# AMD RADEON™ RX 9000 SERIES
# GRAPHICS

FEB 2025

**AMD**
together we advance_gaming

# AMD drives the most iconic Gaming Devices

Across PC, Console, Mobile, & Handheld

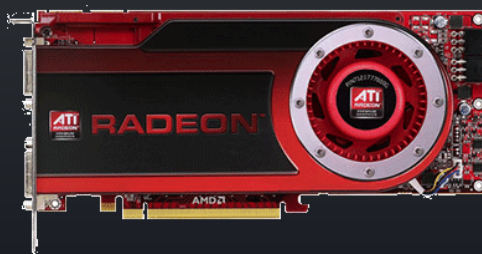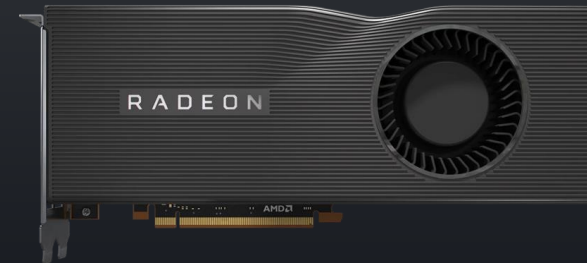# 25 Years of Radeon™ Innovation
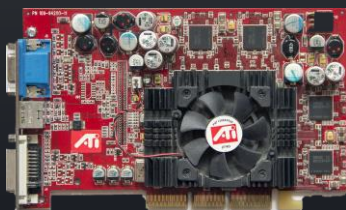
**2000**
**Radeon DDR**
The First Radeon™ GPU

**2008**
**Radeon HD 4870**
World's First Teraflop GPU

**2019**
**Radeon RX 5700 XT**
Introduction of AMD RDNA™ Architecture

**2002**
**Radeon 9700 Pro**
Introduction of Pixel & Vertex Shaders

**2015**
**Radeon R9 Fury X**
World's First Gaming GPU with HBM Memory

**2022**
**Radeon RX 7900 XTX**
Accelerated AI and Raytracing

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# The Next Chapter of Radeon™ Graphics is Here

**AMD RDNA™ 4**
Architecture

**AMD Software**
for RDNA 4

**AMD Radeon™ RX 9000**
Series Graphics Cards

AMD
together we advance_gaming
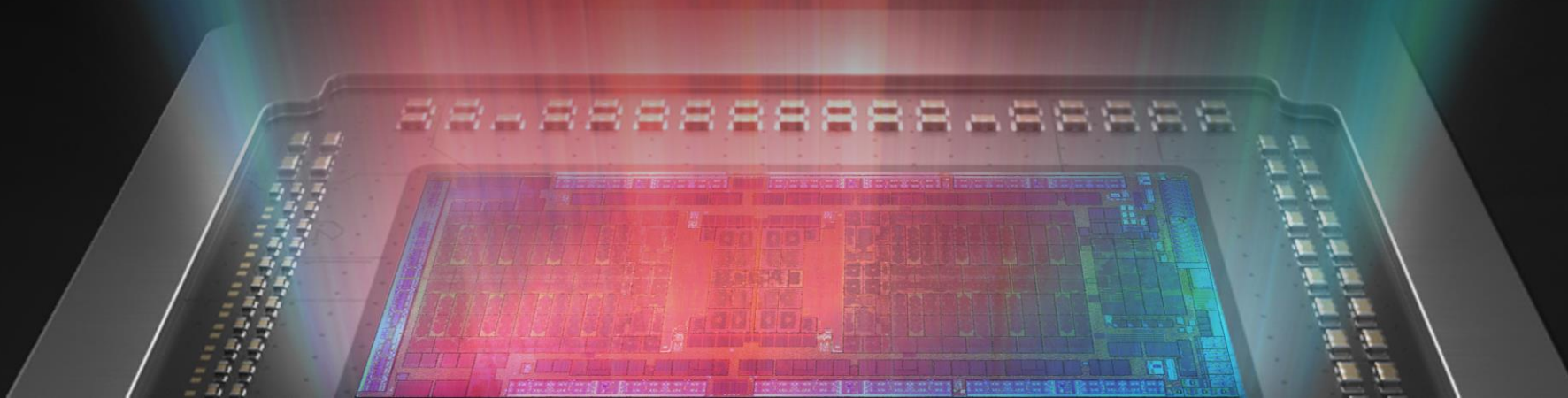
# The AMD RDNA™ Evolution

## Bringing Enthusiast PC Gaming Experiences to More Gamers

| 2019 | 2020 | 2022 | 2025 |
|---|---|---|---|

**AMD RDNA**

New Architecture
Advanced Rasterization
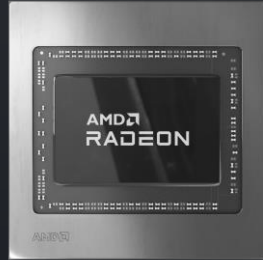
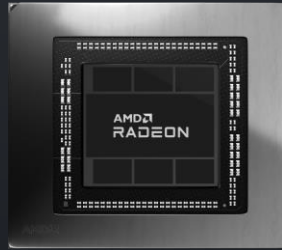**AMD RDNA 2**

Raytracing
High Frequency
AMD Infinity Cache™
technology

**AMD RDNA 3**

Enhanced Raytracing
AI Acceleration
AMD Radiance Display™
Engine
DisplayPort 2.1
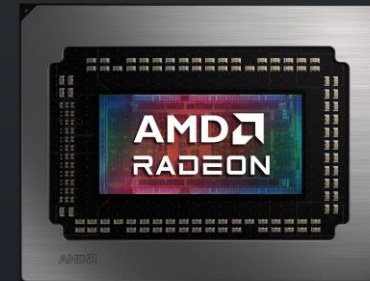
**AMD RDNA 4**

Ray and Path Tracing
ML Assisted Rendering
Faster Command Processing
Advanced Shader Programming
Enhanced Memory Compression
2nd Gen AMD Radiance Display & Media Engines

