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Intel Core i9-10980XE Linux Benchmarks

Tests for a future article, currently under embargo.

Automated Executive Summary

Core i9 10980XE had the most wins, coming in first place for 55% of the tests.

Based on the geometric mean of all complete results, the fastest (Core i9 10980XE) was 1.163x the speed of the slowest (Threadripper 2970WX). Threadripper 2990WX was 0.916x the speed of Core i9 10980XE, Core i9 7980XE was 0.98x the speed of Threadripper 2990WX, Threadripper 2970WX was 0.958x the speed of Core i9 7980XE.

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

MKL-DNN DNNL (Performance / Cost - Harness: Convolution Batch conv_all - Data Type: u8s8f32) at 10.29x

ctx_clock (Performance / Cost - Context Switch Time) at 8.697x

MKL-DNN DNNL (Harness: Convolution Batch conv_all - Data Type: u8s8f32) at 5.994x

ASKAP (Performance / Cost - Test: tConvolve OpenMP - Gridding) at 5.845x

ctx_clock (Context Switch Time) at 5.583x

ASKAP (Performance / Cost - Test: tConvolve OpenMP - Degridding) at 4.648x

MKL-DNN DNNL (System Power Consumption Monitor) at 4.015x

SVT-VP9 (Performance / Cost - Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p) at 3.875x

SVT-VP9 (Performance / Cost - Tuning: VMAF Optimized - Input: Bosphorus 1080p) at 3.875x

BRL-CAD (*System Power Consumption Monitor*) at 3.744x.

Test Systems:

Core i9 7980XE

Processor: Intel Core i9-7980XE @ 4.20GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A (1704 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 64512MB, Disk: Samsung SSD 970 PRO 512GB, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1366/2000MHz), Audio: Realtek ALC1220, Monitor: ASUS VP28U, Network: Intel I219-V

OS: Ubuntu 19.10, Kernel: 5.4.0-999-generic (x86_64) 20191114, Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 4.5 Mesa 19.2.1 (LLVM 9.0.0), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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: 0x20000065
Graphics Notes: GLAMOR

Java Notes: OpenJDK Runtime Environment (build 11.0.5-ea+10-post-Ubuntu-0ubuntu1)

Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1

Security Notes: `itlb_multihit`: KVM: Mitigation of Split huge pages + `I1tf`: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + `mds`: Mitigation of Clear buffers; SMT vulnerable + `meltdown`: Mitigation of PTI + `spec_store_bypass`: Mitigation of SSB disabled via `prctl` and `seccomp` + `spectre_v1`: Mitigation of `usercopy/swapgs` barriers and `_user` pointer sanitization + `spectre_v2`: Mitigation of Full generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + `tsx_async_abort`: Mitigation of Clear buffers; SMT vulnerable

Core i9 10980XE

Processor: Intel Core i9-10980XE @ 4.60GHz (18 Cores / 36 Threads), Motherboard: Gigabyte X299X DESIGNARE 10G (F1 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 64512MB, Disk: Samsung SSD 970 PRO 512GB, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1366/2000MHz), Audio: Realtek ALC1220, Monitor: ASUS VP28U, Network: 2 x Intel 10G X550T + Intel Device 2723

OS: Ubuntu 19.10, Kernel: 5.4.0-999-generic (x86_64) 20191114, Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 4.5 Mesa 19.2.1 (LLVM 9.0.0), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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: 0x500002c
Graphics Notes: GLAMOR

Java Notes: OpenJDK Runtime Environment (build 11.0.5-ea+10-post-Ubuntu-0ubuntu1)

Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1

Security Notes: `itlb_multihit`: KVM: Mitigation of Split huge pages + `I1tf`: Not affected + `mds`: Not affected + `meltdown`: Not affected + `spec_store_bypass`: Mitigation of SSB disabled via `prctl` and `seccomp` + `spectre_v1`: Mitigation of `usercopy/swapgs` barriers and `_user` pointer sanitization + `spectre_v2`: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + `tsx_async_abort`: Mitigation of TSX disabled

Threadripper 2970WX

Processor: AMD Ryzen Threadripper 2970WX 24-Core @ 3.00GHz (24 Cores / 48 Threads), Motherboard: Gigabyte X399 AORUS Gaming 7 (F11e BIOS), Chipset: AMD 17h, Memory: 64512MB, Disk: Samsung SSD 970 PRO 512GB, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1366/2000MHz), Audio: Realtek ALC1220, Monitor: ASUS VP28U, Network: Qualcomm Atheros Killer E2500 + 2 x QLogic cLOM8214 1/10GbE + Intel 8265 / 8275

OS: Ubuntu 19.10, Kernel: 5.4.0-999-generic (x86_64) 20191114, Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 4.5 Mesa 19.2.1 (LLVM 9.0.0), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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: acpi-cpufreq ondemand - CPU Microcode: 0x800820b

Java Notes: OpenJDK Runtime Environment (build 11.0.5-ea+10-post-Ubuntu-0ubuntu1)

Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1

Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IPBP: conditional STIBP: disabled RSB filling + tsx_async_abort: Not affected

Threadripper 2990WX

Processor: AMD Ryzen Threadripper 2990WX 32-Core @ 3.00GHz (32 Cores / 64 Threads), Motherboard: ASUS ROG ZENITH EXTREME (1701 BIOS), Chipset: AMD 17h, Memory: 64512MB, Disk: Samsung SSD 970 PRO 512GB, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1366/2000MHz), Audio: Realtek ALC1220, Monitor: ASUS VP28U, Network: Intel I211 + Qualcomm Atheros QCA6174 802.11ac + Wilocity Wil6200 802.11ad

OS: Ubuntu 19.10, Kernel: 5.4.0-999-generic (x86_64) 20191114, Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 4.5 Mesa 19.2.1 (LLVM 9.0.0), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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: acpi-cpufreq ondemand - CPU Microcode: 0x800820b

Graphics Notes: GLAMOR

Java Notes: OpenJDK Runtime Environment (build 11.0.5-ea+10-post-Ubuntu-0ubuntu1)

Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1

Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IPBP: conditional STIBP: disabled RSB filling + tsx_async_abort: Not affected

	Core i9 7980XE	Core i9 10980XE	Threadripper 2970WX	Threadripper 2990WX
MKL-DNN DNNL - C.B.c - u8s8f32 (ms)	4503	3799	22774	21275
Normalized	84.37%	100%	16.68%	17.86%
Standard Deviation	0.2%	0.2%	0.2%	0.6%
MKL-DNN DNNL - C.B.c - f32 (ms)	1088	1166	2637	2118
Normalized	100%	93.3%	41.27%	51.37%
Standard Deviation	0%	0%	0.4%	0.4%
QMCPACK (Execution Time - sec)	2453	1508	1440	1923

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Hierarchical INTegration - DOUBLE (QUIPs)	Normalized 971773643	58.72%	95.54%	100%	74.91%
			1030706309	782866523	837474491
BRL-CAD - V.P.M (VGR Performance Metric)	203406	Normalized 0.1%	100%	75.95%	81.25%
		Standard Deviation	0.5%	1.3%	2.8%
Blender - Pabellon Barcelona - CPU-Only (sec)	335.03	Normalized 69.36%	70.04%	74.7%	100%
			331.08	304.07	232.51
ACES DGEMM - S.F.P.R (GFLOP/s)	6.913080	Normalized 0%	7.276394	2.079914	1.773654
		Standard Deviation	0.1%	0.5%	0.3%
Perl Benchmarks - Interpreter (sec)	0.00300332	Normalized 0.9%	100%	28.58%	24.38%
			0.00297081	0.00137327	0.00137205
dav1d - C.1.1.b (FPS)	48.32	Normalized 0.3%	46.18%	99.91%	100%
		Standard Deviation	0.3%	1.8%	1.8%
Radiance Benchmark - Serial (sec)	676.027	48.05	70.39	77.19	
		Normalized 0.4%	62.25%	91.19%	100%
		Standard Deviation	0.3%	0.2%	0.2%
Blender - Classroom - CPU-Only (sec)	263.84	Normalized 0%	262.72	213.50	160.84
		Standard Deviation	60.96%	61.22%	100%
Selenium - Jetstream - Google Chrome (Score)	157.70	Normalized 0%	204.58	181.31	181.53
		Standard Deviation	77.08%	88.63%	83.13%
			1%	0.4%	0.2%
LuxCoreRender - DLSC (M samples/sec)	2.83	2.95	1.69	1.70	
		Normalized 2.5%	100%	57.29%	57.63%
LuxCoreRender - R.C.a.P (M samples/sec)	2.57	Normalized 2.6%	0.3%	23.9%	20.5%
			2.76	1.87	1.78
asmFish - 1.H.M.2.D (Nodes/s)	49955376	Normalized 2.6%	53688196	57235939	72722451
		Standard Deviation	93.12%	67.75%	64.49%
			3.3%	0.9%	25.5%
GNU GMP GMPbench - Total Time (GMPbench Score)	5537	Normalized 1.2%	68.69%	78.7%	100%
			1463	5141	5182
GraphicsMagick - Resizing (Iterations/min)	1463	Normalized 1.2%	1520	1385	1281
		Standard Deviation	91.82%	85.26%	85.93%
Facebook RocksDB - Rand Read	86994392	Normalized 0.3%	97278179	117496727	146536951
		Standard Deviation	96.25%	91.12%	84.28%
GraphicsMagick - HWB Color Space (Iterations/min)	913	Normalized 0.3%	66.38%	80.18%	100%
			962	2.5%	5%
		Standard Deviation	73.16%	100%	98.08%
			0.2%	2.8%	3%

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Selenium - StyleBench - Google	31.1	35.1	29.4	29.44
Chrome (Runs / Minute)				
Normalized	88.6%	100%	83.76%	83.87%
Standard Deviation	0.9%	0.9%	0.2%	1.2%
Appleseed - Material Tester (sec)	138.639066	129.721735	214.666947	209.889394
Renaissance - A.U.C.T (ms)	12265	12059	20431	20369
Normalized	93.57%	100%	60.43%	61.8%
Standard Deviation	2%	2.5%	5.1%	1.4%
Blender - BMW27 - CPU-Only (sec)	96.25	93.89	84.00	66.17
Normalized	68.75%	70.48%	78.77%	100%
Standard Deviation	0.2%	0.2%	0.3%	0.5%
Perl Benchmarks - Pod2html (sec)	0.10481316	0.09494226	0.14430767	0.14296796
Normalized	90.58%	100%	65.79%	66.41%
Standard Deviation	0.4%	0.2%	0.4%	0.9%
Stockfish - Total Time (Nodes/s)	44409769	48953322	53836578	65266445
Normalized	68.04%	75.01%	82.49%	100%
Standard Deviation	1.3%	1.6%	2.4%	1.2%
R Benchmark (sec)	0.2505	0.2502	0.3058	0.3308
Normalized	99.88%	100%	81.82%	75.63%
Standard Deviation	0.3%	0.6%	1.5%	0.8%
Appleseed - Disney Material (sec)	133.803585	121.617496	110.415196	85.630733
Normalized	64%	70.41%	77.55%	100%
Selenium - Speedometer - Google	91.9	113	101.6	101
Chrome (Runs/min)				
Normalized	81.33%	100%	89.91%	89.38%
Standard Deviation	0.4%		1.6%	
7-Zip Compression - C.S.T (MIPS)	93020	96796	80919	80731
Normalized	96.1%	100%	83.6%	83.4%
Standard Deviation	0.4%	0.1%	2.9%	0.2%
Radiance Benchmark - SMP Parallel	225.744	200.917	232.23	220.28
(sec)				
Normalized	89%	100%	86.52%	91.21%
Timed LLVM Compilation - Time To Compile (sec)	220.479	216.489	212.562	212.442
Normalized	96.35%	98.13%	99.94%	100%
Timed Linux Kernel Compilation - Time To Compile (sec)	46.715	43.319	41.399	37.177
Normalized	79.58%	85.82%	89.8%	100%
Standard Deviation	2.9%	3%	2.4%	2.8%
IndigoBench - Bedroom (M samples/s)	2.524	2.637	2.823	1.918
Normalized	89.41%	93.41%	100%	67.94%
Standard Deviation	0.2%	0.2%	1.5%	2.4%
IndigoBench - Supercar (M samples/s)	6.010	6.209	5.845	4.999
Normalized	96.79%	100%	94.14%	80.51%
Standard Deviation	0.1%	0.2%	1%	0.9%
NAMD - ATPase Simulation - 327,506	0.98299	0.97064	0.98746	0.76407
Atoms (days/ns)				
Normalized	77.73%	78.72%	77.38%	100%
Standard Deviation	0.2%	0.4%	0.4%	0.4%
John The Ripper - Blowfish (Real C/S)	29196	32745	31695	51206
Normalized	57.02%	63.95%	61.9%	100%
Standard Deviation	0%	0.1%	0.4%	3.7%

