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## Intel Tiger Lake Mitigation COmparison

Tests for a possible future article by Michael Larabel. The "Ice Lake" and "Tiger Lake" numbers are from prior article testing. The "TGL ReRun 58" is from re-testing on Ubuntu 20.10 with all latest stable updates as of latest testing (notable significant update since then is newer Firefox as worth mentioning for any Firefox changes compared to original numbers, due to their new Warp JS). The "TGL Linux 5.10" results are when using the Linux 5.10 Git kernel from the Ubuntu Mainline Kernel PPA. Linux 5.10 results more in line with expectations.

### Automated Executive Summary

*TGL Linux 5.10: mitigations=off had the most wins, coming in first place for 40% of the tests.*

*Based on the geometric mean of all complete results, the fastest (TGL Linux 5.10: mitigations=off) was 1.188x the speed of the slowest (Ice Lake: Default). Ice Lake: mitigations=off was 1.036x the speed of Ice Lake: Default, Tiger Lake: Default was 1.141x the speed of Ice Lake: mitigations=off, Tiger Lake: mitigations=off was 0.962x the speed of Tiger Lake: Default, TGL ReRun 58: Default was 1.03x the speed of Tiger Lake: mitigations=off, TGL ReRun 58: mitigations=off was 0.973x the speed of TGL ReRun 58: Default, TGL Linux 5.10: Default was 1.033x the speed of TGL ReRun 58: mitigations=off, TGL Linux 5.10: mitigations=off was 1.01x the speed of TGL Linux 5.10: Default.*

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

*Selenium (Benchmark: Kraken - Browser: Firefox) at 1.647x*

*Renaissance (Test: Twitter HTTP Requests) at 1.572x*

*DaCapo Benchmark (Java Test: Jython) at 1.489x*

*Selenium (Benchmark: CanvasMark - Browser: Google Chrome) at 1.416x*

*Caffe (Model: AlexNet - Acceleration: CPU - Iterations: 100) at 1.401x*

*Sockperf (Test: Throughput) at 1.395x*

*Selenium (Benchmark: Jetstream 2 - Browser: Firefox) at 1.324x*

*Selenium (Benchmark: StyleBench - Browser: Google Chrome) at 1.284x*

*Caffe (Model: GoogleNet - Acceleration: CPU - Iterations: 100) at 1.282x*

*Mobile Neural Network (Model: resnet-v2-50) at 1.252x.*

## Test Systems:

### Ice Lake: Default

#### Ice Lake: mitigations=off

Processor: Intel Core i7-1065G7 @ 3.90GHz (4 Cores / 8 Threads), Motherboard: Dell 06CDVY (1.0.9 BIOS), Chipset: Intel Device 34ef, Memory: 16GB, Disk: Toshiba KBG40ZPZ512G NVMe 512GB, Graphics: Intel Iris Plus G7 3GB (1100MHz), Audio: Realtek ALC289, Network: Intel Killer Wi-Fi 6 AX1650i 160MHz

OS: Ubuntu 20.10, Kernel: 5.8.0-25-generic (x86\_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6 Mesa 20.2.1, Vulkan: 1.2.145, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1200

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86\_64-linux-gnu --program-prefix=x86\_64-linux-gnu- --target=x86\_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Disk Notes: NONE / errors=remount-ro,relatime,rw

Processor Notes: Scaling Governor: intel\_pstate powersave - CPU Microcode: 0x78 - ThermalD 2.3

Java Notes: OpenJDK Runtime Environment (build 11.0.9+10-post-Ubuntu-0ubuntu1)

Python Notes: Python 3.8.6

Security Notes: itlb\_multihit: KVM: Mitigation of VMX disabled + I1tf: Not affected + mds: Not affected + meltdown: Not affected + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swapgs barriers + spectre\_v2: Vulnerable IBPB: disabled STIBP: disabled + srbs: Not affected + tsx\_async\_abort: Not affected

### Tiger Lake: Default

#### Tiger Lake: mitigations=off

Processor: Intel Core i7-1165G7 @ 4.70GHz (4 Cores / 8 Threads), Motherboard: Dell 0GG9PT (1.0.3 BIOS), Chipset: Intel Tiger Lake-LP, Memory: 16GB, Disk: Kioxia KBG40ZNS256G NVMe 256GB, Graphics: Intel UHD 3GB (1300MHz), Audio: Realtek ALC289, Network: Intel Wi-Fi 6 AX201

OS: Ubuntu 20.10, Kernel: 5.8.0-25-generic (x86\_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6 Mesa 20.2.1, Vulkan: 1.2.145, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1200

Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie

```
--enable-gnu-unique-object      --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2      --enable-libphobos-checking=release      --enable-libstdcxx-debug
--enable-libstdcxx-time=yes      --enable-multiarch      --enable-multilib      --enable-nls      --enable-objc-gc=auto
--enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/us
r,hsa      --enable-plugin      --enable-shared      --enable-threads=posix      --host=x86_64-linux-gnu      --program-prefix=x86_64-linux-gnu-      --target=x86_64-linux-gnu      --with-abi=m64
--with-arch-32=i686      --with-default-libstdcxx-abi=new      --with-gcc-major-version-only      --with-multilib-list=m32,m64,mx32      --with-target-system-zlib=auto      --with-tune=generic
--without-cuda-driver -v
Disk Notes: NONE / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x60 - Thermald 2.3
Java Notes: OpenJDK Runtime Environment (build 11.0.9+10-post-Ubuntu-0ubuntu1)
Python Notes: Python 3.8.6
Security Notes: itlb_multithit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Vulnerable + spectre_v1: Vulnerable:
__user pointer sanitization and usercopy barriers only; no swapgs barriers + spectre_v2: Vulnerable IBPB: disabled STIBP: disabled + srbds: Not affected +
tsx_async_abort: Not affected
```

## TGL ReRun 58: Default

### TGL ReRun 58: mitigations=off

Processor: Intel Core i7-1165G7 @ 4.70GHz (4 Cores / 8 Threads), Motherboard: Dell 0GG9PT (1.0.3 BIOS), Chipset: Intel Tiger Lake-LP, Memory: 16GB, Disk: Kioxia KBG40ZNS256G NVMe 256GB, Graphics: Intel UHD 3GB (1300MHz), Audio: Realtek ALC289, Network: Intel Wi-Fi 6 AX201

OS: Ubuntu 20.10, Kernel: 5.8.0-31-generic (x86\_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6 Mesa 20.2.1, Vulkan: 1.2.145, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1200

```
Compiler Notes: --build=x86_64-linux-gnu      --disable-vtable-verify      --disable-werror      --enable-checking=release      --enable-clocale=gnu      --enable-default-pie
--enable-gnu-unique-object      --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2      --enable-libphobos-checking=release      --enable-libstdcxx-debug
--enable-libstdcxx-time=yes      --enable-multiarch      --enable-multilib      --enable-nls      --enable-objc-gc=auto
--enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/us
r,hsa      --enable-plugin      --enable-shared      --enable-threads=posix      --host=x86_64-linux-gnu      --program-prefix=x86_64-linux-gnu-      --target=x86_64-linux-gnu      --with-abi=m64
--with-arch-32=i686      --with-default-libstdcxx-abi=new      --with-gcc-major-version-only      --with-multilib-list=m32,m64,mx32      --with-target-system-zlib=auto      --with-tune=generic
--without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x60 - Thermald 2.3
Java Notes: OpenJDK Runtime Environment (build 11.0.9.1+1-Ubuntu-0ubuntu1.20.10)
Python Notes: Python 3.8.6
Security Notes: itlb_multithit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Vulnerable + spectre_v1: Vulnerable:
__user pointer sanitization and usercopy barriers only; no swapgs barriers + spectre_v2: Vulnerable IBPB: disabled STIBP: disabled + srbds: Not affected +
tsx_async_abort: Not affected
```

## TGL Linux 5.10: Default

### TGL Linux 5.10: mitigations=off

Processor: Intel Core i7-1165G7 @ 4.70GHz (4 Cores / 8 Threads), Motherboard: Dell 0GG9PT (1.0.3 BIOS), Chipset: Intel Tiger Lake-LP, Memory: 16GB, Disk: Kioxia KBG40ZNS256G NVMe 256GB, Graphics: Intel UHD 3GB (1300MHz), Audio: Realtek ALC289, Network: Intel Wi-Fi 6 AX201

OS: Ubuntu 20.10, Kernel: 5.10.0-051000rc7daily20201213-generic (x86\_64) 20201212, Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6 Mesa 20.2.1, Vulkan: 1.2.145, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1200

```
Compiler Notes: --build=x86_64-linux-gnu      --disable-vtable-verify      --disable-werror      --enable-checking=release      --enable-clocale=gnu      --enable-default-pie
--enable-gnu-unique-object      --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2      --enable-libphobos-checking=release      --enable-libstdcxx-debug
--enable-libstdcxx-time=yes      --enable-multiarch      --enable-multilib      --enable-nls      --enable-objc-gc=auto
--enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/us
r,hsa      --enable-plugin      --enable-shared      --enable-threads=posix      --host=x86_64-linux-gnu      --program-prefix=x86_64-linux-gnu-      --target=x86_64-linux-gnu      --with-abi=m64
--with-arch-32=i686      --with-default-libstdcxx-abi=new      --with-gcc-major-version-only      --with-multilib-list=m32,m64,mx32      --with-target-system-zlib=auto      --with-tune=generic
--without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x60 - Thermald 2.3
Java Notes: OpenJDK Runtime Environment (build 11.0.9.1+1-Ubuntu-0ubuntu1.20.10)
Python Notes: Python 3.8.6
Security Notes: itlb_multithit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Vulnerable + spectre_v1: Vulnerable:
__user pointer sanitization and usercopy barriers only; no swapgs barriers + spectre_v2: Vulnerable IBPB: disabled STIBP: disabled + srbds: Not affected +
tsx_async_abort: Not affected
```

# Intel Tiger Lake Mitigation COnparison

	Ice Lake: Default	Ice Lake: mitigations =off	Tiger Lake: Default	Tiger Lake: mitigations =off	TGL ReRun 58: Default	TGL ReRun 58: mitigations =off	TGL Linux 5.10: Default	TGL Linux 5.10: mitigations =off
<b>Sockperf - Throughput (Messages/sec)</b>	<b>554537</b>	582151	767117	738032	<b>773590</b>	741681	760189	733327
Normalized	71.68%	75.25%	99.16%	95.4%	100%	95.88%	98.27%	94.8%
Standard Deviation	1%	2.7%	5.9%	2.5%	2.5%	5.9%	1.7%	4.7%
<b>DaCapo Benchmark - Jython (msec)</b>	<b>5101</b>	4414	3843	4113	<b>3425</b>	3630	3471	3460
Normalized	67.14%	77.59%	89.12%	83.27%	100%	94.35%	98.67%	98.99%
Standard Deviation	7.3%	2%	4.5%	2.7%	0.5%	1.4%	2.3%	2.2%
<b>Renaissance - T.H.R (ms)</b>	<b>3842</b>	3525	2487	2534	2515	2593	2540	<b>2444</b>
Normalized	63.61%	69.32%	98.25%	96.45%	97.17%	94.25%	96.2%	100%
Standard Deviation	2.6%	4.8%	0.9%	1%	1.5%	1.6%	1.3%	1.1%
<b>TensorFlow Lite - SqueezeNet (us)</b>	<b>674153</b>	646988	564437	588506	567661	581733	559412	<b>558600</b>
Normalized	82.86%	86.34%	98.97%	94.92%	98.4%	96.02%	99.85%	100%
Standard Deviation	3%	7.2%	1.3%	1.9%	1%	1.3%	1.4%	1.5%
<b>TensorFlow Lite - NASNet Mobile (us)</b>	494187	<b>495179</b>	406430	430449	409558	411998	404421	<b>403126</b>
Normalized	81.57%	81.41%	99.19%	93.65%	98.43%	97.85%	99.68%	100%
Standard Deviation	1.3%	1%	1.2%	1.3%	1.3%	1.3%	1.3%	1.2%
<b>TensorFlow Lite - Mobilenet Quant (us)</b>	455175	<b>456401</b>	372045	394514	376005	378435	369926	<b>368982</b>
Normalized	81.06%	80.85%	99.18%	93.53%	98.13%	97.5%	99.74%	100%
Standard Deviation	1.2%	1.3%	1.2%	1.2%	1.2%	1.3%	1.4%	1.2%
<b>TensorFlow Lite - I.R.V (us)</b>	<b>8917553</b>	8905090	7382540	7765500	7434223	7525609	<b>7349897</b>	7352977
Normalized	82.42%	82.54%	99.56%	94.65%	98.87%	97.67%	100%	99.96%
Standard Deviation	0%	0.3%	0.1%	0%	0.2%	0.2%	0.2%	0.2%
<b>SQLite Speedtest -</b>	<b>61.215</b>	59.986	51.251	53.138	51.006	53.13	50.848	<b>50.685</b>
<b>Timed Time - Size 1,000 (sec)</b>								
Normalized	82.8%	84.49%	98.9%	95.38%	99.37%	95.4%	99.68%	100%
Standard Deviation	2.7%	0.6%	1%	1.6%	1%	1.8%	1.8%	1.1%
<b>GIMP - auto-levels (sec)</b>	<b>13.008</b>	12.313	11.266	11.670	11.160	11.180	11.087	<b>11.068</b>
Normalized	85.09%	89.89%	98.24%	94.84%	99.18%	99%	99.83%	100%
Standard Deviation	3%	1.8%	3%	3%	2.5%	2.5%	2.2%	1.5%
<b>GIMP - unsharp-mask (sec)</b>	15.709	<b>15.740</b>	13.345	13.990	13.415	13.486	<b>13.317</b>	13.326
Normalized	84.77%	84.61%	99.79%	95.19%	99.27%	98.75%	100%	99.93%
Standard Deviation	3%	4%	3%	2.9%	2.6%	3.6%	3.2%	2.6%
<b>Caffe - AlexNet - CPU - 100 (ms)</b>	66912	<b>64140</b>	84931	<b>89846</b>	84246	85940	84009	83965
Normalized	95.86%	100%	75.52%	71.39%	76.13%	74.63%	76.35%	76.39%
Standard Deviation	1%	2.4%	1.1%	0.8%	0.8%	0.8%	1.2%	0.9%
<b>Caffe - GoogleNet - CPU - 100 (ms)</b>	179934	<b>176908</b>	216420	<b>226788</b>	214784	225831	213883	213543
Normalized	98.32%	100%	81.74%	78.01%	82.37%	78.34%	82.71%	82.84%
Standard Deviation	0.3%	0.7%	0.3%	0.3%	0.4%	0.5%	0.4%	0.4%

<b>Mobile Neural Network - resnet-v2-50 (ms)</b>	<b>66.588</b>	63.444	54.541	57.668	53.954	56.10	53.814	<b>53.201</b>
Normalized	79.9%	83.86%	97.54%	92.25%	98.6%	94.83%	98.86%	100%
Standard Deviation	0.9%	0.5%	0.2%	0.3%	0.6%	0.1%	0.3%	0.3%
<b>Mobile Neural Network - inception-v3 (ms)</b>	<b>80.481</b>	77.032	68.288	73.116	67.671	70.12	67.698	<b>66.247</b>
Normalized	82.31%	86%	97.01%	90.61%	97.9%	94.48%	97.86%	100%
Standard Deviation	1.1%	1.6%	0.3%	0.1%	0.4%	0.1%	0.8%	0.1%
<b>NCNN - CPU - vgg16 (ms)</b>	<b>80.68</b>	75.59	71.04	75.98	70.42	72.64	<b>69.82</b>	70.11
Normalized	86.54%	92.37%	98.28%	91.89%	99.15%	96.12%	100%	99.59%
Standard Deviation	0.2%	3.5%	0.3%	0.4%	0.1%	0.3%	0.1%	0.6%
<b>NCNN - CPU - resnet18 (ms)</b>	<b>25.02</b>	24.33	21.30	23.20	21.21	21.93	<b>21.15</b>	21.20
Normalized	84.53%	86.93%	99.3%	91.16%	99.72%	96.44%	100%	99.76%
Standard Deviation	0.3%	4.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.3%
<b>NCNN - CPU - alexnet (ms)</b>	<b>22.05</b>	21.47	18.64	20.15	18.6	19.21	<b>18.47</b>	18.57
Normalized	83.76%	86.03%	99.09%	91.66%	99.3%	96.15%	100%	99.46%
Standard Deviation	0.2%	3.6%	0.1%	0.6%	0%	0.4%	0.2%	0.7%
<b>NCNN - CPU - yolov4-tiny (ms)</b>	<b>47.55</b>	46.83	40.44	43.82	40.02	41.28	<b>39.89</b>	40.29
Normalized	83.89%	85.18%	98.64%	91.03%	99.68%	96.63%	100%	99.01%
Standard Deviation	0.1%	2.7%	0.8%	0.3%	0.2%	0.3%	0.3%	0.7%
<b>Facebook RocksDB - Rand Read (Op/s)</b>	<b>12925515</b>	13732080	15791136	15304072	15871303	15589036	<b>16151167</b>	15900784
Normalized	80.03%	85.02%	97.77%	94.76%	98.27%	96.52%	100%	98.45%
Standard Deviation	3.7%	5.9%	2.5%	1.7%	2.5%	2.4%	2.4%	2.4%
<b>PyPerformance - pathlib (Milliseconds)</b>	<b>16.8</b>	16.1	13.9	14.2	<b>13.7</b>	14.26	13.9	13.9
Normalized	81.55%	85.09%	98.56%	96.48%	100%	96.07%	98.56%	98.56%
Standard Deviation	0.9%	0.4%	1.1%	1.9%	2.5%	2.1%	2.1%	2.3%
<b>Selenium - Kraken - Firefox (ms)</b>	830.7	752.7	671.9	<b>610.5</b>	<b>1006</b>	938.67	1004	886.9
Normalized	73.49%	81.11%	90.86%	100%	60.7%	65.04%	60.8%	68.84%
Standard Deviation	0.3%	0.4%	0.3%	0.2%	0.5%	0.2%	0.4%	0.5%
<b>Selenium - WebXPRT - Firefox (Score)</b>	<b>241</b>	264	288	<b>299</b>	267	292	268	296
Normalized	80.6%	88.29%	96.32%	100%	89.3%	97.66%	89.63%	99%
Standard Deviation	0.6%	1%	0.5%	0.2%	1.2%	0.2%	0.4%	0.3%
<b>Selenium - Jetstream 2 - Firefox (Score)</b>	91.648	99.720	108.423	<b>115.080</b>	<b>86.921</b>	93.32499	87.346	96.285
Normalized	79.64%	86.65%	94.22%	100%	75.53%	81.1%	75.9%	83.67%
Standard Deviation	0.7%	1%	1.4%	2.9%	1.5%	2.1%	0.3%	0.8%
<b>Selenium - ARES-6 - Google Chrome (ms)</b>	19.76	<b>19.77</b>	16.60	17.32	16.19	17.80	16.16	<b>16.07</b>
Normalized	81.33%	81.28%	96.81%	92.78%	99.26%	90.28%	99.44%	100%
Standard Deviation	0.2%	0.3%	1.3%	1.4%	1.3%	0.7%	0.8%	1.5%
<b>Selenium - Kraken - Google Chrome (ms)</b>	799.3	<b>806.0</b>	668.2	701.8	661.7	680.40	<b>656.8</b>	678.0
Normalized	82.17%	81.49%	98.29%	93.59%	99.26%	96.53%	100%	96.87%
Standard Deviation	0.5%	0.7%	0.4%	2.3%	0.5%	0.4%	0.8%	1.1%