AMD
together we advance_gaming

# AMD RDNA™ 4 Architecture
## The New Compute Unit
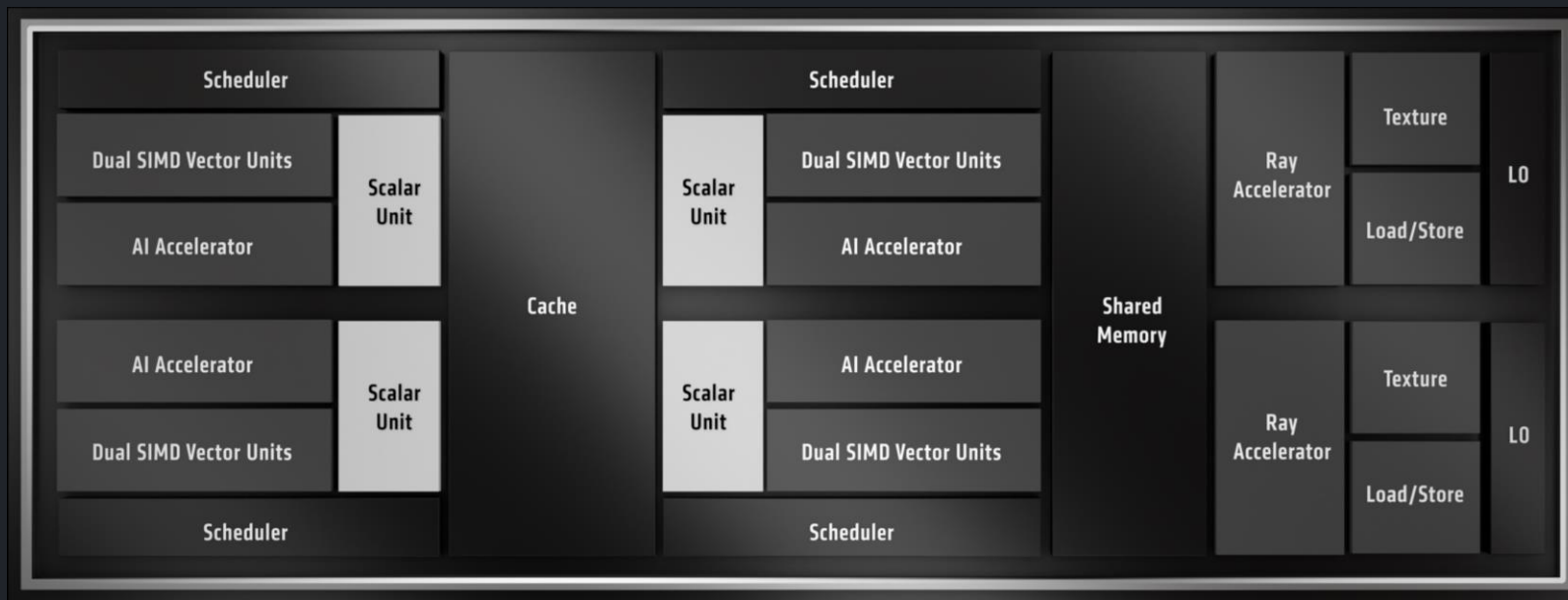
**vs AMD RDNA 3**

**Enhanced**
Memory Subsystem

**Improved**
Scalar Units

**Dynamic**
Register Allocation

**Increased**
CU Efficiency & Clock Speeds

>40% Gaming Average vs RDNA 3

AMD
together we advance_gaming
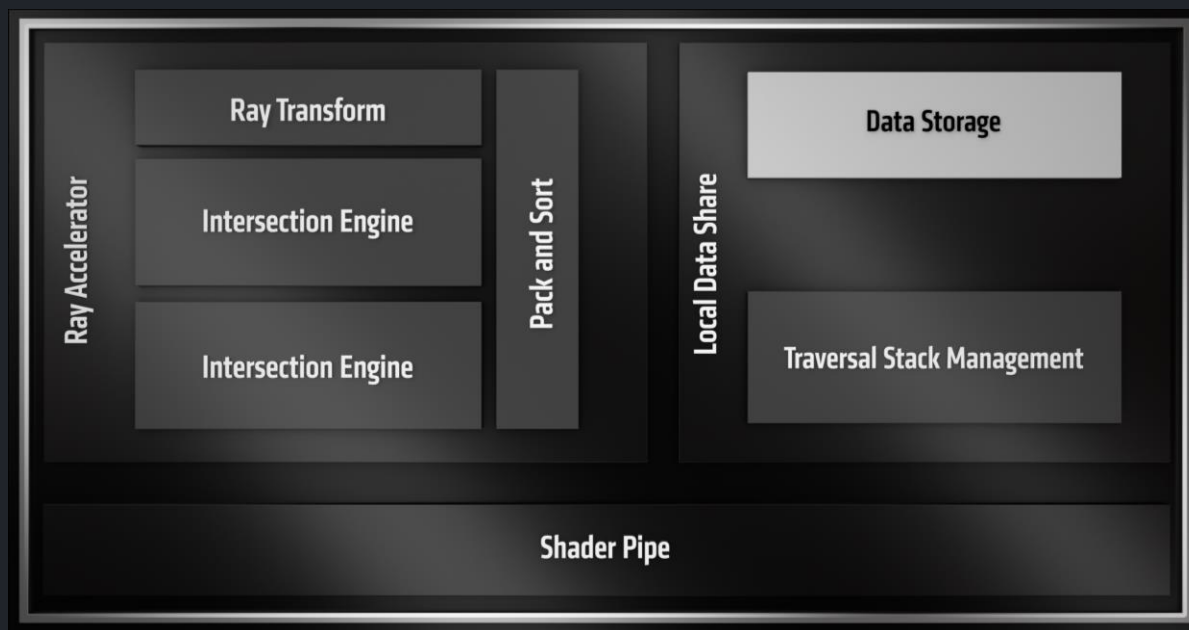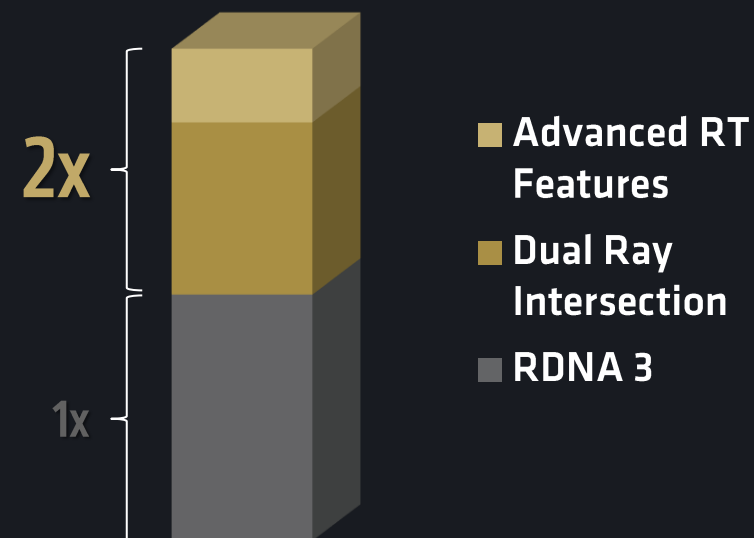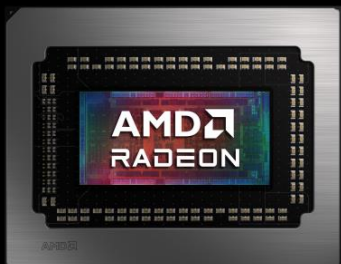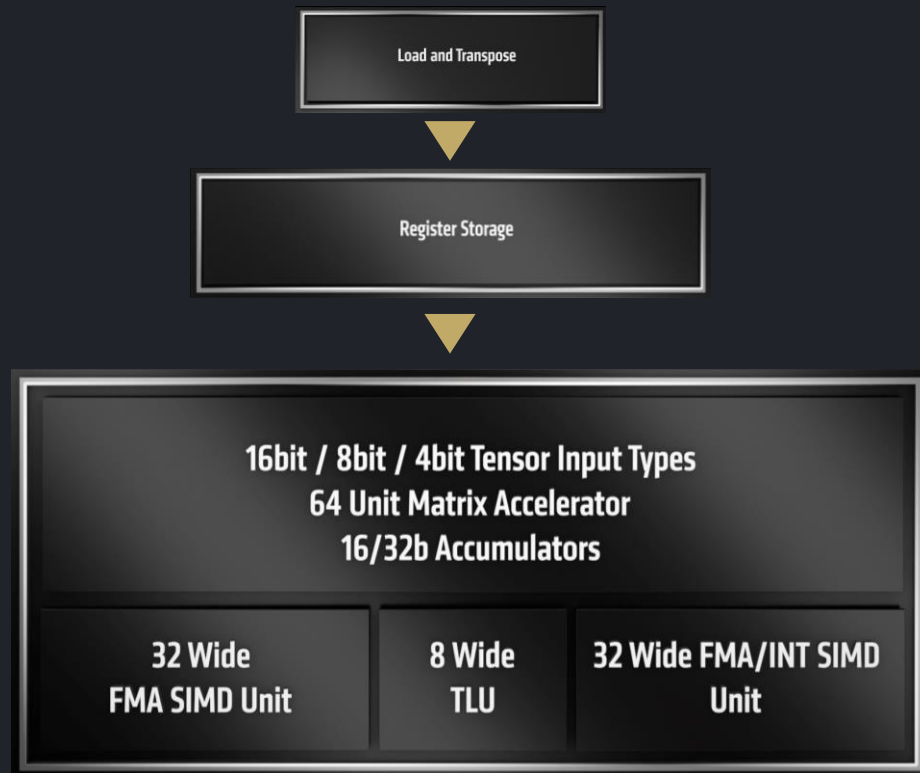
# AMD RDNA™ 4

## Bringing Enthusiast PC Gaming Experiences to More Gamers

### RELATIVE PERFORMANCE PER COMPUTE UNIT

Chart axis labels: 4x, 3x, 2x, 1x

Categories: Rasterization, Raytracing, ML (FP16 dense matrix)

Legend: ■ RDNA 2  ■ RDNA 3  ■ RDNA 4
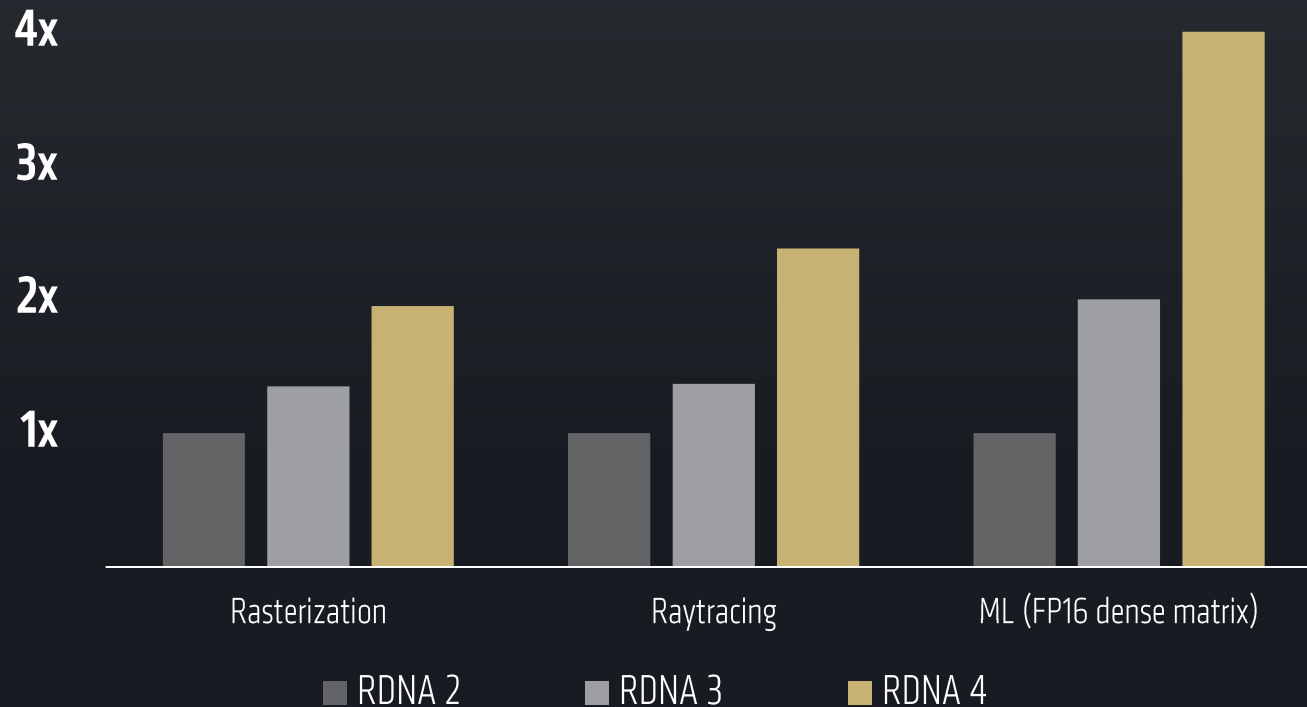
- Improved Rasterization and Compute efficiency
- A step change in Raytracing performance
- Comprehensive high-performance ML support
- Enhanced bandwidth efficiency
- Advanced multimedia and display

# Radeon™ Software Journey
## Features, Performance, and Stability



2000s

2010s

2020s

AMD
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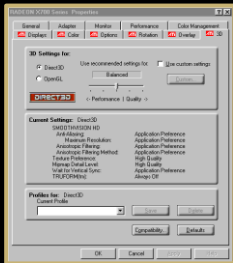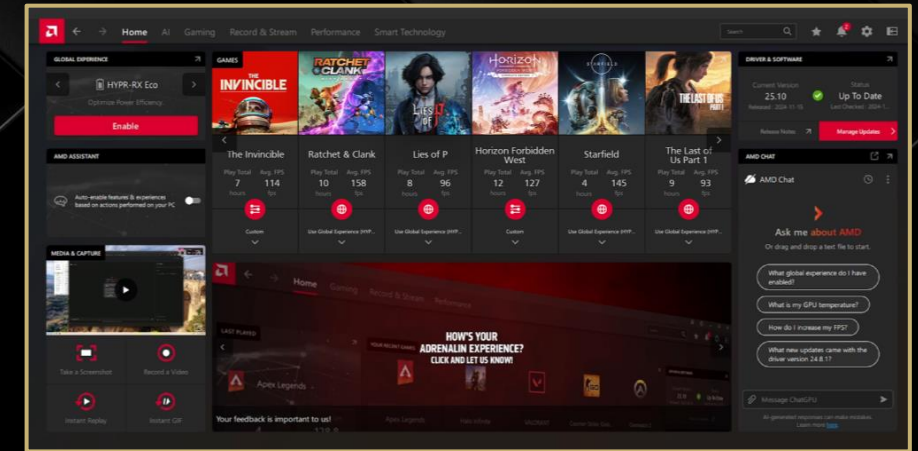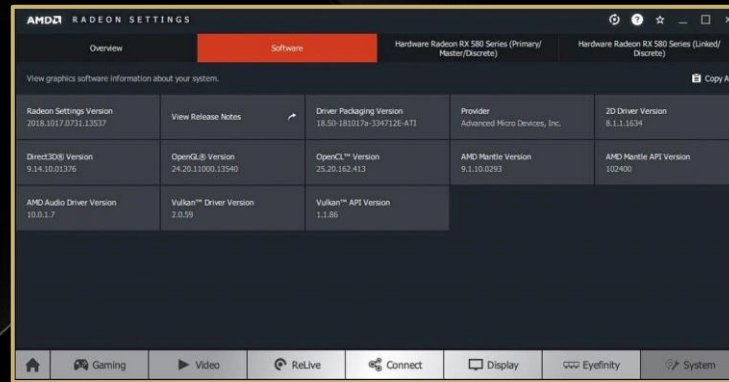
# Our Focus On Quality

*Since 2019*

- New AI-optimized internal test processes
- Increased hardware test configurations
- Reporting tools added to AMD Software
- Introduced Beta Tester Program
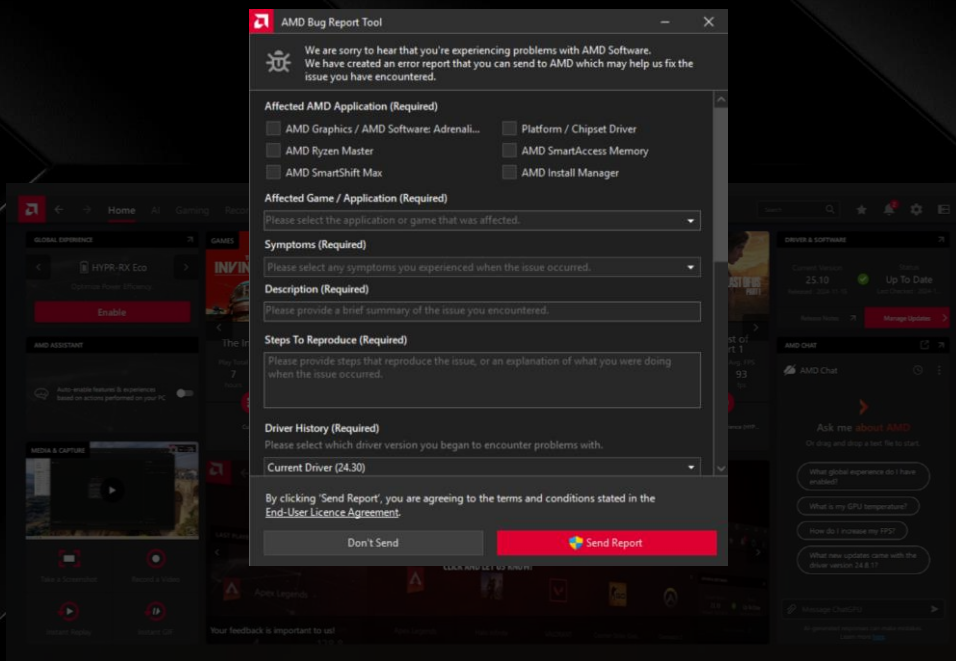
**AMD**

