



## Acer C720 Chromebook Haswell Ubuntu

Acer C720 Peppy Chromebook running Ubuntu 13.10 with Intel Haswell Celeron processor. Benchmarks by Michael Larabel for a future article on Phoronix.com.

### Automated Executive Summary

*ThinkPad W510 - Core i7 720QM had the most wins, coming in first place for 43% of the tests.*

*Based on the geometric mean of all complete results, the fastest (EliteBook 161C - Core i5 2520M) was 3.309x the speed of the slowest (ThinkPad T60 - Core Duo T2400). ThinkPad W510 - Core i7 720QM was 0.949x the speed of EliteBook 161C - Core i5 2520M, ASUS S56C - Core i3 3217U was 0.8x the speed of ThinkPad W510 - Core i7 720QM, Acer C720P Chromebook - Celeron 2955U - Fedora 20 was 0.835x the speed of ASUS S56C - Core i3 3217U, Acer C720 Chromebook - Celeron 2955U was 0.979x the speed of Acer C720P Chromebook - Celeron 2955U - Fedora 20, ThinkPad T61 - Core 2 Duo T9300 was 0.856x the speed of Acer C720 Chromebook - Celeron 2955U, MacBook Pro - Core i5 520M was 0.924x the speed of ThinkPad T61 - Core 2 Duo T9300, ThinkPad T60 - Core Duo T2400 was 0.615x the speed of MacBook Pro - Core i5 520M.*

*The results with the greatest spread from best to worst included:*

*OpenArena (Resolution: 1024 x 768 - Total Frame Time) at 29.667x*

*GpuTest (Test: Furmark - Resolution: 1024 x 768) at 5.986x*

*Xonotic (Resolution: 1024 x 768 - Effects Quality: High) at 5.374x*

*x264 (H.264 Video Encoding) at 4.51x*  
*Xonotic (Resolution: 1024 x 768 - Effects Quality: Ultra) at 4.349x*  
*OpenArena (Resolution: 1024 x 768) at 4.292x*  
*HPC Challenge (Test / Class: EP-DGEMM) at 3.95x*  
*Opus Codec Encoding (WAV, Opus Encode, Opus Decode) at 3.898x*  
*VP8 libvpx Encoding (vp8enc) at 3.839x*  
*C-Ray (Total Time) at 3.574x.*

## Test Systems:

### ThinkPad T60 - Core Duo T2400

Processor: Intel T2400 @ 1.83GHz (2 Cores), Motherboard: LENOVO 2613EJU, Chipset: Intel Mobile 945GM/PM/GMS + ICH7-M, Memory: 1024MB, Disk: 80GB Hitachi HTS541080G9SA00, Graphics: AMD Mobility Radeon X1400 128MB, Audio: Analog Devices AD1981, Network: Intel 82573L Gigabit + Intel PRO/Wireless

OS: Ubuntu 13.10, Kernel: 3.11.0-12-generic (i686), Desktop: Unity 7.1.2, Display Server: X Server 1.14.3, Display Driver: radeon 7.2.0, OpenGL: 2.1 Mesa 9.2.1 Gallium 0.4, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1400x1050

Compiler Notes: --build=i686-linux-gnu --disable-browser-plugin --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,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdc++-debug --enable-libstdc++-time=yes --enable-multiarch --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-targets=all --enable-threads=posix --host=i686-linux-gnu --target=i686-linux-gnu --with-arch-32=i686 --with-arch-directory=i386 --with-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-i386/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-i386 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-i386 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v  
Disk Notes: DEADLINE / data=ordered,errors=remount-ro,relatime,rw  
Processor Notes: Scaling Governor: acpi-cpufreq ondemand  
Graphics Notes: EXA  
System Notes: Disk Scheduler: DEADLINE. Python 2.7.5+.

### ThinkPad T61 - Core 2 Duo T9300

Processor: Intel Core 2 Duo T9300 @ 2.50GHz (2 Cores), Motherboard: LENOVO 6459CTO, Chipset: Intel Mobile PM965/GM965/GL960 + ICH8M-E, Memory: 4096MB, Disk: 100GB Hitachi HTS72201, Graphics: NVIDIA Quadro NVS 140M 512MB (400/600MHz), Audio: Analog Devices AD1984, Network: Intel 82566MM Gigabit Connection + Intel PRO/Wireless

OS: Ubuntu 13.10, Kernel: 3.11.0-12-generic (x86\_64), Desktop: Unity 7.1.2, Display Server: X Server 1.14.3, Display Driver: NVIDIA 304.88, OpenGL: 3.3.0 NVIDIA, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1680x1050

Compiler Notes: --build=x86\_64-linux-gnu --disable-browser-plugin --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,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdc++-debug --enable-libstdc++-time=yes --enable-multiarch --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-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v  
Disk Notes: DEADLINE / data=ordered,errors=remount-ro,relatime,rw  
Processor Notes: Scaling Governor: acpi-cpufreq ondemand  
System Notes: Disk Scheduler: DEADLINE. Python 2.7.5+.

### ThinkPad W510 - Core i7 720QM

Processor: Intel Core i7 720Q @ 1.60GHz (8 Cores), Motherboard: LENOVO 4318CTO, Chipset: Intel Core DMI,

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Memory: 4096MB, Disk: 160GB FUJITSU MHZ2160B, Graphics: NVIDIA Quadro FX 880M 1024MB (550/790MHz), Audio: Conexant CX20585, Network: Intel 82577LM Gigabit Connection + Intel Centrino Ultimate-N 6300

OS: Ubuntu 13.10, Kernel: 3.11.0-12-generic (x86\_64), Desktop: Unity 7.1.2, Display Server: X Server 1.14.3, Display Driver: NVIDIA 304.88, OpenGL: 3.3.0 NVIDIA, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1600x900

Compiler Notes: --build=x86\_64-linux-gnu --disable-browser-plugin --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,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --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-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v  
Disk Notes: DEADLINE / data=ordered,errors=remount-ro,relatime,rw  
Processor Notes: Scaling Governor: acpi-cpufreq ondemand  
System Notes: Disk Scheduler: DEADLINE. Python 2.7.5+.

## MacBook Pro - Core i5 520M

Processor: Intel Core i5 520M @ 2.40GHz (4 Cores), Motherboard: Apple Mac-F22586C8, Chipset: Intel Core DRAM, Memory: 4096MB, Disk: 120GB OCZ AGILITY2, Graphics: Intel Core IGP 256MB, Audio: Cirrus Logic CS4206, Monitor: Color LCD, Network: Broadcom NetXtreme BCM5764M Gigabit PCIe + Broadcom BCM43224 802.11a/b/g/n

OS: Ubuntu 13.10, Kernel: 3.11.0-14-generic (x86\_64), Desktop: Unity 7.1.2, Display Server: X Server 1.14.3, Display Driver: intel 2.99.904, OpenGL: 3.1 Mesa 9.2.1 Gallium 0.4, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1440x900

Compiler Notes: --build=x86\_64-linux-gnu --disable-browser-plugin --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,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --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-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v  
Disk Notes: DEADLINE / data=ordered,errors=remount-ro,relatime,rw  
Processor Notes: Scaling Governor: acpi-cpufreq ondemand  
Graphics Notes: EXA  
System Notes: Disk Scheduler: DEADLINE. Python 2.7.5+.

## ASUS S56C - Core i3 3217U

Processor: Intel Core i3-3217U @ 1.80GHz (4 Cores), Motherboard: ASUS K56CA v1.0, Chipset: Intel 3rd Gen Core DRAM, Memory: 4096MB, Disk: 500GB Hitachi HTS54505 + 24GB SanDisk SSD i100, Graphics: Intel HD 4000 (1050MHz), Audio: Realtek ALC270, Network: Realtek RTL8111/8168/8411 + Qualcomm Atheros AR9485 Wireless

OS: Ubuntu 13.10, Kernel: 3.11.0-12-generic (x86\_64), Desktop: Unity 7.1.2, Display Server: X Server 1.14.3, Display Driver: intel 2.99.904, OpenGL: 3.1 Mesa 9.2.1, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1366x768

Compiler Notes: --build=x86\_64-linux-gnu --disable-browser-plugin --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,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --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-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v  
Disk Notes: DEADLINE / data=ordered,errors=remount-ro,relatime,rw  
Processor Notes: Scaling Governor: acpi-cpufreq ondemand  
Graphics Notes: SNA  
System Notes: Disk Scheduler: DEADLINE. Python 2.7.5+.

## EliteBook 161C - Core i5 2520M

Processor: Intel Core i5-2520M @ 2.50GHz (4 Cores), Motherboard: HP 161C, Chipset: Intel 2nd Generation Core Family DRAM, Memory: 4096MB, Disk: 160GB INTEL SSDSA2M160, Graphics: Intel HD 3000 (1300MHz), Audio: IDT

92HD81B1X5, Network: Intel 82579LM Gigabit Connection + Intel Centrino Advanced-N 6205

OS: Ubuntu 13.10, Kernel: 3.11.0-12-generic (x86\_64), Desktop: Unity 7.1.2, Display Server: X Server 1.14.3, Display Driver: intel 2.99.904, OpenGL: 3.1 Mesa 9.2.1, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1600x900

Compiler Notes: --build=x86\_64-linux-gnu --disable-browser-plugin --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,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --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-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v  
Disk Notes: DEADLINE / data=ordered,errors=remount-ro,relatime,wr  
Processor Notes: Scaling Governor: acpi-cpufreq ondemand  
Graphics Notes: SNA  
System Notes: Disk Scheduler: DEADLINE. Python 2.7.5+.

### Acer C720 Chromebook - Celeron 2955U

Processor: Intel Celeron 2955U @ 1.40GHz (2 Cores), Motherboard: Acer Peppy v1.0, Chipset: Intel Haswell-ULT  
DRAM, Memory: 2048MB, Disk: 16GB KINGSTON SNS4151, Graphics: Intel Haswell-ULT IGP (1000MHz), Audio: Intel  
Haswell HDMI, Network: Qualcomm Atheros AR9462 Wireless

OS: Ubuntu 13.10, Kernel: 3.11.0-12-generic (x86\_64), Desktop: Unity 7.1.2, Display Server: X Server 1.14.3, Display Driver: intel 2.99.904, OpenGL: 3.1 Mesa 9.2.1, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1366x768

Compiler Notes: --build=x86\_64-linux-gnu --disable-browser-plugin --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,c++,java,go,d,fortran,objc,obj-c++ --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --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-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64/jre --with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-4.8-amd64 --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-4.8-amd64 --with-multilib-list=m32,m64,mx32 --with-tune=generic -v  
Processor Notes: Scaling Governor: acpi-cpufreq ondemand  
Graphics Notes: SNA

### Acer C720P Chromebook - Celeron 2955U - Fedora 20

Processor: Intel Celeron 2955U @ 1.40GHz (2 Cores), Motherboard: Acer Peppy v1.0, Chipset: Intel Haswell-ULT  
DRAM, Memory: 2048MB, Disk: 32GB KINGSTON SNS4151, Graphics: Intel Haswell-ULT IGP (1000MHz), Audio: Intel  
Haswell HDMI, Network: Qualcomm Atheros AR9462 Wireless

OS: Fedora 20, Kernel: 3.12.10-300.fc20.x86\_64 (x86\_64), Desktop: GNOME Shell 3.10.3, Display Server: X Server 1.14.4, Display Driver: intel 2.21.15, OpenGL: 3.1 Mesa 9.2.5, Compiler: GCC 4.8.2 20131212, File-System: ext4, Screen Resolution: 1366x768

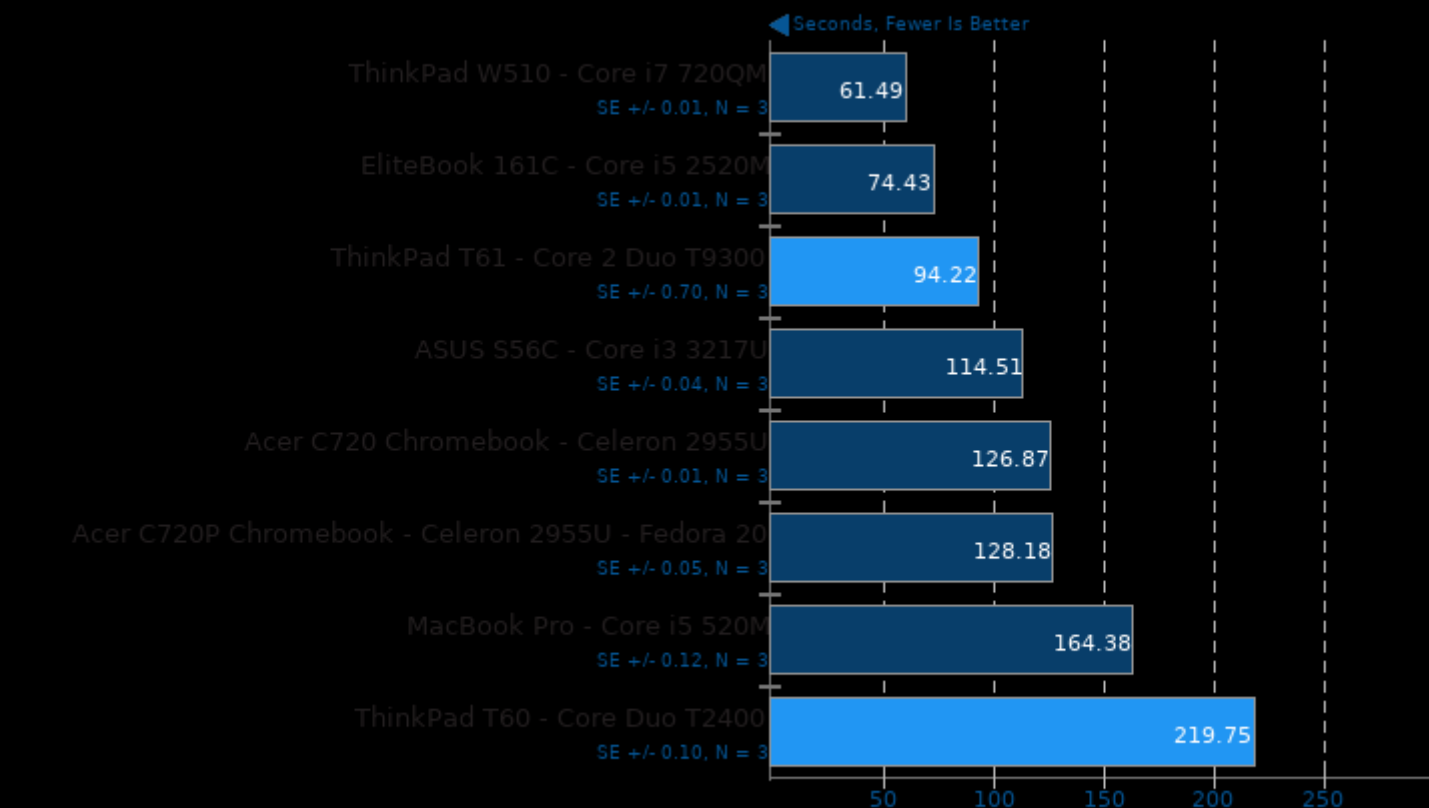
Kernel Notes: tpm\_tis.force=1 tpm\_tis.interrupts=0  
Processor Notes: Scaling Governor: intel\_pstate powersave  
Graphics Notes: UXA  
System Notes: SELinux: Enabled.