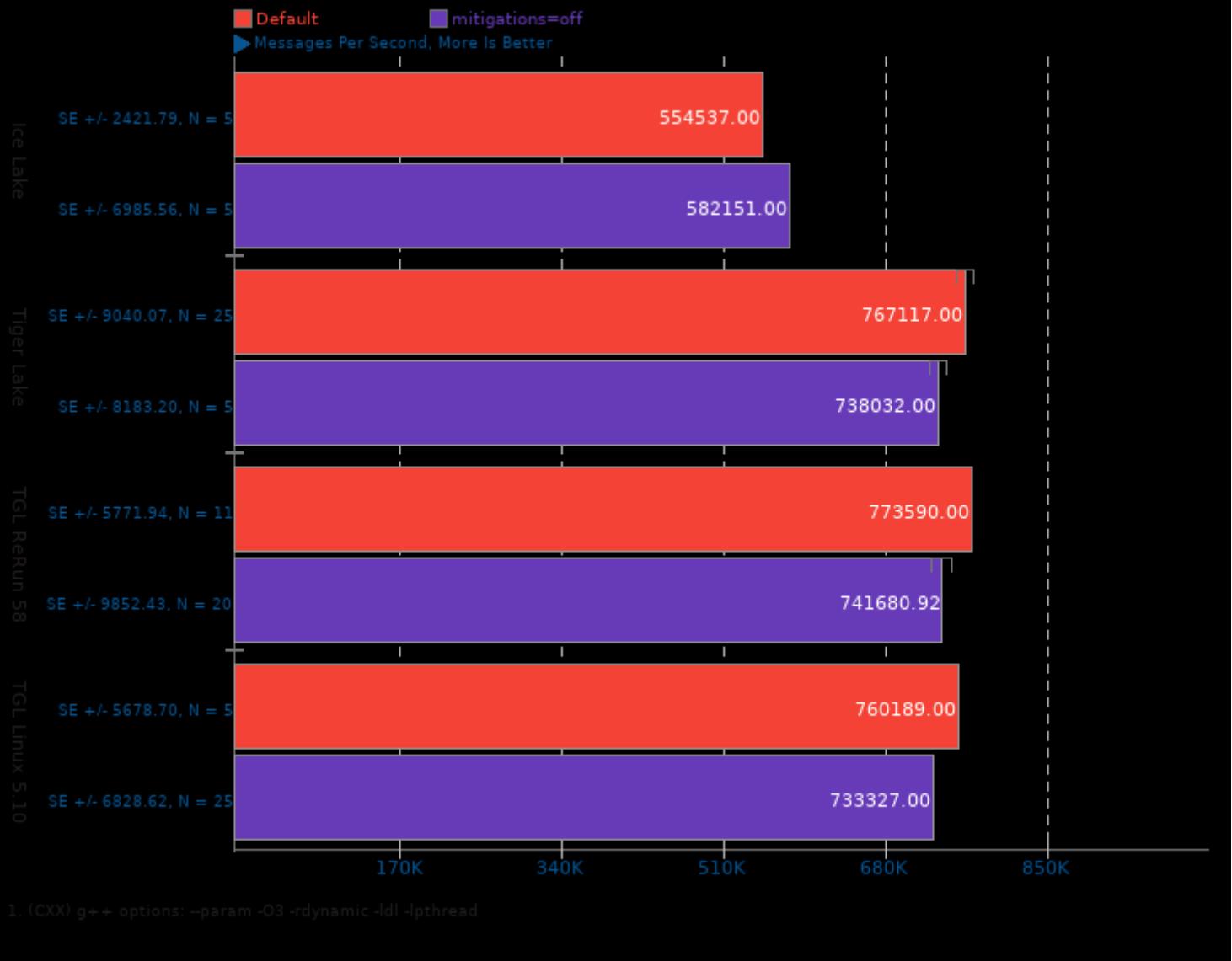
## Intel Tiger Lake Mitigation COnparison

<b>Selenium - Octane - Google Chrome (Geometric Mean)</b>	53717	<b>53635</b>	61608	58235	61369	57008	62304	<b>62405</b>
Normalized	86.08%	85.95%	98.72%	93.32%	98.34%	91.35%	99.84%	100%
Standard Deviation	0.2%	0.5%	2.9%	2.9%	2.5%	2.4%	2.2%	2.3%
<b>Selenium - WebXPRT - Google Chrome (Score)</b>	<b>225</b>	227	<b>281</b>	269	279	253	278	277
Normalized	80.07%	80.78%	100%	95.73%	99.29%	90.04%	98.93%	98.58%
Standard Deviation	1.6%		0.4%	0.6%	1.8%	1.3%	1.3%	1.9%
<b>Selenium - Jetstream - Google Chrome (Score)</b>	<b>242.78</b>	250.94	<b>289.55</b>	276.88	289.93	272.2531	292.24	<b>292.30</b>
Normalized	83.06%	85.85%	99.06%	94.72%	99.19%	93.14%	99.98%	100%
Standard Deviation	0.6%	0.6%	0.7%	0.5%	0.1%	0.5%	0.3%	0.1%
<b>Selenium - CanvasMark - Google Chrome</b>	<b>14994</b>	15149	17698	16864	20485	19667	<b>21237</b>	21010
Normalized	70.6%	71.33%	83.34%	79.41%	96.46%	92.61%	100%	98.93%
Standard Deviation	2.9%	1.2%	3.9%	2.8%	2.5%	1.3%	1.7%	2.4%
<b>Selenium - StyleBench - Google Chrome (Runs / Minute)</b>	<b>33.5</b>	34.0	39.6	38.5	42.6	39.576	42.9	<b>43.0</b>
Normalized	77.91%	79.07%	92.09%	89.53%	99.07%	92.04%	99.77%	100%
Standard Deviation	0.7%	0.2%	0.5%	0.2%	0.5%	0.5%	0.5%	0.4%
<b>Selenium - Jetstream 2 - Google Chrome</b>	<b>138.439</b>	140.146	165.909	158.473	165.154	153.70846	164.687	<b>166.769</b>
Normalized	83.01%	84.04%	99.48%	95.03%	99.03%	92.17%	98.75%	100%
Standard Deviation	0.5%	0.8%	0.5%	0.8%	2.5%	0.5%	0.4%	1.2%
<b>Selenium - W.i - Google Chrome (ms)</b>	<b>32.6245</b>	32.6082	<b>28.2575</b>	29.2972	28.699	29.38	28.6120	28.2868
Normalized	86.61%	86.66%	100%	96.45%	98.46%	96.18%	98.76%	99.9%
Standard Deviation	1.8%	0.5%	0.6%	1.5%	0.3%	0.6%	0.2%	0.3%

