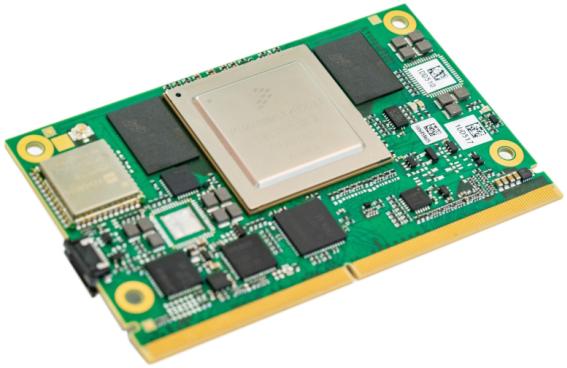
MSC SM2S-IMX8

NXP™ i.MX8 ARM® Cortex™-A72/A53



82 x 50 mm	
7-14 W	
-40 +85	

SMARC

Description

The new MSC SM2S-IMX8 module offers a quantum leap in terms of computing and graphics performance. It integrates the currently most powerful i.MX8 processor family from NXP™ based on the ARM® Cortex™-A72/A53 architecture with real hardware virtualization. This enables asymmetric multiprocessing for the most demanding applications like industrial automation and visualization systems, robotics, infotainment systems and building automation.

The 64-bit i.MX8 SoC integrated on the module contains up to eight cores: two ARM Cortex-A72 cores, four ARM Cortex-A53 cores and two Cortex-M4F real-time cores in combination with high-end Vivante GC7000 multimedia 2D/ 3D GPU.

The module provides up to 8GB LPDDR4 SDRAM, up to 64GB eMMC Flash memory, Dual Gigabit Ethernet, PCI Express Gen.3, SATA III, USB 3.0, an on-board Wireless Module as well as an extensive set of interfaces for embedded applications. The processor module is designed for operation in the full industrial temperature range from -40°C to +85°C.

MSC SM2S-IMX8 is compliant with the new SMARC™ 2.0 standard, allowing easy integration with SMARC baseboards. For evaluation and design-in of the SM2S-IMX8 module, MSC provides a development platform and a starter kit. Support for Linux is available (Android support on request).

Highlights

- Single/Dual core ARM Cortex-A72 Application Processor
- Quad core ARM Cortex-A53 Application Processor
- Dual core ARM CortexTM-M4F Real Time Processor
- Vivante GC7000Lite 2D/3D Graphics Processor
- 4K H.265 decode, HD H.264 encode
- Up to 8GB LPDDR4 SDRAM
- Up to 64GB eMMC Flash
- SATA-III interface (6Gbps)
- Dual-channel LVDS / Dual MIPI-DSI x4 (optional)
- HDMI 2.0 / DisplayPort interface with up to 4k (optional)
- Dual Independent Display support
- Dual MIPI CSI-2 Camera Interface
- 2x PCI Express x1 Gen. 3
- 2x USB 3.0 Host interface
- 2x USB 2.0 Host interface
- 1x USB 2.0 Host/Device interface
- Dual Gigabit Ethernet
- Wireless Module (optional)
- MMC/SD/SDIO interface
- 2x CAN interface
- 2x I2S Audio Interface
- UART, SPI, I2C
- SMARC 2.0 Compliant

Technical Data - MSC SM2S-IMX8

Technology	ARM
Formfactor	SMARC Short Size
CPU	NXP i.MX8 ARM Cortex™-A72 / A53 - i.MX 8QuadMax, 2xA72 (1.8GHz) + 4xA53 (1.2GHz) - i.MX 8QuadPlus, 1xA72 (1.8GHz) + 4xA53 (1.2GHz) - i.MX 8Quad, 4xA53 (1.2GHz) Dual ARM Cortex-M4F Real Time Processor at 266MHz
Chipset	SOC
RAM	Up to 8GB 3200MT/s LPDDR4 SDRAM, soldered
Flash	Up to 64GB eMMC Flash QSPI NOR Flash (optional)
Storage Interfaces	1x SATA-III 6Gbps 1x MMC/SD/SDIO
USB	1x USB 2.0 Host/Client, 2x USB 2.0 Host, 2x USB 3.0 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	2x PCI Express x1 Gen.3 lanes 2x CAN 2.0B 2x SPI (with two chip selects) 6x I2C up to 400 Kbit/s
Display Controller	Dual GC7000Lite/XSVX 3D Graphics Processing Unit (GPU) Multicore 3D Graphics Acceleration, 128GFLOPS Dual independent 8-Vec4 shader or combined 16-Vec4 shader OpenGL 3.0, OpenGL ES 3.2, OpenCL 2.0, Open VG 1.1 and Vulkan support Video Processing Unit (VPU) with hardware support for 4K H.256 decode & 1080p H.264 encoded/decode
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 Dual MIPI-DSI Display Interface, 4 lanes, up to 1920x1080 @ 60fps (optional) HDMI 2.0a interface, up to 4096x2160 @ 60fps or DisplayPort 1.3 interface, up to 4096x2160 @ 60fps (SW selectable)
Network Interface	2x 10/100/1000BASE-T Ethernet HD Wireless Module SPB209A with 802.11ac / Bluetooth 4.2 / NFC support, soldered (optional)
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) 12x GPIO, configurable as input or output 2kbit ID EEPROM on I2C bus 2x MIPI CSI-2 camera interface (4-lane / 2 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-IMX8

Order Number	Description	Reference	Cat
76685	SMARC module based on NXP i.MX 8QuadMax processor with 2x Cortex-A72 and 4x Cortex-A53, 4GB LPDDR4, 16GB eMMC Flash, SATA, 2x GbE LAN, 2x PCIe, 2x USB3.0 Host, 2x USB2.0 Host, 1x USB2.0 Host/ Device, 2x CAN, 4x UART, TPM, BT/WLAN, LVDS, HDMI/DP, MIPI CSI-2 Camera input (Engineering Sample, get in touch with your sales representative)	MSC SM2S-IMX8QM-001 ES1 PCBES	OR

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 modules. Includes MSC SM2-MB-EP1 Baseboard, Heatspreader, SD Card with USB Card Reader, Power Supply and suitable cable kit. The StarterKit does not include the MSC SM2S-IMX8M module. Please order your choice of MSC SM2S-IMX8M-xyz module separately.	MSC SM2-SK-IMX8-EP1-KIT001 SETPAC

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