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GraphicsMagick - Sharpen	205	238	296	375
(Iterations/min)				
Normalized	54.67%	63.47%	78.93%	100%
Standard Deviation	0.6%	0.3%	1%	
GraphicsMagick - Enhanced	326	368	404	513
(Iterations/min)				
Normalized	63.55%	71.73%	78.75%	100%
Standard Deviation			1.3%	
GraphicsMagick - Noise-Gaussian	331	365	467	536
(Iterations/min)				
Normalized	61.75%	68.1%	87.13%	100%
Standard Deviation	0.5%	0.9%		
GraphicsMagick - Swirl	629	699	959	1144
Normalized	54.98%	61.1%	83.83%	100%
Standard Deviation	0.1%	0.5%	1%	
Selenium - ARES-6 - Google Chrome	30.49	21.32	24.94	24.80
(ms)				
Normalized	69.92%	100%	85.49%	85.97%
Standard Deviation	1.1%	1.6%	0.5%	0.6%
Timed PHP Compilation - Time To Compile (sec)	50.704	48.306	52.183	51.502
Normalized	95.27%	100%	92.57%	93.79%
Standard Deviation	0.1%	0.5%	0.4%	1.1%
glibc bench - sqrt (nanoseconds)	1.98087	1.59984	2.13681	2.09896
Normalized	80.76%	100%	74.87%	76.22%
Standard Deviation	0.1%	0.1%	4.7%	2.9%
Selenium - Octane - Google Chrome	34935	46197	39466	40238
(Geometric Mean)				
Normalized	75.62%	100%	85.43%	87.1%
Standard Deviation	0.4%	1%	1.1%	0.8%
drawing - R.T.P.I.C (sec)	38.410	35.202	45.350	44.909
Normalized	91.65%	100%	77.62%	78.39%
Standard Deviation	0.2%	0.3%	0.4%	0.2%
SVT-AV1 - Enc Mode 4 - 1080p (FPS)	5.131	5.189	4.711	4.121
Normalized	98.88%	100%	90.79%	79.42%
Standard Deviation	0.6%	1%	2.2%	5.6%
Redis - GET (Req/sec)	2716237	2769912	2293873	2332911
Normalized	98.06%	100%	82.81%	84.22%
Standard Deviation	2.9%	4.8%	1.4%	2.9%
AOBench - 2048 x 2048 - Total Time	32.315	29.786	35.757	35.216
(sec)				
Normalized	92.17%	100%	83.3%	84.58%
Standard Deviation	1.2%	2.4%	0.3%	0%
C-Ray - Total Time - 4.1.R.P.P (sec)	42.019	37.615	26.296	20.100
Normalized	47.84%	53.44%	76.44%	100%
Standard Deviation	0.1%	0.2%	1%	0.2%
Tungsten Renderer - Water Caustic	22.0772	21.7794	24.9080	23.7085
(sec)				
Normalized	98.65%	100%	87.44%	91.86%
Standard Deviation	0.2%	0.4%	2.9%	2.8%
glibc bench - exp (nanoseconds)	5.49633	4.69863	5.43029	5.31401
Normalized	85.49%	100%	86.53%	88.42%
Standard Deviation	0.1%	0.2%	0.1%	0.1%
glibc bench - modf (nanoseconds)	2.21225	1.81466	2.33735	2.32077

