BEYOND THE STANDARD:
Complete and integrated portfolio of hardware, software and services

ACROSS THE WORLD'S LEADING INDUSTRIES:
Pushing the boundaries of possibilities

LOOKING BEYOND THE SURFACE:
IoT-ready platforms – driving your embedded cloud
Our understanding of IoT is not just connecting devices and sensors and store as much data as possible. It is about smart applications that make use of the data to improve processes and efficiency as well as reducing environmental resources and costs.
COM Express® defines standardized form factors and pin-outs for Computer-on-Modules, from mini (84 x 55 mm), over compact (95 x 95 mm) to basic (125 x 95 mm). The different form factors allow the implementation of versatile computing solutions – scaling the performance and I/O support from low power, energy-efficient to high performance, comprehensive I/O interfaces.

**COMe-bCL6**
COM Express® basic Type 6 with 8th Generation Intel® Core™ / Xeon® Processors
- Up to 128 GByte DDR4 non-ECC/ECC memory
- Optional NVMe SSD onboard
- Industrial grade versions
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**COMe-bBD7**
COM Express® basic Type 7 with Intel® Xeon® and Pentium® D-1500 SOC processors
- Server-grade platform
- Up to 64 GByte DDR4 ECC 2x SODIMMs
- Dual 10GbE interfaces
- High-speed connectivity 24x PCIe 3.0 + 8x PCIe 2.0, 4x USB 3.0, 2x SATA3
- Industrial grade versions
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**COMe-bDV7**
COM Express® basic Type 7 with Intel Atom® processors C3000 product family
- Entry server-grade platform
- Up to 128 GByte DDR4 ECC 4x SODIMMs
- Quad 10GbE interfaces
- High-speed connectivity 14x PCIe 3.0, 4x USB 3.0, 2x SATA3
- Industrial grade versions
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**COMe-cVR6**
COM Express® compact Type 6 with AMD Ryzen™ Embedded V1000 APUs
- Leading graphics performance
- Up to 4 independent display support
- Up to 24 GByte DDR4 memory (8 GByte DDR4 memory down)
- Industrial grade versions
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**COMe-cAL6**
COM Express® compact Type 6 with Intel Atom® E3900 Series, Pentium® and Celeron® Processors
- Low-power – performance/Watt optimized form factor solution
- Up to 8 GByte DDR3L 1600 / 1867 memory (2x SODIMM socket)
- Triple display support
- 4x USB 3.0 / 2.0, 4x USB 2.0, 2x SATA, eMMC Flash
- Industrial grade versions
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**COMe-mAL10**
COM Express® mini Type 10 with latest generation Intel Atom® E3900, Pentium® and Celeron® Series
- Low-power – performance/Watt optimized small form factor solution
- Up to 8 GByte DDR3L memory down (ECC / non ECC)
- 2x USB 3.0 / 2.0, 6x USB 2.0, 2x SATA, eMMC Flash
- Industrial grade versions
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®
The Qseven® concept is an off-the-shelf, multi vendor, Computer-On-Module that integrates all the core components of a common PC and is mounted onto an application specific carrier board. Qseven® modules have a standardized form factor of 70 mm x 70 mm or 40 mm x 70 mm and have specified pinouts based on the high speed MXM system connector.

**Qseven®-Q7AMX8X**
Qseven® Module with low power NXP i.MX8X processor series
- Up to 4x 1.5 GHz Cortex®-A35 + 266 MHz M4F processor
- Up to 3 GByte RAM
- Dual display support
- Up to 3x PCIe, 5x USB2.0 (1x OTG), 1x USB3.0
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**Qseven®-Q7AL**
Latest Generation Intel Atom®, Pentium™ and Celeron® processor series
- Up to 8 GByte onboard DDR3L memory down (ECC / non ECC)
- Dual display support
- 2x USB 3.0, 4x USB 2.0 (1 x OTG), 2x SATA, eMMC onboard
- Industrial grade temperature
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**Qseven®-Q7AMX7**
Qseven® Module with extreme low power NXP i.MX7 processor series
- Up 2x 1 GHz Cortex®-A7 + 200 MHz M4 processor
- Up to 2 GByte RAM
- Dual channel LVDS interface
- Up to 3x PCIe, 4x USB2.0
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**BOARDS & MODULES – Qseven®**

