel that transmits 32-bit messages at a rate of either 12.5 or 100 Kbits/sec. As many as 20 nodes can be hooked to a single pair of cables, but often there are only two boxes per bus. One is always the transmitter, while the other always receives.

However, the simplicity of individual bus construction breeds complexity if there are numerous buses on an airplane. Each box that needs to send data to other boxes will have its own bus connecting it to one or more of them. A complex box may need inputs from multiple computers in order to make its calculation and send it on. All of this message-passing occurs on a preset schedule to ensure deterministic behavior, which leads to complex timing and synchronisation issues. Simply wiring up the data bus infrastructure is a task in itself.



[Read the article here.](#)