## Intel Tiger Lake Mitigation COmparison

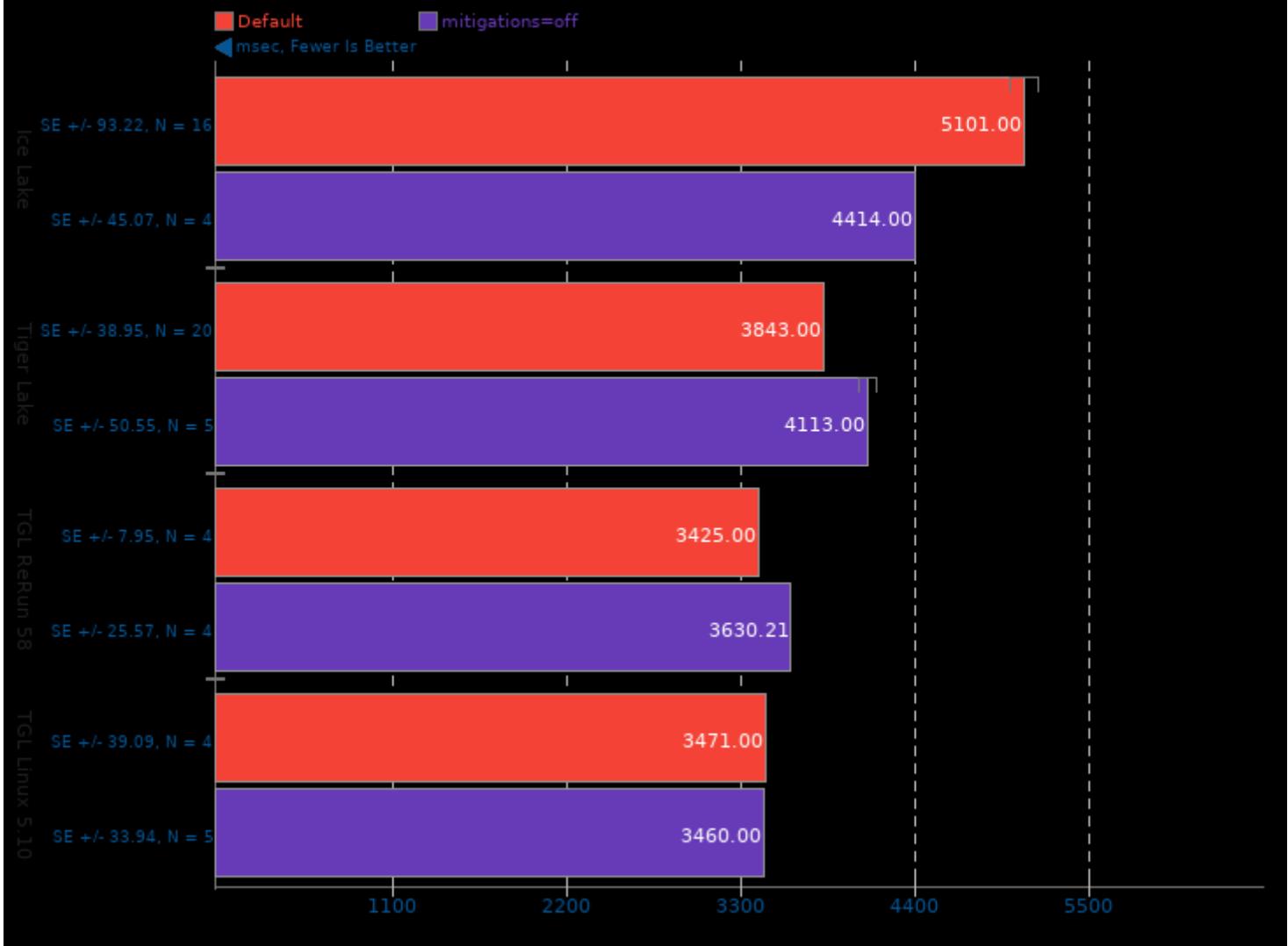
### Sockperf 3.4

Test: Throughput



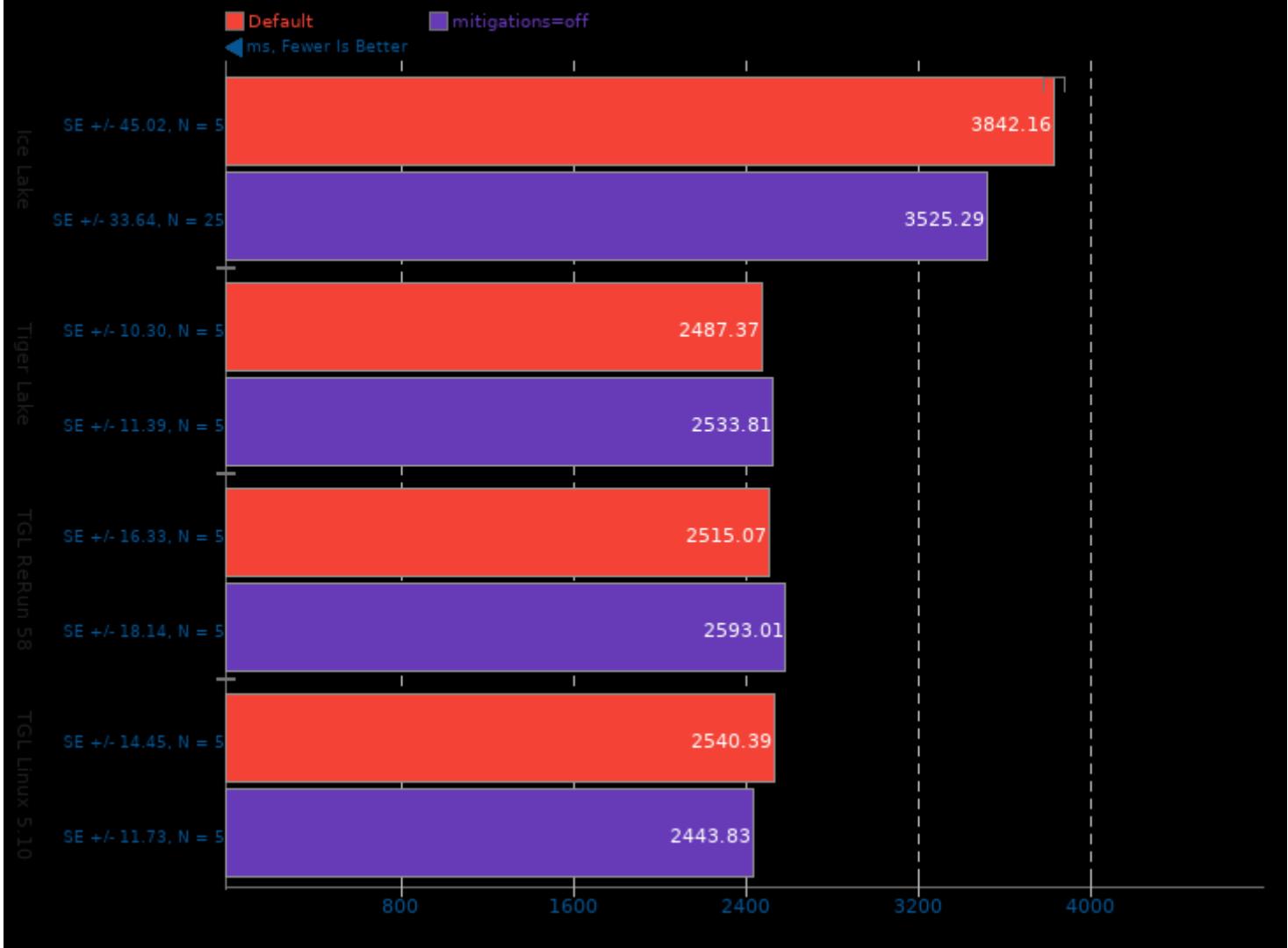
## DaCapo Benchmark 9.12-MR1

Java Test: Jython



## Renaissance 0.10.0

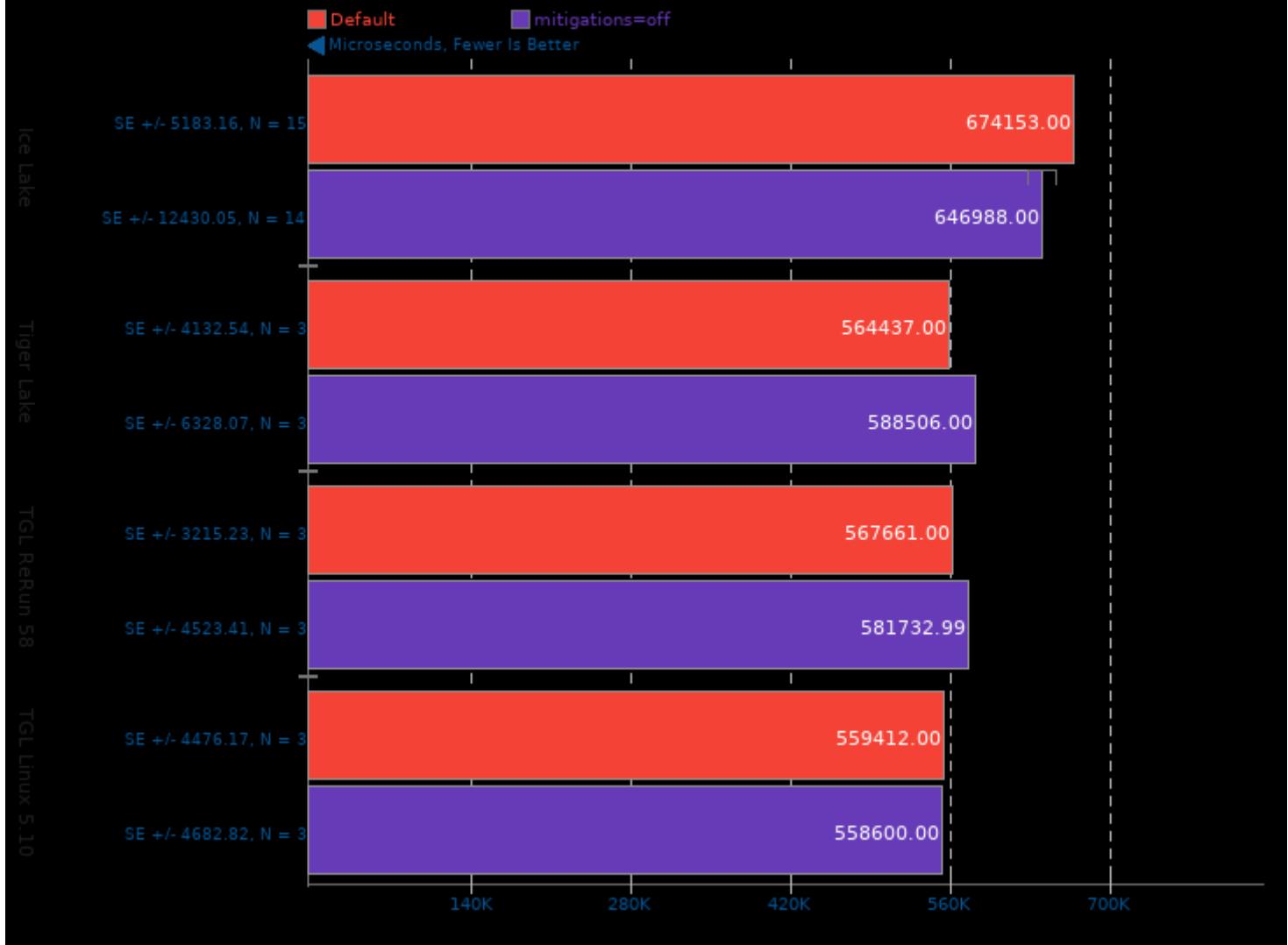
Test: Twitter HTTP Requests



## Intel Tiger Lake Mitigation COmparison

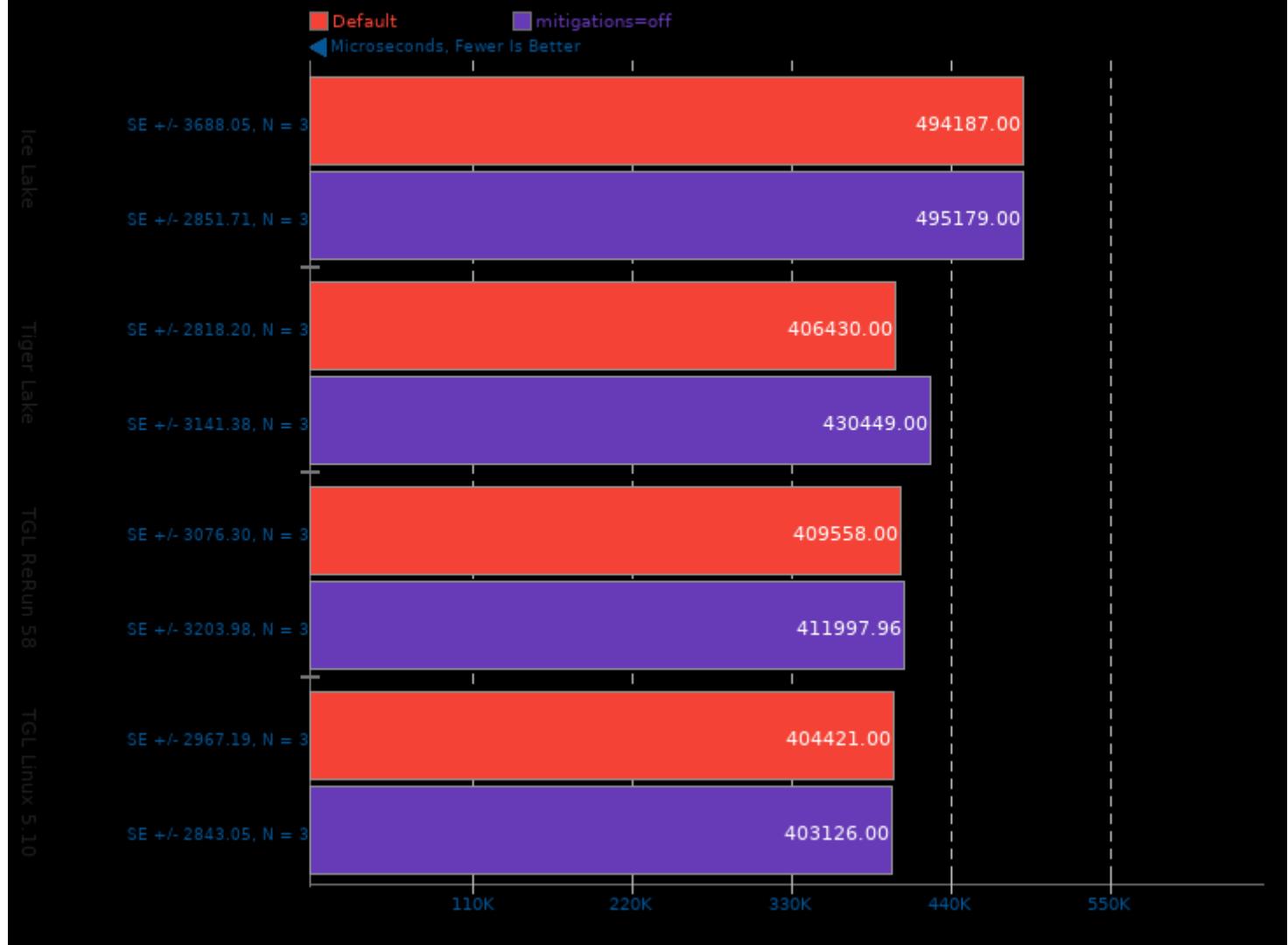
TensorFlow Lite 2020-08-23

Model: SqueezeNet



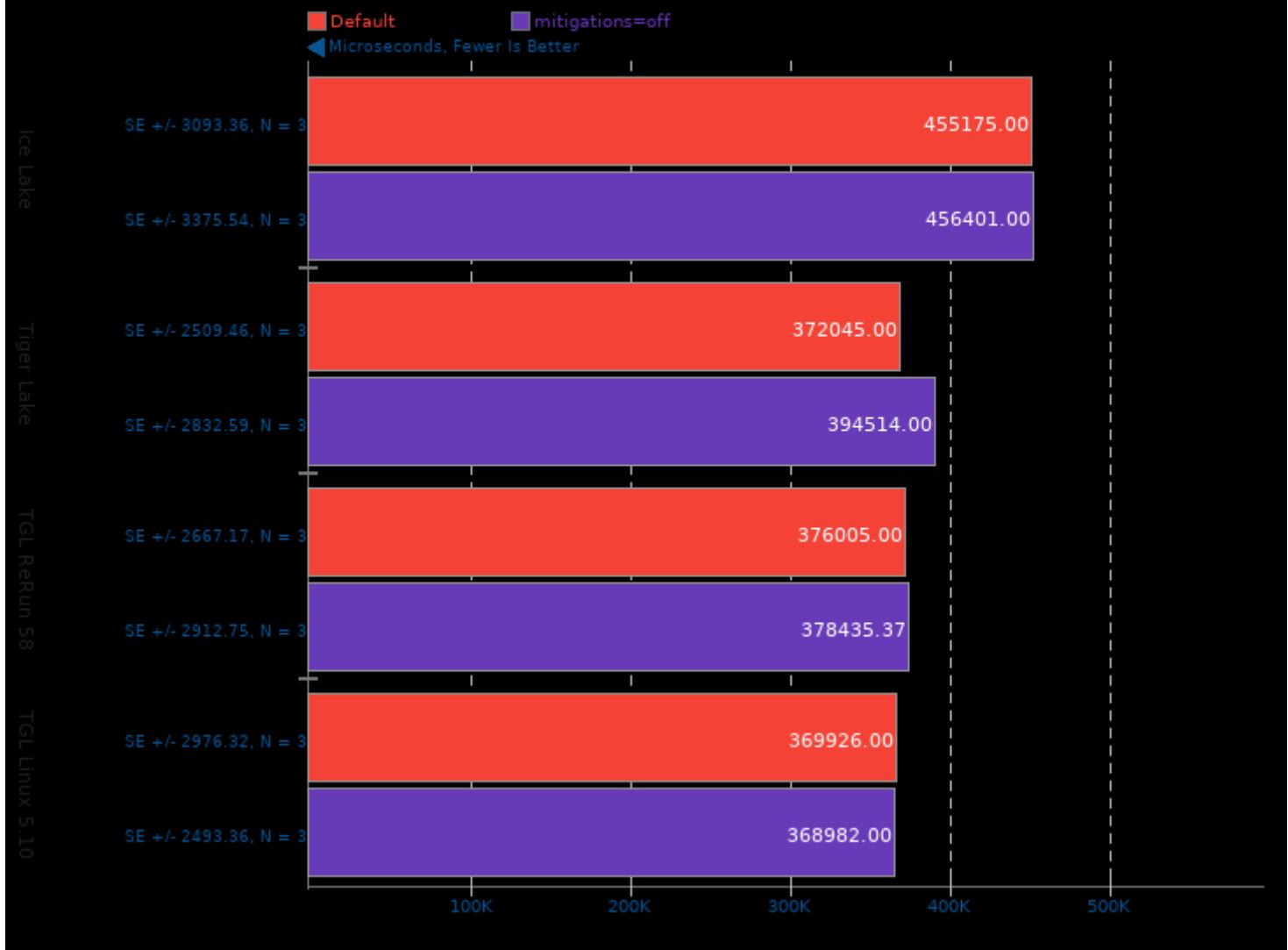
## TensorFlow Lite 2020-08-23

Model: NASNet Mobile



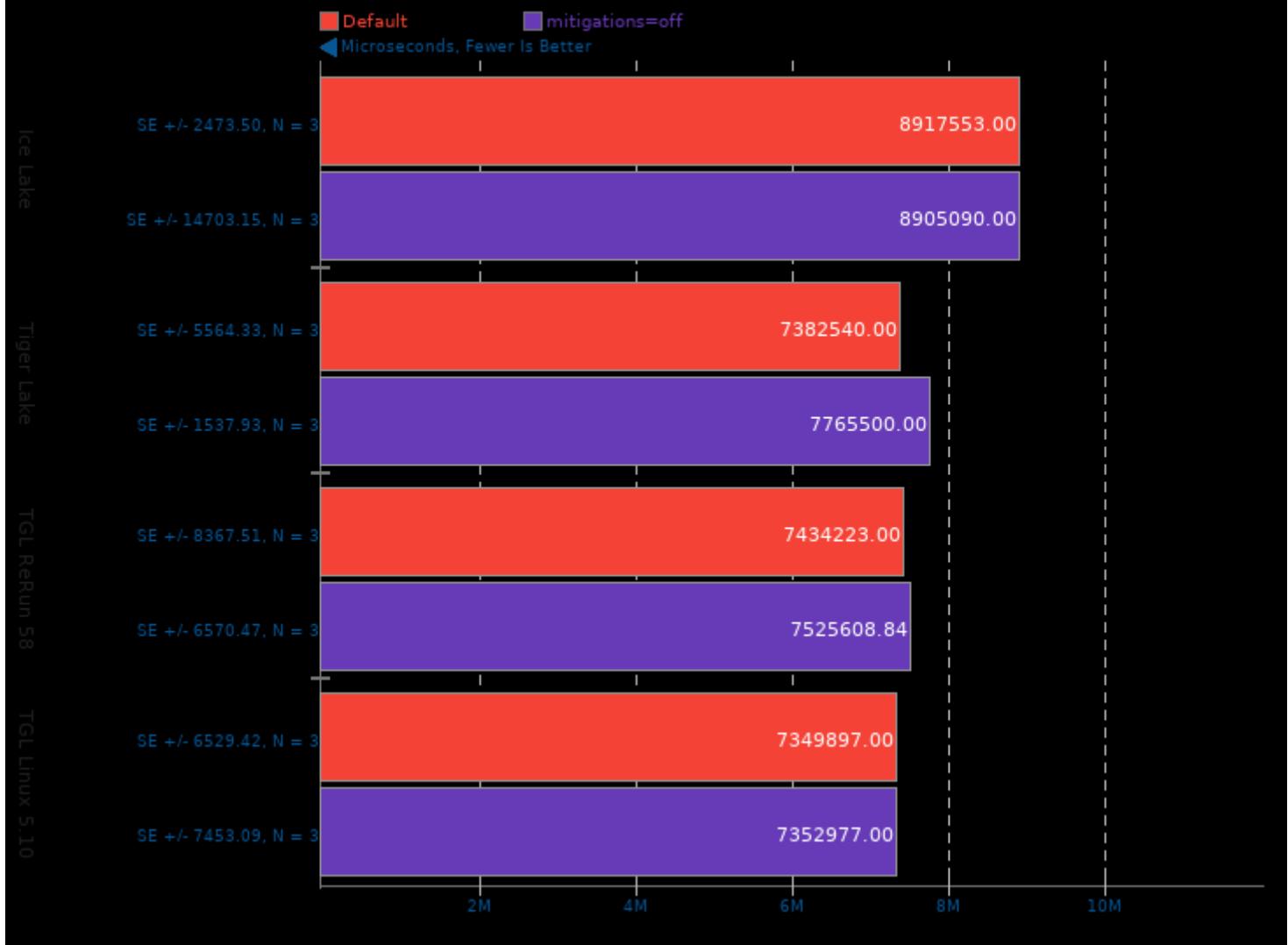
## TensorFlow Lite 2020-08-23

Model: Mobilenet Quant



## TensorFlow Lite 2020-08-23

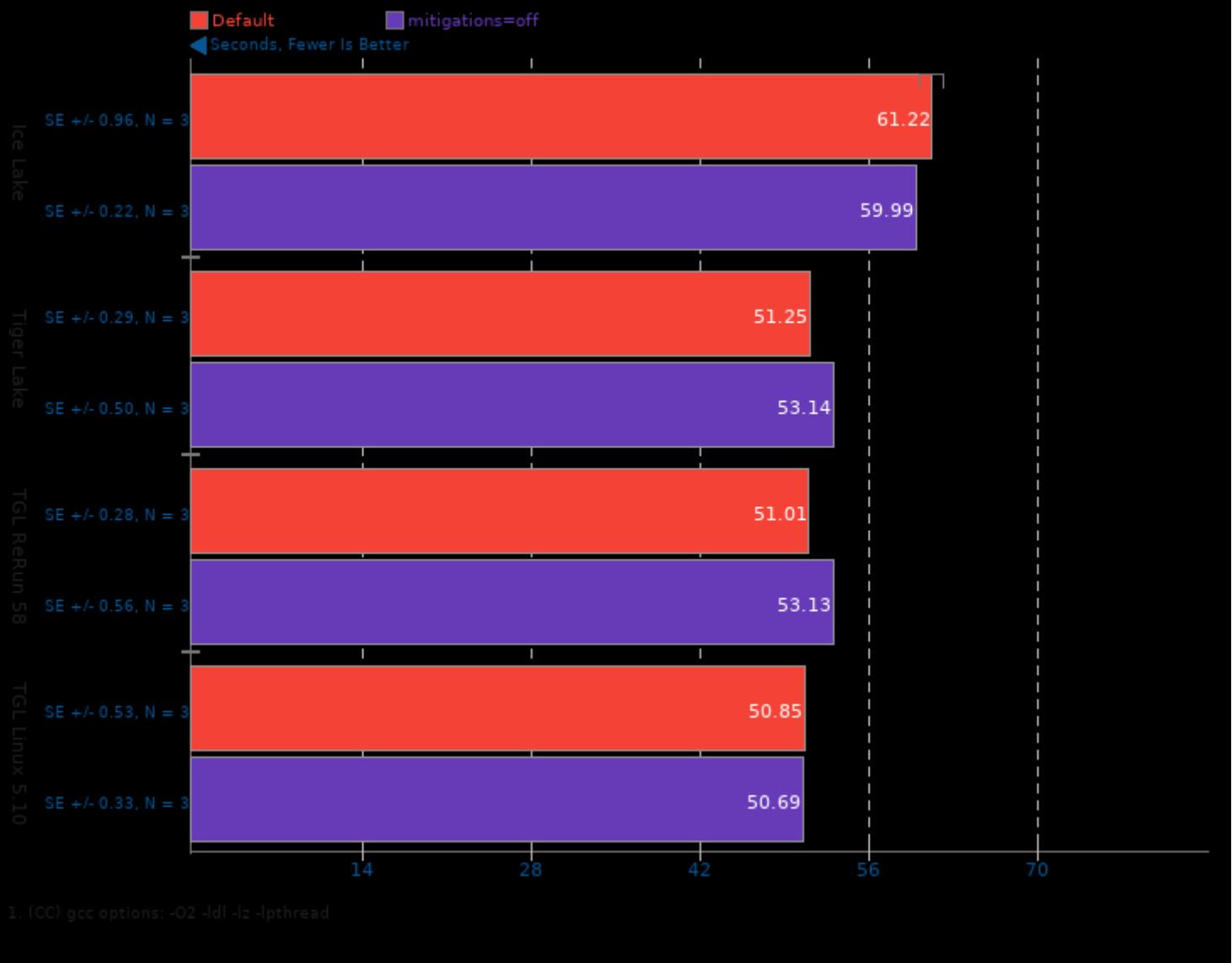
Model: Inception ResNet V2



## Intel Tiger Lake Mitigation COnparison

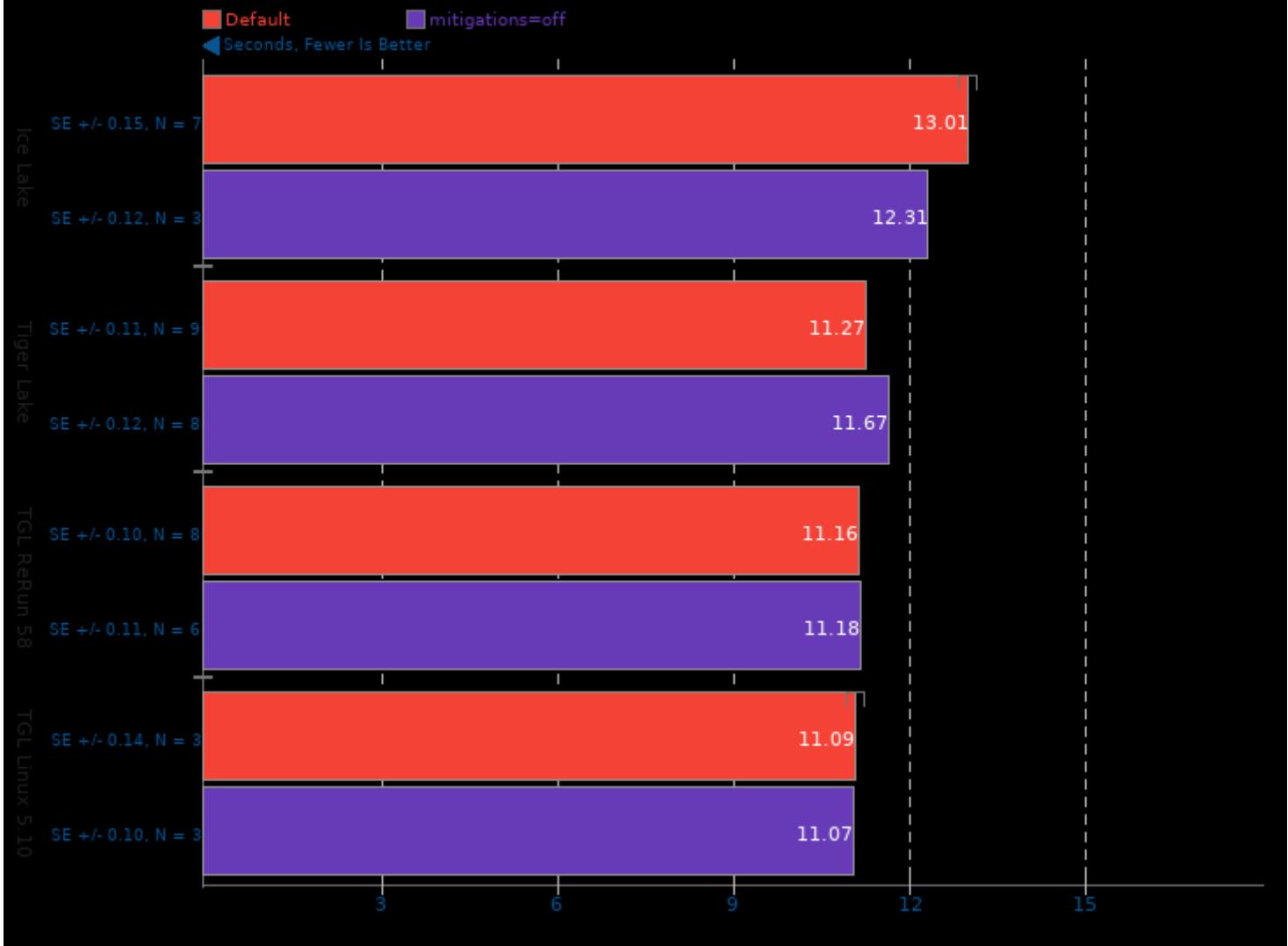
### SQLite Speedtest 3.30

Timed Time - Size 1,000



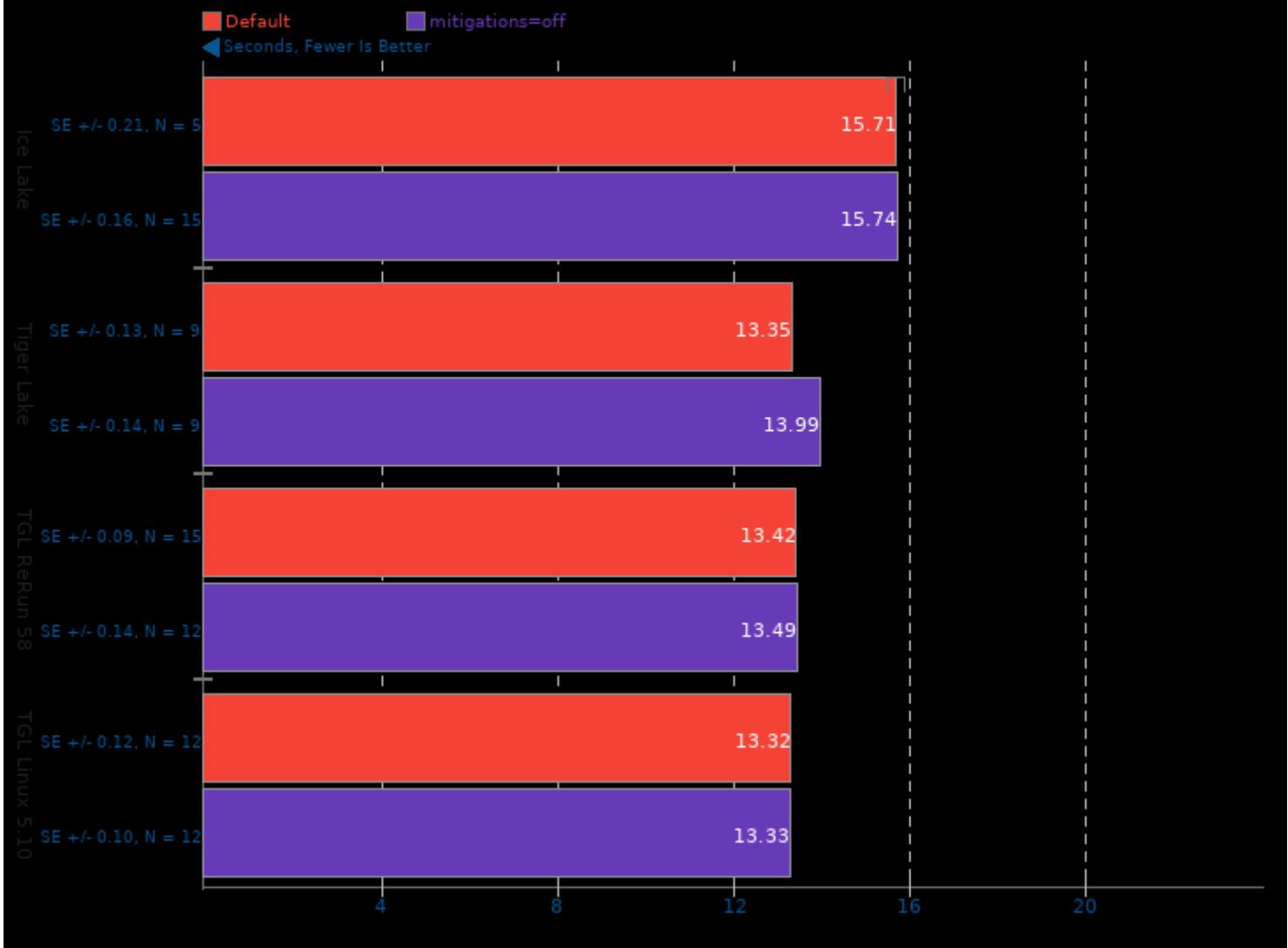
**GIMP 2.10.18**

Test: auto-levels



**GIMP 2.10.18**

Test: unsharp-mask



## Intel Tiger Lake Mitigation COnparison

### Caffe 2020-02-13

Model: AlexNet - Acceleration: CPU - Iterations: 100

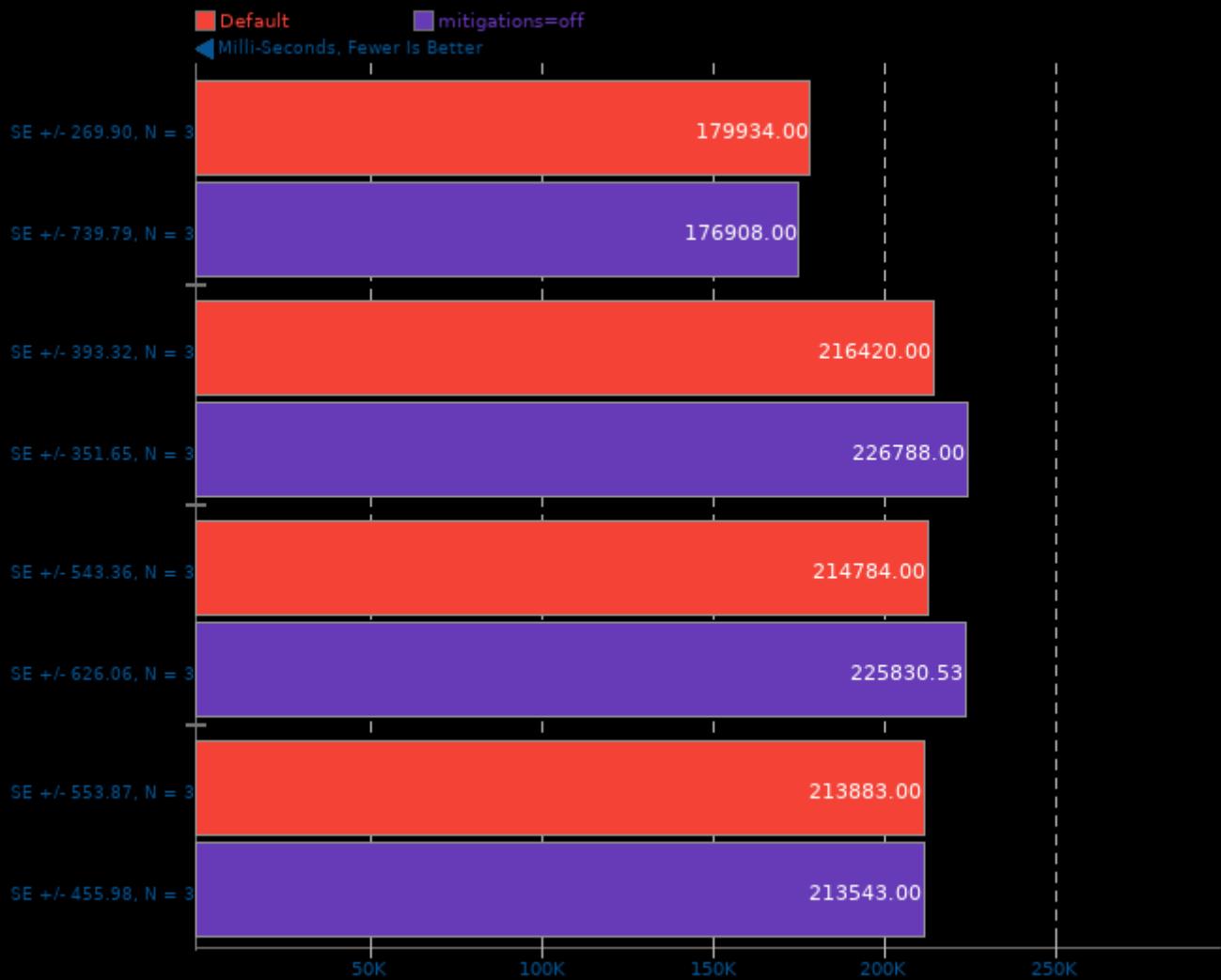


1. (CXX) g++ options: -fPIC -O3 -rdynamic -lglog -lflags -lprotobuf -lpthread -lsz -lz -ldl -lm -lmmdb -lopenblas

