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# 2D Radeon Linux 4.5 Mesa 11.2-dev

Some modern open-source Radeon 2D benchmarks. Tests by Michael Larabel of Phoronix.

**Automated Executive Summary**

*Radeon R7 370 had the most wins, coming in first place for 30% of the tests.*

*Based on the geometric mean of all complete results, the fastest (Radeon HD 6870) was 2.149x the speed of the slowest (Radeon R9 290). Radeon HD 6950 was 0.955x the speed of Radeon HD 6870, Radeon R7 370 was 0.895x the speed of Radeon HD 6950, Radeon HD 5830 was 0.957x the speed of Radeon R7 370, Radeon R9 285 was 0.749x the speed of Radeon HD 5830, Radeon R9 290 was 0.76x the speed of Radeon R9 285.*

## Test Systems:

### Radeon HD 5830

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 2 x 120GB SanDisk SDSSDA12 + 120GB Samsung SSD 850, Graphics: Sapphire

AMD Radeon HD 5830 1024MB, Audio: Realtek ALC1150, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 15.10, Kernel: 4.5.0-999-generic (x86_64) 20160206, Desktop: Unity, Display Server: X Server 1.17.2, Display Driver: radeon 7.6.99, OpenGL: 4.1 Mesa 11.2.0-devel (padoka PPA) Gallium 0.4, Compiler: GCC 5.2.1 20151010, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: amdgpu.powerplay=1
Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate performance
Graphics Notes: EXA

## Radeon HD 6870

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 2 x 120GB SanDisk SDSSDA12 + 120GB Samsung SSD 850, Graphics: Sapphire AMD Radeon HD 6870 1024MB, Audio: Realtek ALC1150, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 15.10, Kernel: 4.5.0-999-generic (x86_64) 20160206, Desktop: Unity, Display Server: X Server 1.17.2, Display Driver: radeon 7.6.99, OpenGL: 3.3 Mesa 11.2.0-devel (padoka PPA) Gallium 0.4, Compiler: GCC 5.2.1 20151010, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate performance
Graphics Notes: EXA

## Radeon HD 6950

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 2 x 120GB SanDisk SDSSDA12 + 120GB Samsung SSD 850, Graphics: Sapphire AMD Radeon HD 6950 2048MB, Audio: Realtek ALC1150, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 15.10, Kernel: 4.5.0-999-generic (x86_64) 20160206, Desktop: Unity, Display Server: X Server 1.17.2, Display Driver: radeon 7.6.99, OpenGL: 4.1 Mesa 11.2.0-devel (padoka PPA) Gallium 0.4, Compiler: GCC 5.2.1 20151010, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: amdgpu.powerplay=1
Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate performance
Graphics Notes: EXA

## Radeon R9 285

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 2 x 120GB SanDisk SDSSDA12 + 120GB Samsung SSD 850, Graphics: XFX AMD Radeon R9 285/380 2048MB, Audio: Realtek ALC1150, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 15.10, Kernel: 4.5.0-999-generic (x86_64) 20160206, Desktop: Unity, Display Server: X Server 1.17.2,

Display Driver: amdgpu 1.0.99, OpenGL: 4.1 Mesa 11.2.0-devel (padoka PPA) Gallium 0.4, Compiler: GCC 5.2.1 20151010, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: amdgpu.powerplay=1
Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate performance
Graphics Notes: GLAMOR

## Radeon R9 290

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 2 x 120GB SanDisk SDSSDA12 + 120GB Samsung SSD 850, Graphics: XFX AMD Radeon R9 290 4096MB, Audio: Realtek ALC1150, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 15.10, Kernel: 4.5.0-999-generic (x86_64) 20160206, Desktop: Unity, Display Server: X Server 1.17.2, Display Driver: radeon 7.6.99, OpenGL: 4.1 Mesa 11.2.0-devel (padoka PPA) Gallium 0.4, Compiler: GCC 5.2.1 20151010, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate performance
Graphics Notes: GLAMOR