	Normalized	82.03%	100%	77.64%	78.19%
	Standard Deviation	0.1%	0%	0.1%	0%
LuaJIT - Composite (Mflops)	1613	1707	1469	1508	
	Normalized	94.49%	100%	86.07%	88.34%
	Standard Deviation	0.2%	1.3%	0.6%	0.1%
Coremark - CoreMark Size 666 - I.P.S	590673	635905	892332	1138042	
	(Iterations/Sec)				
	Normalized	51.9%	55.88%	78.41%	100%
	Standard Deviation	0.5%	0.4%	0%	0.4%
ASKAP - tConvolve OpenMP -	4156	4776	2230	1885	
Degridding (Million Grid Points/sec)					
	Normalized	87.01%	100%	46.69%	39.46%
	Standard Deviation	0.4%	0.9%	29.6%	9.7%
ASKAP - tConvolve OpenMP -	2832	3318	1031	1048	
Gridding (Million Grid Points/sec)					
	Normalized	85.35%	100%	31.08%	31.57%
	Standard Deviation	5.8%	0.6%	3%	2%
Tesseract OCR - T.T.O.7.I (sec)	25.803	23.847	30.343	30.054	
	Normalized	92.42%	100%	78.59%	79.35%
	Standard Deviation	0.3%	0.5%	0.6%	0.4%
glibc bench - ffs (nanoseconds)	1.75392	1.38999	1.85618	1.84556	
	Normalized	79.25%	100%	74.88%	75.32%
	Standard Deviation	0.1%	0%	0.3%	0.1%
TTSIOD 3D Renderer - P.R.W.S.S.M	707.965	709.273	528.106	536.755	
	(FPS)				
	Normalized	99.82%	100%	74.46%	75.68%
	Standard Deviation	0.1%	0.2%	1.5%	1.5%
Rodinia - OpenMP LavaMD (sec)	17.152	15.303	12.658	9.916	
	Normalized	57.81%	64.8%	78.34%	100%
	Standard Deviation	0.8%	0.6%	6.2%	0.4%
Selenium - PSPDFKit WASM - Firefox	1750	1594	1692	1659	
	(Score)				
	Normalized	91.09%	100%	94.21%	96.08%
	Standard Deviation	1.7%	1.1%	1%	0.6%
Redis - SET (Req/sec)	1972972	2105815	1481588	1629319	
	Normalized	93.69%	100%	70.36%	77.37%
	Standard Deviation	3.3%	1.8%	1%	1%
Crafty - Elapsed Time (Nodes/s)	8506449	9173582	7400292	7594277	
	Normalized	92.73%	100%	80.67%	82.78%
	Standard Deviation	0.2%	0.3%	0.3%	0.1%
glibc bench - ffsll (nanoseconds)	1.75439	1.39061	1.84795	1.85451	
	Normalized	79.26%	100%	75.25%	74.99%
	Standard Deviation	0.1%	0.1%	0.1%	0.3%
Selenium - PSPDFKit WASM - Google	2700	1873	1878	1856	
	Chrome (Score)				
	Normalized	68.74%	99.09%	98.83%	100%
	Standard Deviation	0.5%	2.4%	2.8%	0.7%
PyBench - T.F.A.T.T (Milliseconds)	988	907	1138	1134	
	Normalized	91.8%	100%	79.7%	79.98%
	Standard Deviation	0.3%	0.3%	0.4%	
dav1d - Summer Nature 4K (FPS)	170.43	169.46	167.90	180.78	
	Normalized	94.27%	93.74%	92.88%	100%
	Standard Deviation	0.6%	0.4%	0.9%	1.6%
glibc bench - sincos (nanoseconds)	14.3562	12.8958	14.4201	14.2054	

	Normalized	89.83%	100%	89.43%	90.78%
	Standard Deviation	0.3%	0%	0%	0%
OpenSSL - R.4.b.P (Signs/sec)	4661	5216	4556	5825	
	Normalized	80.01%	89.54%	78.22%	100%
	Standard Deviation	0.2%	0.2%	0.1%	0.3%
Swet - Average (Operations/sec)	782056056	812681533	728197656	745294030	
	Normalized	96.23%	100%	89.6%	91.71%
	Standard Deviation	1.7%	1.3%	2.2%	1.8%
GNU Octave Benchmark (sec)	20.567	17.918	18.817	17.363	
	Normalized	84.42%	96.9%	92.27%	100%
	Standard Deviation	1.2%	0.4%	2%	2.4%
x265 - H.2.1.V.E (FPS)	41.54	41.84	38.70	39.95	
	Normalized	99.28%	100%	92.5%	95.48%
	Standard Deviation	1%	0.6%	0.2%	0.1%
PHPBench - P.B.S (Score)	712100	773661	545115	550615	
	Normalized	92.04%	100%	70.46%	71.17%
	Standard Deviation	0.2%	0.6%	0.2%	0.2%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	252.28	251.60	136.26	131.68	
	Normalized	100%	99.73%	54.01%	52.2%
	Standard Deviation	0.7%	0.6%	7.4%	6.3%
Sudokut - Total Time (sec)	10.339	9.929	15.193	15.150	
	Normalized	96.03%	100%	65.35%	65.54%
	Standard Deviation	1.3%	2.1%	0.1%	0.3%
Tungsten Renderer - Hair (sec)	16.4218	14.7466	12.8504	10.3971	
	Normalized	63.31%	70.51%	80.91%	100%
	Standard Deviation	0.4%	0.1%	0.5%	0.4%
Smallpt - G.I.R.1.S (sec)	7.443	5.818	4.640	3.719	
	Normalized	49.97%	63.92%	80.15%	100%
	Standard Deviation	16.4%	0.4%	1%	1.3%
SVT-VP9 - VMAF Optimized - Bosphorus 1080p (FPS)	311.12	300.63	144.30	139.26	
	Normalized	100%	96.63%	46.38%	44.76%
	Standard Deviation	2.2%	2.2%	7.3%	6.6%
Rust Prime Benchmark - P.N.T.T.2.0.0 (sec)	8.232	7.379	17.652	12.488	
	Normalized	89.64%	100%	41.8%	59.09%
	Standard Deviation	0.2%	0.1%	0.4%	1%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)	316.20	306.48	146.01	139.08	
	Normalized	100%	96.93%	46.18%	43.98%
	Standard Deviation	0.5%	0.7%	7%	7.2%
Rodinia - OpenMP CFD Solver (sec)	12.037	11.699	10.060	9.342	
	Normalized	77.61%	79.85%	92.86%	100%
	Standard Deviation	0.4%	1.1%	3%	2.6%
FLAC Audio Encoding - WAV To FLAC (sec)	10.207	9.503	9.278	9.122	
	Normalized	89.37%	95.99%	98.32%	100%
	Standard Deviation	0.2%	0.6%	0.5%	0.2%
glibc bench - pthread_once (nanoseconds)	1.75618	1.40504	1.85529	1.84401	
	Normalized	80.01%	100%	75.73%	76.19%
	Standard Deviation	0.1%	0.1%	0.1%	0.1%
Sysbench - CPU (Events/sec)	33784	37463	44327	56647	

