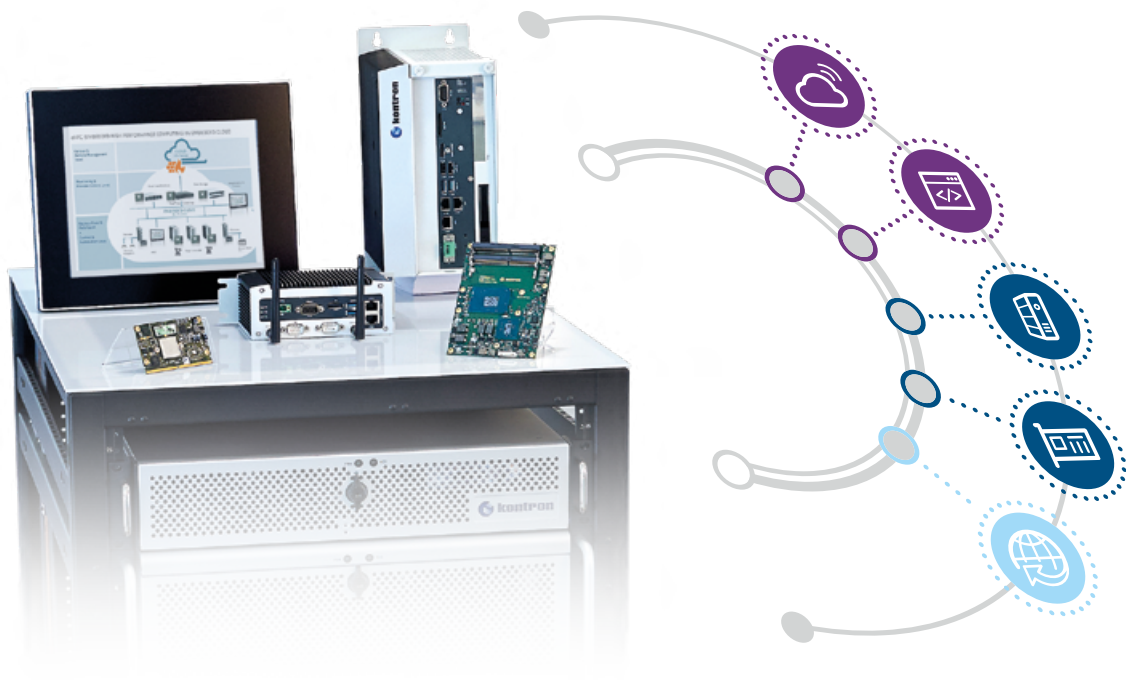Secure and Connected:
DRIVING YOUR APPLICATIONS FORWARD

▼

▶ **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

POSSIBILITIES START HERE **kontron**

▼

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-bSL6 / COMe-bKL6
COM Express® basic Type 6 with 6th/7th Generation Intel® Core™ and Xeon® v5/v6 Processors

▶ High performance – brilliant graphics support
▶ Up to 32 GB DDR4 non-ECC/ECC memory
▶ Up to 3 independent display support
▶ Industrial grade versions
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

COMe-bBD7
COM Express® basic Type 7 with Intel® Xeon® and Pentium® D-1500 SOC processors

▶ Server-grade platform
▶ Up to 32 GB 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
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

COMe-bDV7
COM Express® basic Type 7 with Intel Atom® processors C3000 product family

▶ Entry server-grade platform
▶ Up to 64 GB DDR4 ECC 4x SODIMMs
▶ Quad 10GbE interfaces
▶ High-speed connectivity 14x PCIe 3.0, 4x USB 3.0, 2x SATA3
▶ Industrial grade versions
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

COMe-cSL6 / COMe-cKL6
COM Express® compact Type 6 with 6th/7th Generation Intel® Core™ Processors