## Radeon R7 370

Processor: Intel Core i7-5960X @ 3.50GHz (16 Cores), Motherboard: Gigabyte X99-UD4-CF, Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 2 x 120GB SanDisk SDSSDA12 + 120GB Samsung SSD 850, Graphics: MSI AMD Radeon R7 370 / R9 270/370 OEM 4096MB, Audio: Realtek ALC1150, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 15.10, Kernel: 4.5.0-999-generic (x86_64) 20160206, Desktop: Unity, Display Server: X Server 1.17.2, Display Driver: radeon 7.6.99, OpenGL: 4.1 Mesa 11.2.0-devel (padoka PPA) Gallium 0.4, Compiler: GCC 5.2.1 20151010, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: amdgpu.powerplay=1
Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate performance
Graphics Notes: GLAMOR

| | Radeon HD 5830 | Radeon HD 6870 | Radeon HD 6950 | Radeon R9 285 | Radeon R9 290 | Radeon R7 370 |
|---|---|---|---|---|---|---|

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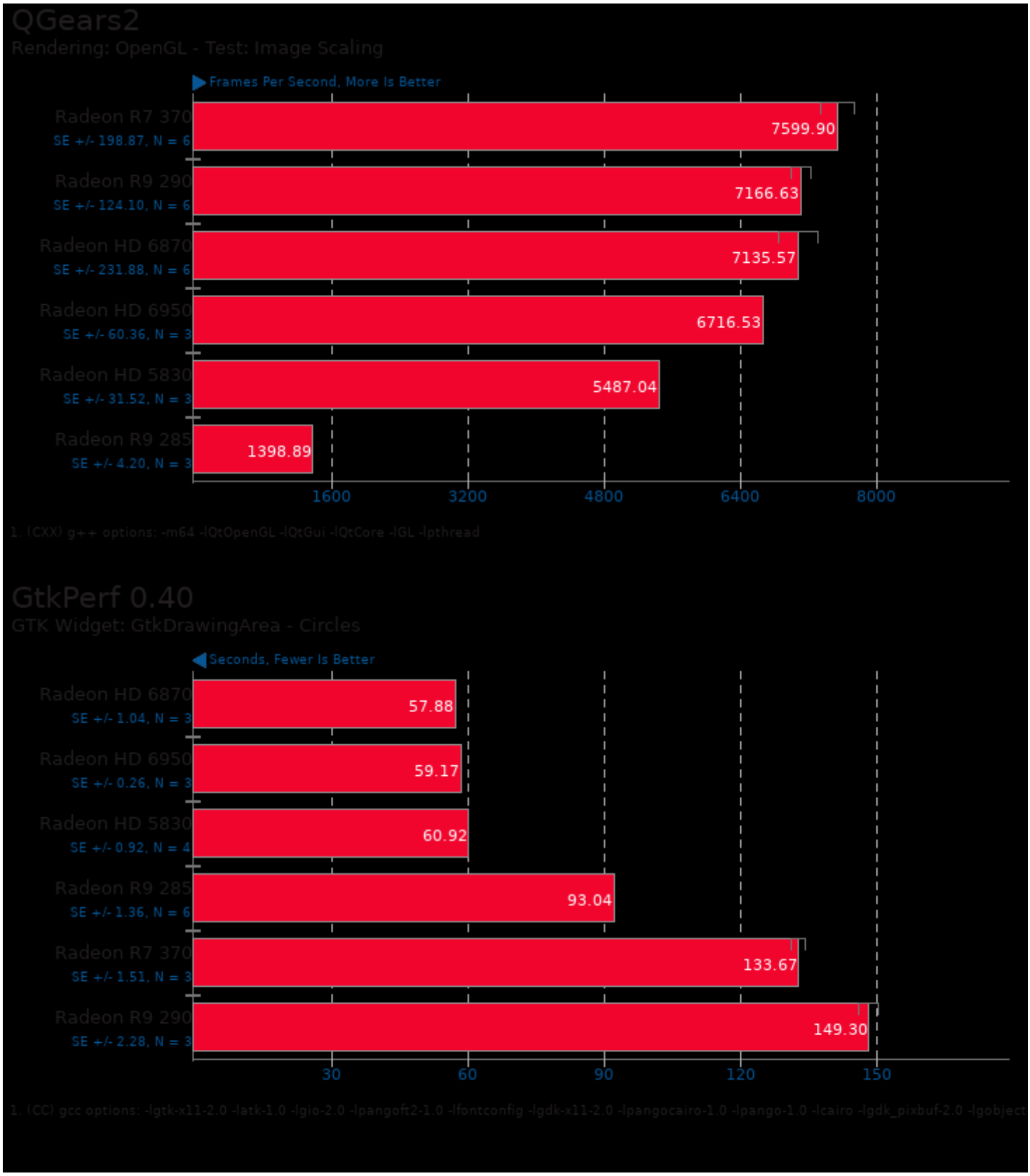
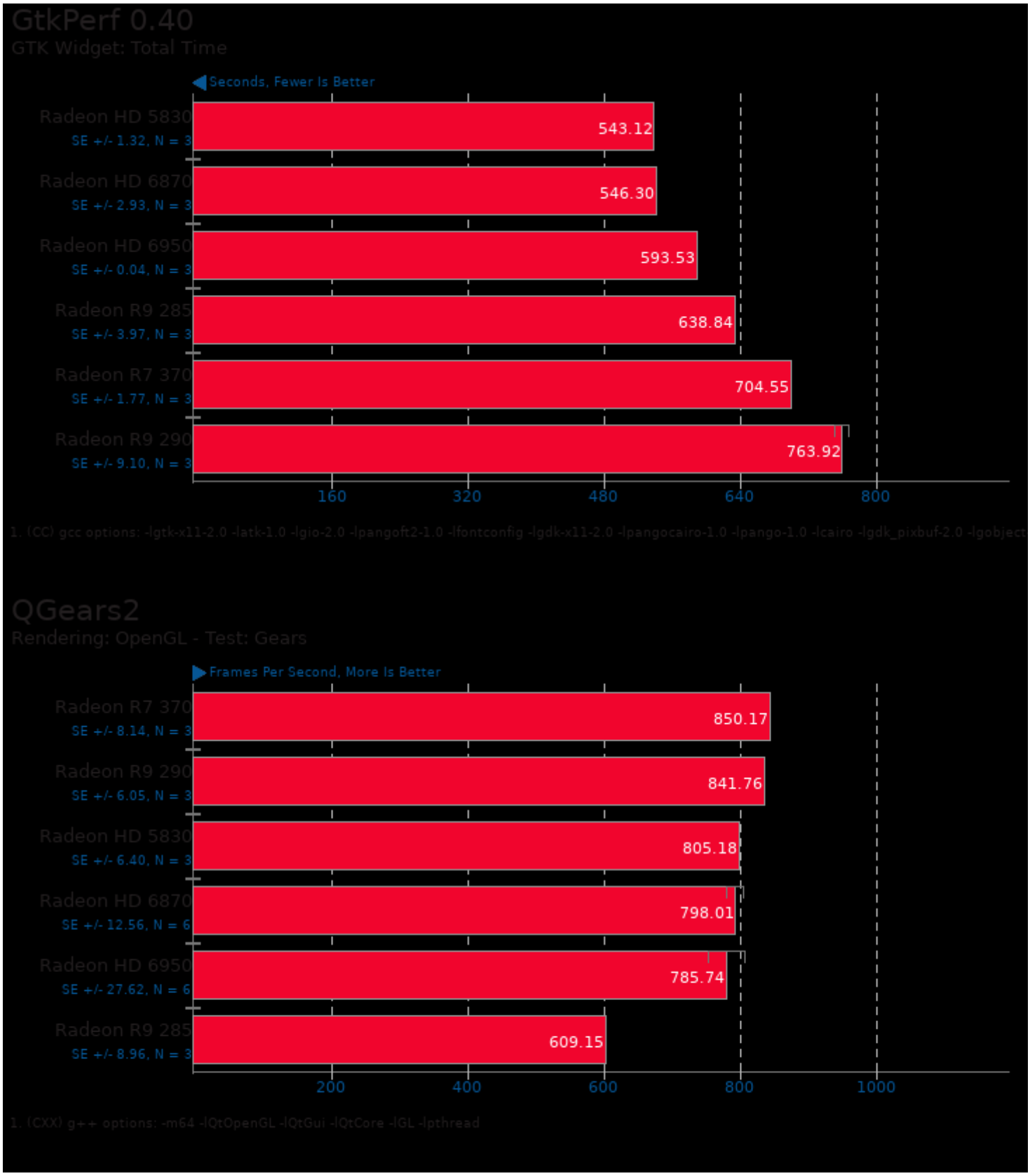
|---|---|---|---|---|---|---|
| **QGears2 - OpenGL - Image Scaling (FPS)** | 5487 | 7136 | 6717 | **1399** | 7167 | **7600** |
| **Normalized** | 72.2% | 93.89% | 88.38% | 18.41% | 94.3% | 100% |
| **Standard Deviation** | 1% | 8% | 1.6% | 0.5% | 4.2% | 6.4% |
| **GtkPerf - GtkDrawingArea - Circles (sec)** | 60.92 | **57.88** | 59.17 | 93.04 | **149.30** | 133.67 |
