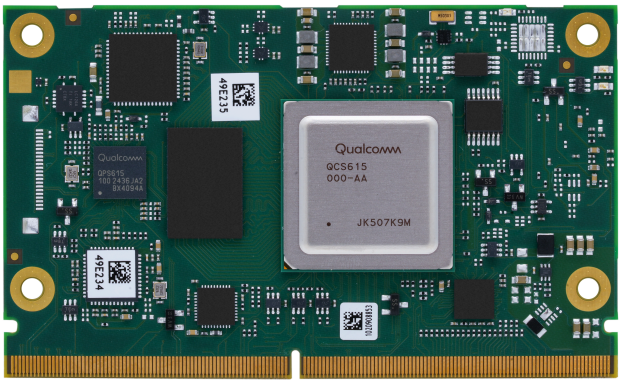
TRIA SM2S-IQ615

Qualcomm IQ6 Series IQ615 ARM® Cortex™-A76/A55



82 x 50 mm

5W - 8W

-40 +85 °C

SMARC module Qualcomm

Highlights

- Octal Core CPU powered by the Dragonwing IQ-615 Processor from Qualcomm
    - Dual core Arm Cortex-A76 up to 1.9GHz
    - And hexa core Arm Cortex-A55 up to 1.6GHz
- Adreno 612 GPU
- Hexagon™ V66 DSP with Dual hexagon Vector (1.1 TOPs)
- Spectra™ 230 image processing engine (ISP)
- Adreno 443 VPU Video Decode/Encode 4k60(D)/1k60/(E)
- Up to 8GB LPDDR4x SDRAM 3110MT/s
- Up to 256GB eMMC Flash, up to 256GB UFS Flash (option)
- Up to 5x USB 2.0, 2x USB 3.1, 1x SDIO
- Up to 2x PCIe Gen2 (2x 1 Lane)
- MIPI-DSI or dual channel LVDS
- 1x DP v.1.4 (up to 4 Displays)
- 3x MIPI-CSI
- Up to Dual Gigabit Ethernet
- 3x UART, 1x SPI, 2x SPI (QSPI optionally), 5x I2C, 2x I2S Audio
- 1x TPM 2.0 (optional)
- Yocto Linux, Ubuntu (on request)
- Optimized design for low cost and low power applications

Technical Data

Technology	ARM
Formfactor	SMARC™ 2.2 Short Size
CPU	Octal Core CPU powered by the Dragonwing IQ-615 Processor from Qualcomm • Dual core Arm Cortex-A76 up to 1.9GHz • And hexa core Arm Cortex-A55 up to 1.6GHz Hexagon™ V66 DSP with Dual hexagon Vector (1.1 TOPs)
Chipset	SOC
RAM	Up to 8GB LPDDR4x SDRAM 3110MT/s, soldered
Flash	Up to 256GB eMMC Flash and up to 256GB UFS Flash (option)
Storage Interfaces	1x SDIO
USB	Up to 5x USB 2.0 Host interfaces (1x Host/Client) Up to 2x USB 3.1 Host interfaces
Serial Interfaces	2x UART with 2-wire hand shake 1x UART w/o hand shake
Bus Interfaces	Up to 2x PCI-Express x1 Gen. 2 (2x 1 Lane) 5x I^2C (1x general purpose, 2x CAM, 1x LCD, 1x PM) 2x SPI (QSPI as assembly option)
Display Controller	Adreno 612 GPU Spectra™ 230 image processing engine (ISP) Adreno 443 VPU Video Decode/Encode 4k60(D)/1k60/(E)
Display Interfaces	MIPI-DSI Display Interface, 4 lanes, up to 1920x1200 @ 60fps or dual-channel LVDS interface, 18 or 24 bit (up to 1920x1080) DP 1.4 (up to 4 Displays)
Network Interface	up to 2x 10/100/1000Base-T
Audio Interface	2x I2S Audio
Security Device	Trusted Platform Module (TPM) 2.0 (optional) Secure boot, secure debug, TrustZone, Qualcomm® Trusted Execution Environment, hardware supported KeyStore, HDCP v1.4 and 2.2 for DisplayPort, secure I^2C and secure SPI, AVB2.0 Crypto engines: Crypto engine v5 (CE5), DRBG/PRNG (FIPS-compliant), inline crypto engine (FIPS-compliant), ICE (In-line-crypto-engine) based disk encryption, PRNG with TRNG seed TrustZone services: Secure file system, secure display, and eFuse read/write, RPMB, Crypto lib
Miscellaneous	Watchdog Timer for system reset (programmable, 1s ... 600s) RTC (optional: temperature compensated) 14x GPIO, configurable as input or output 64kbit ID EEPROM on I2C bus MIPI CSI-2 v1.3 camera interface, CSI0, 2 lane MIPI CSI-2 v1.3 camera interface, CSI1, 4 lane MIPI CSI-2 v1.3 camera interface, CSI2, 4-lane (optional)
Feature Highlights	SMARC™ 2.2 compliant
OS Support	Yocto Linux Board Support Package Ubuntu Linux (on request)
Power Requirement	Power Supply +5V +/-5% Power Consumption 4-8W typ. (tbd: depending on CPU, CPU load and onboard features)

