



Endless ways to the future

PRODUCT
GUIDE **ON**
22

HMI Solutions and Fanless Embedded Computers



PRODUCT GUIDE

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BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

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SECO

Endless ways to the future

MISSION

We bring together technologies and skills to satisfy new needs and opportunities

VISION

We exist to open up the world to innovation

VALUES

Passion
Dynamism
Respect

ABOUT SECO

With over 40 years delivering high-tech electronics, SECO offers cutting-edge embedded computing, HMI, communications gateway, custom packaged product, and IoT software solutions through worldwide engineering design, manufacturing, and technical support excellence.



Multi-decade experience
at the forefront
of innovation



Global
footprint



We continuously
add value
to our products



Rapid organic **growth**
supported by a
quality **M&A strategy**



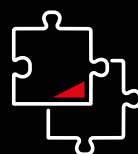
~800 people



250+ R&D people
of which 150+ in AI
algorithm development



>€15m
R&D investments



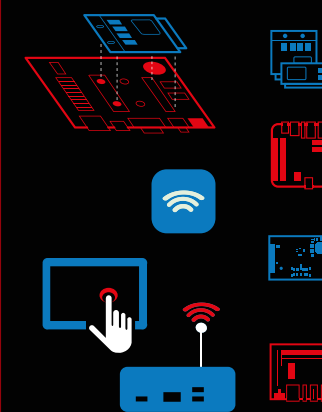
9 R&D centers
5 production plants

SECO OFFERS



HOW WE ADDRESS THE NEED FOR DIGITALIZATION FROM EDGE TO AI

EDGE COMPUTING
(Edge platforms, semi-custom, full custom) and **PAYMENT SOLUTIONS**



EDGE PROCESSING EMBEDDED
on customers' products extract data



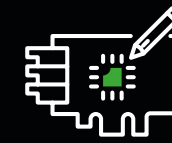
ALL-IN-ONE SOFTWARE PLATFORM
Real-time operational insights
Optimized decision making





KNOW - HOW

DESIGN



Decades of leading-edge embedded computing design incl. hardware and software

MANUFACTURING



Lean manufacturing employed to reduce waste and accelerate the time to market

SYSTEMS



Design and integration of embedded computers with video interfaces and enclosures



Analysis & Design



FPGA Design



BIOS Engineering & Development



Hardware Engineering & Development



Software Development



Mechanical Engineering & Development



Signal Integrity



Drivers Engineering & Development



BSP



Firmware Development



Validation & Verification



Thermal Analysis

PRODUCTS & SERVICES

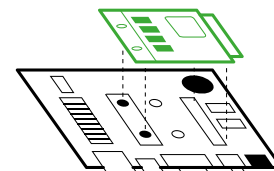
OFF-THE-SHELF PRODUCTS

MODULAR SOLUTIONS



SEMI-CUSTOM SOLUTIONS

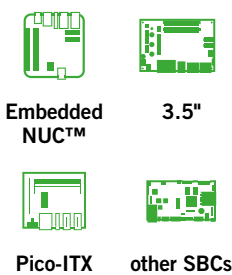
CUSTOM CARRIER BOARDS + MODULAR SOLUTIONS



FULL-CUSTOM SOLUTIONS

Custom-designed circuitry, software, and enclosures to meet unique product requirements.

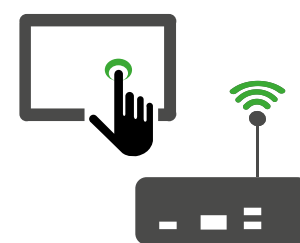
SINGLE BOARD COMPUTERS



PAYMENT SYSTEMS



HMI SOLUTIONS AND FANLESS EMBEDDED COMPUTERS



CUSTOMIZED COMPUTING PLATFORMS

Design review | Off-the shelf SBC customization | Carrier board design for modular computing platforms
Full custom SBC design | x86, Arm, and FPGA expertise | European and US design and production



Design Review



x86, Arm, FPGA expertise & cross-platform design



In-house design and production excellence



Let us design your product

SOFTWARE CUSTOMIZATION

Customized BIOS | Firmware & driver development | BSP development | Long-term support



BIOS tuning



Linux BSP & Android development



Windows



Firmware & driver support



24/7 support for the life of the product

SYSTEMS AND ASSEMBLY

Software pre-installed on your system | Assembly services | Design and production of fanless embedded computers
Touch-display solutions | Design and production of your final product



Software preloaded



Fanless embedded computers



Touch displays



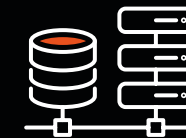
Display assembly



KNOW - HOW

Augment the abilities of machines and people by using AI everywhere computing takes place.

AI-AS-A-SERVICE COMPANY



Data



Detection, identification, recognition



Personalization



Explainable AI (XAI)



Natural language processing



Analytics

PRODUCTS & SERVICES



From Edge to AI in just a few weeks



Open-source core

All core middleware Clea components are open source software, contribute to, connect with, and join our growing community.



Device lifecycle management

Clea manages OTA updates, remote debugging, blue/green app deployments and much more, with an intense focus on security.



Extensive, Scalable Data Orchestration

Clea easily scales to a large number of connected devices, with the flexibility to control them in whatever granularity is required.



Deploy AI models everywhere

Whether it's a pre-trained model or your very own, Clea enables you to easily deploy it at the edge or in the cloud, seamlessly.

Vertical Applications for Clea



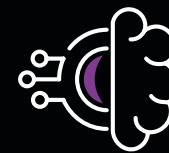
and many more...



K N O W - H O W

SECO Next, the creative laboratory of the SECO Group for business. We challenge the ordinary with researchers and innovators who create innovative solutions.

NEXT TO YOU FOR THE NEXT FUTURE



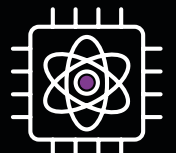
Adaptive & Federated Learning



Machine Vision & Data Fusion



5G and Beyond



Quantum Computing

PRODUCTS & SERVICES

We create products to provide services

Welcome to Open Sustainability Innovation



Minimum Viable Product

First version at low cost and development time to collect initial feedback and improve the functionality of the product/service.



Commercialization

We make the product ready for mass production with the aim of the highest possible level of scalability.

Methodology



Exploration

We constantly monitor emerging technologies. We listen to customer problems, understand their context, and propose paths to explore together.



Analysis

We analyze the problems, risks, and tradeoffs in depth, and together develop a project plan that factors in costs, schedule, risk, and contingencies.



Test

We test the solution to verify its effectiveness and measure its performance. We evaluate if the solution is satisfactory or whether it needs improvement.



Production

The best solution is commercialized, manufactured, and sold on the market, ready for user feedback for any further improvement.



PARTNERSHIPS

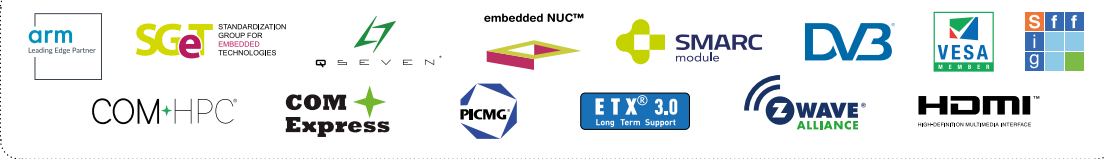
LEADING SILICON VENDORS



OPERATING SYSTEMS



STANDARDS & CONSORTIUMS

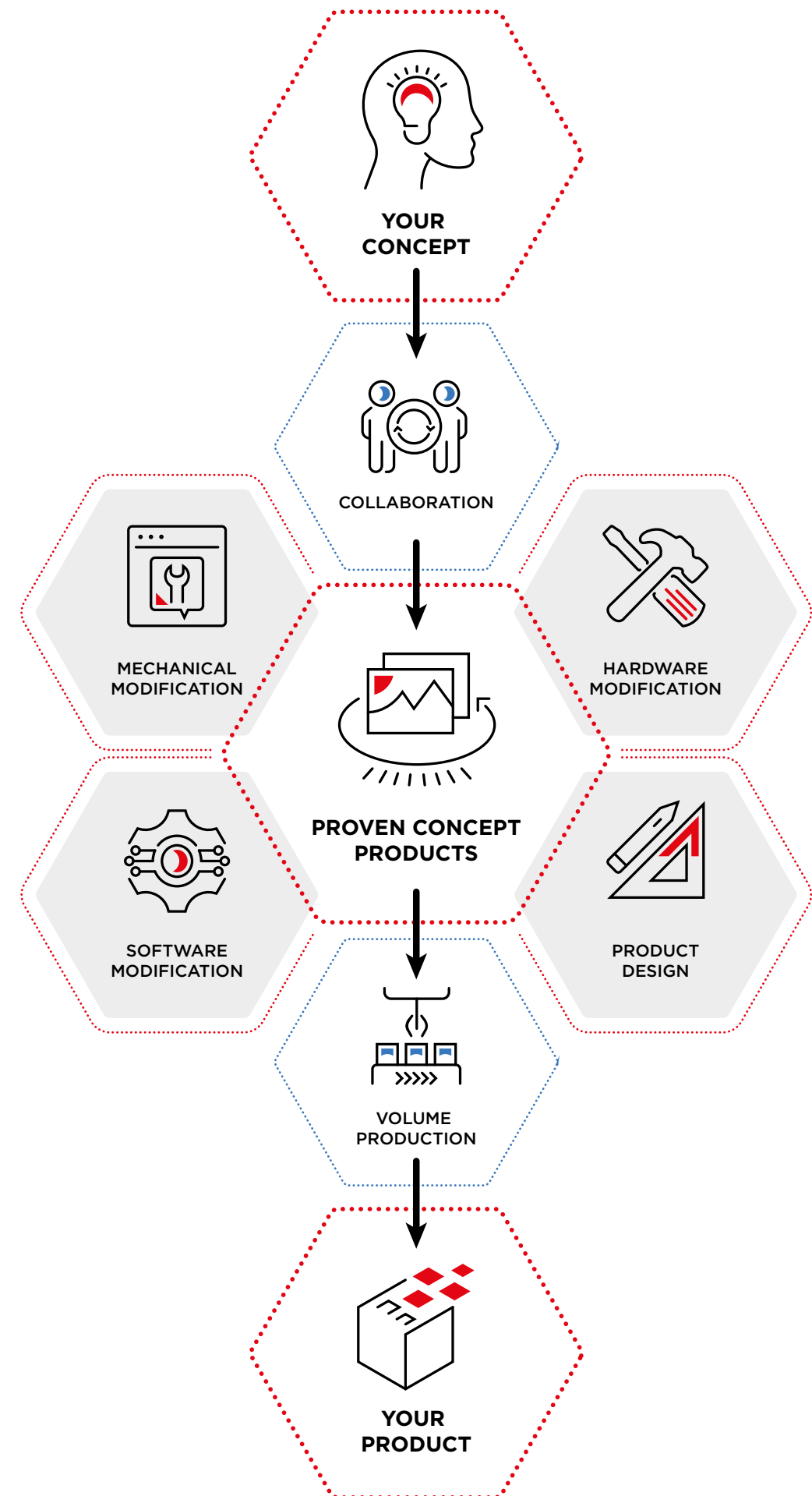


LEADING MARKETS

SECO's solutions can be found at the heart of the most sophisticated and diverse products throughout many industries, such as traditional uses in industrial automation, biomedical devices, and digital signage to emerging applications like mobile devices and robotics.



SYSTEM INTEGRATION PROCESS



FANLESS EMBEDDED COMPUTERS


SECO OFF-THE-SHELF SOLUTIONS FOR
EASIER SYSTEM INTEGRATION



TOUCH-DISPLAY
SOLUTIONS



EXPERTISE
IN ASSEMBLY
SERVICES



MECHANICAL
DESIGN

Fanless Embedded Computers





PHOENIX

Fanless embedded computer with the 11th Gen Intel® Core™ and Intel® Celeron® SoCs (formerly Tiger Lake UP3)

Rugged industrial temperature box PC with 11th Gen Intel® Core™ performance




HIGHLIGHTS


 CPU 11th Gen Intel® Core™ processors and Intel® Celeron® SoCs	 CONNECTIVITY 2x 2.5 GbE, Optional M.2 WWAN and WLAN modules
 GRAPHICS Intel® Iris® Xe architecture with up to 96 EUs, up to 4 independent displays	 MEMORY Two DDR4 SO-DIMM slots supporting DDR4-3200 ECC memory with IBECC




MAIN FIELDS OF APPLICATION




Automation




Biomedical/
Medical
applications




Gaming




Industrial
automation and
control



Multimedia
devices


















Surveillance



Telco

FEATURES

 Processor	Intel® Core™ i7-1185G7E , Quad Core @ 2.8GHz (4.4GHz Turbo) with HT, 12MB cache, 28W TDP (12W cTDP) Intel® Core™ i5-1145G7E , Quad Core @ 2.6GHz (4.1GHz Turbo) with HT, 8MB cache, 28W TDP (12W cTDP) Intel® Core™ i3-1115G4E , Dual Core @ 3.0GHz (3.9GHz Turbo) with HT, 6MB cache, 28W TDP (12W cTDP) Intel® Celeron® 6305E , Dual Core @ 1.8GHz, 4MB cache, 15W TDP Intel® Core™ i7-1185GRE , Quad Core @ 2.8GHz (4.4GHz Turbo) with HT, 12MB cache, with IBECC, 28W TDP (12W cTDP) - Industrial Intel® Core™ i5-1145GRE , Quad Core @ 2.6GHz (4.1GHz Turbo) with HT, 8MB cache, with IBECC, 28W TDP (12W cTDP) - Industrial Intel® Core™ i3-1115GRE , Dual Core @ 3.0GHz (3.9GHz Turbo) with HT, 6MB cache, with IBECC, 28W TDP (12W cTDP) - Industrial	 USB 2x USB 3.2 Gen2x1 (up to 10Gbps) ports on Dual Type-A socket 2x USB 3.2 Gen2x2 (up to 20Gbps) ports on USB type-C slots
 Memory	2x DDR4-3200 SODIMM slots Up to 64GB with IBECC supported only with Core™ industrial SoCs Up to two video decode boxes (VDBoxes) for enhanced video stream capabilities	 Serial Ports 2x RS-232/RS-422/RS-485 UARTS software configurable, on DB9 connector
 Graphics	Support for up to 48 simultaneous 1080p streams ingestion Support for up to four independent displays at up to 4K60 HDR resolution or one display at 8K resolution	 Audio Lineout + MicIn combo TRRS Audio Jack
 Video Interfaces	2x Multimode DisplayPort 1.4, on dual DP++ connector 2x Multimode Display Port 1.4 on USB Type-C connectors (alternate mode)	 Other Interfaces Optional 2x 12 poles terminal block connectors with the following I/O: <ul style="list-style-type: none">• 8x GPIOs• 1x I2C• 1x SPI• 1x 5V• 1x 3.3V• 1x 12V• 3x GND Power ON Button nanoSIM slot soldered on-board for the Modem 1x Expansion M.2 Slot (Socket 3 Key M Type 2280) with 4x PCIe Gen3 lanes Optional TPM 1.2/2.0 module on-board Optional 4x SMA connectors for external Wi-Fi / WWAN antennas
 Video Resolution	DP: up to 5120x3200 @60Hz 24bpp / 7680x4320@60Hz 30bpp with DSC HDMI 1.4: up to 4Kx2K 24-30Hz 24bpp	 Power Supply 12V _{DC} to 24V _{DC} range Cabled coin cell battery for RTC
 Mass Storage	Optional on-board M.2 SATA SSD ** Optional on-board M.2 NVMe	 Operating System Microsoft® Windows 10 IoT Enterprise LTSC Linux LTS Yocto
 Networking	2x 2.5 Gigabit Ethernet RJ45 connectors Optional on-board M.2 Wi-Fi (802.11 ac / a / b / g / n) + BT 5.0 module, external antennas* Optional on-board M.2 LTE modem with nanoSIM slot, external antennas* ** *Certification upon request	 Operating Temperature 0°C to +50°C
		 Dimensions 180 x 109 x 58 mm (7" x 4.3" x 2.3")

** SATA SSD and WWAN functionalities share the same slot and are therefore mutually exclusive.



Fanless Embedded Computers

PYXIS

Fanless embedded computer with the Intel® Atom® X6000E Series, Intel® Pentium® and Celeron® N and J Series (formerly Elkhart Lake) SoCs

Low power Atom®-based Box PC ready for industrial automation and edge computing



HIGHLIGHTS

CPU Intel® Atom® x6000E Series and Intel® Pentium® and Celeron® N and J Series processors	CONNECTIVITY 2x GbE, Optional M.2 WWAN and WLAN modules
GRAPHICS Integrated Intel® Gen11 UHD Graphics controller, up to 32 Execution Units	MEMORY Up to 16GB Quad-Channel LPDDR4 soldered down with IBCEC



