AMD MEET THE EXPERTS
JUNE 2015

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## FOR GAMING

### AMD RADEON™ 300 SERIES AND R9 FURY X GRAPHICS CARDS

<table>
<thead>
<tr>
<th>Performance</th>
<th>Online Gaming</th>
<th>Online Gaming</th>
<th>Performance Gaming</th>
<th>Performance Gaming</th>
<th>Engineered for Enthusiasts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target Audience</strong></td>
<td>1080p gaming</td>
<td>1080p gaming</td>
<td>1440p gaming</td>
<td>4K gaming(^1)</td>
<td>4K gaming and beyond(^1)</td>
</tr>
<tr>
<td><strong>Memory Size</strong></td>
<td>Up to 2GB GDDR5</td>
<td>2GB or 4GB GDDR5</td>
<td>Up to 4GB GDDR5</td>
<td>Up to 8GB GDDR5</td>
<td>4GB HBM</td>
</tr>
<tr>
<td><strong>Memory Interface</strong></td>
<td>128-bit</td>
<td>256-bit</td>
<td>256-bit</td>
<td>512-bit</td>
<td>4096-bit wide interface</td>
</tr>
<tr>
<td><strong>GPU Clock Speed</strong></td>
<td>Up to 1.05 GHz</td>
<td>Up to 975 MHz</td>
<td>Up to 970 MHz</td>
<td>Up to 1000/1050 MHz</td>
<td>Up to 1050 MHz</td>
</tr>
<tr>
<td><strong>GCN Architecture(^2)</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>DirectX® 12 Support(^3)</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Virtual Super Resolution(^4) (VSR)</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Frame Rate Target Control(^5) (FRTC)</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>AMD FreeSync™ Technology(^6)</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

\(^1\)Suggested pricing, actual price may vary
VIRTUAL SUPER RESOLUTION

UP TO 4K QUALITY GAMING ON 1080p HD DISPLAYS

Renders games at higher resolutions then dynamically rescales them for HD displays at higher quality and details.

- Smoother textures and less jaggy polygons
- Game and Engine agnostic solution
- Simulates Super Sampling Anti-Aliasing (SSAA) for games that don’t support it

Available on

AMD Radeon™ R9 Fury Series
AMD Radeon™ R9 300 Series
AMD Radeon™ R7 300 Series

Render games beyond 1080p and see more of the game
Frame Rate Targeting Control (FRTC) allows users to set the target frame rates when playing an application in full screen exclusive mode. This allows reduced system/GPU power consumption, reduced system heat and lower fan speeds (less noise).

Available on
- AMD Radeon™ R9 Fury Series
- AMD Radeon™ R9 300 Series
- AMD Radeon™ R7 300 Series

*For the system configuration refer to system #1 in the footnotes
<table>
<thead>
<tr>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>SIZE</th>
<th>RESOLUTION</th>
<th>REFRESH</th>
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<tbody>
<tr>
<td>ACER</td>
<td>XR341CK</td>
<td>34&quot;</td>
<td>3440x1440</td>
<td>75Hz</td>
</tr>
<tr>
<td>ASUS</td>
<td>MG278Q</td>
<td>27&quot;</td>
<td>2560x1440</td>
<td>144Hz</td>
</tr>
<tr>
<td>LG ELECTRONICS</td>
<td>27UM67</td>
<td>27&quot;</td>
<td>3840x2160</td>
<td>60Hz</td>
</tr>
<tr>
<td>LG ELECTRONICS</td>
<td>34UM57</td>
<td>34&quot;</td>
<td>2560x1080</td>
<td>75Hz</td>
</tr>
<tr>
<td>NIXEUS</td>
<td>NX-VUE24</td>
<td>24&quot;</td>
<td>1920x1080</td>
<td>144Hz</td>
</tr>
<tr>
<td>ASUS</td>
<td>MG279Q</td>
<td>27&quot;</td>
<td>2560x1440</td>
<td>144Hz</td>
</tr>
<tr>
<td>ACER</td>
<td>XG270HU</td>
<td>27&quot;</td>
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<td>144Hz</td>
</tr>
<tr>
<td>BENQ</td>
<td>XL2730Z</td>
<td>27&quot;</td>
<td>2560x1440</td>
<td>144Hz</td>
</tr>
<tr>
<td>LG ELECTRONICS</td>
<td>29UM67</td>
<td>29&quot;</td>
<td>2560x1080</td>
<td>75Hz</td>
</tr>
<tr>
<td>LG ELECTRONICS</td>
<td>34UM67</td>
<td>34&quot;</td>
<td>2560x1080</td>
<td>75Hz</td>
</tr>
<tr>
<td>SAMSUNG</td>
<td>UE590</td>
<td>23.6&quot;</td>
<td>3840x2160</td>
<td>60Hz</td>
</tr>
<tr>
<td>SAMSUNG</td>
<td>UE850</td>
<td>23.6&quot;, 28&quot;</td>
<td>3840x2160</td>
<td>60Hz</td>
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<tr>
<td>VIEWSONIC</td>
<td>VX2701mh</td>
<td>27&quot;</td>
<td>1920x1080</td>
<td>144Hz</td>
</tr>
</tbody>
</table>

