

# QUICK REFERENCE GUIDE | AMD RADEON™ 6000 SERIES GRAPHICS CARDS

**Outstanding performance, powered by breakthrough AMD RDNA™ 2 architecture.** AMD Radeon™ RX 6000 Series graphics bring phenomenal performance and a competitive gaming edge on the latest and most popular games.

## BREAKTHROUGH AMD RDNA™ 2 ARCHITECTURE

The AMD Radeon™ RX 6000 Series graphics is powered by AMD **RDNA™ 2 architecture**, featuring up to 80 enhanced new **Compute Units** with **Ray Accelerators** for hardware accelerated raytracing on select cards, and **AMD Infinity Cache™** for power-efficient, high-performance bandwidth. The AMD Radeon™ RX graphics card stack enables gaming across any setting and any resolution.

## VIVID VISUALS

The AMD Radeon™ RX 6000 Series graphics cards pull you inside the action with **DirectX® 12 Ultimate** featuring DirectX Raytracing and Variable Rate Shading (VRS), and the latest **AMD FidelityFX™ technology**<sup>1</sup> feature set, enabling realistic lighting, shadows, and reflections along with new levels of rich detail. **Windows 11 AutoHDR** unlocks an entirely new range of colors, making games come to life like never before.

## ELEVATED GAMING EXPERIENCES

From reducing input latency to performance boosts, features such as **AMD Radeon™ Anti-Lag**<sup>3</sup> and **AMD Radeon™ Boost**<sup>2</sup> enable a better gaming experience. Complete the experience with the ultimate display ecosystem featuring **AMD FreeSync™** technology<sup>4</sup>, available on over 2000 displays.

PERFORMANCE	AMD RADEON™ MODEL	GPU ARCHITECTURE	PROCESS	API SUPPORT	RADEON™ VR READY PREMIUM <sup>5</sup>	PCIe® SUPPORT	DISPLAY COMPATIBILITY	GPU CLOCK SPEED <sup>6</sup> (BOOST <sup>7</sup> CLOCK -UP TO)	COMPUTE UNITS	MEMORY INTERFACE	MEMORY AMOUNT + AMD INFINITY CACHE™	MEMORY BANDWIDTH (UP TO)	GPU POWER (TOTAL BOARD POWER)	PSU RECOMMENDATION	REQUIRED POWER SUPPLY CONNECTORS	FORM FACTOR	COMPETITIVE GRAPHICS
↑	AMD Radeon™ RX 6950 XT	AMD RDNA™ 2	7nm	DirectX® 12 Ultimate  OpenGL® 4.5  Vulkan®  OpenCL™ 2.1	✓	4.0	Up to 6 displays with DisplayPort™ MST hub, DisplayPort 1.4 with DSC HDMI™ 2.1 VRR	Game: 2100 Mhz Boost: 2310 Mhz	80	256-bit GDDR6	16GB GDDR6 + 128MB AMD Infinity Cache	576 GB/s	335W	850W	2 x 8-pin	Full height, 2.5 slot	RTX 3090 RTX 3080Ti
	AMD Radeon™ RX 6900 XT				✓			Game: 2015 Mhz Boost: 2250 Mhz				512 GB/s					
	AMD Radeon™ RX 6800 XT				✓			Game: 2015 Mhz Boost: 2250 Mhz	72			300W	750W				RTX 3080
	AMD Radeon™ RX 6800				✓			Game: 1815 Mhz Boost: 2105 Mhz	60				250W	650W			
	AMD Radeon™ RX 6750 GRE 12GB				✓			Game: 2439Mhz Boost: 2581 Mhz	40	192-bit GDDR6	12GB GDDR6 + 96MB AMD Infinity Cache	432 GB/s	230W		600W	1 x 8-pin	Full height, 2 slot
	AMD Radeon™ RX 6750 GRE 10GB				✓			Game: 2189 Mhz Boost: 2450 Mhz	36	160-bit GDDR6	10GB GDDR6 + 80MB AMD Infinity Cache	320 GB/s	170W				
	AMD Radeon™ RX 6650 XT				✓			Game: 2410 Mhz Boost: 2635 Mhz	32	128-bit GDDR6	8GB GDDR6 + 32MB AMD Infinity Cache	280 GB/s	180W	500W	RTX 3060		
	AMD Radeon™ RX 6600 XT				✓			Game: 2359 Mhz Boost: 2589 Mhz	32			256 GB/s	160W				
	AMD Radeon™ RX 6600				✓			Game: 2044 Mhz Boost: 2491 Mhz	28			224 GB/s	132W	450W		RTX 3050	
	AMD Radeon™ RX 6500 XT		6nm					Game: 2610 Mhz Boost: 2815 Mhz	16	64-bit GDDR6	4GB GDDR6 + 16MB AMD Infinity Cache	144 GB/s	107W	400W	1 x 6-pin		GTX 1650
	AMD Radeon™ RX 6400							Game: 2039 Mhz Boost: 2321 Mhz	12	64-bit GDDR6	4GB GDDR6 + 16MB AMD Infinity Cache	128 GB/s	53W	350W	PCIe Powered		Half height or full height, 1 or 2 slots