**HYPR-RX**

*Fast* and
*Smooth Gaming*
In Thousands of Games

*SEE GD-225A IN ENDNOTES

**AMD**
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AMD

FidelityFX
Super Resolution

*400+ Titles and Growing*
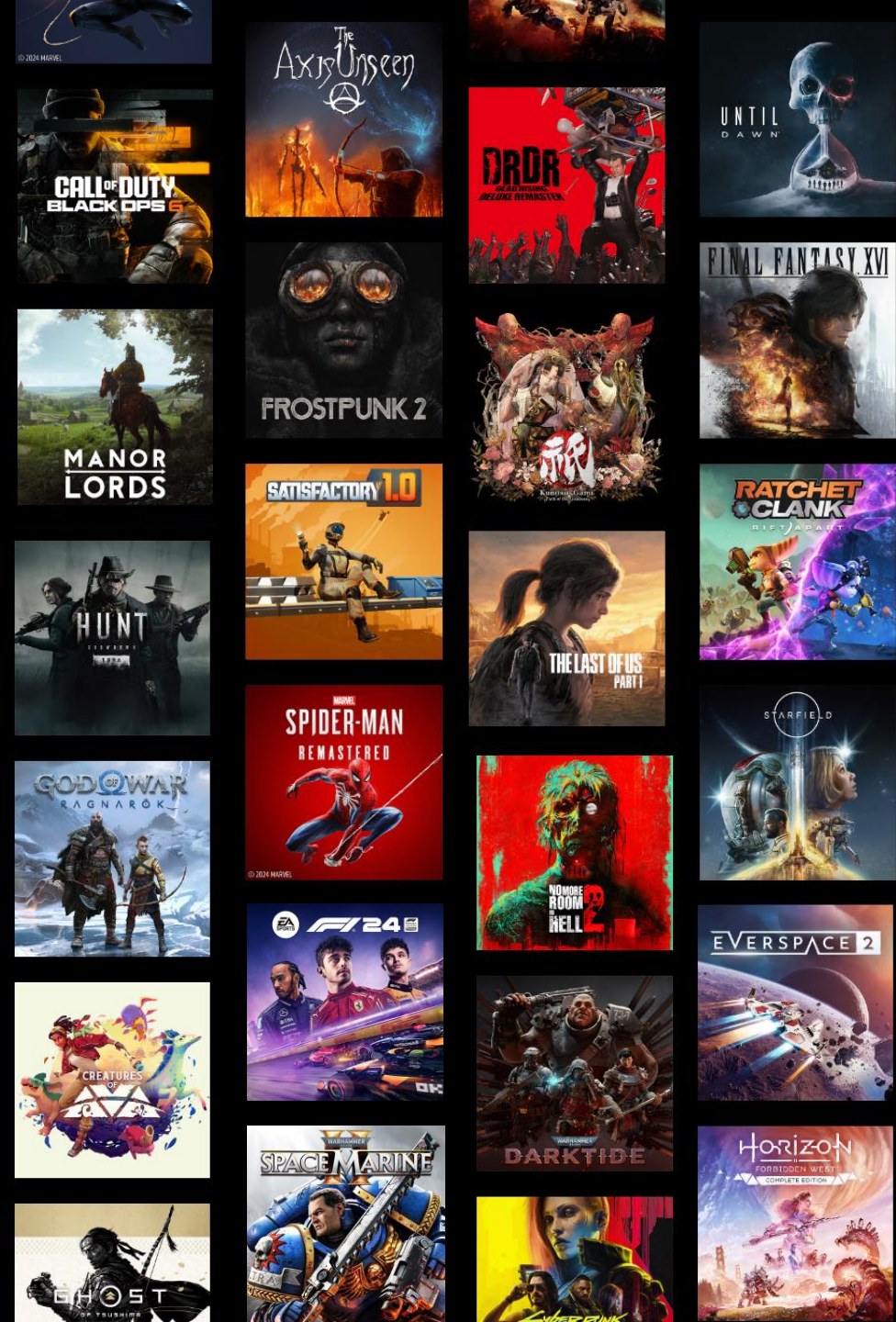
*SEE GD-187B IN ENDNOTES

# AMD FSR 4
## ML-POWERED UPSCALING

- ✓ **Developed for** AMD RDNA™ 4
- ✓ **High Quality & Low Latency**
  Upscaling + Frame Gen + Anti Lag
- ✓ **Utilizes** upgradable FSR 3.1 API
- ✓ **Neural Rendering** Ready

**CALL OF DUTY®**
**BLACK OPS 6**

*AMD FSR 4 UPGRADE FEATURE ONLY AVAILABLE ON AMD RADEON RX 9070 SERIES
GRAPHICS FOR SUPPORTED GAMES WITH AMD FSR 3.1 ALREADY INTEGRATED

**AMD**
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# FSR 4

## Developed, trained, and optimized on AMD
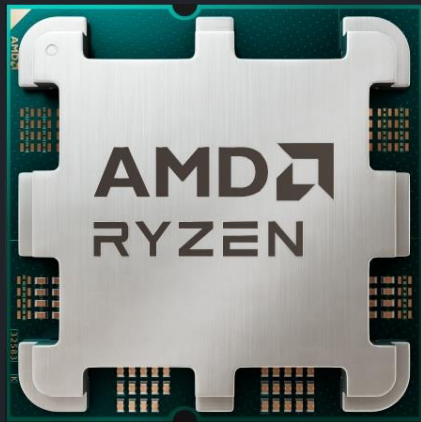
| Developed With | Trained On | Optimized For |
|---|---|---|
| **AMD Ryzen™ & AMD Radeon™** | **AMD EPYC™ & AMD Instinct™ Processors** | **RDNA™ 4 Graphics** |

**WARHAMMER 40,000: SPACE MARINE II**
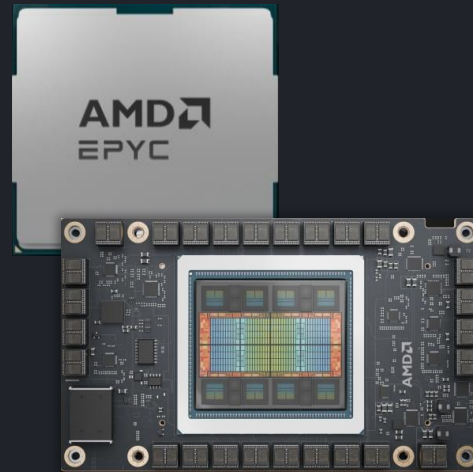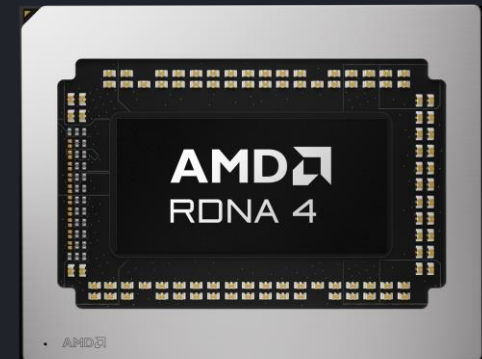
Native 4K

AMD FSR 3.1
*Performance Mode*

AMD FSR 4
*Performance Mode*

# Focusing on what *Gamers* want

## More Accessible

85% gamers buy GPUs <$700
AMD Internal Data

## Higher Resolutions

More gamers buying 1440p & 4K displays

## More Performance

Including raytracing games

## Easy Upgrades

Drop-in with existing PSU
8-Pin power connectors

AMD
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# Built for 4K Gaming at a 1440p Price
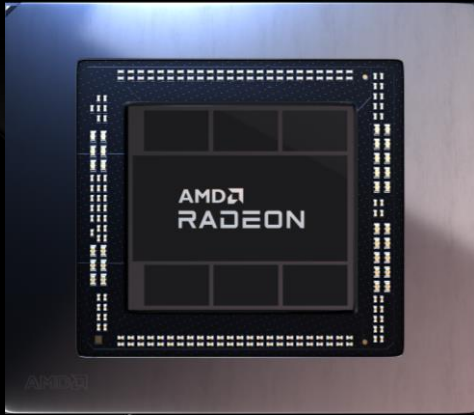
| RX 7900 XTX | RX 7900 XT | RX 9070 Series | RX 7900 GRE |
|---|---|---|---|
| 96 RDNA 3 CUs | 84 RDNA 3 CUs | up to 64 RDNA 4 CUs | 80 RDNA3 CUs |
| 57.8B transistors | 55.8B transistors | up to 53.9B transistors | 53.8B transistors |
| $999 Launch | $899 Launch | ←→ | $549 Launch |
| 4K Gaming | | 4K and 1440p Gaming | 1440p Gaming |

Introducing

# AMD Radeon™ RX 9070

| **56** | **1165** | Up to<br>**2520**MHz | **16**GB | **220**W |
|---|---|---|---|---|
| Compute Units | Peak AI TOPS<br>INT4 with sparsity | Boost Clock | GDDR6 Memory | Board Power |

## *Starting at $549 USD*

AMD
together we advance_gaming

# AMD Radeon™ RX 9070

## vs RX 7900 GRE at 4K Ultra Settings

**+21%**
**Faster Gaming**
Average Across 30+ Games
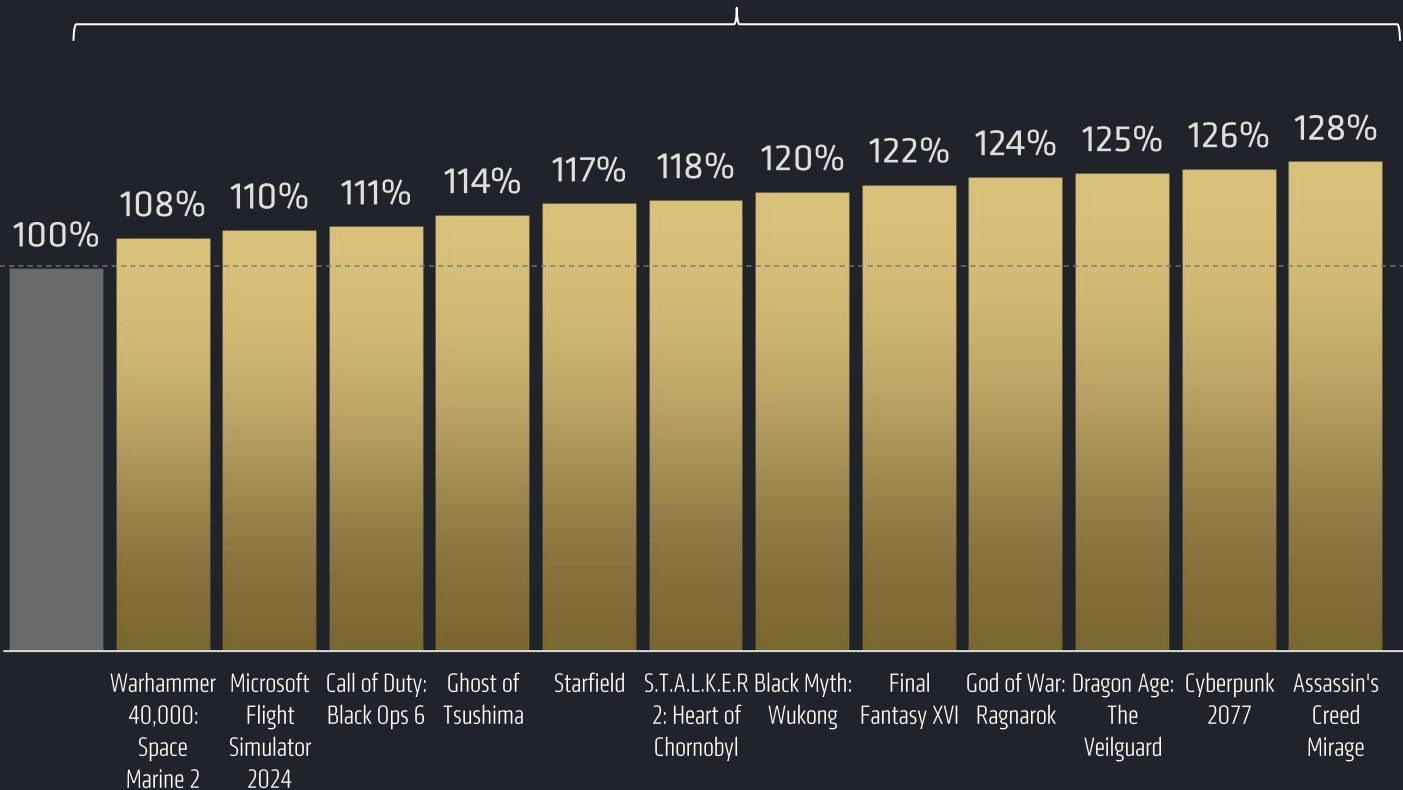
### Native 4K Ultra Gaming Performance

- Warhammer 40,000: Space Marine 2 — 108%
- Microsoft Flight Simulator 2024 — 110%
- Call of Duty: Black Ops 6 — 111%
- Ghost of Tsushima — 114%
- Starfield — 117%
- S.T.A.L.K.E.R. 2: Heart of Chornobyl — 118%
- Black Myth: Wukong — 120%
- Final Fantasy XVI — 122%
- God of War Ragnarok — 124%
- Dragon Age: The Veilguard — 125%
- Cyberpunk 2077 — 126%
- Assassin's Creed Mirage — 128%