16 COMPATIBLE DISPLAYS

Pricing, specifications and availability subject to change at the discretion of manufacturers.
PLAY WELL ABOVE 60 FPS ON POPULAR ONLINE GAMES

*For the system configuration refer to system #2 in the footnotes
Board shot shown for illustration purposes only. Final board design may differ.
AMD RADEON™
R7 360 GRAPHICS

Dragon Age™: Inquisition
Thief™
Battlefield™ Hardline
Far Cry® 4
Crysis® 3

0 30 60
Frames per second (average)
Radeon™ R7 360  GTX 750

FASTER THAN THE GTX 750
1080P HIGH SETTINGS

AMD RADEON™
R7 370 GRAPHICS

Battlefield™ Hardline
Batman™ Arkham Origins
Far Cry® 4
Thief™
Call of Duty®: Advanced Warfare
Watch Dogs™

0 30 60
Frames per second (average)
Radeon™ R7 370  GTX 750 Ti

FASTER THAN THE GTX 750 TI
1080P HIGH SETTINGS

*For the system configuration refer to system #3 & #4 in the footnotes
Board shot shown for illustration purposes only. Final board design may differ.
MEMORY BANDWIDTH REQUIRED FOR GAMING

256-bit WIDE MEMORY INTERFACE

Board shot shown for illustration purposes only. Final board design may differ.
For the system configuration refer to system #5 in the footnotes.

Board shot shown for illustration purposes only. Final board design may differ.
**AMD RADEON™ R9 390 GRAPHICS**

- Bioshock® Infinite
- Tomb Raider™
- Sid Meier’s Civilization®: Beyond Earth™
- Battlefield 4™
- Alien Isolation™
- Far Cry® 4
- Batman™ Arkham Origins
- Thief™

**Radeon™ R9 390** vs **GTX 970**

**FASTER THAN THE GTX 970**

4K HIGH SETTINGS

**AMD RADEON™ R9 390X GRAPHICS**

- Bioshock® Infinite
- Sid Meier’s Civilization®: Beyond Earth™
- Alien Isolation™
- Far Cry® 4
- Batman™ Arkham Origins
- Thief™

**Radeon™ R9 390X** vs **GTX 980**

**FASTER THAN THE GTX 980**

4K HIGH SETTINGS

*For the system configuration refer to system #6 & #7 in the footnotes. Board shot shown for illustration purposes only. Final board design may differ.*
AMD RADEON™
R9 390 GRAPHICS

- Radeon™ R9 390 Series: 8GB
- GTX 980: 4GB
- GTX 970: 4GB

LARGE FRAME BUFFER FOR LARGER TEXTURES 8GB GDDR5 MEMORY

MEMORY BANDWIDTH REQUIRED FOR 4K GAMING 512-bit WIDE MEMORY INTERFACE

- Radeon™ R9 390 Series: 512-bit
- GTX 980: 256-bit
- GTX 970: 256-bit
Introducing the “FIJI” CHIP

Featuring HBM Technology

DETAILED LOOK

- Graphics Core Next Architecture
- 64 Compute Units
- 4096 Stream Processors
- 596 sq. mm. Engine
- Total 1011 sq. mm.