| **Normalized** | 95.01% | 100% | 97.82% | 62.21% | 38.77% | 43.3% |
| **Standard Deviation** | 3% | 3.1% | 0.8% | 3.6% | 2.6% | 2% |
| **GtkPerf - Total Time (sec)** | **543.12** | 546.30 | 593.53 | 638.84 | **763.92** | 704.55 |
| **Normalized** | 100% | 99.42% | 91.51% | 85.02% | 71.1% | 77.09% |
| **Standard Deviation** | 0.4% | 0.9% | 0% | 1.1% | 2.1% | 0.4% |
| **QGears2 - OpenGL - Gears (FPS)** | 805.18 | 798.01 | 785.74 | **609.15** | 841.76 | **850.17** |
| **Normalized** | 94.71% | 93.86% | 92.42% | 71.65% | 99.01% | 100% |
| **Standard Deviation** | 1.4% | 3.9% | 8.6% | 2.5% | 1.2% | 1.7% |
| **QGears2 - OpenGL - Text (FPS)** | **347.47** | 359.72 | 367.50 | 369.78 | 360.19 | **370.16** |
| **Normalized** | 93.87% | 97.18% | 99.28% | 99.9% | 97.31% | 100% |
| **Standard Deviation** | 2.5% | 0.7% | 1.5% | 0.1% | 1.2% | 0.2% |
| **GtkPerf - GtkTextView - Add Text (sec)** | 307.35 | 304.80 | 306.97 | **307.70** | 305.11 | **304.41** |
| **Normalized** | 99.04% | 99.87% | 99.17% | 98.93% | 99.77% | 100% |
| **Standard Deviation** | 0.8% | 0.3% | 0.6% | 0.4% | 0.1% | 0.1% |
| **GtkPerf - GtkDrawingArea - Pixbufs (sec)** | 5.71 | **5.39** | 6.00 | 14.72 | **19.88** | 16.29 |
| **Normalized** | 94.4% | 100% | 89.83% | 36.62% | 27.11% | 33.09% |
| **Standard Deviation** | 9.1% | 11.6% | 6.3% | 5.8% | 15.6% | 7.9% |