MAIN FIELDS OF APPLICATION



Edge Computing

Industrial automation and control

Multimedia devices

Surveillance

Info Kiosks

Telco

Transportation

FEATURES

Processor	Intel® Celeron® J6413 Quad Core @ 1.8GHz (3GHz Turbo) 10W TDP Intel® Celeron® N6211 Dual Core @ 1.2GHz (3GHz Turbo) 6.5W TDP Intel® Pentium® J6426 Quad Core @ 2.0GHz (3GHz Turbo) 10W TDP Intel® Pentium® N6415 Quad Core @ 1.2GHz (3GHz Turbo) 6.5W TDP Intel® Atom® x6211E Dual Core @ 1.3GHz (3GHz Turbo) 6W TDP w/ IBCEC and HIS - Industrial Intel® Atom® x6413E Quad Core @ 1.5GHz (3GHz Turbo) 9W TDP w/ IBCEC and HIS - Industrial Intel® Atom® x6425E Quad Core @ 2.0GHz (3GHz Turbo) 12W TDP w/ IBCEC and HIS - Industrial Intel® Atom® x6212RE Dual Core @ 1.2GHz (no Turbo) 6W TDP w/ IBCEC, IHS and TCC - Industrial Intel® Atom® x6414RE Quad Core @ 1.5GHz (no Turbo) 9W TDP w/ IBCEC, IHS and TCC - Industrial Intel® Atom® x6425RE Quad Core @ 1.9GHz (no Turbo) 12W TDP w/ IBCEC, IHS and TCC - Industrial (*) HIS: Integrated Heatspreader; TCC: Time Coordinated Computing	USB Dual USB 3.2 Gen1 Type-A connector
Memory	Soldered down LPDDR4-3200 memory, up to 16GB with IBCEC supported only with Atom® Industrial SoCs Speed: 4267MT/s single rank (1GB / 2GB / 4GB / 8GB), 3733MT/s dual rank (16GB)	Serial Ports 2x RS-232/RS-422/RS-485 UARTS software configurable, on DB9 connector
Graphics	Integrated Intel® Gen11 UHD Graphics controller with up to 32 EU 4K HW decoding and encoding of HEVC (H.265), H.264, VP8, VP9, WMV9/VC1 (decoding only) DirectX 12.1, OpenGL ES 3.1, OpenGL 4.5, OpenCL™ 1.2, Vulkan 1.0	Audio Lineout + MicIn combo TRRS audio jack
Video Interfaces	2x Multimode DisplayPort 1.4, on Dual DP++ connector	Other Interfaces Optional 2x 12 poles terminal block connectors with the following I/O: • 2x CAN • 8x GPIOs / QEP / PWM / SPI • 2x I2C • 1x SPI • 1x 5V • 1x 3.3V • 1x 12V • 3x GND
Video Resolution	Up to 4096x2160 @60Hz	Power Supply +12V _{DC} Cabled coin cell battery for RTC
Mass Storage	Optional eMMC 5.1 drive soldered on-board Optional on-board M.2 SATA SSD ** 2x Gigabit Ethernet RJ45 connectors Optional on-board M.2 Wi-Fi (802.11 ac / a / b / g / n) +BT 5.0 module, external antennas* Optional on-board M.2 LTE modem with nanoSIM slot, external antennas* ** *Certification upon request	Operating System Microsoft® Windows 10 Enterprise Microsoft® Windows 10 IoT Core Linux Yocto
Networking		Operating Temperature 0°C to +50°C
		Dimensions 180 x 107 x 75 mm (7" x 4.2" x 3")

** SATA SSD and WWAN functionalities share the same slot and are therefore mutually exclusive.

Information subject to change. Please visit www.seco.com to find the latest version of this datasheet



Fanless Embedded Computers

DRACO

Gateway for Medical applications with Intel® Atom® x5-E3930 Processors

IoT Gateway Solution certified for medical environment



HIGHLIGHTS

CPU Intel® Atom™ X Series	CONNECTIVITY 2x GbE + 1 x 4kV insulated GbE; WWAN and WLAN M.2 module slots
GRAPHICS Integrated Intel® HD Graphics 500 controller	MEMORY Up to 8GB LPDDR4 memory

MAIN FIELDS OF APPLICATION



Biomedical/ Medical applications

Digital Signage - Infotainment

Edge Computing

Robotics

FEATURES

Processor	Intel® Atom® x5-E3930 Dual Core @ 1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP	Operating Temperature	0°C ÷ +40°C (in presence of air flow)
Memory	Quad Channel soldered down LPDDR4 memory, up to 8GB	Optional accessories	miniDP++ to HDMI adapter Customised bracket for VESA Panel mount
Graphics	Integrated Intel® HD Graphics 500 series controller, with 12 Execution Units 4K HW decoding and encoding of HEVC(H.265), H.264, VP8, SVC, MVC Dual independent display	Dimensions	162.3 x 109.3 x 42.4 mm
Video Interfaces	Two multimode Display Port on miniDP++ connectors	Compliance with medical standards	IEC 60601-1 IEC 60601-1-2 IEC 60601-1-6 IEC 62366
Video Resolution	Up to 4096 x 2160		
Mass Storage	eMMC drive onboard, up to 64 GB Optional SATA M.2 SSD module up to 512GB		
Networking	2x Gigabit Ethernet ports 1x 4kV insulated Gigabit Ethernet port M.2 Socket 2 Key B Slot for Modem modules (not provided by SECO. To be used as alternative to M.2 SSD), connected to internal microSIM Slot M.2 Socket 1 Key E Slot for WiFi/BT modules		
USB	2 x USB 3.0 Type-A sockets on Front Panel		
Other Interfaces	Power Button Power On Status LED		
Power Supply	DC Power jack, with cable restraint, type DC-062-4-2.5-S214 +18V _{DC} ÷ +32 V _{DC} recommended +15V _{DC} ÷ +36 V _{DC} absolute		
Operating System	Linux EDGEHOG (under development)		

Information subject to change. Please visit www.seco.com to find the latest version of this datasheet



Fanless Embedded Computers

KRATER

Fanless embedded computer for Digital Signage applications with AMD Ryzen™ Embedded R1000 / V1000 family of SoCs

Multi-Display Digital Signage Solution

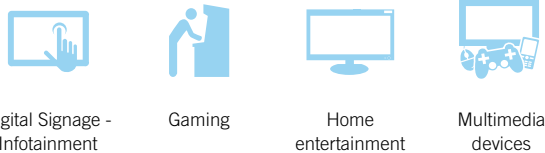


HIGHLIGHTS

CPU AMD Ryzen™ Embedded V1000 and R1000 processors	CONNECTIVITY 2x GbE; M.2 WWAN and WLAN slots; 2x USB 3.0; 2x Multistandard Serial Ports
GRAPHICS AMD Radeon™ Vega GPU with up to 8 Compute Units	MEMORY Up to 32GB DDR4 Dual Channel Memory on SO-DIMM modules



MAIN FIELDS OF APPLICATION



FEATURES

Processor	AMD Ryzen™ Embedded V1000 family SoCs: AMD Ryzen™ Embedded V1605B with GPU AMD Radeon™ Vega 8, Quad Core Dual Thread @ 2.0GHz (3.6 Boost), TDP 12-25W AMD Ryzen™ Embedded V1202B with GPU AMD Radeon™ Vega 3, Dual Core Dual Thread @ 2.3GHz (3.2 Boost), TDP 12-25W AMD Ryzen™ Embedded R1000 family SoCs: AMD Ryzen™ Embedded R1606G with GPU AMD Radeon™ Vega 3, Dual Core Dual Thread @ 2.6GHz (3.5 Boost), TDP 12-25W AMD Ryzen™ Embedded R1505G with GPU AMD Radeon™ Vega 3, Dual Core Dual Thread @ 3.25GHz (3.6 Boost), TDP 12-25W	Networking	2 x Gigabit Ethernet ports Internal M.2 WWAN slot (Socket 2 Key B Type 2242/3042) for Modems Internal M.2 Connectivity Slot (Socket 1 Key E Type 2230) for WiFi / BT modules
System Memory	Up to 2x DDR4 SODIMMs Available memory sizes: 4GB, 8GB, 16GB Single Channel 8GB, 16GB, 32GB Dual Channel	USB	2 x USB 3.0 Type-A sockets on Rear Panel
Graphics	GPU AMD Radeon™ VEGA with up to 11 Compute Units DirectX® 12 supported H.265 (10-bit) decode and 8-bit video encode VP9 decode 4 independent displays supported (3 with R1000 SoCs)	Serial Ports	2x RS-232/RS-422/RS-485 ports on DB-9 connectors
Video Interfaces	4x DP++ connectors (only 3 working with R1000 SoCs)	Other Interfaces	Externally accessible miniSIM Slot for the optional M.2 Modem Power Button with Power On Status LED on Front Panel Optional TPM 1.2 or 2.0 on-board
Video Resolution	Up to 4096 x 2160	Power Supply	2-poles Mega-Fit connector +12V _{DC} ÷ +24 V _{DC}
Mass Storage	Optional M.2 NVMe module (available sizes: 250GB, 500GB, 1TB, 2TB) Optional SATA SSD (available sizes: 250GB, 500GB, 1TB, 2TB)	Operating System	Optional preinstalled OS: Microsoft® Windows 10 IoT Enterprise (64bit) Linux
		Operating Temperature	0°C ÷ +50°C
		Dimensions	179,4 (W) x 109 (D) x 57,8 (H) mm
		Optional accessories	VESA standard 100x100 Wall mount plate, dimensions 151 (W) x 111 (D) x 5,08 (H) mm

Fanless Embedded Computers

VELA

Fanless embedded computer based on NXP i.MX 8 Applications Processors

NXP i.MX 8 processors in a boxed solution for Edge Computing applications



HIGHLIGHTS

















CPU NXP i.MX 8 Family	CONNECTIVITY 2x GbE; 1x USB3.0; 1x USB2.0; 1x RS-232; 1x multistandard RS-485 / RS-422; Optional WiFi+BT add-on module; Optional WWAN add-on module
GRAPHICS Dual Vivante GC7000 GPU / Dual Vivante GC7000Lite GPU	MEMORY Up to 8GB LPDDR4-1600 on-board memory



MAIN FIELDS OF APPLICATION



FEATURES

	Processor	i.MX 8 QuadMax: Dual A72-core, Quad A53-core, Dual M4F-core i.MX 8 QuadPlus: Single A72-core, Quad A53-core, Dual M4F-core		Other Interfaces	Optional 2x 12 poles terminal block connectors with the following I/O: <ul style="list-style-type: none">• 2x CAN• 4x GPIOs• 4x Analog Inputs• 1x SPI• 1x I2C• 1x 5V• 1x 3.3V• 1x 12V• 3x GND Power ON Button with integrated LED microSIM slot soldered on-board for the Modem Coin cell battery holder for RTC Optional 4x SMA connectors for external WiFi / WWAN antennas		
	System Memory	64-bit soldered down LPDDR4-1600 memory, up to 8GB			Other	Optional VESA 100 bracket accessory Optional DIN standard mounting plate accessory	
	Graphics	2x Graphics accelerators Vivante GC7000 / VXSX for QuadMax and GC7000Lite / VXSX for QuadPlus 1x embedded VPU, supporting H.265 (4K30) and H.264 (1080p60) decoding and H.264 (1080p30) encoding				Power Supply	+12V _{DC} , Mini-Fit Power connector
	Video Interfaces	HDMI 2.0a Tx interface					Operating System
	Video Resolution	Up to 4K		Operating Temperature*	0°C ÷ +50°C		
	Mass Storage	Optional eMMC 5.1 drive on-board, up to 64GB M.2 Key B slot for optional SSD drive, up to 512GB microSD card slot (accessible from panel)			Dimensions		181 x 109 x 75 mm
	Networking	2x Gigabit Ethernet RJ45 connectors M.2 WLAN Connectivity Slot for optional accessory WiFi + BT external module, external antennas M.2 WWAN Connectivity Slot for optional accessory Modem modules (excludes SSD Drive), external antennas	*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.				
	USB	1 x USB 3.0 Host port on Type-A socket 1 x USB 2.0 Host port on Type-A socket 1 x USB 2.0 micro-AB connector (OTG)					
	Serial Ports	1 x RS-232 port on DB9-M connector 1 x multistandard RS-485 / RS-422 port on DB9-M connector					
	Audio	Line Out + Mic In combo TRRS audio jack					



Fanless Embedded Computers

PEGASUS

Fanless embedded computer based on Intel® Atom® X Series, Intel® Celeron® J / N Series and Intel® Pentium® N Series (formerly Apollo Lake) Processors

Fanless Industrial Edge Computing

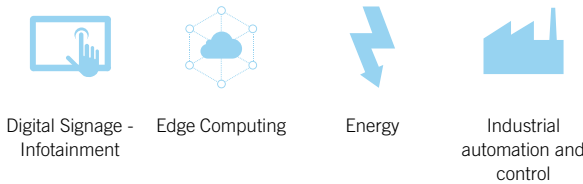


HIGHLIGHTS
















CPU Intel® Atom™ X Series, Intel® Celeron® N Series and Intel® Pentium® N Series (formerly Apollo Lake) Processors	CONNECTIVITY 2x GbE; WiFi+BLTE and WWAN add-on modules; 2x USB3.0; 2x RS-232/RS-422/RS-485
GRAPHICS Integrated Intel® HD Graphics 500 series controller	MEMORY Up to 8GB LPDDR4 on-board memory



MAIN FIELDS OF APPLICATION



FEATURES

 Processor	Intel® Atom™ x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP Intel® Atom™ x5-E3940 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP Intel® Atom™ x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP Intel® Celeron® N3350 Dual Core @1.1GHz (Burst 2.4GHz), 2MB L2 Cache, 6W TDP Intel® Pentium® N4200 Quad Core @1.1GHz (Burst 2.5GHz), 2MB L2 Cache, 6W TDP	 Serial Ports	2 x RS-232/RS-422/RS-485 Serial ports on 2x DB9-M connectors
 System Memory	32-bit Single-/Dual-/Quad-Channel LPDDR4 soldered onboard, up to 2400 MT/s Max memory size 8GB	 Other Interfaces	Power ON Button with integrated LED Optional TPM 2.0 on-board miniSIM slot for M.2 modem (combo with microSD slot) 2x SMA connectors for external WiFi / WWAN antennas
 Graphics	Integrated Intel® HD Graphics 500 series controller with up to 18 Execution Units Two Independent displays supported HW decoding of HEVC(H.265), H.264, MVC, VP8, VP9, MPEG2, VC-1, WMV9, JPEG/MJPEG formats HW encoding of HEVC(H.265), H.264, MVC, VP8, VP9 and JPEG/MJPEG formats	 Other	Optional VESA 100 bracket accessory
 Video Interfaces	Combo HDMI + DP++ connector	 Power Supply	+12V _{DC} , 5.7mm DC Power Jack connector 220mAh non-rechargeable Coin cell battery for RTC
 Video Resolution	Up to 4K	 Operating System	Microsoft® Windows 10 IoT Core Linux
 Mass Storage	Optional eMMC 5.0 drive on-board, up to 64GB Optional SATA SSD M.2 Socket 2 Key B, up to 512GB (excludes WWAN module) microSD Card slot (combo with miniSIM slot)	 Operating Temperature*	0°C ÷ +50°C
 Networking	2x Gigabit Ethernet RJ45 connectors with Gigabit Ethernet i210 controllers M.2 Socket 1 Key E 2230 Slot for accessory WiFi + BTLE module M.2 Socket 2 Key B Slot for accessory WWAN module (excludes SATA SSD module)	 Dimensions	181 x 109 x 79 mm
 USB	USB 3.0 Dual Type-A connector	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.	