|  | ThinkPad<br>T60 - Core<br>Duo T2400 | ThinkPad<br>T61 - Core<br>2 Duo<br>T9300 | ThinkPad<br>W510 -<br>Core i7<br>720QM | MacBook<br>Pro - Core<br>i5 520M | ASUS<br>S56C -<br>Core i3<br>3217U | EliteBook<br>161C -<br>Core i5<br>2520M | Acer C720<br>Chromebo<br>ok -<br>Celeron<br>2955U | Acer<br>C720P<br>Chromebo<br>ok -<br>Celeron<br>2955U - |
|--|-------------------------------------|--|--|----------------------------------|------------------------------------|---|---|---|
| <b>C-Ray - Total Time</b>                          | <b>219.75</b>                       | 94.22                                    | <b>61.49</b>                           | 164.38                           | 114.51                             | 74.43                                   | 126.87  | 128.18  |
| Normalized   | 27.98%                              | 65.26%                                   | 100%                                   | 37.41%                           | 53.7%                              | 82.61%                                  | 48.47%  | 47.97%  |
| Standard Deviation                                 | 0.1%                                | 1.3%                                     | 0%                                     | 0.1%                             | 0.1%                               | 0%                                      | 0%  | 0.1%  |
| <b>GpuTest - Furmark -<br/>1024 x 768 (Points)</b> |                                     | <b>74</b>                                | <b>443</b>                             | 180                              | 406                                | 208                                     | 253   | 253   |
| Normalized   |                                     | 16.7%                                    | 100%                                   | 40.63%                           | 91.65%                             | 46.95%                                  | 57.11%  | 57.11%  |
| Standard Deviation                                 |                                     | 3.1%                                     | 0%                                     | 0%                               | 3.5%                               | 0%                                      | 1%  | 0.8%  |
| <b>Himeno Benchmark -<br/>P.P.S (MFLOPS)</b>       | 538.67                              | 917.45                                   | 1140                                   | <b>501.19</b>                    | 779.80                             | <b>1314</b>                             | 651.97  | 652.34  |
| Normalized   | 41.01%                              | 69.84%                                   | 86.79%                                 | 38.15%                           | 59.36%                             | 100%                                    | 49.63%  | 49.66%  |
| Standard Deviation                                 | 0.1%                                | 0.7%                                     | 0.1%                                   | 0%                               | 0.2%                               | 0.1%                                    | 0.2%  | 1.2%  |
| <b>HPC Challenge - G-HPL<br/>(GFLOPS)</b>          |                                     | 10.49070                                 | 16.47390                               | <b>6.45871</b>                   | 11.16660                           | <b>16.80297</b>                         | 9.64205   |   |
| Normalized   |                                     | 62.43%                                   | 98.04%                                 | 38.44%                           | 66.46%                             | 100%                                    | 57.38%  |   |
| Standard Deviation                                 |                                     | 4.5%                                     | 0.1%                                   | 0.2%                             | 0.3%                               | 0.1%                                    | 0.1%  |   |
| <b>HPC Challenge - G-Ffte<br/>(GFLOPS)</b>         |                                     | <b>0.97367</b>                           | <b>1.97418</b>                         | 1.02314                          | 1.43666                            | 1.41069                                 | 1.40173   |   |
| Normalized   |                                     | 49.32%                                   | 100%                                   | 51.83%                           | 72.77%                             | 71.46%                                  | 71%   |   |
| Standard Deviation                                 |                                     | 3.7%                                     | 0.5%                                   | 0.9%                             | 0.6%                               | 0.9%                                    | 0.2%  |   |
| <b>HPC Challenge -<br/>EP-DGEMM (GFLOPS)</b>       |                                     | <b>6.80617</b>                           | 2.31470                                | <b>1.72322</b>                   | 2.98475                            | 4.57002                                 | 5.14450   |   |
| Normalized   |                                     | 100%                                     | 34.01%                                 | 25.32%                           | 43.85%                             | 67.15%                                  | 75.59%  |   |
| Standard Deviation                                 |                                     | 17.7%                                    | 0.4%                                   | 0%                               | 0.3%                               | 0.1%                                    | 3.8%  |   |
| <b>HPC Challenge -<br/>G-Ptrans (GB/s)</b>         |                                     | 0.63220                                  | <b>1.07329</b>                         | <b>0.30889</b>                   | 0.42234                            | 0.37017                                 | 0.84095   |   |
| Normalized   |                                     | 58.9%                                    | 100%                                   | 28.78%                           | 39.35%                             | 34.49%                                  | 78.35%  |   |
| Standard Deviation                                 |                                     | 5.1%                                     | 1%                                     | 0.5%                             | 1.4%                               | 0.6%                                    | 0.2%  |   |
| <b>HPC Challenge -<br/>G-Rand Access (GUP/s)</b>   |                                     | 0.00925                                  | <b>0.02122</b>                         | <b>0.00825</b>                   | 0.01553                            | 0.02047                                 | 0.01017   |   |
| Normalized   |                                     | 43.59%                                   | 100%                                   | 38.88%                           | 73.19%                             | 96.47%                                  | 47.93%  |   |
| Standard Deviation                                 |                                     | 6%                                       | 3.4%                                   | 7.7%                             | 1.6%                               | 0.1%                                    | 0.1%  |   |
| <b>HPC Challenge -<br/>M.P.P.B (MB/s)</b>          |                                     | <b>6106</b>                              | 4538                                   | <b>3006</b>                      | 4796                               | 4624                                    | 3201  |   |
| Normalized   |                                     | 100%                                     | 74.33%                                 | 49.23%                           | 78.55%                             | 75.73%                                  | 52.42%  |   |
| Standard Deviation                                 |                                     | 4.6%                                     | 0.3%                                   | 0.8%                             | 2.3%                               | 0.6%                                    | 0.3%  |   |
| <b>LAME MP3 Encoding -<br/>WAV To MP3 (sec)</b>    | 46.04                               | 25.11                                    | 22.90                                  | <b>53.24</b>                     | 28.97                              | <b>17.04</b>                            | 34.47   | 33.94   |
| Normalized   | 37.01%                              | 67.86%                                   | 74.41%                                 | 32.01%                           | 58.82%                             | 100%                                    | 49.43%  | 50.21%  |
| Standard Deviation                                 | 0.4%                                | 0.8%                                     | 0.3%                                   | 0.1%                             | 0.1%                               | 0.1%                                    | 0.5%  | 0.2%  |
| <b>OpenArena - 1024 x 768<br/>(FPS)</b>            | <b>15.57</b>                        | 20.13                                    | <b>66.83</b>                           | 53.80                            | 59.40                              | 48.20                                   | 45.47   | 45.60   |
| Normalized   | 23.3%                               | 30.12%                                   | 100%                                   | 80.5%                            | 88.88%                             | 72.12%                                  | 68.04%  | 68.23%  |
| Standard Deviation                                 | 0.7%                                | 1.7%                                     | 0.6%                                   | 0.3%                             | 2.1%                               | 1.5%                                    | 2.2%  | 1.9%  |
| <b>Opus Codec Encoding -<br/>W.O.E.O.D (sec)</b>   | <b>44.91</b>                        | 18.32                                    | 14.87                                  | 34.13                            | 19.53                              | <b>11.52</b>                            | 23.37   | 23.48   |
| Normalized   | 25.65%                              | 62.88%                                   | 77.47%                                 | 33.75%                           | 58.99%                             | 100%                                    | 49.29%  | 49.06%  |
| Standard Deviation                                 | 0.3%                                | 0.1%                                     | 0.3%                                   | 0.2%                             | 0.3%                               | 0.1%                                    | 0%  | 0.1%  |

|   |              |        |              |        |              |              |        |        |
|---|--------------|--------|--------------|--------|--------------|--------------|--------|--------|
| <b>VP8 libvpx Encoding - vpxenc (FPS)</b> | <b>4.34</b>  | 10.02  | 10.10        | 5.88   | 10.51        | <b>16.66</b> | 8.59   | 8.46   |
| Normalized                                | 26.05%       | 60.14% | 60.62%       | 35.29% | 63.09%       | 100%         | 51.56% | 50.78% |
| Standard Deviation                        | 0.5%         | 2.1%   | 0.2%         | 0.8%   | 0.8%         | 0.3%         | 0.7%   | 1.7%   |
| <b>x264 - H.2.V.E (FPS)</b>               | <b>13.60</b> | 31.91  | 61.21        | 23.35  | 40.96        | <b>61.34</b> | 29.01  |        |
| Normalized                                | 22.17%       | 52.02% | 99.79%       | 38.07% | 66.78%       | 100%         | 47.29% |        |
| Standard Deviation                        | 0.5%         | 1%     | 2.2%         | 0.3%   | 1.1%         | 0.7%         | 1.3%   |        |
| <b>Xonotic - 1024 x 768 - High (FPS)</b>  | <b>18.28</b> | 27.99  | <b>98.24</b> | 51.18  | 71.10        | 72.35        | 61.48  | 63.16  |
| Normalized                                | 18.61%       | 28.49% | 100%         | 52.1%  | 72.37%       | 73.65%       | 62.58% | 64.29% |
| Standard Deviation                        | 0.9%         | 0.5%   | 0.5%         | 1%     | 1.5%         | 2.4%         | 0.9%   | 2.4%   |
| <b>Xonotic - 1024 x 768 - Ultra (FPS)</b> | <b>12.59</b> | 14.16  | 48.22        | 33.07  | <b>54.75</b> | 50.71        | 38.32  | 44.61  |
| Normalized                                | 23%          | 25.86% | 88.07%       | 60.4%  | 100%         | 92.62%       | 69.99% | 81.48% |
| Standard Deviation                        | 0.9%         | 0.4%   | 0.2%         | 0.1%   | 1.1%         | 1.7%         | 0.3%   | 2.9%   |