(Baseline: 100%)

### Native 4K Ultra Raytracing Performance

- Avatar: Frontiers of Pandora — 111%
- The Witcher 3 — 122%
- Star Wars Outlaws — 123%
- Marvel's Spider-Man 2 — 124%
- Far Cry 6 — 125%
- Hitman 3 — 128%
- Watch Dogs Legion — 130%
- Cyberpunk 2077 — 133%
- F1 24 — 134%

AMD Radeon™ **RX 7900 GRE**   AMD Radeon™ **RX 9070**

See Endnote RX-1176.
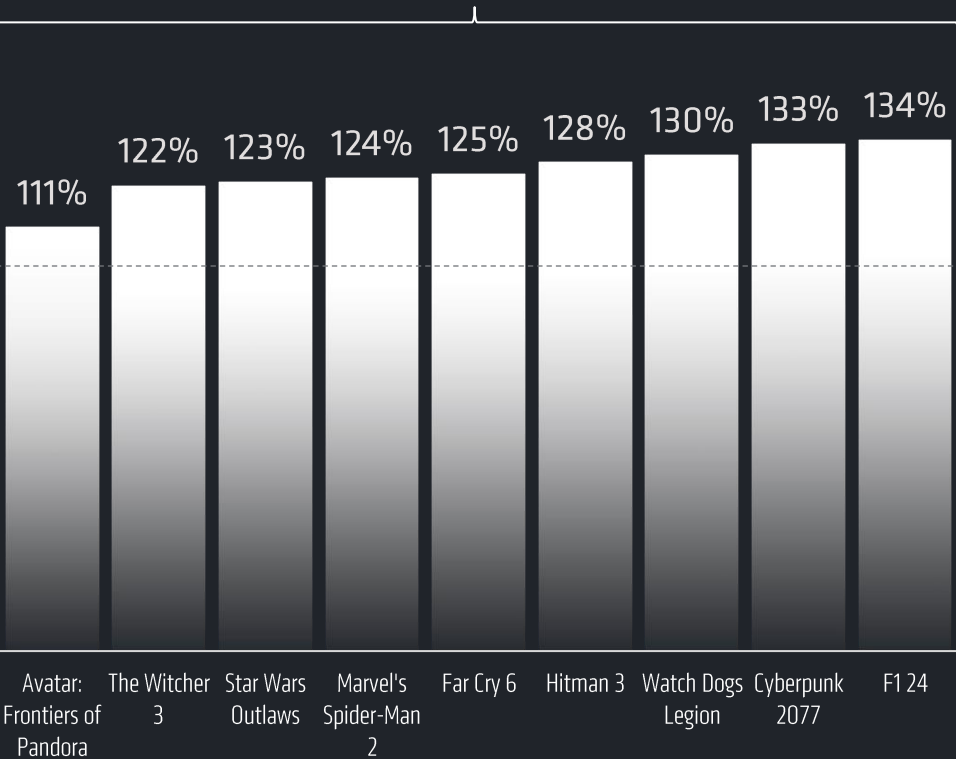
# AMD Radeon™ RX 9070

## vs RX 7900 GRE at 1440p Ultra Settings

**+20%**
**Faster Gaming**
Average Across 30+ Games

### Native 1440p Ultra Gaming Performance

| Game | % |
|------|---|
| Warhammer 40,000: Space Marine 2 | 100% |
| Call of Duty: Black Ops 6 | 106% |
| Cyberpunk 2077 | 111% |
| Microsoft Flight Simulator 2024 | 115% |
| Starfield | 115% |
| S.T.A.L.K.E.R. 2: Heart of Chornobyl | 118% |
| Final Fantasy XVI | 118% |
| Ghost of Tsushima | 118% |
| Assassin's Creed Mirage | 119% |
| Black Myth: Wukong | 122% |
| God of War: Ragnarok | 122% |
| Dragon Age: The Veilguard | 122% |
| | 127% |

### Native 1440p Ultra Raytracing Performance

| Game | % |
|------|---|
| Avatar: Frontiers of Pandora | 113% |
| The Witcher 3 | 115% |
| Star Wars Outlaws | 121% |
| Watch Dogs Legion | 124% |
| Far Cry 6 | 126% |
| Marvel's Spider-Man 2 | 127% |
| Hitman 3 | 129% |
| Cyberpunk 2077 | 133% |
| F1 24 | 139% |

■ AMD Radeon™ **RX 7900 GRE**    ■ AMD Radeon™ **RX 9070**

# High Performance 1440p Esports

Average FPS | High Settings

**173**
**FPS**

**327**
**FPS**

**346**
**FPS**

**561**
**FPS**

**1002**
**FPS**

PUBG: Battlegrounds

Counter Strike 2
ANTI-LAG 2 SUPPORT

DOTA 2
ANTI-LAG 2 SUPPORT

League of Legends

Valorant

AMD Radeon™ *RX 9070*

See Endnote RX-1178.

AMD
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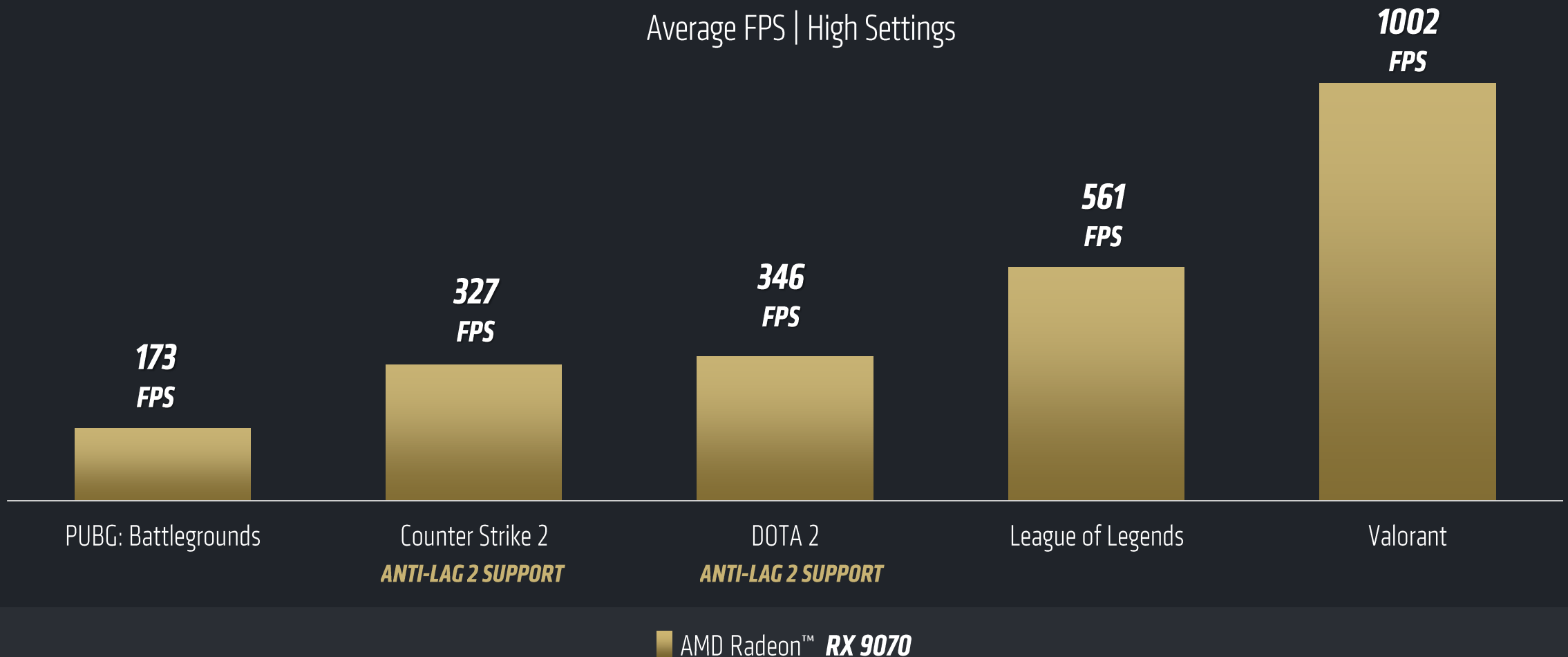
Introducing

# AMD Radeon™ RX 9070 XT

**64**
Compute Units

**1557**
Peak AI TOPS
*INT4 with sparsity*

Up to
**2970**MHz
Boost Clock

**16**GB
GDDR6 Memory

**304**W
Board Power

## *Starting at $599 USD*

AMD
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# AMD Radeon™ RX 9070 XT
## vs RX 7900 GRE at 4K Ultra Settings

## +42%
**Faster Gaming**
Average Across 30+ Games

### Native 4K Ultra Gaming *Performance*

| Game | % |
|---|---|
| (RX 7900 GRE baseline) | 100% |
| Warhammer 40,000: Space Marine 2 | 128% |
| Call of Duty: Black Ops 6 | 133% |
| Ghost of Tsushima | 133% |
| S.T.A.L.K.E.R 2: Heart of Chornobyl | 133% |
| Starfield | 134% |
| Microsoft Flight Simulator 2024 | 135% |
| Final Fantasy XVI | 140% |
| Dragon Age: The Veilguard | 141% |
| Black Myth: Wukong | 142% |
| Assassin's Creed Mirage | 143% |
| God of War: Ragnarok | 146% |
| Cyberpunk 2077 | 148% |

### Native 4K Ultra **Raytracing** Performance

| Game | % |
|---|---|
| Avatar: Frontiers of Pandora | 136% |
| Far Cry 6 | 146% |
| Marvel's Spider-Man 2 | 146% |
| Star Wars Outlaws | 148% |
| The Witcher 3 | 148% |
| Watch Dogs Legion | 152% |
| Hitman 3 | 159% |
| Cyberpunk 2077 | 166% |
| F1 24 | 166% |

■ AMD Radeon™ *RX 7900 GRE*   ▨ AMD Radeon™ *RX 9070 XT*

See Endnote RX-1179.

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# 4K Performance with FSR 4



**4.4x**
191 FPS

**4.0x**
192 FPS

**3.3x**
168 FPS

**3.0x**
145 FPS

**3.5x**
147 FPS

43 FPS | 48 FPS | 51 FPS | 48 FPS | 42 FPS

7900 GRE | 9070 XT | 7900 GRE | 9070 XT | 7900 GRE | 9070 XT | 7900 GRE | 9070 XT | 7900 GRE | 9070 XT

**Warhammer 40,000: Space Marine 2** | **Marvel's Spider-Man 2** | **God of War: Ragnarök** | **Horizon Forbidden West** | **Monster Hunter Wilds (Beta)**

