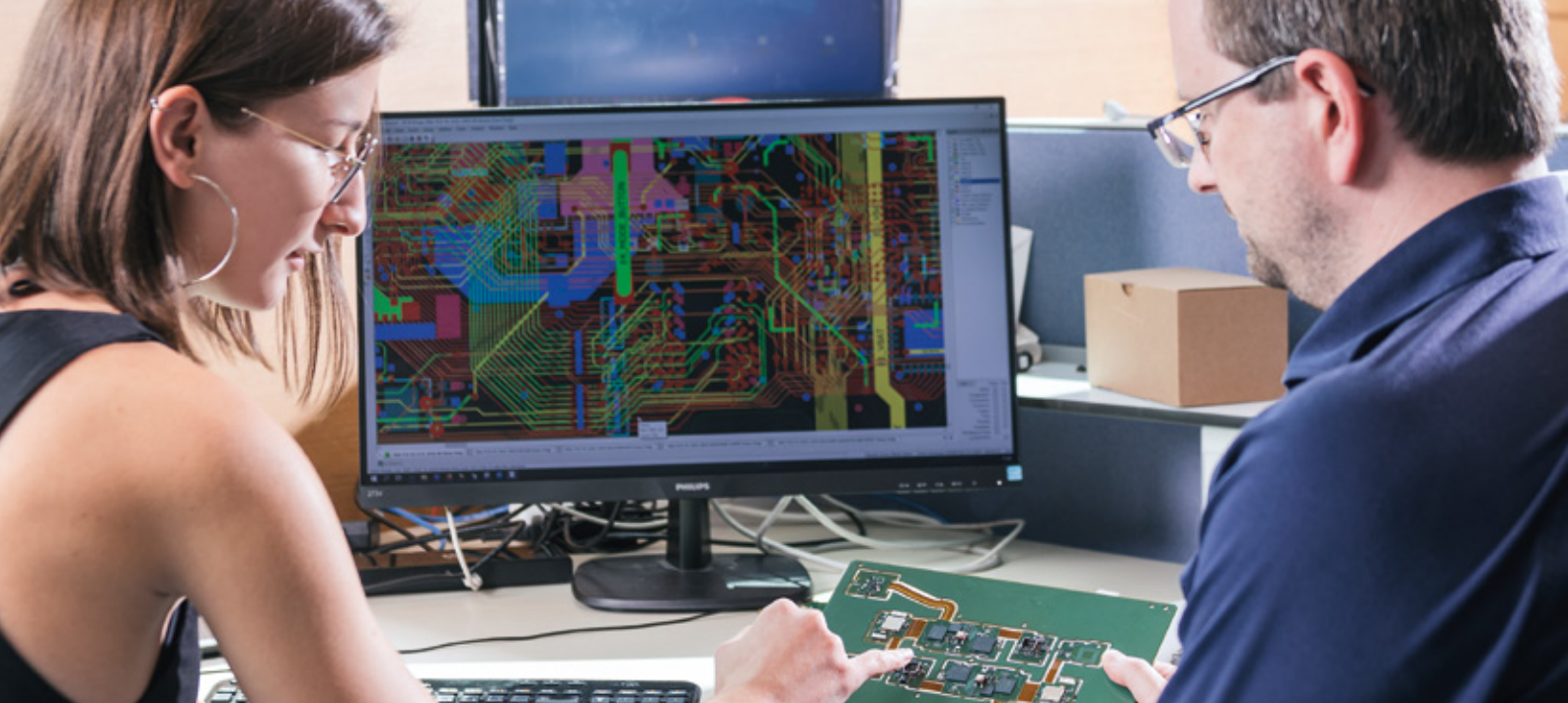


We stand for
Electronics, Development and
Manufacturing Services



kontron



Our ideas move you forward

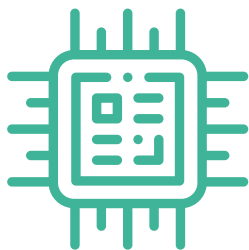
From the idea to development and production to the finished product – we are here for you. Our many years of development experience and our expertise in the latest components and processes guarantee our shared success.

