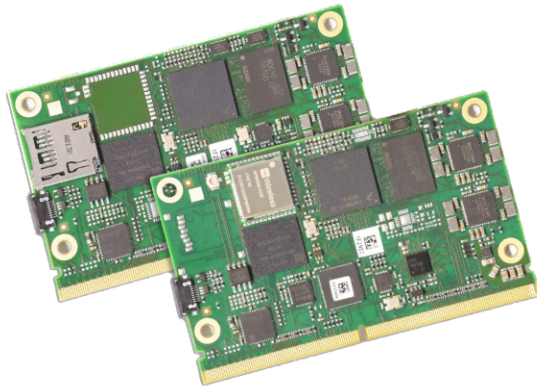


TRIA SM2S-IMX8MINI

NXP® i.MX 8M Mini ARM® Cortex®-A53



82 x 50 mm

2-5 W

-40 +85 °C



Highlights

- Single, Dual or Quad core ARM Cortex-A53 Applications Processor up to 1.8GHz
- ARM Cortex-M4 Real Time Processor at 400MHz
- Vivante GC NanoUltra 2D/3D Graphics Processor
- 1080p60 H.265 decode, 1080p60 H.264 encode (VPU not available on "Mini Lite")
- Up to 4GB LPDDR4 SDRAM
- Up to 64GB eMMC Flash
- Dual-channel LVDS / MIPI-DSI x4 (optional)
- MIPI CSI-2 Camera Interface
- PCI Express x1 Gen. 2
- 4x USB 2.0 Host interface
- 1x USB 2.0 Host/Device interface
- Up to 2x Gigabit Ethernet
- Wireless Module (optional)
- Micro SD Card Socket (optional)
- MMC/SD/SDIO interface
- 2x CAN interface (optional)
- 2x I2S Audio Interface
- UART, SPI, I2C
- SMARC 2.0 Compliant

Technical Data

Technology	ARM
Formfactor	SMARC Short Size
CPU	NXP i.MX 8M Mini ARM Cortex-A53 Applications Processor • i.MX 8M Mini Solo, single-core, 1.6 - 1.8GHz • i.MX 8M Mini Dual, dual-core, 1.6 - 1.8GHz • i.MX 8M Mini Quad, quad-core, 1.6 - 1.8GHz • i.MX 8M Mini SoloLite, single-core, 1.6 - 1.8GHz • i.MX 8M Mini DualLite, dual-core, 1.6 - 1.8GHz • i.MX 8M Mini QuadLite, quad-core, 1.6 - 1.8GHz ARM Cortex-M4 Real Time Processor at 400MHz
Chipset	SOC
RAM	Up to 4GB 3000MT/s LPDDR4 SDRAM, soldered
Flash	Up to 64GB eMMC Flash QSPI NOR Flash (optional)
Storage Interfaces	1x MMC/SD/SDIO 1x Micro SD Card Socket (optional)
USB	1x USB 2.0 Host/Client, 4x USB 2.0 Host or 1x USB 2.0 Host/Client, 1x USB 2.0 Host (optional)
Serial Interfaces	2x UART with 2-wire hand shake 2x UART w/o hand shake
Bus Interfaces	1x PCI Express x1 Gen.2 lanes* 4x I2C up to 400 Kbit/s 2x CAN 2.0B (optional)** 2x SPI (with two chip selects) * Please refer to section "Network Interfaces" ** CAN and SPI are mutual exclusive
Display Controller	Vivante GC NanoUltra 3D Graphics Processing Unit (GPU) 3D Graphics Acceleration, 1 shader, 6.4 GFLOPS OpenGL ES 1.0, 2.0 Video Processing Unit (not available on "Mini Lite") with hardware support for 1080p60 HEVC H.265, VP9, H.264, VP8 decode 1080p60 H.264, VP8 encode
Display Interfaces	Dual-channel LVDS interface, 18 or 24 bit (up to 1920x1080); also usable as one single-channel LVDS interface (up to 1366x768) or MIPI-DSI Display Interface, 4 lanes, up to 1920x1080 @ 60fps (optional)
Network Interface	1x 10/100/1000BASE-T Ethernet 1x 10/100/1000BASE-T Ethernet (Intel i210, optional, PCI Express x1 is not available if this option is selected) HD Wireless Module SPB209A with 802.11ac / Bluetooth 5.0, soldered (optional)
Audio Interface	2x I2S Audio
Security Device	Advanced Security, Safety, and Reliability integrated in the SOC Trusted Platform Module (TPM) 2.0 (optional)