## C-Ray 1.1

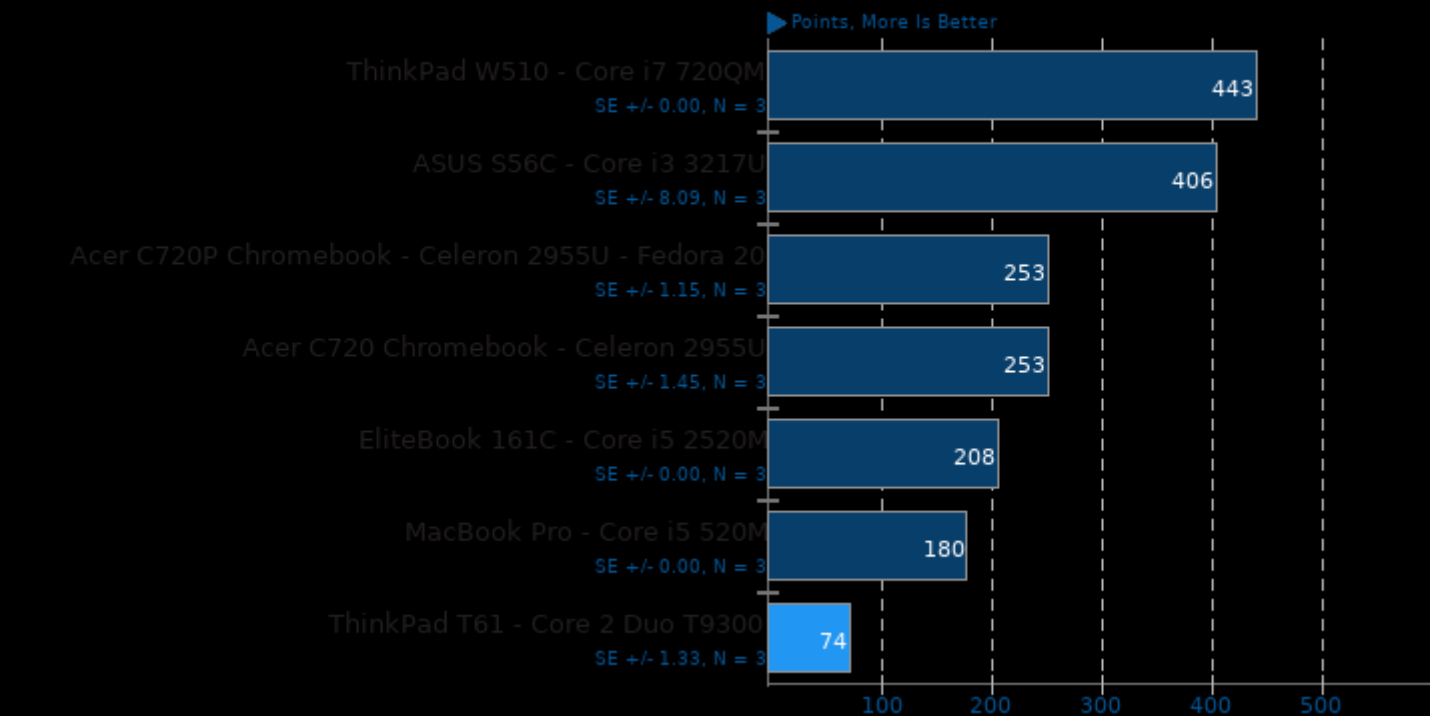
Total Time



1. (CC) gcc options: -lm -lpthread -O3

## GpuTest 0.6.0

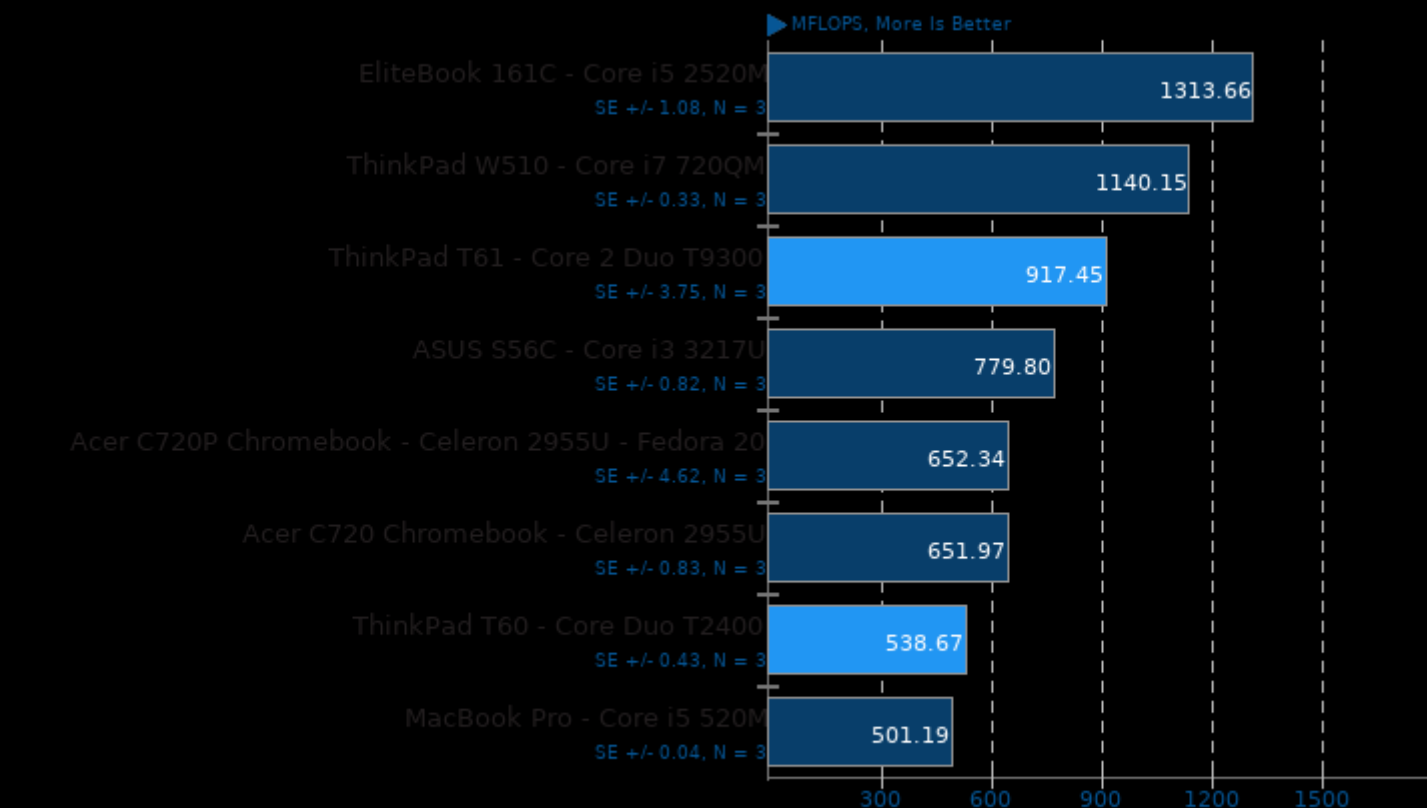
Test: Furmark - Resolution: 1024 x 768





## Himeno Benchmark 3.0

Poisson Pressure Solver

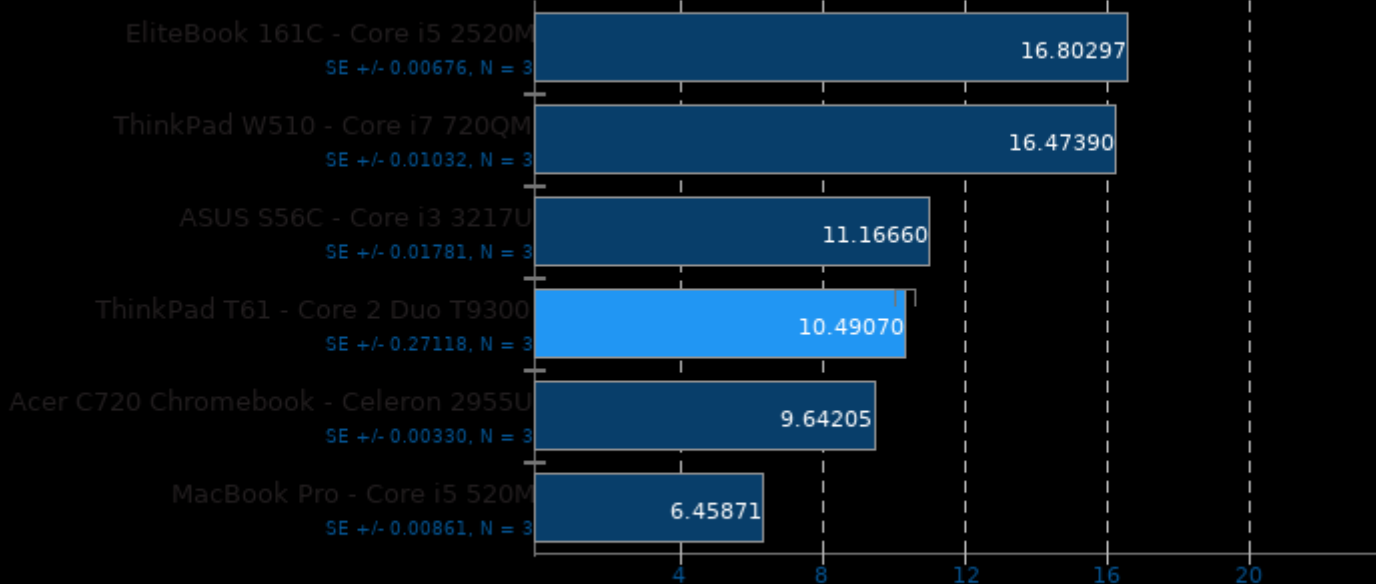


1. (CC) gcc options: -O3

## HPC Challenge 1.4.3

Test / Class: G-HPL

► GFLOPS, More Is Better

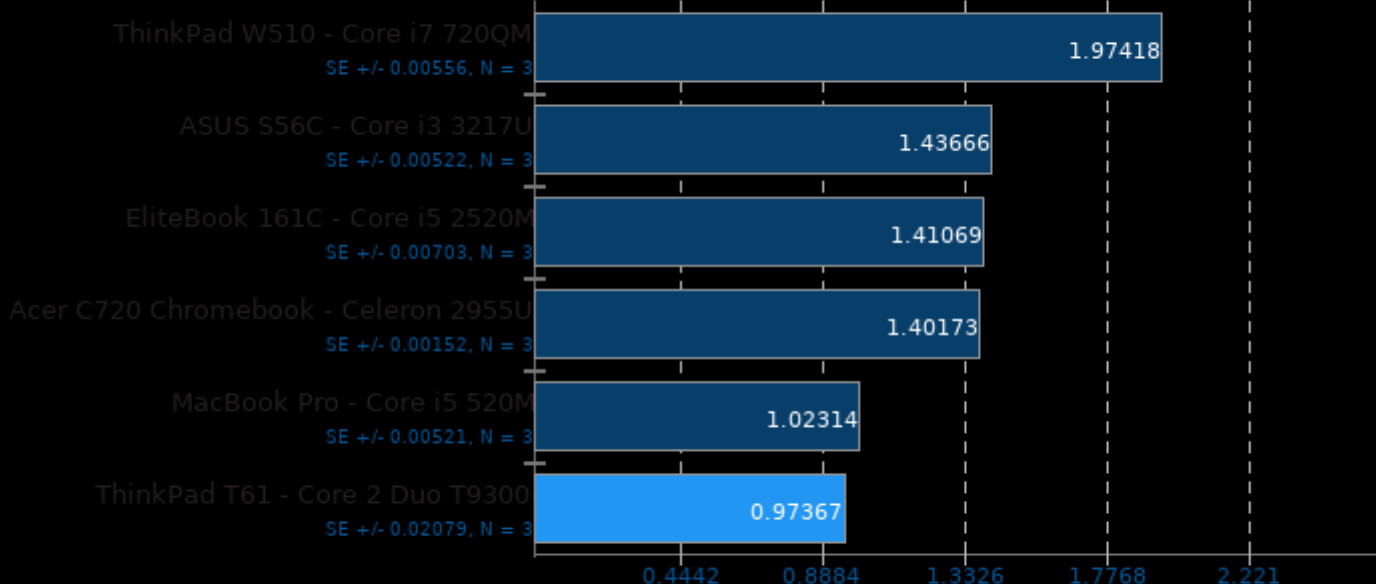


1. (CC) gcc options: -lblas -lm -pthread -lmpi -lopen-rte -lopen-pal -ldl -lnsl -lutil -fomit-frame-pointer -O3 -march=native -funroll-loops  
2. BLAS + Open MPI 1.4.5

## HPC Challenge 1.4.3

Test / Class: G-Ffte

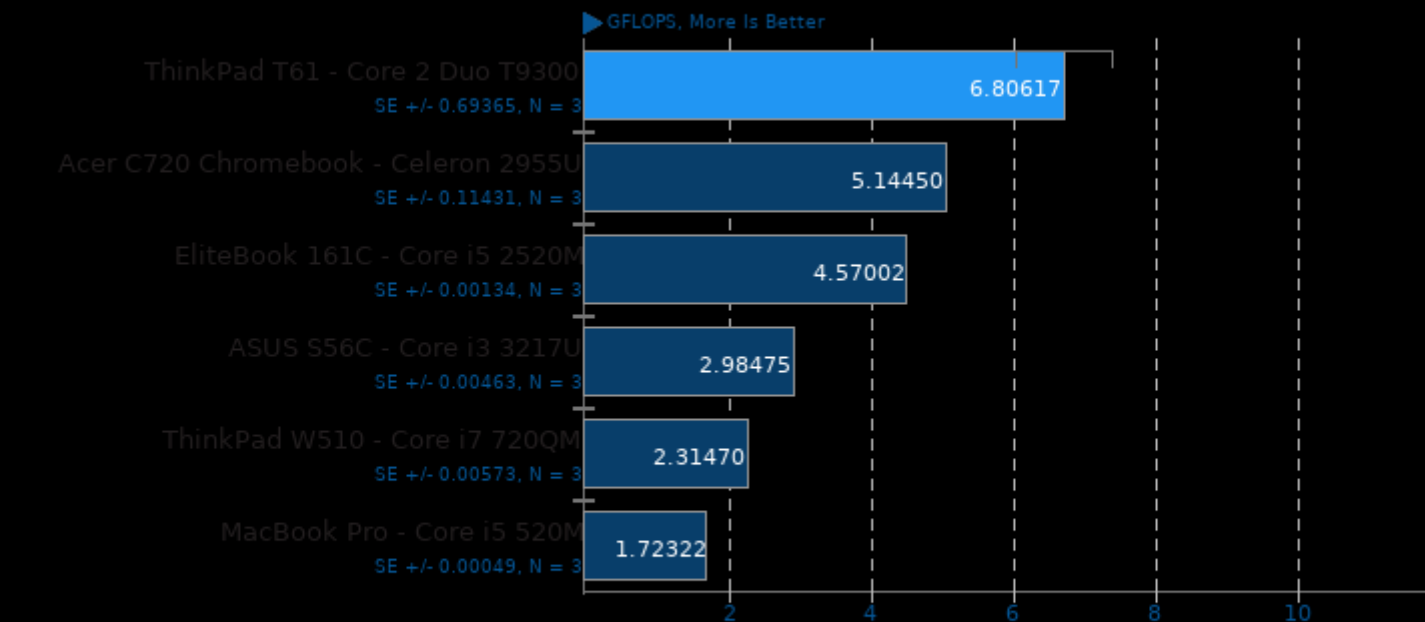
► GFLOPS, More Is Better



1. (CC) gcc options: -lblas -lm -pthread -lmpi -lopen-rte -lopen-pal -ldl -lnsl -lutil -fomit-frame-pointer -O3 -march=native -funroll-loops  
2. BLAS + Open MPI 1.4.5