## Intel Tiger Lake Mitigation COmparison

### Caffe 2020-02-13

Model: GoogleNet - Acceleration: CPU - Iterations: 100

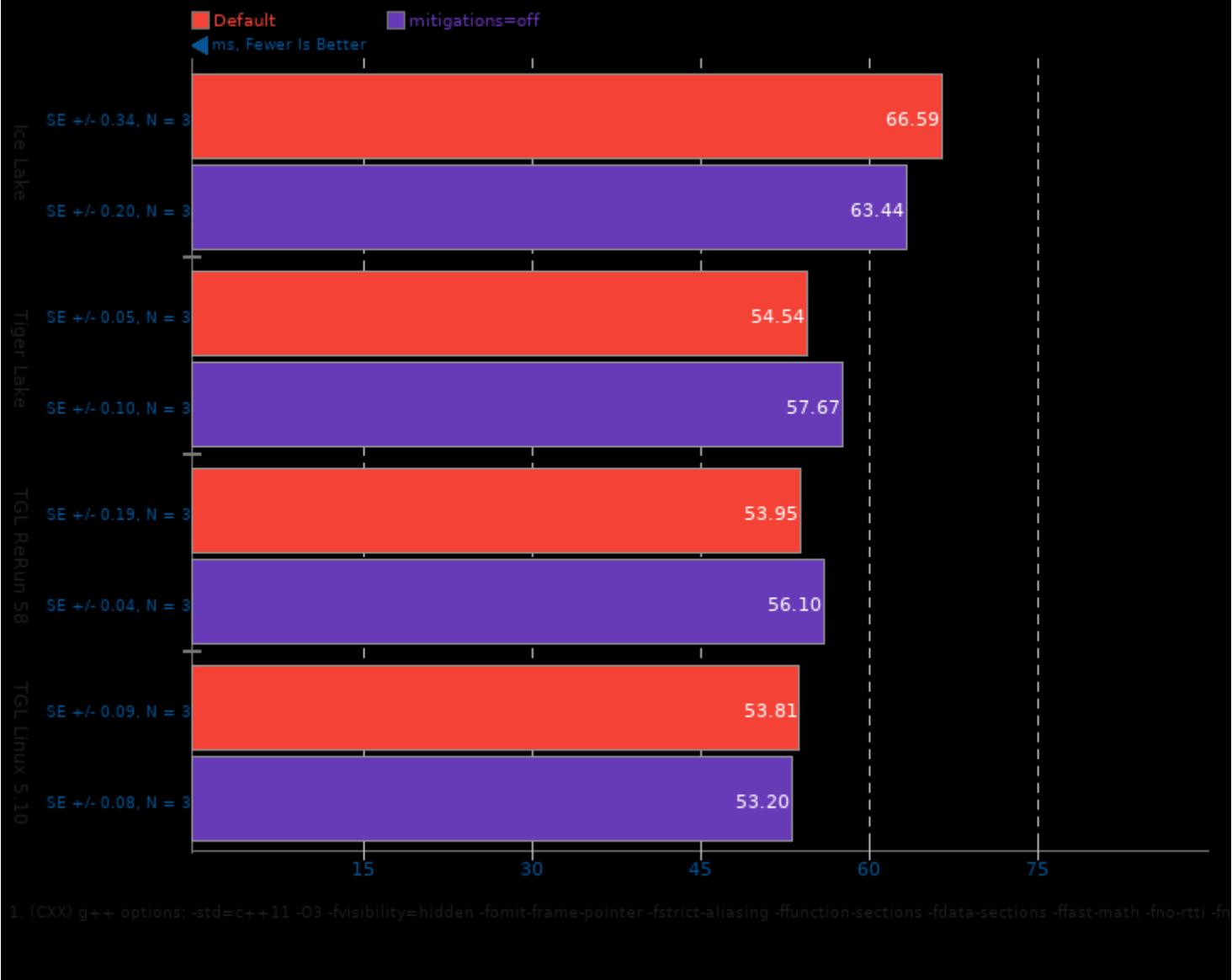


1. (CXX) g++ options: -fPIC -O3 -rdynamic -lglog -lflags -lprotobuf -lpthread -lsz -lz -ldl -lm -llmdb -lopenblas

