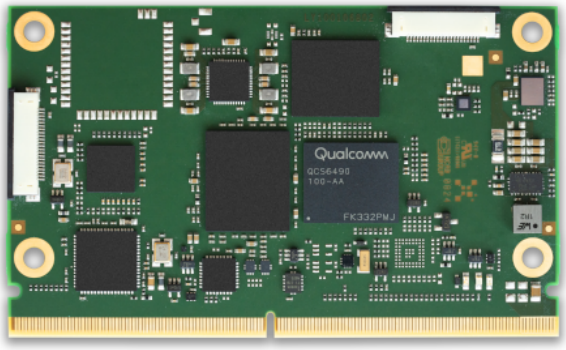
SMARC

TRIA SM2S-QCS6490

Qualcomm® QCS6490 Arm® Cortex®-A78/A55



82 x 50 mm

7 W

-30 +85 °C

Highlights

- Quad core Arm Cortex-A78 up to 2.7GHz
- And Quad core Arm Cortex-A55 @ 1.95GHz
- Adreno 643 GPU @ 812MHz
- AI DSP/NSP Dual HVX, 4K HMX up to 12(15) TOPs
- Up to 16GB LPDDR5 SDRAM 6400MT/s
- Up to 1TB UFS Flash
- Display up to FHD+144Hz
- Video up to 4k30(E)/4K60(D)
- 5xUSB 2.0, 2x USB 3.1
- 2x PCIe Gen3 x1, 1x PCIe Gen3 x2
- 1x MIPI-DSI or LVDS
- 1x DP 1.4 (2 lane)
- 1x eDP/DP
- 4x MIPI-CSI Camera Interface
- WLAN/BT Wireless Module (option)
- 2x Gigabit Ethernet
- 2x I2S Audio Interface
- 4x UART, 2x SPI, 2x CAN2.0-FD
- 5x I^2C
- HW Key manager and ECC, Secure boot, Crypto engines, etc.
- Windows 11 IOT, Yocto Linux and Android (Ubuntu Linux on request)

Technical Data

Technology	Arm
Formfactor	SMARC™ 2.2 Short Size
CPU	QCS6490: 1x A78@2.7GHz, 3x A78@2.4GHz, 4xA55@1.95GHz 2xHVX,4K-HMX 1.45GHz (12.15 INT8 TOPS)
Chipset	SOC
RAM	Up to 16GB LPDDR5 SDRAM, up to 6400MT/s, soldered
Flash	Up to 1TB UFS, soldered (optional)
Storage Interfaces	UFS (onboard) NVME (carrier) SD-Card (carrier)
USB	2x USB 3.1 Host interfaces 5x USB 2.0 Host interfaces
Serial Interfaces	4x UART (two with handshake)
Bus Interfaces	Up to 4x PCI-Express x1 Gen. 3 lanes 5x I^2C (1x general, 2x CAM, 1x LCD, 1x PM) 2x SPI Bus 1x SDIO 2x CAN2.0-FD
Display Controller	Adreno 643 GPU @ up to 812MHz
Display Interfaces	MIPI-DSI 4 - lane FHD+ @144Hz LVDS (optional instead of MIPI-DSI) 1920x1200 WUXGA 60Hz DP 1.4 (2 lane) 4K30 (4K60 compression to 16bpp) eDP/DP (4 lane) 1920x1080p60
Network Interface	2x 10/100/1000Base-T
Audio Interface	2x I2S Audio
Security Device	Infineon Trusted Platform Module 2.0 HW Key manager and ECC, Secure boot, Crypto engines, Key provisioning security, Qualcomm® Trusted Execution Environment (TEE), Qualcomm Content Protection (Widevine), Secure camera/UI
Miscellaneous	MIPI CSI-2 camera interface on SMARC interface: 1x 2 lane, 1x 4 lane MIPI CSI-2 camera interface on CSI Connector: 2x 4 lane Watchdog Timer: Initiates system reset, (programmable, 1s ... 255h) Fan Supply: PWM Speed Control for system fan on carrier board RTC battery: external System Monitoring: Voltage, Temperature, CPU Fan, System Fan EEPROM: 64kbit ID EEPROM on I2C bus GPIO: 14x GPIO, configurable as input or output, 13x interrupt capable

SMARC

Feature Highlights	SMARC™ 2.2 compliant
Firmware	UEFI boot
OS Support	Windows 11 IoT Yocto Linux Android Ubuntu Linux (on request)
Power Requirement	Power Supply +5V +/-5%, 5V Standby Power Consumption 7W typ. (tbd: depending on CPU, CPU load and onboard features)
Environment	Temperature Range: Commercial: 0° ... 70°C (operating) -20° ... 85°C (storage) Extended: -30° ... 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	TRIA SM2-MB-EP1 TRIA SM2-MB-EP5-012