Miscellaneous	Watchdog Timer for system reset (programmable, 1s ... 600s) Temperature compensated RTC 12x GPIO, configurable as input or output 64kbit ID EEPROM on I2C bus MIPI CSI-2 camera interface (CSI0, 2 lane) or MIPI CSI-2 camera interface (CSI1, 4-lane)
OS Support	Linux Board Support Package Android Board Support Package (on request)
Power Requirement	Power Supply +5V +/-5%, 5V Standby Power Consumption 2-5 W typ. (depending on CPU and optional features)
Environment	Temperature Range: 0°C ... +70°C operating commercial -40°C ... +85°C operating extended -40°C ... +85°C storage Humidity: 5 ... 95% (operating, non condensing) 5 ... 95% (storage, non-condensing)
Dimensions	82 x 50 mm
Certificates	UL / CE
Cooling	Heatspreader Heatsink
Carrier	TRIA SM2-MB-EP1

Technical Data for TRIA SM2S-IMX8MINI

Order Reference

Order No.	Description	Reference	Status*
79649	SMARC module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.6GHz, 1GB LPDDR4, 8GB eMMC Flash, 1x GbE LAN, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Device, BT/WLAN, MIPI DSI, MIPI CSI-2 Camera input (CSI0); extended temperature -25...+85°C	MSC SM2S-IMX8MINI-QC-03N0840E PCBFTX	PV
83763	SMARC module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.6GHz, 2GB LPDDR4, 8GB eMMC Flash, 1x GbE LAN, 1x PCIe, 1x USB2.0 Host, 1x USB2.0 Host/Device, MIPI DSI, MIPI CSI-2 Camera input (CSI0); extended temperature -25...+85°C	MSC SM2S-IMX8MINI-QC-13N0810E PCBFTX	PV
78370	SMARC module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.6GHz, 2GB LPDDR4, 8GB eMMC Flash, micro SD Socket, 1x GbE LAN, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Device, LVDS, MIPI CSI-2 Camera input (CSI0); industrial temperature -40...+85°C	MSC SM2S-IMX8MINI-QC-13N4200I PCBFTX	PV
84512	SMARC module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.6GHz, 2GB LPDDR4, 8GB eMMC Flash, micro SD Socket, 1x GbE LAN, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Device, MIPI DSI, MIPI CSI-2 Camera input (CSI0); industrial temperature -40...+85°C	MSC SM2S-IMX8MINI-QC-13N4800I PCBFTX	PV
78402	SMARC module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.6GHz, 2GB LPDDR4, 16GB eMMC Flash, 4MB QSPI NOR, 1x GbE LAN, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Device, 2xCAN, BT/WLAN, TPM, LVDS, MIPI CSI-2 Camera input (CSI0); industrial temperature -40...+85°C	MSC SM2S-IMX8MINI-QC-14N0261I PCBFTX	PV
91270	SMARC module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.6GHz, 2GB LPDDR4, 16GB eMMC Flash, no QSPI NOR, 1x GbE LAN, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Device, no CAN, BT/ WLAN, TPM, MIPI DSI, MIPI CSI-2 Camera input (CSI0); industrial temperature -40...+85°C	MSC SM2S-IMX8MINIQC-14N0841I PCBFTX	PV
90837	SMARC module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.6GHz, 2GB LPDDR4, 64GB eMMC Flash, 1x GbE LAN, 1x PCIe, 1x USB2.0 Host, 1x USB2.0 Host/Device, MIPI DSI, MIPI CSI-2 Camera input (CSI0); extended temperature -25...+85°C	MSC SM2S-IMX8MINIQC-16N0810E PCBFTX	PV
82204	SMARC module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.6GHz, 4GB LPDDR4, 16GB eMMC Flash, micro SD Socket, 1x GbE LAN, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Device, LVDS, MIPI CSI-2 Camera input (CSI0); extended temperature -25...+85°C	MSC SM2S-IMX8MINI-QC-24N4200E PCBFTX	PV
83006	SMARC module based on NXP i.MX 8M Mini Dual, Dual-Core Cortex-A53 processor at 1.6GHz, 1GB LPDDR4, 8GB eMMC Flash, 2x GbE LAN, 4x USB2.0 Host, 1x USB2.0 Host/Device, LVDS, MIPI CSI-2 Camera input (CSI0); industrial temperature -40...+85°C	MSC SM2S-IMX8MINI-DC-03N0280I PCBFTX	PV
78368	SMARC module based on NXP i.MX 8M Mini Dual, Dual-Core Cortex-A53 processor at 1.6GHz, 1GB LPDDR4, 8GB eMMC Flash, micro SD Socket, 1x GbE LAN, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Device, LVDS, MIPI CSI-2 Camera input (CSI0); industrial temperature -40...+85°C	MSC SM2S-IMX8MINI-DC-03N4200I PCBFTX	PV
78404	SMARC module based on NXP i.MX 8M Mini Solo, Single-Core Cortex-A53 processor at 1.6GHz, 1GB LPDDR4, 8GB eMMC Flash, micro SD Socket, 1x GbE LAN, 1x PCIe, 1x USB2.0 Host, 1x USB2.0 Host/Device, LVDS, MIPI CSI-2 Camera input (CSI0); industrial temperature -40...+85°C	MSC SM2S-IMX8MINI-SC-03N4210I PCBFTX	PV