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	Normalized	59.64%	66.13%	78.25%	100%
	Standard Deviation	0%	0%	0%	0.2%
Primesieve - 1.P.N.G (sec)	12.796		11.539	10.159	8.331
	Normalized	65.11%	72.2%	82.01%	100%
	Standard Deviation	0.2%	0.2%	0.7%	0.4%
Go Benchmarks - json (ns/op)	3107840		2811887	2743554	2217231
	Normalized	71.34%	78.85%	80.82%	100%
	Standard Deviation	0.4%	0.6%	0.5%	0.4%
LAME MP3 Encoding - WAV To MP3 (sec)	9.750		9.035	8.383	8.203
	Normalized	84.13%	90.79%	97.85%	100%
	Standard Deviation	0.1%	0.4%	2.3%	0.5%
SVT-AV1 - Enc Mode 8 - 1080p (FPS)	45.069		47.519	47.081	41.550
	Normalized	94.84%	100%	99.08%	87.44%
	Standard Deviation	0.6%	1%	1.1%	0.4%
Tungsten Renderer - Volumetric Caustic (sec)	7.78466		7.28113	6.00221	5.82963
	Normalized	74.89%	80.06%	97.12%	100%
	Standard Deviation	0.4%	0.9%	2.7%	0.6%
FFTW - Float + SSE - 1D FFT Size 4096 (Mflops)	56137		60404	35454	36828
	Normalized	92.94%	100%	58.69%	60.97%
	Standard Deviation	1%	1.7%	1.3%	1.1%
libjpeg-turbo tbench - D.T (Megapixels/sec)	197.023671		212.537408	174.832452	176.997312
	Normalized	92.7%	100%	82.26%	83.28%
	Standard Deviation	0.5%	0.6%	0.2%	0.1%
NAS Parallel Benchmarks - EP.C (Mop/s)	2203		2452	1356	1739
	Normalized	89.83%	100%	55.28%	70.91%
	Standard Deviation	1.5%	1.8%	0.3%	0.1%
x264 - H.2.V.E (FPS)	130.11		131.62	135.66	145.41
	Normalized	89.48%	90.52%	93.29%	100%
	Standard Deviation	1.8%	1.4%	1%	2.1%
dav1d - S.N.1 (FPS)	305.17		300.39	450.01	480.57
	Normalized	63.5%	62.51%	93.64%	100%
	Standard Deviation	0.6%	0.4%	1.1%	0.4%
TSCP - A.C.P (Nodes/s)	1291908		1412861	1102960	1120678
	Normalized	91.44%	100%	78.07%	79.32%
	Standard Deviation	0.3%	0.2%	1%	0.8%
ctx_clock - C.S.T (Clocks)	670		120	150	150
	Normalized	17.91%	100%	80%	80%
	Standard Deviation	0.2%	0.9%	0.01	
ACES DGEMM - Performance / Cost - S.F.P.R (GFLOP/s/Dollar)					
SVT-AV1 - Performance / Cost - Enc Mode 4 - 1080p (FPS/Dollar)			0.01		
IndigoBench - Performance / Cost - Supercar (M samples/s/Dollar)			0.01		

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Selenium - Performance / Cost -	4117500	1833667	2394450	3338944
PSPDFKit WASM - Google Chrome (Score x Dollar)				
Normalized	44.53%	100%	76.58%	54.92%
Selenium - Performance / Cost -	0.06	0.12	0.08	0.06
Speedometer - Google Chrome (Runs/min/Dollar)				
Normalized	50%	100%	66.67%	50%
Selenium - Performance / Cost -	0.02	0.04	0.02	0.02
StyleBench - Google Chrome (Runs / Minute/Dollar)				
Normalized	50%	100%	50%	50%
Selenium - Performance / Cost -	0.10	0.21	0.14	0.10
Jetstream - Google Chrome (Score/Dollar)				
Normalized	47.62%	100%	66.67%	47.62%
Selenium - Performance / Cost -	2668750	1560526	2157300	2984541
PSPDFKit WASM - Firefox (Score x Dollar)				
Normalized	58.47%	100%	72.34%	52.29%
Selenium - Performance / Cost -	22.91	47.19	30.95	22.37
Octane - Google Chrome (Geometric Mean/Dollar)				
Normalized	48.55%	100%	65.59%	47.4%
Selenium - Performance / Cost -	46497	20872	31799	44615
ARES-6 - Google Chrome (ms x				
Normalized	44.89%	100%	65.64%	46.78%
ddraw - Performance / Cost - R.T.P.I.C	58575	34463	57821	80791
(sec x Dollar)				
Normalized	58.84%	100%	59.6%	42.66%
GNU GMP GMPbench - Performance /	3.63	6.16	4.03	2.88
Cost - Total Time (GMPbench Score/Dollar)				
Normalized	58.93%	100%	65.42%	46.75%
BRL-CAD - Performance / Cost - V.P.M	133.38	209.81	171.82	163.01
(VGR Performance Metric/Dollar)				
Normalized	63.57%	100%	81.89%	77.69%
Tesseract OCR - Performance / Cost -	39350	23346	38687	54067
T.T.O.7.I (sec x Dollar)				
Normalized	59.33%	100%	60.35%	43.18%
Hierarchical INTegration -	637229	1052815	614013	465522
Performance / Cost - DOUBLE				
Normalized	60.53%	100%	58.32%	44.22%
Facebook RocksDB - Performance /	57046	99365	92154	81455
Cost - Rand Read (Op/s/Dollar)				
Normalized	57.41%	100%	92.74%	81.98%
Redis - Performance / Cost - SET	1294	2151	1162	905.68
(Reqs/sec/Dollar)				
Normalized	60.15%	100%	54.02%	42.11%

