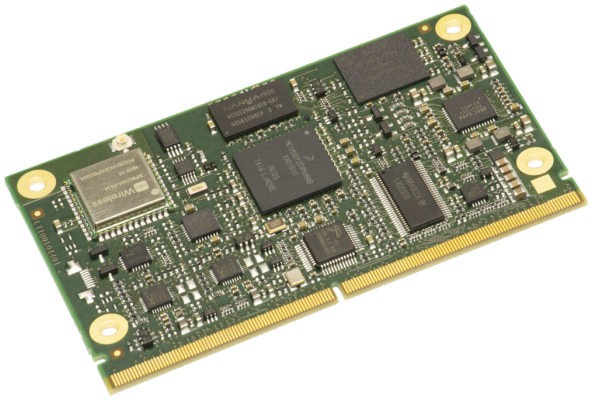
MSC SM2S-IMX6ULL

NXP® i.MX 6ULL / 6ULZ
Arm® Cortex®-A7



82 x 50 mm	
0.5-2 W	
-40 +85	

SMARC module

NXP

Description

The MSC SM2S-IMX6ULL is based on NXP i.MX 6ULL/ ULZ, a power efficient and cost-optimized applications processor family featuring an advanced implementation of a single Arm Cortex-A7 core, which operates at speeds up to 900 MHz.

This family of applications processor includes an integrated power management module that reduces the complexity of an external power supply and simplifies power sequencing. The module is optimized for lowest cost to support up to high volumes projects which are typically addressed by single board computers.

On the module the processor it is combined with up to 1GB DDR3L SDRAM, up to 64GB eMMC Flash, dual 10/100 MBit Ethernet and a rich set of typical embedded interfaces like USB, UART, SPI, I2C, CAN and many more. It provides a graphics controller to support displays up to HD ready resolution. Optionally the module can support WLAN and Bluetooth.

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-IMX6ULL module, MSC provides a development platform and a starter kit.

Support for Linux is available.

Highlights

- Single-core NXP i.MX 6ULL/6ULZ Arm Cortex-A7 Applications Processor with up to 900 MHz
- Pixel processing pipeline (PXP) to support 2D image processing (CSC, Combine, Rotate, etc)
- Designed for Ultra Low Power Applications
- Optimized for low cost and high volume
- LVDS interface up to 1366 x 768 (optional)
- Up to 1GB DDR3L SDRAM
- Up to 64GB eMMC Flash
- Up to 2x 10/100 Mbit Ethernet (2nd interface is optional)
- Wireless Module (optional)
- Up to 4x USB 2.0 Host interface
- 1x USB 2.0 Host/Device interface
- 1x MMC/SD/SDIO Interface
- 2x CAN Interface
- I2S Audio Interface
- UART, SPI, I2C
- SMARC 2.0 Compliant

Technical Data - MSC SM2S-IMX6ULL

Technology	Arm
Formfactor	SMARC Short Size
CPU	NXP i.MX6 ULL and ULZ Series with Arm Cortex-A7: - i.MX 6ULL Base, MXIMX6Y0, at 528 MHz - i.MX 6ULL General Purpose 1, MXIMX6Y1, at 528 MHz - i.MX 6ULL General Purpose 2, MXIMX6Y2, at 528/792/900 MHz - i.MX 6ULZ Base, MXIMX6Z0, at 900 MHz
Chipset	SOC
RAM	Up to 1GB DDR3L SDRAM (DDR-800), soldered, non ECC
Flash	Up to 64GB eMMC Flash
Storage Interfaces	1x MMC/SD/SDIO
USB	1x USB 2.0 Host/Client, 4x USB 2.0 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 SER3 and GBE1 are mutual exclusive options SER3 and i.MX 6ULZ are mutual exclusive options
Bus Interfaces	2x CAN 2.0B 3x I2C up to 400 Kbit/s 2x SPI (with two chip selects) 1x SMBus
Display Controller	NEON Media Processor Engine co-processor Pixel processing pipeline (PXP) to support 2D image processing, including color-space conversion, scaling, alpha-blending, and rotation
Display Interfaces	Single-channel 18/24 bit LVDS interface, up to 1366x768 @ 60fps
Network Interface	1x 10/100BASE-T Ethernet 2x 10/100BASE-T Ethernet (optional) HD Wireless Module SPB209A with 802.11ac / Bluetooth 5.0, soldered (optional)
Audio Interface	I2S Audio
Security Device	Advanced Security integrated in the SoC e.g. Ciphers & Random Number Generator (RNG), High Assurance Boot (HAB), eFuse, Secure RTC Infineon Trusted Platform Module (TPM) 2.0 (optional)
Miscellaneous	Watchdog Timer for system reset (programmable, 1s … 600s) PWM, Timer, Realtime Clock, Temperature Sensor (optional) 12x GPIO, configurable as input or output 2kbit ID EEPROM on I2C

Feature Highlights	Designed for Ultra Low Power Applications Optimized for low cost and high volume
OS Support	Linux Board Support Package
Power Requirement	Power Supply +5V +/-5%, 5V Standby Power Consumption 0.5-2 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-IMX6ULL

Order Number	Description	Reference	Cat*
83803	SMARC module based on NXP i.MX 6ULL Single-Core Cortex-A7 processor MCIMX6Y2 at 800MHz, 512MB DDR3 soldered, 4GB eMMC Flash, 1x Ethernet (10/100Base-T), 1x USB2.0 Host, 1x USB2.0 Host/Client, 2x CAN, 4xUART, SD/SDIO, integrated PXP Graphics, single-channel LVDS; extended temperature -25...+85°C	MSC SM2S-IMX6ULL-Y2 -92N0230E PCBFTX	PV
83805	SMARC module based on NXP i.MX 6ULL Single-Core Cortex-A7 processor MCIMX6Y2 at 800MHz, 512MB DDR3 soldered, 8GB eMMC Flash, 2x Ethernet (10/100Base-T), 4x USB2.0 Host, 1x USB2.0 Host/Client, 2x CAN, 3xUART, WLAN/BT, TPM, integrated PXP Graphics, single-channel LVDS; industrial temperature -40...+85°C	MSC SM2S-IMX6ULL-Y2 -93N02E1I PCBFTX	PV
83807	SMARC module based on NXP i.MX 6ULZ Single-Core Cortex-A7 processor MCIMX6Z0 at 900 MHz, 256MB DDR3 soldered, 4GB eMMC Flash, no Graphics, no Ethernet, 1x USB2.0 Host, 1x USB2.0 Host/Client, no CAN, 3xUART, SD/SDIO; commercial temperature -0...+70°C	MSC SM2S-IMX6ULL-Z0 -82N0N30C PCBFTX	PV

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

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, I²C, 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
	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
	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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