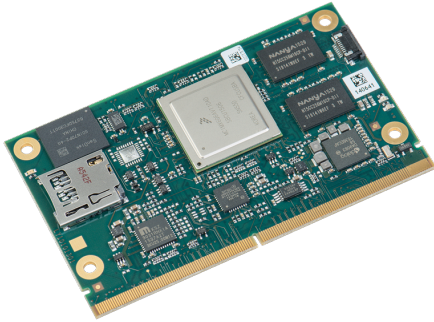


MSC SM2S-IMX6

NXP™ i.MX6 ARM®
Cortex™-A9



82 x 50 mm



4-6 W



-40 +85



Description

The design of the MSC SM2S-IMX6 module is based on NXP's i.MX 6 processors offering quad-, dual- and single-core ARM® Cortex™-A9 compute performance at very low power consumption and excellent graphics performance combined with a high degree of functional integration.

It incorporates the i.MX 6 (Solo, DualLite, Dual or Quad) or the i.MX 6DualPlus or 6QuadPlus processor with up to 1.2 GHz, up to 4GB DDR3L SDRAM and up to 64GB eMMC Flash memory as well as an extensive set of interface controllers. 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-IMX6 module, MSC provides a development platform and a starter kit. Support for Linux and Windows Embedded Compact 7 and 2013 is available (Android on request).

Highlights

- NXP™ i.MX 6 ARM® Cortex™-A9 Solo, DualLite, Dual, Quad, DualPlus and QuadPlus processor
- MPEG-4 Video Encoding/Decoding 1080p
- HDMI graphics 1920 x 1080 x 30fps
- Dual-channel LVDS 1920 x 1080 x 30fps
- Up to 4GB DDR3L SDRAM
- Up to 64GB eMMC Flash
- Gigabit Ethernet Interface
- 1x PCI Express x1
- 1x SATA-II (3Gbps, quad-/dual-core only)
- 1x USB Device/Host + up to 5x USB 2.0
- 1x MMC/SD/SDIO Interface
- 2x CAN Interface
- I2S Audio Interface
- MIPI CSI-2 Camera Interface
- Micro SD Card Socket
- SMARC™ 2.0 Compliant

Technical Data - MSC SM2S-IMX6

Technology	ARM
Formfactor	SMARC™ Short Size
CPU	<p>NXP™ i.MX 6 ARM® Cortex™-A9:</p> <ul style="list-style-type: none"> - i.MX 6QuadPlus, quad-core, 800MHz...1.2GHz - i.MX 6Quad, quad-core, 800MHz...1.2GHz - i.MX 6DualPlus, dual-core, 800MHz...1.2GHz - i.MX 6Dual, dual-core, 800MHz...1.2GHz - i.MX 6DualLite, dual-core, 800MHz...1.0GHz - i.MX 6Solo, single-core, 800MHz...1.0GHz
Chipset	SOC
RAM	Up to 4GB DDR3L SDRAM (DDR-1066), soldered, non ECC
Flash	Up to 64GB eMMC Flash
Storage Interfaces	<p>Micro SD Card Socket</p> <p>1x MMC/SD/SDIO</p> <p>1x SATA-II (3Gbps, not supported by Solo/DualLite CPU)</p>
USB	<p>1x USB 2.0 Host/Client, 4x USB 2.0 Host or</p> <p>1x USB 2.0 Host/Client, 5x USB 2.0 Host (optional) or</p> <p>1x USB 2.0 Host/Client, 1x USB 2.0 Host (optional)</p>
Serial Interfaces	4x UART (two with 2-wire hand shake)
Bus Interfaces	<p>1x PCI Express x1</p> <p>2x CAN 2.0B</p> <p>5x I2C up to 400 Kbit/s</p> <p>2x SPI (with two chip selects)</p> <p>1x SMBus</p>
Display Controller	<p>Video, 2D and 3D Graphics Units integrated in i.MX6 Processor</p> <p>OpenGL® ES 1.1/2.0/Halti, OpenVG™ 1.1, OpenCL™ 1.1 EP</p> <p>Multi-Format Hardware Video Encoder/Decoder</p>
Display Interfaces	<p>Dual-channel LVDS interface, 18 or 24 bit (up to 1920x1080). Also usable as 2x single-channel LVDS interface (up to 1366x768)</p> <p>HDMI V1.4 up to WUXGA (1920x1080) incl. Full-HD @ 30fps</p> <p>MIPI CSI-2 Camera Interface</p>
Network Interface	1x 10/100/1000BASE-T Ethernet
Audio Interface	I2S Audio
Security Device	Infineon Trusted Platform Module (TPM) 1.2, optional
Miscellaneous	<p>Watchdog Timer for system reset (programmable, 1s ... 600s)</p> <p>12x GPIO, configurable as input or output</p> <p>64kbit ID EEPROM on I2C bus</p>
OS Support	<p>Linux Board Support Package</p> <p>Android Board Support Package (on request)</p>

