TRIA SM2S-IMX6

NXP™ i.MX6 ARM® Cortex™-A9



82 x 50 mm

4-6 W

-40 +85 °C

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

Technology	ARM
Formfactor	SMARC™ Short Size
CPU	NXP™ i.MX 6 ARM® Cortex™-A9: • 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	Micro SD Card Socket 1x MMC/SD/SDIO 1x SATA-II (3Gbps, not supported by Solo/DualLite CPU)
USB	1x USB 2.0 Host/Client, 4x USB 2.0 Host or 1x USB 2.0 Host/Client, 5x USB 2.0 Host (optional) or 1x USB 2.0 Host/Client, 1x USB 2.0 Host (optional)
Serial Interfaces	4x UART (two with 2-wire hand shake)
Bus Interfaces	1x PCI Express x1 2x CAN 2.0B 5x I2C up to 400 Kbit/s 2x SPI (with two chip selects) 1x SMBus
Display Controller	Video, 2D and 3D Graphics Units integrated in i.MX6 Processor OpenGL® ES 1.1/2.0/Halti, OpenVG™ 1.1, OpenCL™ 1.1 EP Multi-Format Hardware Video Encoder/Decoder
Display Interfaces	Dual-channel LVDS interface, 18 or 24 bit (up to 1920x1080). Also usable as 2x single-channel LVDS interface (up to 1366x768) HDMI V1.4 up to WUXGA (1920x1080) incl. Full-HD @ 30fps MIPI CSI-2 Camera Interface
Network Interface	1x 10/100/1000BASE-T Ethernet
Audio Interface	I2S Audio
Security Device	Infineon Trusted Platform Module (TPM) 1.2, optional
Miscellaneous	Watchdog Timer for system reset (programmable, 1s ... 600s) 12x GPIO, configurable as input or output 64kbit ID EEPROM on I2C bus
OS Support	Linux Board Support Package Android Board Support Package (on request)
Power Requirement	Power Supply +5V +/-5% 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

Technical Data for TRIA SM2S-IMX6

Order Reference

Order No.	Description	Reference	Status*
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.Host/Client, I2S Audio, MIPI CSI-2 Camera input; commercial temperature 0...+70°C	MSC SM2S-IMX6-010 PCBFTX	PV
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

Order No.	Description	Reference	Status*
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

Ordering Information for TRIA SM2S-IMX6

*PV = Preferred variant; OR = on Request (in OEM quantities only)

Accessories

Carrier Options

Order No.	Description	Reference
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 2.1 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 µUSB 2.0 Host/Device, 2x SPI, I²C, 8 GPIO on FC, 1x HDMI, LVDS/eDP/DSI on JILI30 connector, µSD 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 2.1 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 µUSB 2.0 Host/Device, 2x SPI, 12 GPIO on FC, 1x HDMI , µSD 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
113145	SMARC 2.1 compatible embedded platform (146 x 80mm), 10-36V input voltage, 3x RS232, 1x RS485, 1x CAN, dual RJ45 LAN with LED, 1x M.2 2280 Key M slot (PCIeC, PCIeD), mPCIe slot (PCIeA), 1x USB 3.0 Type A, 1x USB 2.0 Type A, 1x USB 2.0 internal, 1x µUSB 2.0 Host/Device, 2x SPI, I²C, 8 GPIO on FC, 1x HDMI, LVDS/eDP/DSI on JILI30 connector, µSD Card Slot, regulated backlight supply, I2S Audio, 1W Mono, camera connector, RTC battery. Industrial temperature range -40..+85°C, ARM Plus version	MSC SM2S-MB-EP5-006 PCBFTX
115138	SMARC 2.1 compatible embedded platform (146 x 80mm), 10-36V input voltage, 3x RS232, 2x CAN, dual RJ45 LAN with LED (from module), 1x M.2 2280 Key M slot, mPCIe slot, 1x USB 3.0 Type A, 1x USB 3.0/DisplayPort Type C , 1x USB 2.0 Type A, 1x USB 2.0 internal, 1x µUSB 2.0 Host/Device, 2x SPI, I²C, 12 GPIO on FC, 1x DisplayPort++ , LVDS/eDP/DSI on JILI30 connector, µSD Card Slot, regulated backlight supply, I2S Audio with amplifier, system fan connector, camera connector, RTC battery. Industrial temperature range -40..+85°C	MSC SM2S-MB-EP5-012 PCBFTX

Carrier Options for Arm based TRIA SMARC Modules

Cooling Options

Order No.	Description	Reference
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

Cooling Options for TRIA SM2S-IMX6

Other Accessories

Order No.	Description	Reference
40402	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

Other Accessories for TRIA SM2S-ZUSP/IMX8M/IMX8MINI/IMX8NANO/IMX6

Starter Kits

Order No.	Description	Reference
68994	Starter Kit for TRIA SM2S-IMX6 modules. Includes TRIA SM2-MB-EP1 Baseboard, Heatspreader, SD Card with Linux installation and Power Supply. The Starter Kit does not include the TRIA SM2S-IMX6 module. Please order your choice of TRIA SM2S-IMX6-XYZ module separately.	MSC SM2-SK-IMX6-EP1-KIT001 BRDFTX

Starter Kits for TRIA SM2S-IMX6/IMX6ULL

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