## HPC Challenge 1.4.3

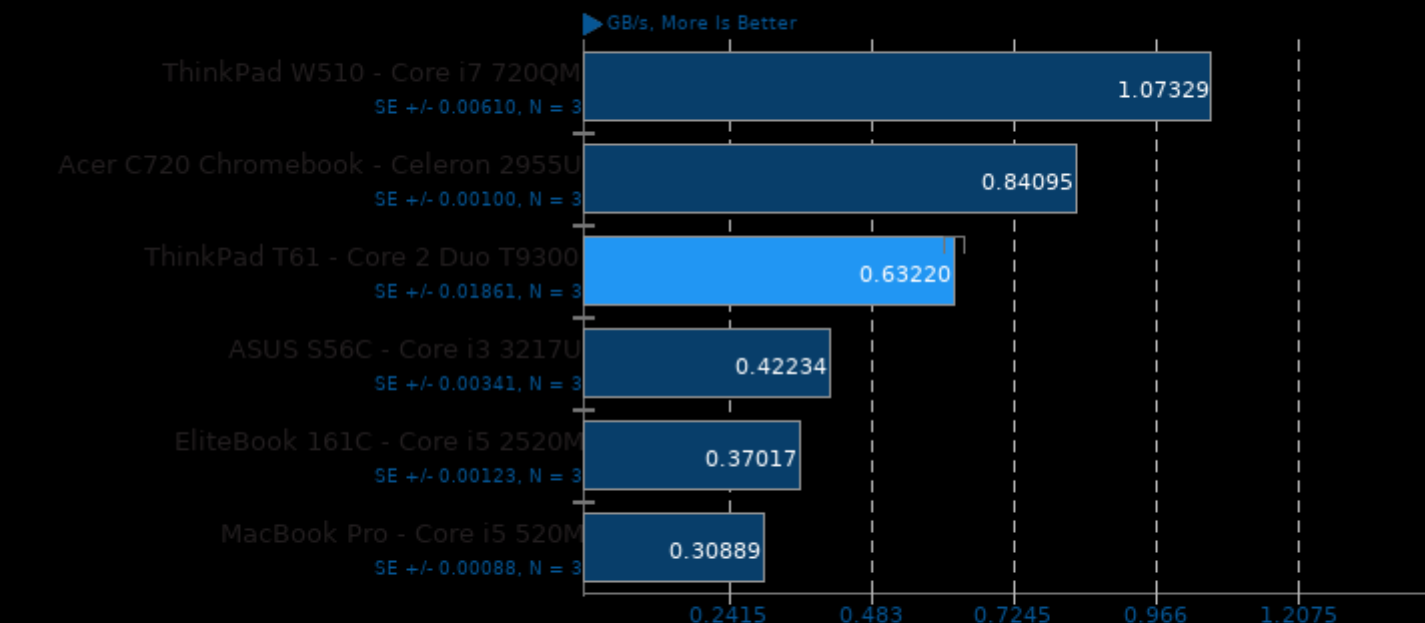
Test / Class: EP-DGEMM



1. (CC) gcc options: -lblas -lm -pthread -lmpi -lopen-rte -lopen-pal -ldl -lnsl -lutil -fomit-frame-pointer -O3 -march=native -funroll-loops  
2. BLAS + Open MPI 1.4.5

## HPC Challenge 1.4.3

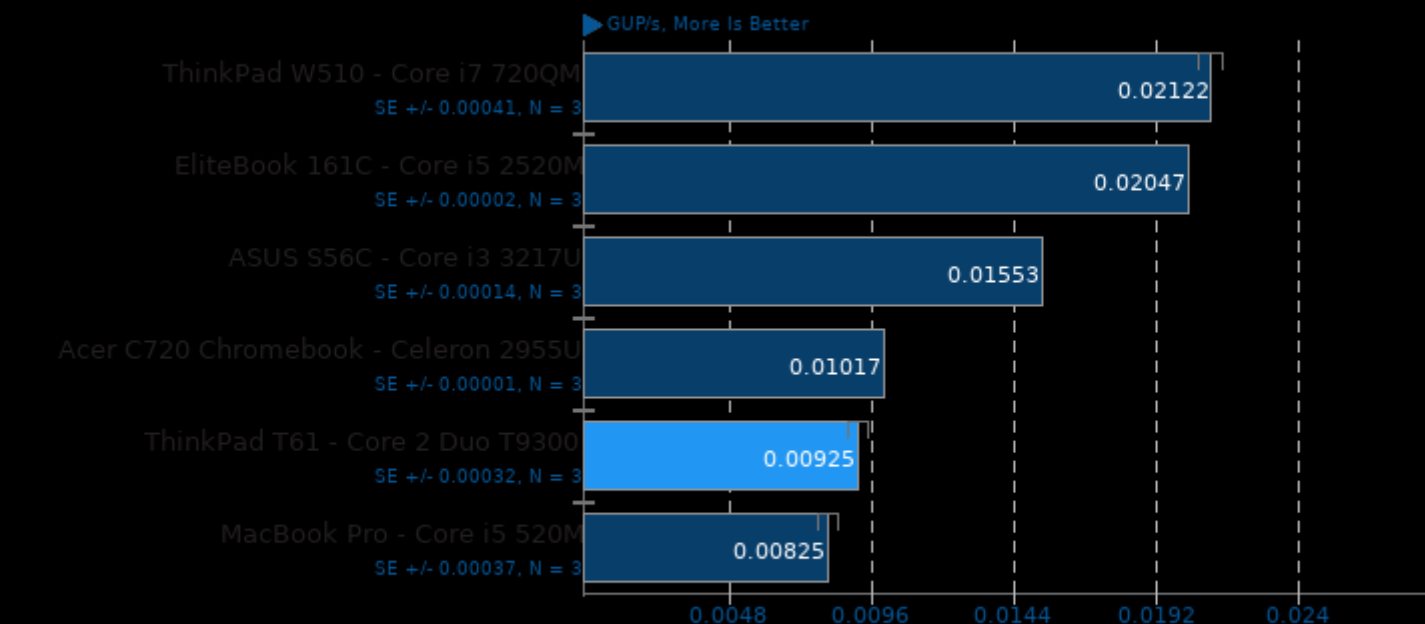
Test / Class: G-Ptrans



1. (CC) gcc options: -lblas -lm -pthread -lmpi -lopen-rte -lopen-pal -ldl -lnsl -lutil -fomit-frame-pointer -O3 -march=native -funroll-loops  
2. BLAS + Open MPI 1.4.5

## HPC Challenge 1.4.3

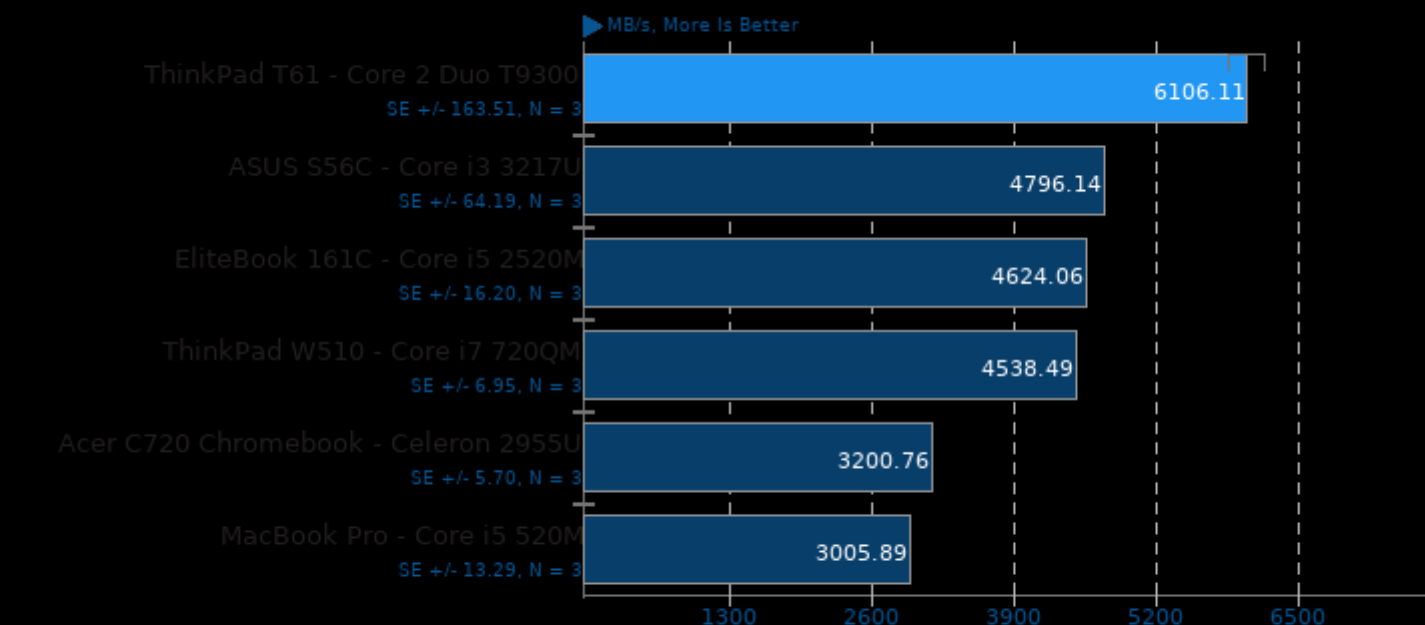
Test / Class: G-Random Access



1. (CC) gcc options: -lblas -lm -pthread -lmpi -lopen-rte -lopen-pal -ldl -lnsl -lutil -fomit-frame-pointer -O3 -march=native -funroll-loops  
2. BLAS + Open MPI 1.4.5

## HPC Challenge 1.4.3

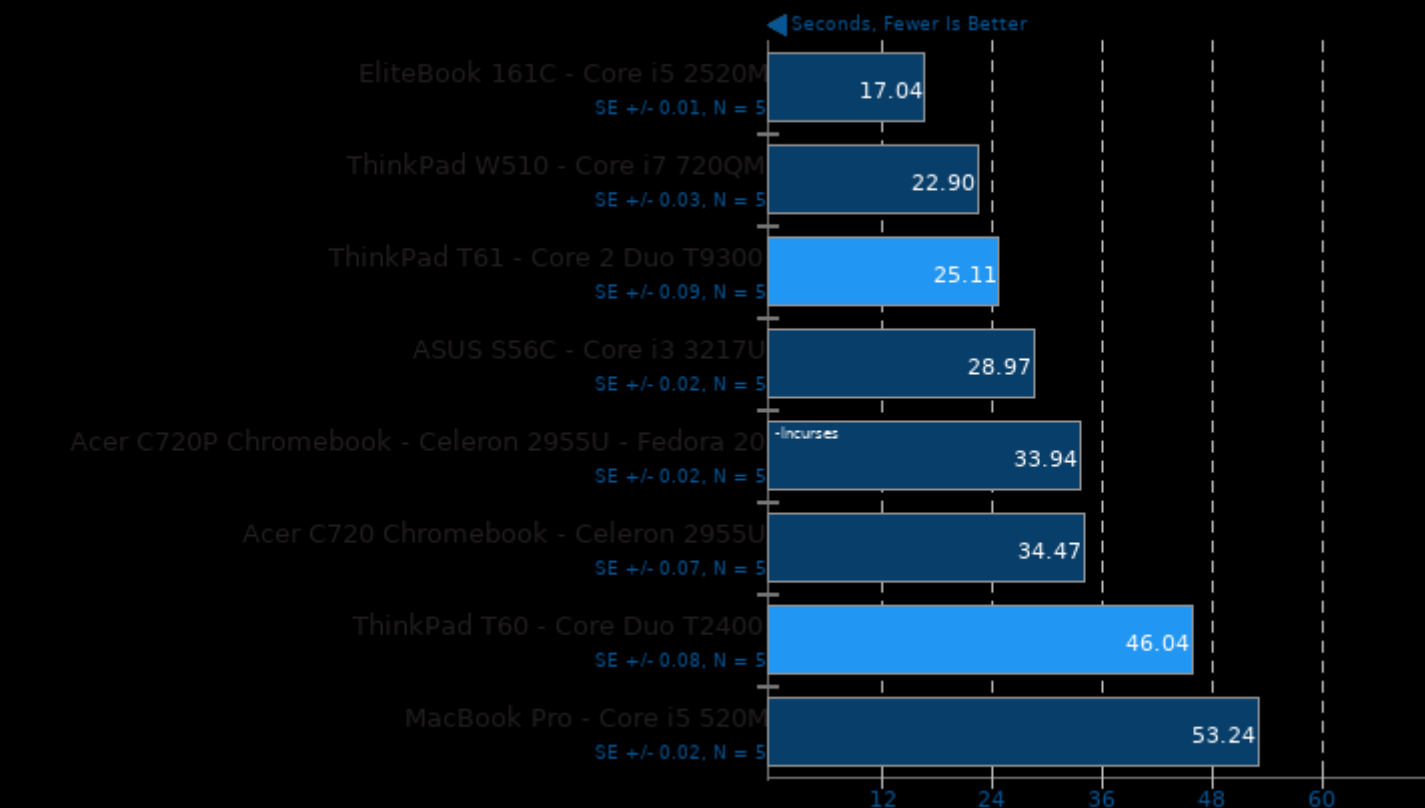
Test / Class: Max Ping Pong Bandwidth



1. (CC) gcc options: -lblas -lm -pthread -lmpi -lopen-rte -lopen-pal -ldl -lnsl -lutil -fomit-frame-pointer -O3 -march=native -funroll-loops  
2. BLAS + Open MPI 1.4.5