**BOARDS & MODULES – SOM**

**SOM-i.MX6ULL/UL**
Cost effective Application Processor Power on 1 inch x 1 inch for small IoT Applications
- CPU NXP i.MX6ULL / UL (528 / 900 MHz)
- DDR3-RAM 256/512 Mbyte
- NAND-Flash 256/512 Mbyte, NOR-Flash 1 MByte
- 2x Ethernet, USB, Serial, 2x CAN, I/O
- LCD and Touch Interface
- Yocto Linux

**SOM-STM32MP157**
Triple Core Module for Graphics, Communication and Realtime Applications in Automation and Control
- CPU STMP157 (2x Cortex®-A7, 1x Cortex®-M4)
- DDR3-RAM 256/512 MByte
- NAND-Flash 256/512 MByte, NOR-Flash 2 MByte
- Ethernet, USB, Serial, CAN, I/O, SDIO, 1²C, SPI, PWM
- LCD and Touch Interface
- Yocto Linux
Low-power embedded architecture platform with 82 mm x 50 mm for Computer-on-Modules based on Arm® and X86 technology. Perfect fit for mobile, embedded, connected solutions with scalable building blocks. Optimized pin-out definition for versatile architectures. Constructed to withstand harsh industrial environments.

**SMARC™-sAMX8X**
SMARC™ module with low power NXP i.MX8X series processor
- Up to 4x Cortex®-A35 + Cortex®-M4 processor
- Up to 3 GByte RAM
- Dual channel LVDS interface, HDMI, DP
- Up to 2x GByte Ethernet, 3x PCIe, 6x USB 2.0, 1x USB 3.0
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**SMARC™-sAL28**
SMARC™ module with NXP LS1028 Layerscape Processor
- Dual-Core Cortex®-A72 on a SMARC™ short size form factor
- Up to 4 GByte DDR3L non-ECC and ECC memory down. ECC as default.
- One PCIe line can be used as QSGMII port to drive 4 1 GByte TSN capable Ethernet ports
- 3D GPU
- 2x Gigabit Ethernet, TSN capable
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**SMARC™-sXAL**
SMARC™ 2.0 module based on Intel® Atom® E3900, Pentium® and Celeron® processor series
- Up to 8 GByte DDR3L memory down (ECC / non ECC)
- Triple display support
- 2x USB 3.0, 4x USB 2.0 (alternatively 1x USB OTG), 1x SATA, eMMC onboard
- Industrial grade versions
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**SMARC™-sAMX7**
SMARC™ Module with extrem low power NXP i.MX7 series processor
- Up to 2x 1 GHz Cortex®-A7 + 200 MHz M4 processor
- Up to 2 GByte RAM
- Dual channel LVDS interface
- Up to 2x GByte Ethernet, 3x PCIe, 4x USB 2.0
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®
Kontron’s longevity motherboards follow international industry size standards with well-defined mounting holes and standard I/O bracket areas. The Embedded and Server motherboards offer up to 7 years product availability. In applications where permanence and risk avoidance must be optimized, Kontron’s experience in a variety of markets leads customers to the solution that meets their critical programming and cost objectives.

mITX-APL
Embedded mITX Motherboard with Intel Atom® E39xx Series and Celeron® N3350 processor
- High performance CPU, graphics and media performance supporting up to 3 independent displays
- mPCIe full size, CAN bus and eMMC card
- SO-DIMM Sockets DDR3L-1867 Memory (up to 8 GByte)
- LVDS 24 Bits dual channel and Display Port 1.2
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

mITX-SKL-H / KBL-H
Embedded mITX Mobile Motherboard with Intel® CM236, 6th/7th Generation 14nm Intel® Xeon® E3, Quad Core™ i7/i5 and Celeron® processor
- Mobile Class high performance CPU, graphics, and media performance supporting 3 independent displays
- SO-DIMM Socket DDR4-2133 Memory (up to 32 GByte)
- 1x Mini-PCie with USB 2.0/PCI/SATA and external to SIM
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