Native | FSR 4 Performance Mode

AMD
together we advance_gaming
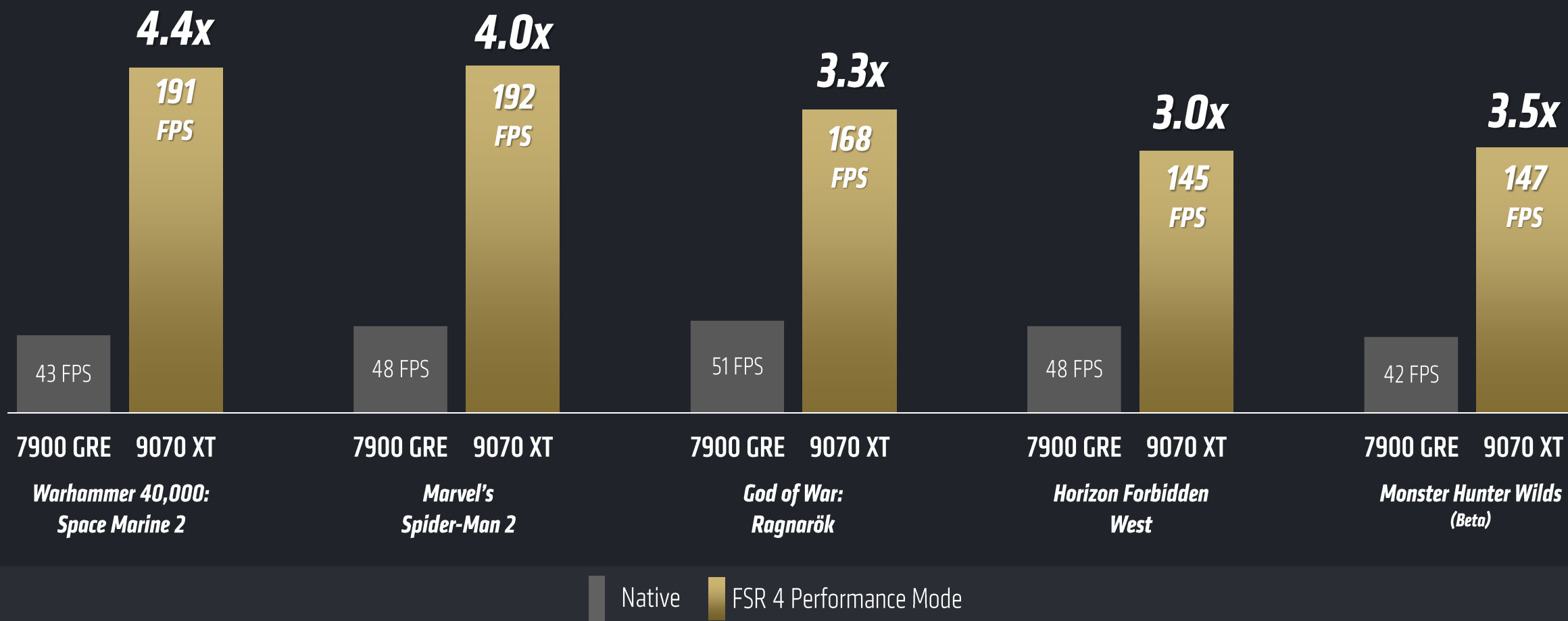
# AMD Radeon™ RX 9070 XT
## vs RX 7900 GRE at 1440p Ultra Settings

## +38%
### Faster Gaming
Average Across 30+ Games

### Native 1440p Ultra Gaming Performance

- 100% — Warhammer 40,000: Space Marine 2
- 123% — S.T.A.L.K.E.R 2: Heart of Chornobyl
- 129% — Call of Duty: Black Ops 6
- 130% — Starfield
- 132% — Assassin's Creed Mirage
- 132% — Cyberpunk 2077
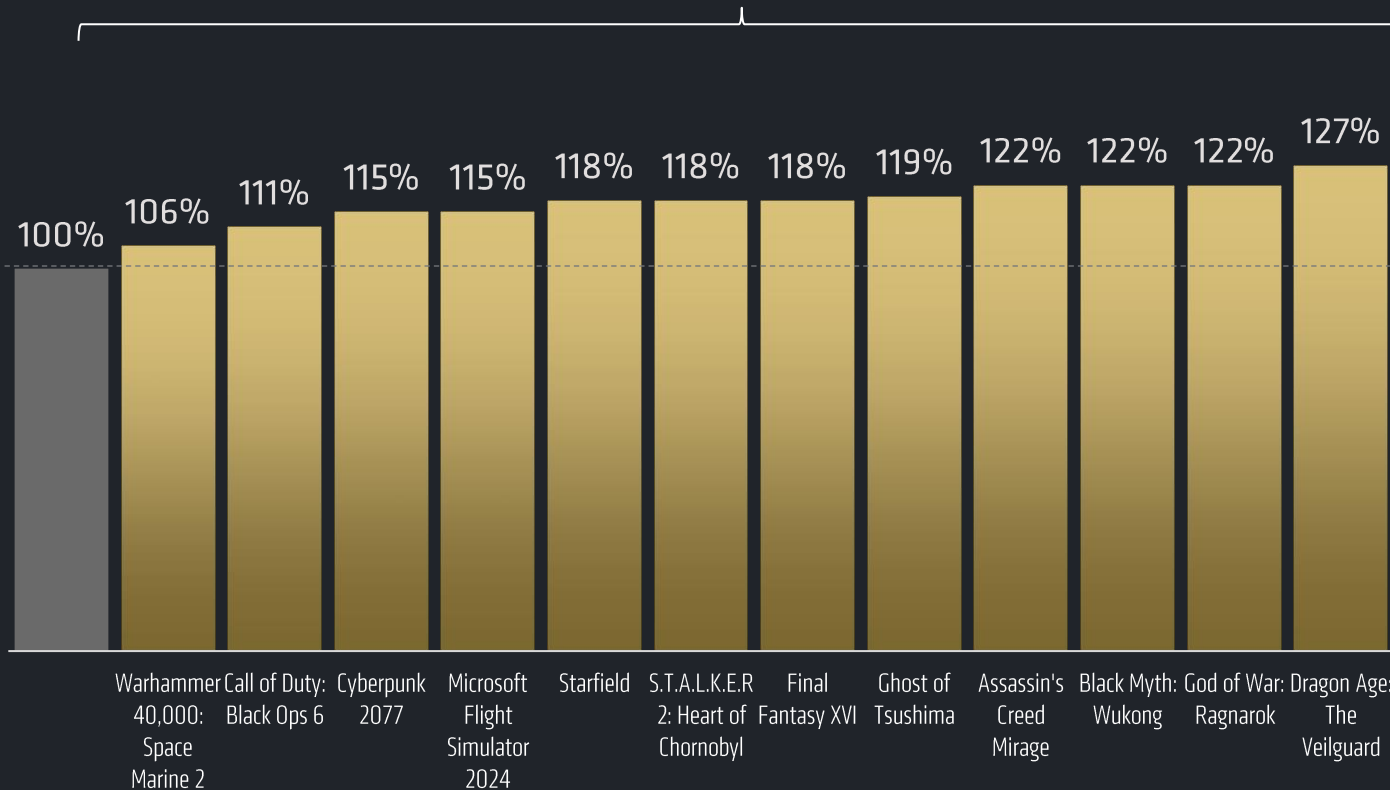- 132% — Final Fantasy XVI
- 134% — Ghost of Tsushima
- 137% — Dragon Age: The Veilguard
- 139% — Microsoft Flight Simulator 2024
- 139% — God of War: Ragnarok
- 143% — Black Myth: Wukong
- 144%

### Native 1440p Ultra Raytracing Performance

- 134% — Avatar: Frontiers of Pandora
- 137% — Far Cry 6
- 138% — The Witcher 3
- 142% — Marvel's Spider-Man 2
- 144% — Star Wars Outlaws
- 144% — Watch Dogs Legion
- 158% — Hitman 3
- 164% — Cyberpunk 2077
- 168% — F1 24

AMD Radeon™ **RX 7900 GRE**     AMD Radeon™ **RX 9070 XT**

See Endnote RX-1181.

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# Supercharged AI Performance

## Creator AI Performance

| | Super Resolution<br>Adobe Lightroom | Denoise<br>Adobe Lightroom | Subtitles from Audio<br>Davinci Resolve | Magic Mask Tracking<br>Davinci Resolve |
|---|---|---|---|---|
| 100% | 112% | 117% | 120% | 134% |

## Generative AI Performance

| FLUX Schnell<br>Amuse | ComputerVision FP16<br>Procyon | SD 1.5<br>Procyon | SD XL<br>Procyon |
|---|---|---|---|
| 141% | 145% | 164% | 170% |
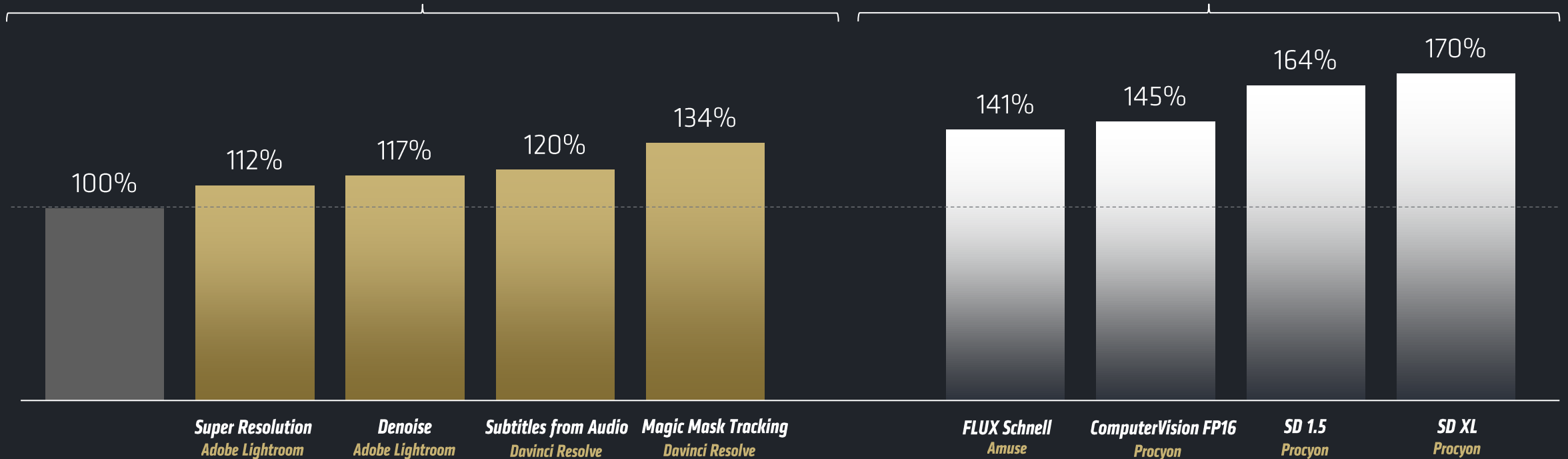
AMD Radeon™ RX 7900 GRE 16GB     AMD Radeon™ RX 9070 XT 16GB

Average Score - See Endnote RX-1168 & 1169.

AMD
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**AMD Radeon™ RX 9070 XT**

*versus*

**RTX 5070 Ti**

**RX 9070 XT**
Launch price $599 USD

**RTX 5070 Ti**
Launch price $749 USD

SEP as of February 2025.

# AMD Radeon™ RX 9070 XT
## vs RTX 5070 Ti

**-2%**
**In Gaming**
Average Across 30+ Games

## Native 4K Ultra Gaming Performance

- S.T.A.L.K.E.R 2: Heart of Chornobyl — 84%
- Warhammer 40,000: Space Marine 2 — 86%
- Black Myth: Wukong — 91%
- God of War: Ragnarok — 95%
- Starfield — 100%
- Final Fantasy XVI — 100%
- Dragon Age: The Veilguard — 100%
- Cyberpunk 2077 — 101%
- Assassin's Creed Mirage — 102%
- Mircrosoft Flight Simulator 2024 — 104%
- Ghost of Tsushima — 116%
- Call of Duty: Black Ops 6 — 124%

(GeForce RTX 5070 Ti reference = 100%)

## Native 4K Ultra Raytracing Performance

- Cyberpunk 2077 — 81%
- Star Wars Outlaws — 89%
- The Witcher 3 — 89%
- F1 24 — 91%
- Avatar: Frontiers of Pandora — 92%
- Hitman 3 — 92%
- Watch Dogs Legion — 93%
- Marvel's Spider-Man 2 — 102%
- Far Cry 6 — 108%