Information subject to change. Please visit www.seco.com to find the latest version of this datasheet



Fanless Embedded Computers

PICTOR

Fanless embedded computer based on Rockchip RK3399 Applications Processor

The right match between performance and power in a box PC



HIGHLIGHTS

CPU Rockchip RK3399	CONNECTIVITY 2x GbE; 2x USB3.0; 2x USB2.0; 2x RS-232 or RS-485; Optional on-board WiFi+BT; Optional on-board LTE modem
GRAPHICS 4-Core Mali-T860MP4 GPU	MEMORY Up to 4GB LPDDR4 on-board memory



MAIN FIELDS OF APPLICATION



FEATURES

Processor	Rockchip RK3399 processor, 2x Cortex®-A72 MP cores + 4x Cortex®-A53 MPCores, up to 1.8GHz, 64-bit architecture	Audio	Lineout + MicIn combo TRRS Audio Jack
System Memory	64-bit soldered down LPDDR4 memory, up to 4GB	Other Interfaces	Optional 2x 12 poles terminal block connectors with the following I/O: <ul style="list-style-type: none">• 2x CAN• 3x GPIOs• 1x Open Drain Output• 1x PWM• 1x I2C• 1x 5V• 1x 3.3V• 1x 12V• 3x GND
Graphics	4-Core Mali-T860MP4 GPU OpenGL ES 1.1/2.0/3.0/3.1, OpenVG 1.1, OpenCL, DX11 support Embedded VPU, able to offer: <ul style="list-style-type: none">• H.265 10-bit, H.264 10-bit, VP9 8-bit 4Kx2K@60fps HW Decoding• MPEG-4/MPEG-2/VP8 1080p@60fps HW Decoding• H.264, VP8 1080p@30fps HW encoding	Power Supply	+12V _{DC} ÷ +24V _{DC} , DC Power Jack
Video Interfaces	HDMI 1.4 / 2.0a connector DP interface on USB Type-C connector (Alternate mode)	Operating System	Linux Yocto Android (planned)
Video Resolution	Up to 4K	Operating Temperature*	0°C ÷ +50°C
Mass Storage	Optional eMMC 5.1 drive on-board, up to 64GB	Dimensions	181 x 109 x 75 mm
Networking	2x Gigabit Ethernet RJ45 connectors Optional on-board WiFi (802.11 ac / a / b / g / n) +BT 5.0 module, external antennas* Optional on-board LTE modem with miniSIM slot or eSIM, external antennas* *Certification upon request	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.	
USB	2 x USB 2.0 on Dual Type-A socket 1 x USB 3.0 Type-C connector (alternate mode with DP) 1 x USB 3.0 Type-A connector		
Serial Ports	2 x RS-232 or RS-485 ports (factory options) on DB9-M connectors		

Information subject to change. Please visit www.seco.com to find the latest version of this datasheet



Fanless Embedded Computers

DORADO

IP20 boxed PC based on Rockchip RK3399 Applications Processor

Enhanced graphics and computing performance for high-end industrial applications

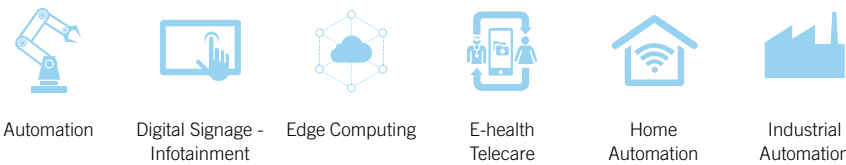


HIGHLIGHTS

CPU Rockchip RK3399	CONNECTIVITY 1x GbE; 2x USB3.0; 3x USB2.0; 2x RS-232; on-board WiFi+BT5.0; on-board LTE Cat4 modem
GRAPHICS 4-Core Mali-T860MP4 GPU	MEMORY 2GB LPDDR4 on-board memory



MAIN FIELDS OF APPLICATION



FEATURES

Processor	Rockchip RK3399 processor, 2x Cortex®-A72 MP cores + 4x Cortex®-A53 MP cores, up to 1.8GHz, 64-bit architecture	Serial Ports	2x RS-232 on DB9-M connectors
System Memory	64-bit soldered down LPDDR4 memory, 2GB	Other Interfaces	Secure Element microSIM slot soldered on-board for the cellular modem
Graphics	4-Core Mali-T860MP4 GPU OpenGL ES 1.1/2.0/3.0/3.1, OpenVG 1.1, OpenCL, DX11 support Embedded VPU: <ul style="list-style-type: none">H.265 10-bit, H.264 10-bit, VP9 8-bit 4Kx2K@60fps hardware decodingMPEG-4/MPEG-2/VP8 1080p@60fps hardware decodingH.264, VP8 1080p@30fps hardware encoding Supports 2 independent video outputs	Other	IP20 steel box enclosure Wall mounting brackets
Video Interfaces	HDMI 1.4 / 2.0a connector DP interface on USB Type-C connector (Alternate mode)	Power Supply	12 VDC to 24 VDC, DC Power Jack
Video Resolution	Up to 4K	Operating System	Linux Android
Mass Storage	eMMC 5.1 drive on-board, 16GB	Operating Temperature*	-20°C to +50°C
Networking	1x Gigabit Ethernet RJ45 connector on-board WiFi (802.11 ac / a / b / g / n) + BT 5.0 module, external antennas on-board LTE Cat4 modem with microSIM slot, external antennas	Dimensions	177 x 150 x 27 mm
USB	3x USB 2.0 Type-A connectors 1x USB 3.0 Type-A connector 1x USB 3.0 Type-C connector (alternate mode with DP)	* Measured at any point on the heatspreader/heatsink during any and all times (including start-up). Actual temperature will depend on the application, enclosure and/or environment. The customer must consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.	

Fanless Embedded Computers



LYRA

Industrial IoT Gateway based on the NXP i.MX 6SoloX Processor

Enhance your edge capabilities with a Synthetic Brain

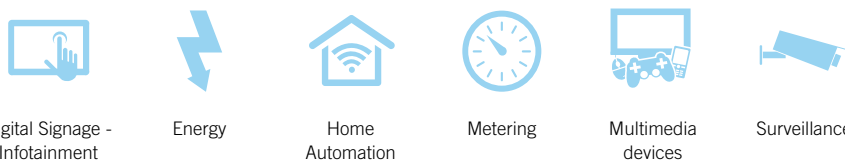


HIGHLIGHTS

CPU NXP i.MX 6SoloX Processor	CONNECTIVITY up to 2x Fast Eth; WiFi + BTLE; optional LTE Cat4 modem onboard; 3x Multicolor Signalling LEDs; 1x RS-232 port; 1x RS-485 port; 2x CAN port
GRAPHICS N.A.	MEMORY 32-bit DDR3L memory soldered onboard



MAIN FIELDS OF APPLICATION



FEATURES

Processor	NXP i.MX 6SoloX, Single core Cortex®-A9 @ 1GHz + Cortex®-M4 core @ 227MHz	Power Supply	+12V _{DC} DC power jack and 2-poles PCB terminal block for voltage supply 2200mAh Li-Ion Rechargeable battery
Memory	32-bit DDR3L memory soldered onboard, up to 1GB	Operating System	Linux with Edgahog Services installed
Mass Storage	8GB eMMC drive on-board µSD Card Slot 1MB SPI Flash	Operating Temperature*	0°C ÷ +50°C
Networking	Up to 2 x FastEthernet RJ-45 ports Onboard 2.4GHz WiFi (802.11 b/g/n) + BT LE combo module with external antenna (optionally available in Dual Band -2.4Ghz and 5GHz- version with 2x external antennas and 802.11a support, factory alternatives) Optional LTE Cat4 Modem embedded on-board, with 2 external antennas microSIM or electronic SIM soldered on-board for the optional Modem	Optional accessories	DIN rail bracket kit
USB	1 x USB 2.0 Type-A socket 1 x USB 2.0 OTG on micro-AB connector	Dimensions	205 x 95.50 x 40.25mm
Serial Ports	1x RS-232 port 1x RS-485 port 2x CAN Port	*Environment temperature measured near the heatsink's fins. Upon customer to verify that the temperature remains within the admissible range.	
Other Interfaces	4x analog inputs I2C Bus 2x PWM Power On/OFF Button Reset Button 3x Multicolor Signalling LEDs		



Fanless Embedded Computers

PAVO Fanless embedded computer based on NXP i.MX 8M Applications Processors

Multicore processing and flexible connectivity for multimedia and industrial IoT applications



HIGHLIGHTS

CPU NXP i.MX 8M Family	CONNECTIVITY 1x GbE; 1x USB3.0; 2x USB2.0; 1x RS-232; Optional on-board WiFi+BLTE; Optional WWAN add-on module
GRAPHICS Vivante GC7000Lite GPU	MEMORY Up to 2GB DDR3L on-board memory



MAIN FIELDS OF APPLICATION



FEATURES

Processor	i.MX 8M Quad, Quad A53-core up to 1.5GHz, with GPU and VPU i.MX 8M QuadLite, Quad A53-core up to 1.5GHz, with GPU only i.MX 8M Dual, Dual A53-core up to 1.5GHz, with GPU and VPU	Audio	Line Out + Mic In combo TRRS audio jack Optional Speaker connector, 10W per channel amplified Optional 2x 12 poles terminal block connectors with the following I/O: <ul style="list-style-type: none">• 1x CAN• 8x GPIOs• 1x SPI• 1x I2C• 1x 5V• 1x 3.3V• 1x 12V• 3x GND Power ON Button with integrated LED microSIM slot soldered on-board for the Modem Coin cell battery holder for RTC Optional 4x SMA connectors for external WiFi / WWAN antennas
System Memory	32-bit soldered down DDR3L memory, up to 2GB	Other Interfaces	Power ON Button with integrated LED microSIM slot soldered on-board for the Modem Coin cell battery holder for RTC Optional 4x SMA connectors for external WiFi / WWAN antennas
Graphics	Vivante GC7000Lite GPU, supporting OpenGL ES 1.1 / 2.0 / 3.0 / 3.1, Open CL 1.2 and Vulkan Dedicated VPU (not for QuadLite), supporting 4Kp60 HEVC/H.265 main and main 10 decoder, 4Kp60 VP9 decoder, 4Kp30 AVC/H.264 decoder, 1080p60 MPEG-2, MPEG-4p2, VC-1, VP8, RV9, AVS, MJPEG, H.263 decoder	Other	Optional VESA 100 bracket accessory Optional DIN standard mounting plate accessory
Video Interfaces	Optional HDMI 1.4 / 2.0a interface	Power Supply	+12V _{DC} , Mini-Fit Power connector
Video Resolution	Up to 4K	Operating System	Linux Android (planned)
Mass Storage	Optional eMMC 5.0 drive on-board, up to 16GB	Operating Temperature*	0°C ÷ +50°C
Networking	1x Gigabit Ethernet RJ45 connector Optional on-board WiFi (802.11 ac / a / b / g / n) +BT 5.0 module, external antennas* M.2 Socket 2 Key B Slot for optional accessory M.2 Modem, external antennas* *Certification upon request	Dimensions	181 x 109 x 75 mm
USB	2 x USB 2.0 on Dual Type-A socket 1 x USB 3.0 Type-A socket 1 x USB 2.0 micro-AB connector (interface shared with USB 3.0 port)	*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.	
Serial Ports	1 x RS-232 Serial port on DB9-M connector		



Fanless Embedded Computers

CYGNUS Fanless embedded computer with Intel® Atom® X Series (formerly Apollo Lake) Processors

Fanless, compact and versatile embedded box PC



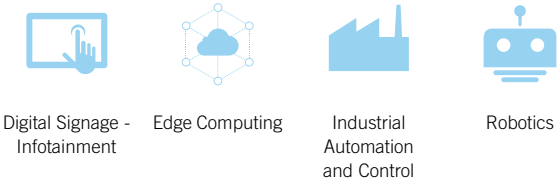
HIGHLIGHTS

CPU Intel® Atom™ X Series	CONNECTIVITY 2x GbE; WWAN and WLAN M.2 module slots
GRAPHICS Integrated Intel® HD Graphics 505 or 500 series controller	MEMORY Up to 8GB LPDDR4 memory

Industrial Temperature Range



MAIN FIELDS OF APPLICATION



FEATURES

Processor	Intel® Atom® x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP Intel® Atom® x5-E3940 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP Intel® Atom® x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP	Other Interfaces	Power Button Power On Status LED
Memory	Quad Channel soldered down LPDDR4 memory, up to 8GB	Power Supply	PCB terminal block, type Phoenix 1990973 +18V _{DC} ÷ +32 V _{DC} recommended +15V _{DC} ÷ +36 V _{DC} absolute
Graphics	Integrated Intel® HD Graphics 505 or 500 series controller, with up to 18 Execution Units 4K HW decoding and encoding of HEVC(H.265), H.264, VP8, SVC, MVC Dual independent display	Operating System	Preinstalled OS (factory options): <ul style="list-style-type: none">• Microsoft Windows 10 IoT entry• Linux 64-bit Available on request: <ul style="list-style-type: none">• Wind River Linux (64-bit)• Yocto (64-bit)• Android (planning)
Video Interfaces	Two multimode Display Port on miniDP++ connectors	Operating Temperature	With internal SSD, 0°C ÷ +60°C (in presence of air flow)* Without internal SSD, -40°C ÷ +60°C (in presence of air flow)**
Video Resolution	Up to 4096 x 2160	Optional accessories	miniDP++ to HDMI adapter Customised bracket for wall mount
Mass Storage	Optional eMMC drive onboard Optional SATA M.2 SSD module up to 512GB	Dimensions	162.3 x 109.3 x 52.4 mm
Networking	2 x Gigabit Ethernet ports M.2 Socket 2 Key B Slot for Modem modules (alternative to M.2 SSD), connected to internal microSIM Slot M.2 Socket 1 Key E Slot for WiFi/BT modules	* Environment temperature measured near the heatsink 's fins. Upon costumer to verify that the temperature remains within the admissible range. ** Temperature range below 0°C tested on the SBC only.	
USB	2 x USB 3.0 Type-A sockets on Front Panel 2 x USB 2.0 Type-A sockets on Rear Panel		
Serial Ports	2x RS-232/RS-422/RS-485 ports, software configurable, DB9 male connectors		
Audio	Internal HD Audio codec Cirrus Logic CS4207 Mic In and Line Out Audio jacks		

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Fanless Embedded Computers

HYDRUS

Fanless embedded computer with Intel® Celeron® J / N Series and Intel® Pentium® N Series (formerly Apollo Lake) Processors

Smart Edge Compute Unit, a multi-connectivity and multi-protocol plug & play Industrial IoT gateway



HIGHLIGHTS
















CPU Intel® Celeron® J / N Series and Intel® Pentium® N Series	CONNECTIVITY 2x GbE; WWAN and WLAN M.2 module slots
GRAPHICS Integrated Intel® HD Graphics 505 or 500 series controller	MEMORY Up to 8GB LPDDR4 memory



MAIN FIELDS OF APPLICATION



FEATURES

 Processor	Intel® Pentium® N4200 Quad Core @1.1GHz (burst 2.5GHz), 2MB L2 Cache, 6W TDP Intel® Celeron® N3350 Dual Core @1.1GHz (burst 2.4GHz), 2MB L2 Cache, 6W TDP Intel® Celeron® J3455, Quad Core @1.5GHz (Burst 2.3GHz), 2MB L2Cache, 10W TDP Intel® Celeron® J3355, Dual Core @2.0GHz (Burst 2.5GHz), 2MB L2Cache, 10W TDP	 Other Interfaces Power Button Power On Status LED
 Memory	Quad Channel soldered down LPDDR4 memory, up to 8GB	 Power Supply DC Power jack, with cable restraint, type DC-062-4-2.5-S214 +18V _{DC} ÷ +32 V _{DC} recommended +15V _{DC} ÷ +36 V _{DC} absolute Min power required, 40W
 Graphics	Integrated Intel® HD Graphics 505 or 500 series controller, with up to 18 Execution Units 4K HW decoding and encoding of HEVC(H.265), H.264, VP8, SVC, MVC Dual independent display	 Operating System Preinstalled OS (factory options): <ul style="list-style-type: none">• Microsoft Windows 10 IoT entry• Linux 64-bit Available on request: <ul style="list-style-type: none">• Wind River Linux (64-bit)• Yocto (64-bit)• Android (planning)
 Video Interfaces	Two multimode Display Port on miniDP++ connectors	 Operating Temperature* 0°C ÷ +60°C (in presence of air flow)
 Video Resolution	Up to 4096 x 2160	 Optional accessories miniDP++ to HDMI adapter Customised bracket for wall mount
 Mass Storage	Optional eMMC drive onboard Optional SATA M.2 SSD module up to 512GB	 Dimensions 162.3 x 109.3 x 42.4 mm
 Networking	2 x Gigabit Ethernet ports M.2 Socket 2 Key B Slot for Modem modules (alternative to M.2 SSD), connected to internal microSIM Slot M.2 Socket 1 Key E Slot for WiFi/BT modules	*Environment temperature measured near the heatsink 's fins. Upon costumer to verify that the temperature remains within the ammissible range.
 USB	2 x USB 3.0 Type-A sockets on Front Panel 2 x USB 2.0 Type-A sockets on Rear Panel	
 Audio	Internal HD Audio codec Cirrus Logic CS4207 Mic In and Line Out Audio jacks	

Fanless Embedded Computers



CHAMALEON

Boxed IP65 solution based on Intel® Atom® x5 (formerly Apollo Lake) Applications Processor

High video quality in a boxed solution for Industrial Automation and Edge IoT



HIGHLIGHTS

CPU Intel® Atom® x5-E3930 Dual Core	CONNECTIVITY up to 4x GbE; WWAN and WLAN M.2 module slots
GRAPHICS Integrated Intel® HD Graphics 500 series controller	MEMORY 2GB LPDDR4 on-board memory

Industrial Temperature Range



MAIN FIELDS OF APPLICATION



FEATURES

Processor	Intel® Atom® x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP	Other	IP65 aluminium box enclosure DIN standard mounting plate
System Memory	Quad Channel soldered down LPDDR4 memory, 2GB	Power Supply	+18VDC to +32 VDC recommended +15VDC to +36 VDC absolute
Graphics	Integrated Intel® HD Graphics 500 series controller, 12 Execution Units 4K HW decoding and encoding of HEVC(H.265), H.264, VP8, SVC, MVC	Operating System	Preinstalled OS (factory options): <ul style="list-style-type: none">• Microsoft Windows 10 IoT enterprise• Linux 64-bit
Video Interfaces	1x multimode Display Port on miniDP++ connector	Operating Temperature	With internal SSD, 0°C to +60°C (in presence of air flow)* Without internal SSD, -40°C to +60°C (in presence of air flow)**
Video Resolution	Up to 4096 x 2160	Dimensions	165 x 110 x 75 mm
Mass Storage	eMMC 5.0 drive on-board, 64GB Optional SATA M.2 SSD module up to 512GB (alternative to M.2 Modem / optional 2x GbE)	* Environment temperature measured near the heatsink 's fins. Upon costumer to verify that the temperature remains within the admissible range. ** Temperature range below 0°C tested on the internal single board computer only.	
Networking	2x Gigabit Ethernet RJ45 connectors 2x optional Gigabit Ethernet RJ45 connectors (alternative to M.2 Modem / SSD) M.2 Socket 2 Key B Slot for cellular modem modules (alternative to M.2 SSD / optional 2x GbE), M.2 Socket 1 Key E Slot for WiFi/ BT modules, external antennas		
USB	2x USB 2.0 Type-A sockets		
Serial Ports	2x RS-232/RS-485 ports, software configurable		
Other Interfaces	8x GPIOs TPM 2.0 chip for encryption MicroSIM slot soldered on-board for the cellular modem		