- 4GB High-Bandwidth Memory
- 4096-bit wide interface
- 512 Gb/s Memory Bandwidth

4GB High-Bandwidth Memory
4096-bit wide interface
512 Gb/s Memory Bandwidth
AMD RADEON™ R9 FURY X GPU

Like Nothing You’ve Ever Seen Before

Form Factor Design
Industrial Design
Thermal Solution
High-Bandwidth Memory
AMD Radeon™ R9 Fury X Graphics Card

4K ULTRA SETTINGS SMOOTH GAMEPLAY

FAR CRY 4
4K ULTRA SETTINGS

54 fps
AVERAGE FPS

43 fps
MINIMUM FPS

*For the system configuration refer to system #8 in the footnotes. Board shot shown for illustration purposes only. Final board design may differ.
The Products for the New Era of PC Gaming

**AMD Radeon™ R7 360 Graphics**
- Designed for the most popular online games
- Up to 2GB GDDR5

**AMD Radeon™ R7 370 Graphics**
- Designed for the most popular online games
- Up to 4GB GDDR5

**AMD Radeon™ R9 380 Graphics**
- Designed for 1440p gaming
- Up to 4GB GDDR5

**AMD Radeon™ R9 390 Series Graphics**
- Designed for 4K gaming
- Up to 8GB GDDR5

**AMD Radeon™ R9 Fury X Graphics**
- Board shot shown for illustration purposes only. Final board design may differ.
CHRISTINA IRON
SENIOR MANAGER,
GLOBAL COMPONENT GO-TO-MARKET
## SEGMENTATION AND POSITIONING

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<tr>
<th>SEGMENT</th>
<th>KEY CAREABOUTS</th>
<th>KEY GAMES</th>
<th>GPU</th>
<th>CPU/APU</th>
</tr>
</thead>
</table>
| **ENTHUSIAST**           | **WANTS BEST HARDWARE**  
 technically savvy ● will buy the best ●  
 not brand loyal ● overclocks ●  
 participates on forums ● influences friends and family ● builds their PC | • Battlefield Hardline  
 • Witcher 3  
 • Star Wars Battlefront  
 • Star Citizen  
 • Batman Arkham Knight  
 • Dragon Age Inquisition  
 • Far Cry 4 | R9 Fury  
 R9 Fury X  
 R9 Nano | i7           |
| **PERFORMANCE**          | **WANTS BEST GAMING EXPERIENCE**  
 somewhat technically savvy ● will buy best they can afford ● will buy the “gaming brand” ● can be brand loyal ● influenced by their community ● streams on Twitch ● builds their PC | R9 300 series  
 FX  
 i5 |             |             |
| **ONLINE**               | **WANTS DEPENDABLE GAMEPLAY**  
 not technically savvy ● will buy the “gaming brand” ● very brand loyal ● influenced by their community ● watches Twitch ● buys their PC | R7 300 series  
 Godavari/Kaveri  
 Athlon  
 i3 |             |             |
### ACTIVATION BY SEGMENT

<table>
<thead>
<tr>
<th></th>
<th>ENTHUSIASM GAMER</th>
<th>PERFORMANCE GAMER</th>
<th>ONLINE GAMER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Position</strong></td>
<td>AMD products as premium, innovative and future-forward. With an emphasis on superior engineering and game-changing form factors.</td>
<td>AMD products as gamers choice. Align with game content, engage within gaming communities.</td>
<td>Provide system level recommendations through system builders, online personalities and forums.</td>
</tr>
<tr>
<td>Social Media</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Overclocking comps/records</td>
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<td></td>
<td>X</td>
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<tr>
<td>Forum engagement</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Red Team &amp; Red Team +</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SEM Campaigns</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Game co-marketing &amp; bundles</td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>LAN party attendance</td>
<td>X</td>
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<td>Gaming Communities</td>
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<td>X</td>
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<tr>
<td>Twitch community building &amp; streaming</td>
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<td>X</td>
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<tr>
<td>Tournament Sponsorships</td>
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<td></td>
<td>X</td>
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<tr>
<td>Team Sponsorships</td>
<td></td>
<td></td>
<td>X</td>
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</tbody>
</table>
PERFORMANCE CAMPAIGN
DELIVER CONSISTENT, SIMPLE, SMART PROGRAMS WORLDWIDE
ENTHUSIAST CAMPAIGN
RADEON™ R9 FURY