Kontron ODM/EMS Alliance

– Your qualified partner for engineering and redesign of electronic assemblies.

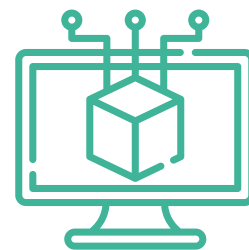
Our One-Stop Shop – Your Benefits

- ▶ Ideal partner for engineering, sampling and series production
- ▶ Technology knowhow and maximum solution competence
- ▶ Successful product qualification (EMC, UL, TÜV, etc.)
- ▶ Comprehensive lifecycle services based on the SiliconExpert database
- ▶ Qualified service provider with long-standing ODM/EMS experience – product success guaranteed
- ▶ Engineering and production sites in Germany, Austria, Hungary and Slovenia



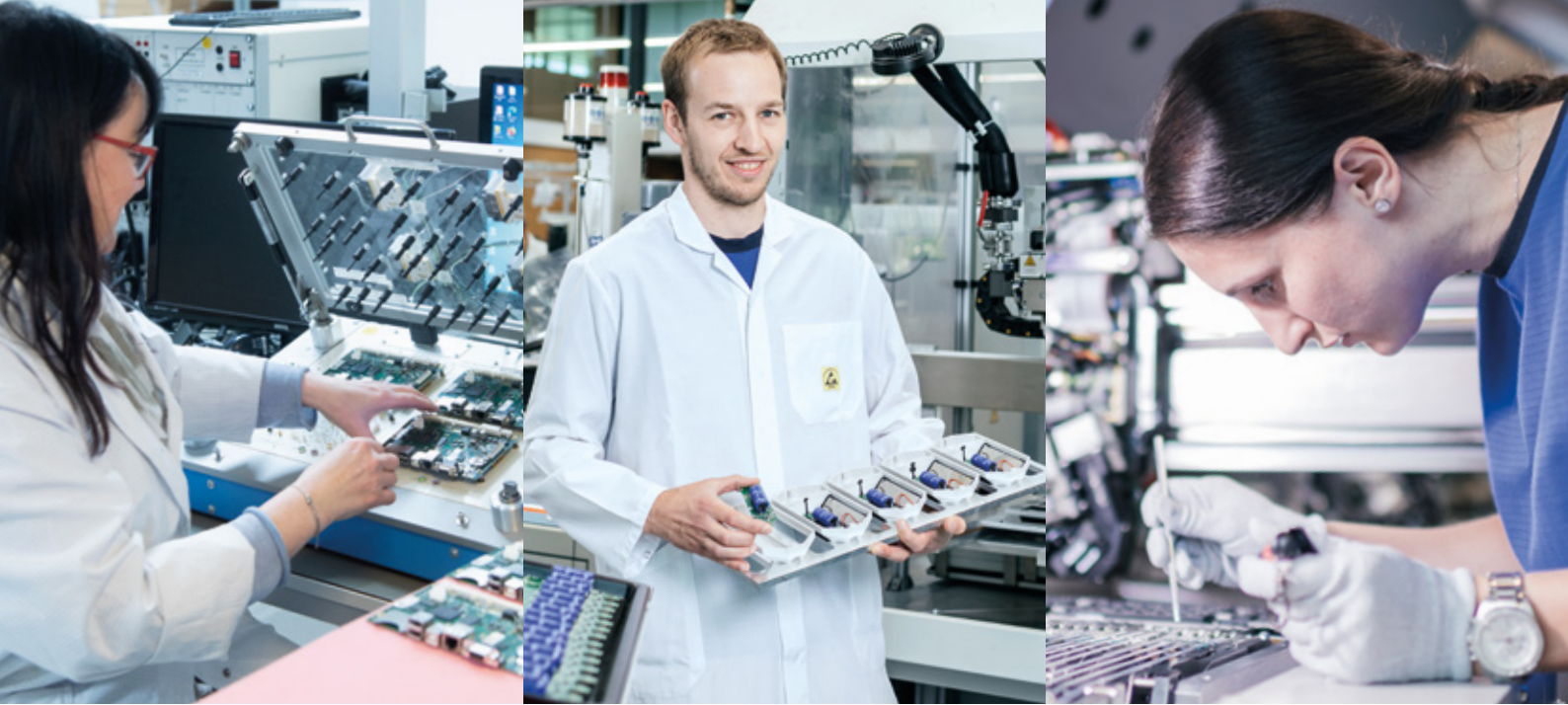
HARDWARE

Our core competence is the implementation of industrial control and communication solutions, display units and peripheral modules.



SOFTWARE

We are your specialist for custom software development in automation, communication and visualization for devices and machines.



Development Kit – Prototyping – Zero Series

Our team has long-standing experience in developing product ideas and solution concepts. We are ideally placed to develop ready-to-use applications, manufacture prototypes and zero series, and assume series production of your components and assemblies.

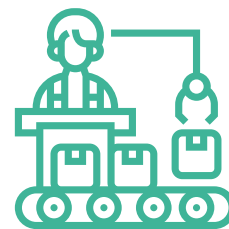
Someone to lean on – Your trusted partner for quality

- ▶ Prototype engineering and production in line with your requirements
- ▶ Adaptation and customization of standard products as desired
- ▶ Zero series production testing prior to technical release
- ▶ Initial sample and inspection report (ISIR) for documentation of test results prior to series production, as per your specifications
- ▶ Development Kits provide an engineering platform for your software developers
- ▶ Close collaboration with processor OEMs ensures that we are always state of the art



MECHANICS

In-depth knowledge of current manufacturing technologies and state-of-the-art development tools guarantee you products that meet defined quality standards and are tailored to your individual requirements.



PRODUCT INDUSTRIALIZATION

We offer you a diverse service portfolio, from prototype to serial production and from medium to high volumes



