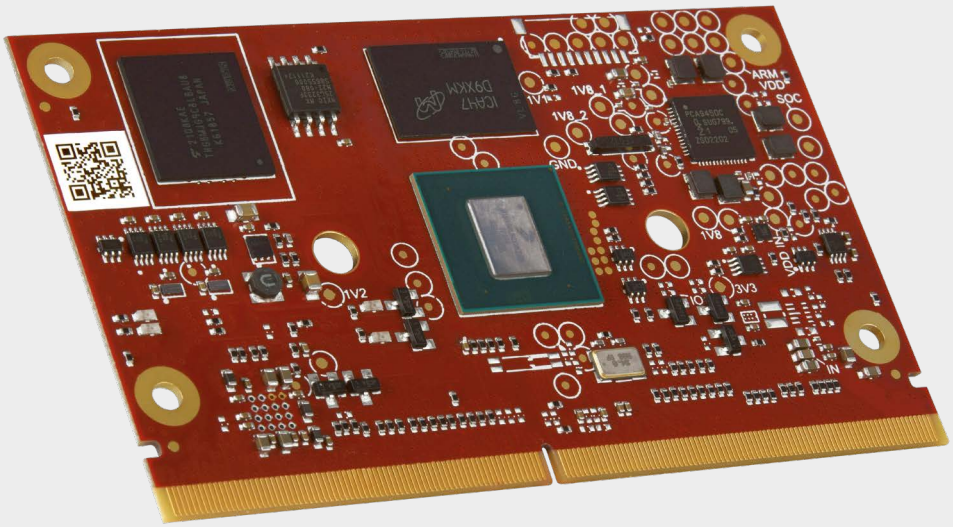
Sontheim

i.MX 8

High performance and secure embedded architecture platform



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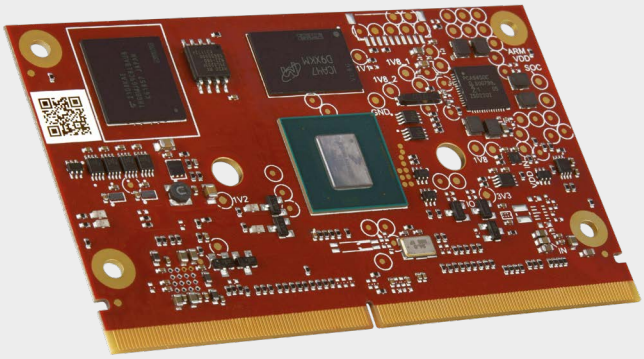


i.MX 8

The i.MX 8 family offers an optimal price-performance ratio. Scalable building blocks enable customized embedded solutions based on ARM® technology. Thanks to an integrated neural processing unit, the i.MX 8 offers the best conditions for AI and ML applications and is optimized for telemetry applications.

Key Features

- **Freescale i.MX 8 (Dual Core, Quad Core, 1.2 GHz – 1.8 GHz)**
- **Up to 8 GB DDR4 memory**
- **On-Board 10/100/1000 Mbit LAN**
- **Variety of interfaces, e. g. 3× USB 2.0, 3× PCIe**
- **CAN and CAN FD**
- **Extended temperature range**
- **Optimized for AI and ML applications**
- **Optimized for telemetry applications**
- **Evaluation board on-demand**

Scalable performance and compact form factor

The i.MX 8 board from Sontheim is based on a 314-pin MXM 3.0 connector with standard dimensions of 82 mm × 50 mm. This creates extremely compact, durable and cost-effective development options for mobile embedded handheld systems as well as small portable, stationary and in-vehicle devices that can be used in a wide range of application areas. The i.MX 8 is available in two variants. The i.MX 8M Plus variant for high performance applications, optimized for AI and ML applications and the i.MX 8X Lite variant for high performance telemetry and industrial applications. The i.MX 8X Lite variant has been specially optimized and developed for the Sontheim telemetry series COMhawk® xt.