## LAME MP3 Encoding 3.99.3

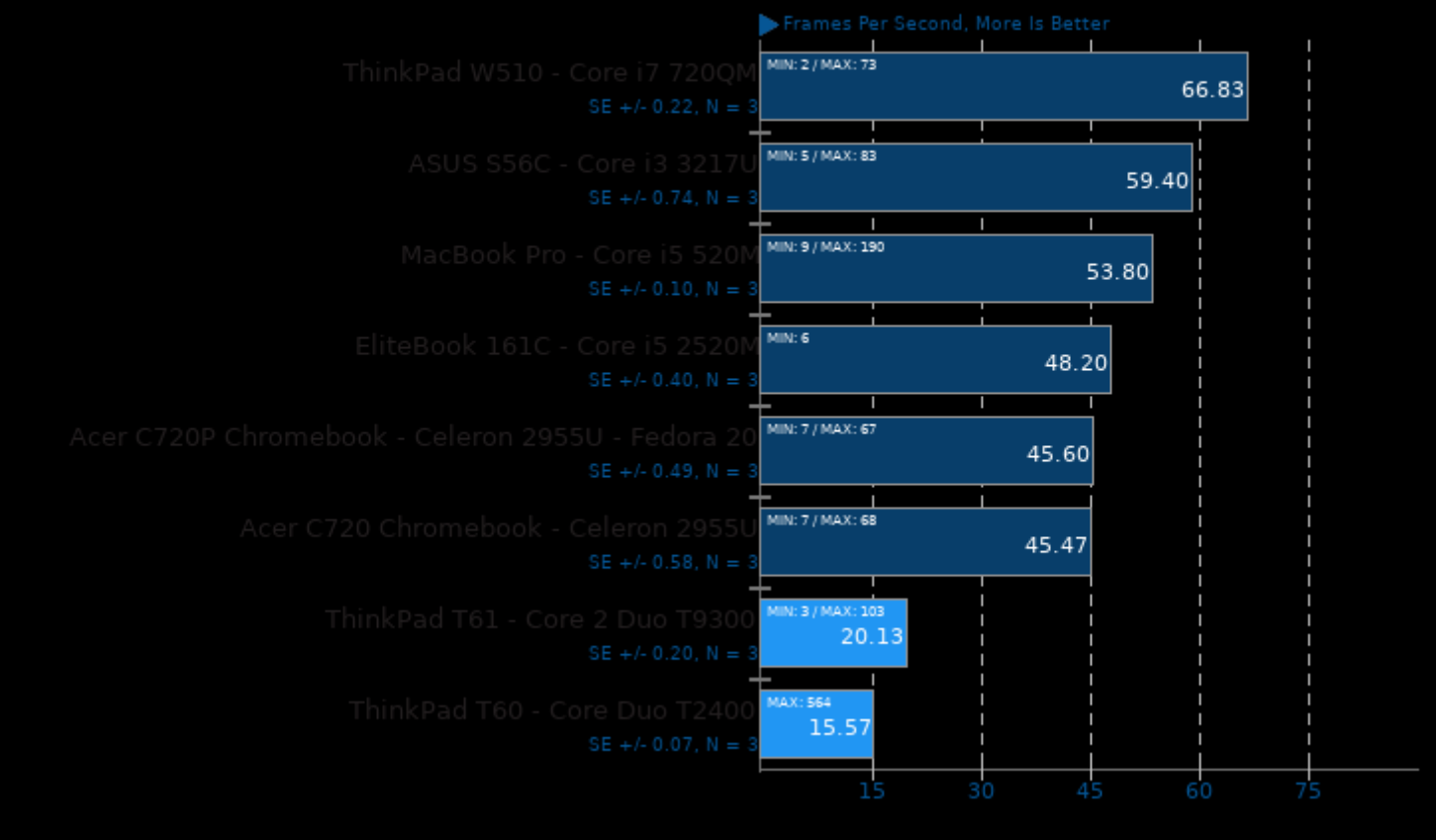
WAV To MP3



1. (CC) gcc options: -O3 -fomit-frame-pointer -ffast-math -pipe -lm

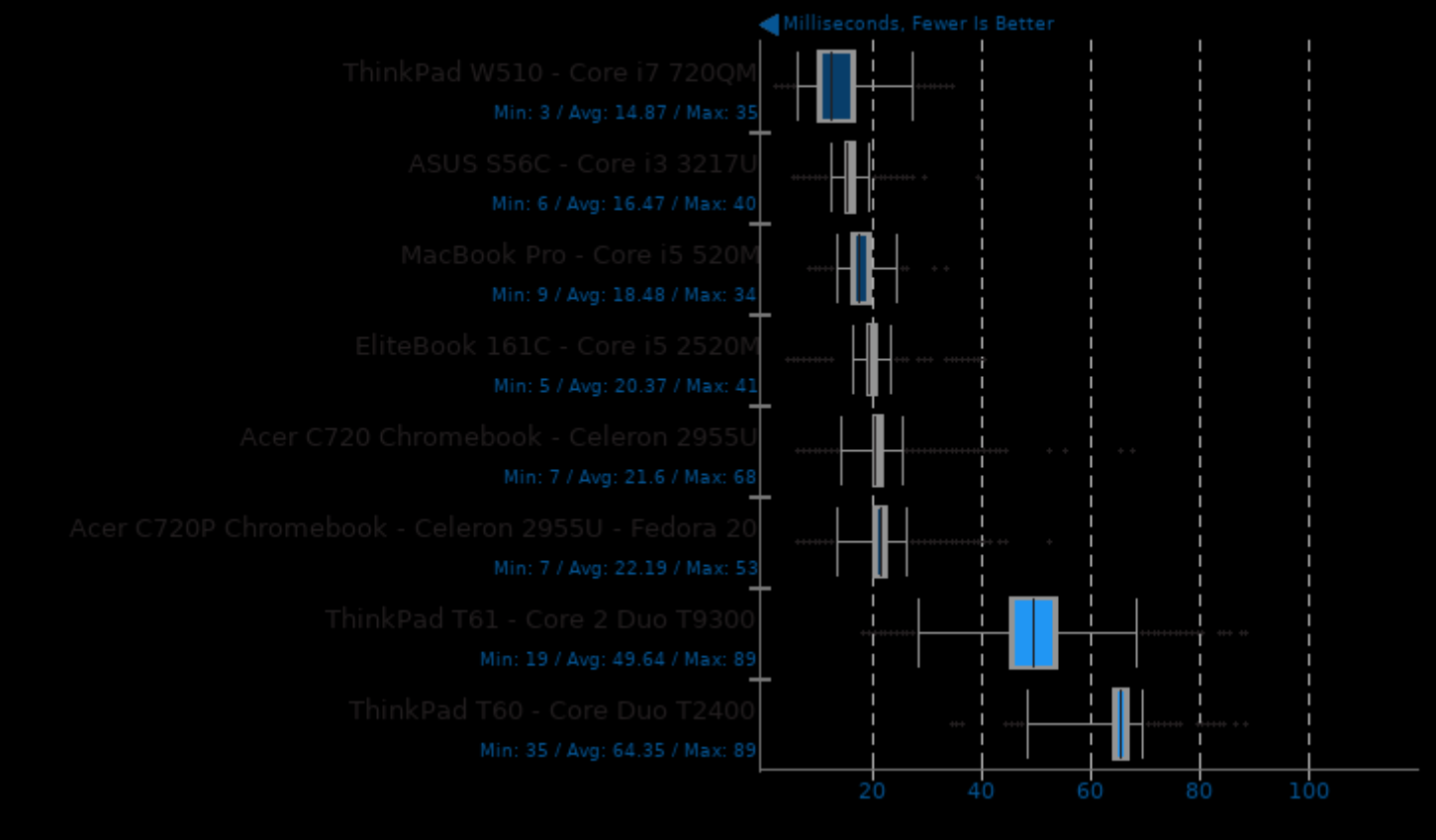
## OpenArena 0.8.8

Resolution: 1024 x 768



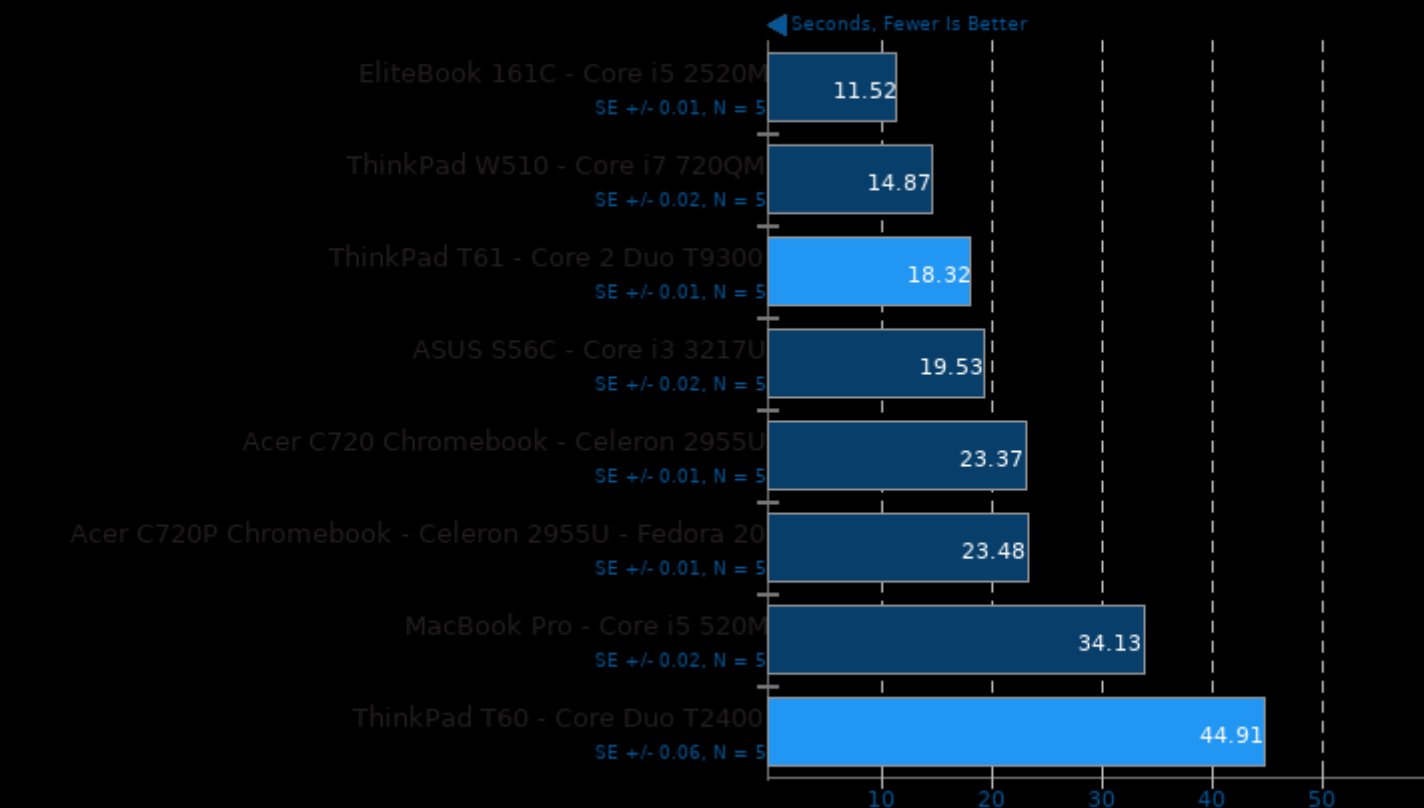
## OpenArena 0.8.8

Resolution: 1024 x 768 - Total Frame Time



## Opus Codec Encoding 1.0.1

WAV, Opus Encode, Opus Decode

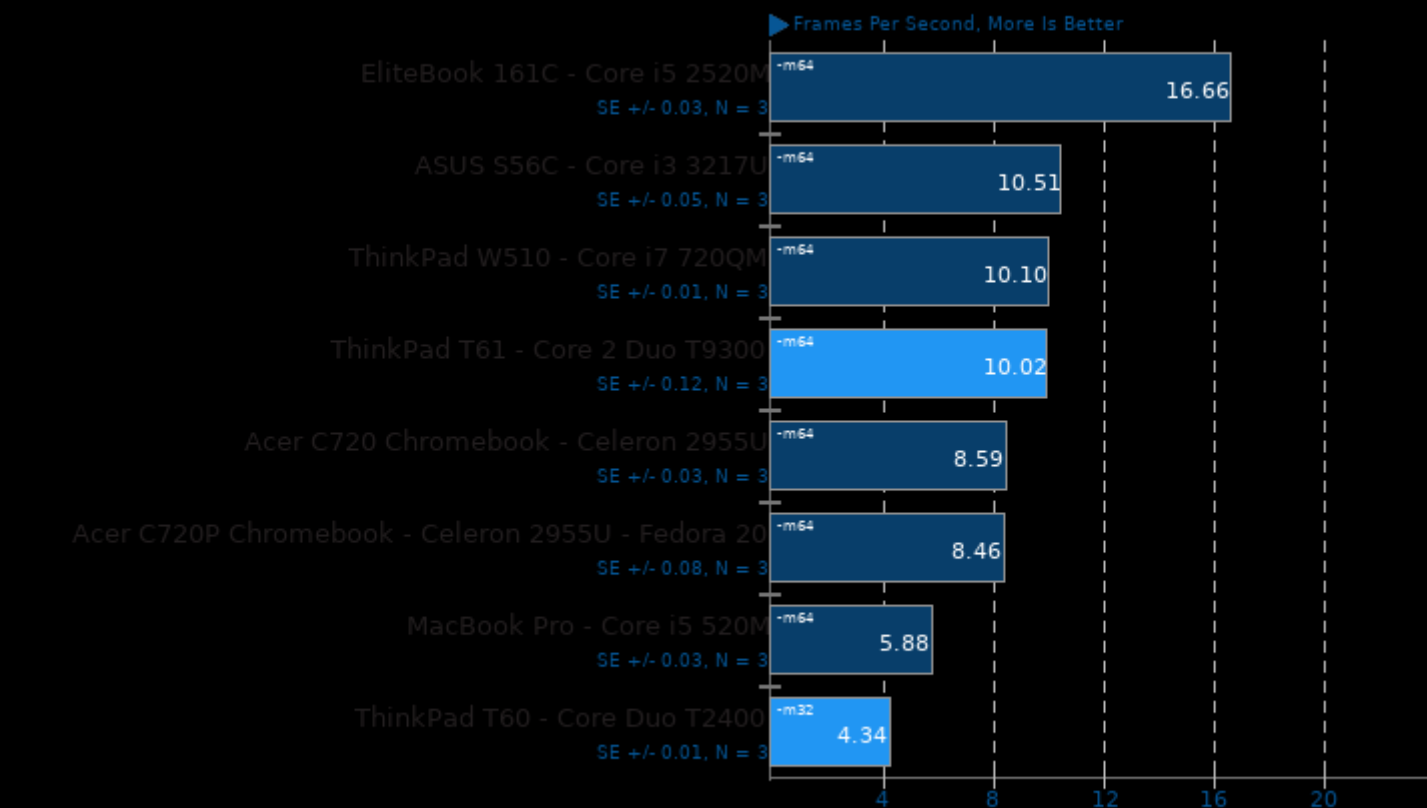


1. (CC) gcc options: -std=gnu99 -O3 -ffast-math -fPIE -pie -logg -lm -lopus