Kontron ODM/EMS Alliance

The association includes Kontron Europe and Kontron Electronics in Germany, Kontron Electronics in Hungary, Kontron Austria as well as Iskratel EMS in Slovenia. With modern development and production facilities at 7 European locations, the Kontron ODM/EMS Alliance offers engineering competence and state-of-the-art production technology and equipment.

As an experienced electronics services provider, we do far more than just production and assembly.

Our know-how ensures your success

- ▶ Hardware development of electronic components and devices
- ▶ Software development for automation, communication and visualization
- ▶ Mechanical design with state-of-the-art development tools
- ▶ Product industrialization from prototype to series production
- ▶ Maximum-quality manufacturing services
- ▶ Stringent quality and functional testing
- ▶ Final assembly work for complex components and devices

The production sites of the Kontron ODM/EMS Alliance, from left to right: Germany, Hungary Pécs, Hungary Tab, Austria Ebbs, Austria Engerwitzdorf, Slovenia.





As an ODM/EMS partner, we offer you many advantages

- ▶ Low volume/high mix to high volume/low mix: As a high-performance alliance of medium-sized companies, we can economically offer the entire range from small and medium quantities to large volumes.
- ▶ Very high volume/low mix: We can have very large quantities produced by our cooperation partner in Asia.
- ▶ Box Building: Wide range of options for device assembly.
- ▶ Active site selection: We produce at the site that best meets your requirements.
- ▶ Logistics Concepts: Consignment warehousing, Kanban, rolling forecast, security stockpiles
- ▶ Product and cost analysis: Upon request, you will receive suggestions for cost reduction in the component selection and manufacturing processes.
- ▶ Lifecycle analysis and management: Choose the optimal time for new design or redesign based on our forecast data.
- ▶ Global sourcing: Take advantage of our global purchasing networks.
- ▶ Internal second source: We offer maximum supply security in the event of production downtime. Thanks to site-independent redundancy, we are able to ensure resilient production.



