January 8, 2018

AMD Redefines High-Performance Computing with New Processor and Graphics Products Preview at CES 2018

New Generation of Ryzen CPUs, New Ryzen APUs, New Radeon Vega Mobile GPUs Coming in 2018

LAS VEGAS, Jan. 08, 2018 (GLOBE NEWSWIRE) -- **2018 CES –** Building on the global enthusiasm generated in 2017 by Ryzen™ processors and Radeon™ graphics technology, AMD (NASDAQ:AMD) today detailed its forthcoming roll-out plan for its new and next generation of high-performance computing and graphics products during an event in Las Vegas just prior to the opening of CES 2018. Alongside announcing the first desktop Ryzen™ processors with built-in Radeon™ Vega Graphics, AMD also detailed the full line up of Ryzen™ mobile APUs including the new Ryzen™ PRO and Ryzen™ 3 models, and provided a first look at the performance of its upcoming 12nm 2nd generation Ryzen™ desktop CPU expected to launch in April. In graphics, AMD announced the expansion of the "Vega" family with Radeon Vega Mobile and that its first 7nm product is planned to be a Radeon "Vega" GPU specifically built for machine learning applications.

"We successfully accomplished the ambitious goals we set for ourselves in 2017, reestablishing AMD as a high-performance computing leader with the introduction and ramp of 10 different product families," said AMD President and CEO Dr. Lisa Su. "We are building on this momentum in 2018 as we make our strongest product portfolio of the last decade even stronger with new CPUs and GPUs that bring more features and more performance to a broad set of markets."

Technology Updates
AMD CTO and SVP Mark Papermaster shared updates on AMD's process technology roadmaps for both x86 processors and graphics architectures.

- x86 Processors
  - The "Zen" core, currently shipping in Ryzen desktop and mobile processors, is in production at both 14nm and 12nm, with 12nm samples now shipping.
  - The "Zen 2" design is complete and will improve on the award-winning "Zen" design in multiple dimensions.

- Graphics Processors
  - Expanding the "Vega" product family in 2018 with the Radeon Vega Mobile GPU for ultrathin notebooks.
  - The first 7nm AMD product, a "Vega" based GPU built specifically for machine learning applications.
  - A production-level machine learning software environment with AMD's MIOpen libraries supporting common machine learning frameworks like TensorFlow and Caffe

on the ROCm Open eCosystem platform. The industry's first fully open heterogeneous software environment, which is making it easier to program using AMD GPUs for high performance compute and deep learning environments.

Client Compute Updates
AMD SVP and General Manager, Computing and Graphics Business Group Jim Anderson detailed upcoming AMD client compute processors including:

- The Ryzen™ desktop processor with Radeon™ graphics
  - Desktop Ryzen™ APUs combine the latest "Zen" core and AMD Radeon™ graphics engine based on the advanced "Vega" architecture, bringing:
    - The highest performance graphics engine in a desktop processor[i]
    - Advanced quad core performance with up to 8 processing threads
    - 1080p HD+ gaming performance without a discrete graphics card
    - Beautiful display features with Radeon™ FreeSync technology[ii]
    - Full benefit of Radeon™ software driver features including Radeon™ Chill, Enhanced Sync and Radeon™ ReLive
  - Planned to be available starting February 12, 2018.

Ryzen™ Desktop Processors with Radeon™ Vega Graphics:

Model	CPU Cores	Threads	Max Boost Clock (GHz)	Graphics Compute Units[iii]	Max GPU Clock (MHz)	L2/L3 Cache (MB)	cTDP (Watts)
Ryzen™ 5 2400G with Radeon™ RX Vega[11] Graphics	4	8	3.9	11	1250	6	45-65W
Ryzen™ 3 2200G with Radeon™ Vega[8] Graphics	4	4	3.7	8	1100	6	45-65W

- 2nd generation Ryzen™ desktop CPU
  - AMD's first 12nm based processor with Precision Boost 2 technology.
  - Scheduled for introduction April 2018.

- Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics
  - Targeted for commercial, enterprise, and public sector implementation, Ryzen PRO mobile processors are designed to power sleek and powerful enterprise notebooks featuring the world's fastest processor for commercial ultrathin notebooks[iv], state-of-the-art silicon-level security, and reliable solutions with enterprise-class support and product stack top-to-bottom DASH manageability.
    - Up to 22% more competitive productivity performance[v]
    - Up to 125% more competitive graphics performance than Intel i7-8550U and 150% more competitive graphics performance than Intel i7-7500U[vi]
    - Targeting Up to 13.5 hours of battery life[vii]

- SenseMI[viii] features including Precision Boost 2 technology and Mobile Extended Frequency Range (mXFR)[ix]
  - Ryzen™ PRO mobile solutions are expected to launch in Q2 2018.

Ryzen™ PRO mobile processors with Radeon™ Vega Graphics:

Model	CPU Cores	Threads	Max Clock (GHz)	Graphics Compute Units[iii]	Max GPU Clock (MHz)	L2/L3 Cache (MB)	cTDP (Watts)
Ryzen™ 7 PRO 2700U with Radeon™ Vega[10] Graphics	4	8	3.8	10	1300	6	15W Nominal
Ryzen™ 5 PRO 2500U with Radeon™ Vega[8] Graphics	4	8	3.6	8	1100	6	15W Nominal
Ryzen™ 3 PRO 2300U with Radeon™ Vega[6] Graphics	4	4	3.4	6	1100	6	15W Nominal

- Ryzen™ Mobile Processor with Radeon™ Vega Graphics
  - AMD expanded the Ryzen Mobile Processor family, featuring the world's fastest processor for ultrathin notebooks line up, with the introduction of the Ryzen 3 mobile processor.

Ryzen™ mobile processors with Radeon™ Vega Graphics:

Model	CPU Cores	Threads	Max Clock (GHz)	Graphics Compute Units[iii]	Max GPU Clock (MHz)	L2/L3 Cache (MB)	cTDP (Watts)
Ryzen™ 7 2700U with Radeon™ Vega[10] Graphics	4	8	3.8	10	1300	6	15W Nominal
Ryzen™ 5 2500U with Radeon™ Vega[8] Graphics	4	8	3.6	8	1100	6	15W Nominal
Ryzen™ 3 2300U with Radeon™ Vega[6] Graphics	4	4	3.4	6	1100	6	15W Nominal
Ryzen™ 3 2200U with Radeon™ Vega[3] Graphics	2	4	3.4	3	1000	5	15W Nominal

Graphics & Gaming Updates

AMD discussed its first mobile discrete graphics solution based on the "Vega" architecture. This razor-thin Radeon Vega Mobile GPU is designed to enable new, powerful gaming notebooks in 2018 with extraordinary performance and incredible efficiency.

AMD also announced that Radeon™ Software will add support for HDMI 2.1 Variable Refresh Rate (VRR) technology on Radeon™ RX products in an upcoming driver release. This support will come as an addition to the Radeon™ FreeSync technology umbrella, as displays with HDMI 2.1 VRR support reach market.

Ubisoft announced that Far Cry 5 will support Radeon™ RX Vega specific features like Rapid Packed Math as well as Radeon™ FreeSync 2 technology. Radeon™ RX Vega owners will be able to enjoy Far Cry 5 at exceptional fidelity, with stunning frame rates and beautiful image quality.