■ GeForce **RTX 5070 Ti**      ■ AMD Radeon™ **RX 9070 XT**

# AMD Radeon™ RX 9070 XT

## +23%

## Gaming Performance Per Dollar
### Average Across 30+ Games

**RX 9070 XT**
Launch Price $599 USD

**RTX 5070 Ti**
Announced Price $749 USD

# AMD Radeon™ RX 9070 XT OC
## vs RTX 5070 Ti

**+2%**
**Faster Gaming**
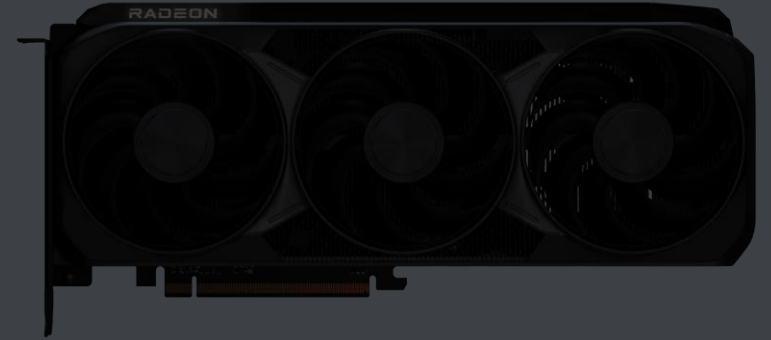Average Across 30+ Games

## Native 4K Ultra Gaming Performance

| Game | % |
|------|---|
| (RTX 5070 Ti baseline) | 100% |
| S.T.A.L.K.E.R 2: Heart of Chornobyl | 86% |
| Warhammer 40,000: Space Marine 2 | 90% |
| F1 24 | 90% |
| Black Myth: Wukong | 94% |
| God of War: Ragnarok | 99% |
| Final Fantasy XVI | 103% |
| Starfield | 105% |
| Cyberpunk 2077 | 105% |
| Dragon Age: The Veilguard | 106% |
| Assassin's Creed Mirage | 107% |
| Call of Duty: Black Ops 6 | 129% |
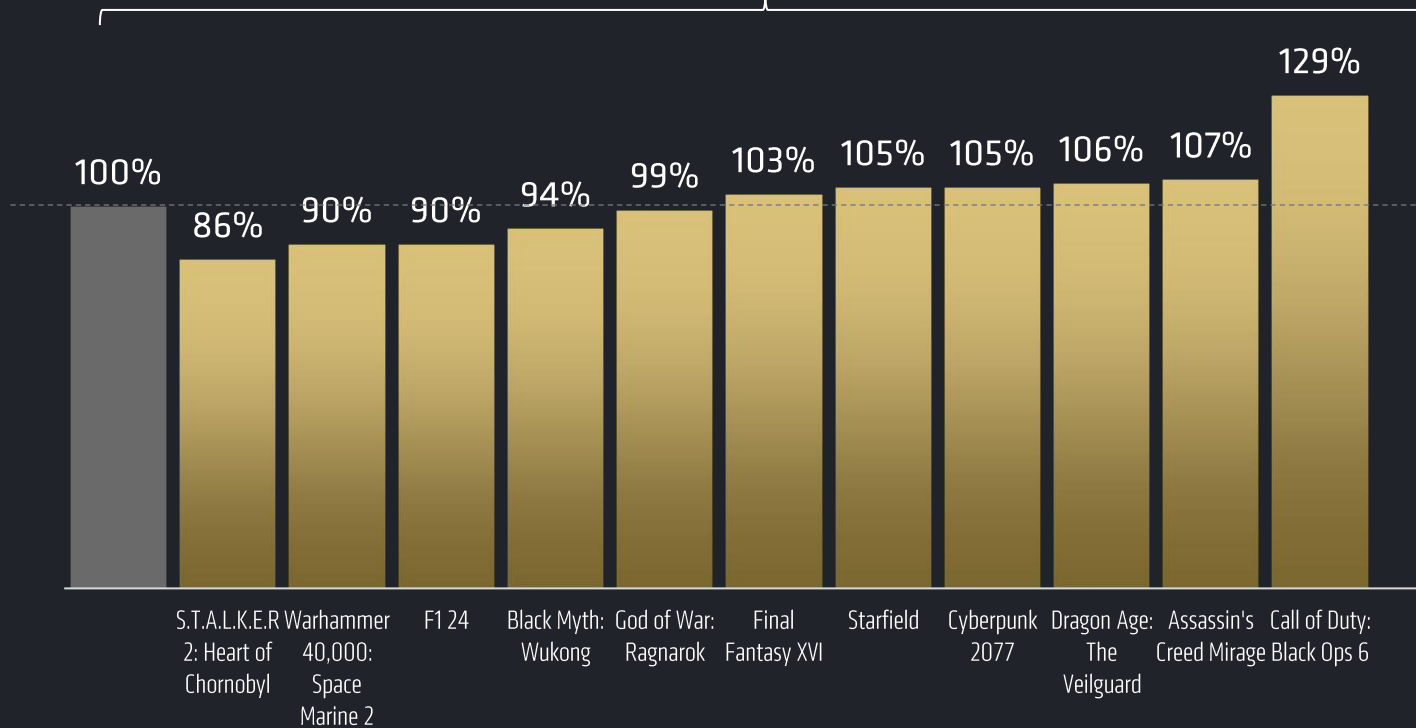
## Native 4K Raytracing Performance

| Game | % |
|------|---|
| Cyberpunk 2077 | 86% |
| Dying Light 2 | 90% |
| The Witcher 3 | 93% |
| Star Wars Outlaws | 95% |
| F1 24 | 95% |
| Hitman 3 | 96% |
| Avatar: Frontiers of Pandora | 97% |
| Watch Dogs Legion | 100% |
| Far Cry 6 | 113% |
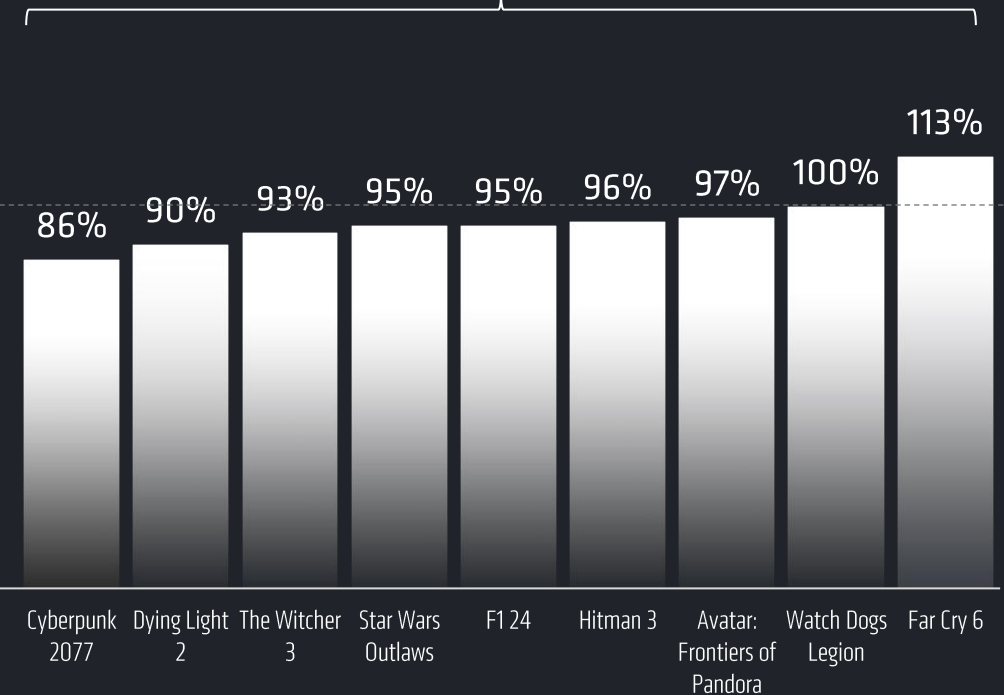
GeForce **RTX 5070 Ti**        AMD Radeon™ **RX 9070 XT (340W)**
*ASRock Taichi – Partner Board*

# The Ultimate Gaming Platform

## For Gamers Everywhere



**AMD Ryzen™ 9000**
Worlds Best Gaming Processors

**AMD Radeon™ RX 9000**
Worlds Best Gaming Graphics under $600

**AMD FSR 4**
ML Upscaling in 30+ titles at launch

**AMD Software**
Features, Performance, Stability

AMD
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# AMD Radeon RX 9070 XT
March 6 - Starting at $599

# AMD Radeon RX 9070
March 6 - Starting at $549

# AMD Radeon RX 9060 XT
Coming in Q2 2025

AMD
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AMD
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# General Disclaimers & Ryzen - ENDNOTES

**GD-151:** 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.

**GD-187b:** AMD FidelityFX Super Resolution (FSR) versions 1, 2, 3, and 4 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-187b.

**GD-176:** Video codec acceleration (including at least the HEVC (H.265), H.264, VP9, and AV1 codecs) is subject to and not operable without inclusion/installation of compatible media players. GD-176.

**GD-225a:** AMD HYPR-RX works on the AMD Radeon™ RX 7000 Series GPUs and newer or the Ryzen 7040 Series APUs with integrated RDNA 3 graphics and newer. AMD HYPR-RX allows various features within AMD Software interoperate, working at the same time, including Radeon Super Resolution, FidelityFX Super Resolution, Radeon Anti-Lag, Radeon Boost, and AMD Fluid Motion Frames where applicable to select titles. GD-225A.

**GD-234d:** AMD Fluid Motion Frames, or AFMF, is a frame generation technology designed to increase frame rates and smoothness for game winning performance with minimal impact to image quality. AFMF is integrated into the AMD Software: Adrenalin Edition™ Application. AFMF supports AMD Radeon™ RX 6000 Series and up discrete desktop graphics cards, AMD Ryzen™ 7000 and 8000 mobile processors with AMD Radeon™ 700M Series graphics, AMD Ryzen™ AI 300 Series Processors with AMD Radeon™ 800M Series Graphics, AMD Ryzen™ Z2 and Z1 Series handheld gaming processors, as well as  AMD Ryzen™ 8000 Series desktop processors with AMD Radeon™ 700M Series Graphics. GD-234d.

**GD-234d:** Trillions of Operations per Second (TOPS) for an AMD Ryzen processor is the maximum number of operations per second that can be executed in an optimal scenario and may not be typical. TOPS may vary based on several factors, including the specific system configuration, AI model, and software version. GD-243.

**GNR-21:** Testing as of October 2024 by AMD Performance Labs on test systems configured as follows: AMD Ryzen 7 7800X3D & 9800X3D system: GIGABYTE X670E AORUS MASTER, Balanced, 2x16GB DDR5-6000, Radeon RX 7900 XTX, VBS=On, SAM=On, KRACKENX63 (September 27, 2024); Intel Core i9-14900K system: MSI MEG Z790 ACE MAX (MS-7D86), Balanced, 2x16GB DDR5-6000, Radeon RX 7900 XTX, VBS=On, SAM=On, KRAKENX63 (September 11, 2024) {profile=MSI Performance} on the following games: Ashes Of The Singularity: Escalation, Assassins Creed Mirage, Assassins Creed Valhalla, Avatar: Frontiers Of Pandora, Baldurs Gate 3, Black Myth: Wukong, Borderlands 3, Counter-Strike 2, CyberPunk 2077, Deus Ex: Mankind Divided, Dirt 5, DOTA 2, F1 2023, F1 2024, Far Cry 6, Final Fantasy 14 Dawntrail, Forza Horizon 5, Ghost Recon Breakpoint, Guardians Of The Galaxy, Hitman 3, Hogwarts Legacy, Horizon Zero Dawn, League of Legends, Metro Exodus, Metro Exodus Enhanced Edition, Middle Earth Shadow of War, Rainbow 6 Siege, Riftbreaker, Shadow Of The Tomb Raider, Spider Man Remastered, Starfield, Strange Brigade, The Callisto Protocol, Tiny Tinas Wonderlands, Total War Warhammer 3, Warhammer Dawn Of War 3, Watch Dogs Legion, World of Tanks encore, Wolfenstein Youngblood. System manufacturers may vary configurations, yielding different results. GNR-21.

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# Radeon Desktop ENDNOTES

**RX-1141:** Testing done by AMD performance labs December 2024, on a test system configured with Ryzen 9 7950X3D CPU, 64 GB DDR5-4800 Memory, and Windows 11 Pro with RDNA 4 vs. RDNA 3 comparing the media engine H.264 VMAF quality scores. Testing conducted in the following games: Borderlands 3, Far Cry 6, and Watch Dogs: Legion at 1080p and 4K. System manufacturers may vary configurations, yielding different results. RX-1141.