Redis - Performance / Cost - GET (Reqs/sec/Dollar)	1781	2829	1799	1297
Normalized	62.95%	100%	63.59%	45.83%
PHPBench - Performance / Cost - P.B.S (Score/Dollar)	466.95	790.26	427.54	306.07
Normalized	59.09%	100%	54.1%	38.73%
OpenSSL - Performance / Cost - R.4.b.P (Signs/sec/Dollar)	3.06	5.33	3.57	3.24
Normalized	57.41%	100%	66.98%	60.79%
Sysbench - Performance / Cost - CPU (Events/sec/Dollar)	22.15	38.27	34.77	31.49
Normalized	57.88%	100%	90.85%	82.28%
ctx_clock - Performance / Cost - C.S.T (Clocks x Dollar)	1021750	117480	191250	269850
Normalized	11.5%	100%	61.43%	43.54%
GNU Octave Benchmark - Performance / Cost - (sec x Dollar)	31365	17542	23992	31236
Normalized	55.93%	100%	73.12%	56.16%
libjpeg-turbo tbench - Performance / Cost - D.T (Megapixels/sec/Dollar)	0.13	0.22	0.14	0.10
Normalized	59.09%	100%	63.64%	45.45%
ASKAP - Performance / Cost - tConvolve OpenMP - Degridding (Million Grid Points/sec/Dollar)	2.73	4.88	1.75	1.05
Normalized	55.94%	100%	35.86%	21.52%
ASKAP - Performance / Cost - tConvolve OpenMP - Gridding (Million Grid Points/sec/Dollar)	1.86	3.39	0.81	0.58
Normalized	54.87%	100%	23.89%	17.11%
glibc bench - Performance / Cost - pthread_once (nanoseconds x Dollar)	2678	1376	2365	3317
Normalized	51.36%	100%	58.15%	41.46%
glibc bench - Performance / Cost - sincos (nanoseconds x Dollar)	21893	12625	18386	25556
Normalized	57.67%	100%	68.67%	49.4%
glibc bench - Performance / Cost - ffsll (nanoseconds x Dollar)	2675	1361	2356	3336
Normalized	50.89%	100%	57.78%	40.81%
glibc bench - Performance / Cost - sqrt (nanoseconds x Dollar)	3021	1566	2724	3776
Normalized	51.85%	100%	57.49%	41.48%
glibc bench - Performance / Cost - modf (nanoseconds x Dollar)	3374	1777	2980	4175
Normalized	52.66%	100%	59.61%	42.55%
glibc bench - Performance / Cost - ffs (nanoseconds x Dollar)	2675	1361	2367	3320
Normalized	50.88%	100%	57.5%	40.99%
glibc bench - Performance / Cost - exp (nanoseconds x Dollar)	8382	4600	6924	9560
Normalized	54.88%	100%	66.44%	48.12%

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Radiance Benchmark - Performance / Cost - SMP Parallel (sec x Dollar)	196698	296093	396284
Normalized	57.14%	100%	66.43%
Radiance Benchmark - Performance / Cost - Serial (sec x Dollar)	601709	955569	1330137
Normalized	58.37%	100%	62.97%
7-Zip Compression - Performance / Cost - C.S.T (MIPS/Dollar)	98.87	63.47	44.88
Normalized	61.7%	100%	64.2%
Timed PHP Compilation - Performance / Cost - Time To Compile	47292	66533	92652
Normalized	61.16%	100%	71.08%
Timed LLVM Compilation - Performance / Cost - Time To Compile	211943	271017	382183
Normalized	63.03%	100%	78.2%
Timed Linux Kernel Compilation - Performance / Cost - Time To Compile (sec x Dollar)	71240	42409	52784
Normalized	59.53%	100%	80.35%
Swet - Performance / Cost - Average (Operations/sec/Dollar)	830114	571135	414282
Normalized	61.78%	100%	68.8%
Primesieve - Performance / Cost - 1.P.N.G (sec x Dollar)	19514	11297	12953
Normalized	57.89%	100%	87.21%
Crafty - Performance / Cost - Elapsed Time (Nodes/s/Dollar)	9370	5804	4221
Normalized	59.53%	100%	61.94%
TSCP - Performance / Cost - A.C.P (Nodes/s/Dollar)	1443	865.07	622.94
Normalized	58.7%	100%	59.94%
asmFish - Performance / Cost - 1.H.M.2.D (Nodes/s/Dollar)	32758	54840	44891
Normalized	59.73%	100%	81.86%
Stockfish - Performance / Cost - Total Time (Nodes/s/Dollar)	29121	50003	42225
Normalized	58.24%	100%	84.44%
Coremark - Performance / Cost - CoreMark Size 666 - I.P.S (Iterations/Sec/Dollar)	387.33	649.55	699.87
Normalized	55.34%	92.81%	100%
LAME MP3 Encoding - Performance / Cost - WAV To MP3 (sec x Dollar)	14869	8845	10688
Normalized	59.49%	100%	82.76%
FLAC Audio Encoding - Performance / Cost - WAV To FLAC (sec x Dollar)	9303	11829	16410
Normalized	59.77%	100%	78.65%
x265 - Performance / Cost - H.2.1.V.E (FPS/Dollar)	0.03	0.04	0.02
Normalized	75%	100%	75%

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x264 - Performance / Cost - H.2.V.E	0.09	0.13	0.11	0.08
	(FPS/Dollar)			
Normalized	69.23%	100%	84.62%	61.54%
SVT-VP9 - Performance / Cost - V.Q.O	0.17	0.26	0.11	0.07
- Bosphorus 1080p (FPS/Dollar)				
Normalized	65.38%	100%	42.31%	26.92%
SVT-VP9 - Performance / Cost - P.S.O	0.21	0.31	0.11	0.08
- Bosphorus 1080p (FPS/Dollar)				
Normalized	67.74%	100%	35.48%	25.81%
SVT-VP9 - Performance / Cost - VMAF	0.20	0.31	0.11	0.08
Optimized - Bosphorus 1080p (FPS/Dollar)				
Normalized	64.52%	100%	35.48%	25.81%
SVT-AV1 - Performance / Cost - Enc	0.03	0.05	0.04	0.02
Mode 8 - 1080p (FPS/Dollar)				
Normalized	60%	100%	80%	40%
dav1d - Performance / Cost - C.1.1.b	0.03	0.05	0.06	0.04
(FPS/Dollar)				
Normalized	50%	83.33%	100%	66.67%
dav1d - Performance / Cost - S.N.1	0.20	0.31	0.35	0.27
(FPS/Dollar)				
Normalized	57.14%	88.57%	100%	77.14%
dav1d - Performance / Cost - Summer	0.11	0.17	0.13	0.10
Nature 4K (FPS/Dollar)				
Normalized	64.71%	100%	76.47%	58.82%
Tungsten Renderer - Performance / Cost - Volumetric Caustic (sec x	11872	7128	7653	10488
Normalized	60.04%	100%	93.15%	67.97%
Tungsten Renderer - Performance / Cost - Water Caustic (sec x Dollar)	33668	21322	31758	42652
Normalized	63.33%	100%	67.14%	49.99%
Tungsten Renderer - Performance / Cost - Hair (sec x Dollar)	25043	14437	16384	18704
Normalized	57.65%	100%	88.11%	77.18%
Appleseed - Performance / Cost - Material Tester (sec x Dollar)	211425	126998	273700	377591
Normalized	60.07%	100%	46.4%	33.63%
Appleseed - Performance / Cost - Disney Material (sec x Dollar)	204050	119064	140779	154050
Normalized	58.35%	100%	84.57%	77.29%
Blender - Performance / Cost - Pabellon Barcelona - CPU-Only (sec x	510921	324127	387689	418285
Normalized	63.44%	100%	83.6%	77.49%
Blender - Performance / Cost - Classroom - CPU-Only (sec x Dollar)	402356	257203	272213	289351
Normalized	63.92%	100%	94.49%	88.89%
Blender - Performance / Cost - BMW27 - CPU-Only (sec x Dollar)	146781	91918	107100	119040
Normalized	62.62%	100%	85.82%	77.22%