We are your partner

We obtain your components, mount your circuit boards and are pleased to offer you options for end-to-end outsourcing. With our know how and long-standing experience as EMS (electronics manufacturing services) provider, we are your 24/7 consultation partner.



MANUFACTURING EXPERTISE

In addition to geographic proximity, we offer you a wide-ranging portfolio of production competence in assembly technology, soldering processes and surface protection.



TESTING & QUALITY

All our electronic components, modules and systems are subjected to intensive quality and functional testing.



FINAL ASSEMBLY

Following electrical function testing and programming, we carry out complete assembly of your modules and devices as required.



SERVICE

We cover the entire lifecycle of electronic assemblies and devices. In addition, we offer you the advantages of a large, global supplier network.

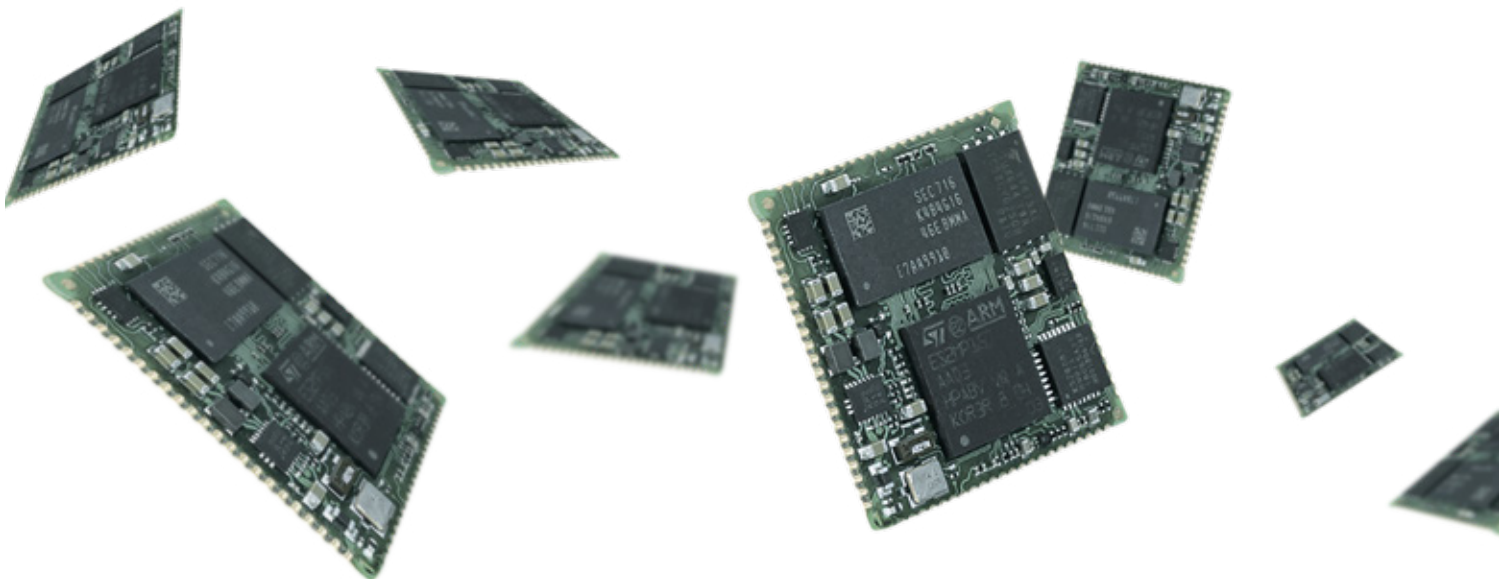


Quality makes the difference

Thanks to our mature processes and long-standing experience, our standard products are always at the cutting edge of technology and meet maximum quality standards.

Benefit from short time-to-market cycles and reduce your product launch costs.

Upon request, our qualified staff will handle custom product development and design services for your company.



Touch Panel

– More transparency in almost every situation

In demanding applications, high-value touch panels are used as decentralized operating and display devices and for process visualization and optimization.