Power Requirement	Power Supply +5V +/-5%, 5V Standby Power Consumption 4-6 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	82 x 50 mm
Certificates	UL / CE

Order Reference - MSC SM2S-IMX6

Order Number	Description	Reference	Cat
68410	SMARC module based on NXP i.MX 6Solo Single-Core Cortex-A9 processor at 800MHz, 1GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, micro SD socket, no SATA, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Client, I2S Audio, MIPI CSI-2 Camera input; industrial temperature -40...+85°C	MSC SM2S-IMX6-112 PCBFTX	PV
68432	SMARC module based on NXP i.MX 6Dual Dual-Core Cortex-A9 processor at 800MHz, 2GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, micro SD socket, 1x SATA, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Client, I2S Audio, MIPI CSI-2 Camera input; industrial temperature -40...+85°C	MSC SM2S-IMX6-123 PCBFTX	PV
68434	SMARC module based on NXP i.MX 6DualLite Dual-Core Cortex-A9 processor at 800MHz, 2GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, micro SD socket, no SATA, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Client, I2S Audio, MIPI CSI-2 Camera input; industrial temperature -40...+85°C	MSC SM2S-IMX6-133 PCBFTX	PV
68436	SMARC module based on NXP i.MX 6Quad Quad-Core Cortex-A9 processor at 800MHz, 2GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, micro SD socket, 1x SATA, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Client, I2S Audio, MIPI CSI-2 Camera input; industrial temperature -40...+85°C	MSC SM2S-IMX6-143 PCBFTX	PV
68438	SMARC module based on NXP i.MX 6DualPlus Dual-Core Cortex-A9 processor at 800MHz, 2GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, micro SD socket, 1x SATA, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Client, I2S Audio, MIPI CSI-2 Camera input; industrial temperature -40...+85°C	MSC SM2S-IMX6-163 PCBFTX	OR
68440	SMARC module based on NXP i.MX 6QuadPlus Quad-Core Cortex-A9 processor at 800MHz, 2GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, micro SD socket, 1x SATA, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Client, I2S Audio, MIPI CSI-2 Camera input; industrial temperature -40...+85°C	MSC SM2S-IMX6-183 PCBFTX	OR
77401	SMARC module based on NXP i.MX 6Solo Single-Core Cortex-A9 processor at 1GHz, 512MB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, micro SD socket, no SATA, 1x PCIe, 4x USB2.0 Host, 1x USB2.0 Host/Client, I2S Audio, MIPI CSI-2 Camera input; commercial temperature 0...+70°C	MSC SM2S-IMX6-010 PCBFTX	PV