Highlight technical innovation
Stunning 3D renders
Appeal to status conscious consumers
Q&A

IF YOUR QUESTION WAS NOT ANSWERED IN TODAY’S SESSION, PLEASE CONTACT US AT AMDPARTNER.PROGRAM@AMD.COM
THANK YOU FOR ATTENDING!

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- Visit the [AMD Partner Hub](#)
- Take a look at the latest [publication](#) on the new AMD Radeon™ products from respected industry analyst, Patrick Moorhead
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DirectX and Microsoft are registered trademarks of Microsoft Corporation in the US and other countries.

Other names are for informational purposes only and may be trademarks of their respective owners.
1. Requires 4K display and content. Supported resolution varies by GPU model and board design; confirm specifications with manufacturer before purchase.

2. Select AMD Radeon graphics cards are based on the GCN Architecture and include its associated features (AMD PowerTune technology, AMD ZeroCore Power technology, PCI Express 3.0, etc.). Not all features are supported by all products—check with your system manufacturer for specific model capabilities and supported technologies.

3. DirectX® 12 enablement requires an A8G processor and an AMD Radeon™ graphics chip based on the Graphics Core Next architecture. Windows® 10 Technical Preview 2 (or later) and AMD Catalyst™ driver 15.20 (or later) from Windows Update required. GRT-9

4. AMD’s Virtual Super Resolution (VSR) feature is offered by the AMD Radeon™ R9 Fury X, R9 390 Series, R9 380, R7 370, R7 360, AMD Radeon™ R9 290 Series and R9 285 graphics cards and is designed to automatically re-render games at higher resolutions and dynamically rescale them for HD displays at higher quality and visual details. Check with your system manufacturer for specific capabilities. GRT-8

5. Frame rate targeting is offered by select AMD Radeon™ R9 and R7 300 Series graphics and is designed to reduce heat, noise and power consumption by letting users set a target frame rate for their games and applications. Not currently compatible with AMD CrossFire™ multi-GPU configurations. Confirm supported technologies with your component or system manufacturer for specific capabilities before purchase. GRT-1

6. AMD FreeSync™ technology is designed to eliminate stuttering and/or tearing in games and videos by locking a display’s refresh rate to the frame rate of the graphics card. Check with your component or system manufacturer for specific capabilities. AMD FreeSync™ technology compatible monitor, AMD Radeon™ Graphics and/or AMD A-Series APU compliant with DisplayPort™ Adaptive-Sync required. AMD Catalyst™ 15.2 Beta (or newer) required. Adaptive refresh rates vary by display; check with your monitor manufacturer for specific capabilities. A list of supported hardware and compatible monitors is available at www.amd.com/freesync. GRT-2

7. Testing conducted by AMD Performance Labs on optimized AMD reference systems. PC manufacturers may vary configurations yielding different results. The games were tested using the following settings to simulate GPU performance: StarCraft II, 1920x1080, Ultra, 4KMSAA, 8XAF; Dota2, 1920x1080, Ultra, AA On, 0XAF; League of Legends, 1920x1080, Ultra, AA On, 0XAF; Counter-Strike Global Offensive, 1920x1080, Ultra, 4KMSAA, 16XAF. The Radeon™ R7 360 on system using the Intel® Core™ i7-5960X 3.0GHz processor, Corsair Vengeance™ 16GB (4x4GB) DDR4 2666 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Omega Driver 14.502.150218n scored: StarCraft II, 91fps avg.; Dota 2, 107fps avg.; League of Legends, 141fps avg.; Counter-Strike: Global Offensive, 149fps avg. GRTD-54