Order No.	Description	Reference	Status*
78406	SMARC module based on NXP i.MX 8M Mini SoloLite, Single-Core Cortex-A53 processor at 1.6GHz, 1GB LPDDR4, 8GB eMMC Flash, 2x GbE LAN, 4x USB2.0 Host, 1x USB2.0 Host/Device, MIPI DSI, MIPI CSI-2 Camera input (CSI0); industrial temperature -40...+85°C	MSC SM2S-IMX8MINI-SCL-03N0880I PCBFTX	PV

Ordering Information for TRIA SM2S-IMX8MINI

*PV = Preferred variant; OR = on Request (in OEM quantities only)

Accessories

Carrier Options

Order No.	Description	Reference
68488	SMARC 2.0 Embedded Platform with PCI Express x4 slot, GbE, SATA, USB 3.0, USB 2.0, USB 2.0 OTG, RS232, CAN, SPI, eSPI, SMBus, I2C and GPIO interface, LVDS/eDP, DisplayPort and HDMI display interface, regulated backlight supply, HD/I2S audio interface, MIPI CSI-2 camera interface, mini PCI Express card slot, SD card slot, fan connector, CMOS battery, Mini-ITX form factor (170 x 170 mm), ATX power connector and single 12V/24V power jack, commercial temperature range 0..+70°C	MSC SM2-MB-EP1-001 PCBFTX
83977	SMARC 2.1 compatible embedded platform (146 x 80mm), 10-36V input voltage, 3x RS232, 2x CAN, dual RJ45 LAN with LED (1 x LAN i210) , 1x M.2 2280 Key M slot, mPCIe slot, 1x USB 3.0 Type A, 1x USB 2.0 Type A, 1x USB 2.0 internal, 1x µUSB 2.0 Host/Device, 2x SPI, I ² C, 8 GPIO on FC, 1x HDMI, LVDS/eDP/DSI on JILI30 connector, µSD Card Slot, regulated backlight supply, I2S Audio, 1W Mono, camera connector, RTC battery. Industrial temperature range -40..+85°C, ARM full version	MSC SM2S-MB-EP5-002 PCBFTX
83981	SMARC 2.1 compatible embedded platform (146 x 80mm), 10-36V input voltage, 2x UART, 1x RS232, 2x CAN, 1x RJ45 LAN with LED, 1x USB 2.0 Type A, 1x USB3.0 Type A, 1x USB 2.0 internal, 1x µUSB 2.0 Host/Device, 2x SPI, 12 GPIO on FC, 1x HDMI , µSD Card Slot, LVDS/eDP/DSI on JILI30 connector, regulated backlight supply, RTC battery. Industrial temperature range -40..+85°C, ARM slim version	MSC SM2S-MB-EP5-004 PCBFTX

Carrier Options TRIA SM2S-IMX8MLC/IMX95/IMX91/V2L/G2L/IMX93/G2UL/AM62X/IMX8/IMX8M/IMX8PLUS/IMX8MINI/IMX8NANO/IMX6/IMX6ULL

Cooling Options

Order No.	Description	Reference
115580	Passive Heatsink for SM2S-IMX8MINI module, consisting of a single-piece aluminum pin cooler and thermal pad for contact to the processor, with 2.7mm through-hole standoffs	MSC SM2S-IMX8MINI-01 HSI-001
1151823	Heatspreader for SM2S-IMX8MINI module, consisting of a single-piece aluminum plane and thermal pad for contact to the processor, with 2.7mm through-hole standoffs	MSC SM2S-IMX8MINI-01 HSP-001

Cooling Options for TRIA SM2S-IMX8MINI

Other Accessories

Order No.	Description	Reference
40402	Debug Console (UART) Adapter for i.MX6-based Qseven and nanoRISC modules, with 8-pin FFC cable to connect COM module to 9-pin D-Sub connector	MSC Debug Console Adapter

Order No.	Description	Reference
68948	Debug Adapter for i.MX6-based Qseven, SMARC and nanoRISC modules, with 10-pin FFC cable to connect to COM module, adapter provides headers for JTAG connection to Lauterbach and/or Goepel debuggers	MSC JTAG Adapter FFC 10-pin

Other Accessories for TRIA SM2S-ZUSP/IMX8M/IMX8MINI/IMX8NANO/IMX6

Starter Kits

Order No.	Description	Reference
74008	Starter Kit for TRIA SMARC i.MX 8 Series modules. Includes TRIA SM2-MB-EP1 Baseboard, Heatspreader/Heatsink, SD Card with USB Card Reader, Power Supply and suitable cable kit. The StarterKit does not include the TRIA SM2S-IMX8 / 8M / 8MINI / 8NANO / 8PLUS module. Please order your choice of module separately.	MSC SM2-SK-IMX8-EP1-KIT001 SETPAC

Starter Kits TRIA SM2S-IMX8MLC/IMX8/IMX8M/IMX8PLUS/IMX8MINI/IMX8NANO

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