## Intel Tiger Lake Mitigation COnparison

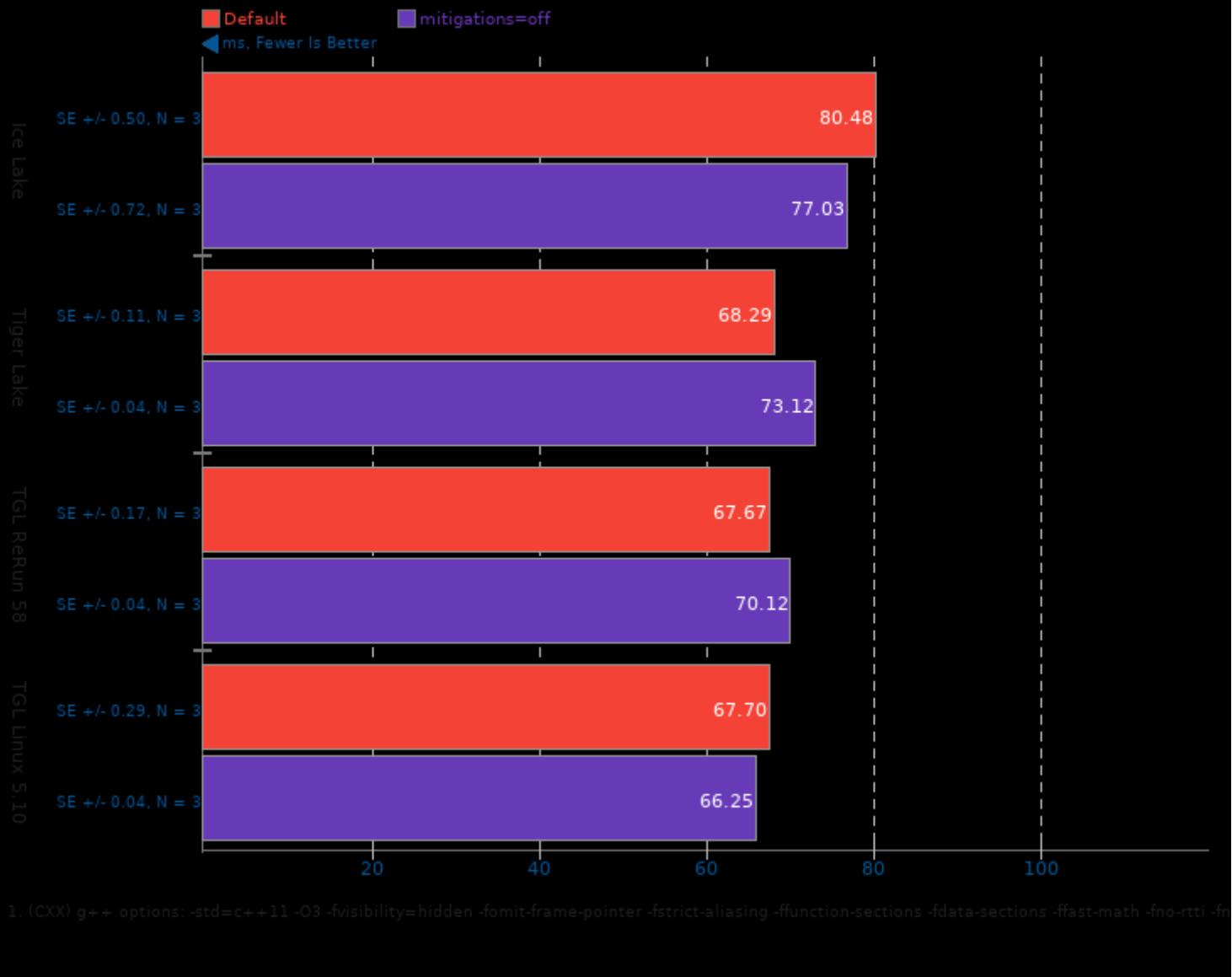
### Mobile Neural Network 2020-09-17

Model: resnet-v2-50



## Mobile Neural Network 2020-09-17

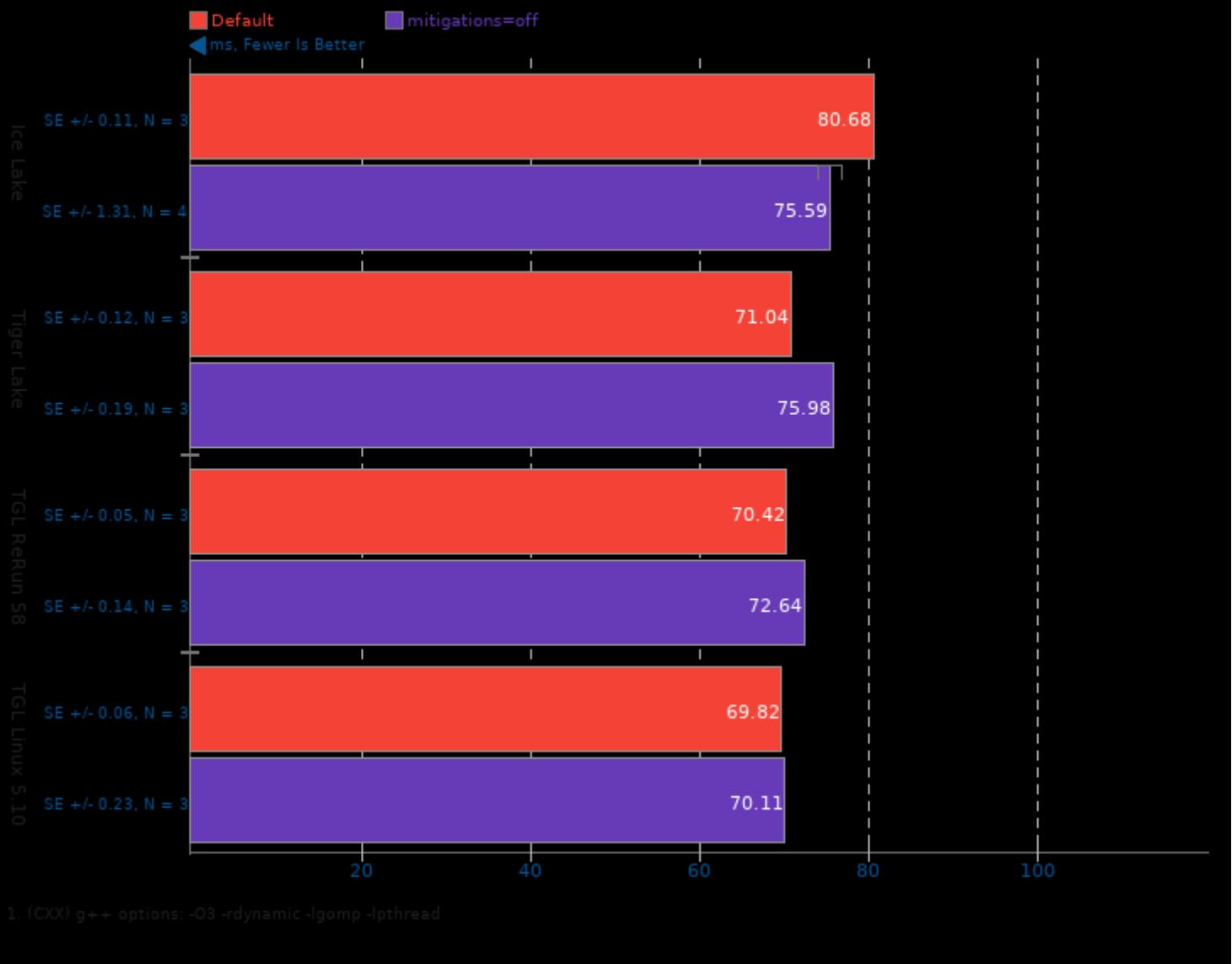
Model: inception-v3



## Intel Tiger Lake Mitigation COnparison

NCNN 20200916

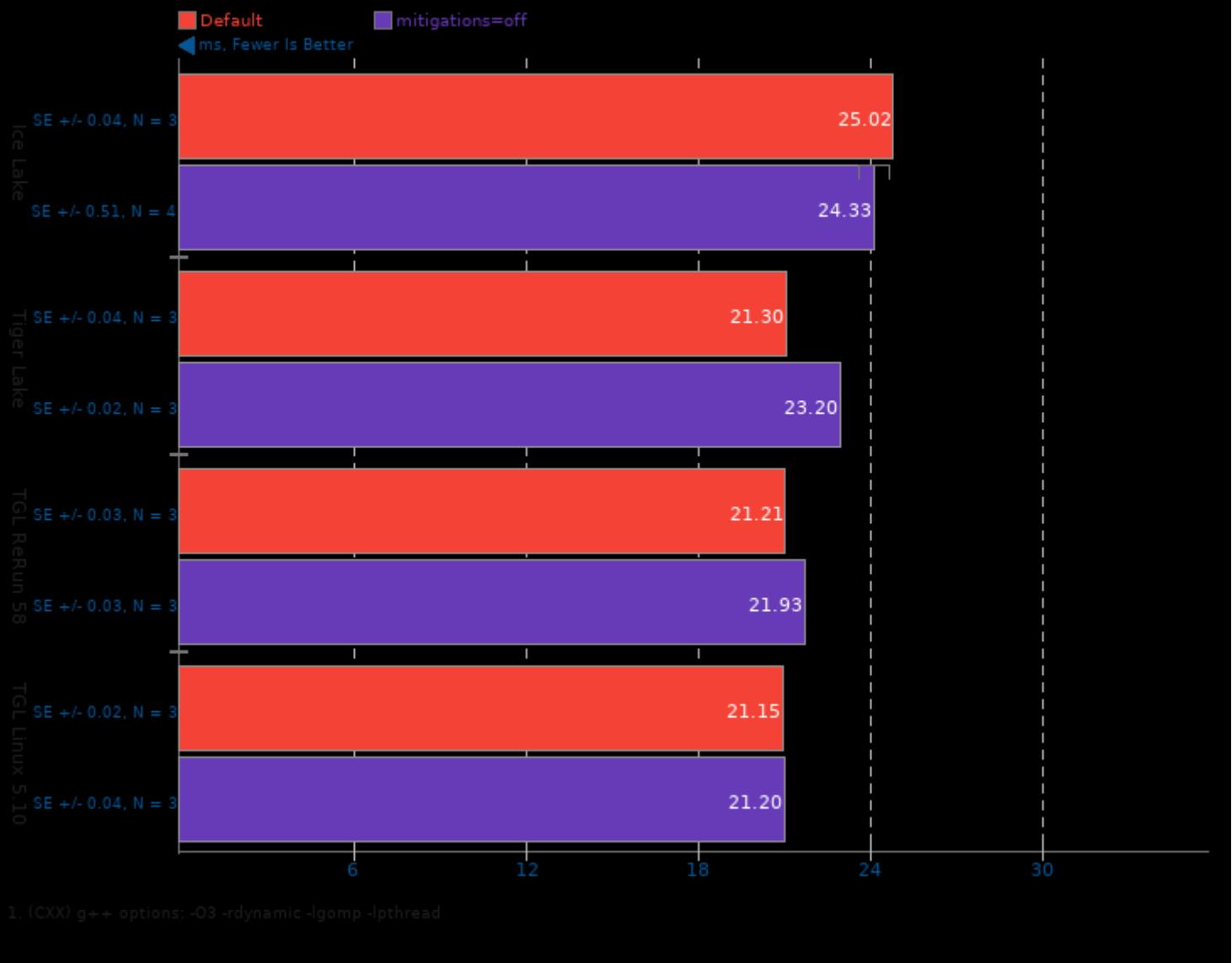
Target: CPU - Model: vgg16



## Intel Tiger Lake Mitigation COnparison

NCNN 20200916

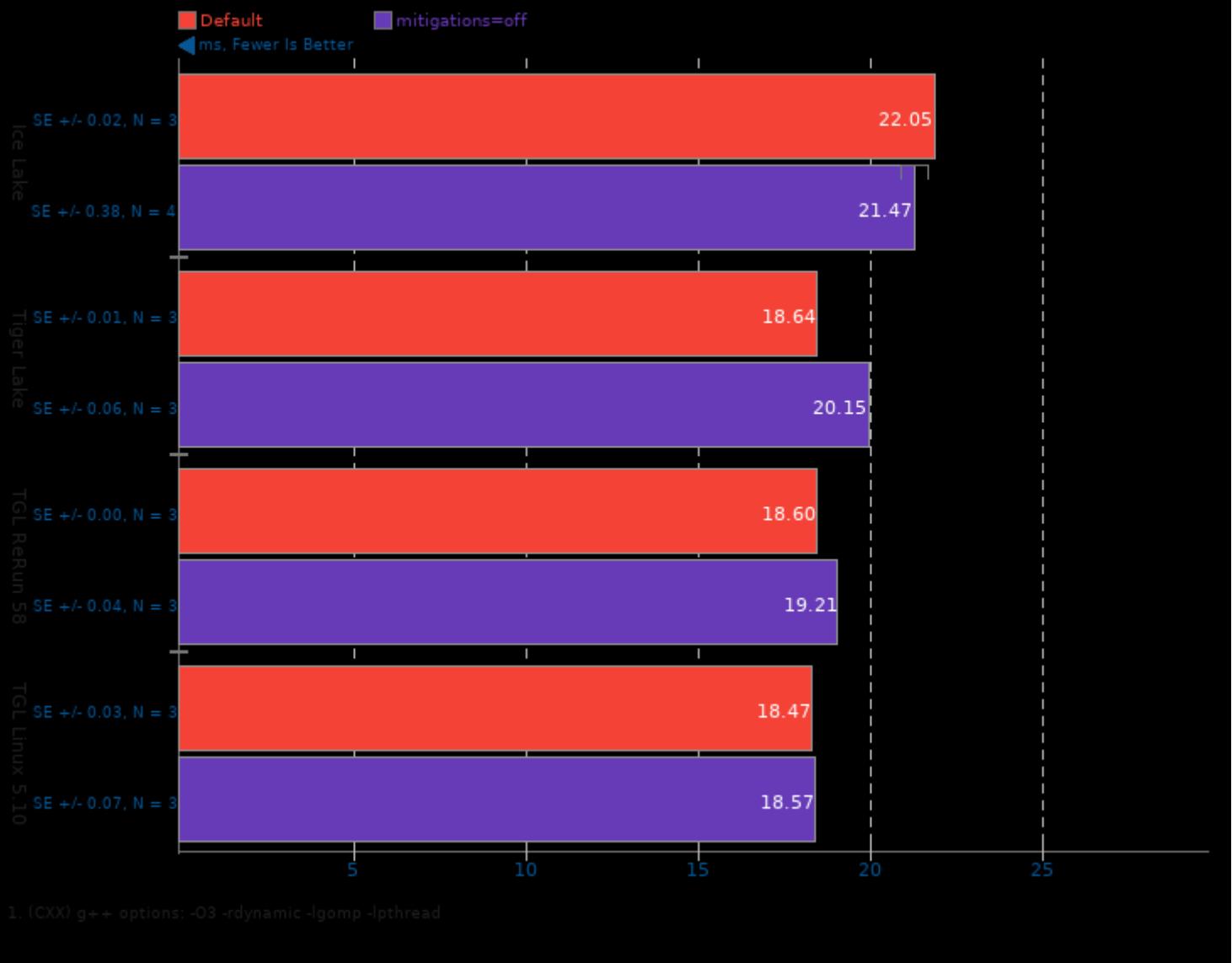
Target: CPU - Model: resnet18



## Intel Tiger Lake Mitigation COmparison

NCNN 20200916

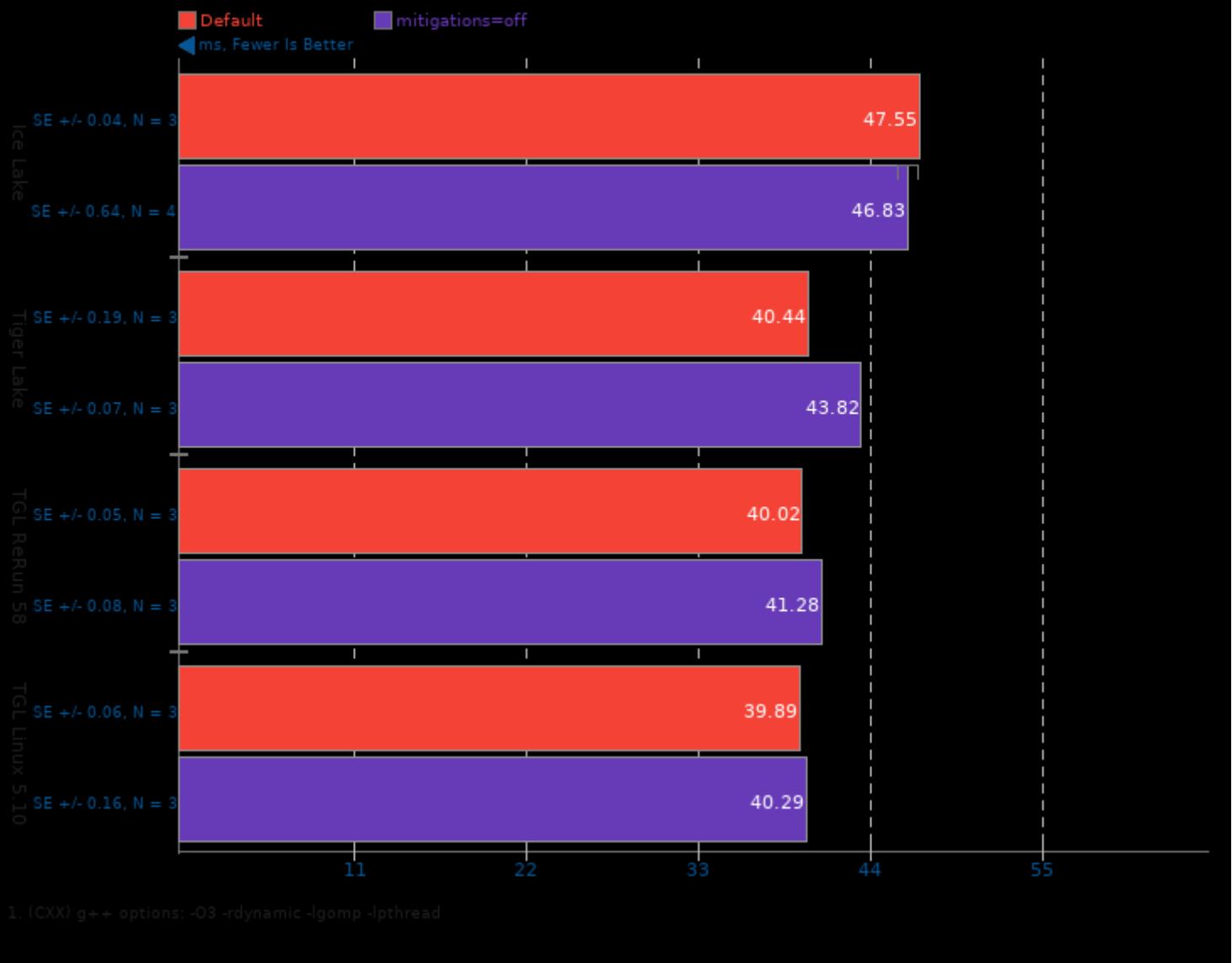
Target: CPU - Model: alexnet



## Intel Tiger Lake Mitigation COnparison

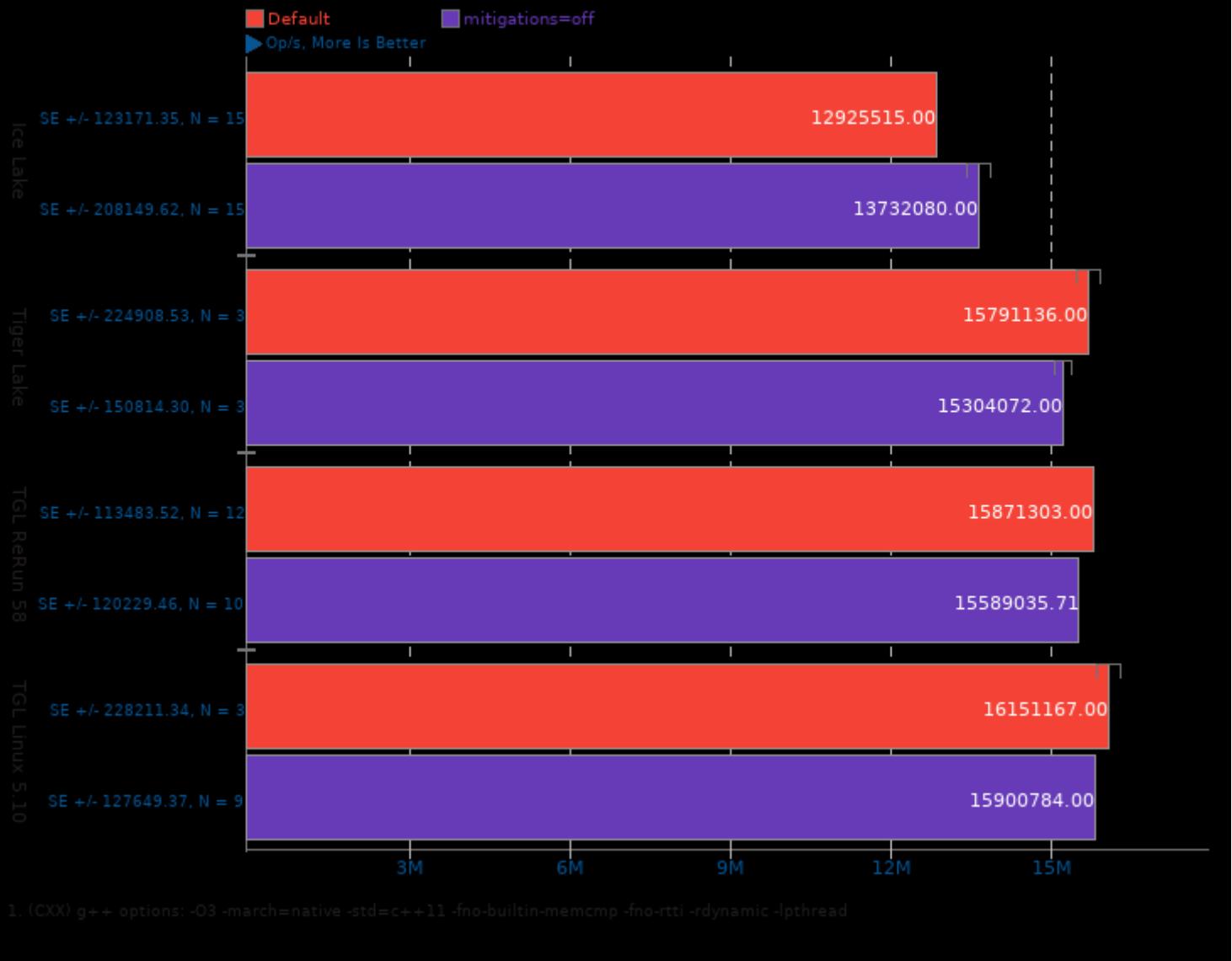
NCNN 20200916

Target: CPU - Model: yolov4-tiny



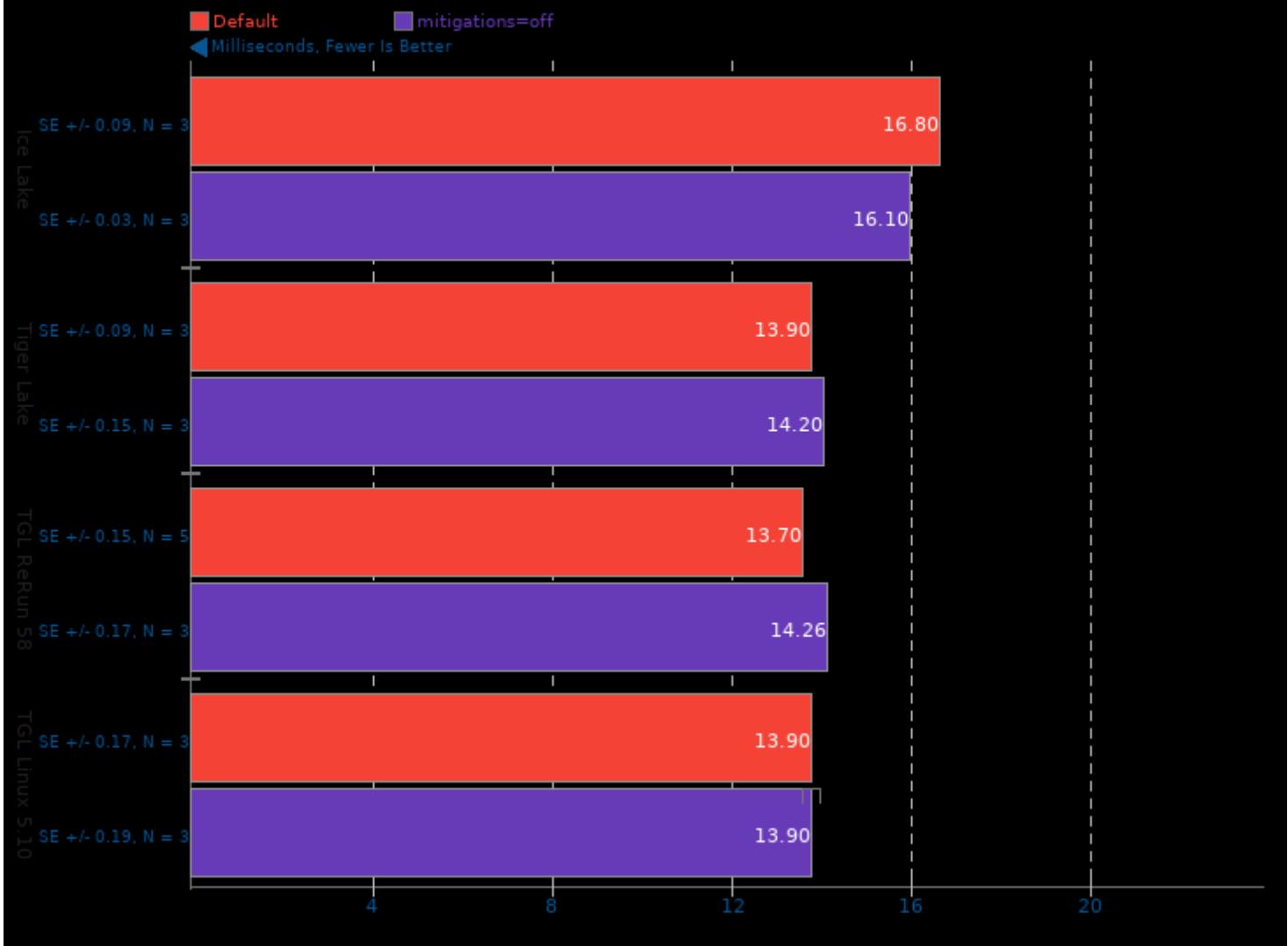
## Facebook RocksDB 6.3.6

Test: Random Read



## PyPerformance 1.0.0

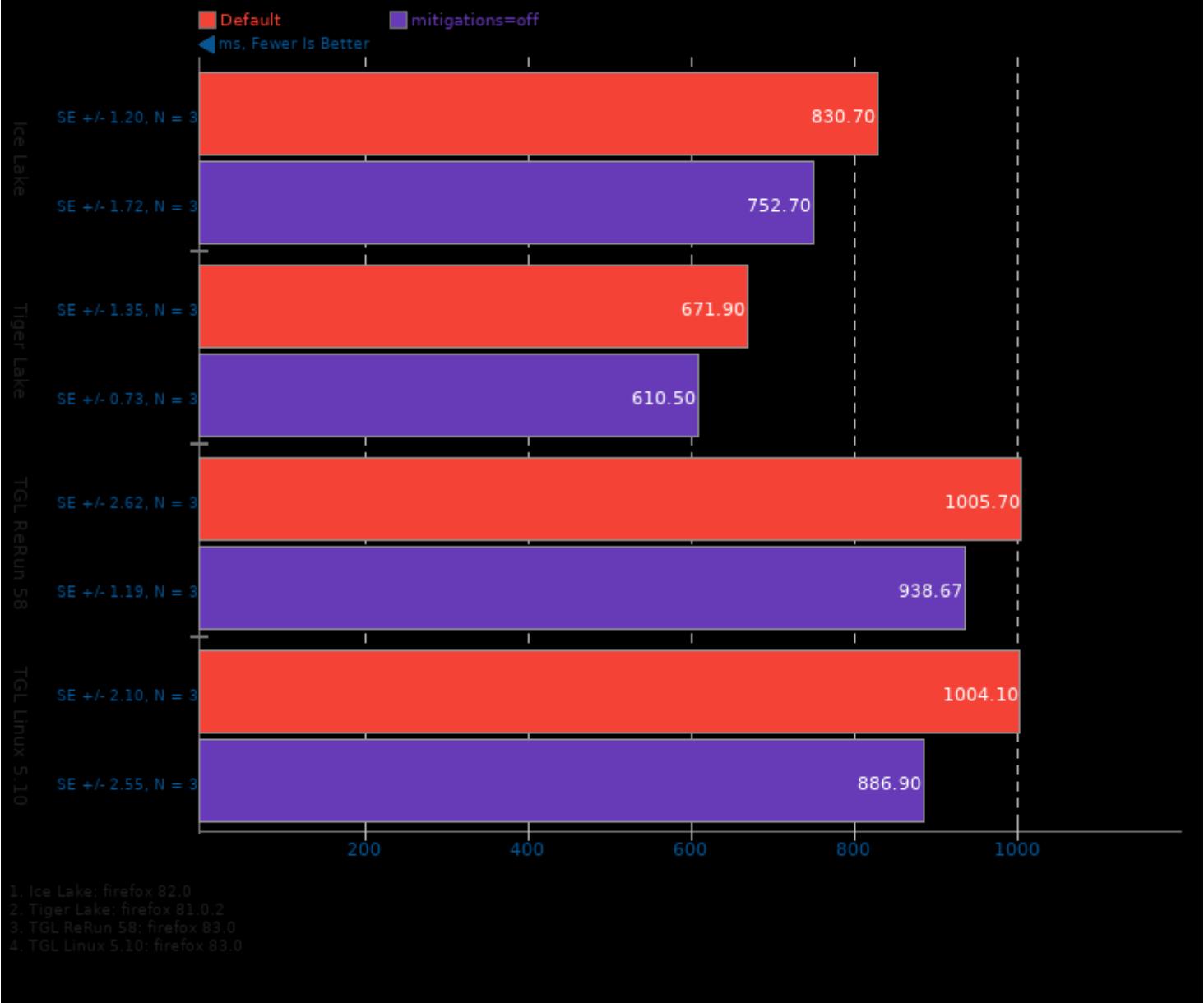
Benchmark: pathlib