| **GtkPerf - GtkTextView - Scroll (sec)** | **0.04** | **0.04** | **0.03** | **0.03** | **0.03** | **0.04** |
| **Normalized** | 75% | 75% | 100% | 100% | 100% | 75% |
| **Standard Deviation** | 14.1% | 23.9% | 15.5% | 0% | 0% | 30.5% |
| **GtkPerf - GtkComboBoxEntry (sec)** | 9.50 | 12.29 | 16.19 | **9.29** | **16.92** | 10.37 |
| **Normalized** | 97.79% | 75.59% | 57.38% | 100% | 54.91% | 89.59% |
| **Standard Deviation** | 55.5% | 40.7% | 40.8% | 58.2% | 29.2% | 50% |
| **GtkPerf - GtkToggleButton (sec)** | 0.16 | 0.17 | **0.14** | 0.15 | **15.63** | 0.18 |
| **Normalized** | 87.5% | 82.35% | 100% | 93.33% | 0.9% | 77.78% |
| **Standard Deviation** | 9.3% | 3.5% | 7.2% | 5.8% | 13.1% | 21.3% |
| **GtkPerf - GtkRadioButton** | 1.89 | **0.20** | 0.22 | 1.20 | **3.09** | 0.22 |
| **Normalized** | 10.58% | 100% | 90.91% | 16.67% | 6.47% | 90.91% |
| **Standard Deviation** | 214.4% | 9.1% | 8.1% | 198.5% | 143.9% | 7.6% |
| **GtkPerf - GtkCheckButton (sec)** | 0.16 | **0.13** | 0.17 | **1.12** | 0.17 | 0.17 |
| **Normalized** | 81.25% | 100% | 76.47% | 11.61% | 76.47% | 76.47% |
| **Standard Deviation** | 10.9% | 0% | 7.3% | 208.7% | 0% | 7.3% |
| **GtkPerf - GtkComboBox** | 24.21 | 22.26 | **26.33** | **15.06** | 19.28 | 17.32 |
| **Normalized** | 62.21% | 67.65% | 57.2% | 100% | 78.11% | 86.95% |
| **Standard Deviation** | 15.6% | 17.8% | 15.7% | 28.4% | 30.5% | 24.8% |