**RX-1143:** Based on specifications of AMD RDNA 4 architecture compared to AMD RDNA 3 architecture as of December 2024. RX-1143

**RX-1166:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 7 9800X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 Pro and Radeon RX 9070 & 9070 XT (Driver 25.3.1) vs. a similarly configured system with an RTX 4070 Super (Driver 572.16) comparing gaming performance at 4K in the following titles:   Cyberpunk 2077 (DX12, Ultra), Cyberpunk 2077 (DX12, RT Ultra), Assassin's Creed Mirage (DX12, Ultra High), F1 24 (DX12, Ultra High), F1 24 (DX12, Ultra High RT), Starfield (DX12, Ultra), Far Cry 6 (DX12, Ultra), Far Cry 6 (DX12, Ultra RT), Forza Horizon 5 (DX12, Maxed), Forza Horizon 5 (DX12, RT Maxed), Watch Dogs Legion (DX12, Ultra), Watch Dogs Legion (DX12, RT Ultra), Horizon Forbidden West (DX12, Maxed), Horizon Zero Dawn Remastered (DX12, Maxed), God of War: Ragnarok (DX12, Ultra), Call of Duty: Black Ops 6 (DX12, Extreme), DOOM Eternal (Vulkan, Ultra Nightmare), DOOM Eternal (Vulkan, Ultra Nightmare RT), Total War: Warhammer 3 (DX11, Ultra), Dying Light 2 (DX12, High), Dying Light 2 (DX12, High Raytracing), Alan Wake 2 (DX12, High), Alan Wake 2 (DX12, High w/Med RT), Avatar: Frontiers of Pandora (DX12, Ultra), Hitman 3 (DX12, Ultra), Hitman 3 (DX12, Ultra RT), The Witcher 3 (DX12, Ultra+), The Witcher 3 (DX12, RT Ultra), Metro Exodus Enhanced Edition (DX12, Extreme), Black Myth: Wukong (DX12, Cinematic), Black Myth: Wukong (DX12, Cinematic RT) Baldur's Gate 3 (DX11, Ultra), Ghost of Tsushima (DX12, Very High), Star Wars Outlaws (DX12, Ultra RT), Warhammer 40,000: Space Marine 2 (DX12, Ultra), Control (DX12, High), Control (DX12, High RT), Dragon Age: The Veilguard (DX12, Ultra), Dragon Age: The Veilguard (DX12, Ultra RT), Resident Evil 4 (DX12, Max), Resident Evil 4 (DX12, Max RT), Frostpunk 2 (DX12, Ultra High), Deadlock (DX11, Ultra), S.T.A.L.K.E.R. 2: Heart of Chornobyl (DX12, Epic), Final Fantasy XVI Demo (DX12, Ultra). Testing on AMD Radeon RX 9070 & 9070 XT using latest game builds as of February 5, 2025. Testing on RTX 4070 Super using latest game builds as of January 30, 2025. Performance per Dollar calculations using official launch SEP pricing as of Feb 25, 2025. RX-1166

**RX-1167:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 7 9800X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 Pro and Radeon RX 9070 (Driver 25.3.1) vs. a similarly configured system with an RTX 4070 Super (Driver 572.16) comparing gaming performance at 4K in the following titles:   Cyberpunk 2077 (DX12, Ultra), Cyberpunk 2077 (DX12, RT Ultra), Assassin's Creed Mirage (DX12, Ultra High), F1 24 (DX12, Ultra High), F1 24 (DX12, Ultra High RT), Starfield (DX12, Ultra), Far Cry 6 (DX12, Ultra), Far Cry 6 (DX12, Ultra RT), Forza Horizon 5 (DX12, Maxed), Forza Horizon 5 (DX12, RT Maxed), Watch Dogs Legion (DX12, Ultra), Watch Dogs Legion (DX12, RT Ultra), Horizon Forbidden West (DX12, Maxed), Horizon Zero Dawn Remastered (DX12, Maxed), God of War: Ragnarok (DX12, Ultra), Call of Duty: Black Ops 6 (DX12, Extreme), DOOM Eternal (Vulkan, Ultra Nightmare), DOOM Eternal (Vulkan, Ultra Nightmare RT), Total War: Warhammer 3 (DX11, Ultra), Dying Light 2 (DX12, High), Dying Light 2 (DX12, High Raytracing), Alan Wake 2 (DX12, High), Alan Wake 2 (DX12, High w/Med RT), Avatar: Frontiers of Pandora (DX12, Ultra), Hitman 3 (DX12, Ultra), Hitman 3 (DX12, Ultra RT), The Witcher 3 (DX12, Ultra+), The Witcher 3 (DX12, RT Ultra), Metro Exodus Enhanced Edition (DX12, Extreme), Black Myth: Wukong (DX12, Cinematic), Black Myth: Wukong (DX12, Cinematic RT) Baldur's Gate 3 (DX11, Ultra), Ghost of Tsushima (DX12, Very High), Star Wars Outlaws (DX12, Ultra RT), Warhammer 40,000: Space Marine 2 (DX12, Ultra), Control (DX12, High), Control (DX12, High RT), Dragon Age: The Veilguard (DX12, Ultra), Dragon Age: The Veilguard (DX12, Ultra RT), Resident Evil 4 (DX12, Max), Resident Evil 4 (DX12, Max RT), Frostpunk 2 (DX12, Ultra High), Deadlock (DX11, Ultra), S.T.A.L.K.E.R. 2: Heart of Chornobyl (DX12, Epic), Final Fantasy XVI Demo (DX12, Ultra).  Testing on AMD Radeon RX 9070 using latest game builds as of February 5, 2025. Testing on RTX 4070 Super using latest game builds as of January 30, 2025. Performance per Dollar calculations using official launch SEP pricing as of Feb 25, 2025. RX-1167

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# Radeon Desktop ENDNOTES

**RX-1168:** Testing by AMD, as of February 2025 using Amuse 2.3.15 and Procyon 2.10.1542 64. Models used: SD 1.5, SDXL, ComputerVision FP16, and FLUX Schnell. System configuration: AMD Ryzen 7 9800X3D, 32GB 6000 MT/s DDR5 RAM, 2TB SSD with an AMD Radeon RX 9070 XT GPU vs. a similarly configured system with a Radeon RX 7900 GRE GPU. Driver 25.3.1. Performance may vary. RX-1168.

**RX-1169:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 9 7950X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 and Radeon RX 9070 XT (Driver 25.3.1) vs. a similarly configured system with an RX 7900 GRE (Driver 25.3.1) comparing AI creator performance in the following Puget Benchmarks: Adobe Lightroom (AI Super Resolution), Adobe Lightroom (AI Denoise), Davinci Resolve (Subtitles from Audio), Davinci Resolve (Magic Mask Tracking).  System manufacturers may vary configurations, yielding different results. RX-1169.

**RX-1173:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 7 9800X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 Pro and Radeon RX 9070 XT (Driver 25.3.1) vs. a similarly configured system with an RTX 5070 Ti (Driver 572.47) comparing gaming performance at 4K in the following applications: Cyberpunk 2077 (DX12, Ultra), Cyberpunk 2077 (DX12, RT Ultra), Assassin's Creed Mirage (DX12, Ultra High), F1 24 (DX12, Ultra High), F1 24 (DX12, Ultra High RT), Starfield (DX12, Ultra), Far Cry 6 (DX12, Ultra), Far Cry 6 (DX12, Ultra RT), Forza Horizon 5 (DX12, Extreme), Forza Horizon 5 (DX12, RT Extreme), Watch Dogs Legion (DX12, Ultra), Watch Dogs Legion (DX12, RT Ultra), Horizon Forbidden West (DX12, Maxed), Horizon Zero Dawn Remastered (DX12, Maxed), God of War: Ragnarok (DX12, Ultra), Call of Duty: Black Ops 6 (DX12, Extreme), DOOM Eternal (Vulkan, Ultra Nightmare), DOOM Eternal (Vulkan, Ultra Nightmare RT), Total War: Warhammer 3 (DX11, Ultra), Dying Light 2 (DX12, High), Dying Light 2 (DX12, High Raytracing), Alan Wake 2 (DX12, High), Alan Wake 2 (DX12, High w/Med RT), Avatar: Frontiers of Pandora (DX12, Ultra), Hitman 3 (DX12, Ultra), Hitman 3 (DX12, Ultra RT), The Witcher 3 (DX12, Ultra+), The Witcher 3 (DX12, RT Ultra), Metro Exodus Enhanced Edition (DX12, Extreme), Black Myth: Wukong (DX12, Cinematic), Black Myth: Wukong (DX12, Cinematic RT) Baldur's Gate 3 (DX11, Ultra), Ghost of Tsushima (DX12, Very High), Star Wars Outlaws (DX12, Ultra RT), Warhammer 40,000: Space Marine 2 (DX12, Ultra), Control (DX12, High), Control (DX12, High RT), Dragon Age: The Veilguard (DX12, Ultra), Dragon Age: The Veilguard (DX12, Ultra RT), Resident Evil 4 (DX12, Max), Resident Evil 4 (DX12, Max RT), Marvel's Spider-Man 2 (DX12, Maxed), Marvel's Spiderman 2 (DX12, Maxed RT), Microsoft Flight Simulator 2024 (DX12 Ultra), The Last of Us: Part 1 (DX12, Ultra), S.T.A.L.K.E.R. 2: Heart of Chornobyl (DX12, Epic), Final Fantasy XVI Demo (DX12, Ultra). Testing conducted on Radeon RX 9070 XT with latest game builds as of February 5, 2025 (Marvel's Spider-Man 2, Microsoft Flight Simulator 2024, The Last of Us: Part 1, and Forza Horizon 5 using latest builds as of February 14th, 2025). Testing conducted on RTX 5070 Ti with latest game builds as of February 20, 2025. System manufacturers may vary configurations, yielding different results. RX-1173.

**RX-1174:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 7 9800X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 Pro and Radeon RX 9070 XT (Driver 25.3.1) vs. a similarly configured system with an RTX 5070 Ti (Driver 572.47) comparing gaming performance per dollar at 4K in the following applications: Cyberpunk 2077 (DX12, Ultra), Cyberpunk 2077 (DX12, RT Ultra), Assassin's Creed Mirage (DX12, Ultra High), F1 24 (DX12, Ultra High), F1 24 (DX12, Ultra High RT), Starfield (DX12, Ultra), Far Cry 6 (DX12, Ultra), Far Cry 6 (DX12, Ultra RT), Forza Horizon 5 (DX12, Extreme), Forza Horizon 5 (DX12, RT Extreme), Watch Dogs Legion (DX12, Ultra), Watch Dogs Legion (DX12, RT Ultra), Horizon Forbidden West (DX12, Maxed), Horizon Zero Dawn Remastered (DX12, Maxed), God of War: Ragnarok (DX12, Ultra), Call of Duty: Black Ops 6 (DX12, Extreme), DOOM Eternal (Vulkan, Ultra Nightmare), DOOM Eternal (Vulkan, Ultra Nightmare RT), Total War: Warhammer 3 (DX11, Ultra), Dying Light 2 (DX12, High), Dying Light 2 (DX12, High Raytracing), Alan Wake 2 (DX12, High), Alan Wake 2 (DX12, High w/Med RT), Avatar: Frontiers of Pandora (DX12, Ultra), Hitman 3 (DX12, Ultra), Hitman 3 (DX12, Ultra RT), The Witcher 3 (DX12, Ultra+), The Witcher 3 (DX12, RT Ultra), Metro Exodus Enhanced Edition (DX12, Extreme), Black Myth: Wukong (DX12, Cinematic), Black Myth: Wukong (DX12, Cinematic RT) Baldur's Gate 3 (DX11, Ultra), Ghost of Tsushima (DX12, Very High), Star Wars Outlaws (DX12, Ultra RT), Warhammer 40,000: Space Marine 2 (DX12, Ultra), Control (DX12, High), Control (DX12, High RT), Dragon Age: The Veilguard (DX12, Ultra), Dragon Age: The Veilguard (DX12, Ultra RT), Resident Evil 4 (DX12, Max), Resident Evil 4 (DX12, Max RT), Marvel's Spider-Man 2 (DX12, Maxed), Marvel's Spiderman 2 (DX12, Maxed RT), Microsoft Flight Simulator 2024 (DX12 Ultra), The Last of Us: Part 1 (DX12, Ultra), S.T.A.L.K.E.R. 2: Heart of Chornobyl (DX12, Epic), Final Fantasy XVI Demo (DX12, Ultra).  Testing conducted on Radeon RX 9070 XT with latest game builds as of February 5, 2025 (Marvel's Spider-Man 2, Microsoft Flight Simulator 2024, The Last of Us: Part 1, and Forza Horizon 5 using latest builds as of February 14th, 2025). Testing conducted on RTX 5070 Ti with latest game builds as of February 20, 2025. Performance per Dollar calculations using official launch SEP pricing as of Feb 25, 2025. System manufacturers may vary configurations, yielding different results. RX-1174.

