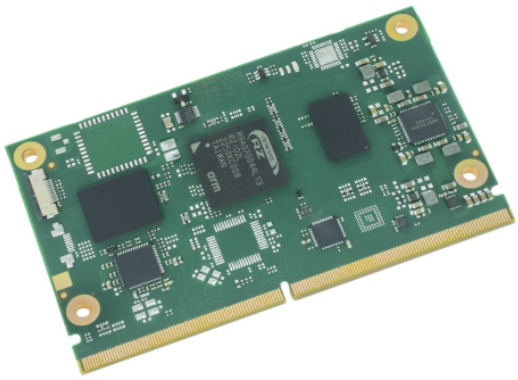
TRIA SM2S-G2L

Renesas RZ/G2L Arm® Cortex®-A55/M33



82 x 50 mm

4-6 W

-40 +85 °C

Highlights

- Single or Dual core Arm Cortex-A55 Microprocessor at 1.2GHz
- Arm Cortex-M33 Real Time Processor at 200MHz
- Arm Mali™-G31 multimedia 2D/3D Graphics Processing Unit (GPU)
- H.264 Video Encoding and Decoding (VPU)
- 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
- Dual Gigabit Ethernet
- Wireless Module (optional)
- MMC/SD/SDIO interface (optional)
- 2x CAN-FD interfaces
- 2x I2S Audio interfaces
- 14x GPIO
- UART, SPI, I2C
- SMARC 2.1.1 Compliant

Technical Data

Technology	ARM
Formfactor	SMARC™ Short Size
CPU	Renesas RZ/G2L family • Single Core Arm Cortex-A55 at 1.2GHz, secure • Single Core Arm Cortex-A55 at 1.2GHz, non-secure • Dual Core Arm Cortex-A55 at 1.2GHz, secure • Dual Core Arm Cortex-A55 at 1.2GHz, non-secure Arm Cortex-M33 Real Time Processor at 200MHz
Chipset	SOC
RAM	Up to 2GB 1600MT/s DDR4 SDRAM, soldered, inline ECC support
Flash	Up to 256GB eMMC Flash
Storage Interfaces	1x MMC/SD/SDIO (optional, SDIO and WIFI/BT are mutual exclusive)
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 TxD, RxD, RTS, CTS 2x UART with TxD, RxD only
Bus Interfaces	4x I2C up to 400 Kbit/s 2x SPI (with two chip selects) 2x CAN-FD
Display Controller	Arm Mali-G31 multimedia 2D/3D Graphics Processing Unit (GPU) OpenGL ES1.1, 2.0, 3.0, 3.1 and 3.2 support OpenCL 2.0 Full Profile support Video Codec Processor with H.264 support
Display Interfaces	Dual-channel LVDS interface, 18 or 24 bit (up to 1920x1080); also usable as one single-channel LVDS interface (up to 1366x768) or MIPI-DSI Display Interface, 4 lanes, up to 1920x1080 @ 60fps (optional)
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, SDIO and WIFI/BT are mutual exclusive)
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 Main: +5V +/-5% Power Consumption 4-6 W typ. (depending on CPU and optional features)
Environment	Temperature Range: Commercial: 0°C ... 70°C (operating) -20°C ... 85°C (storage) Extended: -25°C ... 85°C (operating) -40°C ... 85°C (storage) Industrial: -40°C ... 85°C (operating) -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 SM2S-MB-EP5

Technical Data for TRIA SM2S-G2L

Order Reference

Order No.	Description	Reference	Status*
113810	SMARC module based on Renesas RZ/G2L Dual-Core Cortex-A55 processor at 1.2GHz (secure version), 2GB DDR4, 32GB eMMC Flash, 1x GbE LAN, 1x USB2.0 Host, 1x USB2.0 Host/Device, 2x CAN, SDIO, LVDS, MIPI CSI-2 Camera input (CSI0, 2 lane); industrial temperature -40...+85°C	MSC SM2S-G2L-DC-15N0270I PCBFTX	PV
113811	SMARC module based on Renesas RZ/G2L Dual-Core Cortex-A55 processor at 1.2GHz, 2GB DDR4, 16GB eMMC Flash, 2x GbE LAN, 1x USB2.0 Host, 1x USB2.0 Host/Device, 2x CAN, SDIO, LVDS, MIPI CSI-2 Camera input (CSI0, 2 lane); industrial temperature -40...+85°C	MSC SM2S-G2L-DCN-14N02B0I PCBFTX	PV
113852	SMARC module based on Renesas RZ/G2L Single-Core Cortex-A55 processor at 1.2GHz, 1GB DDR4, 16GB eMMC Flash, 1x GbE LAN, 1x USB2.0 Host, 1x USB2.0 Host/Device, 2x CAN, SDIO, LVDS, MIPI CSI-2 Camera input (CSI0, 2 lane); industrial temperature -40...+85°C	MSC SM2S-G2L-SCN-04N0270I PCBFTX	PV

Ordering Information for TRIA SM2S-G2L

*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
110192	Heatspreader for SM2S-G2L and SM2S-V2L module, consisting of a single-piece aluminum plane and thermal pad for contact to the processor, with 2.7mm through-hole standoffs	MSC SM2S-X2L-01 HSP-001

Cooling Options TRIA SM2S-V2L/G2L

Other Accessories

Order No.	Description	Reference
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

Other Accessories for Arm based TRIA SMARC Modules

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