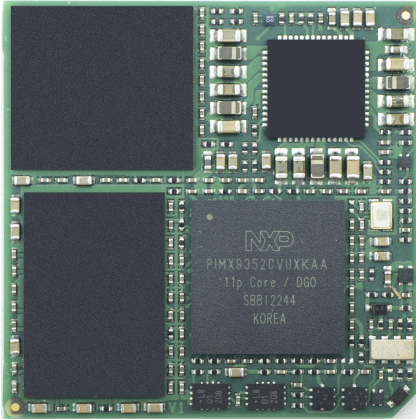


MSC OSM-SF-IMX91

NXP[®] i.MX 91 Arm[®]
Cortex[®]-A55



30 x 30 mm



2-3 W



-40 +85



Description

The MSC OSM-SF-IMX91 is based on the new OSM 1.1 standard (Size-S) "Small" for completely machine processible low-cost embedded computer modules during soldering, assembly and testing.

Highly scalable and equipped with i.MX 91 Applications Processors manufactured by NXP. The processor integrates an Arm Cortex-A55 core, bringing performance and energy efficiency to Linux-based edge applications and delivers advanced security with integrated EdgeLock secure enclave for cost-effective headless solutions at the edge.

MSC OSM-SF-IMX91 provides fast and low power LPDDR4 memory technology with inline ECC support, combined with up to 256GB eMMC Flash memory. Various interfaces for embedded applications such as Dual Gigabit Ethernet (RGMII), USB 2.0, 2x CAN-FD are available. The typical design power ranges from 2 W to 3 W.

The module is compliant with the new OSM 1.1 standard (OSM-SF). For evaluation and design-in of the new OSM-SF-IMX91 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 core Arm Cortex-A55 Application Processor up to 1.4GHz
- Media Processing Engine (MPE) with Arm Neon™ technology
- Up to 2GB LPDDR4 SDRAM with inline ECC
- Up to 256GB eMMC Flash
- 1x USB 2.0 Host interface
- 1x USB 2.0 Host/Device interface
- 2x Gigabit Ethernet (RGMII)
- 2x SD/SDIO interface
- 2x CAN-FD interfaces
- 1x I2S Audio interface
- 4x UART, 2x SPI, 4x I2C
- 20x GPIO
- 2x ADC inputs (12-bit)
- Optimized design for low power applications
- OSM 1.1 (SF) Compliant, 322 Pin, RM 1,25 mm

Technical Data - MSC OSM-SF-IMX91

Technology	Arm
Formfactor	OSM-SF, 322 Pin, RM 1,25 mm
CPU	NXP i.MX 91 Arm Cortex-A55 Application Processor, single-core, up to 1.4GHz, consumer and industrial grade
Chipset	SOC
RAM	Up to 2GB 2400MT/s LPDDR4 SDRAM, soldered, inline ECC support
Flash	Up to 256GB eMMC Flash
Storage Interfaces	2x MMC/SD/SDIO
USB	1x USB 2.0 Host/Client, 1x USB 2.0 Host
Serial Interfaces	1x UART Console with Rx, Tx only 1x UART with 2-wire hand shake 2x UART w/o hand shake
Bus Interfaces	2x I2C up to 400 Kbit/s 2x SPI (with two chip selects) 2x CAN-FD /CAN 2.0B
Display Controller	not available
Display Interfaces	not available
Network Interface	2x Ethernet, (RGMII interface)
Audio Interface	1x I2S Audio
Security Device	Advanced Security, Safety, and Reliability integrated in the SOC Integrated EdgeLock secure enclave enables autonomous management of security functions, including runtime attestation, silicon root of trust, reusable certifications, trust provisioning, and fine-grain key management augmented by extensive crypto services for advanced attack resistance
Miscellaneous	Watchdog Timer for system reset (programmable, 1s ... 600s) RTC 20x GPIO, configurable as input or output, interrupt capable 2x PWM 2x ADC inputs (12-bit) Camera interface not available
Feature Highlights	OSM, Size-S compatible
Firmware	uboot
OS Support	Linux Board Support Package Android Board Support Package (on request)

Power Requirement	Power Supply +5V +/-5% Power Consumption 2-3 W typ. (depending on CPU)
Environment	Temperature Range: Commercial: 0° ... 70°C (operating) -20° ... 85°C (storage) Extended: -25° ... 85°C (operating) -40° ... 85°C (storage) Industrial: -40° ... 85°C (operating) -40° ... 85°C (storage) Humidity: 5 ... 95% (operating, non condensing) 5 ... 95% (storage, non-condensing)
Dimensions	30 x 30 mm
Certificates	UL /CE
Carrier	MSC SM2F-OSM-AD-001

Order Reference - MSC OSM-SF-IMX91

Order Number	Description	Reference	Cat*
tbd	OSM 1.1 module based on NXP i.MX 91, Single Core Cortex-A55 processor at 1.4GHz, 1GB LPDDR4, 16GB eMMC Flash, 2x GbE (RGMII), 1x USB2.0 Host, 1x USB2.0 Host/Device, 2x CAN-FD, commercial temperature 0...+70°C (Engineering Sample - get in touch with your sales representative)	MSC OSM-SF-IMX91-SC-04N0A00C ES1 PCBES	OR

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

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