▶ Low power consumption – excellent graphics support
▶ Up to 24 GB DDR4 memory (8 GB DDR4 memory down)
▶ Up to 3 independent display support
▶ Up to 10 lanes PCIe 3.0
▶ 4x USB 3.0, 2x SATA 6G
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

COMe-cVR6
COM Express® compact Type 6 with AMD RYZEN Embedded V1000 APUs

▶ Leading graphics performance
▶ Up to 3 independent display support
▶ Up to 24 GByte DDR4 memory (8 GByte DDR4 memory down)
▶ Industrial grade versions
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

COMING SOON

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 GB 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
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

▼

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 GB DDR3L memory down (ECC / non ECC)
▶ 2x USB 3.0 / 2.0, 6x USB 2.0, 2x SATA, eMMC Flash
▶ Industrial grade versions
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

BOARDS & MODULES – Evaluation Carrier

COM Express®

▼

COMe Evaluation Carrier-i T10 TNI
COM Express® Reference Carrier Type 10 for industrial temperature Specifications

▶ COM Express® Rev. 2.1, Pin-out Type 10
▶ nano-ITX Form Factor (120 mm x 120 mm)
▶ Comprehensive connectivity
▶ Industrial temperature grade

COMe Evaluation Carrier-i T6 TMI
COM Express® Reference Carrier Type 6 for industrial temperature Specifications

▶ COM Express® Rev. 2.1, Pin-out Type 6
▶ mini-ITX Form Factor (170 mm x 170 mm)
▶ Comprehensive connectivity
▶ Industrial temperature grade

COMe Evaluation Carrier T7
COM Express® Evaluation Carrier Type 7

▶ COM Express® Rev. 3.0 Pin-out Type 7
▶ ATX Form Factor (305 mm x 244 mm)
▶ 4x 10GbE support
▶ 32x PCI lanes: 1x PCIe x16, 1x PCIe x8, 1x PCIe x4, 4x PCIe x1
▶ 4x USB 3.0, 2x SATA, 2x RS232, GPIO
▶ BMC via adapter card

BOARDS & MODULES – QSEVEN

Q SEVEN

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 70mm x 70mm or 40mm x 70mm and have specified pinouts based on the high speed MXM system connector

Qseven – Q7AL
Latest Generation Intel Atom®, Pentium™ and Celeron™ processor series

▶ Up to 8GB onboard DDR3L memory down (ECC / non ECC)
▶ Dual display support
▶ 2 x USB 3.0, 4 x USB 2.0 (1 x OTG), 2 x SATA, eMMC onboard
▶ Industrial grade temperature
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

Qseven-Q7AMX7
Qseven Module with extreme low power i.MX7 processor series

▶ Up 2x 1GHz Cortex® A7 + 200 MHz M4 processor
▶ Up to 2 GByte RAM
▶ Dual channel LVDS interface
▶ Up to 3x PCIe, 4x USB2.0
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

Qseven - Evaluation Carrier 2.1.
The Qseven Evaluation Carrier 2.1 is designed to allow embedded application developers to get up and running quickly on the Qseven modular platform, giving them a head start on total system design.

Qseven - Evaluation Carrier 2.1
Evaluation Carrier Board for Qseven 2.1 based Computer-on-Modules

▶ Broad range of interface options for design development flexibility
▶ Compliant with Qseven 2.1 specifications by SGET

BOARDS & MODULES – SMARC™

SMARC

Low-power embedded architecture platform 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-sXAL
SMARC 2.0 module based on Intel Atom® E3900, Pentium® and Celeron® processor series

▶ Up to 8 GB 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
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

SMARC-sAMX7
SMARC Module with extrem low power 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
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

SMARC 2.0 Carrier
SMARC Evaluation Carrier

▶ Evaluation Carrier Board for ultra-low power ARM and SoC-based Computer-on-modules
▶ Broad range of interface options for design development flexibility
▶ Dual power options for mobile and fixed base applications
▶ Compliant with SMARC 2.0 (Smart Mobile Architecture) specification by SGET