Fanless Embedded Computers

CETUS

Fanless embedded computer with AMD Embedded 3rd generation R-Series SOC (formerly Merlin Falcon) or G-Series SOC-I (formerly Brown Falcon) or G-Series SOC-J (formerly Prairie Falcon)

The Next Generation Single-Board Computer

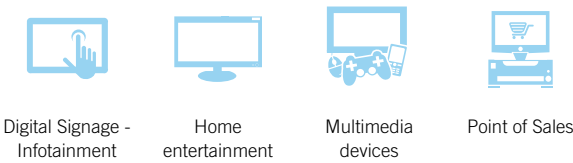


HIGHLIGHTS

CPU AMD Embedded 3rd generation R-Series SOC or G-Series SOC-I or G-Series SOC-J (formerly Prairie Falcon)	CONNECTIVITY 2x GbE; 4x USB 3.0; 4x USB 2.0; 6x RS-232
GRAPHICS AMD Radeon™ 3rd -Generation Graphics Core Next (GCN)	MEMORY Up to 2x 8GB DDR4 SODIMM modules



MAIN FIELDS OF APPLICATION



FEATURES

Processor	AMD Embedded™ 3rd generation R-Series SOC (Merlin Falcon): AMD RX-421BD , Quad Core @ 2.1 GHz (3.4 GHz Max), 2MB L2 Cache, TDP 35W AMD RX-418GD , Quad Core @ 1.8 GHz (3.2 GHz Max), 2MB L2 Cache, TDP 35W AMD RX-216GD , Dual Core @ 1.6GHz (3.0 GHz Max), 1MB L2 Cache, TDP 15W AMD Embedded™ 3rd generation G-Series SOC-I (Brown Falcon): AMD GX-217GI , Dual Core @ 1.7 GHz (2.0 GHz Max), 1MB L2 Cache, TDP 15W AMD Embedded™ 3rd generation G-Series SOC-J (Prairie Falcon): AMD GX-224IJ , Dual Core @ 2.4GHz (2.8 GHz Max), 1MB L2 Cache, TDP 15W	USB 2x USB 3.0 Type-A sockets 2x USB 2.0 Type-A sockets 2x USB 3.0 on internal pin header 2x USB 2.0 on internal pin header
System Memory	Up to 2x 8GB DDR4 SODIMM modules	Audio 5.1 non amplified audio Jacks S/PDIF Optical (Toslink) Amplified Audio connector (Stereo Out + Subwoofer), 3x30W
Graphics	AMD Radeon™ 3rd -Generation Graphics Core Next (GCN) RX-421BD -Radeon™ R7 RX-418GD -Radeon™ R6 RX-216GD -Radeon™ R5 GX-217GI -Radeon™ R6E GX-224IJ, Radeon™ R4E Three independent displays supported (two with GX-217GI and GX-224IJ) DirectX® 12 supported Unified Video Decode (UVD) 6 (4K H.265 and H.264 decode) Video Coding Engine (VCE) 3.1 (4K H.264 encode)	Serial Ports 4 x RS-232 Full Modem ports on external DB9 male connectors 2 x RS-232 Full modem ports on internal IDC pin headers
Video Interfaces	Up to 3 DP++ interfaces, supporting eDP1.4, DP 1.2, DVI and HDMI 1.4b/2.0	Other Interfaces 2x FAN connectors Optional TPM 1.2 TPM 2.0 embedded in SoC (Windows support only) 8 x GPI, 8 x GPO
Video Resolution	Up to 4K	Power Supply +12Vdc ± 5%, mini-Fit 4x2 Power connectors 220mAh non-rechargeable Coin cell battery for RTC
Mass Storage	Up to 2x internal SATA drives 2x CFAST Slots 1x microSD card slot PCI-e x4 M.2 Key M NVMe SSD Slot	Operating System Microsoft® Windows 10 Microsoft® Windows 10 IoT Linux
Networking	2x Gigabit LAN / Realtek RTL8111G Gigabit Ethernet controllers	Operating Temperature* 0°C ÷ +60 °C (Commercial temp.)
PCI-e	1 x PCI-e x4 port on M.2 Key M SSD Slot	Dimensions 300 x 230 x 90 mm (11.81" x 9.05" x 3.54")

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

Fanless Embedded Computers

Easy Edge

IoT Sensor to Cloud

From sensors to AI in a single step



HIGHLIGHTS













CPU ESP32-D0WD-V3 processor	CONNECTIVITY Programmable expansion connector, CAN Port, dedicated RS-232 / TTL UART
NETWORKING WiFi 802.11b/g/n + BT 4.2, optional Modem with GNSS functionality	MEMORY Internal 520KB SRAM + 16KB SRAM in RTC



MAIN FIELDS OF APPLICATION



FEATURES

	Processor	ESP32-D0WD-V3 Dual Core Xtensa® 32-bit LX6 Microprocessor		Power Supply	2-pin micro-Fit Connector +9VDC .. +24VDC Optional 2000mAh rechargeable battery, LIR18650
	Memory	Internal 520KB SRAM + 16KB SRAM in RTC		Operating Temperature*	0°÷+45°C
	Graphics	N.A.		Dimensions	110 x 91 x31 mm (LxWxD)
	Mass Storage	16MB SPI Flash 8MB PSRAM microSD slot		Mechanical	Wall mount and DIN rail mount
	Networking	Embedded WiFi (802.11 b/g/n) + BT 4.2/BT LE module Optional Modem with GNSS functionality: <ul style="list-style-type: none">• Quad Band GSM/GPRS Modem, SIMCOM SIM868• Global-Band LTE CAT-M/NB-IoT modem, SIMCOM SIM7080G	*Measured inside the case, during any and all times (including start-up). Actual temperature will widely depend on application and/or environment.		
	Serial Ports	RS-232 / TTL UART (jumper selectable) port on 6-pin dedicated connector			
	CAN	CAN Port on 3-pin dedicated connector			
	Other Interfaces	Accelerometer Optional Trusted Secure Element Expansion 8-pin connector, able to manage: <ul style="list-style-type: none">• Up to 3x Digital GPIOs, 2 of them managed also in UltraLow Power States too• Up to 2x analog Inputs• I2C interface (fixed interface)• Additional 2-Wire UART• Second I2C interface• Up to 2x PWM 1x Pushbutton White LED for Power On Signaling Green LED for Modem Activity Signaling Blue LED for Edgehog network connection signaling Yellow LED for WiFi/BT activity or other signaling eSIM or microSIM slot (factory options) SMA connectors for WiFi/BT, Modem and GNSS (antennas not provided)			

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PAYMENT SYSTEMS

FAST AND INTUITIVE PAYMENT WITHOUT PIN WITH KarL4



ONE POINT OF CONTACT FOR ALL QUERIES



FAST AND FLEXIBLE INSTALLATION



GET STARTED INSTANTLY THANKS TO PLUG & PLAY



COMPLETE INTEGRATION INTO THE DEVICE



LTE ONBOARD



Payment systems



KarL4 by Garz & Fricke

Contactless payment terminal

Contactless payment made simple with KarL4



HIGHLIGHTS



LOW POWER

Ultra low power for battery powered applications



PLUG & PLAY

Automatic commissioning, modem on board



DESIGN

Modular and seamless integratable design

KarL4 is the new contactless payment terminal from Garz & Fricke. KarL4 is a contactless-only reader (COR). It enables your customers to make payments for amounts up to EUR 50 in a secure and intuitive manner from their debit* card without having to enter a PIN. KarL4 uses Near Field Communication (NFC) to transfer data. This leads to very customer-friendly handling: simply pull out the card, position it and pay. KarL4 can be optionally combined with our touch display HMI's and, on request, can even be tailored to your requirements as a highly individual complete module.

*credit card certification pending

MAIN FIELDS OF APPLICATION



Fitness Equipment



Gaming



Point of Sales



Transportation



Vending

FEATURES

Networking	4G Modem	Operating Temperature*	-25°C ÷ +70°C; Humidity up to 100%
Service Interface	Two switches for settings; red/green LED for status; buzzer	Dimensions	Controller: 85.0 x 90.0 x 18.0 mm NFC Antenna: 98.0 x 98.0 x 13.0 mm
Customer Interface	NFC Antenna with 4 green LED's	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.	
Machine Interfaces	MDB/IPC Level 02/03 (optional USB)		
Power Supply	8.0 ÷ 42.5 VDC (typ. 130mA @ 13.8V)		
Norms & Standards	EMVCo Level 1 EMVCo Level 2 (Master/Visa) Girocard ISO 18092 (NFC)		
Accessories	Roof antenna for LTE/GSM; 1 dBi; 700-960 MHz/1575-2700 MHz; length 200 cm Patch antenna for LTE/GSM; 3 dBi; 700-960 MHz/1700-2700 MHz; length 200 cm		



BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

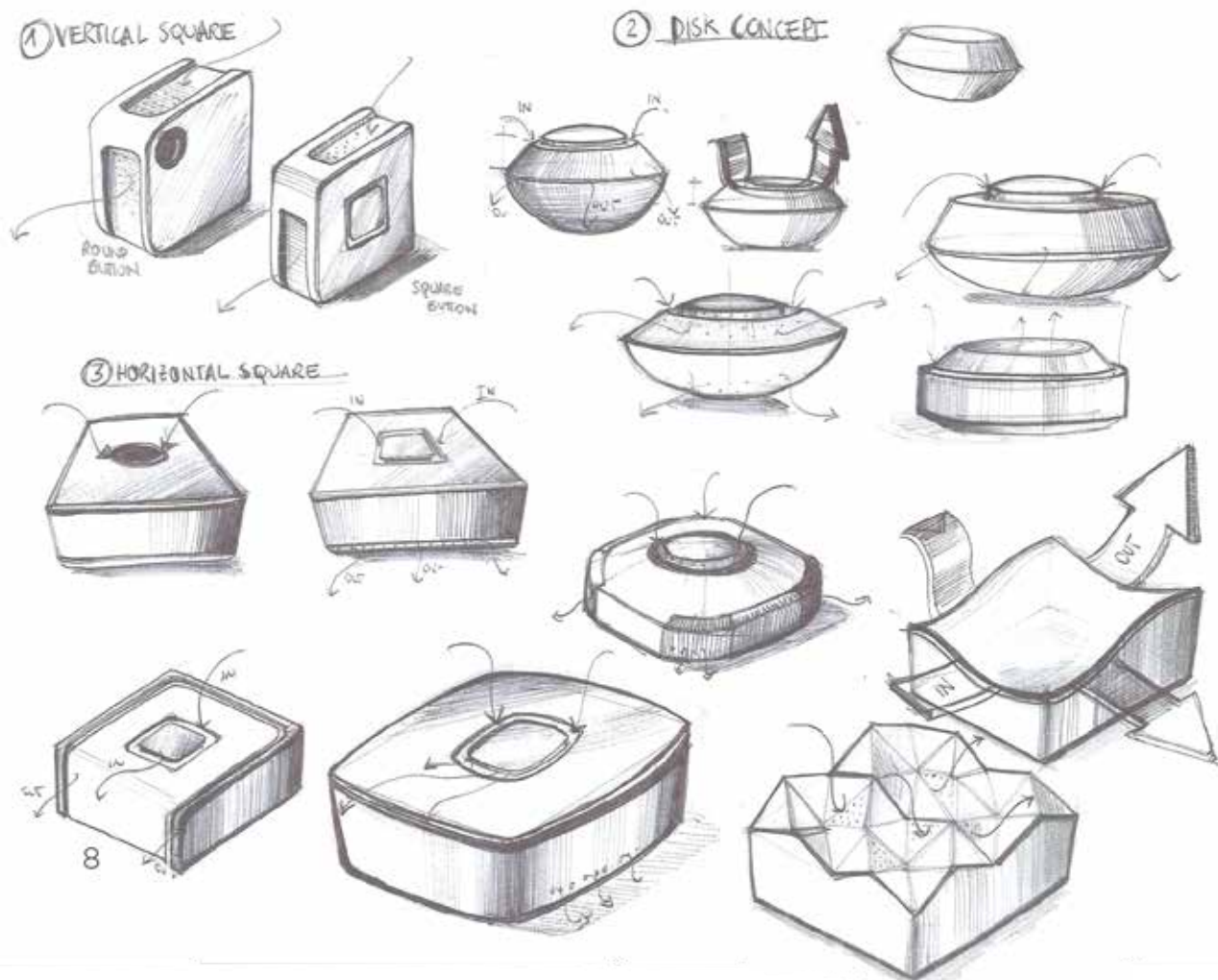
PROJECT DEVELOPMENT METHODOLOGY

From the Brief to the Embedded solutions



ANALYSIS

High-level analysis
Brainstorming ideas



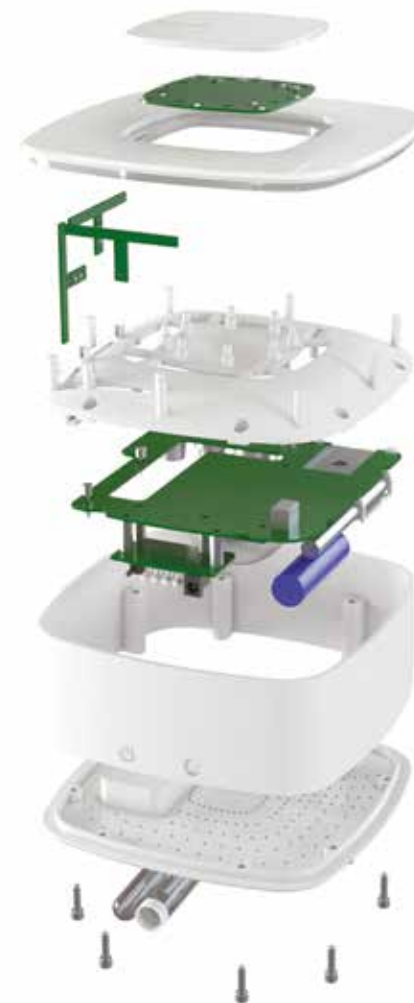
CONCEPT

Design schemes
2D & 3D models



ENGINEERING

Prototyping
Pre-series
Final production



BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

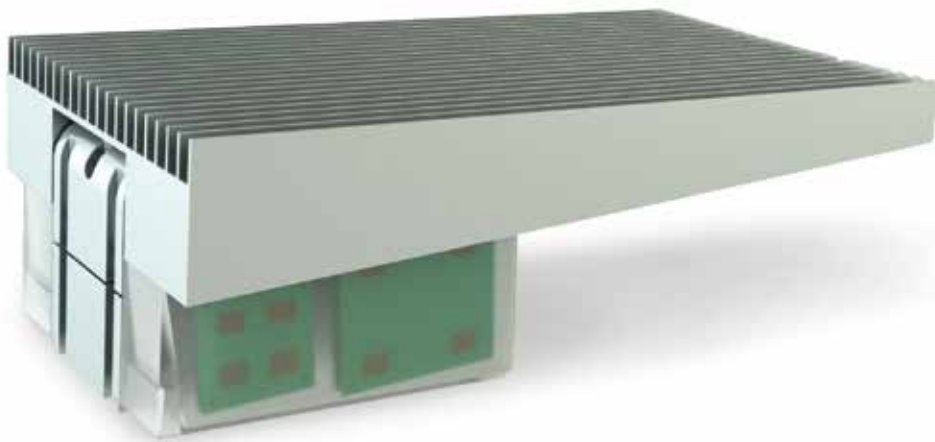
CASH REGISTER

Designed by Ergon



GREEN LIGHT

Designed by Ergon



BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

HOME AUTOMATION INTERFACE

Designed by Ergon



INTERACTIVE SMART TAG

Designed by Ergon



BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

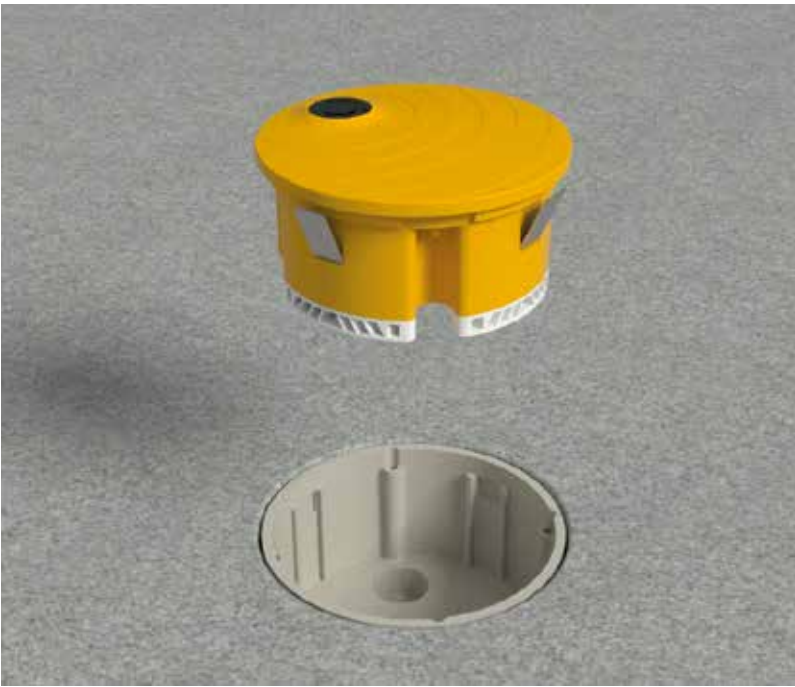
GATEWAY

Designed by Ergon



PARKING SENSOR

Designed by Ergon



BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

INDOOR AIR QUALITY MANAGEMENT SYSTEM

Designed by Ergon



VENDING MACHINE INTERFACE

Designed by Ergon



BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

MEDICAL HMI

Designed by Ergon



COMMUNICATIONS GATEWAY

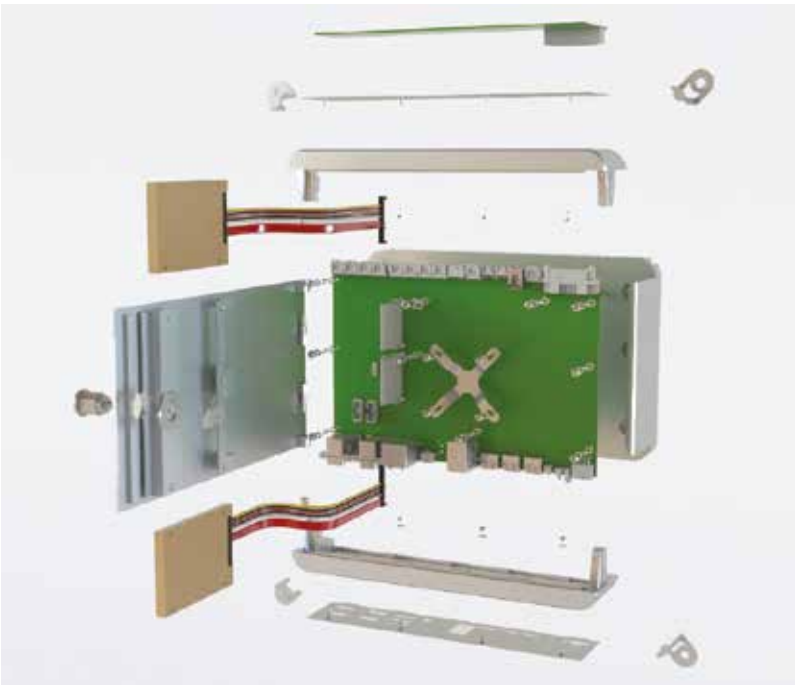
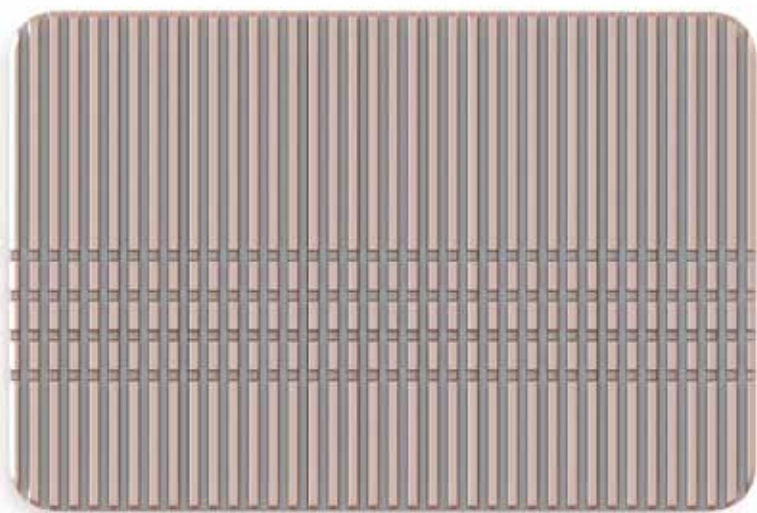
Designed by Ergon



BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

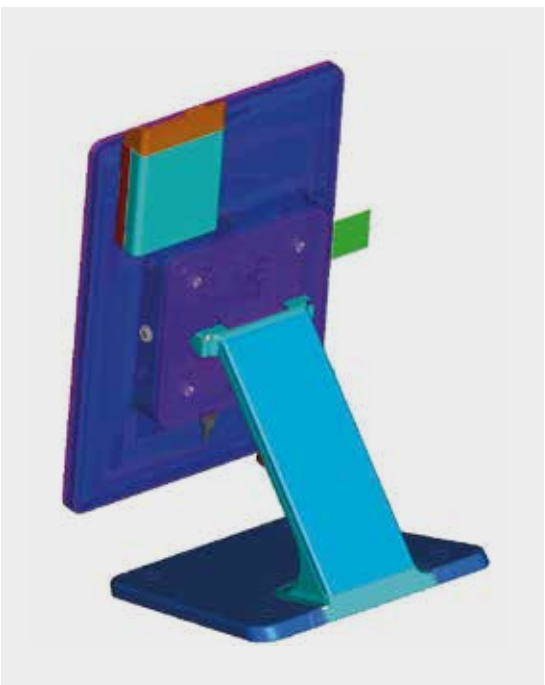
GAMING PLATFORM

Designed by Ergon



POS WITH QR CODE READER AND SMART CARD READER

Designed by Mac Design



BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

CASHLESS DONATION BOX



MEDICATION MANAGEMENT SYSTEM



BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

DEVICE FOR DERMATOLOGICAL APPLICATIONS

HIGH FLOW GENERATOR FOR NON-INVASIVE
LUNG VENTILATION

Designed by IBD







MODULAR HMI[®] SOLUTIONS

SECO OFF-THE-SHELF SOLUTIONS FOR
EASIER SYSTEM INTEGRATION



TOUCH-DISPLAY
SOLUTIONS



EXPERTISE
IN ASSEMBLY
SERVICES



MECHANICAL
DESIGN

VESA MOUNT



- ▶ Easiest to install
- ▶ VESA Standard

PANEL MOUNT



- ▶ Rugged solution
- ▶ Integrated sealing
- ▶ Easy to install

FLUSH MOUNT



- ▶ Highest design flexibility
- ▶ Seamless design
- ▶ Integrated sealing

REAR MOUNT



- ▶ Easy to integrate
- ▶ Highly customizable



MODULAR HMI SOLUTIONS

Flexy Vision 7 X86

Panel PC with 7.0" LCD display based on the Intel® Atom® X Series and Intel® Celeron® J / N Series (formerly Apollo Lake) Processors

Flexibility Meets Style For Endless Visual Display Applications



HIGHLIGHTS

CPU Intel® Celeron® / Atom® (Dual / Quad Core processors)	CONNECTIVITY 2x GbE; 2x RS-232 or RS-485 on DB-9 connector; 2x USB 3.0 + 2x USB 2.0 ports
GRAPHICS 50K Hours 800x480 LVDS display with projected capacitive touchscreen integrated	MEMORY Soldered-down LPDDR4 memory, up to 8GB total



MAIN FIELDS OF APPLICATION



Digital Signage -
Infotainment



Industrial
Automation



Vending

FEATURES

Processor	Intel® Atom® x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP Intel® Atom® x5-E3940 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP Intel® Atom® x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP Intel® Pentium® N4200 Quad Core @1.1GHz (Burst 2.5GHz), 2MB L2 Cache, 6W TDP Intel® Celeron® N3350 Dual Core @1.1GHz (Burst 2.4GHz), 2MB L2 Cache, 6W TDP Intel® Celeron® J3455 Quad Core @1.5GHz (Burst 2.3GHz), 2MB L2Cache, 10W TDP Intel® Celeron® J3355 Dual Core @2.0GHz (Burst 2.5GHz), 2MB L2Cache, 10W TD	Video Interfaces HDMI Connector DP++ Connector
Memory	Soldered-down LPDDR4 memory Dual/Quad Channel, up to 8GB total, 32-bit interface	Mass Storage eMMC 5.0 drive soldered on-board, up to 64GB M.2 Key B slot for optional SSD drive, up to 512GB
Embedded Graphics	Integrated Intel® HD Graphics 500 series controller with up to 18 Execution Units Three Independent displays supported HW decoding of HEVC(H.265), H.264, MVC, VP8, VP9, MPEG2, VC-1, WMV9, JPEG/MJPEG formats HW encoding of HEVC(H.265), H.264, MVC, VP8, VP9 and JPEG/MJPEG formats	Networking 2x Gigabit Ethernet port M.2 WWAN Connectivity Slot for accessory 4G modules (excludes SSD Drive) M.2 WLAN Connectivity Slot for accessory WiFi/BT module
Video Section	7.0" LVDS display, resolution 800x480, LED lifetime 50K hours life min, 690cd/m2 min. brightness P-Cap (Projected Capacitive touch screen), with 3.0mm glass cover Glass Hardness IK07, Surface Hardness 7H	USB 2x USB 3.0 Host ports on Type-A sockets 2 x USB 2.0 Host ports on Dual Type-A socket
		Serial Ports 2x multistandard RS-232 /RS-422/RS-485 ports on DB-9 connectors
		Other Interfaces Power ON Button with integrated LED Optional TPM 2.0 onboard
		Power Supply Main Power: 12V _{DC} Power In connectors: DC Power Jack.
		Operating System Windows 10 IOT Linux
		Operating Temperature* 0°C ÷ 50°C
		Dimensions 202,1 x 133,9 x 58mm

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

MODULAR HMI SOLUTIONS

Flexy Vision 10 X86

Panel PC with 10.1" LCD display based on the Intel® Atom® X Series and Intel® Celeron® J / N Series (formerly Apollo Lake) Processors

Flexibility Meets Style For Endless Visual Display Applications



HIGHLIGHTS

CPU Intel® Celeron® / Atom™ (Dual / Quad Core processors)	CONNECTIVITY 2x GbE; 2x RS-232 or RS-485 on DB-9 connector; 2x USB 3.0 + 2x USB 2.0 ports
GRAPHICS 50K Hours 1280x800 LVDS display with projected capacitive touchscreen integrated	MEMORY Soldered-down LPDDR4 memory, up to 8GB total



MAIN FIELDS OF APPLICATION



Digital Signage -
Infotainment



Industrial
Automation



Vending

FEATURES

Processor	Intel® Atom® x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP Intel® Atom® x5-E3940 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP Intel® Atom® x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP Intel® Pentium® N4200 Quad Core @1.1GHz (Burst 2.5GHz), 2MB L2 Cache, 6W TDP Intel® Celeron® N3350 Dual Core @1.1GHz (Burst 2.4GHz), 2MB L2 Cache, 6W TDP Intel® Celeron® J3455 Quad Core @1.5GHz (Burst 2.3GHz), 2MB L2Cache, 10W TDP Intel® Celeron® J3355 Dual Core @2.0GHz (Burst 2.5GHz), 2MB L2Cache, 10W TD	Video Interfaces HDMI Connector DP++ Connector
Memory	Soldered-down LPDDR4 memory Dual/Quad Channel, up to 8GB total, 32-bit interface	Mass Storage eMMC 5.0 drive soldered on-board, up to 64GB M.2 Key B slot for optional SSD drive, up to 512GB
Embedded Graphics	Integrated Intel® HD Graphics 500 series controller with up to 18 Execution Units Three Independent displays supported HW decoding of HEVC(H.265), H.264, MVC, VP8, VP9, MPEG2, VC-1, WMV9, JPEG/MJPEG formats HW encoding of HEVC(H.265), H.264, MVC, VP8, VP9 and JPEG/MJPEG formats	Networking 2x Gigabit Ethernet port M.2 WWAN Connectivity Slot for accessory 4G modules (excludes SSD Drive) M.2 WLAN Connectivity Slot for accessory WiFi/BT module
Video Section	10.1" LVDS display, resolution 1280x800, LED lifetime 50K hours life min, 340cd/m2 min. brightness P-Cap (Projected Capacitive touch screen), with 3.0mm glass cover Glass Hardness IK07, Surface Hardness 7H	USB 2x USB 3.0 Host ports on Type-A sockets 2 x USB 2.0 Host ports on Dual Type-A socket
		Serial Ports 2x multistandard RS-232 /RS-422/RS-485 ports on DB-9 connectors
		Other Interfaces Power ON Button with integrated LED Optional TPM 2.0 onboard
		Power Supply Main Power: 12V _{DC} Power In connectors: DC Power Jack.
		Operating System Windows 10 IOT Linux
		Operating Temperature* 0°C ÷ 50°C
		Dimensions 269,5 x 188,1 x 58mm

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

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MODULAR HMI SOLUTIONS

Flexy Vision 13.3 ARM Panel PC with 13.3" LCD display based on Rockchip RK3399 SoC

Flexibility Meets Style For Endless Visual Display Applications



HIGHLIGHTS

CPU Rockchip RK3399 processor	CONNECTIVITY 2x GbE; 2x RS-232 or RS-485 on DB-9 connector; 2x USB 3.0 + 2x USB 2.0 ports
GRAPHICS 50K Hours 1920x1080 LVDS display with projected capacitive touchscreen integrated	MEMORY Soldered-down LPDDR4 memory, up to 4GB total



MAIN FIELDS OF APPLICATION



Digital Signage -
Infotainment



Industrial
Automation



Vending

FEATURES

CPU	Rockchip RK3399 processor, 2x Cortex®-A72 MP cores + 4x Cortex®-A53 MPCores, up to 1.8GHz, 64-bit architecture	USB	1x USB 3.0 Type-C port (Alternate mode with DP) 1x USB 3.0 Host port on Type-A socket 2 x USB 2.0 Host ports on Dual Type-A socket
Memory	Soldered-down LPDDR4 memory, up to 4GB total, 64-bit interface	Audio	TRRS Audio Jack (Combo MicIn + Lineout)
Embedded Graphics	4-Core Mali-T860MP4 GPU, supporting OpenGL ES 1.1/2.0/3.0/3.1, OpenVG 1.1, OpenCL Embedded VPU, able to offer: <ul style="list-style-type: none">H.265 10-bit, H.264 10-bit, VP9 8-bit 4Kx2K@60fps HW DecodingMPEG-4/MPEG-2/VP8 1080p@60fps HW DecodingH.264, VP8 1080p@30fps HW encoding Dual Display support	Serial Ports	2x RS-232 or RS-485 (factory option) on DB-9 connectors
Video Section	13.3" LVDS display, resolution 1920x1080, LED lifetime 50K hours life min, 260cd/m2 min. brightness P-Cap (Projected Capacitive touch screen), with 3.0mm glass cover Glass Hardness IK07, Surface Hardness 7H	Other Interfaces	Power ON Button with integrated LED Optional Ultra Low Power SPI RTC Optional CAN ports (up to 2x) Optional, 4x GPIOs
Video Interfaces	HDMI 4K interface DP 1.2 interface on USB Type-C connector (alternate mode)	Power Supply	Main Power: 12V _{DC} .. 24V _{DC} Power In connectors: DC Power Jack.
Mass Storage	eMMC drive soldered on-board, up to 64GB Optional SPI Flash	Operating System	Linux
Networking	2x Gigabit Ethernet port Soldered on-board M.2 1216 WLAN 802.11 a/b/g/n/ac + BT 5.0 module* On-board LTE Modem*	Operating Temperature*	0°C ÷ 50°C
		Dimensions	349,2 x 220,8 x 58 mm
			*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
			*Certification upon request

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MODULAR HMI SOLUTIONS

Flexy Vision 13.3 X86 Panel PC with 13.3" LCD display based on the Intel® Atom® X Series and Intel® Celeron® J / N Series (formerly Apollo Lake) Processors

Flexibility Meets Style For Endless Visual Display Applications



HIGHLIGHTS

CPU Intel® Celeron® / Atom® (Dual / Quad Core processors)	CONNECTIVITY 2x GbE; 2x RS-232 or RS-485 on DB-9 connector; 2x USB 3.0 + 2x USB 2.0 ports
GRAPHICS 50K Hours 1920x1080 LVDS display with projected capacitive touchscreen integrated	MEMORY Soldered-down LPDDR4 memory, up to 8GB total



MAIN FIELDS OF APPLICATION



Digital Signage -
Infotainment



Industrial
Automation



Vending

FEATURES

Processor	Intel® Atom® x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP Intel® Atom® x5-E3940 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP Intel® Atom® x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP Intel® Pentium® N4200 Quad Core @1.1GHz (Burst 2.5GHz), 2MB L2 Cache, 6W TDP Intel® Celeron® N3350 Dual Core @1.1GHz (Burst 2.4GHz), 2MB L2 Cache, 6W TDP Intel® Celeron® J3455 Quad Core @1.5GHz (Burst 2.3GHz), 2MB L2Cache, 10W TDP Intel® Celeron® J3355 Dual Core @2.0GHz (Burst 2.5GHz), 2MB L2Cache, 10W TD	Video Interfaces	HDMI Connector DP++ Connector
Memory	Soldered-down LPDDR4 memory Dual/Quad Channel, up to 8GB total, 32-bit interface	Mass Storage	eMMC 5.0 drive soldered on-board, up to 64GB M.2 Key B slot for optional SSD drive, up to 512GB
Embedded Graphics	Integrated Intel® HD Graphics 500 series controller with up to 18 Execution Units Three Independent displays supported HW decoding of HEVC(H.265), H.264, MVC, VP8, VP9, MPEG2, VC-1, WMV9, JPEG/MJPEG formats HW encoding of HEVC(H.265), H.264, MVC, VP8, VP9 and JPEG/MJPEG formats	Networking	2x Gigabit Ethernet port M.2 WWAN Connectivity Slot for accessory 4G modules (excludes SSD Drive) M.2 WLAN Connectivity Slot for accessory WiFi/BT module
Video Section	13.3" LVDS display, resolution 1920x1080, LED lifetime 50K hours life typ-, 260cd/m2 min. brightness P-Cap (Projected Capacitive touch screen), with 3.0mm glass cover Glass Hardness IK07, Surface Hardness 7H	USB	2x USB 3.0 Host ports on Type-A sockets 2 x USB 2.0 Host ports on Dual Type-A socket
		Serial Ports	2x multistandard RS-232 /RS-422/RS-485 ports on DB-9 connectors
		Other Interfaces	Power ON Button with integrated LED Optional TPM 2.0 onboard
		Power Supply	Main Power: 12V _{DC} Power In connectors: DC Power Jack
		Operating System	Windows 10 IoT Linux
		Operating Temperature*	0°C ÷ 50°C
		Dimensions	349,2 x 220,8 x 58mm
			*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