8. Discrete AMD Radeon™ GPUs and AMD FirePro™ GPUs based on the Graphics Core Next architecture consist of multiple discrete execution engines known as a Compute Unit (“CU”). Each CU contains 64 shaders (“Stream Processors”) working in unison. GRT-5

9. Testing conducted by AMD Performance Labs on optimized AMD reference systems. PC manufacturers may vary configurations yielding different results. 3DMark® Fire Strike Performance Preset is used to simulate GPU performance; the Radeon™ R7 360 on system using the Intel® Core™ i7-5960X 3.0GHz processor, Corsair Vengeance™ 16GB (4x4GB) DDR4 2666 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Driver 15.15-150428 scored 3904 while the Radeon™ HD 7770 on system using the Intel® Core™ i7-3960X 3.3GHz processor, 16GB (4x4GB) DDR3 9-9-9-24 1600 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Driver 13.4 scored 2826. GRTD-52

10. Testing conducted by AMD Performance Labs on optimized AMD reference systems. PC manufacturers may vary configurations yielding different results. 3DMark® Fire Strike Performance Preset is used to simulate GPU performance; the Radeon™ R7 370 on system using the Intel® Core™ i7-5960X 3.0GHz processor, Corsair Vengeance™ 16GB (4x4GB) DDR4 2666 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Driver 15.15-150428 scored 5075 while the Radeon™ HD 7790 on system using the Intel® Core™ i7-3960X 3.3GHz processor, 16GB (4x4GB) DDR3 9-9-9-24 1600 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Driver 13.4 scored 3471. GRTD-53

11. Testing conducted by AMD Performance Labs on optimized AMD reference systems. PC manufacturers may vary configurations yielding different results. 3DMark® Fire Strike Extreme Preset is used to simulate GPU performance; the Radeon™ R9 380 on system using the Intel® Core™ i7-5960X 3.0GHz processor Corsair Vengeance™ 16GB (4x4GB) DDR4 2666 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Driver 15.15-150428 scored 3696 while the Radeon™ HD 7850 on system using the Intel® Core™ i7-3960X 3.3GHz processor, 16GB (4x4GB) DDR3 9-9-9-24 1600 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Driver 13.4 scored 3014. GRTD-56
FOOTNOTES

12. Testing conducted by AMD Performance Labs on optimized AMD reference systems. PC manufacturers may vary configurations yielding different results. 3DMark® Fire Strike Extreme Preset is used to simulate GPU performance; the Radeon™ R9 390 on system using the Intel® Core™ i7-5960X 3.3GHz processor, Corsair Vengeance™ 16GB (4x4GB) DDR4 2666 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Driver 15.15-150428 scored 5007 while the Radeon™ HD 7950 on system using the Intel® Core™ i7-3960X 3.3GHz processor, 16GB (4x4GB) DDR3 9-9-9-24 1600 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Driver 13.4 scored 2956. GRDT-57

13. Testing conducted by AMD Performance Labs on optimized AMD reference systems. PC manufacturers may vary configurations yielding different results. 3DMark® Fire Strike Extreme Preset is used to simulate GPU performance; the Radeon™ R9 390X on system using the Intel® Core™ i7-5860X 3.8GHz processor, Corsair Vengeance™ 16GB (4x4GB) DDR4 2666 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Driver 15.15-150428 scored 5376 while the Radeon™ HD 7950 on system using the Intel® Core™ i7-3960X 3.3GHz processor, 16GB (4x4GB) DDR3 9-9-9-24 1600 MHz memory, Windows 8.1 64-bit, and AMD Catalyst Driver 13.4 scored 3156. GRDT-58

14. Based on the memory bandwidth of the AMD Radeon™ R9 290X with a 1250MHz 512-bit GDDR5 interface (320GB/s) vs. an HBM-based device with a 500MHz 1024-bit interface (512GB/s). HBM-4

