

AMD targets high-growth, embedded markets with new AMD embedded G-series System-on-Chip

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AMD today announced the new [AMD Embedded G-Series System-on-Chip](#) (SOC) platform, a single-chip solution based on the AMD next-generation "Jaguar" CPU architecture and AMD Radeon 8000 Series graphics. The new AMD Embedded G-Series SOC platform further signifies a strategic push to focus on high-growth markets outside the PC industry, with an emphasis on embedded systems. The announcement was made at this year's [DESIGN West](#) expo.

Embedded systems are increasingly driving intelligence into new areas of our lives, from [smart TVs](#) and set-top boxes to interactive digital signage and informational kiosks. This supports greater productivity and connectivity and is expected to be a strong driver for [Surround Computing](#), an area of substantial growth in the computing industry. Among the forces that are enabling this next-generation computing era are single-chip, [SOC](#) solutions that offer smaller size, higher performance and more energy-efficient processors.

The AMD Embedded G-Series SOC platform sets the new bar for SOC design, offering up to 113 percent improved CPU performance compared to the prior generation AMD Embedded G-Series [APU](#), and up to a 125 percent advantage compared to the Intel Atom when running multiple industry-standard compute intensive benchmarks. For embedded applications, the new platform also includes support for DirectX 11.1, OpenGL 4.2x and OpenCL 1.2 that enables parallel

processing and high-performance graphics processing, yielding up to a 20 percent graphics improvement over the previous AMD Embedded G-Series APU and greater than 5x advantage over Intel Atom when running multiple industry-standard graphics-intensive benchmarks.

"We have built a [treasure trove](#) of industry-leading IP in [processors](#), graphics and multimedia along with the infrastructure to combine these [building blocks](#) into unsurpassed embedded SOC solutions," said Arun Iyengar, vice president and general manager, AMD Embedded Solutions. "With a 33 percent smaller footprint, low power consumption and exceptional performance, the new AMD Embedded G-Series SOC sets the bar for content-rich multimedia and traditional workload processing that is ideal for a broad variety of embedded applications."

The new processor family offers superior performance per watt in the low-power x86-compatible product category with 9W – 25W options. It includes:

- enterprise-class Error-Correction Code (ECC) memory support;
- industrial temperature range of -40°C to +85°C and available with dual or quad-core CPUs;
- discrete-class AMD Radeon GPU;
- I/O controller.

The AMD Embedded G-Series SOC combines dedicated resources that enable exceptional performance with shared resources to help reduce power consumption and die space, and provides developers the flexibility to leverage the same board design and software stack for a variety of applications due to the scalability of the new SOC design. The discrete-class graphics integrated into the AMD Embedded G-Series SOC power applications that previously required a separate graphics processor, while the addition of new CPU architecture for the

Embedded G-Series SOC platform allows deeply embedded or "headless" systems, which are used in environments without a screen, monitor or input device and do not require a graphics solution.

"As the Internet of Things permeates every aspect of our life from work to home and everything where in between, devices require high performance, I/O connectivity and energy efficiency in smaller packages," said Colin Barnden, principal analyst, Semicast Research.

"With this new AMD SOC design, the AMD Embedded G-Series platform offers the perfect mix of high performance, a small footprint, low energy use and full I/O integration to enable smaller form-factor embedded designs, cool and efficient operation, and simplified build requirements. AMD has leapfrogged the competition by combining the power of an x86 CPU and the performance of AMD Radeon graphics with the I/O interconnect all on a single die."

The AMD Embedded G-Series SOC supports Windows Embedded 8 and Linux, and is designed for myriad embedded applications including industrial control and automation, digital signage, electronic gaming systems, SMB storage, IP-TV, medical and network appliances, set-top boxes and more. AMD will ship the AMD G-Series SOC platform with general availability in the second quarter of 2013, followed by a comprehensive ecosystem of industry-leading embedded solution providers supporting and/or announcing market-ready products powered by the AMD Embedded G-Series SOC.

Developer support and product features

Developers working with the AMD Embedded G-Series SOC can implement remote management, virtualization and security capabilities to help reduce deployment costs and increase security and reliability of their AMD Embedded G-Series SOC-based platform through:

- AMD DAS 1.0 featuring DASH 1.1;
- AMD Virtualization technology;
- Trusted Platform Module (TPM) 1.2 support.

Next-generation CPU core

- Next-generation "Jaguar" core with innovative, new shared L2 Cache
- Enterprise-class feature of ECC and fast memory support

Excellent AMD Radeon graphics performance-per-watt

- Enhanced Universal Video Decode (UVD) 3 hardware acceleration (H.264, VC-1, MPEG2, etc.) and new video encode capability not available in previous AMD Embedded G-Series APU
- Power efficiency enhancement with clock gating to contribute to overall lower power consumption

Advanced GPU enables parallel processing and high-performance graphics

- Heterogeneous computing for industrial control and automation, communications and other processor heavy applications. OpenCL enables CPU and GPU parallel processing, which benefits applications development in these areas
- Graphics (DirectX 11, OpenGL) and dual independent display; high-resolution support for a superb visual experience
- Expanded software development options and extended application lifetime with advanced graphics APIs

Ideal platform for low-power and high-performance designs

- For Industrial Control and Automation: low-power and heterogeneous computing advantage enabled by the integrated GPU deliver more than 150 GFLOPS of compute performance over and above the compute capability of the x86 CPU cores
- For Digital Signage: eye-catching, high-definition multimedia content delivery connected through a variety of display technologies (DP, HDMI, VGA, LVDS)
- For Electronic Gaming Machines: dedicated hardware acceleration engines for video decode (UVD) and encode (VCE) as well as digital content management (SAMU)
- For SMB storage: high-performance SOC in a small form factor with a myriad of integrated USB and SATA I/O enables a fanless design, reducing system cost

Models and pricing

Models available at launch include:

- GX-420CA SOC with AMD Radeon HD 8400E Graphics—Quad-core, 25W TDP, CPU freq. 2.0GHz, GPU freq. 600MHz
- GX-415GA SOC with AMD Radeon HD 8330E Graphics—Quad-core, 15W TDP, CPU freq. 1.50GHz, GPU freq. 500MHz
- GX-217GA SOC with AMD Radeon HD 8280E Graphics—Dual-core, 15W TDP, CPU freq. 1.65GHz, GPU freq. 450MHz
- GX-210HA SOC with AMD Radeon HD 8210E Graphics—Dual-core, 9W TDP, CPU freq. 1.0GHz, GPU freq. 300MHz
- GX-416RA SOC—Quad-Core, 15W, CPU Freq. 1.6GHz, No

GPU

Pricing ranges from \$49 - \$72 for the SKUs.

Supporting resources

- Visit the [AMD Embedded G-Series SOC platform site](#)
- Visit the [AMD Embedded Solutions blog](#)
- Get technical support at the [AMD Embedded Developer Support site](#)
- For more [AMD](#) Embedded products, visit the [AMD-Based Embedded Product Catalog](#)

Provided by AMD

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