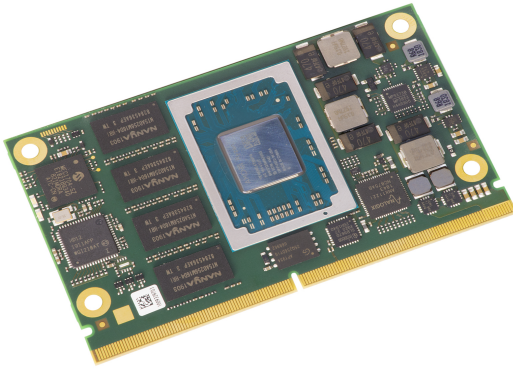





MSC SM2S-RYZ2

AMD Ryzen™ Embedded R2000-Series



 82 x 50 mm

 12 / 15 W

 0 +60



Description

The MSC SM2S-RYZ2 module is the smallest embedded platform for the AMD Ryzen Embedded R2000 processor family. This versatile system-on-chip (SoC) technology combines processing, graphics and I/O functionality on a single die, allowing for outstanding compute performance in environments with constrained space, power and cooling. The configurable Thermal Design Power (TDP) ranges from low 12 W to 15 W. The integrated Radeon™ Graphics with up to 8 Compute Units stands for highest graphics performance.

The new MSC SM2S-RYZ2 drives up to 4 independent 4k displays and offers up to 8 GByte fast DDR4 2667MT/s memory, USB 3.1/2.0 and PCI Express Gen.3 on a power saving and cost-efficient SMARC 2.1.1 Short Size module.

Different SOCs with quad-core (4/8 threads) and dual-core (4 threads) processors are supported by this design. In addition to an extensive set of interfaces it features hardware based security compliant to the requirements of TCG (Trusted Computing Group) and TPM 2.0 capability.

For evaluation and design-in of the MSC SM2S-RYZ2 module, Avnet Embedded provides a suitable SMARC 2.1.1 development platform.

Highlights

- AMD Ryzen™ Embedded R2514, quad-core (8 threads) 2.1/3.7GHz, 15W (12-35W TDP)
- AMD Ryzen™ Embedded R2314, quad-core (4 threads) 2.1/3.5GHz, 15W (12-35W TDP)
- AMD Ryzen™ Embedded R2312, dual-core (4 threads) 2.7/3.5GHz, 15W (12-25W TDP)
- Integrated AMD Radeon™ GPU with up to 8 Compute Units
- Up to 8GB DDR4 2667MT/s SDRAM
- Up to 256GB eMMC Flash
- SATA-III interface (6Gbps)
- Dual DisplayPort++ interface
- LVDS / Embedded DisplayPort
- OpenGL 4.6, OpenCL
- Dual/Triple/Quad Independent Display support up 4k resolution (SKU related)
- Up to 4x PCI Express x1 Gen. 3
- 2x USB 3.1 Host interfaces
- 4x USB 2.0 Host interfaces
- Up to 2x Gigabit Ethernet
- UART, SPI, I2C, SMBus, HD Audio
- Trusted Platform Module (optional)
- SMARC 2.1.1 compliant
- UEFI Firmware

Technical Data - MSC SM2S-RYZ2

Technology	x86
Formfactor	SMARC™ Short Size
CPU	AMD Ryzen™ Embedded R2514, quad-core (8 threads) 2.1/3.7GHz, 8 GPU CU, 15W (12-35W TDP) AMD Ryzen™ Embedded R2314, quad-core (4 threads) 2.1/3.5GHz, 6 GPU CU, 15W (12-35W TDP) AMD Ryzen™ Embedded 2312, dual-core (4 threads) 2.7/3.5GHz, 3 GPU CU, 15W (12-25W TDP)
Chipset	Integrated in SOC
RAM	Up to 8GB 2667MT/s DDR4 SDRAM (2400MT/s with R2312)
Flash	Up to 256GB eMMC V5.0 Flash, soldered (optional)
Storage Interfaces	1x SATA-III 6Gbps
USB	4x USB 2.0 Host interfaces 2x USB 3.1 Host interface
Serial Interfaces	4x UART
Bus Interfaces	Up to 4x PCI-Express x1 Gen. 3 lanes 1x I2C Bus 1x SPI Bus 1x SMBus
Display Controller	AMD Radeon™ GPU with up to 8 Compute Units 4 independent displays supported (3 independent displays with R2312)
Display Interfaces	2 x DisplayPort++ Dual-channel LVDS / 2 x eDP 1.4 Up to 4x Digital Display Interfaces with up to 4k (3840 x 2160) resolution
Network Interface	Up to 2x 10/100/1000Base-T (Intel i210)
Audio Interface	High Definition Audio
Security Device	Infineon Trusted Platform Module 2.0 (optional)
Miscellaneous	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

Feature Highlights	SMARC™ 2.1.1 compliant
Firmware	AMI Aptio UEFI
OS Support	Windows 10 21H2 LTSC Windows 11 21H2 GAC Linux, Yocto
Power Requirement	+5V +/-5%
Environment	Temperature Range: 0° ... 60°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	MSC SM2-MB-EP1

Order Reference - MSC SM2S-RYZ2

Order Number	Description	Reference	Cat*
tbd	SMARC 2.1.1 short size module with AMD Ryzen R2514 (2.1/3.7 GHz), Quad-Core, 15W, 8GB 2667MT/s DDR4, no eMMC, 2x GbE LAN, 2x USB 3.1 Host, 4x USB 2.0 Host, 2x DP++, 2x eDP Graphics, TPM 2.0, standard temperature 0°C...+60°C	MSC SM2S-RYZ2-R2514-3NN0481C ES PCBES	OR
tbd	SMARC 2.1.1 short size module with AMD Ryzen R2314 (2.1/3.5 GHz), Quad-Core, 15W, 8GB 2667MT/s DDR4, 32GB eMMC, 1x GbE LAN, 2x USB 3.1 Host, 4x USB 2.0 Host, 2x DP++, LVDS Graphics, TPM 2.0, standard temperature 0°C...+60°C	MSC SM2S-RYZ2-R2314-35N0201C ES PCBES	OR
tbd	SMARC 2.1.1 short size module with AMD Ryzen R2312 (2.7/3.5 GHz), Dual-Core, 15W, 4GB 2400MT/s DDR4, 16GB eMMC, 1x GbE LAN, 2x USB 3.1 Host, 4x USB 2.0 Host, 2x DP++, LVDS Graphics, TPM 2.0, standard temperature 0°C...+60°C	MSC SM2S-RYZ2-R2312-24N0201C ES PCBES	OR

*COM products are divided in two categories, „PV“ (preferred variant) and „OR“ (on request).

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