Supporting Resources

- Learn more about AMD Ryzen™ Desktop Processors with Radeon™ Vega Graphics at AMD.com/Ryzen
- Learn more about AMD Ryzen™ Mobile processors at AMD.com/RyzenMobile
- Learn more about AMD Ryzen™ PRO Mobile processors at AMD.com/RyzenPROMobile
- Learn more about the "Zen" core architecture at AMD.com/Zen
- Learn more about the AMD Radeon™ RX Vega Series
- Learn more about the AMD 25X20 Energy Efficiency Initiatives
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About AMD

For more than 45 years, AMD has driven innovation in high-performance computing, graphics, and visualization technologies — the building blocks for gaming, immersive platforms, and the datacenter. Hundreds of millions of consumers, leading Fortune 500 businesses, and cutting-edge scientific research facilities around the world rely on AMD technology daily to improve how they live, work, and play. AMD employees around the world are focused on building great products that push the boundaries of what is possible. For more information about how AMD is enabling today and inspiring tomorrow, visit the AMD (NASDAQ: AMD) website, blog, Facebook and Twitter pages.

Cautionary Statement

This press release contains forward-looking statements concerning Advanced Micro Devices, Inc. (AMD) including the features, functionality, availability, timing, expectations and expected benefits of AMD future products, including AMD's desktop Ryzen™ CPUs with built-in Radeon™ Vega GPUs, Ryzen™ mobile APUs including Ryzen™ PRO and Ryzen™ 3 CPUs, 12nm 2nd generation Ryzen™ desktop CPUs, Radeon Vega Mobile GPUs and AMD's 7nm product with a Radeon "Vega" based GPU; AMD's X86 processors technology roadmap; and AMD's graphics processors technology roadmap, which are made pursuant to the Safe Harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are commonly identified by words such as "would," "intends," "believes," "expects," "may," "will," "should," "seeks," "intends," "plans," "pro forma," "estimates,"

"anticipates," or the negative of these words and phrases, other variations of these words and phrases or comparable terminology. Investors are cautioned that the forward-looking statements in this document are based on current beliefs, assumptions and expectations, speak only as of the date of this document and involve risks and uncertainties that could cause actual results to differ materially from current expectations. Such statements are subject to certain known and unknown risks and uncertainties, many of which are difficult to predict and generally beyond AMD's control, that could cause actual results and other future events to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. Material factors that could cause actual results to differ materially from current expectations include, without limitation, the following: Intel Corporation's dominance of the microprocessor market and its aggressive business practices may limit AMD's ability to compete effectively; AMD has a wafer supply agreement with GF with obligations to purchase all of its microprocessor and APU product requirements, and a certain portion of its GPU product requirements, from GLOBALFOUNDRIES Inc. (GF) with limited exceptions. If GF is not able to satisfy AMD's manufacturing requirements, its business could be adversely impacted; AMD relies on third parties to manufacture its products, and if they are unable to do so on a timely basis in sufficient quantities and using competitive technologies, AMD's business could be materially adversely affected; failure to achieve expected manufacturing yields for AMD's products could negatively impact its financial results; the success of AMD's business is dependent upon its ability to introduce products on a timely basis with features and performance levels that provide value to its customers while supporting and coinciding with significant industry transitions; if AMD cannot generate sufficient revenue and operating cash flow or obtain external financing, it may face a cash shortfall and be unable to make all of its planned investments in research and development or other strategic investments; the loss of a significant customer may have a material adverse effect on AMD; AMD's receipt of revenue from its semi-custom SoC products is dependent upon its technology being designed into third-party products and the success of those products; global economic uncertainty may adversely impact AMD's business and operating results; the markets in which AMD's products are sold are highly competitive; AMD may not be able to generate sufficient cash to service its debt obligations or meet its working capital requirements; AMD has a large amount of indebtedness which could adversely affect its financial position and prevent it from implementing its strategy or fulfilling its contractual obligations; the agreements governing AMD's notes and the Secured Revolving Line of Credit impose restrictions on AMD that may adversely affect its ability to operate its business; AMD's issuance to West Coast Hitech L.P. (WCH) of warrants to purchase 75 million shares of its common stock, if and when exercised, will dilute the ownership interests of its existing stockholders, and the conversion of the 2.125% Convertible Senior Notes due 2026 may dilute the ownership interest of its existing stockholders, or may otherwise depress the price of its common stock; uncertainties involving the ordering and shipment of AMD's products could materially adversely affect it; the demand for AMD's products depends in part on the market conditions in the industries into which they are sold. Fluctuations in demand for AMD's products or a market decline in any of these industries could have a material adverse effect on its results of operations; AMD's ability to design and introduce new products in a timely manner is dependent upon third-party intellectual property; AMD depends on third-party companies for the design, manufacture and supply of motherboards, software and other computer platform components to support its business; if AMD loses Microsoft Corporation's support for its products or other software vendors do not design and develop software to run on AMD's products, its ability to sell its products could be materially adversely affected; and AMD's reliance on third-party distributors and AIB partners subjects it to certain risks. Investors are urged to review in detail the risks and uncertainties in AMD's Securities and Exchange