BOARDS & MODULES – EMBEDDED MOTHERBOARDS / SBC

▼

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 GB)
▶ LVDS 24 Bits dual channel and Display Port 1.2
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

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 GB)
▶ 1x Mini-PCIe with USB2.0/PCI/SATA and external to SIM
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

mITX-SKL-S-H110/C236 / KBL-C236
Embedded mITX Desktop Motherboard with 6th/7th Generation 14nm Intel® Xeon® E3 and Quad Core™ i7/i5/i3 processor

▶ Desktop Class high performance CPU, graphics, and media performance supporting up to maximum 3 independent displays (VGA/DP/HDMI/LVDS)
▶ Long term available Embedded mITX Desktop Class Motherboard
▶ mPCIe (half size) and TPM
▶ Two SO-DIMM Sockets DDR4-2133 Memory (up to 32 GB)
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

FlexATX-SKL-S/KBL-S-C236
Embedded FlexATX Desktop Motherboard with 6th 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
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

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 GB)
▶ eMMC NAND Flash build-in
▶ 2x RJ-45 LAN Port
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

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
▶ Support of Kontron's Embedded Security Solution (APPROTECT)

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.

VM6054
6U VME High Performance Blade Computer

▶ Intel® Quad-Core 3612QE at 2,1 GHz
▶ Comprehensive I/O Capabilities
▶ Commercial and Rugged Versions
▶ Simple Line-Placement – compatible VME eco system
▶ Long Term Supply

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 CP6006-SA
For Server Applications In Demanding Environments

▶ PICMG 2.16 Intel® Xeon® D Server Blade
▶ 64 GB 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.

VX6090
6U VPX Dual 8-Core Intel® Xeon® D Multi-Processing Board

▶ 16 GB DDR4 memory with ECC per SoC soldered on PCB
▶ Connectivity: 4x 10 G & multiple 1 G Ethernet Ports
▶ M.2 SATA III SSD Sockets
▶ 2-D graphics interface
▶ Extended Life Cycle and Silicon Reliability
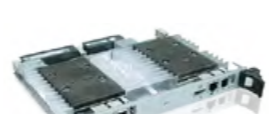
VX6058
6U VPX 8-Core Intel® Xeon® D SBC

▶ 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

VX3058
3U VPX 8-Core Intel® Xeon® Processor

▶ Fit for Virtual Machines and HPEC Applications
▶ Extended Life Cycle and 10-year Silicon Reliability
▶ Dual 10 Gigabit Ethernet, x8 PCI Express Gen3 Bandwidth
▶ 16 GB DDR4 with ECC

SYSTEMS - INDUSTRIAL SERVERS / SWITCHES

▼

Kontron's industrial servers are designed and tested for challenging environments, and are therefore the perfect fit for extreme temperature and mechanical stress conditions. Efficient thermal concepts, customizable designs, high performance computing and graphics power enable 24/7 operation for high-end applications. They are specifically designed for use in rough industrial environments and can withstand exposure to extended shock, vibration and temperature levels.

HPW 410
High Performance Workstation/ Embedded Server

▶ Industrial grade for challenging environments – robust, reliable and sustainable
▶ Single or dual Intel® Xeon® E5 for high performance applications
▶ Up to 3 high performance GPGPUs for extensive graphics applications
▶ Low noise level
▶ Modular concept for easy customization

ZINC19 2U/4U
Scalable Rackmount Systems for Challenging and Noise Sensitive Environments

▶ Industrial grade for challenging environments – robust, reliable and sustainable
▶ High processing capability with 7th Gen Intel® Core™ i3/i5/i7 or Xeon® E3
▶ Low noise level
▶ Modular concept for easy customization

RES2404-PTP / RES2404-PTP-PoE
High Performance Rugged Ethernet Switch System/Module

▶ Powerful 19" 1U fully managed with IEEE-1588 Precision Time Protocol support
▶ Up to 24x 1G RJ45 ports plus 4x 10G SFP+ ports, PoE+ support
▶ Wide temperature range, high shock and vibration robustness
▶ For powerful and demanding applications in harsh environments

SYSTEMS – SERVERS ENABLING THE EMBEDDED CLOUD

▼

On-premise server technology is becoming more and more important for process control, device management and analytics. The on-premise infrastructure has to be highly available and provide secure connectivity.
Kontron's cloud platforms are designed for the software defined world. Service providers and enterprise clients around the globe can deploy new services with greater speed, confidence and operational efficiency.