Technical Data for TRIA SM2S-QCS6490

Order Reference

Order No.	Description	Reference	Status*
117779	SMARC 2.2 module with Qualcomm QCS6490 4x A78 @2.4/2.7GHz + 4x A55 @1,9GHz, 5W CPU TDP, Graphics: Adreno A643@812MHz, NPU: 12 TOPs, 8GB LPDDR5 SDRAM 6400MT/s, DP 1.4 (2 lane), eDP/DP and MIPI DSI interfaces, 2x MIPI CSI on SMARC and 2x onboard, Ethernet: 2x 1Gbit, 64GB UFS memory, PCIe: 2x PCIe Gen3 x1 + 1x PCIe Gen3 x2, USB: 5x USB 2.0 + 2x USB 3.1, WLAN/BT, TPM 2.0, 2x CAN FD, Extended Temperature -25°... +85°C	MSC SM2S-QCS6490-FPF-36N08F1E PCBFTX	PV
117749	SMARC 2.2 module with Qualcomm QCS5430 2x A78 @2.1GHz + 4x A55 @1,8GHz, 3W CPU TDP, Graphics: Adreno A642L@315Mhz, NPU: 3.5 TOPs, 4GB LPDDR5 SDRAM 6400MT/s, DP 1.4 (2 lane), eDP/DP and LVDS interfaces, 2x MIPI CSI on SMARC and 2x onboard, Ethernet: 2x 1Gbit, 32GB UFS memory, PCIe: 2x PCIe Gen3 x1 + 1x PCIe Gen3 x2, USB: 5x USB 2.0 + 2x USB 3.1, WLAN/BT, TPM 2.0, 2x CAN FD, Extended Temperature -25°... +85°C	MSC SM2S-QCS5430-FP1-25N02F1E PCBFTX	PV
117777	SMARC 2.2 module with Qualcomm QCS6490 4x A78 @2.4/2.7GHz + 4x A55 @1,9GHz, 5W CPU TDP, Graphics: Adreno A643@812MHz, NPU: 12 TOPs, 8GB LPDDR5 SDRAM 6400MT/s, DP 1.4 (2 lane), eDP/DP and LVDS interfaces, 2x MIPI CSI on SMARC and 2x onboard, Ethernet: 2x 1Gbit, 64GB UFS memory, PCIe: 2x PCIe Gen3 x1 + 1x PCIe Gen3 x2, USB: 5x USB 2.0 + 2x USB 3.1, WLAN/BT, TPM 2.0, 2x CAN FD, Extended Temperature -25°... +85°C	MSC SM2S-QCS6490-FPF-36N02F1E PCBFTX	PV
117775	SMARC 2.2 module with Qualcomm QCS6490 4x A78 @2.4/2.7GHz + 4x A55 @1,9GHz, 5W CPU TDP, Graphics: Adreno A643@812MHz, NPU: 12 TOPs, 4GB LPDDR5 SDRAM 6400MT/s, DP 1.4 (2 lane), eDP/DP and LVDS interfaces, 2x MIPI CSI on SMARC and 2x onboard, Ethernet: 2x 1Gbit, 64GB UFS memory, PCIe: 2x PCIe Gen3 x1 + 1x PCIe Gen3 x2, USB: 5x USB 2.0 + 2x USB 3.1, no WLAN/BT, TPM 2.0, 2x CAN FD, Extended Temperature -25°... +85°C	MSC SM2S-QCS6490-FPF-26N0271E PCBFTX	PV
117751	SMARC 2.2 module with Qualcomm QCS5430 2x A78 @2.1GHz + 4x A55 @1,8GHz, 3W CPU TDP, Graphics: Adreno A642L@315Mhz, NPU: 3.5 TOPs, 4GB LPDDR5 SDRAM 6400MT/s, DP 1.4 (2 lane), eDP/DP and LVDS interfaces, 2x MIPI CSI on SMARC and 2x onboard, Ethernet: 2x 1Gbit, 32GB UFS memory, PCIe: 2x PCIe Gen3 x1 + 1x PCIe Gen3 x2, USB: 5x USB 2.0 + 2x USB 3.1, no WLAN/BT, TPM 2.0, 2x CAN FD, Extended Temperature -25°... +85°C	MSC SM2S-QCS5430-FP1-25N0271E PCBFTX	PV
117783	SMARC 2.2 module with Qualcomm QCS6490 4x A78 @2.4/2.7GHz + 4x A55 @1,9GHz, 5W CPU TDP, Graphics: Adreno A643@812MHz, NPU: 12 TOPs, 16GB LPDDR5 SDRAM 6400MT/s, DP 1.4 (2 lane), eDP/DP and MIPI DSI interfaces, 2x MIPI CSI on SMARC and 2x onboard, Ethernet: 2x 1Gbit, 128GB UFS memory, PCIe: 2x PCIe Gen3 x1 + 1x PCIe Gen3 x2, USB: 5x USB 2.0 + 2x USB 3.1, no WLAN/BT, TPM 2.0, 2x CAN FD, Extended Temperature -25°... +85°C	MSC SM2S-QCS6490-FPF-47N0871E PCBFTX	PV
117747	SMARC 2.2 module with Qualcomm QCS5430 2x A78 @2.1GHz + 4x A55 @1,8GHz, 3W CPU TDP, Graphics: Adreno A642L@315Mhz, NPU: 3.5 TOPs, 2GB LPDDR5 SDRAM 6400MT/s, DP 1.4 (2 lane), eDP/DP and MIPI DSI interfaces, 2x MIPI CSI on SMARC and 0x onboard, Ethernet: 0x 1Gbit, 32GB UFS memory, PCIe: 1x PCIe Gen3 x1 + 0x PCIe Gen3 x2, USB: 2x USB 2.0 + 0x USB 3.1, no WLAN/BT, TPM 2.0, 0x CAN FD, Extended Temperature -25°... +85°C	MSC SM2S-QCS5430-FP1-15N0871E PCBFTX	OR