15. Testing conducted by AMD engineering on the AMD Radeon™ R9 290X GPU vs. the AMD Radeon™ R9 Fury X GPU. Data obtained through isolated direct measurement of GDDR5 and HBM power delivery rails at full memory utilization. Power efficiency calculated as GB/s of bandwidth delivered per watt of power consumed. AMD Radeon™ R9 290X (10.66 GB/s bandwidth per watt) and R9 Fury X (42.66 GB/s bandwidth per watt) GPU, AMD FX-8350, Gigabyte GA-990FX-UD5, 8GB DDR3-1866, Windows 8.1 x64 Professional, AMD Catalyst™ 15.20 Beta. HBM-1
Performance Preset. System following settings: Far Cry 4, 3840x2160, Ultra, SMAA, 16XAF. System Configuration: test system comprised an Intel® Core™ i7 5960X 3.3GHz processor, 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive, AMD Catalyst Driver 15.15-150428 and NVIDIA 350.12 WHQL Driver.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R9 370 vs. NVIDIA GeForce GTX 970 at 1080p resolution. The games were tested using the following settings: Watch Dogs, 2019x1080, Ultra, 4XAA, 0XAF; Call of Duty: Advanced Warfare, 1920x1080, High, SMAA T1X, 16XAF; Thief, 1920x1080, VeryHigh, OXAA, OXAF; Far Cry 4, 1920x1080, VeryHigh, SMAA, 0XAF; Batman Arkham Origins, 1920x1080, Max Settings, 8XMSAA, 0XAF; Battlefield Hardline, 1920x1080, High, High Post AA, 0XAA, 0XAF; Civilization Beyond Earth, 3840x2160, High, 0XMSAA, FXAA, 0XAF. System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, Gigabyte X99-UD4 motherboard, Corsair Vengeance® 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150428 and NVIDIA 350.12 WHQL Driver.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R9 390 vs. NVIDIA GeForce GTX 970 at 1080p resolution. The games were tested using the following settings: Thief, 3840x2160, 2160p, VeryHigh, OXAA, OXAF; Batman Arkham Origins, 3840x2160, Max Settings, 8XMSAA, 0XAF; Far Cry 4, 3840x2160, VeryHigh, SMAA, 0XAF; Alien Isolation, 3840x2160, Ultra, SMAA T1X, 16XAF; Battlefield 4, 3840x2160, High, OXMSAA + off, FXAA, 0XAF; Civilization Beyond Earth, 3840x2160, High, 2XMSAA, 0XAF; Tomb Raider, 3840x2160, High, 0XAA, 16XAF; Bioshock Infinite, 3840x2160, High, 0XAA, 0XAF; System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, Gigabyte X99-UD4 motherboard, Corsair Vengeance® 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150428 and NVIDIA 350.12 WHQL Driver.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R7 390 vs. NVIDIA GeForce GTX 970 at 1080p resolution. The games were tested using the following settings: Thief, 3840x2160, 2160p, VeryHigh, OXAA, OXAF; Far Cry 4, 3840x2160, VeryHigh, SMAA, 0XAF; Batman Arkham Origins, 3840x2160, Max Settings, 8XMSAA, 0XAF; Battlefield Hardline, 1920x1080, High, High Post AA, 0XAA, 0XAF; Civilization Beyond Earth, 3840x2160, High, 0XMSAA, FXAA, 0XAF. System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, Gigabyte X99-UD4 motherboard, Corsair Vengeance® 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150428 and NVIDIA 350.12 WHQL Driver.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R9 Fury X. The game was tested using the following settings: Sniper Elite III, 2560x1440, Ultra, 0XAA, 16XAF; BioShock Infinite, 2560x1440, Ultra, 0XAA, 16XAF. System Configuration: test system comprised an Intel® Core™ i7-4960X 3.6GHz processor, ASUS X79-UD4 Sabertooth motherboard, 16GB (4x4GB) DDR3 1866 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150527.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R9 Fury X. The game was tested using the following settings: Far Cry 4, 3840x2160, Ultra, SMAA, 16XAF. System Configuration: test system comprised an Intel® Core™ i7-4960X 3.6GHz processor, ASUS X79-UD4 Sabertooth motherboard, 16GB (4x4GB) DDR3 1866 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150527.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R9 Fury X. The game was tested using the following settings: Far Cry 4, 3840x2160, Ultra, SMAA, 16XAF. System Configuration: test system comprised an Intel® Core™ i7-4960X 3.6GHz processor, Gigabyte X99-UD4 motherboard, Corsair Vengeance® 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150528.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R9 Fury X. The game was tested using the following settings: Far Cry 4, 3840x2160, Ultra, SMAA, 16XAF. System Configuration: test system comprised an Intel® Core™ i7-4960X 3.6GHz processor, Gigabyte X99-UD4 motherboard, Corsair Vengeance® 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150528.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R7 360 vs. NVIDIA GeForce GTX 1080 resolution. The benchmark was tested using the following settings: 3DMark FireStrike Performance Test. System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, Gigabyte X99-UD4 motherboard, Corsair Vengeance® 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150528.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R7 360 vs. NVIDIA GeForce GTX 1080 resolution. The benchmark was tested using the following settings: 3DMark FireStrike Performance Test. System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, Gigabyte X99-UD4 motherboard, Corsair Vengeance® 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150528.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R7 360 vs. NVIDIA GeForce GTX 1080 resolution. The benchmark was tested using the following settings: 3DMark FireStrike Performance Test. System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, Gigabyte X99-UD4 motherboard, Corsair Vengeance® 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150528.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R7 360 vs. NVIDIA GeForce GTX 1080 resolution. The benchmark was tested using the following settings: 3DMark FireStrike Performance Test. System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, Gigabyte X99-UD4 motherboard, Corsair Vengeance® 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150528.