ZINC CUBE C232
Embedded Server for High Performance/Cloud Computing

▶ Compact desktop server with high performance and extended storage functions
▶ Excellent price/performance ratio
▶ High processing capability with 7th Gen Intel® Core™ i7/i5/i3 or XEON® E3
▶ Qualified for Windows and Linux Server OS
▶ Modular concept for easy customization

CC2800
High-Density Cloud Storage Server

▶ Ultra-scalable big data and storage
▶ Cost-efficient, high performance
▶ Dual socket Intel® Xeon® E5-2600 v3 / v4 Series of processors with up to 512 GB of memory
▶ Twelve 3.5"/2,5" high capacity, hot-pluggable HDDs/SSDs for up to 128 TB of storage
▶ 4x FHHL PCI-e 3.0 expansion slots

SOFTWARE

▼

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, fog or 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®'s XEON®, Core™ and Atom™ CPUs

▶ **Secure Operating Systems:**
Attractive bundlings with operating systems like Windows 10 IOT or Linux

▶ **Application Level Security with APPROTECT powered by WIBU:**
Copy protection to fully safeguard customers' IP and reverse engineering protection with hardware based encryption; on top enabling new business models by restricting runtime or offering flexible license management locally or over a cloud management platform
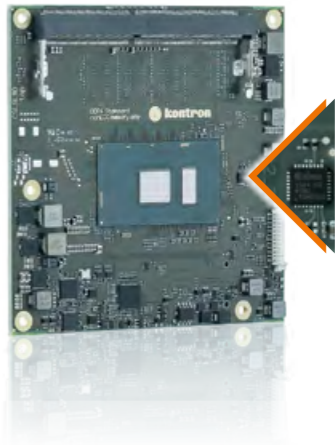
Remote Device Monitoring
Knowing the system's health and status is key for predictive maintenance scenarios. Kontron offers complete and secure building blocks from the edge device to local, on-premise server installations to fully virtualized public cloud solutions

▶ **System Level API:**
Custom applications like system's health can easily be accessed by running the Kontron Embedded API (KEAPI) functions

▶ **Local or Remote Http(s) interface:**
By installing the Device Monitoring Control and Management Tools (DMCM) system health information can easily be displayed or accessed

▶ **SGET UIC and other Cloud stacks:**
Kontron provides software stacks, which are designed according to SGET Universal IoT Connector (UIC) and Microsoft Azure. Other solutions on request.

IIoT Solutions
Key questions surrounding the investment into the Industrial IoT are:

What will the IoT do for us in terms of real value?
Achieving meaningful ROI means reducing development cost, and enhancing revenue streams. It means finding new business models and identifying the right skills across all levels within the organization.

Where do we start? What should we be doing, not doing, or doing differently?
Without having a plan for both implementation and incorporation into a rational business model, many IoT attempts fail to deliver on less-than-defined expectations.

Building robust, trusted Industrial IoT applications requires the best of both IT and OT, working in unison. Kontron's portfolio of hardware platforms combined with middleware know-how, together with the broad software know-how and consulting expertise of S&T, makes us the perfect partner to support your Industrial IoT journey towards digitalization. No matter where you are in your process of connecting IT and OT, our experience uniquely positions us to combine these disciplines into a streamlined end-to-end approach – making your IoT applications real.