Order No.	Description	Reference	Status*
117773	SMARC 2.2 module with Qualcomm QCS6490 4x A78 @2.4/2.7GHz + 4x A55 @1,9GHz, 5W CPU TDP, Graphics: Adreno A643@812MHz, NPU: 12 TOPs, 4GB LPDDR5 SDRAM 6400MT/s, DP 1.4 (2 lane), eDP/DP and MIPI DSI interfaces, 2x MIPI CSI on SMARC and 0x onboard, Ethernet: 0x 1Gbit, 32GB UFS memory, PCIe: 1x PCIe Gen3 x1 + 0x PCIe Gen3 x2, USB: 2x USB 2.0 + 0x USB 3.1, no WLAN/BT, TPM 2.0, 0x CAN FD, Extended Temperature -25°... +85°C	MSC SM2S-QCS6490-FPF-25N0871E PCBFTX	OR
117781	SMARC 2.2 module with Qualcomm QCS6490 4x A78 @2.4/2.7GHz + 4x A55 @1,9GHz, 5W CPU TDP, Graphics: Adreno A643@812MHz, NPU: 12 TOPs, 8GB LPDDR5 SDRAM 6400MT/s, DP 1.4 (2 lane), eDP/DP and MIPI DSI interfaces, 2x MIPI CSI on SMARC and 2x onboard, Ethernet: 2x 1Gbit, 64GB UFS memory, PCIe: 2x PCIe Gen3 x1 + 1x PCIe Gen3 x2, USB: 5x USB 2.0 + 2x USB 3.1, no WLAN/BT, TPM 2.0, 2x CAN FD, Extended Temperature -25°... +85°C	MSC SM2S-QCS6490-FPF-36N0871E PCBFTX	PV

Ordering Information for TRIA SM2S-QCS6490

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

Accessories

Cooling Options

Order No.	Description	Nomenclature
115753	Passive Heatsink for all SM2S-QCS6490 and SM2S-QCS5430 DV2 modules, consisting of a single-piece aluminum pin cooler and thermal pad for contact to the processor, with 2.7mm through-hole standoffs	MSC SM2S-QCS-01 HSI-002 ES
115754	Heatspreader for all SM2S-QCS6490 and SM2S-QCS5430 DV2 modules, consisting of a single-piece aluminum plane and thermal pad for contact to the processor, with 2.7mm through-hole standoffs	MSC SM2S-QCS-01 HSP-002 ES

Cooling Options TRIA SM2S-QCS5430/QCS6490

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
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, I^2C, 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 TRIA SM2S-QCS5430/QCS6490

Starterkit Options

Order No.	Description	Reference
114394	Starter Kit for SMARC Short Size modules for Qualcomm QCS6490 / QCS5430 processor. Includes TRIA SM2-MB-EP1 Mini-ITX Baseboard, Heatsink and Power Supply with cable kit. The StarterKit does not include the SMARC module. Please order your choice of TRIA SM2S-QCS6490 or SM2S-QCS5430 module separately.	MSC SM2-SK-QCS6490-EP1-KIT001 BRDFTX

Starter Kits TRIA SM2S-QCS6490/QCS5430

Tria Technologies GmbH
Industriestr. 16
76297 Stutensee
info@tria-technologies.com
tria-technologies.com

Copyright © 2024 Tria Technologies GmbH. All data is for information purposes only and is subject to change without notice. No guarantee for legal purposes is implied. Information in this document has been carefully checked, however, no responsibility for inaccuracies has to be assumed. All brand or product names may be trademarks and property of their respective owners.