Testing conducted by AMD as of May 28, 2015 in AMD Performance Labs on, the AMD Radeon™ R7 360 vs. NVIDIA GeForce GTX 1080 resolution. The benchmark was tested using the following settings: 3DMark FireStrike Performance Test. System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, Gigabyte X99-UD4 motherboard, Corsair Vengeance® 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150528.
FOOTNOTES

13. Testing conducted by AMD as of 28 May, 2015 in AMD Performance Labs on, the AMD Radeon™ R9 380 at 1440p resolution. The benchmark was tested using the following settings: 3DMark FireStrike Extreme Preset. System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, GIGABYTE X99-UD4 motherboard, Corsair Vengeance™ 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150428.

14. Testing conducted by AMD as of 28 May, 2015 in AMD Performance Labs on, the AMD Radeon™ HD 7850 vs. NVIDIA GeForce GTX 660 at 1440p resolution. The benchmark was tested using the following settings: 3DMark FireStrike Extreme Preset. System Configuration: test system comprised an Intel® Core™ i7-3960X 3.3GHz processor, MSI X79A-GD65 motherboard, 16GB (4x4GB) DDR3 2400 MHz memory, 2000GB Seagate Barracuda 7200rpm. AMD Catalyst Driver 13.4 and NVIDIA 314.22 WHQL Driver.

15. Testing conducted by AMD as of 28 May, 2015 in AMD Performance Labs on, the AMD Radeon™ R9 390 at 1440p resolution. The benchmark was tested using the following settings: 3DMark FireStrike Extreme Preset. System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, GIGABYTE X99-UD4 motherboard, Corsair Vengeance™ 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150428.

16. Testing conducted by AMD as of 28 May, 2015 in AMD Performance Labs on, the AMD Radeon™ HD 7870 vs. NVIDIA GeForce GTX 660 Ti at 1440p resolution. The benchmark was tested using the following settings: 3DMark FireStrike Extreme Preset. System Configuration: test system comprised an Intel® Core™ i7-3960X 3.3GHz processor, MSI X79A-GD65 motherboard, 16GB (4x4GB) DDR3 2400 MHz memory, 2000GB Seagate Barracuda 7200rpm. AMD Catalyst Driver 13.4 and NVIDIA 314.22 WHQL Driver.

