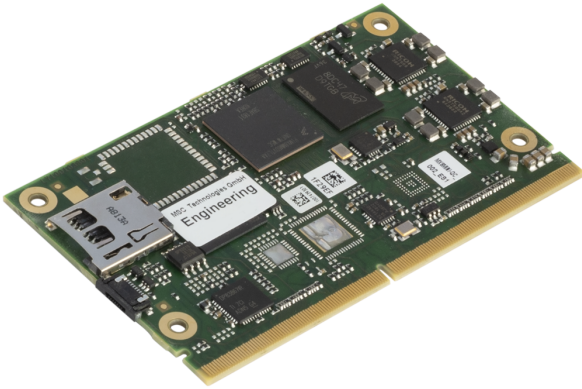


MSC SM2S-IMX8MINI

NXP™ i.MX 8M Mini ARM®
Cortex™-A53



82 x 50 mm

3-6 W

-40 +85



Description

The MSC SM2S-IMX8MINI module features NXP's i.MX 8M Mini processors that are based on latest 14nm FinFET technology to allow high computing and graphics performance at very low power consumption combined with a high degree of functional integration.

MSC SM2S-IMX8MINI offers single-, dual- or quad-core ARM Cortex-A53 processors in combination with the ARM Cortex-M4 real-time processor and GC NanoUltra multimedia 2D/3D GPU. It provides fast LPDDR4 memory, up to 64GB eMMC Flash memory, Gigabit Ethernet, PCI Express, USB 2.0, an on-board Wireless Module as well as an extensive set of interfaces for embedded applications.

The module is compliant with the new SMARC™ 2.0 standard, allowing easy integration with SMARC baseboards. For evaluation and design-in of the SM2S-IMX8MINI module, MSC provides a development platform and a starter kit. Support for Linux is available (Android support on request).

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 / Dual 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 - MSC SM2S-IMX8MINI

Technology	ARM
Formfactor	SMARC Short Size
CPU	<p>NXP i.MX 8M Mini ARM Cortex-A53 Applications Processor</p> <ul style="list-style-type: none"> - 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 <p>ARM Cortex-M4 Real Time Processor at 400MHz</p>
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)
Display Controller	<p>Vivante GC NanoUltra 3D Graphics Processing Unit (GPU) 3D Graphics Acceleration, 1 shader, 6.4 GFLOPS OpenGL ES 1.0, 2.0</p> <p>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</p>
Display Interfaces	Dual-channel LVDS interface, 18 or 24 bit (up to 1920x1080); also usable as 2x single-channel LVDS interface (up to 1366x768) or MIPI-DSI Display Interface, 4 lanes, up to 1920x1080 @ 60fps (optional)
Network Interface	<p>1x 10/100/1000BASE-T Ethernet 1x 10/100/1000BASE-T Ethernet (Intel i210, optional)</p> <p>HD Wireless Module SPB209A with 802.11ac / Bluetooth 5.0, soldered (optional)</p>
Audio Interface	2x I2S Audio

Security Device	Advanced Security, Safety, and Reliability integrated in the SOC Infineon 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 2kbit 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 TBD 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
Carrier	MSC SM2-MB-EP1

Order Reference - MSC SM2S-IMX8MINI

Order Number	Description	Reference	Cat
78402	SMARC module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.8GHz, 2GB LPDDR4, 16GB eMMC Flash, 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
78370	SMARC module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.8GHz, 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
78368	SMARC module based on NXP i.MX 8M Mini Dual, Dual-Core Cortex-A53 processor at 1.8GHz, 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 1.8GHz, 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

Accessories

Order Number	Description	Reference
Carrier Options		
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 DVI 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
Other Accessories		
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
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
Starter Kits		
74008	Starter Kit for MSC SM2S-IMX8M/8MINI modules. Includes MSC SM2-MB-EP1 Baseboard, Heatspreader/Heatsink, SD Card with USB Card Reader, Power Supply and suitable cable kit. The StarterKit does not include the MSC SM2S-IMX8M/8MINI module. Please order your choice of module separately.	MSC SM2-SK-IMX8-EP1-KIT001 SETPAC

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