**EXCEPTIONAL FEATURES, DESIGNED FOR GAMERS**

Deliberately designed hardware and software features unleash the full potential of AMD Radeon™ graphics products to enable elevated gaming experiences.

**AMD FidelityFX™ Super Resolution 3 Technology<sup>9</sup>**

NEW AMD FidelityFX™ Super Resolution 3 (FSR 3) is the synergy of AMD temporal upscaling technology and frame generation that includes AMD Fluid Motion Frames technology (AFMF) and is designed to deliver massive performance boosts with incredible image quality in supported games across a wide range of products and platforms.

**AMD Fluid Motion Frames<sup>11</sup>**

Boost FPS with frame generation technology for a smoother gaming experience. AMD Fluid Motion Frames is available in-driver as part of AMD Software: Adrenalin Edition™ application and may be enabled in any DirectX® 11 and 12 games on AMD Radeon™ RX 6000 Series desktop graphics cards.

**REDUCING TOTAL SYSTEM LATENCY****AMD Radeon™ Anti-Lag<sup>3</sup>**

Reduces lag by intelligently controlling the queuing of CPU work ahead of GPU work so you can have the competitive edge when you game.

**AMD Radeon™ Boost<sup>2</sup>**

Radeon™ Boost delivers extra performance in select titles when fast motion via mouse input is detected in select titles, enabling higher FPS and a more responsive feel.

**AMD FreeSync™ Technology<sup>4</sup>**

Put an end to choppy gameplay and broken frames with fluid, artifact-free performance at virtually any frame rate. With over 2000 certified FreeSync technology enabled monitors to choose from, achieving pixel-perfect, low latency, smooth gaming has never been easier.

**AMD Smart Access Memory<sup>8</sup> Technology**

Pair with select Ryzen™ desktop processors on AMD 500 Series motherboards (BIOS based on AMD AGESA 1.1.0.0 or newer) for extra performance.

**HDMI™ 2.1 VRR and USB Type-C®**

With expanded display capabilities such as HDMI™ 2.1 VRR and USB Type-C, enjoy connectivity for the latest displays, extreme resolutions, and VR headsets.

\*AMD Radeon™ RX 6800 and RX 6900 Series graphics cards only

**AMD Radeon™ Software Performance Tuning Presets**

Unleash the full performance potential of your graphics card with a single click of the **Rage mode** preset, or select the Quiet preset to deliver reduced power consumption and fan speeds.

\*Rage mode available for AMD Radeon™ RX 6800 XT and RX 6900 Series graphics cards only

**Media Capture & Streaming**

Effortlessly capture, stream, and share your memorable moments and clutch victories.

