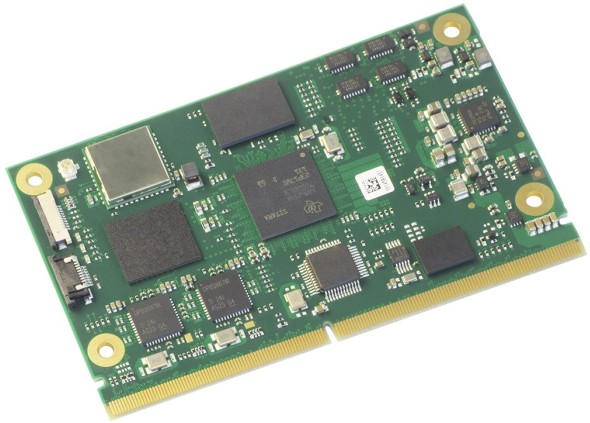
MSC SM2S-AM62X

TI Sitara™ AM62x ARM® Cortex™-A53 / M4



82 x 50 mm	
2-5 W	
-40 +85	

SMARC module

Texas Instruments

Description

The new MSC SM2S-AM62X SMARC 2.1.1 module family is highly scalable and equipped with Sitara AM62x ARM Cortex-A53 processors, manufactured by Texas Instruments using 16nm process technology. The module integrates single-, dual- and quad-core ARM Cortex-A53 processors with up to 1.4 GHz, an ARM Cortex-M4 real-time processor and an efficient multimedia 2D/3D graphics processing unit (GPU). The typical design power ranges from 2 W to 5 W.

The MSC SM2S-AM62X offers cost-effective DDR4 memory technology, combined with up to 256GB eMMC Flash memory. Various interfaces for embedded applications such as Dual Gigabit Ethernet, USB 2.0, Dual CAN-FD, dual-channel LVDS and MIPI CSI-2 for connecting a camera are available. An on-board Wireless Module and NAND Flash memory are provided as assembly options.

The module is compliant with the new SMARC 2.1.1 standard, allowing easy integration with SMARC baseboards. For evaluation and design-in of the MSC SM2S-AM62X module, Avnet Embedded provides a development platform and a starter kit. Support for Linux is available (Android support on request).

Highlights

- Single, Dual or Quad core ARM Cortex-A53 Microprocessor up to 1.4GHz
- ARM Cortex-M4 Real Time Processor up to 400MHz
- Multicore 3D Graphics Acceleration, 8GFLOPS
- Up to 2GB DDR4 SDRAM with inline ECC
- Up to 256GB eMMC Flash
- Dual-channel LVDS
- MIPI CSI-2 Camera interface
- Up to 4x USB 2.0 Host interfaces
- 1x USB 2.0 Host/Device interface
- 2x Gigabit Ethernet
- Wireless Module (optional)
- 1x MMC/SD/SDIO interface
- 2x CAN-FD interfaces
- 2x I2S Audio interfaces
- 14x GPIO
- UART, SPI, I2C
- SMARC 2.1.1 Compliant

Technical Data - MSC SM2S-AM62X

Technology	ARM
Formfactor	SMARC Short Size
CPU	Sitara AM62x ARM Cortex-A53 Microprocessor - AM6254 Quad Core, 800MHz ... 1.4GHz - AM6252 Dual Core, 800MHz ... 1.4GHz - AM6251 Single Core, 800MHz ... 1.4GHz - AM6234 Quad Core w/o GPU, 800MHz ... 1.4GHz - AM6232 Dual Core w/o GPU, 800MHz ... 1.4GHz - AM6231 Single Core w/o GPU, 800MHz ... 1.4GHz ARM Cortex-M4F Real Time Processor up to 400 MHz
Chipset	SOC
RAM	Up to 2GB 1600MT/s DDR4 SDRAM, soldered, inline ECC support
Flash	Up to 256GB eMMC Flash QSPI NAND Flash (optional)
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
Bus Interfaces	4x I2C up to 400 Kbit/s 2x SPI (with two chip selects) 2x CAN-FD / CAN 2.0B
Display Controller	Imagination AXE-1-16M Graphics Processing Unit (GPU) Multicore 3D Graphics Acceleration, 2 pipelines, 8GFLOPS OpenGL ES 1.1, 2.0, 3.0, 3.1 and Vulkan 1.2 support no GPU on AM623x versions
Display Interfaces	Dual-channel LVDS interface, 18 or 24 bit (up to 1920x1080); also usable as one single-channel LVDS interface (up to 1366x768)
Network Interface	2x 10/100/1000BASE-T Ethernet Wireless Module with 802.11b/g/n and Bluetooth 5.0, single band 2.4GHz, soldered (optional)
Audio Interface	2x I2S Audio
Security Device	Advanced Security, Safety, and Reliability integrated in the SOC Trusted Platform Module (TPM) 2.0 (optional)

Miscellaneous	Watchdog Timer for system reset (programmable, 1s … 600s) RTC / temperature compensated (optional) 14x GPIO, configurable as input or output, interrupt capable 64kbit ID EEPROM on I2C bus MIPI CSI-2 camera interface (CSI0, 2 lane) or MIPI CSI-2 camera interface (CSI1, 4-lane)
Feature Highlights	SMARC 2.1.1 compatible
Firmware	uboot
OS Support	Linux Board Support Package Android Board Support Package (on request)
Power Requirement	Power Supply +5V +/-5%, 5V Standby Power Consumption 2-5 W typ. (depending on CPU and optional features)
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	82 x 50 mm
Certificates	UL / CE
Cooling	Heatspreader
Carrier	MSC SM2-MB-EP1 MSC SM2-MB-EP5

Order Reference - MSC SM2S-AM62X

Order Number	Description	Reference	Cat*
95037	SMARC module based on TI AM6254 Quad-Core Cortex-A53 processor at 1.4GHz, 2GB DDR4, 16GB eMMC Flash, 1GB QSPI NAND Flash, 2x GbE LAN, 4x USB2.0 Host, 1x USB2.0 Host/Device, BT/WLAN, TPM, LVDS, MIPI CSI-2 Camera input (CSI1, 4 lane); industrial temperature -40...+85°C (Engineering Sample - get in touch with your sales representative)	MSC SM2S-AM62X-QC-14402C1I ES1 PCBES	OR
95036	SMARC module based on TI AM6254 Quad-Core Cortex-A53 processor at 1.4GHz, 1GB DDR4, 4GB eMMC Flash, 1x GbE LAN, 1x USB2.0 Host, 1x USB2.0 Host/Device, LVDS, MIPI CSI-2 Camera input (CSI0, 2 lane); extended temperature -25...+85°C (Engineering Sample - get in touch with your sales representative)	MSC SM2S-AM62X-QC-02N0270E ES1 PCBES	OR

*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
	Cooling Option	
97812	Heatspreader for SM2S-AM62X module, consisting of a single-piece aluminum plane and thermal pad for contact to the processor, with 2.7mm through-hole standoffs	MSC SM2S-AM62X-01 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

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