# 2D Radeon Linux 4.5 Mesa 11.2-dev



# 2D Radeon Linux 4.5 Mesa 11.2-dev



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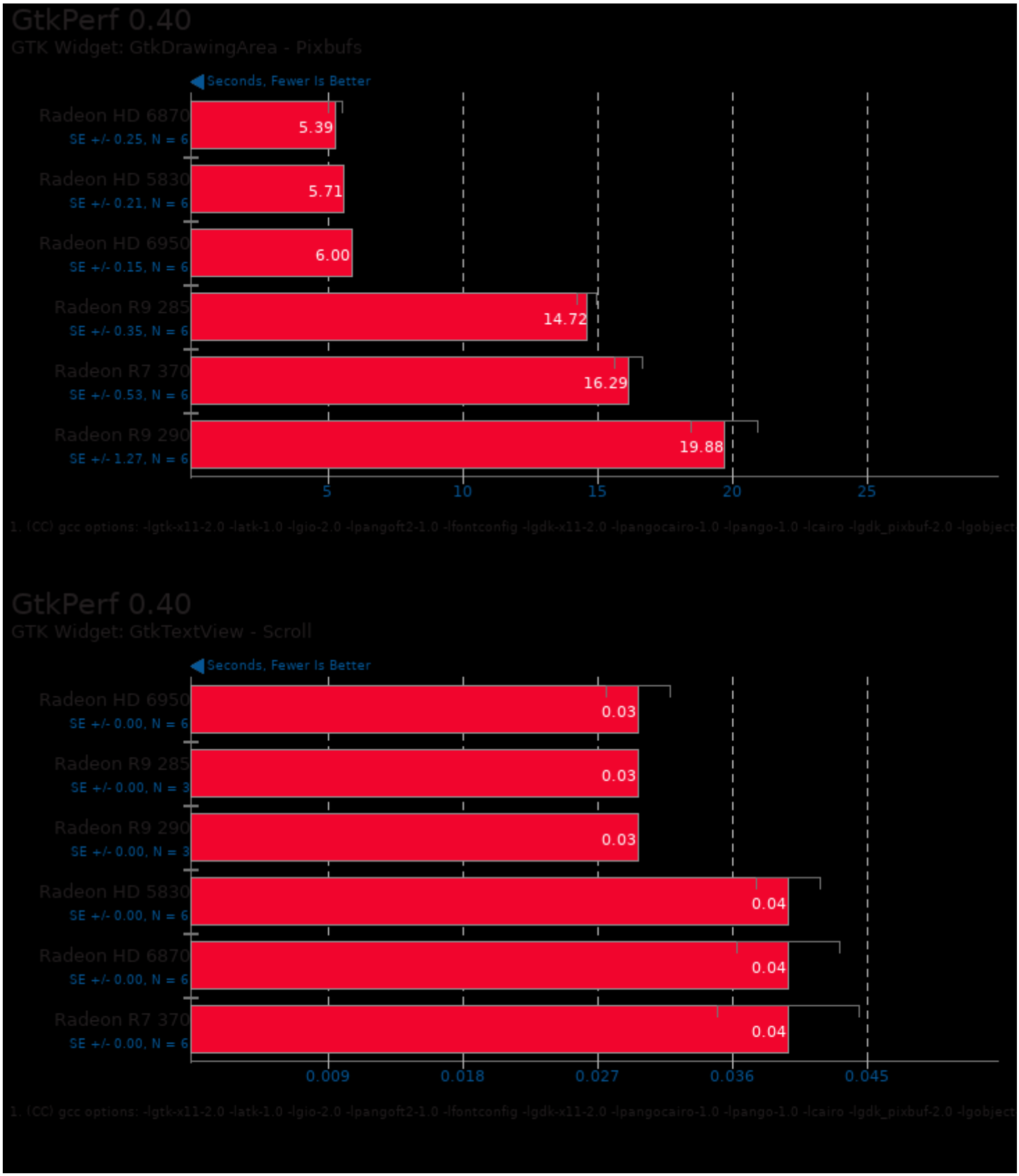