SMARC

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 / Heatsink
Carrier	TRIA SM2-MB-EP1 TRIA SM2-MB-EP5-012

Technical Data for TRIA SM2S-IQ615

Order Reference

Order No.	Description	Reference	Status*
117005	SMARC 2.2 module based on Qualcomm IQ-615 2x A76 at 1.9GHz + 6x A55 at 1,6GHz, 3W CPU TDP, 8GB LPDDR4, 32GB eMMC, 2x GbE LAN, 1x SGMII, 2x PCIe, USB-Hub, 2x CAN-FD, LVDS, DP, MIPI-CSI2, TPM 2.0, 1x QSPI, 1x SPI, industrial temperature -40°... +85°C (Engineering Sample - get in touch with your sales representative)	MSC SM2S-IQ615-OC-35N0661I ES PCBES	OR
117006	SMARC 2.2 module based on Qualcomm IQ-615 2x A76 at 1.9GHz + 6x A55 at 1,6GHz, 3W CPU TDP, 2GB LPDDR4, 4GB eMMC, 1x GbE LAN, no SGMII, 1x PCIe, no USB-Hub, no CAN-FD, DSI, DP, no MIPI-CSI2, no TPM 2.0, 2x SPI, industrial temperature -40°... +85°C (Engineering Sample - get in touch with your sales representative)	MSC SM2S-IQ615-OC-12N0C10I ES PCBES	OR
117007	SMARC 2.2 module based on Qualcomm IQ-615 2x A76 at 1.9GHz + 6x A55 at 1,6GHz, 3W CPU TDP, 4GB LPDDR4, 16GB eMMC, 2x GbE LAN, 1x SGMII, 2x PCIe, USB-Hub, 2x CAN-FD, LVDS, DP, no MIPI-CSI2, 1x QSPI, 1x SPI, no TPM 2.0, industrial temperature -40°... +85°C (Engineering Sample - get in touch with your sales representative)	MSC SM2S-IQ615-OC-24N0650I ES PCBES	OR

Ordering Information for TRIA SM2S-IQ615

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

Accessories

Cooling Options

Order No.	Description	Nomenclature
117998	Heatspreader for SM2S-IQ615 module, consisting of a single-piece aluminum plane and thermal pad for contact to the processor, with 2.7mm through-hole standoffs	MSC SM2S-IQ615-01 HSP-001
117997	Passive Heatsink for SM2S-IQ615 module, consisting of a single-piece aluminum pin cooler and thermal pad for contact to the processor, with 2.7mm through-hole standoffs	MSC SM2S-IQ615-01 HSI-001
117996	Passive Heatsink for SM2S-IQ615 module, consisting of a single-piece aluminum pin cooler and thermal pad for contact to the processor, with 2.7mm through-hole standoffs (Engineering Sample - get in touch with your sales representative)	MSC SM2S-IQ615-01 HSI-001 ES

Cooling Options TRIA SM2S-IQ615

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-IQ615

Starterkit Options

Order No.	Description	Reference
tbd	Starter Kit for SMARC Short Size modules for Qualcomm IQ615 processor. Includes TRIA SM2-MB-EP1 Mini-ITX Baseboard, Heatsink, Heatspreader and Power Supply with cable kit. The StarterKit does not include the SMARC module. Please order your choice of TRIA SM2S-IQ615 module separately.	MSC SM2-SK-IQ615-EP1-KIT001 BRDFTX

Starter Kits TRIA SM2S-IQ615

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