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New AMD Processors Drive High-Performance Computing for Embedded Industry

— AMD Ryzen™ Embedded Processors add low-power options for designs of 10W or less —

— New platforms from customers expand use of AMD Embedded Processors —

SANTA CLARA, Calif., Feb. 25, 2020 (GLOBE NEWSWIRE) -- AMD (NASDAQ: AMD) today announced the expansion of the AMD Ryzen™ Embedded ecosystem with two new AMD Ryzen™ Embedded R1000 low-power processors that provide customers with a new TDP range of 6 up to 10 watts. AMD also announced new customers offering Mini PCs based on the AMD Ryzen Embedded processors from Sapphire, SECO, Simply NUC and others.

“AMD is ushering in a new age of high-performance computing for the embedded industry,” said Rajneesh Gaur, corporate vice president and general manager, Embedded Solutions, AMD. “We are doing this with cutting-edge technology to display immersive graphics in 4K resolution with AMD Ryzen Embedded processors, and we are now offering access to high performance in power-efficient solutions with these new low-power Ryzen Embedded R1000 processors.”

New AMD Ryzen Embedded Processors
In April 2019, AMD launched an expansion to the Ryzen Embedded processor lineup with the AMD Ryzen Embedded R1000 SoC. Built on “Zen” CPU and Radeon™ “Vega” graphics cores, the Ryzen Embedded R1000 processor delivers 3X better CPU performance per watt[1] compared to the previous generation AMD R-series Embedded processor, and 4X better CPU and graphics performance per dollar than the competition[2].

The AMD Ryzen Embedded R1000 family now includes two new processors designed for efficient power envelopes, the Ryzen™ Embedded R1102G and R1305G processors. The new processors scale from 6 up to 10 watts of TDP respectively, while also giving customers the ability to reduce system costs with less memory DIMMS and lower power requirements. With this low power envelope, these embedded processors give customers the ability to create fanless systems, opening new markets that can leverage the high-performance Ryzen Embedded processors. These two new processors are expected to be available for order at the end of March.

Customers adopting the Ryzen Embedded R1102G and R1305G include Kontron with a scalable mini-ITX platform and Simply NUC with a new mini PC unit called Red Oak, which offers affordable mainstream performance solutions with a cost optimized feature set to its lineup of Ryzen Embedded based Mini PCs.

Processor	TDP (W)	Cores/Threads	CPU Base Freq. (GHz)	1T CPU Boost Freq. (GHz) (up to)[3]	GPU CU (SIMD)	Max GPU Freq. (GHz)
R1305G	8-10W[4]	2/4	1.5	2.8	3	1.0
R1102G	6W[5]	2/2	1.2	2.6	3	1.0

A Growing Ryzen Embedded Mini PC Ecosystem
In December 2019, AMD, along with OEM partners, announced that it was enabling an open ecosystem for AMD Ryzen Embedded based Mini PCs, supporting industries including display/signage, enterprise and industrial computing. That list is expanding to include:

- Sapphire's new 4x4 platforms based on AMD Ryzen Embedded Processors: the BP-FP5 and NP-FP5 embedded boards,
- Simply NUC with the new Post Oak and Red Oak Mini PCs, based on the Ryzen Embedded R1000 and V1000 processors,
- SECO and its AMD Ryzen Embedded Processor based Mini PC KIT, the UDOO BOLT GEAR, that can drive up to 4 screens in 4K resolution at 60fps at the same time.

As well, OnLogic announced the availability of previously announced Mini PCs based on AMD Ryzen Embedded processors.

Supporting Resources

- Learn more about AMD Embedded Processors
- Learn more about Mini PCs based on AMD Ryzen Embedded
- Become a fan of AMD on Facebook
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[1] Testing done at AMD Embedded Software Engineering Lab on 3/13/2019. The AMD R-series Embedded SOC RX-216GD formerly codenamed as "Merlin Falcon" scored 118 and the AMD R-series R1606G scored 361, when running Cinebench® R15 benchmark (Rendering Multi-core preset, 1920x1080x32 resolution). The performance delta of 3x was calculated based on "Merlin Falcon's" performance score of 118 and R1606G performance score of 361. System Configurations: AMD Embedded R-Series RX-216GD used AMD "Bettong" Platform, with 2x8GB DDR4-2400 RAM, 250GB SSD Drive (non-rotating), TDP 15W, STAPM Enabled and ECC Disabled, Graphics Driver 18.50.190214a-339560C-AES, BIOS RPD130CB. The AMD Ryzen Embedded V-Series R1606G used an AMD R1000 Platform with 2x8GB DDR4 2400 RAM, 250GB SSD Drive (non-rotating), TDP 15W, STAPM enabled and ECC Disabled, Graphics Driver 18.50_190207a-339028E-AES, BIOS

RBB1190B. Both systems ran Microsoft Windows 10.0 Professional (x64) Build 17763. EMB-158

[2] Testing done at AMD Embedded Software Engineering Lab on 3/13/2019. The AMD R1505G Embedded scored 360 running Cinebench R15 Multi-core and 1,988 running 3DMark11 benchmarks. The Intel Core i3-7100U (Kaby Lake) scored 254 running Cinebench R15 Multi-core and 1,444 when running 3DMark11 benchmarks. Recommended Customer price for Intel Core i3-7100U is $261 as of 4/1/2019 (check https://ark.intel.com/content/www/us/en/ark/products/95442/intel-core-i3-7100u-processor-3m-cache-2-40-ghz.html). DBB price for R1505G is $80. System Configurations: AMD Embedded R1505G used a AMD R1000 Platform, with a 2x8GB DDR4-2400 RAM, 250GB SSD Drive (non-rotating), TDP 15W, STAPM Enabled and ECC Disabled, Graphics Driver 18.50_190207a-339028E-AES, BIOS RBB1190B, Microsoft Windows 10 Pro. Intel Core i3-7100u used a HP 15inch Notebook, i3-7100u with Intel® HD Graphics 620, 1x8GB DDR4-2133 RAM, 1 TB 5400 rpm SATA, Microsoft Windows 10 Pro, Graphics Driver 21.20.16.4627, BIOS F.07. EMB-159

[3] GD-150: Max boost for AMD Ryzen and Athlon processors is the maximum frequency achievable by a single core on the processor running a bursty single-threaded workload. Max boost will vary based on several factors, including, but not limited to: thermal paste; system cooling; motherboard design and BIOS; the latest AMD chipset driver; and the latest OS updates

[4] Nominal TDP = 8W. Configurable in BIOS.

[5] Nominal 6W SDP (Scenario Dissipation Power). Configurable in BIOS.

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