Order Reference - MSC SM2S-IMX6

Order Number	Description	Reference	Cat
71242	SMARC module based on NXP i.MX 6DualLite Dual-Core Cortex-A9 processor at 1GHz, 1GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, micro SD socket, no SATA, 1x PCIe, 1x USB2.0 Host, 1x USB2.0 Host/Client, I2S Audio, MIPI CSI-2 Camera input; commercial temperature 0...+70°C	MSC SM2S-IMX6-03A PCBFTX	PV
71668	SMARC module based on NXP i.MX 6DualLite Dual-Core Cortex-A9 processor at 1GHz, 512MB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, no micro SD socket, no SATA, 1x PCIe, 1x USB2.0 Host, 1x USB2.Host/Client, I2S Audio, MIPI CSI-2 Camera input; extended temperature -20...+85°C	MSC SM2S-IMX6-238 PCBFTX	PV
78697	SMARC module based on NXP i.MX 6DualLite Dual-Core Cortex-A9 processor at 1GHz, 1GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, micro SD socket, no SATA, 1x PCIe, 4x USB2.0 Host, 1x USB2.Host/Client, I2S Audio, MIPI CSI-2 Camera input; extended temperature -20...+85°C	MSC SM2S-IMX6-232 PCBFTX	PV
82623	SMARC module based on NXP i.MX 6Solo Single-Core Cortex-A9 processor at 800MHz, 1GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, no SD socket, no SATA, 1x PCIe, 1x USB2.0 Host, 1x USB2.Host/Client, I2S Audio, MIPI CSI-2 Camera input; industrial temperature -40...+85°C	MSC SM2S-IMX6-118 PCBFTX	PV
93551	SMARC module based on NXP i.MX 6Solo Single-Core Cortex-A9 processor at 1GHz, 1GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, Ethernet controller (10/100/1000Base-T), 8GB eMMC Flash, micro SD socket, no SATA, 1x PCIe, 4x USB2.0 Host, 1x USB2.Host/Client, I2S Audio, MIPI CSI-2 Camera input; commercial temperature 0...+70°C	MSC SM2S-IMX6-012 PCBFTX	PV
94553	SMARC module based on NXP i.MX 6DualLite Dual-Core Cortex-A9 processor at 1GHz, 1GB DDR3 soldered, integrated Graphics, HDMI max. 1920x1080, dual-channel LVDS, no Ethernet, 8GB eMMC Flash, micro SD socket, no SATA, 1x PCIe, 1x USB2.0 Host, 1x USB2.0 Host/Client, I2S Audio, MIPI CSI-2 Camera input; commercial temperature 0...+70°C	MSC SM2S-IMX6-03E 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 HDMI 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
83977	SMARC 2.x compatible embedded platform (146 x 80mm), 10-36V input voltage, 3x RS232, 2x CAN, dual RJ45 LAN with LED (1 x LAN i210) , 1x M.2 2280 Key M slot, mPCIe slot, 1x USB 3.0 Type A, 1x USB 2.0 Type A, 1x USB 2.0 internal, 1x USB 2.0 Host/Device, 2x SPI, I ² C, 8 GPIO on FC, 1x HDMI, LVDS/eDP/DSI on JILI30 connector, SD Card Slot, regulated backlight supply, I2S Audio, 1W Mono, camera connector, RTC battery. Industrial temperature range -40..+85°C, ARM full version	MSC SM2S-MB-EP5-002 PCBFTX
83981	SMARC 2.x compatible embedded platform (146 x 80mm), 10-36V input voltage, 2x UART, 1x RS232, 2x CAN, 1x RJ45 LAN with LED, 1x USB 2.0 Type A, 1x USB3.0 Type A, 1x USB 2.0 internal, 1x USB 2.0 Host/Device, 2x SPI, 12 GPIO on FC, 1x HDMI , SD Card Slot, LVDS/eDP/DSI on JILI30 connector, regulated backlight supply, RTC battery. Industrial temperature range -40..+85°C, ARM slim version	MSC SM2S-MB-EP5-004 PCBFTX
Cooling Options		
1133175	Heat spreader for SM2S-IMX6 module with flip-chip processor package (all single-core & dual-lite versions, all standard temperature versions)	MSC SM2S-IMX6-01 HSP-001
1133176	Heat spreader for SM2S-IMX6 module with lidded processor package (extended temperature versions of dual- and quad-core only)	MSC SM2S-IMX6-02 HSP-001
Other Accessories		
82479	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		
68994	Starter Kit for MSC SM2S-IMX6 modules. Includes MSC SM2-MB-EP1 Baseboard, Heatspreader, SD Card with Linux installation and Power Supply. The StarterKit does not include the MSC SM2S-IMX6 module. Please order your choice of MSC SM2S-IMX6-XYZ module separately.	MSC SM2-SK-IMX6-EP1-KIT001 BRDFTX

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