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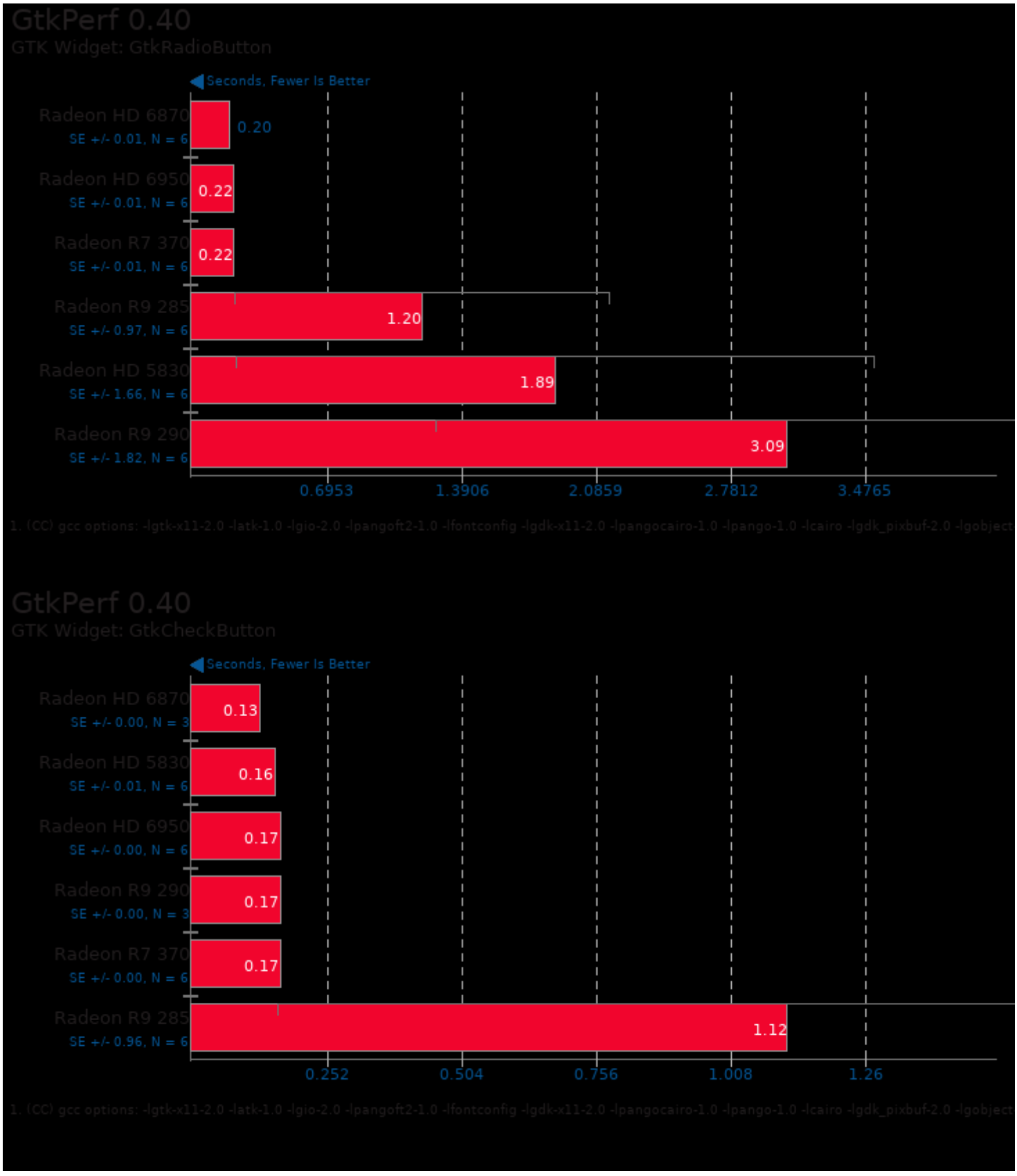