Web Panel 7", 10", 15"

- › Arm® i.MX6 1 or 2 Cores 800 MHz
- › Arm® i.MX8M Mini 4 Cores 1.6 GHz (CE, UL)
- › Intel Atom® E3800 2 Cores 1.33 GHz/4 Core 1.91 GHz



Control Panel 7", 10", 15"

- › NXP Arm® i.MX6 1 or 2 Cores 800 MHz
- › 1 GB DDR3L-RAM
- › Optional CODESYS® SoftSPS



Display-Line 5", 7", 10"

- › i.MX6 ULL 1x Arm® Cortex®-A7 @800 MHz
- › i.MX6 Solo 1x Arm® Cortex®-A9 @800 MHz
- › i.MX6 Dual 2x Arm® Cortex®-A9 @800 MHz
- › i.MX8M Mini 4x Arm® Cortex®-A53 @1,6 GHz - Touch Panel 7"



Touch monitor with HDMI connection

- › From 5" to 15.6"
- › HDMI connection for various resolutions including scaling
- › Custom housing and mounting systems

These are your benefits

- › **High-quality visualization** – High-resolution displays with wide viewing angle offer best-possible image quality
- › **Low-power to high-performance** – Scalable in display size and processor performance
- › **Software-based solution** – Rely on our tools for quick and easy visualization
- › **Easy configuration** – Sophisticated software tools for quick and easy panel adaptation in line with customer requirements
- › **Multi-lingual** – Software tools with comprehensive language support
- › **Long-term availability** – Investment security thanks to form, fit and function
- › **Lifecycle management** – Professional support for extended product lifecycles

Automation

– Proven control cabinet solutions

Automation and IoT solutions control and regulate processes, devices and machines. Robust design makes the products versatile and particularly suitable for use in industrial applications.



AL i.MX8M Mini

- › i.MX8M Mini 4x Arm® Cortex-A53 @1.6 GHz
- › 1x Arm® Cortex-M4 @400 MHz
- › 1 GB up to 4 GB LPDDR4-RAM, 8 GB up to 128 GB eMMC
- › Stainless steel housing 111 x 25 x 76 mm, for mounting on 35 mm mounting rail



AL i.MX6 ULL

- › i.MX6 ULL 1x Arm® Cortex®-A7 @800 MHz
- › 512 MB DDR3-RAM
- › 4 GB eMMC
- › Stainless steel housing 111 x 25 x 76 mm, for mounting on 35 mm mounting rail



AL i.MX6 Dual

- › i.MX6 Dual 2x Arm® Cortex®-A9 @800 MHz
- › 2 GB DDR3-RAM
- › 4 GB eMMC
- › Stainless steel housing 111 x 25 x 76 mm, for mounting on 35 mm mounting rail



AL Pi-Tron CM3+ AL Pi-Tron CM4

- › Pi-Tron CM3+: Broadcom BCM2837B0, 4x Arm® Cortex®- A53 @1.2 GHz
- › Pi-Tron CM4: Broadcom BCM2711, 4x Arm® Cortex®- A72 @1.5 GHz
- › Pi-Tron CM4: 1 GB/2 GB/4 GB/8 GB LPDDR4-RAM
- › Stainless steel housing 111 x 25 x 76 mm, for mounting on 35 mm mounting rail

These are your benefits

- › **Flexible interfaces** – These common protocols have been implemented: CAN, CANOpen, EtherCAT, Modbus, ProfiNet, OPC US
- › **CODESYS® ready** – Perfect project support thanks to many years of PLC programming experience
- › **Custom solutions** – The modular system allows easy adaptation to customer-specific requirements
- › **Power and performance** – Scalable via processor lines and variable memory sizes
- › **Challenging conditions** – Reliable products for 24/7 operation in industrial environments
- › **Perfect teamwork** – The control, panels and peripheral devices work hand in hand on the basis of established standards
- › **Compact all-in-one solution** – Easily expandable via multifunction I/O modules and extremely versatile

I/O Module

– For realizing complex projects

I/O modules are extension systems for digital and analog standard inputs and outputs. The systems are used to control actuators, read sensors and communicate with the controller via CAN, RS485 or Ethernet.