mITX-CFL-S
Mini-ITX Industrial Motherboard with Intel® Coffee Lake S-Series processors
- 1x eDP, 1x HDMI, 2x DP for display output
- 3x GbE LAN for Ethernet
- Up to 6x USB 3.1, up to 4x USB 3.0, 4x USB 2.0, 2x RS232/422/485, 2x RS232, 1x 8-bit DIO
- 2x SATA for storage
- 1x PCIe x16, 1x M.2 Key M, 1x M.2 Key A, 1x M.2 Key B for expansion

mITX-DNV
Mini-ITX Industrial Motherboard with 8th Gen. Intel® processor
- 1x VGA for display output
- 6x GbE LAN for Ethernet
- 4x USB 3.0, 2x USB 2.0, 2x RS232/422/485, 1x 8-bit DIO for peripherals
- Up to 6x SATA 3.0, Up to 1x mSATA, 1x M.2 Key B, optional eMMC for storage
- Up to 1x mPCIe, 1x PCIe x8 for expansion
FlexATX-SKL-S/KBL-S-C236
Embedded FlexATX Desktop Motherboard with 6th/7th Gen. 14nm Intel® Xeon® E3 and Quad Core® i7/i5/i3 processor

- High performance CPU, graphics, and media performance supporting up to 3 independent displays
- Long term available Embedded FlexATX Desktop Class Motherboard
- mPCIe, M.2 socket and PCIe expansion slots (1x16, 1x4, 1x1)
- Direct X12, Open GL 4.4
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

3.5-SBC-APL
3.5” Embedded Single Board Computer with Intel Atom® E39xx series and Celeron® N3350 processor

- Intel Atom® E39xx and N3350 SOC (2 or 4 cores), TDP: 6-12 W
- LVDS 18/24 Bit dual channel / Display Port 1.2 / HDMI
- SO-DIMM Socket DDR3L-1867 Memory (up to 8 GByte)
- eMMC NAND Flash build-in
- 2x RJ-45 LAN Port
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

3.5”-SBC-KBL-U
3.5” Embedded Single Board Computer with Intel® 7th Gen. 14nm Dual Core i3/i5/i7 and Celeron® 3965U processor

- High performance CPU, graphics, and media performance supporting up to 3 independent displays
- 1x LVDS, 1x HDMI 2.0, 1x DP for display output
- 2x GbE LAN for Ethernet
- 4x USB 3.0, 2x USB 2.0, 2x RS232/422/485, 1x 8-bit DIO for peripherals
- 2x SATA 3.0 for storage
- 1x mPCIe, 1x M.2 for expansion

pITX-APL
Embedded pITX Motherboard with Intel Atom® E39xx Series and Celeron® N3350 processor

- High performance CPU, graphics, and media performance supporting up to 3 independent displays
- mPCIe half size, uSD/uSIM Card Combo
- SO-DIMM Sockets DDR3L-1867 Memory (up to 8 GB)
- LVDS 24 Bits dual channel and Display Port 1.2
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

pITX-iMX8M
Embedded pITX Motherboard with NXP’s Dual Core™ or Quad Core™ processors based on Arm® Cortex®-A53

- High performance CPU, graphics, and media performance supporting up to 3 independent displays
- Long term available Embedded FlexATX Desktop Class Motherboard
- mPCIe, M.2 socket and PCIe expansion slots (1x16, 1x4, 1x1)
- Direct X12, Open GL 4.4
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

piTX-APL
Embedded piTX Motherboard with Intel Atom® E39xx Series and Celeron® N3350 processor

- High performance CPU, graphics, and media performance supporting up to 3 independent displays
- mPCIe half size, uSD/uSIM Card Combo
- SO-DIMM Sockets DDR3L-1867 Memory (up to 8 GB)
- LVDS 24 Bits dual channel and Display Port 1.2
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

