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AMD Ryzen(TM) 7 Desktop Processors Featuring Record-Breaking Overclocking Performance Available Worldwide Today

New Ryzen 7 Processors Set to Reinvigorate the Desktop Computing Market; Unprecedented Pre-Order Sales Show Ryzen Leads Best Seller Lists

SUNNYVALE, CA -- (Marketwired) -- 03/02/17 -- After four years and thousands of hours of development, [AMD](#) (NASDAQ: AMD) today released the first three models of its highly anticipated, high-performance AMD Ryzen™ desktop processor. Strong demand for these new desktop CPUs drove record pre-orders from more than 180 global retailers and boutique OEMs throughout the week prior to launch. Now offered for purchase around the globe, Ryzen is the first processor based on the entirely new AMD "Zen" core microarchitecture, bringing leadership multi-core performance for PC gamers, creators, and hardware enthusiasts around the world.

"Today's launch of Ryzen represents AMD at its best, delivering great products and innovation to the high-performance computing market," said Lisa Su, president and CEO of AMD. "With Ryzen 7 desktop processors, AMD delivers to PC gamers, prosumers and enthusiasts both the highest performance(1) and the lowest power(2) 8-core desktop PC processors, bringing the absolute best PC experience to millions of people."

Availability

Starting today there are three 8-core Ryzen 7 models available. Beginning in Q2 AMD expects to launch 6- and 4-core Ryzen 5 processors followed later this year by Ryzen 3, which is designed to bring more performance to mainstream applications. All Ryzen processors support the new AM4 infrastructure, with motherboard designs available from top ODMs.

"Ryzen processors incorporate intelligent, performance-boosting technology that provides PC gamers, prosumers, and enthusiasts with incredible responsiveness, outstanding performance, and more immersive experiences, all in an extremely efficient package," said Jim Anderson, senior vice president and general manager, Computing and Graphics Group, AMD. "In the near future we will bring to market additional lines of Ryzen processors, scaling from Ryzen 7 in the enthusiast segment, through high performance users with Ryzen 5, and then mainstream users with Ryzen 3. This CPU portfolio represents disruptive price-to-performance and compelling top-to-bottom features like unlocked CPU multipliers and AMD SenseMI Technology."

Alongside Ryzen 7 processors, AMD also announced the product specifications for two Ryzen 5 processors, and demonstrated the flagship Ryzen 5 1600X beating the flagship Intel Core i5 7600K by more than 60% in multi-threaded CPU testing(3).

Product Line	Model	Cores	Threads	Base Clock (GHz)	Boost Clock (GHz)	Included Cooler	TDP ⁴ (Watts)	On Sale
Ryzen 7	1800X	8	16	3.6	4.0	N/A	95	Now
Ryzen 7	1700X	8	16	3.4	3.8	N/A	95	Now
Ryzen 7	1700	8	16	3.0	3.7	Wraith Spire	65	Now
Ryzen 5	1600X	6	12	3.6	4.0	Wraith Spire	95	Q2
Ryzen 5	1500X	4	8	3.5	3.7	Wraith Spire	65	Q2

In addition to being available to DIY builders and boutique PC vendors, in the coming months consumers will also be able to purchase Ryzen-based systems from top PC vendors.

"As the eSports and virtual reality markets continue to grow, Dell is committed to offering cutting-edge technology to enable the best gaming and immersive experiences. We are excited to bring AMD's new high-performance Ryzen processor to select desktop and All-in-One products in the coming months," said Ray Wah, SVP, Consumer Product Group, Dell.

"Experiences like gaming, eSports, and virtual reality push the performance limits of devices," said Mike Nash, chief technologist, vice president of customer experience and portfolio strategy, HP Inc. "We believe there are a set of customers who will benefit from the new AMD technology and HP is excited to offer those customers devices powered by Ryzen."

"Lenovo is always exploring and creating new solutions to bring our customers innovative PCs that provide the most immersive computing experiences," said Johnson Jia, senior vice president, Lenovo's PCs and Smart Device Business Group. "We're excited to take our partnership to the next level with the revolutionary new Ryzen processor."

Multiplier Unlocked

During an event in front of global press, industry analysts, and partners last week, Ryzen CPUs were put through their paces and have already broken world records⁽⁵⁾. ASUS overclocking expert Jon "Elmor" Sandstrom, veteran overclocker Petri "SF3D" Korhonen and the AMD Ryzen OC team managed to push the AMD Ryzen 7 1800X CPU to over 5.35GHz with record breaking performance in the 8-core CPU category. The liquid nitrogen-cooled Ryzen CPU completed the industry standard Cinebench R15 and R11.5 tests with scores of 2454 and 27.40.