## VP8 libvpx Encoding 1.1.0

vpxenc

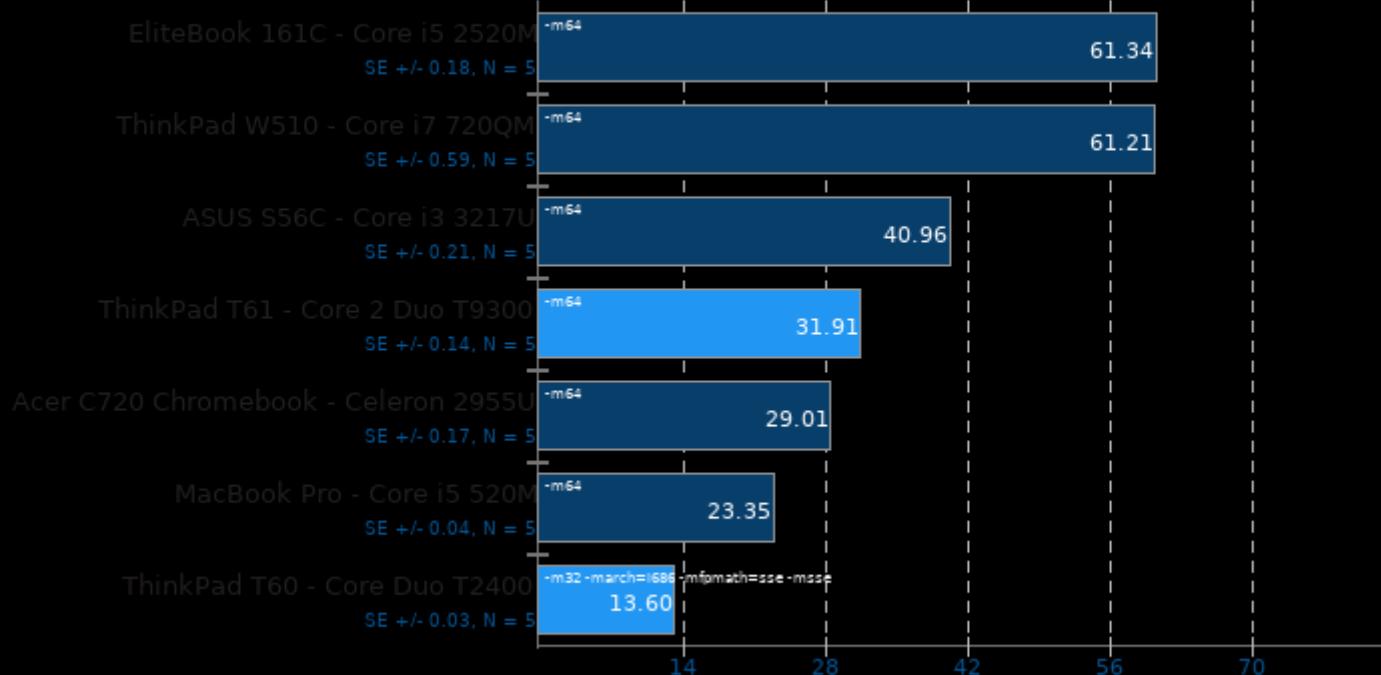


1. (CC) gcc options: -lvpx -lm -lpthread -fomit-frame-pointer -O3

x264 2013-06-08

H.264 Video Encoding

► Frames Per Second, More Is Better

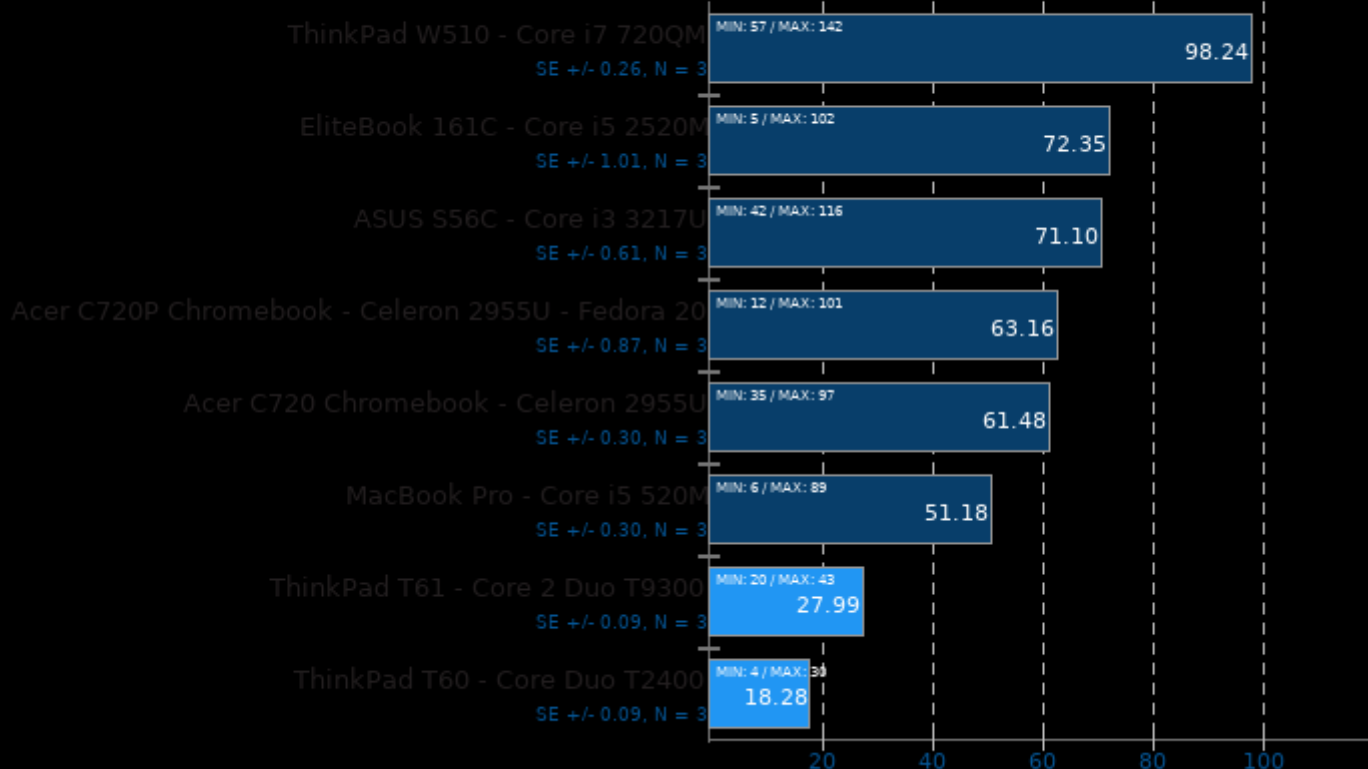


1. (GCC) gcc options: -ldl -lm -lpthread -O3 -ffast-math -std=gnu99 -fomit-frame-pointer -fno-tree-vectorize

Xonotic 0.7

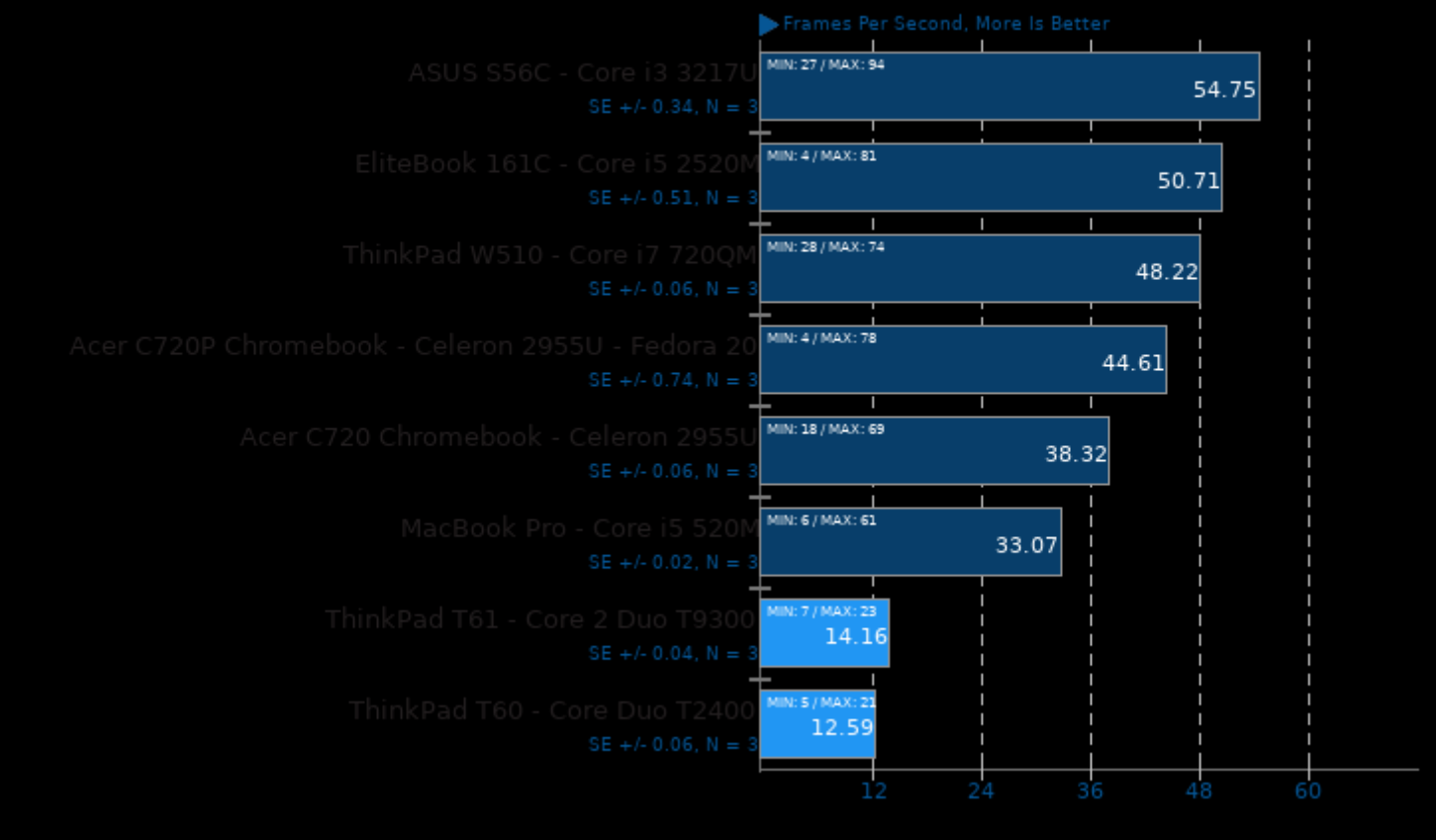
Resolution: 1024 x 768 - Effects Quality: High