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# Radeon Desktop ENDNOTES

**RX-1176:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 7 9800X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 Pro and Radeon RX 9070 (Driver 25.3.1) vs. a similarly configured system with an RX 7900 GRE (Driver 25.3.1) comparing gaming performance at 4K in the following applications: Cyberpunk 2077 (DX12, Ultra), Cyberpunk 2077 (DX12, RT Ultra), Assassin's Creed Mirage (DX12, Ultra High), F1 24 (DX12, Ultra High), F1 24 (DX12, Ultra High RT), Starfield (DX12, Ultra), Far Cry 6 (DX12, Ultra), Far Cry 6 (DX12, Ultra RT), Forza Horizon 5 (DX12, Extreme), Forza Horizon 5 (DX12, RT Extreme), Watch Dogs Legion (DX12, Ultra), Watch Dogs Legion (DX12, RT Ultra), Horizon Forbidden West (DX12, Maxed), Horizon Zero Dawn Remastered (DX12, Maxed), God of War: Ragnarok (DX12, Ultra), Call of Duty: Black Ops 6 (DX12, Extreme), DOOM Eternal (Vulkan, Ultra Nightmare), DOOM Eternal (Vulkan, Ultra Nightmare RT), Total War: Warhammer 3 (DX11, Ultra), Dying Light 2 (DX12, High), Dying Light 2 (DX12, High Raytracing), Alan Wake 2 (DX12, High), Alan Wake 2 (DX12, High w/Med RT), Avatar: Frontiers of Pandora (DX12, Ultra), Hitman 3 (DX12, Ultra), Hitman 3 (DX12, Ultra RT), The Witcher 3 (DX12, Ultra+), The Witcher 3 (DX12, RT Ultra), Metro Exodus Enhanced Edition (DX12, Extreme), Black Myth: Wukong (DX12, Cinematic), Black Myth: Wukong (DX12, Cinematic RT) Baldur's Gate 3 (DX11, Ultra), Ghost of Tsushima (DX12, Very High), Star Wars Outlaws (DX12, Ultra RT), Warhammer 40,000: Space Marine 2 (DX12, Ultra), Control (DX12, High), Control (DX12, High RT), Dragon Age: The Veilguard (DX12, Ultra), Dragon Age: The Veilguard (DX12, Ultra RT), Resident Evil 4 (DX12, Max), Resident Evil 4 (DX12, Max RT), Marvel's Spider-Man 2 (DX12, Maxed), Marvel's Spiderman 2 (DX12, Maxed RT), Microsoft Flight Simulator 2024 (DX12, Ultra), The Last of Us: Part 1 (DX12, Ultra), S.T.A.L.K.E.R. 2: Heart of Chornobyl (DX12, Epic), Final Fantasy XVI Demo (DX12, Ultra). Testing conducted with latest game builds as of February 5, 2025 (Marvel's Spider-Man 2, Microsoft Flight Simulator 2024, The Last of Us: Part 1, and Forza Horizon 5 using latest builds as of February 14th, 2025). System manufacturers may vary configurations, yielding different results. RX-1176.

**RX-1177:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 7 9800X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 Pro and Radeon RX 9070 (Driver 25.3.1) vs. a similarly configured system with an RX 7900 GRE (Driver 25.3.1) comparing gaming performance at 1440p in the following applications: Cyberpunk 2077 (DX12, Ultra), Cyberpunk 2077 (DX12, RT Ultra), Assassin's Creed Mirage (DX12, Ultra High), F1 24 (DX12, Ultra High), F1 24 (DX12, Ultra High RT), Starfield (DX12, Ultra), Far Cry 6 (DX12, Ultra), Far Cry 6 (DX12, Ultra RT), Forza Horizon 5 (DX12, Extreme), Forza Horizon 5 (DX12, RT Extreme), Watch Dogs Legion (DX12, Ultra), Watch Dogs Legion (DX12, RT Ultra), Horizon Forbidden West (DX12, Maxed), Horizon Zero Dawn Remastered (DX12, Maxed), God of War: Ragnarok (DX12, Ultra), Call of Duty: Black Ops 6 (DX12, Extreme), DOOM Eternal (Vulkan, Ultra Nightmare), DOOM Eternal (Vulkan, Ultra Nightmare RT), Total War: Warhammer 3 (DX11, Ultra), Dying Light 2 (DX12, High), Dying Light 2 (DX12, High Raytracing), Alan Wake 2 (DX12, High), Alan Wake 2 (DX12, High w/Med RT), Avatar: Frontiers of Pandora (DX12, Ultra), Hitman 3 (DX12, Ultra), Hitman 3 (DX12, Ultra RT), The Witcher 3 (DX12, Ultra+), The Witcher 3 (DX12, RT Ultra), Metro Exodus Enhanced Edition (DX12, Extreme), Black Myth: Wukong (DX12, Cinematic), Black Myth: Wukong (DX12, Cinematic RT) Baldur's Gate 3 (DX11, Ultra), Ghost of Tsushima (DX12, Very High), Star Wars Outlaws (DX12, Ultra RT), Warhammer 40,000: Space Marine 2 (DX12, Ultra), Control (DX12, High), Control (DX12, High RT), Dragon Age: The Veilguard (DX12, Ultra), Dragon Age: The Veilguard (DX12, Ultra RT), Resident Evil 4 (DX12, Max), Resident Evil 4 (DX12, Max RT), Marvel's Spider-Man 2 (DX12, Maxed), Marvel's Spiderman 2 (DX12, Maxed RT), Microsoft Flight Simulator 2024 (DX12 Ultra), The Last of Us: Part 1 (DX12, Ultra), S.T.A.L.K.E.R. 2: Heart of Chornobyl (DX12, Epic), Final Fantasy XVI Demo (DX12, Ultra). Testing conducted with latest game builds as of February 14, 2025. System manufacturers may vary configurations, yielding different results. RX-1177.

**RX-1178:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 7 9800X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 Pro and Radeon RX 9070 (Driver 25.3.1) evaluating gaming performance at 1440p High Settings in the following titles: PUBG: Battlegrounds (DX11, Ultra), Counter-Strike 2 (DX12, High MSAA 2x), DOTA 2 (DX11, Max), League of Legends (DX11, Very High), Valorant (DX12, High). Testing conducted with latest game builds as of February 12, 2025. System manufacturers may vary configurations, yielding different results. RX-1178

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# Radeon Desktop ENDNOTES

**RX-1179:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 7 9800X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 Pro and Radeon RX 9070 XT (Driver 25.3.1) vs. a similarly configured system with an RX 7900 GRE (Driver 25.3.1) comparing gaming performance at 4K in the following applications:  Cyberpunk 2077 (DX12, Ultra), Cyberpunk 2077 (DX12, RT Ultra), Assassin's Creed Mirage (DX12, Ultra High), F1 24 (DX12, Ultra High), F1 24 (DX12, Ultra High RT), Starfield (DX12, Ultra), Far Cry 6 (DX12, Ultra), Far Cry 6 (DX12, Ultra RT), Forza Horizon 5 (DX12, Extreme), Forza Horizon 5 (DX12, RT Extreme), Watch Dogs Legion (DX12, Ultra), Watch Dogs Legion (DX12, RT Ultra), Horizon Forbidden West (DX12, Maxed), Horizon Zero Dawn Remastered (DX12, Maxed), God of War: Ragnarok (DX12, Ultra), Call of Duty: Black Ops 6 (DX12, Extreme), DOOM Eternal (Vulkan, Ultra Nightmare), DOOM Eternal (Vulkan, Ultra Nightmare RT), Total War: Warhammer 3 (DX11, Ultra), Dying Light 2 (DX12, High), Dying Light 2 (DX12, High Raytracing), Alan Wake 2 (DX12, High), Alan Wake 2 (DX12, High w/Med RT), Avatar: Frontiers of Pandora (DX12, Ultra), Hitman 3 (DX12, Ultra), Hitman 3 (DX12, Ultra RT), The Witcher 3 (DX12, Ultra+), The Witcher 3 (DX12, RT Ultra), Metro Exodus Enhanced Edition (DX12, Extreme), Black Myth: Wukong (DX12, Cinematic), Black Myth: Wukong (DX12, Cinematic RT) Baldur's Gate 3 (DX11, Ultra), Ghost of Tsushima (DX12, Very High), Star Wars Outlaws (DX12, Ultra RT), Warhammer 40,000: Space Marine 2 (DX12, Ultra), Control (DX12, High), Control (DX12, High RT), Dragon Age: The Veilguard (DX12, Ultra), Dragon Age: The Veilguard (DX12, Ultra RT), Resident Evil 4 (DX12, Max), Resident Evil 4 (DX12, Max RT), Marvel's Spider-Man 2 (DX12, Maxed), Marvel's Spiderman 2 (DX12, Maxed RT), Microsoft Flight Simulator 2024 (DX12 Ultra), The Last of Us: Part 1 (DX12, Ultra), S.T.A.L.K.E.R. 2: Heart of Chornobyl (DX12, Epic), Final Fantasy XVI Demo (DX12, Ultra). Testing conducted with latest game builds as of February 5, 2025 (Marvel's Spider-Man 2, Microsoft Flight Simulator 2024, The Last of Us: Part 1, and Forza Horizon 5 using latest builds as of February 14th, 2025). System manufacturers may vary configurations, yielding different results. RX-1179.

**RX-1180:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 7 9800X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 Pro and Radeon RX 9070 XT (Driver 25.3.1) with AMD FidelityFX™ Super Resolution 4 Performance Mode vs. a similarly configured system with an RX 7900 GRE (Driver 25.3.1) at Native 4K comparing gaming performance in the following titles: Warhammer 40,000: Space Marine 2 (DX12, Ultra), Marvel's Spider-Man 2 (DX12, Maxed), God of War Ragnarok (DX12, Ultra), Horizon Forbidden West (DX12, Maxed), Monster Hunter Wilds Beta (DX12, Ultra). Testing conducted with latest game builds as of February 10, 2025. System manufacturers may vary configurations, yielding different results. RX-1180.

**RX-1181:** Testing done by AMD performance labs February 2025, on a test system configured with Ryzen 7 9800X3D CPU, 32 GB DDR5-6000 Memory, Windows 11 Pro and Radeon RX 9070 XT (Driver 25.3.1) vs. a similarly configured system with an RX 7900 GRE (Driver 25.3.1) comparing gaming performance at 1440p in the following applications: Cyberpunk 2077 (DX12, Ultra), Cyberpunk 2077 (DX12, RT Ultra), Assassin's Creed Mirage (DX12, Ultra High), F1 24 (DX12, Ultra High), F1 24 (DX12, Ultra High RT), Starfield (DX12, Ultra), Far Cry 6 (DX12, Ultra), Far Cry 6 (DX12, Ultra RT), Forza Horizon 5 (DX12, Extreme), Forza Horizon 5 (DX12, RT Extreme), Watch Dogs Legion (DX12, Ultra), Watch Dogs Legion (DX12, RT Ultra), Horizon Forbidden West (DX12, Maxed), Horizon Zero Dawn Remastered (DX12, Maxed), God of War: Ragnarok (DX12, Ultra), Call of Duty: Black Ops 6 (DX12, Extreme), DOOM Eternal (Vulkan, Ultra Nightmare), DOOM Eternal (Vulkan, Ultra Nightmare RT), Total War: Warhammer 3 (DX11, Ultra), Dying Light 2 (DX12, High), Dying Light 2 (DX12, High Raytracing), Alan Wake 2 (DX12, High), Alan Wake 2 (DX12, High w/Med RT), Avatar: Frontiers of Pandora (DX12, Ultra), Hitman 3 (DX12, Ultra), Hitman 3 (DX12, Ultra RT), The Witcher 3 (DX12, Ultra+), The Witcher 3 (DX12, RT Ultra), Metro Exodus Enhanced Edition (DX12, Extreme), Black Myth: Wukong (DX12, Cinematic), Black Myth: Wukong (DX12, Cinematic RT) Baldur's Gate 3 (DX11, Ultra), Ghost of Tsushima (DX12, Very High), Star Wars Outlaws (DX12, Ultra RT), Warhammer 40,000: Space Marine 2 (DX12, Ultra), Control (DX12, High), Control (DX12, High RT), Dragon Age: The Veilguard (DX12, Ultra), Dragon Age: The Veilguard (DX12, Ultra RT), Resident Evil 4 (DX12, Max), Resident Evil 4 (DX12, Max RT), Marvel's Spider-Man 2 (DX12, Maxed), Marvel's Spiderman 2 (DX12, Maxed RT), Microsoft Flight Simulator 2024 (DX12 Ultra), The Last of Us: Part 1 (DX12, Ultra), S.T.A.L.K.E.R. 2: Heart of Chornobyl (DX12, Epic), Final Fantasy XVI Demo (DX12, Ultra). Testing conducted with latest game builds as of February 14, 2025. System manufacturers may vary configurations, yielding different results. RX-1181.

# Radeon Desktop ENDNOTES

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