## Intel Tiger Lake Mitigation COnparison

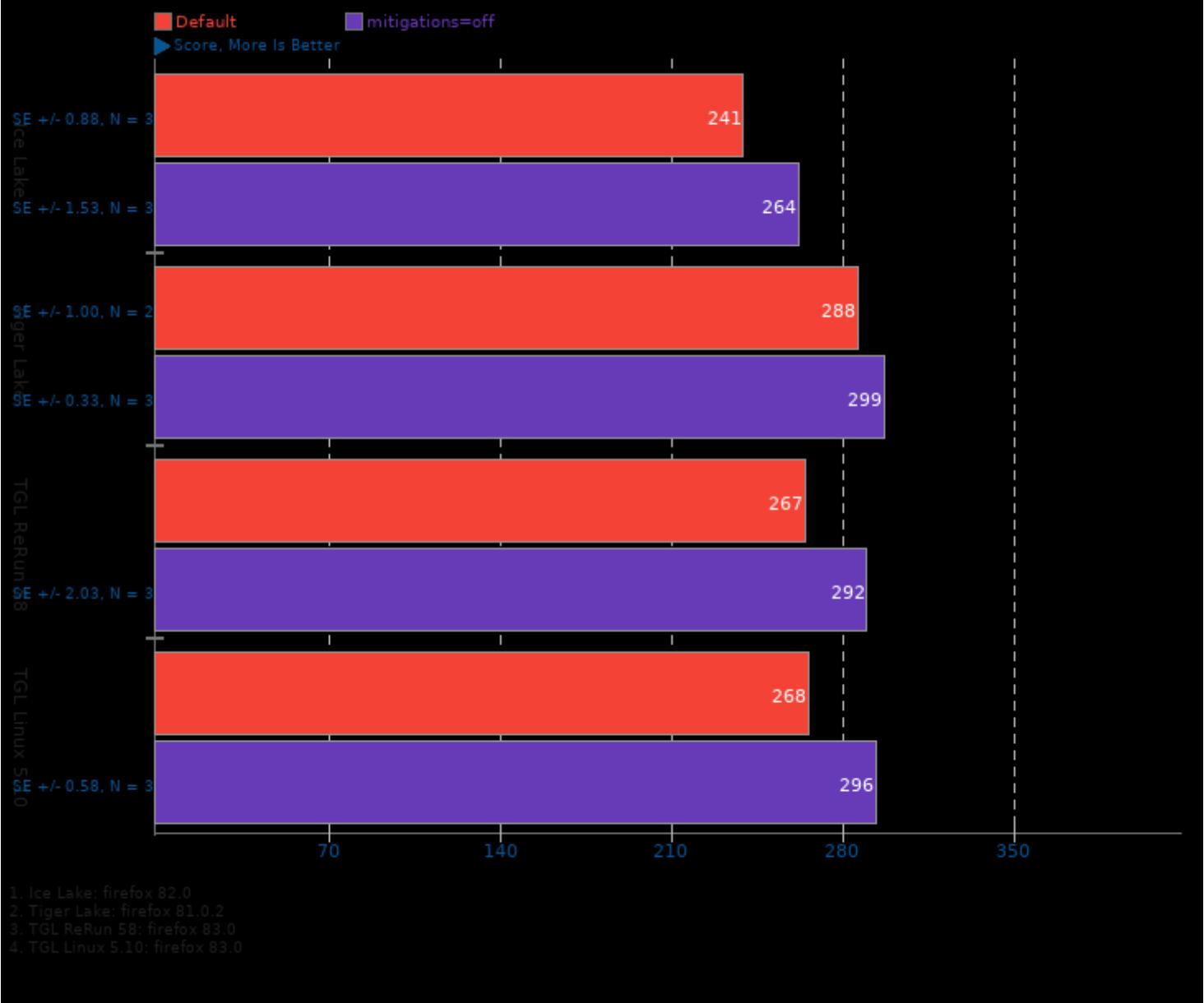
### Selenium

Benchmark: Kraken - Browser: Firefox



## Selenium

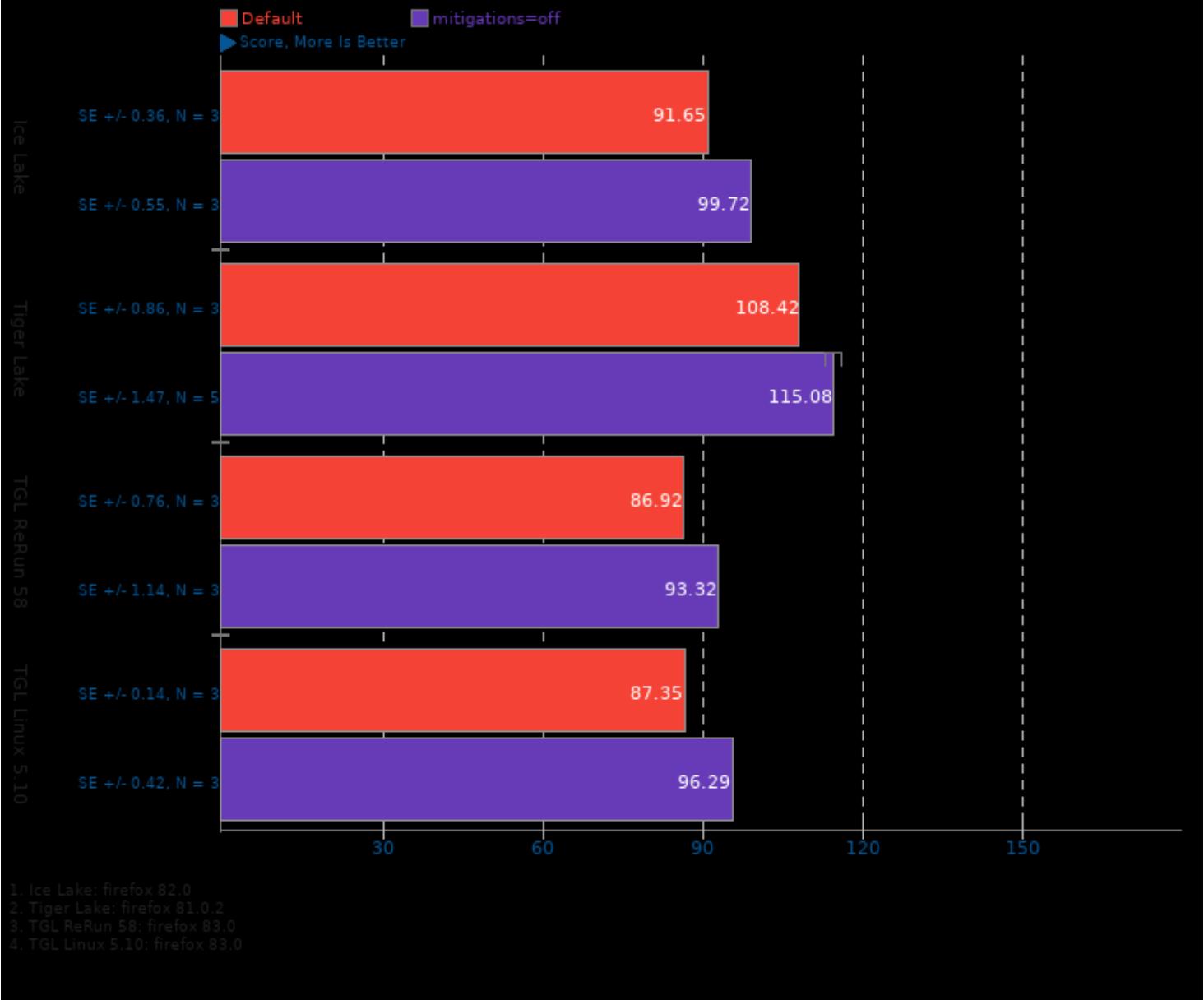
Benchmark: WebXPRT - Browser: Firefox



## Intel Tiger Lake Mitigation COmparison

### Selenium

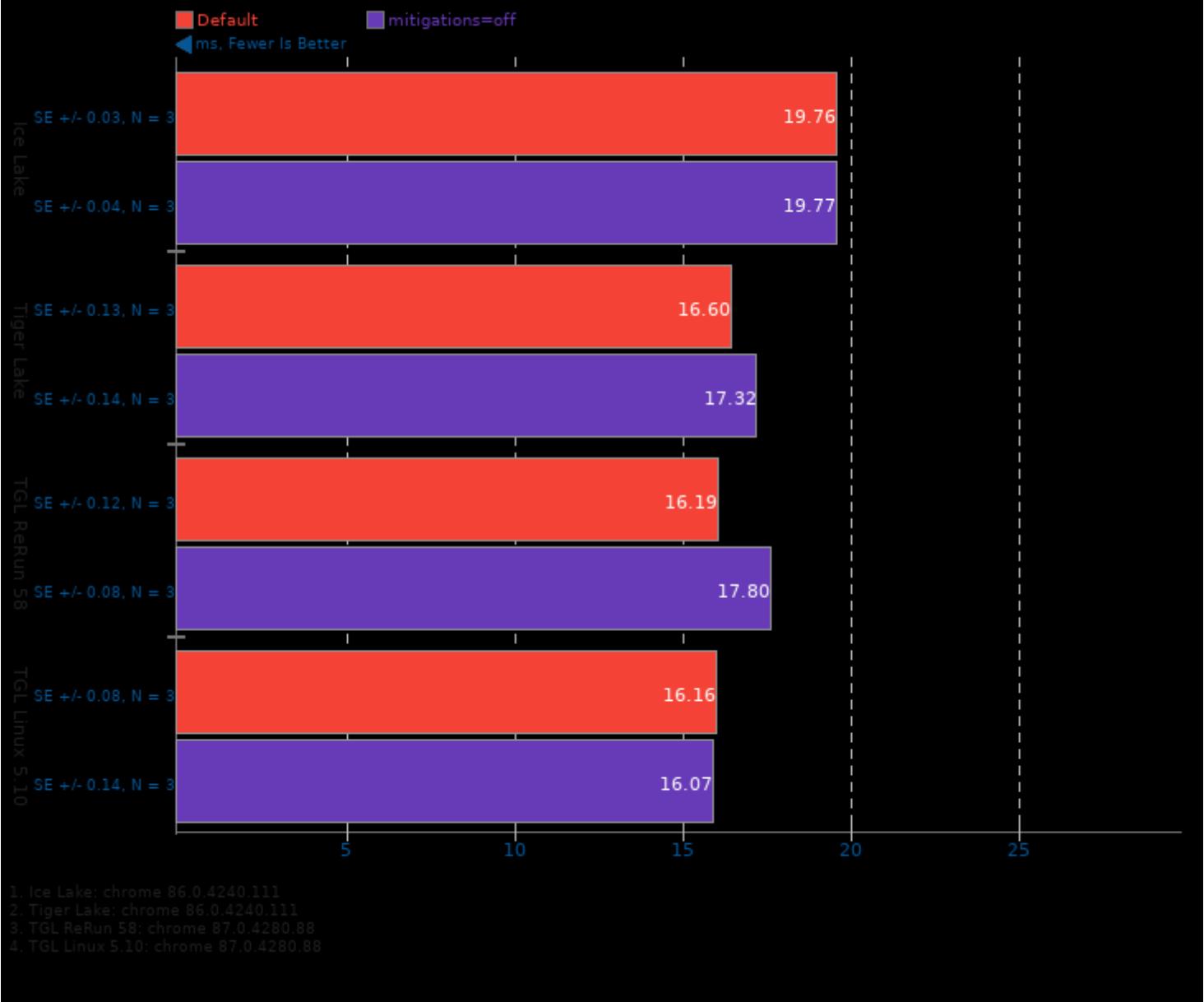
Benchmark: Jetstream 2 - Browser: Firefox



## Intel Tiger Lake Mitigation COnparison

### Selenium

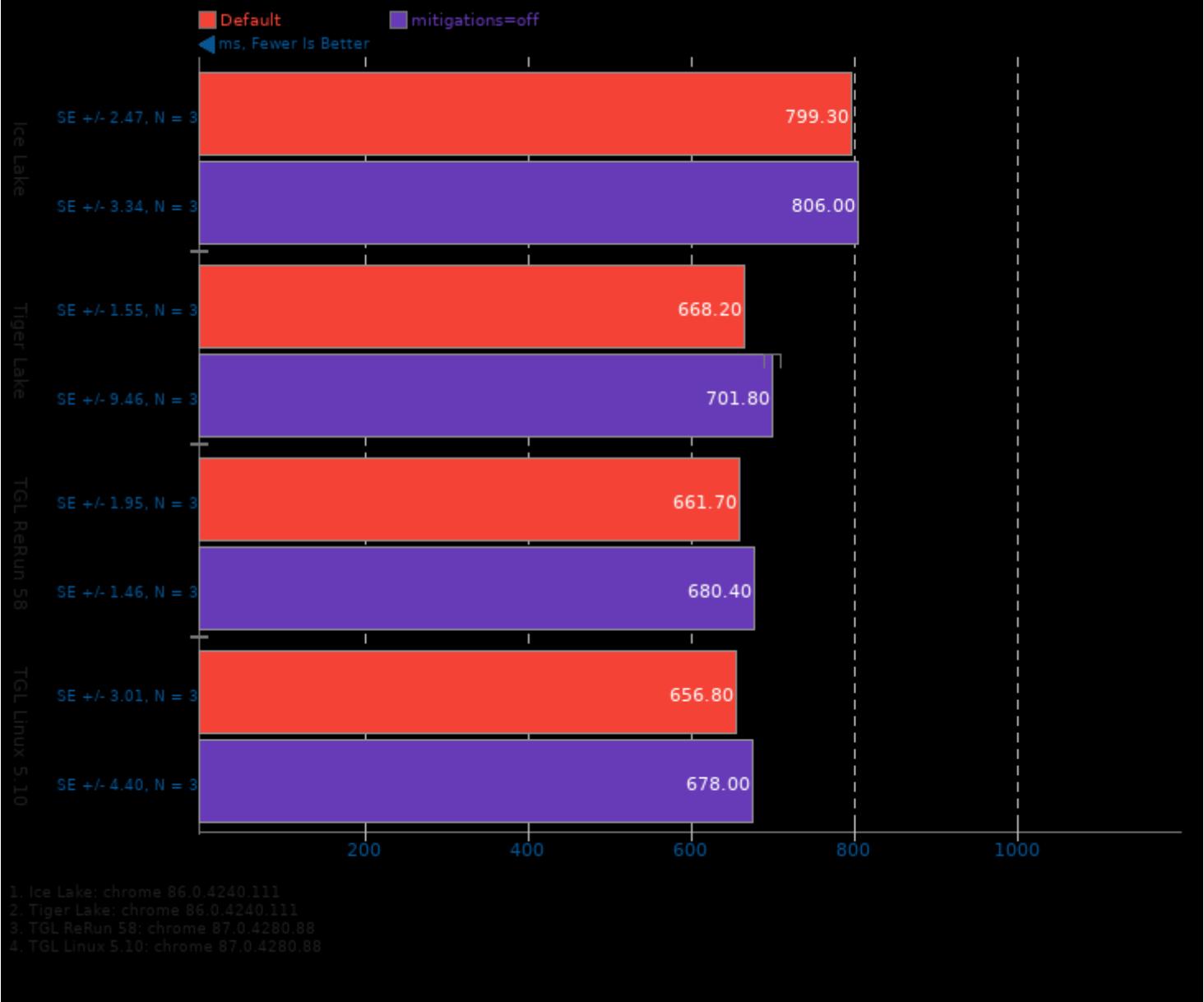
Benchmark: ARES-6 - Browser: Google Chrome



## Intel Tiger Lake Mitigation Comparison

### Selenium

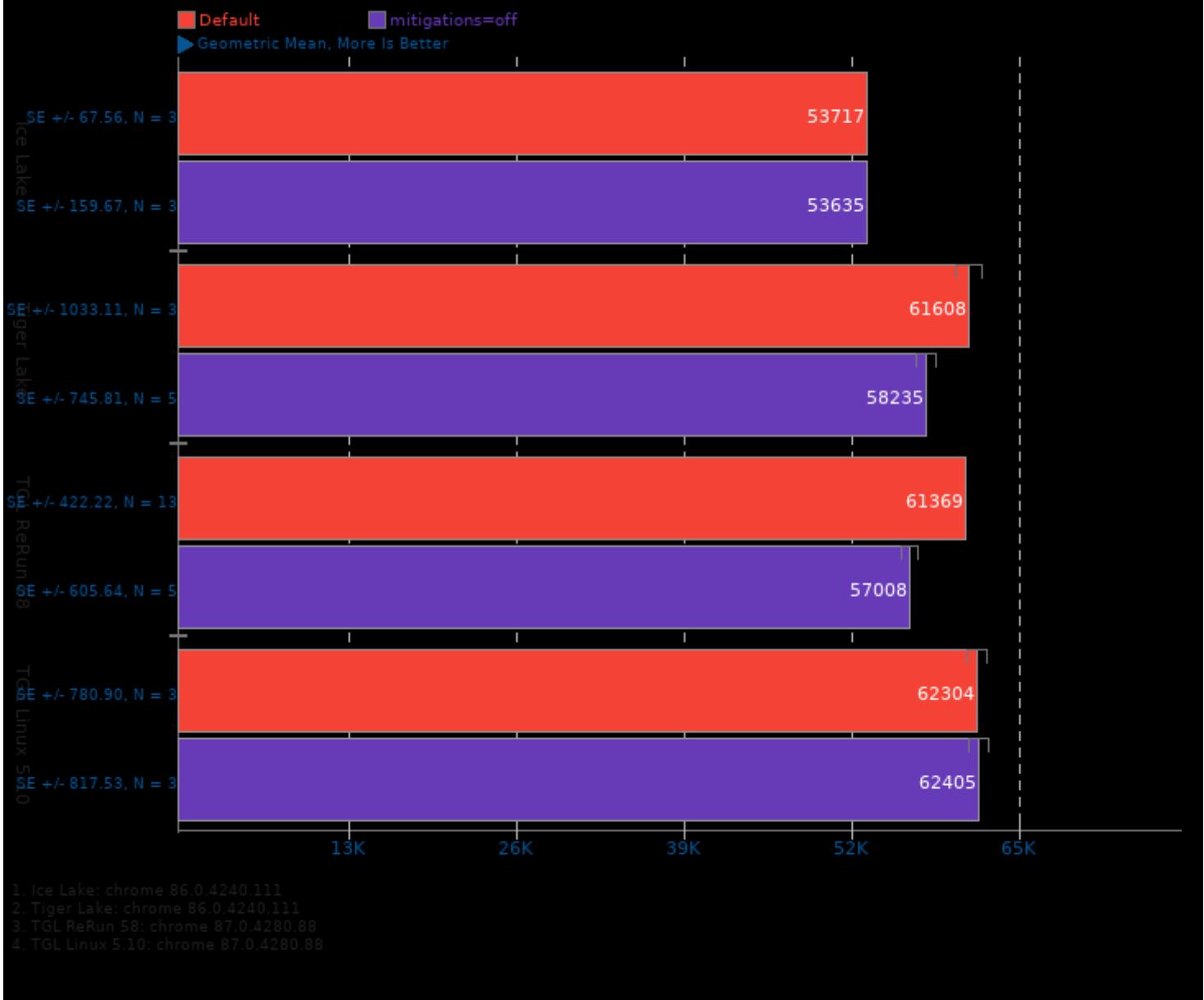
Benchmark: Kraken - Browser: Google Chrome



## Intel Tiger Lake Mitigation COmparison

### Selenium

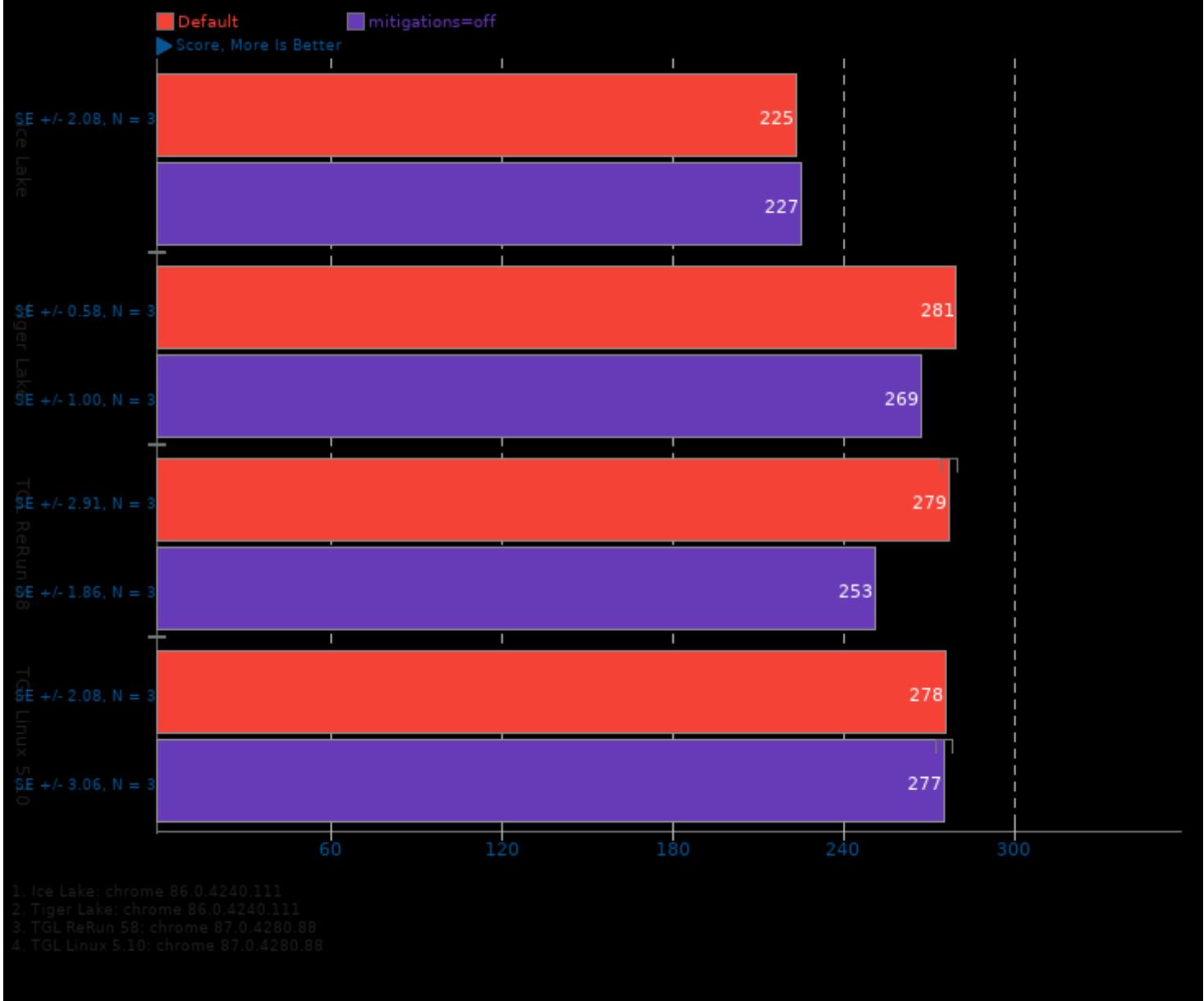
Benchmark: Octane - Browser: Google Chrome



## Intel Tiger Lake Mitigation COmparison

### Selenium

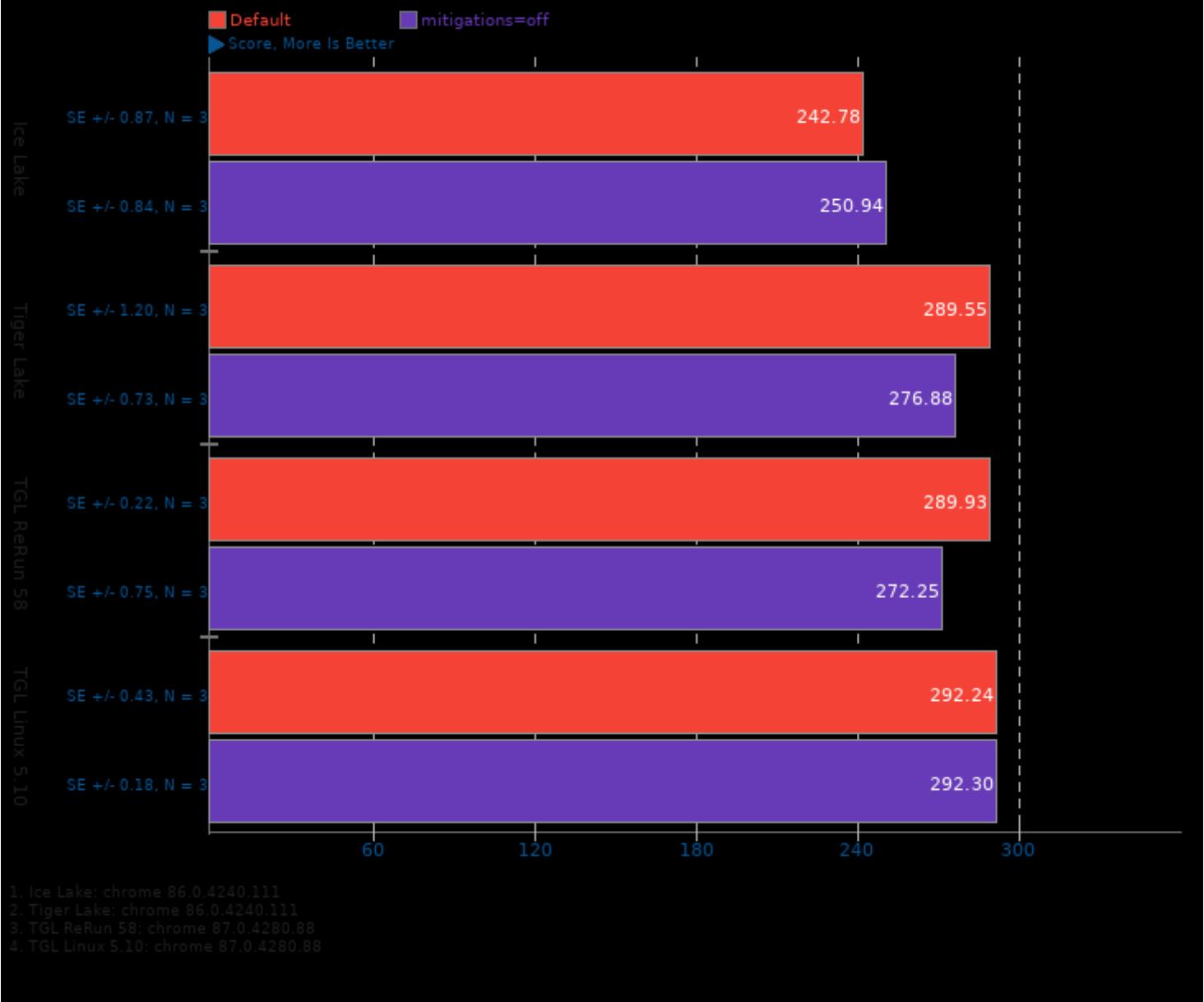
Benchmark: WebXPRT - Browser: Google Chrome