► Frames Per Second, More Is Better

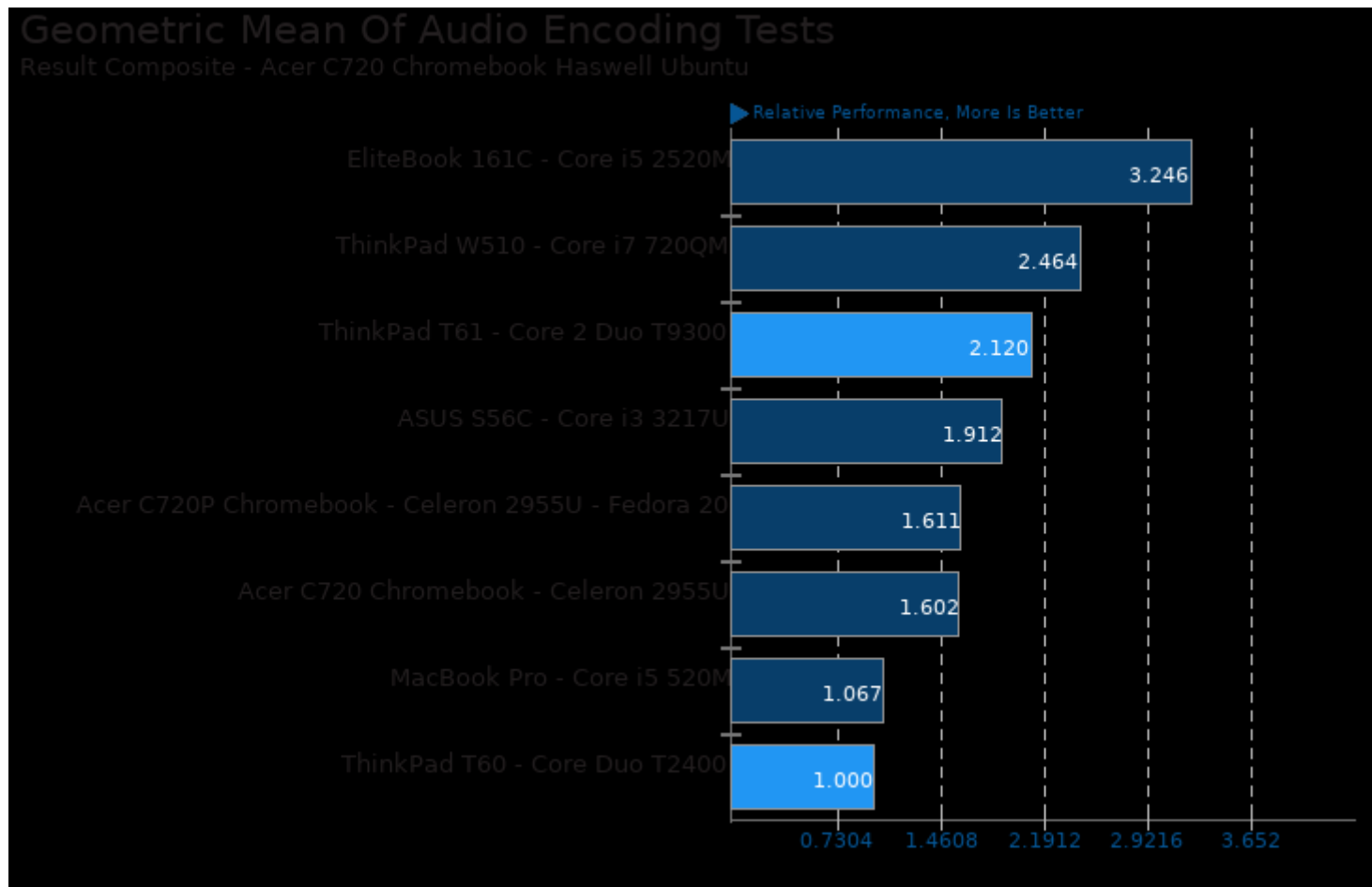


## Xonotic 0.7

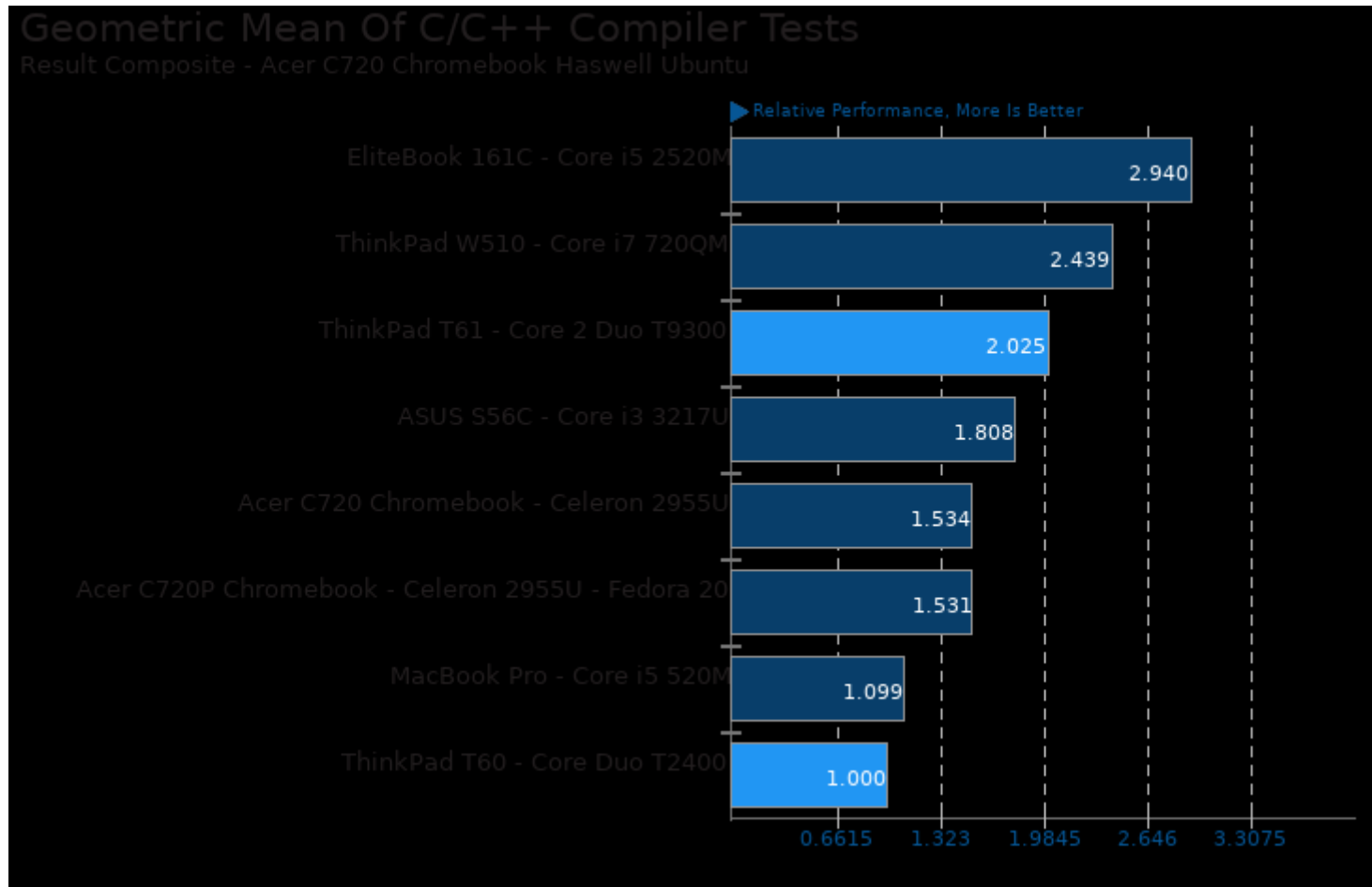
Resolution: 1024 x 768 - Effects Quality: Ultra



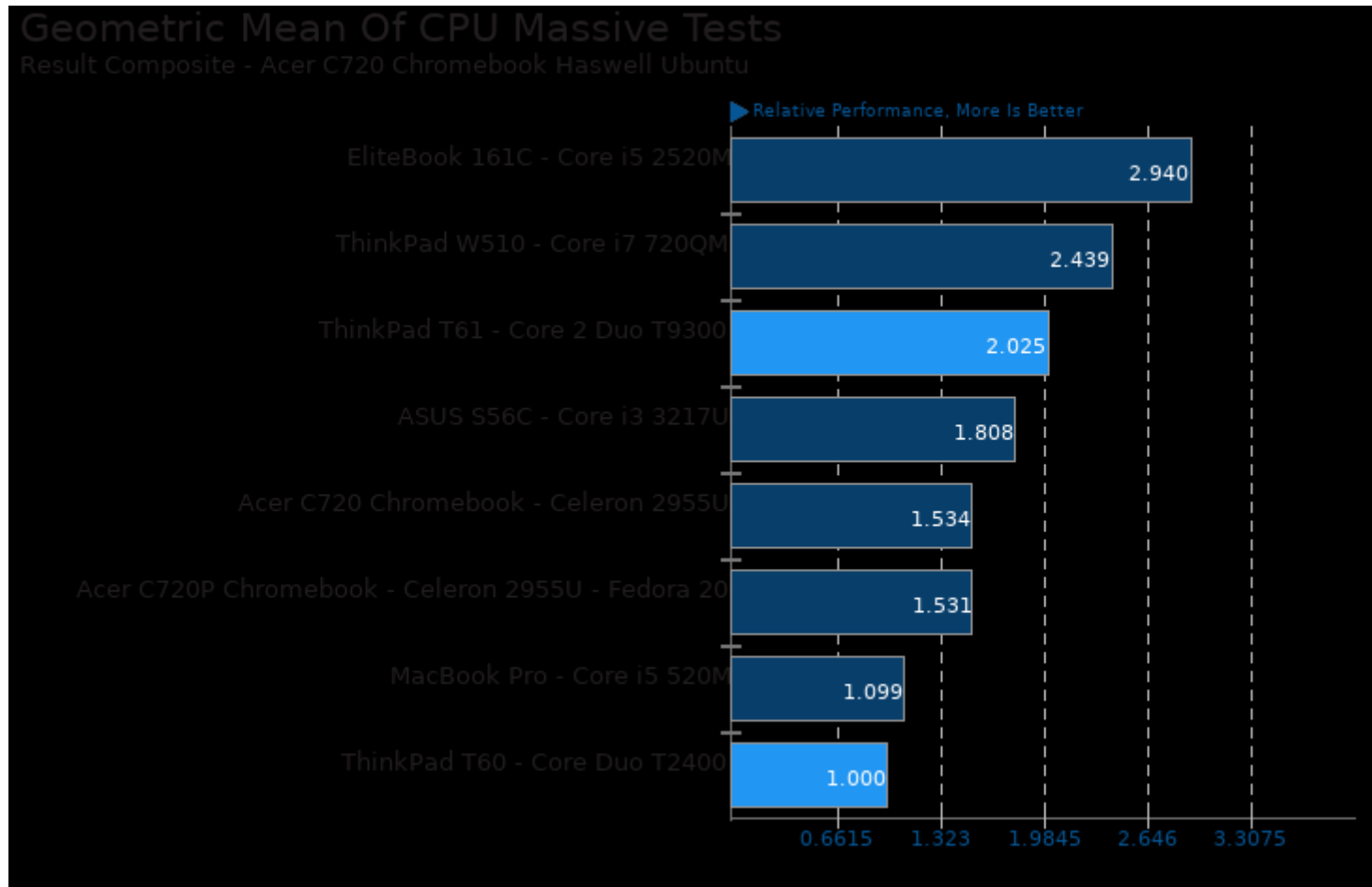
These geometric means are based upon test groupings / test suites for this result file.



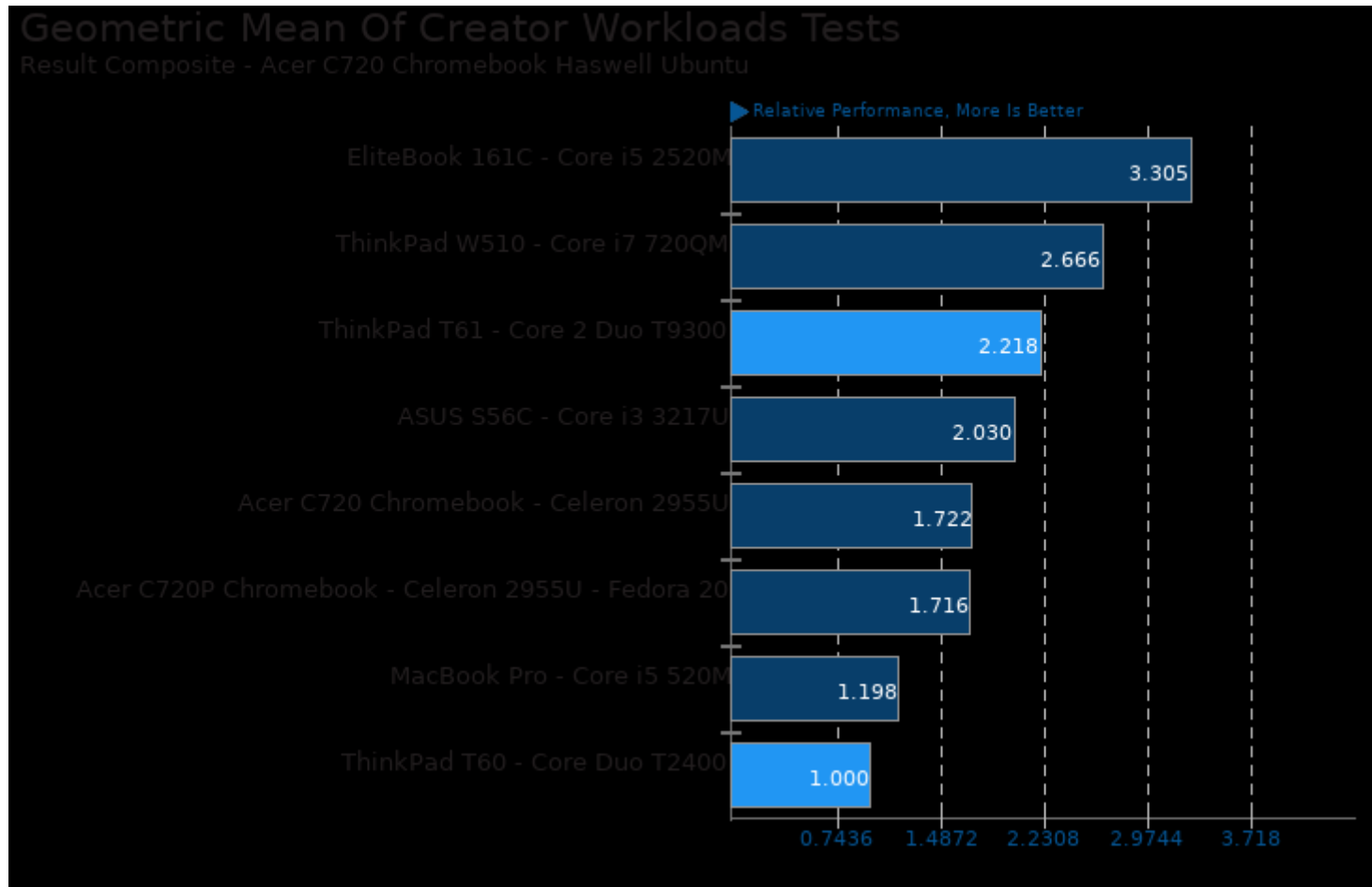
Geometric mean based upon tests: pts/encode-mp3 and pts/encode-opus



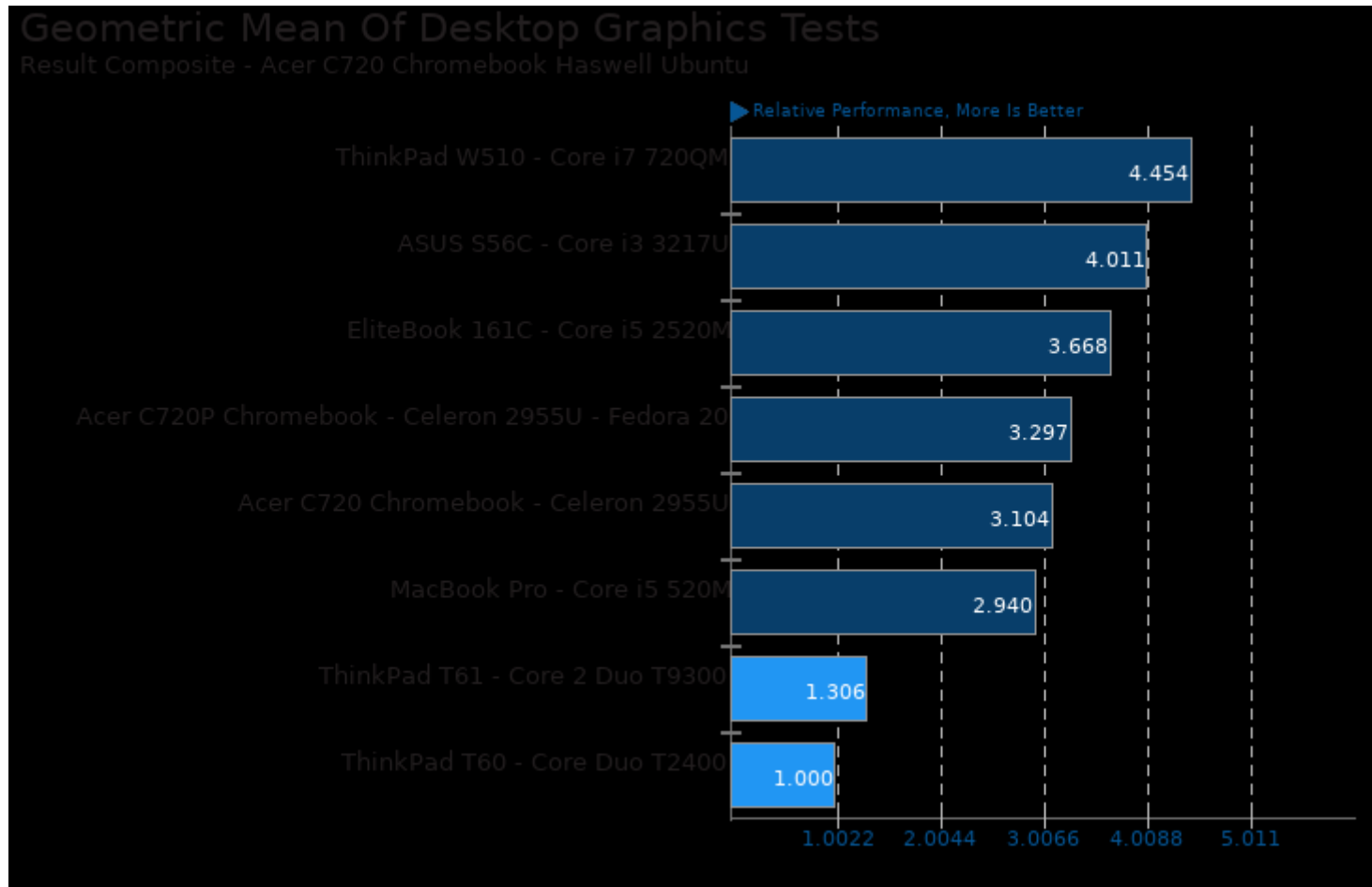
Geometric mean based upon tests: pts/vpxenc, pts/himeno, pts/c-ray, pts/encode-mp3 and pts/x264