The freely available Ryzen Master Software utility gives broad control of CPU settings allowing users to squeeze every drop of performance from their CPU⁽⁶⁾. AMD Ryzen processors are available starting today at select retailers.

Supporting Resources

- Learn more about AMD Ryzen processors at [AMD.com/Ryzen](https://www.amd.com/Ryzen)
- Learn more about the "Zen" core architecture at [AMD.com/Zen](https://www.amd.com/Zen)
- Learn more about AMD [Products](#), [Solutions](#), and [Innovations](#)
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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 Annual Report on Form 10-K for the year ended December 31, 2016.

-30-

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¹ Highest performance - Testing by AMD Performance labs as of February 10, 2017. PC manufacturers may vary configurations yielding different results. Cinebench R15 nT is used to simulate multi-threaded CPU performance; the AMD Ryzen™ 7 1800X scored 1601.43, while the Intel Core i7-6900K Extreme scored 1473.79 for a benchmark score comparison of $1601.43/1473.79 = 1.09\times$ or 9% more. RZN-9

² Lowest power - Power efficiency of consumer client desktop 8-core processors based on Cinebench R15 nT score divided by wall power watts during testing. Scores: 1410 (AMD Ryzen 7 1700) vs. 1473 (Core i7-6900K). System config: AMD Reference Motherboard (1800X) and ASUS STRIX X99 Gaming (6900K), 16GB DDR4-2400, NVIDIA Titan X (Pascal), graphics driver 21.21.13.7633, Windows 10 x64 RS1. Measured system wall power during testing: 115W (1700) vs. 142W (6900K). Power efficiency: $1410/115=12.26$ points per watt (1700) vs. $1473/142W=10.37$ points per watt (6900K). Result: AMD Ryzen 7 1700 offers 18.22% more performance per watt. RZN-10

³ Testing by AMD Performance labs. PC manufacturers may vary configurations yielding different results. Cinebench R15 multi-threaded performance used to represent multi-threaded performance. The Ryzen 7 1600X (6c/12t) achieved a score of 1195 in the multi-thread test; The Core i5-7600K (4c/4t) achieved a score of 655 in the multi-thread test; resulting in a 69% multi-threaded performance advantage for the Ryzen 5 1600X. RZN-17

⁴ Though both are often measured in watts, it is important to distinguish between thermal and electrical watts. Thermal wattage for processors is conveyed via thermal design power (TDP). TDP is a calculated value that conveys an appropriate thermal solution to achieve the intended operation of a processor. Electrical watts are not a variable in the TDP calculation. By design, electrical watts can vary from workload to workload and may exceed thermal watts. GD-108

⁵ AMD Ryzen 7 1800X CPU and the AMD Ryzen OC team achieved the highest benchmark score in the 8-core CPU category in the following benchmarks:

- Cinebench R15 with Ryzen CPU at 5364.7MHz, score 2454 (previous 8-core record at the time of the event was 2445 as per hwbot.org 8-core Cinebench R15 ranking https://hwbot.org/benchmark/cinebench_-_r15/rankings?cores=8#start=0#interval=20)

- Cinebench R11.5 with Ryzen 7 1800X CPU 5352.4MHz, score 27.13 (previous 8-core record at the time of the event was 26.58 as per hwbot.org 8-core Cinebench R11.5 ranking https://hwbot.org/benchmark/cinebench_-_r11.5/rankings?cores=8#start=0#interval=20)
- GPU Pi for CPU 1B with Ryzen 7 1800X CPU at 5428.4MHz, result 2min 10.572seconds (previous 8-core record at the time of the event was 2min 12.781secs as per hwbot.org 8-core GPU Pi for CPU 1B ranking https://hwbot.org/benchmark/gpupi_for_cpu_-_1b/rankings?cores=8#start=0#interval=20)

System configuration:

- AMD Ryzen 7 1800X 8C/16T CPU (or AMD Ryzen preproduction 8C/16T CPU)
- ASUS Crosshair 6 Hero X370 AM4 motherboard
- 2x8GB DDR4-3200 memory (running at DDR4-3008 CL11-10-10-22-1T - DDR4-3393.4 CL11-10-10-22-1T depending on benchmark)
- AMD Radeon RX 480 Graphics Card
- Liquid Nitrogen CPU cooling, -196C
- 128GB SSD
- 1200W Power Supply

⁶ Add robust overclocking disclaimer: Overclocking AMD processors, including without limitation, altering clock frequencies / multipliers or memory timing / voltage, to operate beyond their stock specifications will void any applicable AMD product warranty, even when such overclocking is enabled via AMD hardware and/or software. This may also void warranties offered by the system manufacturer or retailer. Users assume all risks and liabilities that may arise out of overclocking AMD processors, including, without limitation, failure of or damage to hardware, reduced system performance and/or data loss, corruption or vulnerability. GD-106

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