## Intel Tiger Lake Mitigation COnparison

### Selenium

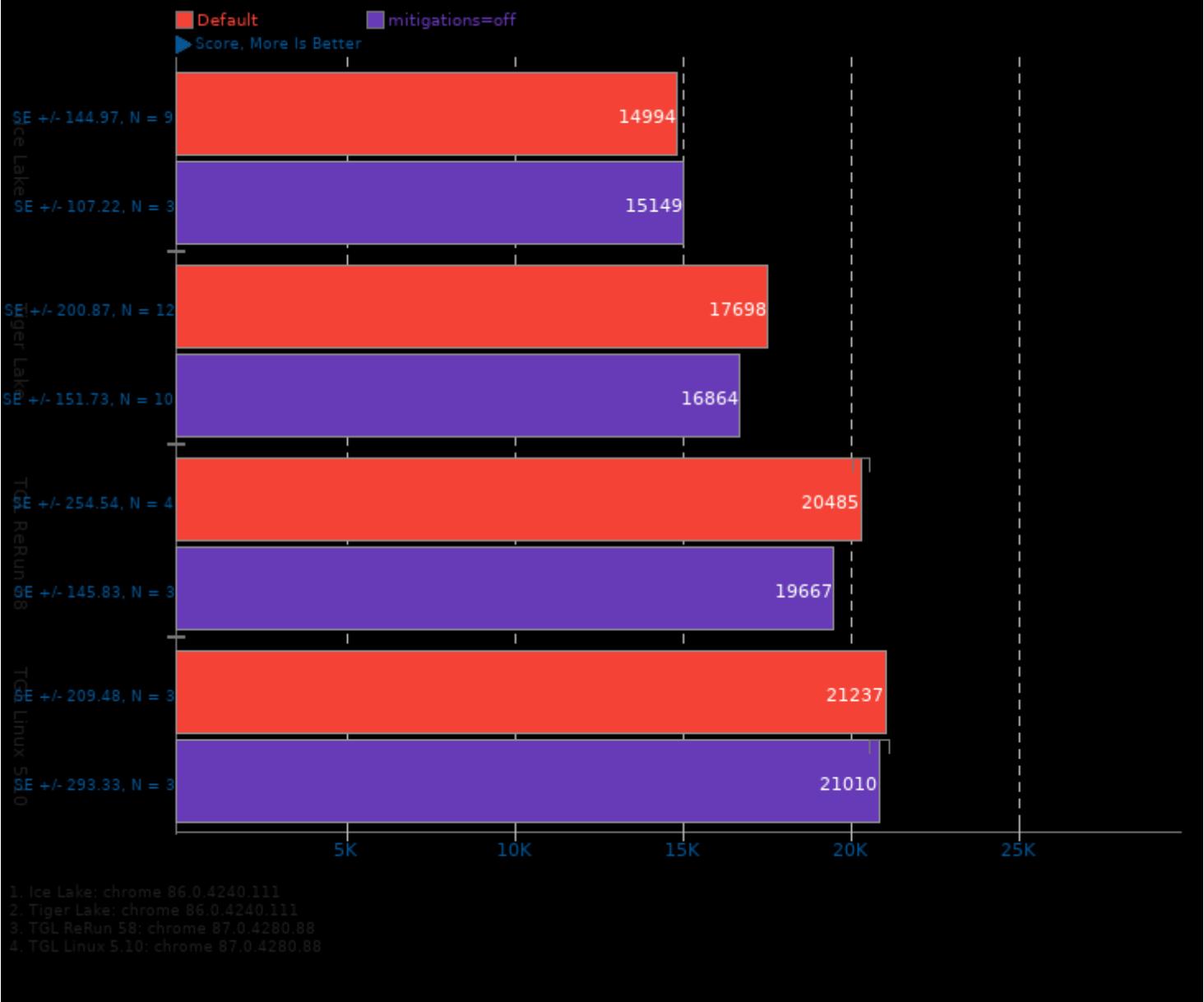
Benchmark: Jetstream - Browser: Google Chrome



## Intel Tiger Lake Mitigation COnparison

### Selenium

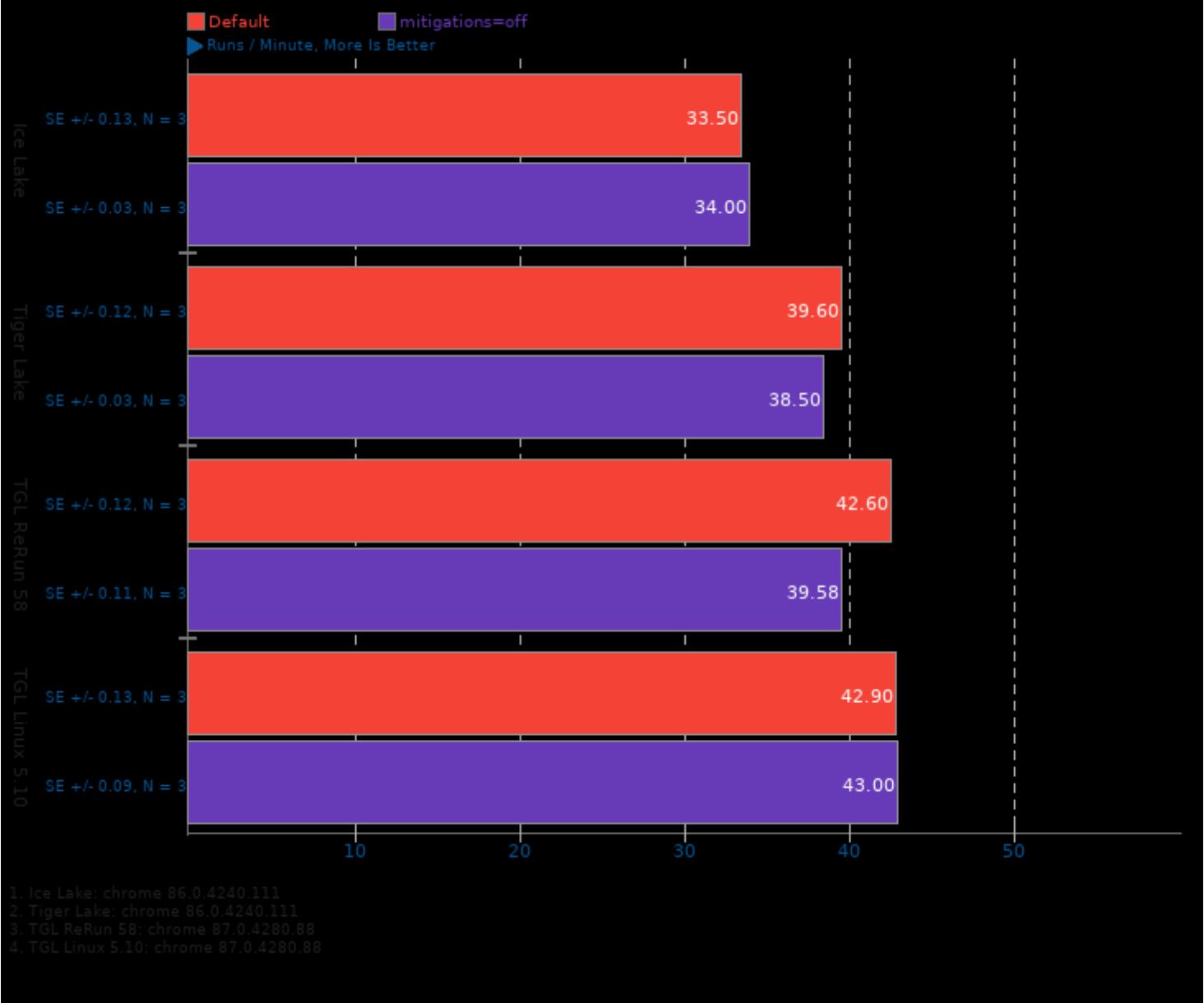
Benchmark: CanvasMark - Browser: Google Chrome



## Intel Tiger Lake Mitigation COnparison

### Selenium

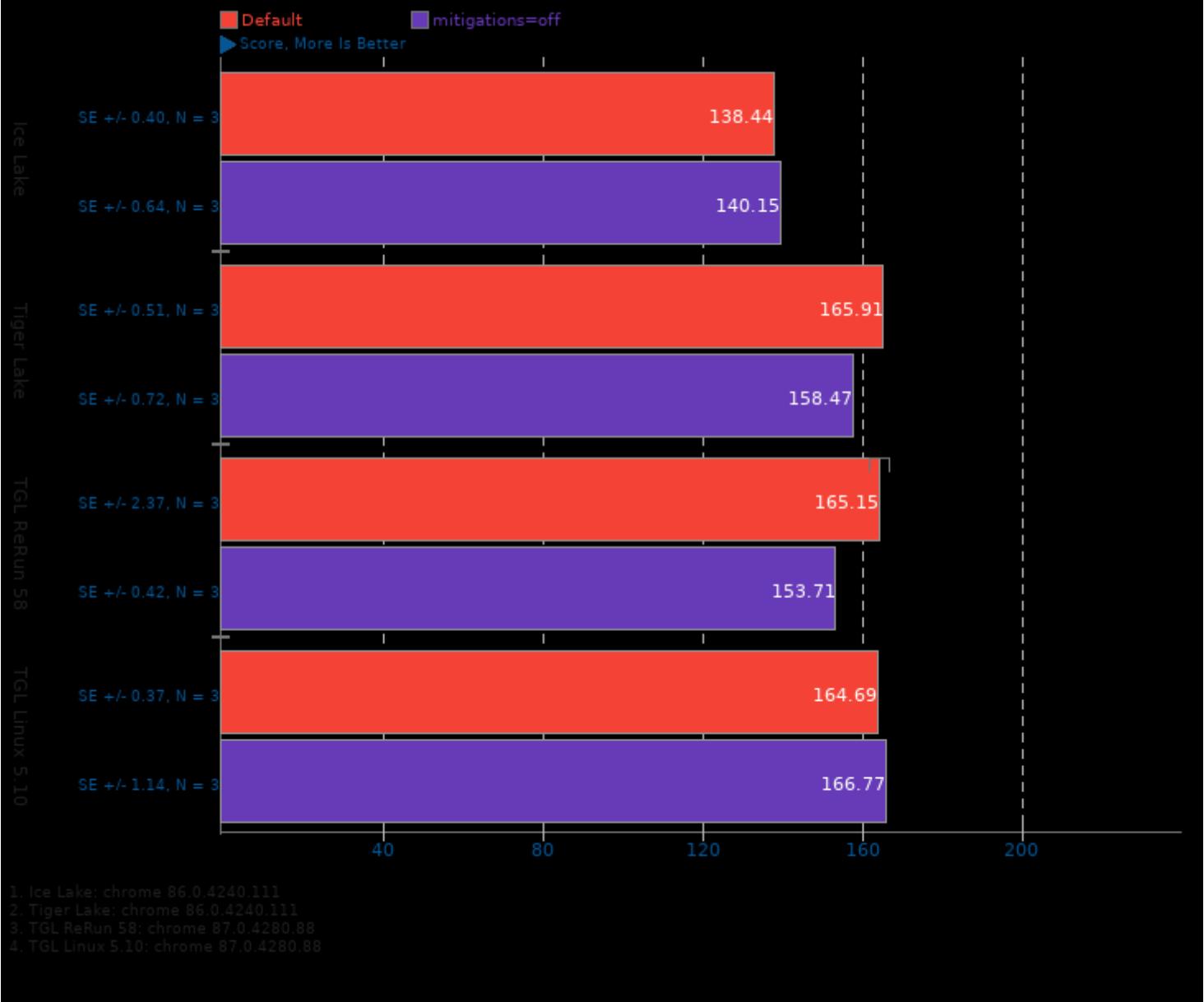
Benchmark: StyleBench - Browser: Google Chrome



## Intel Tiger Lake Mitigation COmparison

### Selenium

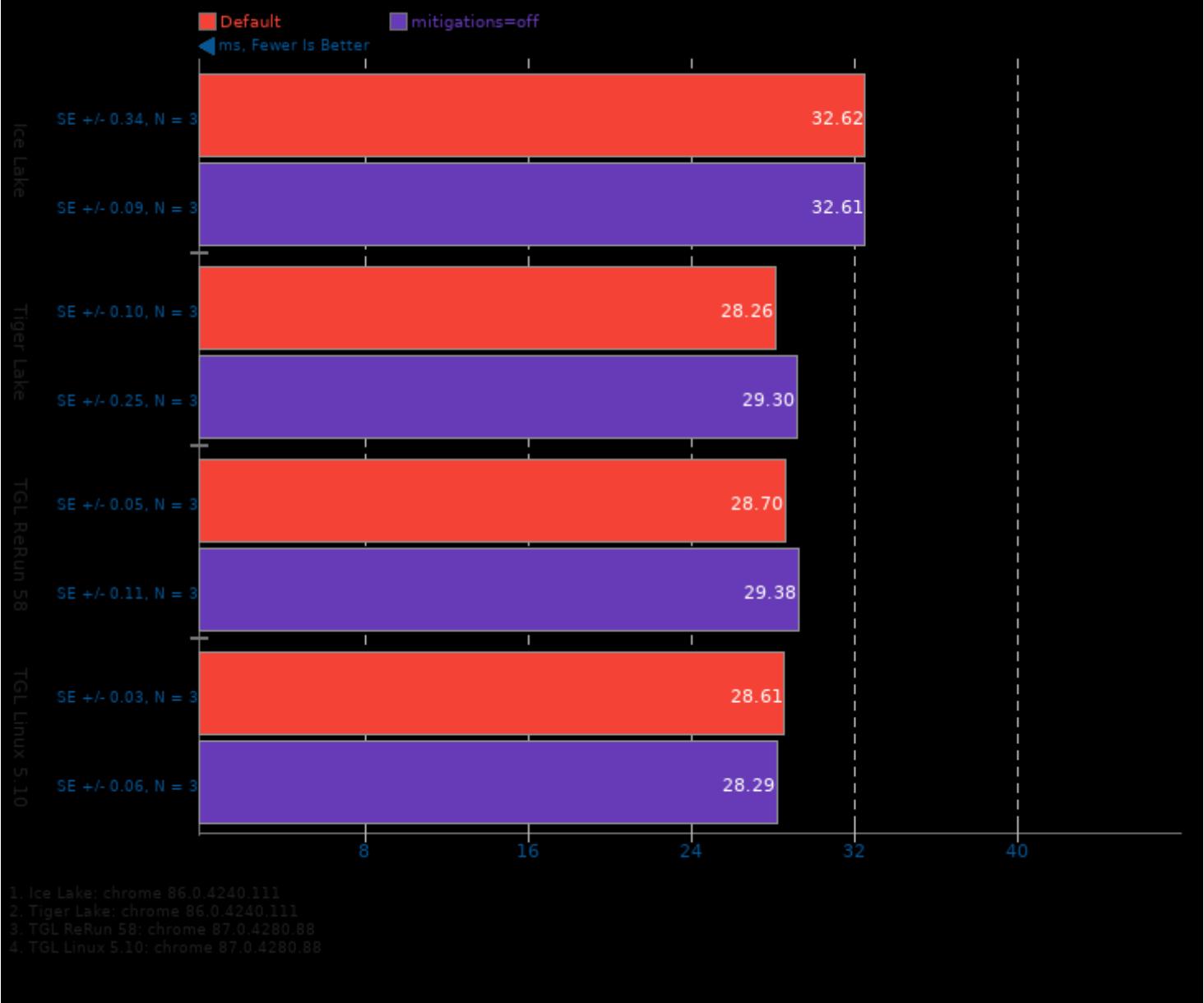
Benchmark: Jetstream 2 - Browser: Google Chrome



## Intel Tiger Lake Mitigation Comparison

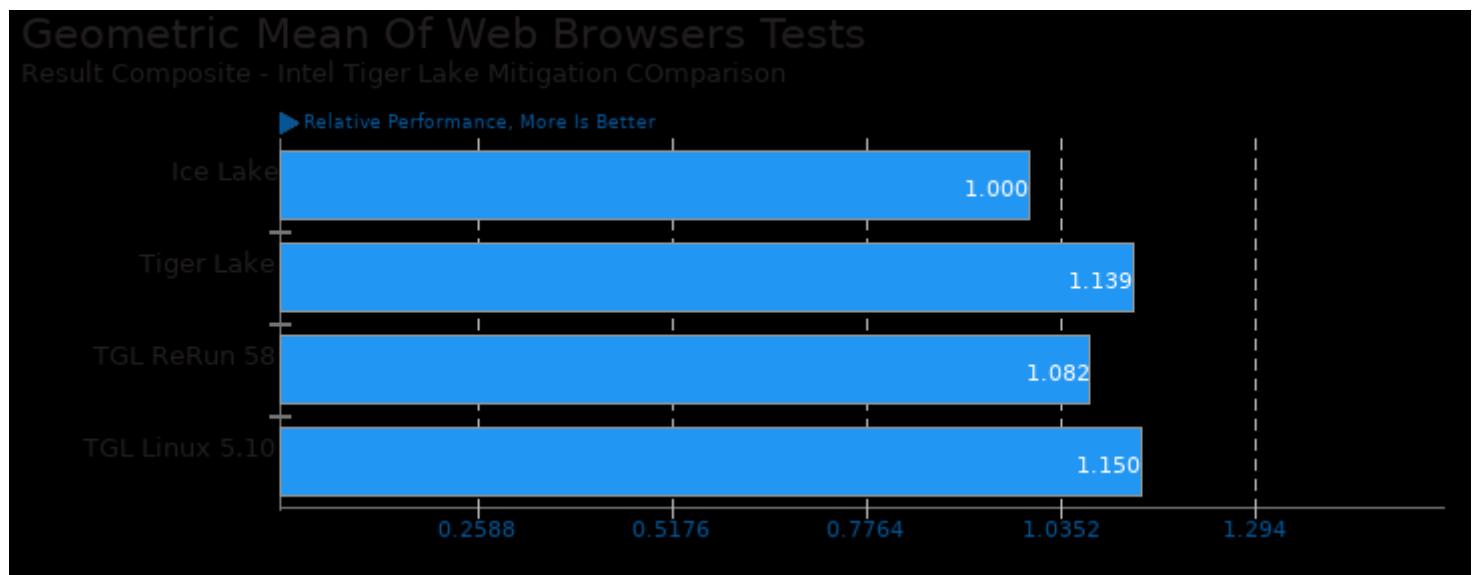
### Selenium

Benchmark: WASM imageConvolute - Browser: Google Chrome

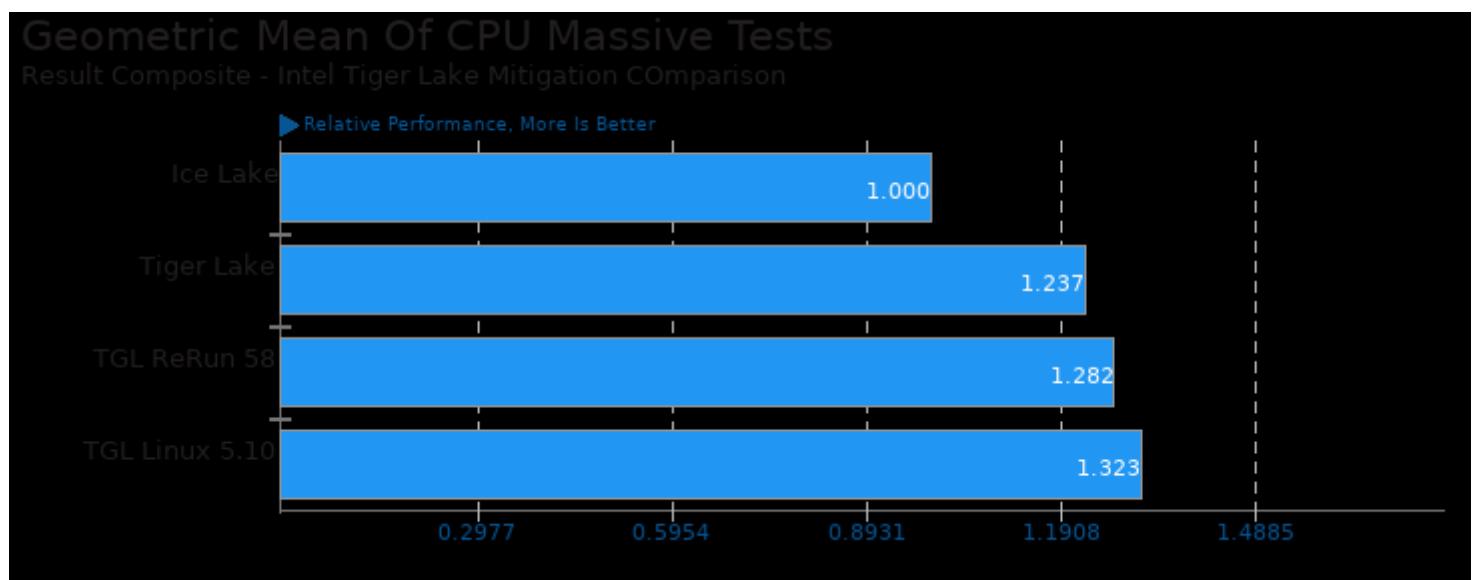


## Intel Tiger Lake Mitigation COmparison

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



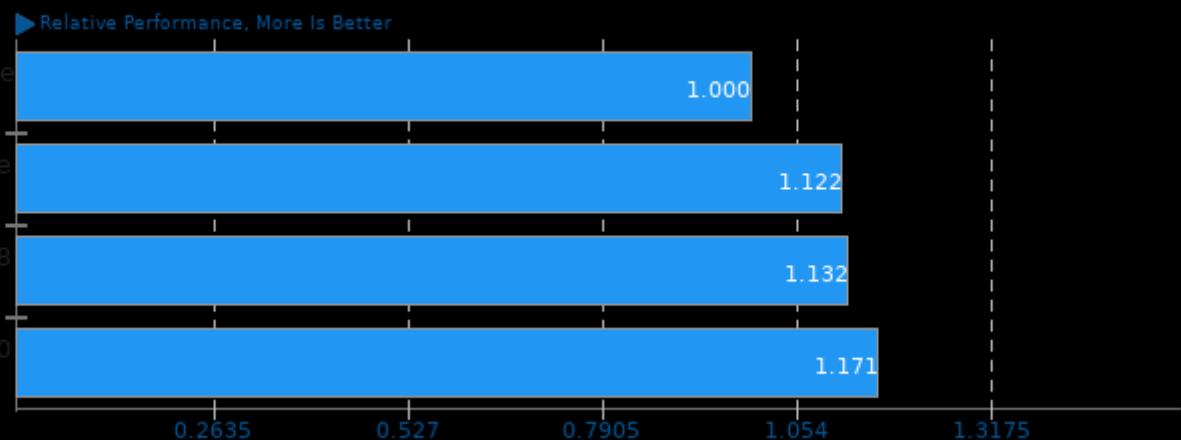
Geometric mean based upon tests: system/selenium



