TRIA SM2S-ZUSP

Xilinx® Zynq® UltraScale+™ MPSoC



82 x 50 mm

5-15 W

-40 +85 °C

Highlights

- Dual or Quad core ARM Cortex-A53 Application Processors up to 1.5GHz
- Dual core ARM Cortex-R5 Real-Time Processors up to 600MHz
- Mali-400 MP2 Graphics Processor (optional)
- H.264 / H.265 Video Codec (optional)
- Up to 8GB DDR4 SDRAM, ECC support (optional)
- Up to 2GB DDR4 SDRAM for FPGA (optional)
- Up to 64GB eMMC Flash
- SATA-III interface (6Gbps)
- DisplayPort interface, Dual-channel LVDS interface (optional)
- MIPI CSI-2 Camera Interface (optional)
- Up to 2x PCI Express x2 Gen. 3
- Up to 1x USB 3.0/2.0 + 3x USB 2.0 Host interface
- 1x USB 2.0 Host/Device interface
- Gigabit Ethernet (single or dual)
- Wireless Module (optional)
- 1x MMC/SD/SDIO interface
- 2x CAN, UART, SPI, I2C
- Rich FPGA I/O
- SMARC 2.0 Compliant

Technical Data

Technology	ARM
Formfactor	SMARC Short Size
CPU	Xilinx UltraScale+ ZU2CG, ZU3CG, ZU4CG or ZU5CG MPSoC with • Dual core ARM Cortex-A53 MPCore Application Processor up to 1.3GHz • Dual core ARM Cortex-R5 MPCore Real-Time Processor up to 533MHz Xilinx UltraScale+ ZU2EG, ZU3EG, ZU4EG, ZU5EG, ZU4EV or ZU5EV MPSoC with • Quad core ARM Cortex-A53 MPCore Application Processor up to 1.5GHz • Dual core ARM Cortex-R5 MPCore Real-Time Processor up to 600MHz
Chipset	SOC
RAM	Up to 8GB DDR4-2400 SDRAM, soldered, ECC support (optional) Up to 2GB DDR4-2133 SDRAM, soldered, for Programmable Logic (optional)
Flash	Up to 64GB eMMC Flash QSPI NOR Boot Flash
Storage Interfaces	1x MMC/SD/SDIO 1x SATA-III (6Gbps)
USB	1x USB 3.0/2.0 Host, 3x USB 2.0 Host, 1x USB 2.0 Host/Client or 1x USB 3.0/2.0 Host, 2x USB 2.0 Host, 1x USB 2.0 Host/Client (option w/ WLAN) or 1x USB 3.0 Host, 1x USB 2.0 Host, 1x USB 2.0 Host/Client (option w/o Hub)
Serial Interfaces	1x UART with 2-wire hand shake 1x UART w/o hand shake
Bus Interfaces	1x PCI Express x1 Gen. 2 (5Gbps) using ZU2/3 devices 2x PCI Express x2 Gen. 3 (8Gbps) using ZU4/5 devices 2x CAN 2.0B 1x SPI (with two chip selects)* 3x I2C up to 400 Kbit/s * SPI1/eSPI pins are available as FPGA I/O (optional, dependent on implementation in Programmable Logic)
Display Controller	ARM Mali-400 MP2 Graphics Processing Unit (EG/EV only) Multicore 2D/3D graphic acceleration at 667MHz OpenGL ES 1.1 / 2.0 and OpenVG 1.0 / 1.1 support Video Codec Unit (EV only) Supports H.265 (HEVC) / H.264 (AVC) standards Simultaneous encode and decode at 8Kx4K (15fps) or 4Kx2K (60fps)
Display Interfaces	Dual-channel 18/24 bit LVDS interface (optional, dependent on implementation in Programmable Logic) DisplayPort 1.2a (4096x2160 @ 30Hz) • support 1 lane using ZU2/3 devices • support 2 lanes using ZU2/3 devices (optional, variant w/o PCI Express) • support 2 lanes using ZU4/5 devices
Network Interface	Up to 2x 10/100/1000BASE-T Ethernet (optional) HD Wireless Module SPB228, MU-MIMO 2x2 with 802.11 ac/a/b/g/n and Bluetooth/BLE support, soldered (optional)
Audio Interface	optional, dependent on implementation in Programmable Logic
Security Device	Advanced Security, Safety, and Reliability integrated in the MPSoC

