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2nd Generation AMD Ryzen™ Desktop Processors Deliver Best-in-Class Compute Performance and Even Faster Gaming Framerates than Previous Generation

— Available Worldwide Today, Turbo-Charged 12nm 'Zen+' processor delivers the highest multithreaded performance in its class[1] plus advanced enthusiast features and a smarter platform —

SANTA CLARA, Calif., April 19, 2018 (GLOBE NEWSWIRE) -- AMD (NASDAQ:AMD) today announced the global availability of its 2nd Generation Ryzen™ Desktop processors, starting with four models optimized for gamers, creators, and hardware enthusiasts: Ryzen™ 7 2700X, Ryzen™ 7 2700, Ryzen™ 5 2600X, and Ryzen™ 5 2600 processors. Using the world's first 12nm process technology, these 2nd Gen Ryzen processors can offer up to 15% higher gaming performance[2,3] than 1st Gen Ryzen processors, while delivering the highest multiprocessing performance you can get on a mainstream desktop PC[4], and enhanced capabilities including Precision Boost 2 and Extended Frequency Range 2 (XFR 2), an included Wraith Cooler, unlocked performance accessed with the new Ryzen™ Master Utility[5], and more.

"Last year we started changing the PC industry with the introduction of our first wave of Ryzen processors – delivering more performance, features, and choice to our customers than before. Our 2nd Gen Ryzen CPUs continue this pursuit by raising the standards for enthusiast gamers and creators," said Jim Anderson, senior vice president and general manager, Computing and Graphics Business Group, AMD. "With this launch we're also demonstrating that we are just getting started, that we are committed to delivering a multi-generational roadmap of leadership high-performance processors that will drive innovation and competition into the industry for years to come."

Building on the original award-winning 2017 "Zen" architecture, the 2nd Gen Ryzen processors combine the improved "Zen+" core with other major performance, feature, and platform advancements.

Performance Advances

The new "Zen+" core increases IPC[6] and reduces both cache and memory latencies[7] compared to 1st Gen Ryzen processors. AMD's SenseMI[8] technology is updated with Precision Boost 2, which enables 2nd Gen Ryzen processors to intelligently analyze the workload and computing environment and contributes in delivering the highest multiprocessing performance in their classes[1].

Higher effective clock speeds on all 2nd Gen Ryzen processor cores can improve the performance of Ryzen processors in popular real-world applications like games, creativity and productivity applications[2,3,4,5]. Gaming experiences are beautifully smooth across popular resolutions from 1080p Ultra to 1440p High to 4K. And, select 2nd Gen Ryzen processors offer up to 20 percent faster content creation than the competition[9,10].

With XFR 2 technology on all AM4 platforms with 2nd Gen Ryzen processors, enthusiast PC builders will enjoy even higher performance[11] in the presence of premium cooling[12,13].

Feature Advances

Designed with enthusiasts and high performance in mind, 2nd Gen Ryzen processors feature soldered integrated heatspreaders for superlative thermal transfer[14], and unlocked multipliers for simple, powerful overclocking[5] control. Performance tuning, enabled by the new Ryzen Master 1.3 software, is easier than ever before, and now offers per-core overclocking[5] with automatic identification of the potentially fastest cores.

For the first time, the entire line of 2nd Gen Ryzen processors include a world class AMD Wraith Cooler inside the retail box. The flagship AMD Ryzen 7 2700X CPU includes the new Wraith Prism cooler featuring premium thermal performance, an upgraded fan profile, and enhanced lighting capabilities with per-RGB controls.

Platform Advances

Optimized for the 2nd Gen Ryzen processors, new AMD X470 chipset is available on Socket AM4 motherboards now. In addition to enhanced memory compatibility and overclocking[5] capability, these new motherboards come with a free download of the new AMD StoreMI technology software, which combines the speed of an SSD and the capacity of a traditional spinning hard disk into a single easy-to-manage drive for faster, smarter, and easier storage[15].

Compatible with all current AM4 processors, the new X470 motherboards augment the existing 300-series motherboards, which are also compatible with the new 2nd Gen Ryzen processors with a firmware (BIOS) update. Many in-market motherboards already come with the updated BIOS, indicated by a “Ryzen Desktop 2000 Ready” label on the package.

