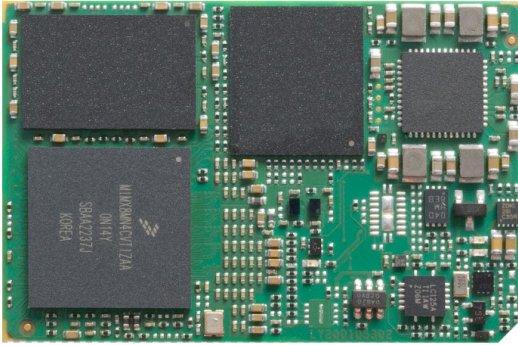


## MSC OSM-MF-IMX8MINI

NXP<sup>®</sup> i.MX 8M Mini Arm<sup>®</sup>  
Cortex<sup>®</sup>-A53



30 x 45 mm



2-5 W



-40 +85



## Description

The MSC OSM-MF-IMX8MINI 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 Mini 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 1.8 GHz, an Arm Cortex-M4 real-time processor and GC NanoUltra multimedia 2D/3D graphics processing unit (GPU). The thermal design power (TDP) ranges from 2 W to 5 W.

MSC OSM-MF-IMX8MINI 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, 1x PCIe x1 Gen.2, 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-IMX8MINI 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 1.8GHz
- Arm Cortex-M4 Real Time Processor up to 400MHz
- Vivante GC NanoUltra 2D/3D Graphics Processor
- Up to 4GB 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 USB 2.0 Host
- 1x Ethernet (RGMII)
- 2x MMC/SD/SDIO interface
- 2x I2S Audio Interface
- 24x GPIO, 4x PWM
- 4x UART, 2x SPI, 2x I2C
- 1x PCIe x1 Gen.2
- OSM-MF Compliant, 476 Pin, RM 1,25 mm

## Technical Data - MSC OSM-MF-IMX8MINI

<b>Technology</b>	Arm
<b>Formfactor</b>	OSM-MF, 476 Pin, RM 1,25 mm
<b>CPU</b>	<p>NXP i.MX 8M Mini Arm Cortex-A53 Applications Processor</p> <ul style="list-style-type: none"> <li>- i.MX 8M Mini Solo, single-core, 1.6 - 1.8GHz</li> <li>- i.MX 8M Mini Dual, dual-core, 1.6 - 1.8GHz</li> <li>- i.MX 8M Mini Quad, quad-core, 1.6 - 1.8GHz</li> <li>- i.MX 8M Mini SoloLite, single-core, 1.6 - 1.8GHz</li> <li>- i.MX 8M Mini DualLite, dual-core, 1.6 - 1.8GHz</li> <li>- i.MX 8M Mini QuadLite, quad-core, 1.6 - 1.8GHz</li> </ul> <p>Arm Cortex-M4 Real Time Processor at 400MHz</p>
<b>Chipset</b>	SOC
<b>RAM</b>	Up to 4GB 3000MT/s LPDDR4 SDRAM, soldered
<b>Flash</b>	Up to 256GB eMMC Flash QSPI NOR Flash (optional)
<b>Storage Interfaces</b>	2x MMC/SD/SDIO
<b>USB</b>	1x USB 2.0 Host/Client, 1x USB 2.0 Host
<b>Serial Interfaces</b>	<p>1x UART Console with Rx, Tx only</p> <p>2x UART with 2-wire hand shake</p> <p>1x UART w/o hand shake</p>
<b>Bus Interfaces</b>	<p>1x PCI Express x1 Gen.2 lane</p> <p>2x I2C up to 400 Kbit/s</p> <p>2x SPI (with two chip selects)</p>
<b>Display Controller</b>	<p>Vivante GC NanoUltra 3D Graphics Processing Unit (GPU)</p> <p>3D Graphics Acceleration, 1 shader, 6.4 GFLOPS</p> <p>OpenGL ES 1.0, 2.0</p> <p>Video Processing Unit (not available on "Mini Lite") with hardware support for</p> <p>1080p60 HEVC H.265, VP9, H.264, VP8 decode</p> <p>1080p60 H.264, VP8 encode</p>
<b>Display Interfaces</b>	MIPI-DSI Display Interface, 4 lanes, up to 1920x1080 @ 60fps
<b>Network Interface</b>	1x Ethernet (RGMII interface)
<b>Audio Interface</b>	2x I2S Audio
<b>Security Device</b>	Advanced Security, Safety, and Reliability integrated in the SOC
<b>Miscellaneous</b>	<p>Watchdog Timer for system reset (programmable, 1s ... 600s)</p> <p>Temperature compensated RTC</p> <p>24x GPIO, configurable as input or output</p> <p>4x PWM</p> <p>MIPI CSI-2 camera interface (4 lane)</p>

<b>Feature Highlights</b>	OSM, Size-M compatible
<b>OS Support</b>	Linux Board Support Package Android Board Support Package (on request)
<b>Power Requirement</b>	Power Supply +5V +/-5% Power Consumption 2-5 W typ. (depending on CPU and optional features)
<b>Environment</b>	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)
<b>Dimensions</b>	30 x 45 mm
<b>Certificates</b>	UL /CE
<b>Carrier</b>	MSC SM2F-OSM-AD-001

## Order Reference - MSC OSM-MF-IMX8MINI

Order Number	Description	Reference	Cat*
98981	OSM 1.1 module based on NXP i.MX 8M Mini DualLite, Dual-Core Cortex-A53 processor at 1.8GHz, 1GB LPDDR4, 8GB eMMC Flash, 1x USB2.0 Host/Device, 1x USB2.0 Host, commercial temperature 0...+70°C	MSC OSM-MF-IMX8MINI-DCL-03N0800C PCBFTX	PV
98982	OSM 1.1 module based on NXP i.MX 8M Mini, Quad-Core Cortex-A53 processor at 1.6GHz, 2GB LPDDR4, 8GB eMMC Flash, 1x USB2.0 Host/Device, 1x USB2.0 Host, QSPI on GPIO, industrial temperature -40...+85°C	MSC OSM-MF-IMX8MINI-QC-13N0820I PCBFTX	PV
98983	OSM 1.1 module based on NXP i.MX 8M Mini, Quad-Core Cortex-A53 processor at 1.6GHz, 2GB LPDDR4, 16GB eMMC Flash, 1x USB2.0 Host/Device, 1x USB2.0 Host, industrial temperature -40...+85°C	MSC OSM-MF-IMX8MINI-QC-14N0800I PCBFTX	PV
96649	OSM 1.1 module based on NXP i.MX 8M Mini Quad, Quad-Core Cortex-A53 processor at 1.6GHz, 4GB LPDDR4, 16GB eMMC Flash, 8MB QSPI NOR, soldered on SM2F-OSM-AD-001	MSC SM2F-OSM-AD-8MQ4G160-001 ES2 PCBES	OR
96648	OSM 1.1 module based on NXP i.MX 8M Mini, Quad-Core Cortex-A53 processor at 1.6GHz, 2GB LPDDR4, 8GB eMMC Flash, soldered on SM2F-OSM-AD-001	MSC SM2F-OSM-AD-8MQ2G80-001 ES2 PCBES	OR

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

Avnet Embedded GmbH  
Industriestr. 16  
76297 Stutensee

AvnetEmbedded@avnet.com  
[avnet.com/embedded](https://avnet.com/embedded)

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