

## AMD Ryzen™ 7 2700X

### Specifications

# of CPU Cores

8

# of Threads

16

Base Clock

3.7GHz

Max Boost Clock

Up to 4.3GHz

Total L1 Cache

768KB

Total L2 Cache

4MB

Total L3 Cache

16MB

Unlocked

Yes

CMOS

12nm FinFET

Package

AM4

PCI Express® Version

PCIe 3.0 x16

Thermal Solution (PIB)

Wraith Prism with RGB LED

Thermal Solution (MPK)

Wraith PRISM

Default TDP / TDP

105W

Max Temps

85°C

\*OS Support

Windows 10 - 64-Bit Edition

RHEL x86 64-Bit

Ubuntu x86 64-Bit

\*Operating System (OS) support will vary by manufacturer.

System Memory

System Memory Specification

Up to 2933MHz

System Memory Type

DDR4

Memory Channels

2

Key Features

Supported Technologies

AMD StoreMI Technology  
AMD SenseMI Technology  
AMD Ryzen™ Master Utility  
AMD Ryzen™ VR-Ready Premium  
Foundation  
Product Family  
AMD Ryzen™ Processors  
Product Line  
AMD Ryzen™ 7 Desktop Processors  
Platform  
Boxed Processor  
OPN Tray  
YD270XBGM88AF  
OPN PIB  
YD270XBGAFBOX  
OPN MPK  
YD270XBGAFMPK  
Launch Date  
04/19/2018

#### Footnotes

‡ AMD SenseMI technology features vary by model. For specific capabilities of different processor models, please visit [www.amd.com/ryzenspecs](http://www.amd.com/ryzenspecs). If your system is pre-built, contact your manufacturer for additional information.

§ AMD product warranty does not cover damages caused by overclocking, even when overclocking is enabled via AMD hardware

\* RZ2-1: 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. 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

RZ2-2: 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](http://ark.intel.com) and [amd.com](http://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 (1569/1392=up to 12% faster than the Core i7-8700), while the Core i7-8700 (MSRP \$370) achieved a score of 1392 (1392/1569= 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 (1297/1024= up to 26% faster than the Core i5-8600), 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

RZ2-4 As measured by AMD Performance Labs on 03/12/2018. Application Scores (AMD Ryzen 7 2700X vs. Intel Core i7-8700K): Cinebench R15 ("3D Rendering"): 1846 v. 1396 (1846/1396=132%, or) 32% faster; Blender 2.79 ("3D rendering"): 22.06 seconds vs. 26.6 seconds (22.06/26.6=83% as much time to render, or) 17% faster; Handbrake 1.0.7 ("video encoding"): 497 seconds vs. 604 seconds (497/604=82% as much time to render, or) 18% faster; TrueCrypt 1GB AES ("file encryption"): 11.1 vs. 8 (11.1/8=138% as fast, or) or 38% faster; POV-Ray 3.7 nT ("ray tracing"), 3768 vs. 2959 (3768/2959=127% as fast, or) or 27% faster; Nicehash miner ("Blockchain Mining"), 532 H/s vs. 304 H/s (532/304=1.75% as fast, or) 75% faster; 7-Zip ("File Compression"), 46195 MIPS vs 39779 MIPS (46195/39779=116% as fast, or) 16% faster. Average of all "content creation" percentages (Cinebench, Blender, Handbrake, POV-Ray=32%, 17%, 18%, 27%): 24% higher performance 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 10 x64 Pro (RS3), Samsung 850 Pro SSD. Performance may vary with different drivers and system configurations. RZ2-4

RZ2-8 As measured by AMD Performance Labs on 03/14/2018. All games tested at 2560x1440 resolution with the in-game "High" image quality presets. Results ordered in AMD vs. Intel (Relative%): Grand Theft Auto™ V: 98 vs. 104 (-5%); Metro: Last Light™ Redux: 161 vs. 142 (+13%); Ashes of the Singularity™: 87 vs. 89 (-2%); Deus Ex: Mankind Divided™: 72 vs. 72 (Tie); Sid Meier's Civilization® VI: 89 vs. 98 (-9%); F1® 2017: 127 vs. 137 (-7%); Middle-earth™: Shadow of War™: 84 vs. 85 (-1%); HITMAN® (2016): 89 vs. 90 (-2%); Overwatch™: 130 vs. 134 (-3%); The Witcher™ 3: 83 vs. 85 (-2%); Tom Clancy's The Division™: 95.5 vs. 95

(Tie); Rise of the Tomb Raider™: 113 vs. 113 (Tie); Average of all percentages: -1%. 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 10 x64 Pro (RS3), Samsung 850 Pro SSD. Performance may vary with different drivers and system configurations. RZ2-8

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. 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
2. 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 2<sup>nd</sup> Gen Ryzen 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. AMD Ryzen System Config: AMD Ryzen 7 1700X, 1700, Ryzen 5 1600X, Ryzen 5 1600 X370 Xpower Gaming Titanium 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. Each processor achieved the following scores: AMD Ryzen 7 2700X, 1837; AMD Ryzen 7 2700, 1577; AMD Ryzen 5 2600X, 1373; AMD Ryzen 5 2600, 1311; AMD Ryzen 7 1800X, 1628; AMD Ryzen 7 1700, 1411; AMD Ryzen 5 1600X, 1250; AMD Ryzen 5 1600, 1153. The Ryzen 7 2700X achieved a score of 1837 ( $1837/1628$ = up to 13% faster than the Ryzen 7 1800X). The Ryzen 7 2700 achieved a score of 1577 ( $1577/1411$ =up to 12% faster than the Ryzen 7 1700). The Ryzen 5 2600X achieved a score of 1373 ( $1373/1250$ = up to 10% faster than the Ryzen 5 1600X). The Ryzen 5 2600 achieved a score of 1311 ( $1311/1153$ = up to 14% faster than the Ryzen 5 1600). RZ2-3
3. Statement of “future-proof” refers to support of current and upcoming technology standards including 14nm FinFET process technology, DirectX®12 and Vulkan™ API support, new I/O technology including DDR4, USB 3.1 Gen 2, and NVMe, and experiences such as VR. “Future-proof” statement is not meant to serve as a warranty or indicate that users will never have to upgrade their graphics technology again. Support of

current and upcoming technology standards described above has the potential to reduce frequency of CPU upgrades for some users. GD-104