Commission filings, including but not limited to AMD's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017.

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[i] Testing by AMD Performance labs as of 12/08/2017 for the Ryzen 5 2400G, and 09/04/2015 for the Core i7-5775c on the following systems. PC manufacturers may vary configurations yielding different results. Results may vary based on driver versions used. System Configs: All systems equipped with Samsung 850 PRO 512GB SSD, Windows 10 RS2 operating system. Socket AM4 System: Ryzen 52400G processor, 16B (2 x 8GB) DDR4-2667 RAM, Graphics Driver 1710181048-17.40-171018a-319170E 23.20.768.0 :: 12/08/2017. Socket LGA1150 System: Core i7-5775c processor, 8GB (2x4GB) DDR3-1867 MHz RAM, graphics driver 10.18.15.4256:: 09/04/2015. 3DMark 11 Performance benchmark used to represent graphics power. The following processors achieved the following scores in 3DMark 11 'performance' benchmark v1.0.132.0: The Ryzen 5 2400G: 5042. Also in v1.0.132.0, .The Core i7-5775c, the Intel desktop processor with the highest Intel desktop graphics performance, achieved 3094. RZG-01

[ii] FreeSync 2 does not require HDR capable monitors; driver can set monitor in native mode when FreeSync 2 supported HDR content is detected. Low-latency HDR only attainable when using a FreeSync 2 API enabled game or video player and content that uses at least 2x the perceivable brightness and color range of sRGB, and using a FreeSync 2 qualified monitor. Based on AMD internal testing as of November 2016. GD-105.

[iii] AMD Radeon™ and FirePro™ GPUs based on the Graphics Core Next architecture consist of multiple discrete execution engines known as a Compute Unit ("CU"). Each CU contains 64 shaders ("Stream Processors") working together. GD-78

[iv] "Processor for ultrathin notebooks" defined as 15W nominal processor TDP. Based on testing of the AMD Ryzen™ 7 PRO 2700U, AMD Ryzen™ 5 PRO 2500U, and Core i7-8550U mobile processors as of 10/6/2017 Performance based on Cinebench R15 nT and 3DMark® TimeSpy in order of AMD Ryzen™ 7 PRO 2700U and Intel 8550U. Cinebench R15 nT results: 660.5, 498.2; 3DMark TimeSpy results: 978, 350. 50:50 CPU:GPU weighted relative performance with i7 baseline: Intel i7-8650U = (498.2/498.2*.5) + (350/350*.5) = 100%; AMD Ryzen 7 PRO 2700U = (660.5/498.2*.5) + (978/350*.5) = 206%.AMD Ryzen™ 7 PRO 2700U Processor: HP 83C6, AMD Ryzen™ 7 PRO 2700U Processor with Radeon™ Vega 10 Graphics, 8GB Dual Channel (2x4GB) DDR4-2400 RAM, Samsung 850 PRO 512GB SATA SSD, Windows 10 Pro RS2, Graphics driver 22.19.655.0, 12-Sep-2017. i7-8550U: KBL Woody_KL, i7-8550U with Intel UHD Graphics 620, 8GB Dual Channel (2x4GB) DDR4-2400 RAM, MTFDDAV256TBN - M.2 Sata, Windows 10 Pro RS2, Graphics driver 22.20.16.4771, 12-Aug-2017. Different configurations and drivers may yield different results. RPM-6