Designed for commercial and industrial temperature range

In addition to the normal temperature range, the i.MX 8 board is also designed for the extended industrial temperature range of –40 °C to +105 °C – the i.MX 8X Lite variant even up to +125 °C (AEC-Q100 Grade 2 device). This opens up a wide range of applications in the automotive sector, in automation, in medical technology and in other working environments that do not correspond to the commercial temperature range and involve harsh environmental conditions. In addition, an evaluation board is already available on request.

Overview of the target applications

Industrial:
Control systems, architectures with time-critical networking, Ethernet or CAN networks, HMIs and IPCs, robot controllers, printing systems, industrial handheld devices, intelligent industrial cameras and much more.

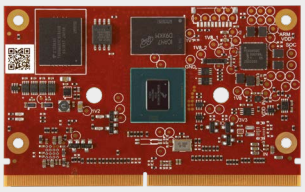
Automotive
High-performance telemetry and vehicle gateways, camera systems, vehicle interfaces (VCIs), ECUs, data loggers with analysis (AI), joysticks, displays and much more.

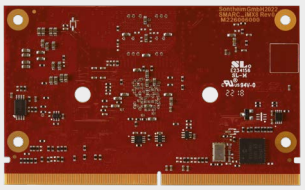
Optimized for machine learning and AI applications

The i.MX 8 board from Sontheim features an integrated neural processing unit (NPU) that delivers up to 2.3 TOPS (Tera Operations Per Second). This gives the board a processor that is used exclusively for machine learning and enables compute-intensive AI applications. As a result, the ML/KI application no longer needs to be moved to the cloud, but can run directly on the i.MX 8 processor – personal user data is also better protected as a result. Applications such as the recognition of multiple complex neural networks, human poses and emotions, or the monitoring of multiple objects are thus possible.

Technical data

	i.MX 8M Plus	i.MX 8X Lite
CPU	Freescale i.MX 8 Quad Core ARM Cortex-A53 1.8 GHz	Freescale i.MX 8 Dual Core ARM Cortex-A35 1.2 GHz
MCU	Freescale Cortex-M7 800 MHz	Freescale Cortex-M4F 170 MHz
RAM	up to 8 GB 132-bit DDR4	up to 1 GB 16-bit LPDDR4
GPU	GC7000UL (2 shaders), OpenGL ES 1.1/2.0/3.0/3.1, OpenVG 1.1, Vulkan, OpenCL 1.2; GC520L (2D)	–
NAND Flash	up to 64 GB eMMC (on-module)	up to 8 GB eMMC (on-module)
Security	CAAM, RDC, Trust Zone	Trust Zone
AI/ML	Neural Processing Unit 2.3 TOPS	–
Camera	2× MIPI CSI (4-lanes each) 2× ISP up to 12 MP resolution	–
Display	HDMI 2.0a Tx, MIPI DSI (4-lanes) LVDS (4/8-lanes)	1× Parallel Display
Video Decode Video Encode	1080p60 HEVC, H.264, VP9, VP8 1080p60 H.265, H.264	–
Audio	18× I2S TDM (32 b @ 384 kHz), ASRC, 8-ch. PDM DMIC input, eARC	–
Interfaces	2× GbE (1× TSN), 2× CAN/CAN FD 3× SD/eMMC, Raw NAND 2× USB 3.0/ 2.0 5× UART, 6× I^2C, 3× SPI, 1× PCIe 3.0	2× GbE (1× TSN), 3× CAN/CAN FD 3× SD/eMMC, Raw NAND 2× USB 2.0 4× UART, 3× I^2C, 3× SPI, 1× PCIe 3.0
Package	LFBGA-548	BGA-388
Operating system support	Linux	Linux
Operating temperature	0 °C up to +95 °C, extended range: –40 °C up to +105 °C	–40 °C up to +105 °C, extended range: –40 °C up to +125 °C
Dimensions	SMARC Standard: 82 mm × 50 mm	SMARC Standard: 82 mm × 50 mm





Mobile Automation

Industrial Automation

Diagnostics

Connectivity

We are looking forward to your enquiry!

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