2nd Generation AMD Ryzen™ Processor

MODEL	CORES	THREADS	CLOCK SPEED MAX BOOST/ BASE (GHZ)	Smart Prefetch Cache	TDP	COOLER	SEP (USD)
Ryzen™ 7 2700X	8	16	4.3/3.7	20MB	105W	Wraith Prism (LED)	$329
Ryzen™ 7 2700	8	16	4.1/3.2	20MB	65W	Wraith Spire (LED)	$299
Ryzen™ 5 2600X	6	12	4.2/3.6	19MB	95W	Wraith Spire	$229
Ryzen™ 5 2600	6	12	3.9/3.4	19MB	65W	Wraith Stealth	$199

Supporting Resources

- Learn more about 2nd Generation AMD Ryzen desktop processors
- Learn more about AMD SenseMI technology
- Learn more about AMD StoreMI technology
- Learn more about AMD Wraith cooling solution

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About AMD
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[1] Testing by AMD Performance labs as of 3/02/2018 on the following system. PC manufacturers may vary configurations yielding different results. Results may vary based on driver versions used. AMD System Config: AMD Ryzen 7 2700X, 'Turpan' reference motherboard, 16GB of dual-channel DDR3-3200, GeForce GTX 1080 Ti Graphics Card, Graphics driver 390.77, and a Samsung 850 PRO 512GB SSD using the Windows 10 RS3 operating system. Intel System Config: Intel Core i7-8700K, Gigabyte Z370 AORUS Gaming5 motherboard, 16GB of dual-channel DDR3-3200, GeForce GTX 1080 Ti Graphics Card, Graphics driver 390.77, and a Samsung 850 PRO 512GB SSD using the Windows 10 RS3 operating system. Multiprocessing performance represented by Cinebench R15 nT multiprocessing performance. Processor class is defined here by competing price points between MSRP $380 and $220 USD. Suggested pricing found at ark.intel.com and amd.com. The Ryzen 7 2700X achieved a score of 1807 (1807/1405= up to 29% faster than the Core i7-8700K), while the Core i7-8700K (MSRP $370) achieved a score of 1405 (1405/1807= up to 78% as fast, or up to 22% slower than the Ryzen 7 2700X). The Ryzen 7 2700 (MSRP $299) achieved a score of 1569 (1569/1402=up to 12% faster than the Core i7-8700K), while the Core i7-8700 (MSRP $370) achieved a score of 1402 (1402/1569= up to 89% as fast, or up to 11% slower than the Ryzen 7 2700). The Ryzen 5 2600X (MSRP $249) achieved a score of 1380 (1380/1029= up to 34% faster than the Core i5-8600K), while the Core i5-8600K (MSRP $258) achieved a score of 1029 (1029/1380= up to 75% as fast, or up to 25% slower than the Ryzen 5 2600X). The Ryzen 5 2600 (MSRP $249) achieved a score of 1297 (1297/1026= up to 26% faster than the Core i5-8600K), while the Core i5-8600 (MSRP $258) achieved a score of 1026 (1026/1297= up to 79% as fast, or up to 21% slower than the Ryzen 5 2600). RZ2-2

[2] Testing by AMD Performance Labs as of 4/9/2017. All results presented in order of 1800X vs. 2700X (%uplift). Counter-Strike: Global Offensive: 372 vs. 427 FPS (15% faster); DOTA 2: 113 vs. 126 FPS (12% faster); League of Legends: 137 vs. 153 FPS (11% faster). All results presented in average FPS at 1920x1080 using the maximum in-game image quality presets. System configuration: Reference Motherboard + AMD Ryzen™ 7 2700X and 1800X, GeForce GTX 1080 (driver 390.77), 2x8 GB DDR4-3200 (14-14-14-36), Windows 140 x64 Pro (RS3), Samsung 850 Pro SSD. Performance may vary with different drivers and system configurations. RZ2-27