Geometric mean based upon tests: pts/dacapobench, pts/sockperf and pts/renaissance

**Geometric Mean Of Database Test Suite**

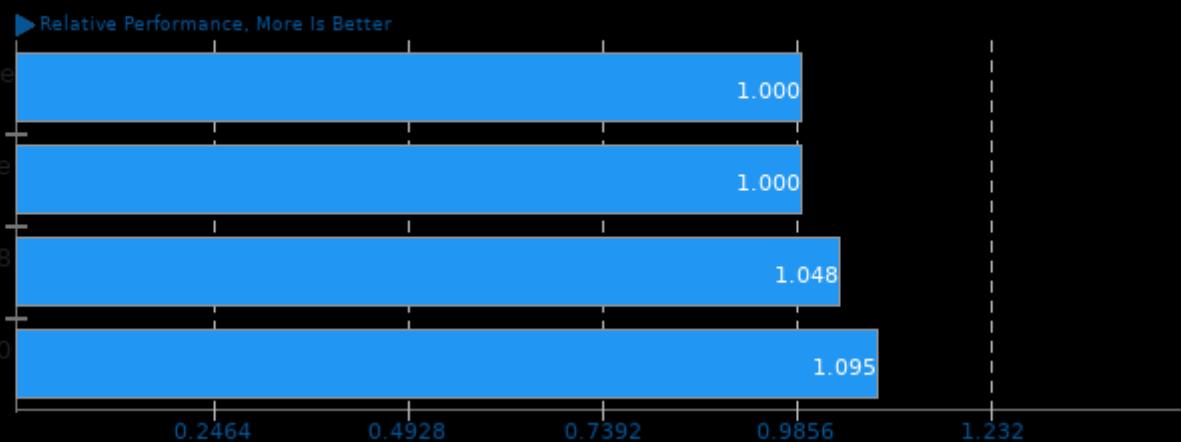
Result Composite - Intel Tiger Lake Mitigation COnparison



Geometric mean based upon tests: pts/sqlite-speedtest and pts/rocksdb

**Geometric Mean Of HPC - High Performance Computing Tests**

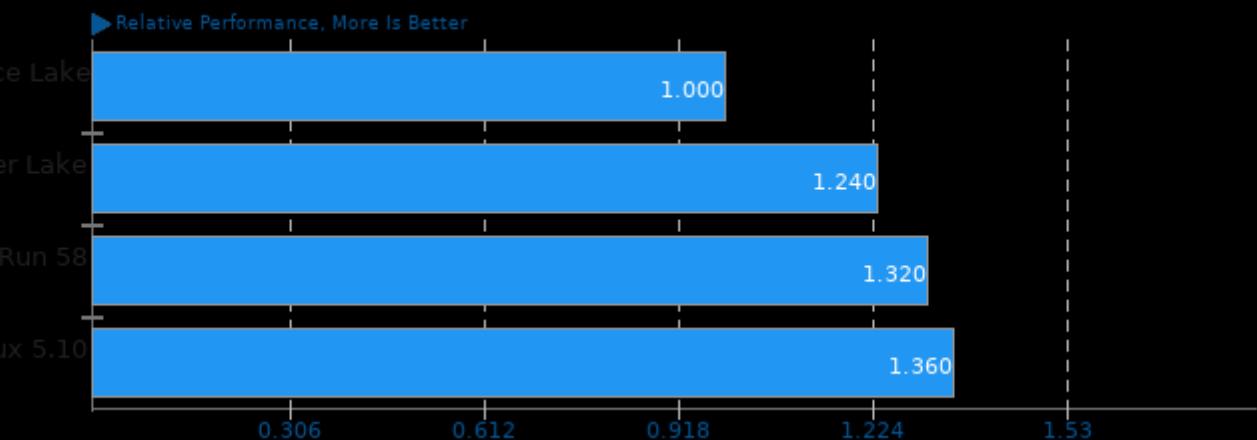
Result Composite - Intel Tiger Lake Mitigation COnparison



Geometric mean based upon tests: pts/mnn, pts/ncnn, pts/caffe and pts/tensorflow-lite

## Geometric Mean Of Java Tests

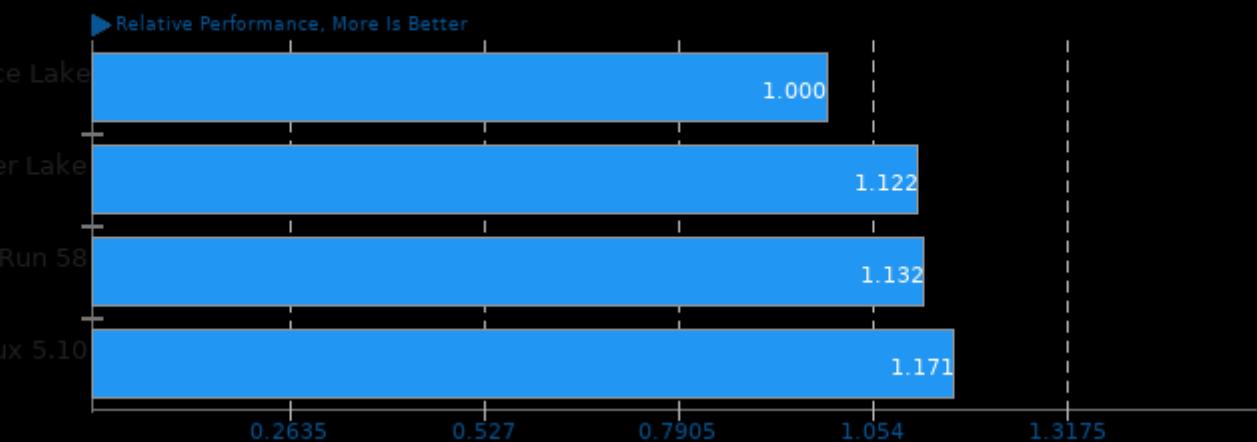
Result Composite - Intel Tiger Lake Mitigation COmparison



Geometric mean based upon tests: pts/dacapobench and pts/renaissance

## Geometric Mean Of Common Kernel Benchmarks Tests

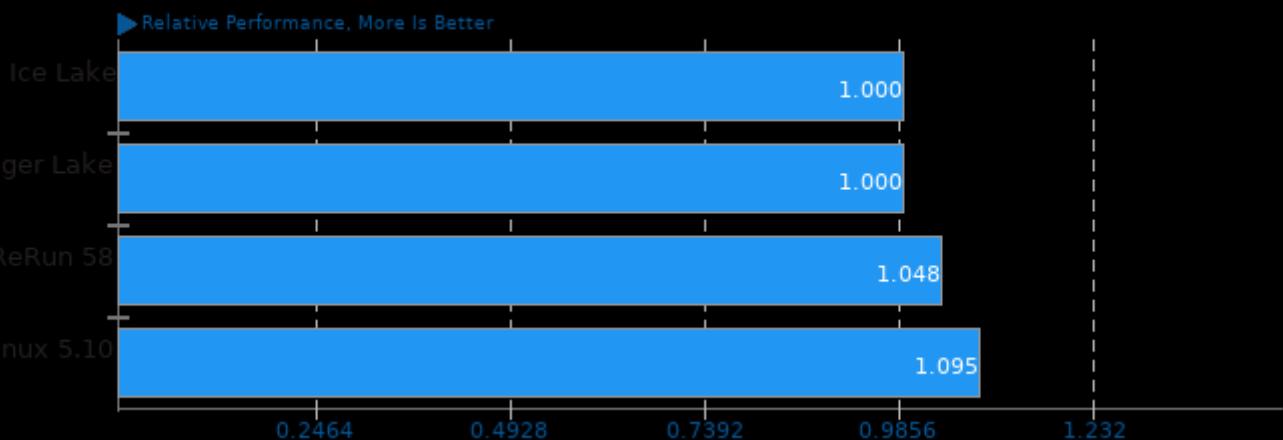
Result Composite - Intel Tiger Lake Mitigation COmparison



Geometric mean based upon tests: pts/sqlite-speedtest and pts/rocksdb

## Geometric Mean Of Machine Learning Tests

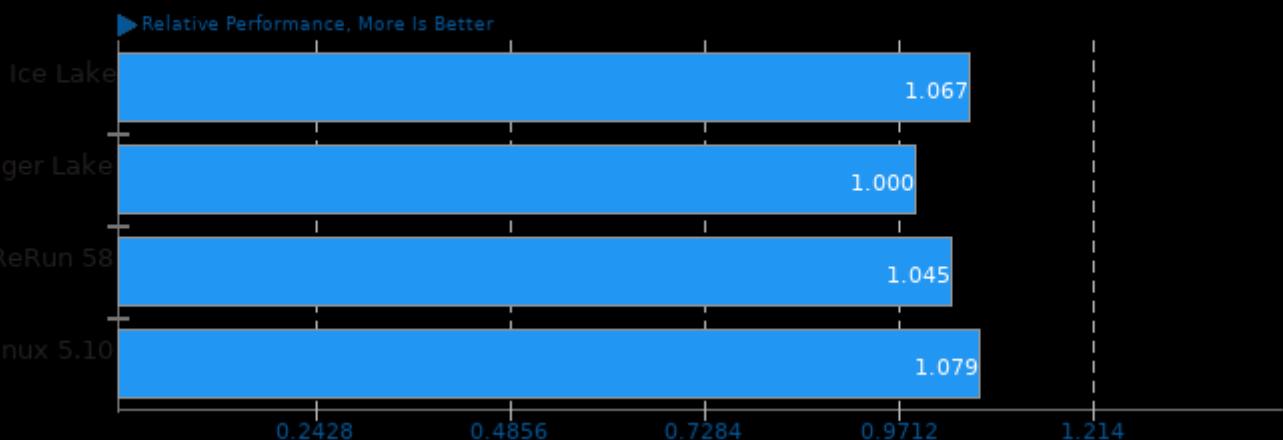
Result Composite - Intel Tiger Lake Mitigation COmparison



Geometric mean based upon tests: pts/mnn, pts/ncnn, pts/caffe and pts/tensorflow-lite

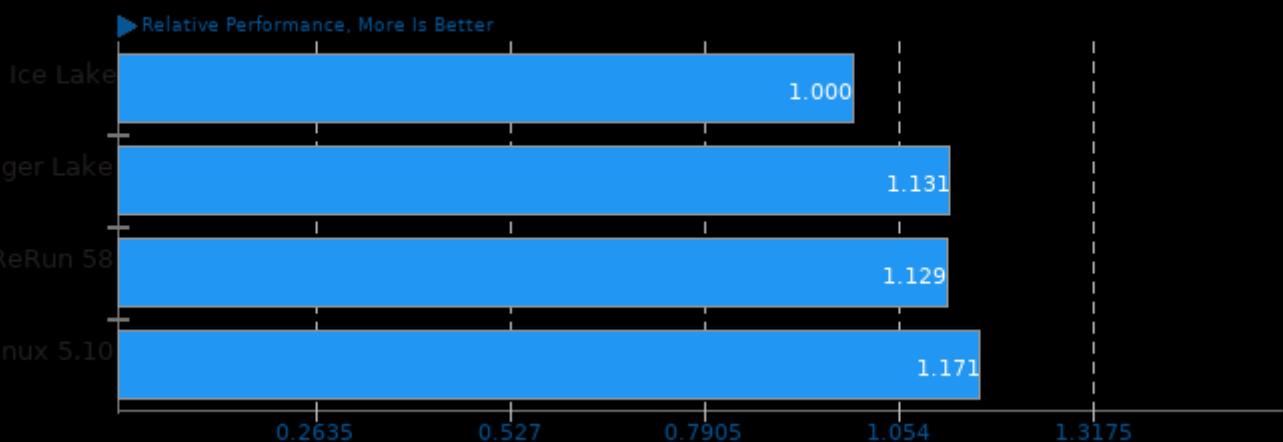
## Geometric Mean Of NVIDIA GPU Compute Tests

Result Composite - Intel Tiger Lake Mitigation COmparison



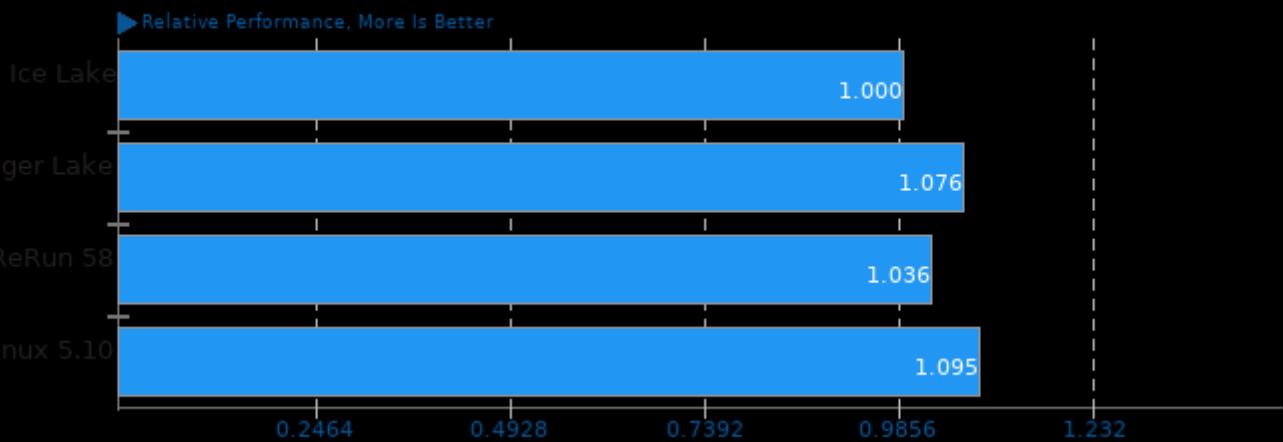
Geometric mean based upon tests: pts/caffe and pts/ncnn

### Geometric Mean Of Programmer / Developer System Benchmarks Tests Result Composite - Intel Tiger Lake Mitigation COnparison



Geometric mean based upon tests: pts/sqlite-speedtest and pts/pyperformance

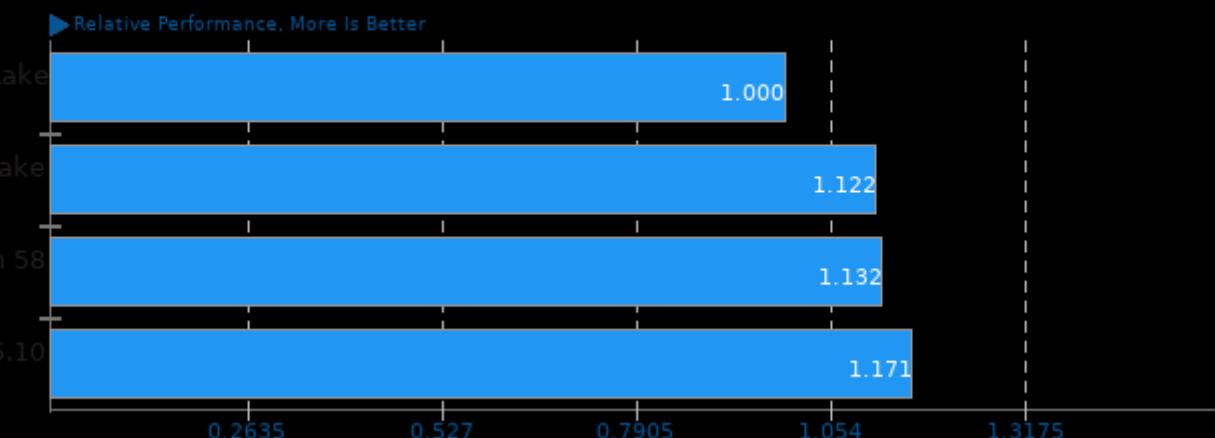
### Geometric Mean Of Python Tests Result Composite - Intel Tiger Lake Mitigation COnparison



Geometric mean based upon tests: pts/caffe, pts/pyperformance and system/selenium

### Geometric Mean Of Server Tests

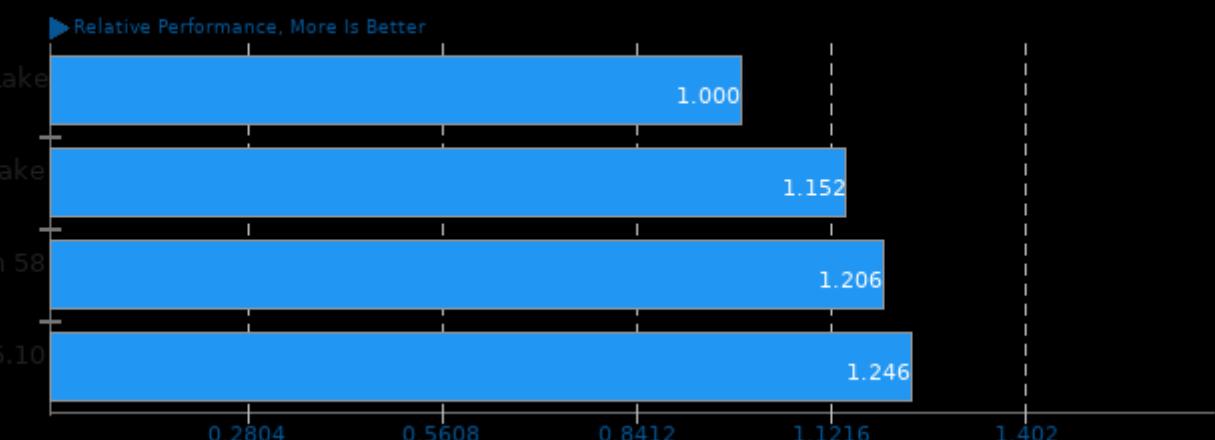
Result Composite - Intel Tiger Lake Mitigation COmparison



Geometric mean based upon tests: pts/rocksdb and pts/sqlite-speedtest

### Geometric Mean Of Server CPU Tests

Result Composite - Intel Tiger Lake Mitigation COmparison



Geometric mean based upon tests: pts/dacapobench, pts/renaissance and system/gimp

*This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 16:21.*