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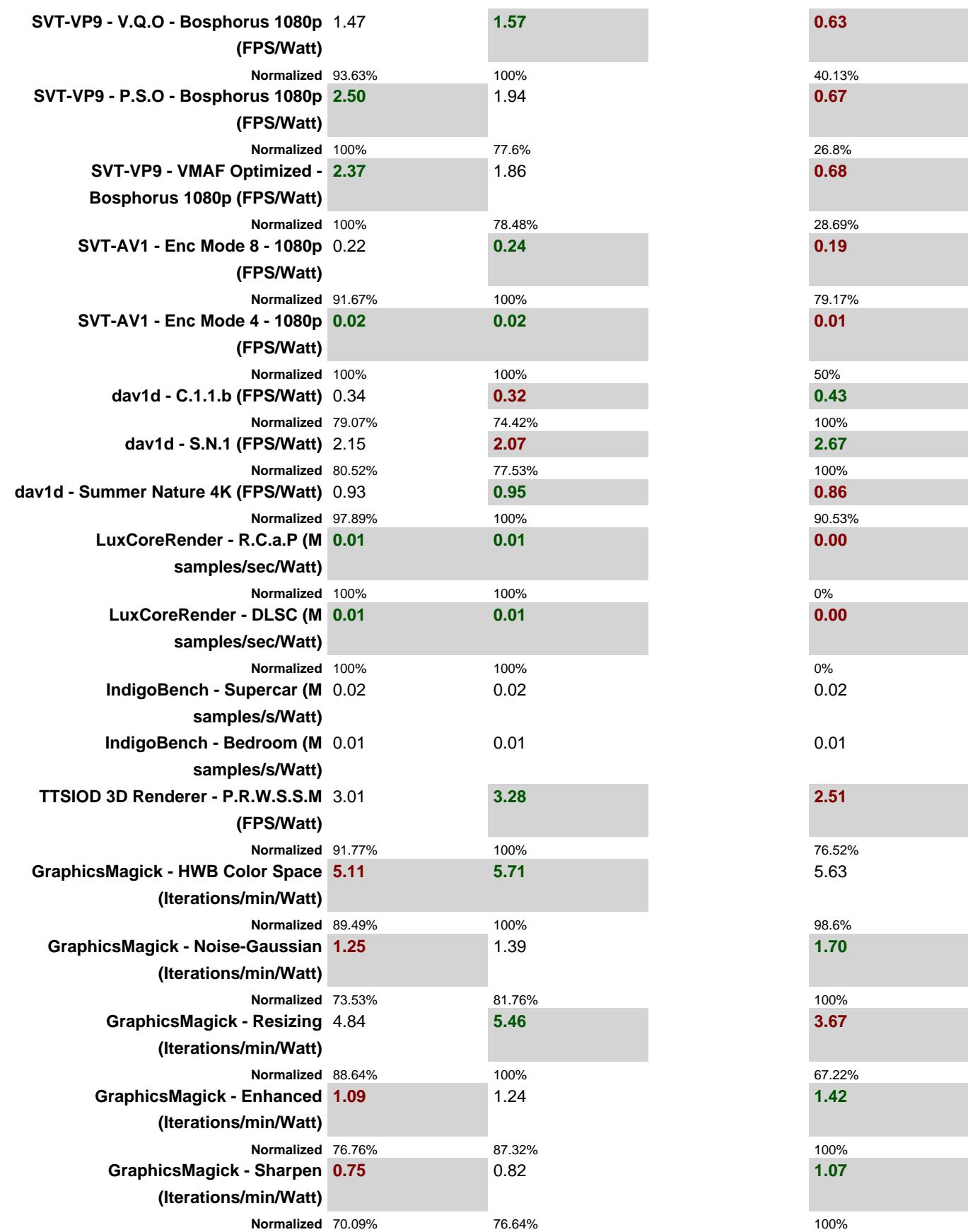
AOBench - Performance / Cost - 2048	49280	29160	45590	63354
x 2048 - Total Time (sec x Dollar)				
Normalized	59.17%	100%	63.96%	46.03%
Smallpt - Performance / Cost -	11351	5696	5916	6690
G.I.R.1.S (sec x Dollar)				
Normalized	50.18%	100%	96.28%	85.13%
C-Ray - Performance / Cost - Total	64079	36825	33527	36160
Time - 4.1.R.P.P (sec x Dollar)				
Normalized	52.32%	91.04%	100%	92.72%
TTSIOD 3D Renderer - Performance /	0.46	0.72	0.41	0.30
Cost - P.R.W.S.S.M (FPS/Dollar)				
Normalized	63.89%	100%	56.94%	41.67%
MKL-DNN DNNL - Performance / Cost	6866862	3719476	29036850	38273545
- C.B.c - u8s8f32 (ms x Dollar)				
Normalized	54.17%	100%	12.81%	9.72%
MKL-DNN DNNL - Performance / Cost	1659414	1141798	3361882	3810876
- C.B.c - f32 (ms x Dollar)				
Normalized	68.81%	100%	33.96%	29.96%
GraphicsMagick - Performance / Cost	0.60	0.98	0.98	0.68
- HWB Color Space				
Normalized	61.22%	100%	100%	69.39%
GraphicsMagick - Performance / Cost	0.22	0.37	0.37	0.30
- Noise-Gaussian				
Normalized	59.46%	100%	100%	81.08%
GraphicsMagick - Performance / Cost	0.96	1.55	1.09	0.71
- Resizing (Iterations/min/Dollar)				
Normalized	61.94%	100%	70.32%	45.81%
GraphicsMagick - Performance / Cost	0.21	0.38	0.32	0.29
- Enhanced (Iterations/min/Dollar)				
Normalized	55.26%	100%	84.21%	76.32%
GraphicsMagick - Performance / Cost	0.13	0.24	0.23	0.21
- Sharpen (Iterations/min/Dollar)				
Normalized	54.17%	100%	95.83%	87.5%
GraphicsMagick - Performance / Cost	0.41	0.71	0.75	0.64
- Swirl (Iterations/min/Dollar)				
Normalized	54.67%	94.67%	100%	85.33%
John The Ripper - Performance / Cost	19.14	33.45	24.86	28.46
- Blowfish (Real C/S/Dollar)				
Normalized	57.22%	100%	74.32%	85.08%
LuaJIT - Performance / Cost -	1.06	1.74	1.15	0.84
Composite (Mflops/Dollar)				
Normalized	60.92%	100%	66.09%	48.28%
Sudokut - Performance / Cost - Total	15767	9720	19371	27255
Time (sec x Dollar)				
Normalized	61.65%	100%	50.18%	35.67%
Perl Benchmarks - Performance / Cost	4.58	2.91	1.75	2.47
- Interpreter (sec x Dollar)				
Normalized	38.21%	60.14%	100%	70.85%
Perl Benchmarks - Performance / Cost	159.84	92.95	183.99	257.20
- Pod2html (sec x Dollar)				
Normalized	58.15%	100%	50.52%	36.14%