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MODULAR HMI SOLUTIONS

Flexy Vision 15.6 ARM Panel PC with 15.6" LCD display based on Rockchip RK3399 SoC

Flexibility Meets Style For Endless Visual Display Applications



HIGHLIGHTS

CPU Rockchip RK3399 processor	CONNECTIVITY 2x GbE; 2x RS-232 or RS-485 on DB-9 connector; 2x USB 3.0 + 2x USB 2.0 ports
GRAPHICS 50K Hours 1920x1080 LVDS display with projected capacitive touchscreen integrated	MEMORY Soldered-down LPDDR4 memory, up to 4GB total



MAIN FIELDS OF APPLICATION



Digital Signage -
Infotainment



Industrial
Automation



Vending

FEATURES

CPU	Rockchip RK3399 processor, 2x Cortex®-A72 MP cores + 4x Cortex®-A53 MPCores, up to 1.8GHz, 64-bit architecture	USB	1x USB 3.0 Type-C port (Alternate mode with DP) 1x USB 3.0 Host port on Type-A socket 2 x USB 2.0 Host ports on Dual Type-A socket
Memory	Soldered-down LPDDR4 memory, up to 4GB total, 64-bit interface	Audio	TRRS Audio Jack (Combo MicIn + Lineout)
Embedded Graphics	4-Core Mali-T860MP4 GPU, supporting OpenGL ES 1.1/2.0/3.0/3.1, OpenVG 1.1, OpenCL Embedded VPU, able to offer: <ul style="list-style-type: none">H.265 10-bit, H.264 10-bit, VP9 8-bit 4Kx2K@60fps HW DecodingMPEG-4/MPEG-2/VP8 1080p@60fps HW DecodingH.264, VP8 1080p@30fps HW encoding Dual Display support	Serial Ports	2x RS-232 or RS-485 (factory option) on DB-9 connectors
Video Section	15.6" LVDS display, resolution 1920x1080, LED lifetime 50K hours min., 300cd/m2 min. brightness P-Cap (Projected Capacitive touch screen), with 3.0mm glass cover Glass Hardness IK07, Surface Hardness 7H	Other Interfaces	Power ON Button with integrated LED Optional Ultra Low Power SPI RTC Optional CAN ports (up to 2x) Optional, 4x GPIOs
Video Interfaces	HDMI 4K interface DP 1.2 interface on USB Type-C connector (alternate mode)	Power Supply	Main Power: 12V _{DC} .. 24V _{DC} Power In connectors: DC Power Jack.
Mass Storage	eMMC drive soldered on-board, up to 64GB Optional SPI Flash	Operating System	Linux
Networking	2x Gigabit Ethernet port Soldered on-board M.2 1216 WLAN 802.11 a/b/g/n/ac + BT 5.0 module* On-board LTE Modem*	Operating Temperature*	0°C ÷ 50°C
		Dimensions	403,6 x 253 x 58 mm
	*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.		
	*Certification upon request		

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MODULAR HMI SOLUTIONS

Flexy Vision 15.6 X86 Panel PC with 15.6" LCD display based on the Intel® Atom® X Series and Intel® Celeron® J / N Series (formerly Apollo Lake) Processors

Flexibility Meets Style For Endless Visual Display Applications



HIGHLIGHTS

CPU Intel® Celeron® / Atom™ (Dual / Quad Core processors)	CONNECTIVITY 2x GbE; 2x RS-232 or RS-485 on DB-9 connector; 2x USB 3.0 + 2x USB 2.0 ports
GRAPHICS 50K Hours 1920x1080 LVDS display with projected capacitive touchscreen integrated	MEMORY Soldered-down LPDDR4 memory, up to 8GB total



MAIN FIELDS OF APPLICATION



Digital Signage -
Infotainment



Industrial
Automation



Vending

FEATURES

Processor	Intel® Atom™ x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP Intel® Atom™ x5-E3940 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP Intel® Atom™ x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP Intel® Pentium® N4200 Quad Core @1.1GHz (Burst 2.5GHz), 2MB L2 Cache, 6W TDP Intel® Celeron® N3350 Dual Core @1.1GHz (Burst 2.4GHz), 2MB L2 Cache, 6W TDP Intel® Celeron® J3455 Quad Core @1.5GHz (Burst 2.3GHz), 2MB L2Cache, 10W TDP Intel® Celeron® J3355 Dual Core @2.0GHz (Burst 2.5GHz), 2MB L2Cache, 10W TD	Video Interfaces	HDMI Connector DP++ Connector
Memory	Soldered-down LPDDR4 memory Dual/Quad Channel, up to 8GB total, 32-bit interface	Mass Storage	eMMC 5.0 drive soldered on-board, up to 64GB M.2 Key B slot for optional SSD drive, up to 512GB
Embedded Graphics	Integrated Intel® HD Graphics 500 series controller with up to 18 Execution Units Three Independent displays supported HW decoding of HEVC(H.265), H.264, MVC, VP8, VP9, MPEG2, VC-1, WMV9, JPEG/MJPEG formats HW encoding of HEVC(H.265), H.264, MVC, VP8, VP9 and JPEG/MJPEG formats	Networking	2x Gigabit Ethernet port M.2 WWAN Connectivity Slot for accessory 4G modules (excludes SSD Drive) M.2 WLAN Connectivity Slot for accessory WiFi/BT module
Video Section	15.6" LVDS display, resolution 1920x1080, LED lifetime 50K hours min., 300cd/m2 min. brightness P-Cap (Projected Capacitive touch screen), with 3.0mm glass cover Glass Hardness IK07, Surface Hardness 7H	USB	2x USB 3.0 Host ports on Type-A sockets 2 x USB 2.0 Host ports on Dual Type-A socket
		Serial Ports	2x multistandard RS-232 /RS-422/RS-485 ports on DB-9 connectors
		Other Interfaces	Power ON Button with integrated LED Optional TPM 2.0 onboard
		Power Supply	Main Power: 12V _{DC} Power In connectors: DC Power Jack
		Operating System	Windows 10 IoT Linux
		Operating Temperature*	0°C ÷ 50°C
		Dimensions	403,6 x 253 x 58mm
	*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.		

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MODULAR HMI SOLUTIONS

Flexy Vision 21.5

Panel PC with 21.5" LCD display based on Intel® Atom® X Series and Intel® Celeron® J / N Series (formerly Apollo Lake) Processors

Flexibility Meets Style For Endless Visual Display Applications



HIGHLIGHTS



CPU
Intel® Celeron® / Atom™ (Dual / Quad Core processors)



CONNECTIVITY
2x GbE; WiFi/BT add-on module



GRAPHICS
30K hours 21.5" LVDS display with projected capacitive touchscreen integrated



MEMORY
Up to 8GB LPDDR4 on-board



MAIN FIELDS OF APPLICATION



Digital Signage -
Infotainment



Industrial
Automation



Vending

FEATURES

	Processor	Intel® Celeron® J3455, Quad Core @1.5GHz (Burst 2.3GHz), 2MB L2Cache, 10W TDP Intel® Atom™ x5-E3940 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP Intel® Celeron® N3350 Dual Core @1.1GHz (Burst 2.4GHz), 2MB L2 Cache, 6W TDP		Power Supply	+18VDC ÷ +32 VDC recommended +15VDC ÷ +36 VDC absolute RTC battery
	Memory	Dual/ Quad Channel soldered down LPDDR4 memory, up to 8GB			Operating System Microsoft® Windows 10 Enterprise (64 bit) Microsoft® Windows 10 IoT Core Yocto (64 bit) Linux
	Embedded Graphics	Integrated Intel® HD Graphics 500 series controller, with up to 18 Execution Units 4K HW decoding and encoding of HEVC(H.265), H.264, VP8, VP9, MVC		Operating Temperature*	0°C ÷ 50°C
	Video Section	21.5" LVDS display, resolution 1920x1080, 30K hours life P-Cap (Projected Capacitive touch screen), with 1.8mm glass cover Glass Hardness IK07, Surface Hardness 7H		Dimensions	537 x 328,5 x 53,5 mm
	Video Interfaces	Two DP++ 1.2 interfaces on miniDP connectors	*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.		
	Mass Storage	M.2 2260 SATA SSD Module, up to 512GB			
	Networking	Dual Gigabit Ethernet RJ45 connector with Gigabit Ethernet i210 controllers M.2 WLAN Connectivity Slot for accessory WiFi/BT module			
	USB	2 x USB 3.0 Host ports on USB 3.0 Type-A sockets			
	Other Interfaces	Power ON Button with integrated LED TPM 2.0 on-board 2x SMA connectors for external WiFi antennas			

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MODULAR HMI SOLUTIONS

SYS-A62-10

Embedded Panel with 10.1" LCD display based on the Multicore NXP i.MX 6 SoC family

Flexible, Open-source, Industrial system



HIGHLIGHTS



CPU
Solo, Dual Lite and Quad- Core (ARM® Cortex® A9 Cores)



CONNECTIVITY
Wi-Fi add-on module; up 22 GPIOs; CAN Bus



GRAPHICS
30K hours 10.1" LVDS display with projected capacitive touchscreen integrated



MEMORY
Up to 1GB DDR3L on-board



MAIN FIELDS OF APPLICATION



Digital Signage -
Infotainment



HMI



Point of Sales



Vending

FEATURES

	Processor	Multicore NXP i.MX 6 processor family SYS-A62-10/SOLO: i.MX6S Solo, 1 x ARM Cortex-A9 @1 GHz Core SYS-A62-10/LITE: i.MX6DL Dual Lite, 2 x ARM Cortex-A9 @1 GHz Cores SYS-A62-10/QUAD: i.MX6Q Quad, 4 x ARM Cortex-A9 @1 GHz Cores		Other Interfaces	MIPI-CSI Camera connector Programmable expansion connector with: SYS-A62-10/SOLO: up to 22 GPIOs, 2 x TTL CAN ports, 1 x UART TTL, 3 x PWM, 2 x I2C, SD, SPI or S/PDIF interfaces SYS-A62-10/LITE: up to 20 GPIOs, 1 x TTL CAN port, 1 x UART TTL, 3 x PWM, 2 x I2C, SD, SPI or S/PDIF interfaces SYS-A62-10/QUAD: up to 18 GPIOs, 1 x TTL CAN port, 3 x PWM, 2 x I2C, SD, SPI or S/PDIF interfaces
	Memory	On-board DDR3L soldered memory; SYS-A62-10/SOLO: 512MB 32-bit SYS-A62-10/LITE: 1GB 64-bit SYS-A62-10/QUAD: 1GB 64-bit			Power Supply +12V _{DC} SYS-A62-10/SOLO and SYS-A62-10/LITE: internal i.MX6 RTC, require external battery for time/data retention SYS-A62-10/QUAD: low power RTC with on-board battery
	Embedded Graphics	2D, OpenGL® ES2.0 3D HW accelerator OpenVG™ accelerator (SYS-A62-10/QUAD only) HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX		Operating System	Linux Yocto Windows® Embedded Compact 7
	Video Section	10,1" LVDS display, resolution 1280 x 800, 30K hours life P-Cap (Projected Capacitive touch screen), with 2mm glass cover Glass Hardness IK08, Surface Hardness 8H (450g)		Operating Temperature*	0°C ÷ 50°C
	Mass Storage	On-board 4GB eMMC drive microSD Card Slot SATA Connector (SYS-A62-10/QUAD only)		Dimensions	269,60 x 189,20 x 17,17 mm
	Networking	Gigabit Ethernet connector Optional WiFi pluggable module	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.		
	USB	2 x USB 2.0 Type-A ports and 1 x USB 2.0 internal connector USB micro-B Client port			
	Audio	SYS-A62-10/LITE and SYS-A62-10/QUAD: Realtek ALC655 AC'97 Audio Codec with Mic-In, Line-Out audio Jacks			
	Serial Ports	Dedicated Serial ports: SYS-A62-10/SOLO: 2 x RS-232 ports SYS-A62-10/LITE: 2 x RS-232 ports, 1 x CAN port SYS-A62-10/QUAD: 2 x RS-232 ports, 1 x RS-485 port, 1 x CAN port Other serial ports can be realised on expansion connector (see "Other interfaces")			

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MODULAR HMI SOLUTIONS

SYS-B08-7 Embedded Panel with 7” LCD display based on the NXP i.MX 6SoloX Processor

Smart, compact, industrial 7” touch system built for IoT

Panel Mount

HIGHLIGHTS

CPU
NXP i.MX6SX SoloX Processor, Single core Cortex®-A9 @ 1GHz + Cortex®-M4 core @ 227MHz

CONNECTIVITY
up to 2x Fast Eth; optional WiFi + BT LE

GRAPHICS
Integrated Graphics Vivante GC400T, 2D and 3D HW accelerator

MEMORY
32-bit DDR3L memory soldered on-board, up to 1GB

MAIN FIELDS OF APPLICATION

- Digital Signage - Infotainment
- HMI
- Home Automation
- Industrial Automation
- Info Kiosks
- Multimedia devices

FEATURES			
	Processor	NXP i.MX 6SoloX Processor, Single core Cortex®-A9 @ 1GHz + Cortex®-M4 core @ 227MHz	
	Max Cores	1 + 1	
	Memory	Soldered on-board DDR3L memory, 32-bit interface SYS-B08-BASIC/D: 512MB SYS-B08-FULL/D: 1GB	
	Graphics	Integrated Graphics Vivante GC400T, 2D and 3D HW accelerator OpenGL ES 2.0, OpenGL ES 1.1, OpenVG 1.1 supported	
	Video Interfaces	Single Channel 18-/24- bit LVDS connector + Touch Screen (I2C signals) 24-bit Parallel RGB Connector	
	Video Resolution	LVDS: up to 1366x768 @60Hz, 24bpp RGB: up to 1920x1080p @60Hz, 24bpp	
	Mass Storage	16MB NOR Quad-SPI Flash soldered onboard μSD Card slot SYS-B08-FULL/D: 8GB eMMC soldered onboard	
	Networking	SYS-B08-BASIC/D: 1x Fast Ethernet RJ-45 connector SYS-B08-FULL/D: 2x Fast Ethernet RJ-45 connector + WiFi (802.11 b/g/n) +BT LE combo module + antenna onboard	
	USB	1 x USB 2.0 OTG port 3 x USB 2.0 Host port on standard Type-A socket 1 x USB 2.0 Host port on internal pin header	
	Audio	I2S Audio interface on programmable pin header S/PDIF interface (In and Out) on programmable pin header	
	Serial Ports	1 x CAN Port reconfigurable as GPIO 2x RS-232 (Tx/RX signals only) + 1x RS-485 serial ports on expansion pin header	
			Other Interfaces
		2 x I2C dedicated connectors (one reserved for Touch Screen) 6 analog inputs for A/D Conversion Programmable (*) expansion pin header connector, able to offer: <ul style="list-style-type: none">• CSI interface input (PAL and NTSC formats supported)• Up to 20 GPIO• SPI interface• SPDIF Audio interface• I2S Audio interface• CAN interface (TTL level)• 5 x PWM• 3 x I2C• 3 x serial ports (2x RS-232 +1xRS-485 interface)	
		Embedded Low Power RTC (*) Please note that some of these interfaces are factory options, other configurations are made via SW using the pin multiplexing possibilities of the i.MX6SX processor.	
			Integrated Sensors
		Optional 9-Axis Motion Sensors (Accelerometer, Magnetometer and Digital Gyroscope)	
			Power Supply
		+12V _{DC} nominal voltage +3V _{DC} cabled Coin Cell Battery	
			Operating System
		Linux Yocto	
			Operating Temperature*
		0°C ÷ +60°C	
			Dimensions
		189.60 x 121.40 x 28.20 mm	
*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.			