Raspberry Pi
Customized 4.3" module for industrial applications

- Standard Technology
- High grade of customization
- Quick migration from the Pi prototype to industrial serial product
- Heavy duty interfaces for rough industrial environment
- Using Industrial TFT Displays with LVDS
- 24 V power supply

BOARDS & MODULES – EMBEDDED MOTHERBOARDS / SBC
BLADES - VME / CPCI

VME remains a strong solution for a wide variety of tech refresh programs. Kontron continues its investment in evolving a fully-featured VME product line, available in natural/forced air-cooled or rugged conduction cooled. Kontron offers one of the broadest portfolios on CompactPCI boards and Platforms in the market. Choosing from scalable 3U or 6U boards, you can configure your CompactPCI Platform to your application needs.

**VM6103**
6U VME Low Power Rugged Blade Computer
- NXP Layerscape Dual/Quad-Core 64-bit Arm® based Processor
- < 10 W Low Power Dissipation
- High versatility with I/O expansions
- Long Term Supply

**CompactPCI CP3005-SA**
3U CompactPCI® CPU Board with 8th Gen Intel® Core™ and Xeon®
- More performance-per-watt with up to 6 cores
- Long term programs: 10 years or more
- Expansions for I/O, storage, XMC, M.2 flash
- Rugged VITA47 EAC3, extended temperature
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

**CompactPCI CP6006-SA**
For Server Applications In Demanding Environments
- PICMG 2.16 Intel® Xeon® D Server Blade
- 64 GByte RAM option best for virtualization
- Production in Europe for export sensitive projects
- High bandwidth backplane option PCI Express® x8 and 10Gb-Ethernet
- Security onboard for TPM and APPROTECT
- Rich connectivity, storage and extension capabilities

BLADES – VPX

VPX is particularly suited for 10G Ethernet or PCI-express parallel computing, in systems where small size, weight, power and cost (SWaP-C) are critical such as in many aerospace and defense applications, but also in the design of redundant architecture for critical applications. Kontron markets a full range of 3U and 6U VPX blade products and systems with Long Term Supply services.

**VX305C-40G**
3U VPX 12-Core Intel® Xeon® Processor
- 40 Gigabit Ethernet Data Plane
- Dual 10 Gigabit Ethernet Control Plane
- Up to 32 GByte soldered DDR4 with ECC
- Designed for I/O intensive workloads in Open System Architecture systems
- Extended Life Cycle and 10-year Silicon Reliability

**VX3106**
3U VPX Low Power Network Blade SBC
- Quad Core™ 12 GHz 64-bit Arm®-A72 Processor
- High Performance Neon SIMD Co-processor and Double Precision FPU
- 6x 1 Gb ETHERNET Ports
- High Capacity Storage
- Low Power, fit for Natural Convection
- 10 year Long Term Supply and Support

**VX6058**
6U VPX B-Core Intel® Xeon® D SBC
- Value line general upgrade of 1G Ethernet switched signal processing systems
- 2D SXGA Graphics Controller
- Connectivity:
  - Multiple 10G & 1G Ethernet Ports
  - Low Speed 17CFM Air Cooling capability
The KBox B- and C-series are designed to meet high performance requirements. The C-series is a perfect fit for control cabinet or harsh environments, whereas the B-series fits into desktop and control room applications. The B- and C-series offer a broad range of interfaces and storage capabilities with RAID functionality as an option.

KBox B-201-CFL
Industrial Computer Platform for Desktop and Control Room Applications
- High processing capability: 8th Gen Intel® Core™ i3/i5/i7 or Xeon® E3
- Low noise design with internal silent fan
- Small form factor with mITX motherboard
- Removable 2.5” SSD
- Option for 2 PCIe expansion cards
- Kontron APPROTECT based on Wibu-Systems CodeMeter®

KBox C-102 Series
Industrial Box PC for Control, Inspection & Data Collection
- Based on 6th Gen Intel® Core™ i3/i5/i7 or Xeon® E3 for demanding applications
- Modular approach – Forever Young
- Maximum of flexibility and expansion capabilities
- Maintenance-free operation
- Rescue functionality (rescue button)
- Kontron APPROTECT based on Wibu-Systems CodeMeter®
The KBox A-series is designed for a variety of applications, especially for IoT edge computing. It includes compact and flexible Industrial Box PCs with gateway functions which handle control & process optimization on-site. The systems feature a maintenance-free design which ensures a significantly prolonged lifespan and high system availability.