AL CAN I/O-Modul

- 12x digital input and output
- 4x analog input and output
- 2x temperature input



RIO Remote I/O

- Communication via EtherCAT or CANOpen
- Digital and analog inputs and outputs
- Standard configurations and options for custom solutions



PiXtend® eIO Digital One Pro

- 8x 3.3 / 5 / 12 / 24 V Digital input including counter function
- 8x 0.5 A, 5 / 12 / 24 V Digital output
- Fast digital logic "HyperLogic"



PiXtend® eIO Analog One Pro

- 4x 0...5 V / 0...10 V, 10 bit analog voltage input (AI-U)
- 4x 0...10 V, 12 bit analog voltage output (AO-U)
- 2x 0...20 mA, 12 bit analog current input (AO-I)

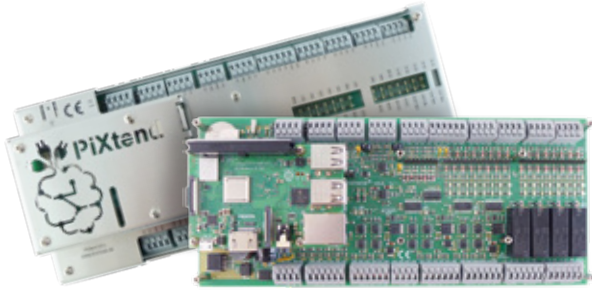
These are your benefits

- **Flexible connection** – Depending on the I/O module, the connection is via robust RS485 bus (Modbus RTU), CAN bus or EtherCAT
- **Easy integration** – Also with systems by third-party manufacturers
- **Various designs** – Compact or flat design with convenient connection technology
- **Flexible mounting** – Delivery also possible without housing for direct mounting on a mounting plate
- **Wide range of applications** – Thanks to different combinations of digital inputs and outputs, the modules can be used for a wide range of applications
- **Industry-grade connection technology** – Compact spring-loaded terminals for convenient and space-saving wiring
- **Modular expandability** – Thanks to fieldbus connectivity, the control system can be adapted to growing system requirements by adding other modules

Raspberry Pi

– Successful implementation of industrial projects

Take advantage of the Raspberry Pi with PiXtend® and Pi-Tron. The PiXtend® product range consists of electronic controllers as well as expansion boards for digital and analog inputs and outputs.



PiXtend® V2-L- Pi 4 & PiXtend® V2-L-

- Brushed stainless steel DIN rail housing
- Raspberry Pi 4 or 3B+ single-board computer
- Retain memory 64 Byte Flash EEPROM
- Suitable for CODESYS® SoftSPS



PiXtend® V2-S- Pi 4 & PiXtend® V2-S-

- Brushed stainless steel DIN rail housing
- Raspberry Pi 4 or 3B+ single-board computer
- Retain memory 32 Byte Flash EEPROM
- Suitable for CODESYS® SoftSPS



Pi-Tron CM3+

- Broadcom BCM 2837B0 4x Arm® Cortex-A53 @1.2 GHz
- 3D Video Engine
- 1 GB LPDDR2-RAM
- Suitable for CODESYS® SoftSPS



Pi-Tron CM4

- Broadcom BCM 2711 4x Arm® Cortex-A72 @1.5 GHz
- 1 GB up to 8 GB LPDDR4-RAM
- Optional WLAN/Bluetooth
- Suitable for CODESYS® SoftSPS

These are your benefits

- **Sophisticated platform** – Different CPU designs, complementary I/O modules and display units intelligently combined for control and visualization solutions
- **Short time to market** – Take advantage of a rapid migration from Raspberry Pi prototype to serial product
- **Industrial starter kit** – Find out whether the Pi-Tron CM3+ product with the Raspberry Pi computer module matches your requirements
- **Extensive software pool** – Ready-made projects for almost any application are available on the internet
- **Video documentation** – How-to videos from the Raspberry Pi community provide instructions for installation, programming and project implementation
- **Reduced software costs** – Latest open-source software is available via the Raspberry Pi community anytime, without licensing costs
- **Industrial Raspberry Pi** – A cooling concept and a robust stainless steel housing make our products suitable for industrial use

