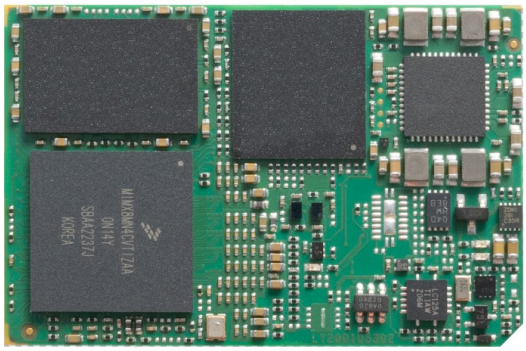
MSC OSM-MF-IMX8NANO

NXP® i.MX 8M Nano Arm® Cortex®-A53



30 x 45 mm	
2-4 W	
-40 +85	

OPEN STANDARD MODULE™

Description

The MSC OSM-MF-IMX8NANO is based on the new OSM 1.1 standard (Size-M) "Medium" for completely machine processible low-cost embedded computer modules during soldering, assembly and testing.

Highly scalable and equipped with i.MX 8M Nano Application Processors, manufactured by NXP using 14nm FinFET process technology. The module integrates single-, dual- and quad-core Arm Cortex-A53 processors with up to 1.5 GHz, an Arm Cortex-M7 real-time processor and an efficient multimedia 2D/3D graphics processing unit (GPU). The thermal design power (TDP) ranges from 2 W to 4 W.

MSC OSM-MF-IMX8NANO provides fast and low power LPDDR4 memory technology, combined with up to 256GB eMMC Flash memory. Various interfaces for embedded applications such as Gigabit Ethernet (RGMII), USB 2.0, MIPI-DSI and MIPI CSI-2 (4-lane) for connecting a camera are available.

The module is compliant with the new OSM 1.1 standard (OSM-MF). For evaluation and design-in of the new OSM-MF-IMX8NANO module, MSC provides a development platform and a starter kit. A Yocto based Linux Board Support Package is available (Android support on request).

Highlights

- Single, Dual or Quad core Arm Cortex-A53 Applications Processor up to 1.5GHz
- Arm Cortex-M7 Real Time Processor up to 750MHz
- Vivante multimedia 2D/3D Graphics Processor
- Up to 2GB LPDDR4 SDRAM
- Up to 256GB eMMC Flash
- MIPI-DSI x4
- MIPI CSI-2 (4-lane) Camera Interface
- 1x USB 2.0 Host/Device interface
- 1x Ethernet (RGMII)
- 1x MMC/SD/SDIO interface
- 2x I2S Audio Interface
- 24x GPIO, 4x PWM
- 4x UART, 2x SPI, 2x I2C
- OSM-MF Compliant, 476 Pin, RM 1,25 mm

Technical Data - MSC OSM-MF-IMX8NANO

Technology	Arm
Formfactor	OSM-MF, 476 Pin, RM 1,25 mm
CPU	NXP i.MX 8M Nano Arm Cortex-A53 Applications Processor - i.MX 8M Nano Solo, single-core, 1.4 - 1.5GHz - i.MX 8M Nano Dual, dual-core, 1.4 - 1.5GHz - i.MX 8M Nano Quad, quad-core, 1.4 - 1.5GHz - i.MX 8M Nano SoloLite, single-core, 1.4 - 1.5GHz - i.MX 8M Nano DualLite, dual-core, 1.4 - 1.5GHz - i.MX 8M Nano QuadLite, quad-core, 1.4 - 1.5GHz Arm Cortex-M7 Real Time Processor at 750MHz
Chipset	SOC
RAM	Up to 2GB 3200MT/s LPDDR4 SDRAM, soldered
Flash	Up to 256GB eMMC Flash QSPI NOR Flash (optional)
Storage Interfaces	1x MMC/SD/SDIO
USB	1x USB 2.0 Host/Client
Serial Interfaces	1x UART Console with Rx, Tx only 2x UART with 2-wire hand shake 1x UART w/o hand shake
Bus Interfaces	2x I2C up to 400 Kbit/s 2x SPI (with two chip selects)
Display Controller	Vivante GC7000UL 3D Graphics Processing Unit (GPU) 3D Graphics Acceleration, 2 shaders, 16GFLOPS OpenGL ES 1.0, 2.0, 3.0, 3.1, OpenCL 1.2 and Vulkan support Video Processing Unit not available
Display Interfaces	MIPI-DSI Display Interface, 4 lanes, up to 1920x1080 @ 60fps
Network Interface	1x Ethernet (RGMII interface)
Audio Interface	2x I2S Audio
Security Device	Advanced Security, Safety, and Reliability integrated in the SOC
Miscellaneous	Watchdog Timer for system reset (programmable, 1s … 600s) Temperature compensated RTC 24x GPIO, configurable as input or output 3x PWM MIPI CSI-2 camera interface (4 lane)
Feature Highlights	OSM, Size-M compatible

OS Support	Linux Board Support Package Android Board Support Package (on request)
Power Requirement	Power Supply +5V +/-5% Power Consumption 2-4 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	30 x 45 mm
Certificates	UL /CE
Carrier	MSC SM2F-OSM-AD-001

Order Reference - MSC OSM-MF-IMX8NANO

Order Number	Description	Reference	Cat*
98984	OSM 1.1 module based on NXP i.MX 8M Nano Dual, Dual-Core Cortex-A53 processor at 1.4GHz, 1GB LPDDR4, 4GB eMMC Flash, 1x USB2.0 Host/ Device, industrial temperature -40...+85°C	MSC OSM-MF-IMX8NANO-DC-02N0800I PCBFTX	PV
98985	OSM 1.1 module based on NXP i.MX 8M Nano Quad, Quad-Core Cortex-A53 processor at 1.4GHz, 1GB LPDDR4, 16GB eMMC Flash, 1x USB2.0 Host/Device, extended temperature -25°C...+85°C	MSC OSM-MF-IMX8NANO-QC-04N0800E PCBFTX	PV
96651	OSM 1.1 module based on NXP i.MX 8M Nano Quad, Quad-Core Cortex-A53 processor at 1.4GHz, 1GB LPDDR4, 16GB eMMC Flash, soldered on SM2F-OSM-AD-001	MSC SM2F-OSM-AD-8NQ1G160-001 ES2 PCBES	OR
96650	OSM 1.1 module based on NXP i.MX 8M Nano Dual, Dual-Core Cortex-A53 processor at 1.4GHz, 1GB LPDDR4, 4GB eMMC Flash, soldered on SM2F-OSM-AD-001	MSC SM2F-OSM-AD-8ND1G40-001 ES2 PCBES	OR

*COM products are divided in two categories, „PV“ (preferred variant) and „OR“ (on request).

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