Single Board Computer
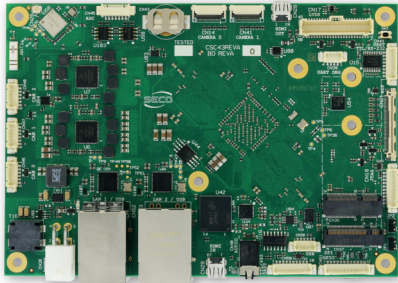
THEMIS
3.5" SBC with NXP i.MX8 Applications Processors

Industrial Arm solution for IoT edge computing applications

early access

AI-ENABLED WITH
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GOLD PARTNER NXP

Wind River Partner Program PLATINUM

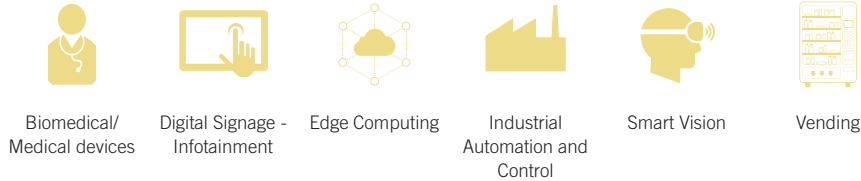**Linux**   **yocto** PROJECT   **ANDROID**

HIGHLIGHTS

CPU
NXP i.MX 8 Family

CONNECTIVITY
2x Gigabit Ethernet interfaces

GRAPHICS
2x Graphics accelerators Vivante GC7000 / XVSX or GC7000Lit/XVSX QuadMax and QuadPlus

MEMORY
Soldered down LPDDR4

🌡 Available in Industrial Temperature Range

MAIN FIELDS OF APPLICATION

Biomedical/ Medical devices	Digital Signage - Infotainment	Edge Computing	Industrial Automation and Control	Smart Vision	Vending

FEATURES

Processor	NXP i.MX 8 Family: **i.MX 8QuadMax**: 2x Arm Cortex®-A72 + 4x ARM® Cortex®-A53 + 2x Cortex®-M4F **i.MX 8QuadPlus**: 1x Arm Cortex®-A72 + 4x ARM® Cortex®-A53 + 2x Cortex®-M4F	**USB**	1 x USB 3.0 Host port on Type-A socket 1x USB 2.0 OTG port on micro-AB socket 1x USB 2.0 Host port on external Type-A socket 1x USB 2.0 Host port on internal connector 2 x USB 2.0 ports available on M.2 Key B and Key E slots
Max Cores	8	**PCI-e**	2x PCI-e x1 ports, available on M.2 Socket 1 Key E and on M.2 Socket 2 Key B (pin shared with SATA interface) Slots
Memory	Soldered down LPDDR4 memory, 64-bit interface, 1600MHz. Base configuration 2GB, up-scalable to 4GB, 6GB, 8GB	**Audio**	I2S Audio Codec HP + MIC interfaces, available on a single combo TRRS connector
Graphics	2x Graphics accelerators Vivante GC7000 / XVSX or GC7000Lit /XVSX QuadMax and QuadPlus 1x embedded VPU, supporting H.265 (4K30) and H.264 (1080p60) decoding and H.264 (1080p30) encoding Supports 3 independent video outputs (total combined resolution 4K)	**Serial Ports**	1x UART TTL 1x RS-232 / UART TTL configurable 1x RS-485 / RS-422 / UART TTL configurable 3x CAN interfaces
Video Interfaces	OUTPUTS: HDMI 2.0a Tx interface Optional eDP 1.4 interface Optional Single/Dual-Channel 18-/24- bit LVDS interface INPUTS: HDMI 2.0a Rx interface 2x 4-lanes MIPI-CSI Camera interfaces	**Other Interfaces**	4x Analog Inputs 6x GPIOs SPI interface I2C interface Embedded additional RTC circuitry for lowest power consumption SIM dedicated slot
Video Resolution	HDMI: Up to UltraHD (4K) LVDS, eDP: up to 1080p	**Power Supply**	+12V$_{DC}$ ± 10%
Mass Storage	eMMC 5.1 Drive soldered on-board, up to 64GB 1x S-ATA interface available on M.2 Socket 2 Key B Slot (interface shared with PCI-e x1) microSD Card Slot 4MB QuadSPI Flash NAND (boot device only)	**Operating System**	Wind River Linux Yocto Android
		Operating Temperature*	0°C ÷ +60°C (Commercial version) -40°C ÷ +85°C (Industrial version)
Networking	2x Gigabit Ethernet interfaces Combo WiFi 802.11 a/b/g/n/ac + BT LE 4.2 module with ceramic SMT antennas on-board M.2 Socket 2 Key B Slot for M.2 Modems M.2 Socket1 Key E Slot for WiFi + BT external modules	**Dimensions**	146 x 102 mm (5,75" x 4,02")

*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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BLOCK DIAGRAM

Block diagram showing NXP i.MX 8 QuadMax / QuadPlus Processor connections:

- Coin Cell Battery
- RTC Low Power
- Flash QSPI
- WiFi + BTLE Module
- Opt. RS-232/RS-422/RS-485 Transceivers
- Expansion connectors
- USB OTG micro-AB connector
- Camera connectors
- HDMI 2.0 In connector
- HDMI 2.0 Out connector
- DC power connector
- Power section
- LPDDR4 Memory
- LPDDR4 Memory

Processor interface signals: SAI_0, UART, uSDHC_2, QSPI_0, SPI, UARTs, CAN, I2C, A/D, GPI/Os, USB_OTG_1, CSI_0, CSI_1, HDMI_IN, HDMI_OUT, LVDS, DSI_0, eMMC_0, I2C_1, SAI_1, uSDHC_1, USB_SS, RGMII [0..1], I2C, PCIe0, USB_HSIC, SATA / PCIe1

Right side blocks:
- I2S Audio Codec
- 2x Gigabit Ethernet Transceiver
- USB HSIC Hub
- eMMC Drive
- Optional DSI-to-eDP bridge
- Mic In + Line Out TRRS connector
- microSD Card slot
- USB 3.0 Type-A + RJ-45 GbE combo connector
- USB 2.0 Type-A + RJ-45 GbE combo connector
- M.2 Socket 1 Key E Slot
- USB 2.0 internal connector
- M.2 Socket 2 Key B Slot
- SIM Slot / eSIM
- Optional eDP connector
- LVDS connector