SYSTEMS — INDUSTRIAL PANEL PCS / MONITORS

▼

Kontron's Panel PCs and monitors offer a wide range of processor capacities and display sizes. Displays in widescreen or regular format from 10.4" to 75" and touch functionalities (PCAP or resistive or IR) increase intuitive usability. Frameless glass front displays ensure a modern industrial design. 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 (10.4" – 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 (10.4" – 23.8")
▷ Full-HD or Ultra-HD resolution
▷ 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

FusionClient
Industrial HMI for Smart Visualization & Control

▷ Multi-touch edge to edge frameless front panel
▷ Various display dimensions: 12.1" / 15.6" / 18.5" / 21.5"
▷ Flexible and upgradeable modular concept
▷ Easy customization with standard building blocks
▷ Industrial grade – robust, reliable and maintenance-free
▷ Options for RFID, WLAN, alarm bar and custom I/O

FusionView
Industrial Monitor for Smart Visualization

▷ Multi-touch edge to edge frameless front panel
▷ Various display dimensions: 12.1" / 15.6" / 18.5" / 21.5"
▷ Industrial grade – robust, reliable, and maintenance-free
▷ OSD buttons: programmable as function keys
▷ Options for RFID, WLAN and alarm bar
▷ Remote visualization with Kontron WideLink at up to 100 m

Kontron Wide Link
Remote Visualization Applications

▷ Remote visualization at up to 100 m distance from control unit
▷ Independent from OS or any other software
▷ Data communication via one single Ethernet cable
▷ Data transmission without time lag or quality loss

SYSTEMS — INDUSTRIAL COMPUTER PLATFORMS

▼

The KBox family is designed for a variety of applications, especially for IoT edge/fog computing. It includes compact and flexible Industrial Computer Platforms with gateway functions which handle control & process optimization on-site as well as powerful Industrial Computer Platforms especially designed for the industrial control cabinet environment. The systems feature a maintenance-free design which ensures a significantly prolonged lifespan and high system availability.

KBox A-250
Industrial Computer Platform 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
▷ Supports Kontron APPROTECT

KBox A-203
Industrial Computer Platform 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
▷ Supports Kontron APPROTECT

KBox A-103
Indutrial Computer Platform for Control & Process Optimization

▷ Based on Intel Atom® E38xx processor
▷ Various mounting options
▷ IoT ready – simply connected
▷ Maintenance-free operation
▷ Easy customization with proven building blocks

KBox A-15x Series
DIN RAIL Industrial Computer Platform for Control & Process Optimization

▷ Scalable performance from Intel Atom® Quad Core™ up to 7th Gen Intel® Core™ i-5 processors
▷ Fanless, flexible DIN RAIL mounting with turnable heatsink
▷ Broad range of interfaces and expansion capabilities
▷ Supports Kontron APPROTECT on request

KBox C-102 series
Industrial Computer Platform 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)
▷ Supports Kontron APPROTECT
▷ Optional with Kontron WideLink for remote visualization applications

▼

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

▼

TRACe LoRa-MQTT
EN50155 Fanless Railway LoRaWAN to MQTT IoT Gateway

- ▶ Fanless LoRa-MQTT gateway for vehicles applications
- ▶ Concentrates and transforms LoRa™ messages to Ethernet MQTT data streams
- ▶ Cloud connectivity to enable secure connection to a cloud server
- ▶ Cloud server on public URL for secure data collection and remote analysis
- ▶ 1x LoRa™ 868 MHz Antenna for EU (Option 915 MHz for US)
- ▶ Operating -40 °C to +70 °C

TRACe V40x-TR
EN50155 Fanless Railway Performance Class Network Video Recorder

- ▶ Fanless Box Computer for rolling stock applications
- ▶ 6th Gen Intel® Core™ i7-6600U or Core™i3-6100U
- ▶ 8 GB DDR4 memory down, 32 GB SLC soldered eMMC flash
- ▶ 2x hot-swappable SATA III drive bays with key locks
- ▶ 2x LAN for IP cameras video recording
- ▶ Kontron Health Monitoring & Security solutions