[v] Testing by AMD Performance labs. PCMark 10 Extended is used to simulate productivity performance; the AMD Ryzen™ 7 PRO 2700U scored 3102, while the Intel i7-8550U scored 2533 for a benchmark score comparison of 3102/2533 = 1.22X or 22% faster. AMD Ryzen™ 7 PRO 2700U: HP 83C6, AMD Ryzen™ 7 PRO 2700U with Radeon™ Vega 10 Processor Graphics, 8GB DDR4-2400 RAM, Samsung 850 PRO 512GB SATA SSD, Windows 10 Pro RS2, Graphics driver 22.19.655.2, 06-Sep-2017. Core i7-8550U: Acer Spin 5, Core i7-8550U with Intel UHD Graphics 620, 8GB DDR4-2400 RAM, MTFDDAV256TBN - M.2 Sata SSD,

Windows 10 Pro RS2, Graphics driver 22.20.16.4771, 12-Aug-2017. Different configurations and drivers may yield different results. RPM-2

[vi] Testing by AMD Performance labs. 3DMark® 11 Performance is used to simulate system performance; the AMD Ryzen™ 7 PRO 2700U scored 4357, while the Intel i7-8550U scored 1937 for a benchmark score comparison of 4357/1937 = 2.25X or 125% faster and the Intel i7-7500U scored 1743 for benchmark score comparison of 4357/1743 = 2.50X or 150% faster. AMD Ryzen™ 7 PRO 2700U: HP Envy x360 @25W, AMD Ryzen™ 7 PRO 2700U Processor with Radeon™ Vega 10 Graphics, 8GB DDR4-2400 RAM, Samsung 850 PRO 512GB SATA SSD, Windows 10 Pro RS2, Graphics driver 22.19.655.2, 06-Sep-2017. Intel Core i7-8550U: Acer Swift 3, Intel Core i7-8550U with Intel UHD Graphics 620 @15W, 16GB DDR4-2400 RAM, Samsung 850 PRO 512GB SATA SSD, Windows 10 Pro RS2, Graphics driver 22.20.16.4771, 12-Aug-2017. Intel Core i7-7500U: HP Envy x360, Intel Core i7-7500U with Intel HD Graphics 620 @15W, 8GB DDR4-2400 RAM, Samsung 850 PRO 512GB SATA SSD, Windows 10 Pro RS2, Graphics driver 22.20.16.4691 , 01-Jun-2017. Different configurations and drivers may yield different results. RPM-1

[vii] Based on AMD testing as of 10/11/2017. Battery life targets for the AMD Ryzen™ PRO Processor with Radeon™ Graphics assume a fully power-optimized software/hardware solution stack , and the following system configuration: AMD Reference Platform, AMD Ryzen™ 7 PRO 2700U, 2x4GB DDR4-2400, graphics driver 17.30.1025, Windows 10 x64 (1703). Assuming a 50 Wh battery capacity, MobileMark 14 battery life for the Ryzen 7 PRO 2700U playback is estimated at 13.5 hours. Different configurations and drivers may yield different results. RPM-5

[viii] AMD SenseMI technology is built into all Ryzen processors, but specific features and their enablement may vary by product and platform. Learn more at http://www.amd.com/en/technologies/sense-mi. mXFR enablement must meet AMD requirements. Not enabled on all notebook designs. Check with manufacturer to confirm “amplified mXFR performance” support.

[ix] mXFR enablement must meet AMD requirements. Not enabled on all notebook designs. Check with manufacturer to confirm “amplified mXFR performance” support.

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