17. Testing conducted by AMD as of 28 May, 2015 in AMD Performance Labs on, the AMD Radeon™ R9 390X at 1440p resolution. The benchmark was tested using the following settings: 3DMark FireStrike Extreme Preset. System Configuration: test system comprised an Intel® Core™ i7-5960X 3.0GHz processor, GIGABYTE X99-UD4 motherboard, Corsair Vengeance™ 16GB (4x4GB) DDR4 2666 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 15.15-150428.

18. Testing conducted by AMD as of 28 May, 2015 in AMD Performance Labs on, the AMD Radeon™ HD 7950 vs. NVIDIA GeForce GTX 670 at 1440p resolution. The benchmark was tested using the following settings: 3DMark FireStrike Extreme Preset. System Configuration: test system comprised an Intel® Core™ i7-3960X 3.3GHz processor, MSI X79A-GD65 motherboard, 16GB (4x4GB) DDR3 9-9-9-24 1600 MHz memory, 2000GB Seagate Barracuda 7200rpm (ST2000DM001) hard disk drive. AMD Catalyst Driver 13.4 and NVIDIA 314.22 WHQL Driver.
DIRECTX® 12³
SOLVING AN AGE-OLD INDUSTRY PROBLEM

THE INDUSTRY PROBLEM
- Modern CPUs unable to keep up with performance growth of graphics cards
- API/driver overhead serious problem; preventing new game designs from being explored
- Developers want direct hardware access to recover performance lost or obscured by past graphics APIs

THE SOLUTION: DIRECTX® 12
- Better use of multi-core CPUs
- More on-screen detail
- Smoother gameplay
- More efficient use of hardware
- Allows for new game designs previously considered impossible due to technical limitations of past DirectX® APIs

“Meanwhile, your PC might have 4, 8 or more CPU cores on it. And exactly 1 of them at a time can talk to the GPU.

Let’s take a pause here. I want you to think about that for a moment. Think about how limiting that is. Think about how limiting that has been for game developers. How long has your computer been multi-core?”

SOURCE: Brad Wardell, Stardock Corporation
AMD RADEON™
R7 360 GRAPHICS

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Performance</th>
</tr>
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<tbody>
<tr>
<td>Radeon™ R7 360</td>
<td>100%</td>
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<tr>
<td>Radeon™ HD 7770</td>
<td>50%</td>
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<tr>
<td>GTX 650</td>
<td>25%</td>
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UPGRADE FOR UP TO 1.3X PERFORMANCE

AMD RADEON™
R7 370 GRAPHICS

<table>
<thead>
<tr>
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<th>Performance</th>
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<tbody>
<tr>
<td>Radeon™ R7 370</td>
<td>100%</td>
</tr>
<tr>
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<tr>
<td>GTX 650 Ti</td>
<td>25%</td>
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</tbody>
</table>

UPGRADE FOR UP TO 1.4X PERFORMANCE

*For the system configuration refer to system #9, #10, #11 & #12 in the footnotes
Board shot shown for illustration purposes only. Final board design may differ.
For the system configuration refer to system #13 & #14 in the footnotes. Board shot shown for illustration purposes only. Final board design may differ.
AMD RADEON™
R9 390 GRAPHICS

1.6X UPGRADE FOR UP TO PERFORMANCE

 AMD RADEON™
R9 390X GRAPHICS

1.7X UPGRADE FOR UP TO PERFORMANCE

*For the system configuration refer to system #15, #16, #17 & #18 in the footnotes
Board shot shown for illustration purposes only. Final board design may differ.
HIGH-BANDWIDTH MEMORY

- World’s first GPU to feature advanced HBM technology
- Unprecedented high-bandwidth memory
  - 60% higher memory bandwidth than Radeon™ R9 290X\textsuperscript{14}
- Engineered to meet and exceed the performance demands of 4K and VR gaming
- Benefits
  - 4X Bandwidth per watt improvement from Radeon™ R9 290X\textsuperscript{15}
  - Increased bandwidth
  - 4096-bit memory interface
  - Enables Small Form Factors