KBox A-250
Industrial Box PC for IoT Gateway Applications
- Intel Atom® x5-E3930/E3940/E3950 processor
- Based on a pITX-2.5” SBC with excellent price/performance ratio
- Intelligent IoT gateway for edge analytics, data collection, remote monitoring
- WiFi, GSM and LTE option available
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

KBox A-203
Industrial Box PC for IoT Gateway Applications
- Intel Atom® x5-E3930 processor
- Intelligent IoT gateway for edge analytics, data collection, remote monitoring
- Maintenance-free operation
- Broad range of interfaces and expansion capabilities
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

KBox A-230-LS
Industrial Box PC for Networks with TSN Capability
- NXP Dual Cortex™-A72 LS1028 processor
- 4x 10/100/1000 MBit ETH TSN Switch ports (2500 MBit support on request)
- 1x 10/100/1000 MBit TSN CPU port and 1x GbE ETH
- Up to 4 GByte DDR3L memory
- Maintenance-free operation
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

KBox A-15x Series
DIN RAIL Industrial Box PC for Control & Process Optimization
- Scalable performance from Intel Atom® Quad Core™ up to 7th Gen Intel® Core™ i5 processors
- Fanless, flexible DIN RAIL mounting, turnable heatsink optional
- Broad range of interfaces and expansion capabilities
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

KBox A-330-RPI
Industrial Box PC with Raspberry Pi for Gateway Applications
- Broadcom® BCM2837 Quad Core™ Arm® processor
- Huge software community, various OS supported
- Secure software stacks and management software on project request

KBox A-330-MX6
Industrial Box PC for Control & Gateway Applications
- Based on NXP i.MX6 Dual Core™ Arm® processor
- Industrial grade, 10 years availability
- Optionally CODESYS PLC, EtherCAT, PROFINET, Modbus, CAN
- Secure software stacks and management software on project request

Available in Q2
Kontron’s Panel PCs, Monitors and Web Panels offer a wide range of processor capacities and display sizes. Displays in wide-screen or regular format from 7” to 75” and touch functionalities (PCAP or resistive or IR) increase intuitive usability. Kontron’s industrial HMIs are ready-to-run systems with flexible mounting and customization options which meet the toughest industrial requirements concerning shock, vibration and temperature resistance.

**FlatClient**  
Industrial HMI – Flexibility in Size, Format and Performance
- Display sizes in regular or wide format (10.1” – 23.8”)
- Front options: PCAP touch, resistive touch or protection glass
- ECO version (Intel® Celeron® Quad Core™) and PRO version (Intel® Core™ i5) available
- Industrial grade – robust, reliable, versatile and maintenance-free
- Flexible mounting options: Built-in version or stand-alone/VESA in a full metal housing

**FlatView**  
Industrial Monitor – Flexibility in Size and Format
- Display sizes in regular or wide format (10.1” – 23.8”)
- Front options: PCAP touch, resistive touch or protection glass
- Industrial grade – robust, reliable, versatile and maintenance-free
- Easy-clean, anti-glare and scratch-proof IP65 protected front glass
- Flexible mounting options: Built-in version or stand-alone/VESA in a full metal housing

**FlatClient / FlatView XXL**  
Industrial HMI with large-screen - a new Dimension of Visualization
- Display sizes 32” – 75” with/without touch
- Full-HD or Ultra-HD resolution
- Industrial grade (IP54) – robust, reliable, versatile and maintenance-free
- Anti-glare, scratch-proof front glass
- Monitor and Panel PC (ECO: Intel® Celeron® Quad Core™ / PRO: Intel® Core™ i5)
- Long term availability and reliable 24/7 operation