[3] Testing by AMD Performance Labs as of 4/9/2017. All results presented in order of 1800X vs. 2700X (%uplift). Counter-Strike: Global Offensive: 365 vs. 405 FPS (11% faster); DOTA 2: 85 vs. 94 FPS (10% faster); League of Legends: 136 vs. 153 FPS (12% faster). All results presented in average FPS at 1920x1080 using the maximum in-game image quality presets. System configuration: Reference Motherboard + AMD Ryzen™ 5 2600X and 1600X, GeForce GTX 1080 (driver 390.77), 2x8 GB DDR4-3200 (14-14-14-36), Windows 140 x64 Pro (RS3), Samsung 850 Pro SSD. Performance may vary with different drivers and system configurations. RZ2-28

[4] Testing by AMD Performance labs as of 3/02/2018 on the following system. PC manufacturers may vary configurations yielding different results. Results may vary based on driver versions used. AMD System Config: AMD Ryzen 7 2700X, 'Turpan' reference motherboard, 16GB of dual-channel DDR3-3200, GeForce GTX 1080 Ti Graphics Card, Graphics driver 390.77, and a Samsung 850 PRO 512GB SSD using the Windows 10 RS3 operating system. Intel System Config: Intel Core i7-8700K, Gigabyte Z370 AORUS Gaming5 motherboard, 16GB of dual-channel DDR3-3200, GeForce GTX 1080 Ti Graphics Card, Graphics driver 390.77, and a Samsung 850 PRO 512GB SSD using the Windows 10 RS3 operating system.

Multiprocessing performance represented by Cinebench R15 nT multiprocessing performance. Mainstream desktop platform means Socket AM4 for AMD platforms and LGA 1151 for Intel platforms. The Ryzen 7 2700X (AMD's highest performing mainstream desktop processor) achieved a score of 1837 (1837/1397=up to 36% faster than the Core i7-8700K), while the Core i7-8700K (Intel's highest performing mainstream desktop processor) achieved a score of 1397 (1397/1837= up to 76% as fast, or up to 24% slower than the Ryzen 7 2700X). RZ2-1

[5] AMD's product warranty does not cover damages caused by overclocking, even when overclocking is enabled via AMD hardware and/or software. GD-26

[6] As measured on 3/22/2018 by AMD Performance Labs with Cinebench R15 1T at a fixed 3.725GHz clockspeed. AMD Ryzen™ 7 1800X score (baseline): 151.98. AMD Ryzen™ 7 2700X score: 156.09 (+2.7%). System configuration: AMD Reference Motherboard + AMD Ryzen™ 7 2700X + AMD Ryzen™ 7 1800X, 2x8GB DDR4-3200 (16-16-16-36), Samsung 850 Pro SSD, GeForce GTX 1080 (driver 390.77), Windows® 10 Pro RS3. Results may vary by system configuration. RZ2-17

[7] Testing by AMD as of 3/20/2018. All values based on AMD Ryzen™ 7 1800X vs. AMD Ryzen™ 7 2700X as measured by AIDA64 in standard out-of-box operation. AMD Ryzen™ 7 1800X vs. 2700X: L3 cache latency (~11ns vs. ~9.2ns, which is (11-9.2)/11 or ~16%), L2 Cache Latency (~3ns vs. 4.6ns, which is (4.6-3)/4.6 or ~34%), L1 Cache Latency (~1.1ns vs. ~0.95ns, which is (1.1-0.95)1.1 or ~13%), Memory Latency (~74ns vs. ~66ns @ 3200 MT/s, which is (74-66)/74 or ~11%). System Configuration: AMD Ryzen™ 7 2700X and AMD Ryzen 7 1800X, common platform: Gigabyte GA-AX370 Gaming5, 2 x 8 GB DDR4-3200 (16-16-16-36-1T), Geforce GTX 1080 graphics, driver 388.71, Windows 10 x64. Different configurations and drivers may yield different results. RZ2-21

[8] 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.