TRACe HMID104
EN50155 Fanless Railway Driver Console

- ▶ Intel Atom® E3845 quad-core @ 191 GHz
- ▶ Projected Capacitive Touch Screen and UIC612-01 hardkeys layout
- ▶ Health Management: Continuous independent Monitoring
- ▶ Upgradable and Scalable (mini PCI-E card slots)
- ▶ IP65 Dust and Water Jet on Front / IP54 Rear and Sides

TRACe B304-TR
EN50155 Fanless Railway Computer Baseline

- ▶ Easy Customization: Front plate area for connectors, Mini PCI-e card slots
- ▶ Intel Atom® E3845 quad-core @ 1.91 GHz
- ▶ Health Management Controller: Continuous Independent Monitoring
- ▶ IP50 (Desktop) / IP51 (Wall Mount), optional IP54
- ▶ EN50155 Class TX (-40 °C to 70 °C / 10min @ +85°C)

TRACe G304-TR
EN50155 Fanless Wireless Gateway

- ▶ Fanless Box Computer for rolling stock Gateway Applications
- ▶ Intel Atom® E3845 quad-core @ 1.91 GHz
- ▶ Connectivity: 2x LAN, 1x WWAN with GPS, 1x WLAN
- ▶ IP50 (Desktop position) / IP51 (Wall Mount), optional IP54
- ▶ EN50155 Class Tx (operating -40 °C to +70°C / 10 min @ +85 °C)

TRACe-NET xM8P2G-1
Industrial Ethernet Switch for Railway applications

- ▶ Fast redundant ring (<10 ms over 250 connections)
- ▶ SNMP v1/v2c/v3 , STP/RSTP/MSTP, IGMP v2/v3, PTP client, LLDP protocol
- ▶ Traffic monitoring, SYSLOG, e-mail & relay fault notification
- ▶ Simple configuration using TRACe-NET view
- ▶ Dual redundant power supplies
- ▶ EN50155 Class Tx (-40 °C to +70 °C)
- ▶ IEC 61375 compliant with TTDP support

IOT / INDUSTRIE 4.0

▼

EDGE TO FOG TO CLOUD
TSN & OPC UA enabled

EMBEDDED CLOUD
On-Premise

ZINC CUBE C232
▶ Performance Server for IT-Environments

ZINC19 2U/4U
▶ Rackmount Server for Industrial Applications

Embedded Server HPW 410
▶ High Performance Workstation for Industrial Applications

Ethernet & TSN Switching

KBox A-Series
▶ Edge/Gateway Applications

Boards & Modules
▶ Secure, IOT ready

HMI Flat/Fusion-Series
▶ Panel PC/Monitor for Process- and Data Visualisation

KBox C-102-x
▶ Realtime Process Control Edge Analytics/Fog Computing

▶ Driving IoT with Kontron's core principles
▶ Pre-integrated hardware and software solutions
▶ From proof of concept to reality

TIME SENSITIVE NETWORKING

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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 field-bus area. The benefits are obvious and will span across a simplified network infrastructure, lower product cost and even introducing virtual networks and server infrastructure.

Under the given challenges of IIoT and Industry 4.0 it is essential that the process data information from the production field (edge) into the local server landscape (fog) to the cloud will be implemented smoothly. Today's challenges are tied to the interfaces from the production floor, which is typically dominated by a scattered landscape of real time capable fieldbus networks, into the IT level. Realized by gateways, these interfaces create enhanced complexity, cost and management overhead. In a converged network infrastructure based on standardized Ethernet products and providing time sensitive (deterministic) behavior and redundancy, most of the critical challenges can be avoided.

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 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

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About Kontron – An S&T Company

Kontron is a global leader in IoT/embedded computing technology (ECT). As a part of technology group S&T, Kontron 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.

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