**FlatClient HYG**  
Industrial HMI with IP69K for Environments with High Hygiene Standards
- Designed for high hygiene standards following EHEDG guidelines
- Stainless steel housing with IP69K protection (support arm version)
- Suited for washdown applications (e.g. high-pressure cleaning)
- Scalable performance from Intel® Atom® to Intel® Core™ i5
- Smooth, seamless display surface for perfect cleanability

**Control Panel CP**  
Innovative Control Panel with Scalable Performance
- Capacitive multi-touch control panel in high quality design
- Various display dimensions with high resolution: 7”, 10.1”, 15.6”
- Arm® NXP i.MX6 or Intel Atom® E3800 processor
- Stainless steel or aluminium front
- Easy customization with standard building blocks
- Scalable computing performance and interfaces
- CODESYS SoftPLC

**Web Panel WP**  
Innovative Web Panel with Scalable Performance
- Capacitive multi-touch web panel in high quality design
- Various display dimensions with high resolution: 7”, 10.1”, 15.6”
- Arm® NXP i.MX6 or Intel Atom® E3800 processor
- Stainless steel or aluminium front
- Easy customization with standard building blocks
- Scalable computing performance
- High performance HTML5 browser and option for a sleek micro-browser by iniNet
Kontron offers a wide range of standard software as well as platform solutions for the complete Industrial Internet of Things (IIoT) infrastructure from a single source. Ranging from standard and custom BIOS versions up to offering completely integrated platforms for edge and cloud applications, Kontron provides specifically customer-tailored solutions.

**Security**

Kontron addresses the need for security with a holistic approach, targeting all security layers of an Embedded System.

- **System Boot-Time Security:** Secure/Trusted-Boot and update implementations available for all systems with the latest generation of Intel® Xeon®, Core™ and Intel Atom® CPUs
- **Secure Operating Systems:** Attractive bundlings with operating systems like Windows 10 IoT or Linux
- **Application Level Security Solution Kontron APPROTECT**
  Kontron APPROTECT is based on Wibu-Systems CodeMeter® technology and provides copy protection to fully safeguard customers’ IP and reverse engineering protection with hardware based encryption. Optionally it enables new data based pay-per-use business models by restricting runtime with flexible license management locally or over a cloud platform.

**Device Monitoring**

Knowing the sensor status and system’s health is key for machine control and predictive maintenance scenarios. Kontron offers complete and secure software packages and starter kits for edge and cloud computing.

- **System Level API:** Standard or custom applications like system’s health tools can easily access device and sensor information through Kontron Embedded API (KEAPI) functions
- **Cloud connectivity:** Kontron provides software stacks for simple cloud integration. These software SDKs are available for the device and cloud part and can easily be adopted for custom purposes.
- **Local or Remote management:** By installing local or cloud based device management software, Kontron devices can easily be supervised and managed.

**Starter Kits**

**LoRaWAN Starter Kit**
- Out of the box – plug and play sensor and cloud solution
- Including Industrial LoRaWAN gateway, capable to connect thousands of sensors
- Easy integration of additional sensors
- Dashboard and server access, everything included out of one hand

**IoT Starter Kit**
- Out of the box – sensor I/O solution based on Microsoft Azure
- Configure and quickly access remote I/O
- Scalable hardware starting on ESP based sensors, over Raspberry Pi, NXP IMX6 to Intel® based x86 servers
- Dashboard and server access, everything included out of one hand

**SUSiEtec**

Within Industry 4.0 applications, the IoT software framework SUSiEtec integrates edge-, fog- and cloud infrastructures, connecting all the components and providing analysis and processing of the data generated. SUSiEtec enables companies to adopt a hybrid, scalable approach to their IoT scenarios combining the advantages of an on-premise solution with professional services and cloud infrastructures. The modular framework can be customized to flexibly fit the requirements of different applications and adapts to existing automation solutions.