\*AMD Radeon™ RX 6600, RX 6700, RX 6800 and RX 6900 Series graphics cards only

**AMD RADEON™ GRAPHICS RECOMMENDED USAGE CHART**

● = BEST    ◐ = BETTER    ○ = GOOD    ↻ = SUPPORTS

Product Family	Web Browsing, Email & Social	Watching 4K Media and Content	Video Editing	Esports Gaming	AAA Gaming	VR Gaming	Live Game Streaming	1440p Gaming	Hardware Raytracing	4K Gaming
<b>ULTRA ENTHUSIAST</b>										
AMD RADEON™ RX 6950 XT	●	●	●	●	●	●	●	●	●	●
AMD RADEON™ RX 6900 XT	●	●	●	●	●	●	●	●	●	●
AMD RADEON™ RX 6800 XT	●	●	●	●	●	●	●	●	●	●
AMD RADEON™ RX 6800	●	●	●	●	●	●	●	●	●	◐
<b>ENTHUSIAST</b>										
AMD RADEON™ RX 6750 GRE <b>12GB</b>	●	●	●	●	●	●	●	●	◐	
AMD RADEON™ RX 6750 GRE <b>10GB</b>	●	●	●	●	●	●	●	●	◐	
AMD RADEON™ RX 6650 XT	●	●	●	●	●	◐	◐	○	○	
AMD RADEON™ RX 6600 XT	●	●	●	●	●	◐	◐	○	○	
AMD RADEON™ RX 6600	●	●	●	●	●	○	○	○	○	
<b>PERFORMANCE</b>										
AMD RADEON™ RX 6500 XT	●	◐	○	◐	◐				↻	
AMD RADEON™ RX 6400	●	◐	○	◐	○				↻	

This chart illustrates competitive product positioning, is not necessarily an indication of relative performance, and may not be to scale for any performance metric. GD-75

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- For additional information about FidelityFX technology, see <https://www.amd.com/en/technologies/radeon-software-fidelityfx>. GD-172
- Radeon Boost is compatible with Windows 10/11 in select titles. Hardware compatibility includes Radeon RX 400 dGPUs and newer, Ryzen 2000 Series CPUs and newer, including hybrid and detachable graphics configurations. No mGPU support. Radeon Boost Variable Rate Shading is compatible with AMD Radeon RX 6000 Series Graphics and newer. For a list of compatible titles see <https://www.amd.com/en/technologies/radeon-boost>. GD-158
- Radeon Anti-Lag is compatible with DirectX 9/11/12 APIs, and Windows 10/11. Hardware compatibility includes Radeon RX 400 Series discrete graphics and newer dGPUs and Ryzen 2000 Series and newer CPUs, including hybrid and detachable graphics configurations. No mGPU support. GD-157
- AMD FreeSync/FreeSync Premium/FreeSync Premium Pro technology requires AMD Radeon graphics and a display certified by AMD. See [www.amd.com/en/technologies/freesync](https://www.amd.com/en/technologies/freesync) for complete details. Confirm compatibility with your system or display manufacturer before purchase. GD-127
- Radeon VR Ready Premium Products are select Radeon GPUs that meet or exceed the HTC, Oculus, and Valve recommended specifications for video cards/GPUs. Other hardware (including CPU) and system requirements recommended by HTC, Oculus, or Valve should also be met in order to operate the applicable HMDs as intended. As VR technology, HMDs and other VR hardware and software evolve and/or become available, these criteria may change without notice. PC/System manufacturers may vary configurations, yielding different VR results/performance. Check with your PC or system manufacturer to confirm VR capabilities. GD-102
- Game clock is the expected GPU clock when running typical gaming applications, set to typical TGP (Total Graphics Power). Actual individual game clock results may vary. GD-147
- Boost Clock Frequency is the maximum frequency achievable on the GPU running a bursty workload. Boost clock achievability, frequency, and sustainability will vary based on several factors, including but not limited to: thermal conditions and variation in applications and workloads. GD-151
- Smart Access Memory technology is compatible with AMD Radeon RX 5000 Series GPUs or later, Ryzen 3000 Series CPUs or later (excluding Ryzen 5 3400G and Ryzen 3 3200G CPUs), AMD desktop kits (4800S Series and later), and an AMD 500 Series motherboard or later with the latest BIOS update available at the vendor website. OEM support is required. For additional information see <https://www.amd.com/en/technologies/smart-access-memory>. GD-178
- AMD FidelityFX Super Resolution (FSR) versions 1, 2, and 3 are available on select games which require game developer integration and are supported on select AMD products. AMD does not provide technical or warranty support for AMD FidelityFX Super Resolution enablement on other vendors' graphics cards. See <https://www.amd.com/en/technologies/fidelityfx-super-resolution> for additional information. GD-187A
- Radeon Super Resolution works with games that support exclusive and borderless full-screen modes. AMD Software: Adrenalin Edition 22.5.2 or newer is required. GD-197
- AMD Fluid Motion Frames interpolation technology when used with AMD FidelityFX Super Resolution (FSR) 3 inserts 1 frame between existing ones which can therefore enable up to 2x the framerate in supported games. GD-231

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