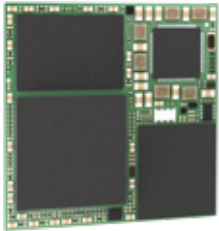
System-on-Module

– Powerful, compact modular component

SoMs are full-fledged industrial computers that combine microprocessor (CPU), main memory (Flash and RAM) and power supply on a compact printed circuit board.

Open Standard Module™ (OSM)

The OSM standardizes the wide variety of manufacturer-specific modules with respect to frame size, pin assignment and interfaces.



OSM-S i.MX8M Plus

- OSM Open Standard Module™ Size S
- 4x Arm® Cortex-A53 @1.6 GHz
- 1x Arm® Cortex-M7 @800 MHz
- 2x 1 Gbit/s IEEE 1588 (1x mit TSN)
- 2x CAN FD
- Form factor 30 mm x 30 mm

OSM-S i.MX8M Mini

- OSM Open Standard Module™ Size S
- 4x Arm® Cortex-A53 @1.6 GHz
- 1x Arm® Cortex-M4 @400 MHz
- Suitable for CODESYS® Soft-SPS
- Form factor 30 mm x 30 mm



SL STM32 MP157

- 2x Arm® Cortex-A7 @650 MHz
- 1x Arm® Cortex-M4 @200 MHz
- 512 MB DDR3-RAM / 512 MB NAND Flash
- 1x CAN 2.0
- Form factor 25 mm x 25 mm



SL i.MX6 ULL/UL

- i.MX6 ULL 1x Arm® Cortex-A7 @800 MHz
- i.MX6 UltraLite 1x Arm® Cortex-A7 @528 MHz
- 512 MB DDR3-RAM / 512 MB NAND Flash
- Suitable for CODESYS® Soft-SPS
- Form factor 25 mm x 25 mm

These are your benefits

- **Short development cycle** – Take advantage of the head start and get your product on the market faster
- **Reduced engineering risks** – Shorter development times and lower costs thanks to tried-and-tested solutions
- **Easy to use** – Fully developed CPU core can be used like a microcontroller
- **EMV tested** – Decoupling capacitors and impedance-controlled lines are in place
- **Complex PIN multiplexing and DDR3/4 RAM Design** – These costly and sophisticated features have already been implemented
- **Long-term availability of CPU module** – Meets the high requirements for computing power and free configuration of a variety of interfaces

CPU Boards

– Powerful and independent platform

The boards are a unit comprised of microprocessor, system-on-module (SoM), memory, communication and LCD interfaces as well as key safety standards on a compact PCB.



BL i.MX8M Mini BL i.MX8M Mini OSM-S

- 4x Arm® Cortex-A53 @1.6 GHz
- 1x Arm® Cortex-M4 @400 MHz
- 1 GB up to 4 GB LPDDR4-RAM, 8 GB up to 128 GB eMMC
- BL i.MX8M Mini suitable for CODESYS® Soft-SPS



BL i.MX6 ULL/UL

- i.MX6 ULL 1x Arm® Cortex-A7 @800 MHz
- i.MX6 UltraLight 1x Arm® Cortex-A7 @528 MHz
- 256 MB up to 512 MB DDR3-RAM, 4 GB up to 128 GB eMMC
- Suitable for CODESYS® Soft-SPS



BL STM32 MP157

- 2x Arm® Cortex-A7 @650 MHz
- 1x Arm® Cortex-M4 @200 MHz
- 256 MB up to 512 MB DDR3-RAM, 4 GB up to 128 GB eMMC



BL i.MX6 Solo/Dual

- i.MX6 Solo 1x Cortex®-A9 @800 MHz
- i.MX6 Dual 2x Cortex®-A9 @800 MHz
- 512 MB up to 2 GB DDR3-RAM, 4 GB up to 128 GB eMMC