Geometric mean based upon tests: pts/c-ray, pts/vpxenc, pts/x264, pts/encode-mp3, pts/himeno and pts/hpcc



Geometric mean based upon tests: pts/c-ray, pts/x264, pts/vpxenc, pts/encode-mp3 and pts/encode-opus

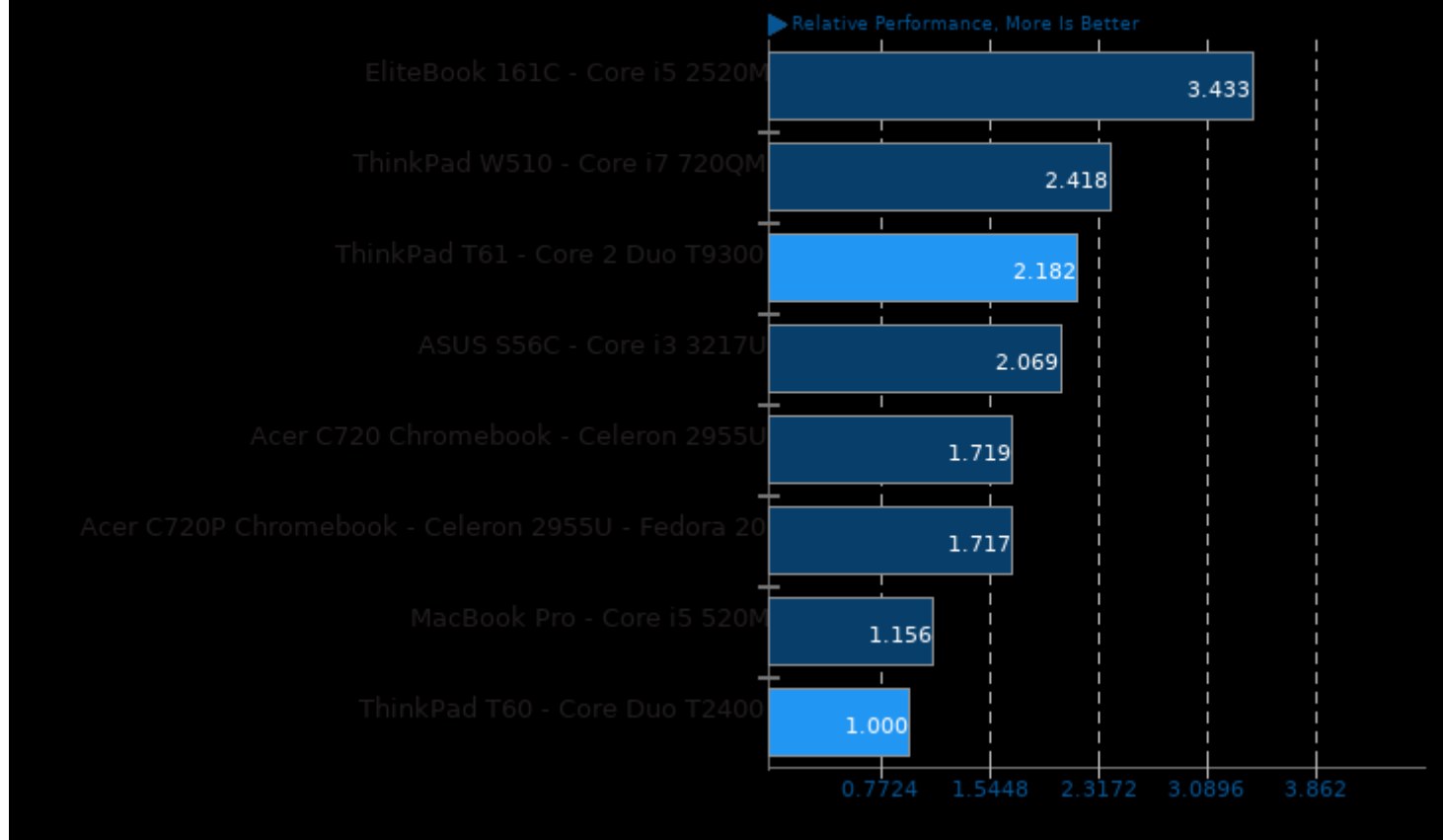


Geometric mean based upon tests: pts/xonotic and pts/openarena

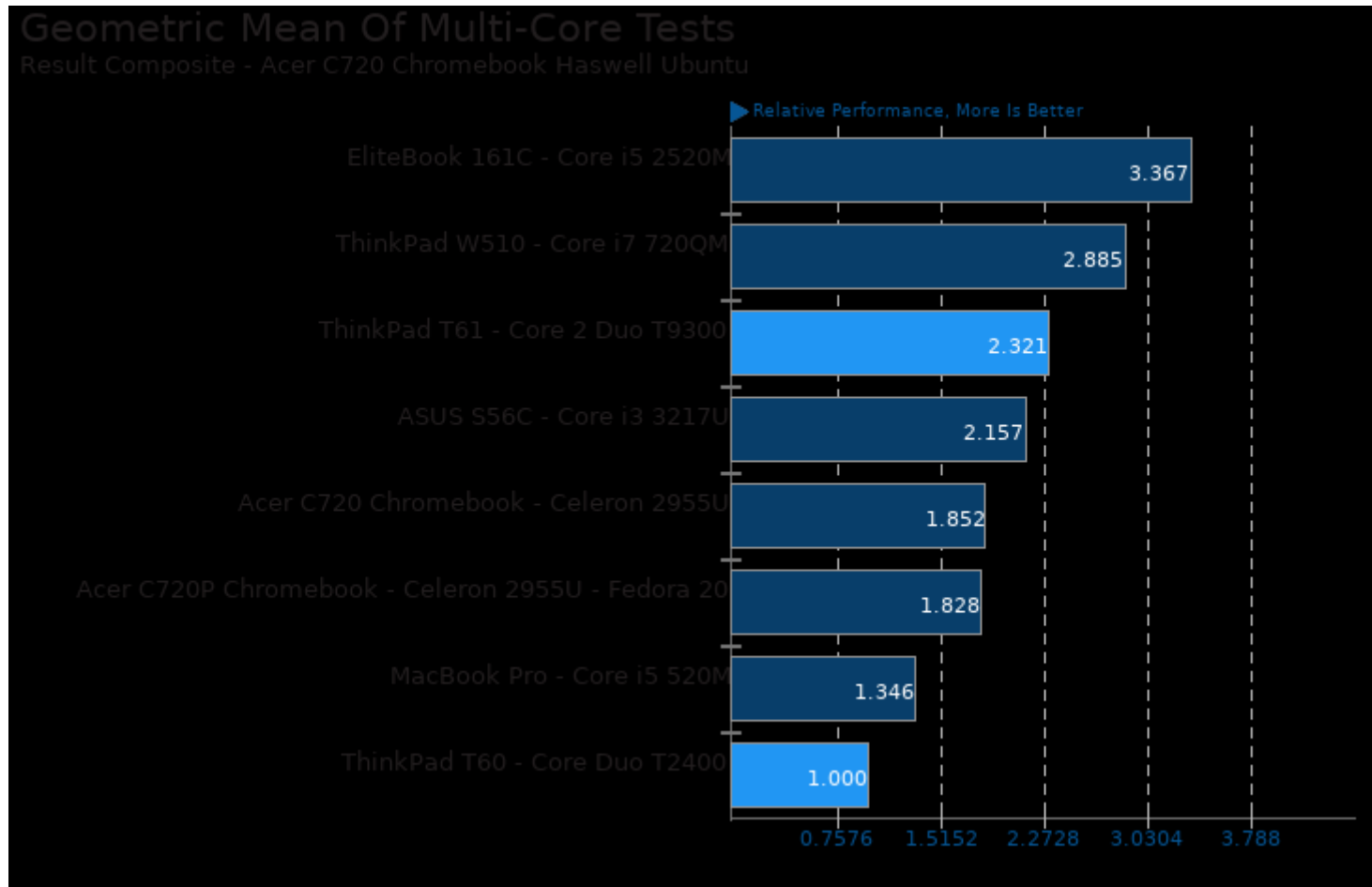


## Geometric Mean Of Encoding Tests

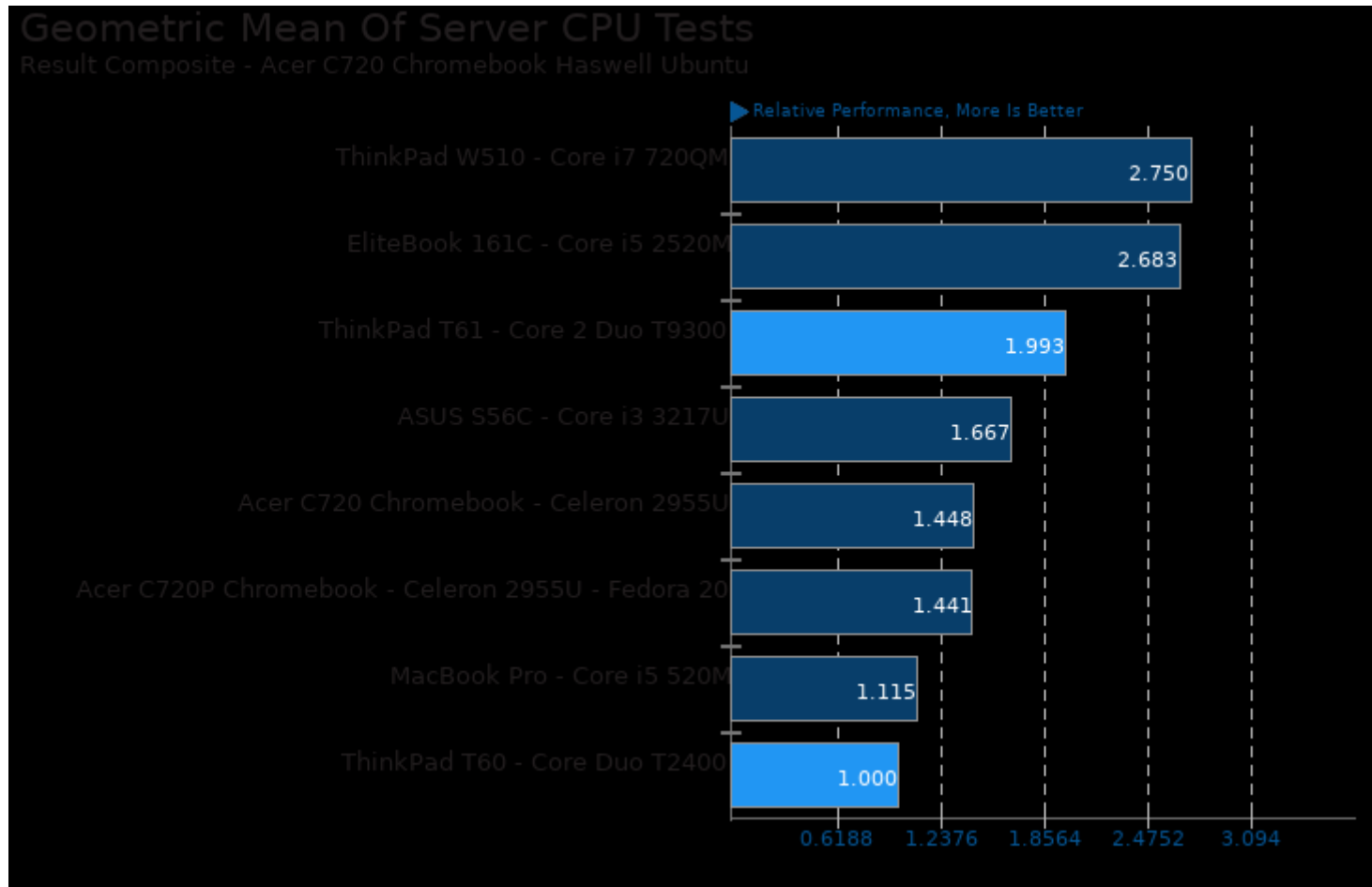
Result Composite - Acer C720 Chromebook Haswell Ubuntu



Geometric mean based upon tests: pts/encode-mp3, pts/encode-opus, pts/x264 and pts/vpxenc



Geometric mean based upon tests: pts/c-ray, pts/x264 and pts/vpxenc



Geometric mean based upon tests: pts/x264, pts/himeno and pts/c-ray

*This file was automatically generated via the Phoronix Test Suite benchmarking software on Saturday, 21 December 2024 11:16.*