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MODULAR HMI SOLUTIONS

HYDRA-N6 7” Rugged, Customizable Arm Tablet with Quad or Dual Core Cortex-A9 NXP i.MX 6 Processor

Rugged Arm tablet customizable to get the job done

VESA Mount Option

HIGHLIGHTS

CPU
Quad or dual core Cortex-A9 NXP i.MX 6 processor

CONNECTIVITY
Wi-Fi (802.11 b/g/n/ac), Bluetooth 4.2, Cellular (via mPCIe slot), 10/100/1000 Ethernet (via 26-pin expansion connector)

GRAPHICS
7” WSVGA (1024x600) sunlight-readable display with automatic brightness and rotation control

MEMORY
RAM: 2 GB DDR3 (1GB, 2GB, 4GB available). Nonvolatile: 32 GB standard (8 - 128 GB available). Internal uSD card slot

MAIN FIELDS OF APPLICATION

- Aerospace & Defense
- Industrial Automation
- IoT
- Medical

FEATURES			
	Processor	Quad or dual core Cortex-A9 NXP i.MX 6 processor	Geolocation
	Memory	RAM: 2 GB DDR3 (1GB, 2GB, 4GB available)	Camera
	Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D, OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX	Other Features
	Display	7” WSVGA (1024x600) sunlight-readable LCD Resistive multi-touch (1.8 mm chemically strengthened glass optically bonded to LCD, anti-glare treatment); Options for capacitive touch available	Sensor
	Mass Storage	Nonvolatile: 32 GB standard (8 - 128 GB available) Internal uSD card slot	Power Supply
	Networking	Wi-Fi: 802.11 a/b/g/n/ac; Bluetooth 4.2; Cellular modem via mPCIe slot + SIM 10/100/1000 Ethernet (via 26-pin expansion connector)	Operating System
	USB	1 USB 2.0 OTG on Type C; 1 USB 2.0 host on Type A; additional USB 2.0 host optionally connected to expansion connector	Operating Temperature
	PCI-e	Internal to mPCIe slot	Environments
	Audio	Stereo speakers and digital microphone standard. Audio line-in and line-out optionally connected to expansion connector	Dimensions
	Serial Ports	RS-232, RS-485, UART, I2C, SPI optionally connected to expansion connector	
	CAN Bus	2 CAN optionally connected to expansion connector	
	Other Interfaces	Expansion Connector: DB-26 with screw locks. Factory configurable functionality. Interfaces available are: I2C, GPIO, CAN, UART, RS-232 or 485, SPI, Gigabit Ethernet, USB, DC input, 5 VDC output	

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MODULAR HMI SOLUTIONS


NALLINO 4.3 OF PCT

by Garz & Fricke


4.3 inch Rear Mount HMI based on NXP i.MX6ULL processor


Low-power and high cost efficiency solution


Rear Mount





HIGHLIGHTS

 **CPU**
NXP i.MX 6ULL









 **CONNECTIVITY**
1x 100MbE, 2x USB, RS232, RS485, CAN














 **MEMORY**
Soldered on Board DDR3L memory





MAIN FIELDS OF APPLICATION

-  Biomedical/
Medical devices
-  Fitness
Equipment
-  HMI
-  Industrial
Automation
-  Measuring
instruments
-  Multimedia
devices
-  Point of Sales
-  Wireless
Technologies

FEATURES			
 Processor	NXP i.MX 6 Family, based on ARM® CORTEX-A7 processors: i.MX6ULL 792 MHz	 Operating System	Yocto
 Memory	512 MB 32 bit DDR3L	 CAN Bus	1x CAN (ISO/DIS 11898)
 Video Resolution	4.3 inch display, resolution 480 x 272, LED lifetime typ. 30k hours typ. 576 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005	 Operating Temperature*	0°C ÷ +60°C
 Mass Storage	eMMC: 4 GB MLC micro SD slot: 4 bit MMC/SDIO/SD/SDHC	 Dimensions	130.7 x 70 x 31,9 mm
*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.			
 Networking	1x 100MbEthernet		
 USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A		
 Audio	1x speaker (connector), internal buzzer		
 Serial Ports	RS-232, RS-485		
 Power Supply	9 ÷ 32 VDC		

MODULAR HMI SOLUTIONS


SANTINO LT 5.0 OF PCT

by Garz & Fricke


5.0 inch Rear Mount HMI based on NXP i.MX6 processor


Ideal HMI solution for limited installation situations with consistent quality


Rear Mount





HIGHLIGHTS


 **CPU**
NXP i.MX 6 Family

 **CONNECTIVITY**
1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN









 **GRAPHICS**
GC320 2D accelerator + GC880 3D accelerator















 **MEMORY**
Soldered on Board DDR3L memory





MAIN FIELDS OF APPLICATION

-  Biomedical/
Medical devices
-  Fitness
Equipment
-  HMI
-  Industrial
Automation
-  Measuring
instruments
-  Multimedia
devices
-  Point of Sales
-  Wireless
Technologies

FEATURES		
 Processor	NXP i.MX 6 Family, based on ARM® CORTEX-A9 processors: i.MX6S Solo - Single core up to 1 GHz i.MX6DL Dual Lite - Dual core up to 1 GHz per core	 Power Supply 9 ÷ 32 VDC
 Memory	1 GB 32 bit DDR3L	 Operating System Yocto
 Graphics	2D graphics accelerator OpenGL® ES 2.0 3D graphics accelerator with a shader	 CAN Bus 1x CAN (ISO/DIS 11898)
 Video Resolution	5.0 inch display, resolution 800 x 480, LED lifetime typ. 50k hours typ. 1120 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 2.8mm toughened glass cover, RAL 9005	 Operating Temperature* 0°C ÷ +60°C
 Mass Storage	eMMC: 4 GB MLC micro SD slot: 4 bit MMC/SDIO/SD/SDHC	 Dimensions 134.2 x 83.5 x 33.9 mm
 Networking	1x 100MbEthernet	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
 USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A	
 Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker	
 Serial Ports	RS-232, RS-485	

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MODULAR HMI SOLUTIONS

SANTINO 7.0 OF PCT

by Garz & Fricke

7.0 inch Rear Mount HMI based on NXP i.MX6 processor

Optimal price-performance ratio combined with sophisticated design & easy installation

Rear Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 2D accelerator + GC880 3D accelerator

MEMORY
Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

Biomedical/
Medical devices

Fitness
Equipment

HMI

Industrial
Automation

Measuring
instruments

Multimedia
devices

Point of Sales

Wireless
Technologies

FEATURES			
Processor	NXP i.MX 6 Family, based on ARM® CORTEX-A9 processors: i.MX6S Solo - Single core up to 1 GHz i.MX6DL Dual Lite - Dual core up to 1 GHz per core	Power Supply	9 ÷ 32 VDC
Memory	1 GB 32 bit LPDDR4	Operating System	Yocto
Graphics	2D graphics accelerator OpenGL® ES 2.0 3D graphics accelerator with a shader 7.0 inch display, resolution 800 x 480, LED lifetime typ. 50k hours	CAN Bus	1x CAN (ISO/DIS 11898)
Video Resolution	typ. 400 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 1.1mm toughened glass cover, colorless	Operating Temperature*	0°C ÷ +60°C
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC	Dimensions	185.1 x 101.6 x 35.2 mm
Networking	1x 100MbEthernet	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.	
USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A		
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker		
Serial Ports	2x RS-232, RS-485		

MODULAR HMI SOLUTIONS

SANTARO 7.0 OF PCT

by Garz & Fricke

7.0 inch Outdoor Rear Mount HMI based on NXP i.MX6 processor

Ideal HMI solution for outdoor situations with high brightness & particularly robust design

Rear Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

Biomedical/
Medical devices

Fitness
Equipment

HMI

Industrial
Automation

Measuring
instruments

Multimedia
devices

Point of Sales

FEATURES			
Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz	Other Interfaces	2x Digital Input, 2x Digital Output
Memory	1 GB 64 bit DDR3L	Serial Ports	2x RS-232, RS-485
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX	Power Supply	9 ÷ 32 VDC
Video Interfaces	HDMI interface	Operating System	Yocto
Video Resolution	7.0 inch display, resolution 800 x 480, LED lifetime typ. 70k hours typ. 1000 cd/m² brightness P-Cap (Projected Capacitive touch screen) - optical bonded, with 5.0mm toughened glass cover, Pantone black C	CAN Bus	1x CAN (ISO/DIS 11898)
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC	Operating Temperature*	0°C ÷ +60°C
Networking	1x 100MbEthernet	Dimensions	220.5 x 150.9 x 43.4 mm
USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.	
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker		

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MODULAR HMI SOLUTIONS

TANARO 7.0 OF PCT IPS 7.0 inch Rear Mount HMI based on NXP i.MX8M Mini processor

by Garz & Fricke

High performance with low power consumption for edge computing with integrated connectivity and multimedia interface

Rear mount

HIGHLIGHTS

CPU
NXP i.MX 8M Mini Family

CONNECTIVITY
Wifi/BT, 1x GbE, 1x 100MbE, up to 3x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 2D accelerator + GCNanoUltra 3D accelerator

MEMORY
Soldered on Board LPDDR4 memory

MAIN FIELDS OF APPLICATION

Biomedical/ Medical devices

Fitness Equipment

HMI

Industrial Automation

Measuring instruments

Multimedia devices

Point of Sales

Wireless Technologies

FEATURES			
	Processor	NXP i.MX 8M Mini Family based on ARM® Cortex®-A53 cores + general purpose Cortex®-M4 400MHz processor: i.MX 8M Mini Quad – Full featured, 4x Cortex®-A53 cores up to 1.8GHz i.MX 8M Mini Dual – Full featured, 2x Cortex®-A53 cores up to 1.8GHz i.MX 8M Mini Solo – Full featured, 1x Cortex®-A53 cores up to 1.8GHz i.MX 8M Mini Quad Lite Full featured, 4x Cortex®-A53 cores up to 1.8GHz i.MX 8M Mini Dual Lite – Full featured, 2x Cortex®-A53 cores up to 1.8GHz i.MX 8M Mini Solo Lite – Full featured, 1x Cortex®-A53 cores up to 1.8GHz	Networking 1x GbEthernet interfaces 1x 100MbEthernet shielded single band WiFi 802.11 b/g/n with Bluetooth 4.0 USB mPCIe (half size) socket for modems 1x USB 2.0 OTG micro-AB up to 2x USB 2.0 Type-A
	Memory	1 GB 32 bit LPDDR4	Audio 1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker Digital Mic In connector (2x PDM inputs)
	Graphics	GC320 2D accelerator + GCNanoUltra 3D accelerator Embedded VPU (not for Lite processors), able to offer: VP9, HEVC/H.265, AVC/H.264, VP8 HW Decoding AVC/H.264, VP8 HW encoding OpenGL ES 2.0, OpenVG 1.1 support	Serial Ports 2x RS-232, RS-485
	Video Interfaces	MIPI-CSI Camera interface connector	Power Supply 9 ÷ 32 VDC
	Video Resolution	7.0 inch display, resolution 1024x600, LED lifetime typ. 30k hours typ. 500 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005	Operating System Yocto
	Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC	CAN Bus 1x CAN (ISO/DIS 11898)
	Dimensions	183.8 x 104.0 x 33.5 mm	Operating Temperature* 0°C ÷ +60°C
	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.		

MODULAR HMI SOLUTIONS

SANTINO LT 5.0 SG 5.0 inch Flush Mount HMI based on NXP i.MX6 processor

by Garz & Fricke

Maximum design flexibility with the usual quality

Flush Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 2D accelerator + GC880 3D accelerator

MEMORY
Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

Biomedical/ Medical devices

Fitness Equipment

HMI

Industrial Automation

Measuring instruments

Multimedia devices

Point of Sales

Wireless Technologies

FEATURES			
	Processor	NXP i.MX 6 Family, based on ARM® CORTEX-A9 processors: i.MX6S Solo - Single core up to 1 GHz i.MX6DL Dual Lite - Dual core up to 1 GHz per core	Power Supply 9 ÷ 32 VDC
	Memory	1 GB 32 bit DDR3L	Operating System Yocto
	Graphics	2D graphics accelerator OpenGL® ES 2.0 3D graphics accelerator with a shader 5.0 inch display, resolution 800 x 480, LED lifetime typ. 50k hours typ. 1120 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 2.8mm toughened glass cover, RAL 9005	CAN Bus 1x CAN (ISO/DIS 11898)
	Video Resolution	eMMC: 4 GB MLC micro SD slot: 4 bit MMC/SDIO/SD/SDHC	Operating Temperature* 0°C ÷ +60°C
	Networking	1x 100MbEthernet	Dimensions 145.5 x 102.4 x 33.4 mm
	USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
	Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker	
	Serial Ports	RS-232, RS-485	



MODULAR HMI SOLUTIONS

SANTARO 7.0 SG IPS

by Garz & Fricke

7.0 inch Flush Mount HMI based on NXP i.MX6 processor

Flexible, powerful all-rounder for any demanding applications

Flush Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

AI-ENABLED WITH

MAIN FIELDS OF APPLICATION

- Biomedical/
Medical devices
- Fitness
Equipment
- HMI
- Industrial
Automation
- Measuring
instruments
- Multimedia
devices
- Point of Sales

FEATURES	
Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz
Memory	1 GB 64 bit DDR3L
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX
Video Resolution	7.0 inch display, resolution 800 x 480, LED lifetime typ. 30k hours typ. 360 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC
Networking	1x 100MbEthernet
USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker
Other Interfaces	2x Digital Input, 2x Digital Output
Serial Ports	2x RS-232, RS-485
Power Supply	9 ÷ 32 VDC
Operating System	Yocto
CAN Bus	1x CAN (ISO/DIS 11898)
Operating Temperature*	0°C ÷ +60°C
Dimensions	197.0 x 128.0 x 35.9 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

MODULAR HMI SOLUTIONS

SANTOKA 7.0 SG IPS

by Garz & Fricke

7.0 inch Flush Mount HMI based on NXP i.MX6 processor

Capacitive touch display offers great flexibility thanks to its viewing angle independence

Flush Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
2x 100MbE, up to 3x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

AI-ENABLED WITH

MAIN FIELDS OF APPLICATION

- Biomedical/
Medical devices
- Fitness
Equipment
- HMI
- Industrial
Automation
- Measuring
instruments
- Multimedia
devices
- Point of Sales
- Wireless
Technologies

FEATURES	
Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad Plus – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz
Memory	1 GB 64 bit DDR3L
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX
Video Interfaces	HDMI interface
Video Resolution	7.0 inch display, resolution 800 x 480, LED lifetime typ. 30k hours typ. 360 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC
Networking	2x 100MbEthernet mPCIe (half size) socket for modems or Wifi/BT
USB	1x USB 2.0 OTG micro-AB up to 2x USB 2.0 Type-A
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker
Serial Ports	2x RS-232, RS-485
Power Supply	9 ÷ 32 VDC
Operating System	Yocto
CAN Bus	1x CAN (ISO/DIS 11898)
Operating Temperature*	0°C ÷ +60°C
Dimensions	197.0 x 128.0 x 35.9 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

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MODULAR HMI SOLUTIONS

SANTARO 10.1 SG IPS 10.1 inch Flush Mount HMI based on NXP i.MX6 processor

by Garz & Fricke

Flexible, powerful all-rounder for any demanding applications

Flush Mount



HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN

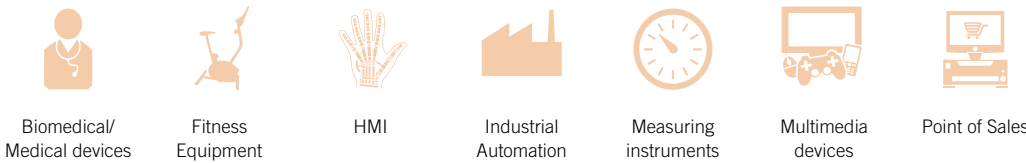
GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

AI-ENABLED WITH CLEA

Yocto PROJECT

MAIN FIELDS OF APPLICATION



FEATURES	
Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz
Memory	1 GB 64 bit DDR3L
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX
Video Resolution	10.1 inch display, resolution 1280 x 800, LED lifetime typ. 50k hours typ. 420 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC
Networking	1x 100MbEthernet
USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker
Other Interfaces	2x Digital Input, 2x Digital Output
Serial Ports	2x RS-232, RS-485
Power Supply	9 ÷ 32 VDC
Operating System	Yocto
CAN Bus	1x CAN (ISO/DIS 11898)
Operating Temperature*	0°C ÷ +60°C
Dimensions	264.3 x 181.1 x 37.7 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.