Miscellaneous	Watchdog Timer for system reset (programmable, 1s ... 600s) 12x GPIO, configurable as input or output 60x FPGA I/O for customer use (optional, dependent on implementation in Programmable Logic) 4kbit ID EEPROM on I2C bus MIPI CSI-2 Camera Interface (optional, dependent on implementation in Programmable Logic)
Feature Highlights	SMARC 2.0 compliant
OS Support	Linux Board Support Package Android Board Support Package (on request)
Power Requirement	Power Supply +5V +/-5% Power Consumption TBD typ. (depending on MPSoC and PL)
Environment	Temperature Range: 0°C ... +85°C operating extended -40°C ... +85°C operating industrial -40°C ... +85°C storage Humidity: 5 ... 95% (operating, non condensing) 5 ... 95% (storage, non-condensing)
Dimensions	82 x 50 mm
Certificates	UL / CE
Cooling	Heatspreader Heatsink
Carrier	TRIA SM2-MB-EP1 TRIA SM2-MB-EPZed (included in the Starterkit)

Technical Data for TRIA SM2S-ZUSP

Order Reference

Order No.	Description	Reference	Status*
83216	SMARC 2.0 module with Xilinx Zynq UltraScale+ ZU2EG-1 (1,2GHz), Quad core ARM Cortex-A53, 2GB DDR4, no DDR4-PL, 16GB eMMC, Single GbE LAN, 1x PCIE, 1x SATA, 1x USB 3.0 Host, 1x USB 2.0 Host, 1x USB 2.0 Host/Device, DP 1-lane; extended temperature 0..85°C	MSC SM2S-ZUSP-2EG1-14N0130E PCBFTX	PV
91716	SMARC 2.0 module with Xilinx Zynq UltraScale+ ZU2EG-1 (1,2GHz), Quad core ARM Cortex-A53, 4GB DDR4, 2GB DDR4-PL, 16GB eMMC, Dual GbE LAN, 1x PCIE, 1x SATA, 1x USB 3.0 Host, 1x USB 2.0 Host, 1x USB 2.0 Host/Device, DP 1-lane, extended temperature 0..85°C	MSC SM2S-ZUSP-2EG1-24101A0E PCBFTX	PV
83218	SMARC 2.0 module with Xilinx Zynq UltraScale+ ZU3EG-2 (1,3GHz), Quad core ARM Cortex-A53, 2GB DDR4, no DDR4-PL, 16GB eMMC, Dual GbE LAN, 1x PCIE, 1x SATA, 1x USB 3.0/2.0 Host, 3x USB 2.0 Host, 1x USB 2.0 Host/Device, DP 1-lane; industrial temperature -40..85°C	MSC SM2S-ZUSP-3EG2-14N01A0I PCBFTX	PV
83220	SMARC 2.0 module with Xilinx Zynq UltraScale+ ZU5EV-2 (1,3GHz), Quad core ARM Cortex-A53, 4GB DDR4 with ECC, 2GB DDR4-PL, 32GB eMMC, Dual GbE LAN, 4x PCIE, 1x SATA, 1x USB 3.0/2.0 Host, 2x USB 2.0 Host, 1x USB 2.0 Host/Device, BT/WLAN, DP 2-lane; industrial temperature -40..85°C	MSC SM2S-ZUSP-5EV2-25111E0I PCBFTX	PV
121164	SMARC 2.0 module with Xilinx Zynq UltraScale+ ZU5EV-2 (1,3GHz), Quad core ARM Cortex-A53, 8GB DDR4 with ECC, 2GB DDR4-PL, 32GB eMMC, Dual GbE LAN, 4x PCIE, 1x SATA, 1x USB 3.0/2.0 Host, 2x USB 2.0 Host, 1x USB 2.0 Host/Device, BT/WLAN, GTH1_CLK_125M, DP 2-lane; industrial temperature -40..85°C	MSC SM2S-ZUSP-5EV2-35111E0I PCBFTX	PV

Ordering Information for TRIA SM2S-ZUSP

*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

Carrier Options TRIA SM2S-ZUSP

Cooling Options

Order No.	Description	Reference
1144640	Passive Heatsink for SM2S-ZUSP module, consisting of a single-piece aluminium pin cooler and thermal pad for contact to the processor, with 2.7mm through-hole standoffs	MSC SM2S-ZUSP-01 HSI-001
1144629	Heatspreader for SM2S-ZUSP module, consisting of a single-piece aluminium plane and thermal pad for contact to the processor, with 2.7mm through-hole standoffs	MSC SM2S-ZUSP-01 HSP-001

Cooling Options TRIA SM2S-ZUSP

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
77581	Starter Kit for TRIA SM2S-ZUSP modules. Includes special TRIA SM2-MB-EPZed Baseboard for easy access to all FPGA I/O signals, Heatspreader, SD Card with USB Card Reader, Power Supply and suitable cable kit. The Starter Kit does not include the TRIA SM2S-ZUSP module. Please order your choice of TRIA SM2S-ZUSP-xyz module separately.	MSC SM2-SK-ZUSP-EP1-KIT001 BRDFTX

Starter Kits for TRIA SM2S-ZUSP

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