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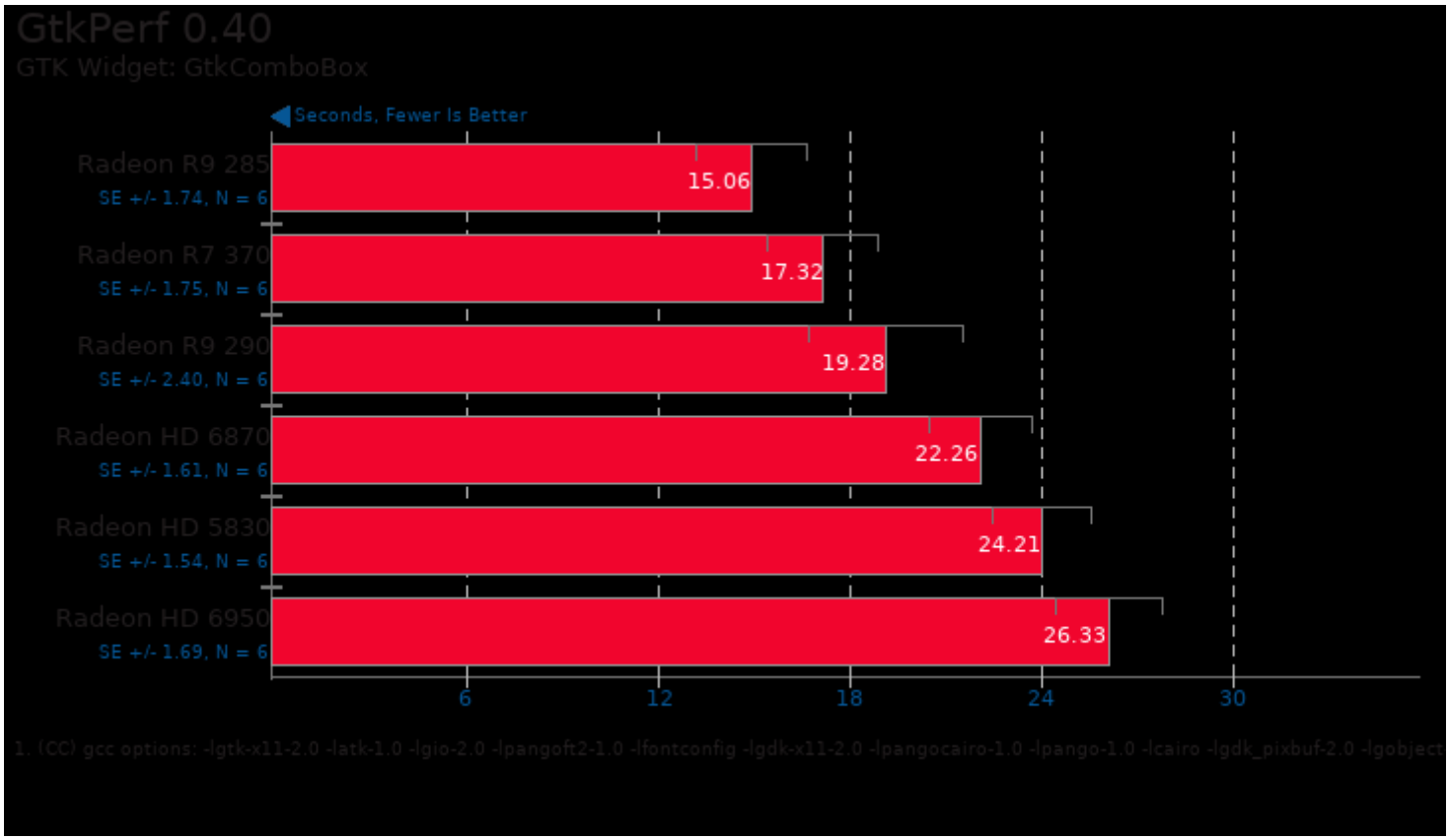


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