These are your benefits

- **Reduced development effort** – Standard peripheral set, scalable as needed
- **No overhead** – Powerful computing core and up-to-date communication interfaces for a wide range of applications
- **Scalable computer power** – Custom processor and desired memory configuration selectable
- **Latest encryption technology** – Security functions meet highest security requirements
- **Software tools available** – Preconfigured development environment and board support package for rapid application development
- **Wide range of applications** – Combination of SoM and board provide a powerful and independent platform



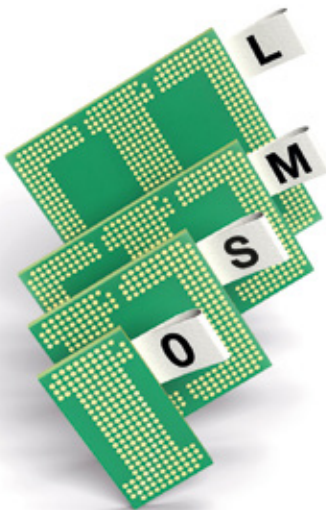
▶ BL i.MX8M Mini OSM-S



▶ OSM-S i.MX8M Mini

Open Standard Module™

The new OSM standard for soldered system-on-modules governs the wide variety of manufacturer-specific modules with respect to frame size, pin assignment and interfaces.



Your Benefits at a Glance

- ▶ OSM-Module – soldered on board, without plug connectors
- ▶ Fully automated assembly, soldering and testing possible
- ▶ Proven design for individual board and application development
- ▶ Versatile, high-performing and manufacturer-independent platform
- ▶ SoM and SBC include a standard periphery set featuring a large number of interfaces
- ▶ Minimized design risk thanks to validated technology
- ▶ Shorter time-to-market cycles keep you ahead of the competition
- ▶ Maximum flexibility thanks to manufacturer independence

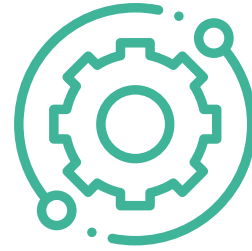
The Standardization Group for Embedded Technology (SGET) has defined four successive module formats; O, S, M and L.

We develop innovative high-performance solutions

Place your trust in our deep expertise and competence to stay ahead of the competition.



IOT/INDUSTRIE 4.0



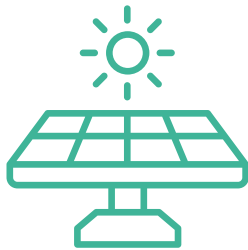
MECHANICAL ENGINEERING



MEDICAL TECHNOLOGY



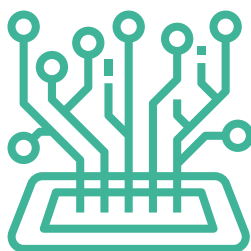
BUILDING SERVICES TECHNOLOGY



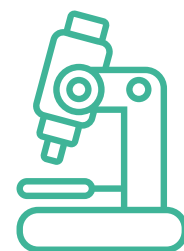
ENVIRONMENTAL TECHNOLOGY



OFFICE TECHNOLOGY



ELECTRONICS



LABORATORY TECHNOLOGY



Kontron Electronics GmbH

Max-Planck-Straße 6
72636 Frickenhausen
Germany

Phone: +49 7022 4057-0
Fax: +49 7022 4057-22

E-Mail: info@kontron-electronics.de
Web: www.kontron-electronics.de

Kontron Electronics AG

Riedstrasse 1
6343 Rotkreuz
Switzerland

Phone: +41 41 799 47 99
Fax: +41 41 799 47 98

E-Mail: info@kontron.ch
Web: www.kontron-electronics.ch

**Global Headquarters
Kontron Europe GmbH**

Gutenbergstraße 2
85737 Ismaning
Germany

Phone: +49 821 4086-0
Fax: +49 821 4086-111

E-Mail: info@kontron.com
Web: www.kontron.com