MODULAR HMI SOLUTIONS

SANTOKA 10.1 SG IPS 10.1 inch Flush Mount HMI based on NXP i.MX6 processor

by Garz & Fricke

The integrated Single Board Computer, integrated in this HMI from the SANTOKA series, opens up the world of IOT to your product

Flush Mount



HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
2x 100MbE, up to 3x USB, 2x RS232, RS485, CAN

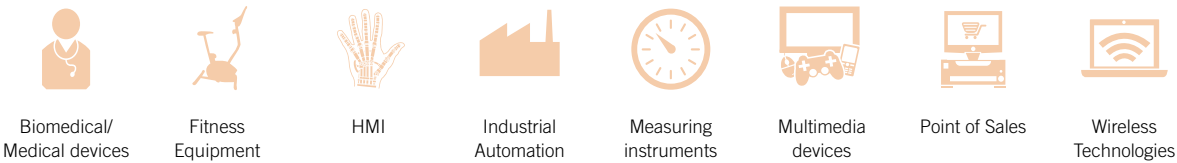
GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

AI-ENABLED WITH CLEA

Yocto PROJECT

MAIN FIELDS OF APPLICATION



FEATURES	
Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad Plus – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz
Memory	1 GB 64 bit DDR3L
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX
Video Interfaces	HDMI interface
Video Resolution	10.1 inch display, resolution 1280 x 800, LED lifetime typ. 50k hours typ. 420 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC
Networking	2x 100MbEthernet mPCIe (half size) socket for modems or Wifi/BT
USB	1x USB 2.0 OTG micro-AB up to 2x USB 2.0 Type-A
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker
Serial Ports	2x RS-232, RS-485
Power Supply	9 ÷ 32 VDC
Operating System	Yocto
CAN Bus	1x CAN (ISO/DIS 11898)
Operating Temperature*	0°C ÷ +60°C
Dimensions	197.0 x 128.0 x 35.9 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

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MODULAR HMI SOLUTIONS


SANTARO 12.1 SG

by Garz & Fricke

12.1 inch Flush Mount HMI based on NXP i.MX6 processor

Flexible, powerful all-rounder for any demanding applications

Flush Mount



HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN

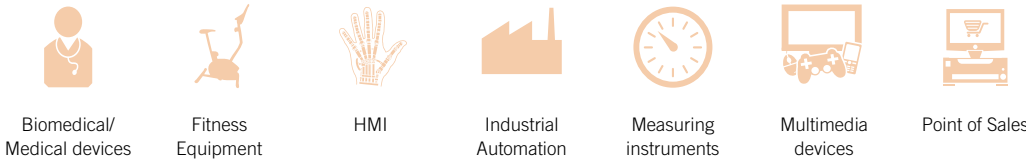
GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

AI-ENABLED WITH CLEA

Yocto PROJECT

MAIN FIELDS OF APPLICATION



FEATURES	
Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz
Memory	1 GB 64 bit DDR3L
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX
Video Resolution	12.1 inch display, resolution 1024 x 768, LED lifetime typ. 70k hours typ. 480 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 4.0mm toughened glass cover, RAL 9005
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC
Networking	1x 100MbEthernet
USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker
Other Interfaces	2x Digital Input, 2x Digital Output
Serial Ports	2x RS-232, RS-485
Power Supply	9 ÷ 32 VDC
Operating System	Yocto
CAN Bus	1x CAN (ISO/DIS 11898)
Operating Temperature*	0°C ÷ +60°C
Dimensions	298.6 x 235.4 x 41.1 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

MODULAR HMI SOLUTIONS


SANTOKA 12.1 SG IPS

by Garz & Fricke

12.1 inch Flush Mount HMI based on NXP i.MX6 processor

The integrated seal and the innovative flush mount concept ensure a high IP protection class and the possibility of seamless integration

Flush Mount



HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
2x 100MbE, up to 3x USB, 2x RS232, RS485, CAN

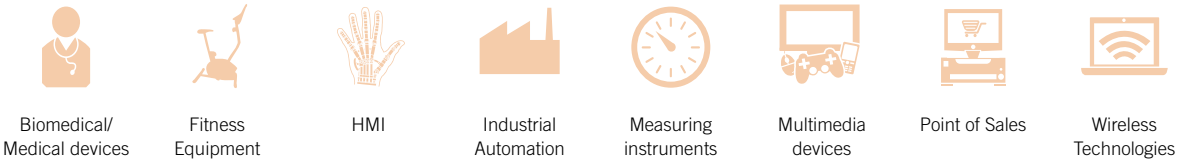
GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

AI-ENABLED WITH CLEA

Yocto PROJECT

MAIN FIELDS OF APPLICATION



FEATURES	
Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad Plus – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz
Memory	1 GB 64 bit DDR3L
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX
Video Interfaces	HDMI interface
Video Resolution	12.1 inch display, resolution 1024 x 768, LED lifetime typ. 70k hours typ. 480 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 4.0mm toughened glass cover, RAL 9005
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC
Networking	2x 100MbEthernet mPCIe (half size) socket for modems or Wifi/BT
USB	1x USB 2.0 OTG micro-AB up to 2x USB 2.0 Type-A
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker
Serial Ports	2x RS-232, RS-485
Power Supply	9 ÷ 32 VDC
Operating System	Yocto
CAN Bus	1x CAN (ISO/DIS 11898)
Operating Temperature*	0°C ÷ +60°C
Dimensions	298.6 x 235.4 x 41.1 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

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MODULAR HMI SOLUTIONS

SANTARO 19.0 SG

by Garz & Fricke

19.0 inch Flush Mount HMI based on NXP i.MX6 processor

Flexible, powerful all-rounder for any demanding applications

Flush Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family
















CONNECTIVITY
1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

- Biomedical/
Medical devices
- Fitness
Equipment
- HMI
- Industrial
Automation
- Measuring
instruments
- Multimedia
devices
- Point of Sales

FEATURES		
 Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz	 Serial Ports 2x RS-232, RS-485
 Memory	1 GB 64 bit DDR3L	 Power Supply 9 ÷ 32 VDC
 Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX	 Operating System Yocto
 Video Resolution	19.0 inch display, resolution 1280 x 1024, LED lifetime typ. 50k hours typ. 280 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005	 CAN Bus 1x CAN (ISO/DIS 11898)
 Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC	 Operating Temperature* 0°C ÷ +60°C
 Networking	1x 100MbEthernet	 Dimensions 457.3 x 382.1 x 42.2 mm
 USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
 Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker	
 Other Interfaces	2x Digital Input, 2x Digital Output	

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SANTOKA 32.0 SG IPS

by Garz & Fricke

32.0 inch Flush Mount HMI based on NXP i.MX6 processor

The newest and largest HMI version of our SANTOKA family in proven flush mount design

Flush Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family
















CONNECTIVITY
2x 100MbE, up to 3x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

- Biomedical/
Medical devices
- Fitness
Equipment
- HMI
- Industrial
Automation
- Measuring
instruments
- Multimedia
devices
- Point of Sales
- Wireless
Technologies

FEATURES		
 Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad Plus – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz	 Serial Ports 2x RS-232, RS-485
 Memory	1 GB 64 bit DDR3L	 Power Supply 9 ÷ 32 VDC
 Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX	 Operating System Yocto
 Video Interfaces	HDMI interface	 CAN Bus 1x CAN (ISO/DIS 11898)
 Video Resolution	32.0 inch display, resolution 1920 x 1080, LED lifetime typ. 50k hours typ. 400 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 4.0mm toughened glass cover, RAL 9005, Anti Glare 95	 Operating Temperature* 0°C ÷ +60°C
 Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC	 Dimensions 767 x 490.27 x 62.49 mm
 Networking	2x 100MbEthernet mPCIe (half size) socket for modems or Wifi/BT	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
 USB	1x USB 2.0 OTG micro-AB up to 2x USB 2.0 Type-A	
 Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker	

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MODULAR HMI SOLUTIONS

SANTINO LT 5.0 BX PCT

by Garz & Fricke

5.0 inch Panel Mount HMI based on NXP i.MX6 processor

The shapely design and the high resolution make the interaction an experience for the user

Panel Mount

HIGHLIGHTS

CPU NXP i.MX 6 Family	CONNECTIVITY 1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN
GRAPHICS GC320 2D accelerator + GC880 3D accelerator	MEMORY Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

- Biomedical/ Medical devices
- Fitness Equipment
- HMI
- Industrial Automation
- Measuring instruments
- Multimedia devices
- Point of Sales
- Wireless Technologies

FEATURES			
Processor	NXP i.MX 6 Family, based on ARM® CORTEX-A9 processors: i.MX6S Solo - Single core up to 1 GHz i.MX6DL Dual Lite - Dual core up to 1 GHz per core		
Memory	1 GB 32 bit DDR3L		
Graphics	2D graphics accelerator OpenGL® ES 2.0 3D graphics accelerator with a shader 5.0 inch display, resolution 800 x 480, LED lifetime typ. 50k hours		
Video Resolution	typ. 1120 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 2.8mm toughened glass cover, RAL 9005		
Mass Storage	eMMC: 4 GB MLC micro SD slot: 4 bit MMC/SDIO/SD/SDHC		
Networking	1x 100MbEthernet		
USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A		
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker		
Serial Ports	RS-232, RS-485		
	Power Supply	9 ÷ 32 VDC	<p>*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.</p>
	Operating System	Yocto	
	CAN Bus	1x CAN (ISO/DIS 11898)	
	Operating Temperature*	0°C ÷ +60°C	
	Dimensions	154.6 x 102.0 x 34.9 mm	

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MODULAR HMI SOLUTIONS

SANTINO 7.0 BX PCT

by Garz & Fricke

7.0 inch Panel Mount HMI based on NXP i.MX6 processor

Fanless industrial PC impresses with simple installation and good performance

Panel Mount

HIGHLIGHTS

CPU NXP i.MX 6 Family	CONNECTIVITY 1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN
GRAPHICS GC320 2D accelerator + GC880 3D accelerator	MEMORY Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

- Biomedical/ Medical devices
- Fitness Equipment
- HMI
- Industrial Automation
- Measuring instruments
- Multimedia devices
- Point of Sales
- Wireless Technologies

FEATURES			
Processor	NXP i.MX 6 Family, based on ARM® CORTEX-A9 processors: i.MX6S Solo - Single core up to 1 GHz i.MX6DL Dual Lite - Dual core up to 1 GHz per core		
Memory	1 GB 32 bit LPDDR4		
Graphics	2D graphics accelerator OpenGL® ES 2.0 3D graphics accelerator with a shader 7.0 inch display, resolution 800 x 480, LED lifetime typ. 50k hours		
Video Resolution	typ. 400 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 1.1mm toughened glass cover, colorless		
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC		
Networking	1x 100MbEthernet		
USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A		
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker		
Serial Ports	2x RS-232, RS-485		
	Power Supply	9 ÷ 32 VDC	<p>*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.</p>
	Operating System	Yocto	
	CAN Bus	1x CAN (ISO/DIS 11898)	
	Operating Temperature*	0°C ÷ +60°C	
	Dimensions	206.9 x 126.2 x 35.6 mm	

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MODULAR HMI SOLUTIONS

SANTARO 7.0 BX PCT

by Garz & Fricke

7.0 inch Panel Mount HMI based on NXP i.MX6 processor

Flexible, powerful all-rounder for any demanding applications

Panel Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

- Biomedical/
Medical devices
- Fitness
Equipment
- HMI
- Industrial
Automation
- Measuring
instruments
- Multimedia
devices
- Point of Sales

FEATURES			
Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz		
Memory	1 GB 64 bit DDR3L		
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX		
Video Resolution	7.0 inch display, resolution 800 x 480, LED lifetime typ. 40k hours typ. 400 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005		
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC		
Networking	1x 100MbEthernet		
USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A		
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker	Other Interfaces	2x Digital Input, 2x Digital Output
Serial Ports	2x RS-232, RS-485	Power Supply	9 ÷ 32 VDC
Operating System	Yocto	CAN Bus	1x CAN (ISO/DIS 11898)
Operating Temperature*	0°C ÷ +60°C	Dimensions	206.9 x 126.2 x 33.6 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

MODULAR HMI SOLUTIONS

TANARO 7.0 BX PCT

by Garz & Fricke

7.0 inch Panel Mount HMI based on NXP i.MX8M Mini processor

High performance with low power consumption for edge computing with integrated connectivity and multimedia interface

Panel Mount

HIGHLIGHTS

CPU
NXP i.MX 8M Mini Family

CONNECTIVITY
Wifi/BT, 1x GbE, 1x 100MbE, up to 3x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 2D accelerator + GCNanoUltra 3D accelerator

MEMORY
Soldered on Board LPDDR4 memory

MAIN FIELDS OF APPLICATION

- Biomedical/
Medical devices
- Fitness
Equipment
- HMI
- Industrial
Automation
- Measuring
instruments
- Multimedia
devices
- Point of Sales
- Wireless
Technologies

FEATURES			
Processor	NXP i.MX 8M Mini Family based on ARM® Cortex®-A53 cores + general purpose Cortex®-M4 400MHz processor: i.MX 8M Mini Quad – Full featured, 4x Cortex®-A53 cores up to 1.8GHz i.MX 8M Mini Dual – Full featured, 2x Cortex®-A53 cores up to 1.8GHz i.MX 8M Mini Solo – Full featured, 1x Cortex®-A53 cores up to 1.8GHz i.MX 8M Mini Quad Lite Full featured, 4x Cortex®-A53 cores up to 1.8GHz i.MX 8M Mini Dual Lite – Full featured, 2x Cortex®-A53 cores up to 1.8GHz i.MX 8M Mini Solo Lite – Full featured, 1x Cortex®-A53 cores up to 1.8GHz		
Memory	1 GB 32 bit LPDDR4		
Graphics	GC320 2D accelerator + GCNanoUltra 3D accelerator Embedded VPU (not for Lite processors), able to offer: VP9, HEVC/H.265, AVC/H.264, VP8 HW Decoding AVC/H.264, VP8 HW encoding OpenGL ES 2.0, OpenVG 1.1 support		
Video Interfaces	MIPI-CSI Camera interface connector		
Video Resolution	7.0 inch LVDS display, resolution 1024x600, LED lifetime typ. 20k hours typ. 420 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005		
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC		
Networking	1x GbEthernet interfaces 1x 100MbEthernet shielded single band WiFi 802.11 b/g/n with Bluetooth 4.0 mPCIe (half size) socket for modems	USB	1x USB 2.0 OTG micro-AB up to 2x USB 2.0 Type-A
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker Digital Mic In connector (2x PDM inputs)	Serial Ports	2x RS-232, RS-485
Power Supply	9 ÷ 32 VDC	Operating System	Yocto
CAN Bus	1x CAN (ISO/DIS 11898)	Operating Temperature*	0°C ÷ +60°C
Dimensions	202.0 x 126.2 x 35.5 mm	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.	

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MODULAR HMI SOLUTIONS

SANTARO 10.1 BX PCT

10.1 inch Panel Mount HMI based on NXP i.MX6 processor

by Garz & Fricke

Large high-resolution touch display

Panel Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
1x 100MbE, up to 2x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

- Biomedical/
Medical devices
- Fitness
Equipment
- HMI
- Industrial
Automation
- Measuring
instruments
- Multimedia
devices
- Point of Sales

FEATURES	
Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz
Memory	1 GB 64 bit DDR3L
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX
Video Resolution	10.1 inch display, resolution 1280 x 800, LED lifetime typ. 50k hours typ. 420 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC
Networking	1x 100MbEthernet
USB	1x USB 2.0 OTG micro-AB 1x USB 2.0 Type-A
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker
Other Interfaces	2x Digital Input, 2x Digital Output
Serial Ports	2x RS-232, RS-485
Power Supply	9 ÷ 32 VDC
Operating System	Yocto
CAN Bus	9 ÷ 32 VDC
Operating Temperature*	Yocto
Dimensions	275.2 x 192.0 x 37.7 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

MODULAR HMI SOLUTIONS

SANTOKA 10.1 BX PCT

10.1 inch Panel Mount HMI based on NXP i.MX6 processor

by Garz & Fricke

Fanless industrial PC impresses with simple installation, good performance and various interfaces

Panel Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
2x 100MbE, up to 3x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

- Biomedical/
Medical devices
- Fitness
Equipment
- HMI
- Industrial
Automation
- Measuring
instruments
- Multimedia
devices
- Point of Sales
- Wireless
Technologies

FEATURES	
Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad Plus – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz
Memory	1 GB 64 bit DDR3L
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX
Video Interfaces	HDMI interface
Video Resolution	10.1 inch display, resolution 1280 x 800, LED lifetime typ. 50k hours typ. 420 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 3.0mm toughened glass cover, RAL 9005
Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC
Networking	2x 100MbEthernet mPCIe (half size) socket for modems or Wifi/BT
USB	1x USB 2.0 OTG micro-AB up to 2x USB 2.0 Type-A
Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker
Serial Ports	2x RS-232, RS-485
Power Supply	9 ÷ 32 VDC
Operating System	Yocto
CAN Bus	1x CAN (ISO/DIS 11898)
Operating Temperature*	0°C ÷ +60°C
Dimensions	275.2 x 192.0 x 37.9 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

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MODULAR HMI SOLUTIONS

SANTOKA 12.1 BX PCT

by Garz & Fricke

12.1 inch Panel Mount HMI based on NXP i.MX6 processor

The high resolution 12,1 inch display with capacitive touch screen offers numerous possibilities to make your device ready for the IOT in the well-known shapely design

Panel Mount

HIGHLIGHTS

CPU
NXP i.MX 6 Family

CONNECTIVITY
2x 100MbE, up to 3x USB, 2x RS232, RS485, CAN

GRAPHICS
GC320 & GC355 2D accelerator + GC2000 3D accelerator

MEMORY
Soldered on Board DDR3L memory

MAIN FIELDS OF APPLICATION

Biomedical/
Medical devices

Fitness
Equipment

HMI

Industrial
Automation

Measuring
instruments

Multimedia
devices

Point of Sales

Wireless
Technologies

FEATURES

	Processor	NXP i.MX 6 Family based on ARM® Cortex®-A9 cores : i.MX 6 Quad Plus – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Quad – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Dual – Full featured, 4x Cortex®-A9 cores up to 1.0GHz i.MX 6 Single – Full featured, 4x Cortex®-A9 cores up to 1.0GHz	Serial Ports 2x RS-232, RS-485
	Memory	1 GB 64 bit DDR3L	Power Supply 9 ÷ 32 VDC
	Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX	Operating System Yocto
	Video Interfaces	HDMI interface	CAN Bus 1x CAN (ISO/DIS 11898)
	Video Resolution	12.1 inch display, resolution 1024 x 768, LED lifetime typ. 50k hours typ. 480 cd/m² brightness P-Cap (Projected Capacitive touch screen), with 4.0mm toughened glass cover, RAL 9005	Operating Temperature* 0°C ÷ +60°C
	Mass Storage	eMMC: 4 GB MLC SD slot: 4 bit MMC/SDIO/SD/SDHC	Dimensions 305.9 x 242.7 x 41.0 mm
	Networking	2x 100MbEthernet mPCIe (half size) socket for modems or Wifi/BT	*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
	USB	1x USB 2.0 OTG micro-AB up to 2x USB 2.0 Type-A	
	Audio	1x speaker (connector), 1 W RMS (8Ω) parallel to internal speaker	

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