**SUSiEtec - Service Approach**
- Out of the box solution for device & Fleet management
- Improving the performance of any service organization instantly
- Smartphone and tablet integration

**SUSiEtec - Artificial Intelligence**
- Hardware demonstrating AI (Intel® OpenVINO™, Intel® Movidius™ Myriad™ X VPU), demonstrating vision-based AI
- Ready to use training environment
- AI made simple: programming interface supporting .NET e.g. C#
TIME SENSITIVE NETWORKING

Time Sensitive Networking (TSN) is a set of international standards (IEEE-802.1 TSN), based on Ethernet, which should lead into a standardized, converged, Industrial Ethernet for both the needs of a classical IT environment and the operational fieldbus area. The benefits are obvious and will span across a simplified network infrastructure, lower product cost and even introducing virtual networks and server infrastructure.

In order to address these new opportunities, Kontron has developed the PCIe-0400-TSN, a PCI Express® based Network Interface Card (NIC) with TSN support to implement time-critical applications, as well as a starterkit consisting of a KBox C-102-2 and the TSN NIC as an extension solution for standard industrial PCs, enabling an easy entry into TSN.

PCIE-0400-TSN
PCIe Network Interface Card with integrated TSN switch
- Connects directly to a redundant TSN ring-, line- or star network
- IEEE-802.1 TSN compliant
- Industrial grade, half size, low profile

KBox A-230-LS
Industrial Box PC for Networks with TSN Capability
- NXP Dual Cortex®-A72 LS1028 processor
- 4x 10/100/1000 MBit ETH TSN Switch ports (2500 MBit support on request)
- 1x 10/100/1000 MBit TSN CPU port and 1x GbE ETH
- Up to 4 GByte DDR3L memory
- Maintenance-free operation
- Kontron APPROTECT security solution based on Wibu-Systems CodeMeter®

KBOX C-102-2 TSN
TSN Starterkit
- Pre-installed TSN platform for Industrial Automation
- Intel® Core™ i5 based KBox C-102 dual slot system
- 1st slot with PCIe-0400-TSN Network Interface Card, 2nd slot free for expansion
- Easy integration of devices into TSN network

Available in Q2

EMS - ELECTRONIC MANUFACTURING SERVICES

- Production in DACH, East Europe and Asia
- Boxbuilding from PCBA to System
- Low Volume - High Mix / High Volume
- Certifications for IEC 13485; UL; ATEX; Apple MFi
- Product & Cost Analysis
- Lifecycle Analysis & Management
- ODM Service
- Global Delivery
- Internal 2nd Source
- Broad Technology Competence in S&T Group
Kontron’s standards-based commercial off the shelf (COTS) and custom products offer transportation OEMs worldwide presence and experience. Each global and local application in rail, road and shipping traffic demands specific computing technology, answered effectively with Kontron’s wide product portfolio and extensive experience in these transportation segments.

**In-Vehicle**

**Rugged Cellular Server**

- Rugged, fanless, IP67, application computing platform for vehicles
- Small form factor with high performance Intel Atom® E3845 processor @ 1.91 GHz
- GbE port and fully ISO 11898-2 compliant CANBUS 2.0 A/B
- 3G/4G LTE Modem with GPS and remote out antenna
- 9-36 VDC vehicle power input with surge protection and filtering

**In-Vehicle**

**Rugged WiFi Server**

- Rugged, fanless, IP67, application computing platform for vehicles
- Small form factor with high performance Intel Atom® E3845 processor @ 1.91 GHz
- Dual GbE port and fully ISO 11898-2 compliant CANBUS 2.0 A/B
- 802.11 b/g/n dual-band with Access Point capability and integrated antenna
- 9-36 VDC vehicle power input with surge protection and filtering
Kontron TRACe™ platforms are designed to make customization faster, system integration easier and reduce time to market while shrinking maintenance and support costs over the entire lifetime of the program. TRACe™ platforms uniquely provide:

- Long term support services for long lifetime programs, up to +25 years.
- Advanced health management tools with pre-installed CMON-Line Monitoring module, enabling operators to monitor the entire fleet, better anticipate maintenance, reduce turn-around times and increase the overall availability of the units.
- Kontron Security Solution “APPROTECT” offering comprehensive security mechanisms such as IP and copy protection while avoiding reverse engineering.