[9] As measured by AMD Performance Labs on 03/12/2018. Application Scores (AMD vs. Intel): Cinebench R15 (“video editing”): 1846 v. 1396 or 24%; Blender 2.79 (“3D rendering”): 22.06 seconds vs. 26.6 seconds or 17% faster; Handbrake 1.0.7 (“video encoding”): 497 seconds vs. 604 seconds or 18% faster; TrueCrypt 1GB AES (“file encryption”): 11.1 vs. 8 or 28% faster; POVRay 3.7 nT (“raytracing”). 3768 vs. 2959 or 21% faster. Average of all percentages (“content creation”): 17% more for AMD Ryzen™ 7 2700X. Test configuration: Reference Motherboard + AMD Ryzen™ 7 2700X, Gigabyte AORUS Z370 + Core i7-8700K, GeForce GTX 1080 (driver 390.77), 2x8 GB DDR4-3200 (14-14-14-36), Windows 140 x64 Pro (RS3), Samsung 850 Pro SSD. Performance may vary with different drivers and system configurations. RZ2-4

[10] As measured by AMD Performance Labs on 03/12/2018. Application Scores (AMD vs. Intel): Cinebench R15 (“video editing”): 1373 v. 1020 or 26% faster; Blender 2.79 (“3D rendering”): 29.40 seconds vs. 35.28 seconds or 17% faster; Handbrake 1.0.7 (“video encoding”): 662 seconds vs. 785 seconds or 16% faster; TrueCrypt 1GB AES (“file encryption”): 8.3 vs. 5.5 or 34% faster; POVRay 3.7 nT (“raytracing”): 2799 vs. 2506 or 10% faster. Average of all percentages (“content creation”): 16% more for AMD Ryzen™ 5 2600X. Test configuration: Reference Motherboard + AMD Ryzen™ 5 2600X, Gigabyte AORUS Z370 + Core i5-8600K, GeForce GTX 1080 (driver 390.77), 2x8 GB DDR4-3200 (14-14-14-36), Windows 10 x64 Pro (RS3), Samsung 850 Pro SSD. Performance may vary with different drivers and system configurations. RZ2-5

[11] As measured by AMD Performance Labs with Cinebench R15 nT test as of 3/22/2018. Results for 95W cooler in 32C ambient thermal chamber (baseline): 1701. Results for AMD Wraith Prism cooler in 32C ambient thermal chamber: 1770 (+4% over baseline). Results for Noctua NH-D15S cooler in 20C ambient room: 1816 (6.7% over baseline). System configuration: AMD Reference Motherboard + AMD Ryzen™ 7 2700X, 2x8GB DDR4-3200 (16-16-16-36), Samsung 850 Pro SSD, GeForce GTX 1080 (driver 390.77), Windows® 10 Pro RS3. Results may vary by system configuration and drivers used. RZ2-12

[12] AMD defines premium processor cooling as a combination of ambient temperature and thermal solution that results in processor temperatures below 60 degrees Celsius while the CPU is processing the system workload. GD-118

[13] As measured by AMD Performance Labs with Cinebench R15 nT test as of 3/22/2018. Results for 95W cooler in 32C ambient thermal chamber (baseline): 1701. Results for AMD Wraith Prism cooler in 32C ambient thermal chamber: 1770 (+4% over baseline). Results for Noctua NH-D15S cooler in 20C ambient room: 1816 (6.7% over baseline). System configuration: AMD Reference Motherboard + AMD Ryzen™ 7 2700X, 2x8GB DDR4-3200 (16-16-16-36), Samsung 850 Pro SSD, GeForce GTX 1080 (driver 390.77), Windows® 10 Pro RS3. Results may vary by system configuration and drivers used. RZ2-12

[14] Based on AMD internal engineering data as of 04/17/2018 Die temperature reductions compared to industry-standard thermal paste solutions suitable for IHS applications. RZ2-29

[15] As measured by AMD Performance Labs with the Iometer throughput storage test on 3/22/2018. 1MB Read performance of a 7200 RPM Western Digital Black HDD: 139 MBps. 1MB Read performance of a Samsung 850 Pro: 553 MBps. 1MB Read performance of an AMD StoreMI configuration that fuses the aforementioned HDD and SSD into a single virtual storage device: 553 MBps. System configuration: AMD Reference Motherboard + AMD

Ryzen™ 7 2700X, 2x8GB DDR4-3200 (16-16-16-36), 128GB Samsung 850 Pro SSD, 1TB Western Digital Black HDD, GeForce GTX 1080 (driver 390.77), Windows® 10 Pro RS3, AMD StoreMI Technology beta. Results may vary by system configuration and driver version. RZ2-13

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