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<td>TRACe-B40x-TR</td>
<td>EN50155 Rugged Fanless Computer&lt;br&gt;&lt;br&gt;EASY CUSTOMIZATION TO MATCH ANY ROLLING STOCK APPLICATION REQUIREMENTS&lt;br&gt;FANLESS, SMALL SIZE, RUGGED RAILWAY COMPUTER&lt;br&gt;INTEL ATOM® E3900 SERIES OR 6TH GEN INTEL® CORE™ I7/I3</td>
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<tr>
<td>TRACe V40x-TR</td>
<td>EN50155 Fanless Railway Performance Class Network Video Recorder&lt;br&gt;&lt;br&gt;6TH GEN INTEL® CORE™ I7-6600U OR CORE™ I3-6100U&lt;br&gt;2X HOT-SWAPPABLE SATA III DRIVE BAYS WITH KEY LOCKS&lt;br&gt;2X LAN FOR IP CAMERAS VIDEO RECORDING</td>
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<td>TRACe RM404-TR</td>
<td>19 Inch EN50155 Railway Computer&lt;br&gt;&lt;br&gt;FANLESS BOX COMPUTER FOR TRAIN CONTROL APPLICATIONS&lt;br&gt;19” 1.5U RACKMOUNT&lt;br&gt;INTEL ATOM® APOLLO LAKE E3940</td>
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<td>TRACe LP1</td>
<td>EN50155 Fanless IoT Gateway featuring Semtech’s LoRaWAN™ wireless RF IC solution&lt;br&gt;&lt;br&gt;FANLESS IoT RUGGED GATEWAY WITH LPWAN TECHNOLOGY&lt;br&gt;CONCENTRATES AND CONVERTS MESSAGES FROM LORAWAN™ CERTIFIED SENSORS TO SECURE MQTT DATA STREAMS&lt;br&gt;CLOUD CONNECTIVITY THROUGH WIRED ETHERNET, 4G LTE OR WI-FI&lt;br&gt;CLOUD SERVER ON PUBLIC URL FOR SECURE DATA COLLECTION AND REMOTE ANALYSIS</td>
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<td>TRACe HMID104</td>
<td>Fanless Railway Driver Console&lt;br&gt;&lt;br&gt;INTEL ATOM® E3845 QUAD CORE™ @ 191 GHZ&lt;br&gt;PROJECTED CAPACITIVE TOUCH SCREEN AND UIC612-01 HARDKEYS LAYOUT&lt;br&gt;UPGRADABLE AND SCALABLE (MINI PCI-E CARD SLOTS)&lt;br&gt;IP65 DUST AND WATER JET ON FRONT / IPS4 REAR AND SIDES</td>
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<td>TRACe NET xM8P2G-1</td>
<td>Industrial Ethernet Switch for Railway applications&lt;br&gt;&lt;br&gt;FAST REDUNDANT RING (&lt;10 ms OVER 250 CONNECTIONS)&lt;br&gt;SNMP v1/v2c/v3, STP/RSTP/MSTP, IGMP v2/v3, PTP CLIENT, LLDP PROTOCOL&lt;br&gt;TRAFFIC MONITORING, SYSLOG, E-MAIL &amp; RELAY FAULT NOTIFICATION&lt;br&gt;SIMPLE CONFIGURATION USING TRACe-NET VIEW&lt;br&gt;DUAL REDUNDANT POWER SUPPLIES&lt;br&gt;EN50155 CLASS Tx (-40 °C TO +70 °C)&lt;br&gt;IEC 61375 COMPLIANT WITH TTDP SUPPORT</td>
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About Kontron – Member of the S&T Group

Kontron is a global leader in IoT/Embedded Computing Technology (ECT). As a part of technology group S&T, Kontron, together with its sister company S&T Technologies, offers a combined portfolio of secure hardware, middleware and services for Internet of Things (IoT) and Industry 4.0 applications. With its standard products and tailor-made solutions based on highly reliable state-of-the-art embedded technologies, Kontron provides secure and innovative applications for a variety of industries. As a result, customers benefit from accelerated time-to-market, reduced total cost of ownership, product longevity and the best fully integrated applications overall.

For more information, please visit: [www.kontron.com](http://www.kontron.com)