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PyBench - Performance / Cost - T.F.A.T.T (Milliseconds x Dollar)	1506700	887953	1450950	2040066
Normalized	58.93%	100%	61.2%	43.53%
R Benchmark - Performance / Cost - R (sec x Dollar)	382.01	244.95	389.90	595.11
Normalized	64.12%	100%	62.82%	41.16%
Rust Prime Benchmark - Performance / Cost - P.N.T.T.2.0.0 (sec x Dollar)	12554	7224	22506	22466
Normalized	57.54%	100%	32.1%	32.16%
Renaissance - Performance / Cost - A.U.C.T (ms x Dollar)	18704425	11805279	26049063	36643442
Normalized	63.11%	100%	45.32%	32.22%
Go Benchmarks - Performance / Cost - json (ns/op x Dollar)	4739456000	2752837373	3498031350	3988798569
Normalized	58.08%	100%	78.7%	69.01%
QMCPACK - Performance / Cost - Execution Time - sec x Dollar	3740673	1476038	1836510	3459297
Normalized	39.46%	100%	80.37%	42.67%
FFTW - Performance / Cost - Float + SSE - 1D FFT Size 4096	36.81	61.70	27.81	20.47
Normalized	59.66%	100%	45.07%	33.18%
NAMD - Performance / Cost - ATPase	1499	950.26	1259	1375
Simulation - 327,506 Atoms (days/ns x Dollar)				
Normalized	63.39%	100%	75.48%	69.13%
Rodinia - Performance / Cost - OpenMP CFD Solver (sec x Dollar)	18356	11453	12827	16806
Normalized	62.39%	100%	89.29%	68.15%
Rodinia - Performance / Cost - OpenMP LavaMD (sec x Dollar)	26157	14982	16139	17839
Normalized	57.28%	100%	92.83%	83.98%
NAS Parallel Benchmarks - Performance / Cost - EP.C	1.44	2.50	1.06	0.97
Normalized	57.6%	100%	42.4%	38.8%
Meta Performance Per Watts - P.P.W	1988	2019		1754
(Performance/Watts)				
Normalized	98.45%	100%		86.9%
Selenium - Speedometer - Google Chrome (Runs/min/Watt)	0.62	0.77		0.62
Normalized	80.52%	100%		80.52%
Selenium - StyleBench - Google Chrome (Runs / Minute/Watt)	0.21	0.22		0.17
Normalized	95.45%	100%		77.27%
Selenium - Jetstream - Google Chrome (Score/Watt)	1.16	1.45		1.14
Normalized	80%	100%		78.62%
Selenium - Octane - Google Chrome (Geometric Mean/Watt)	260.25	336.81		255.86
Normalized	77.27%	100%		75.97%

GNU GMP GMPbench - Total Time	41.21	41.93	32.66
(GMPbench Score/Watt)			
Normalized	98.28%	100%	77.89%
BRL-CAD - V.P.M (VGR Performance	583.76	680.62	724.21
Metric/Watt)			
Normalized	80.61%	93.98%	100%
Hierarchical INTegration - DOUBLE	7204701	7145784	5184196
(QUIPs/Watt)			
Normalized	100%	99.18%	71.96%
Facebook RocksDB - Rand Read	268112	301179	395018
(Op/s/Watt)			
Normalized	67.87%	76.24%	100%
Redis - SET (Reqs/sec/Watt)	16437	18645	13632
Normalized	88.16%	100%	73.11%
Redis - GET (Reqs/sec/Watt)	22534	24695	19421
Normalized	91.25%	100%	78.64%
PHPBench - P.B.S (Score/Watt)	5370	5744	3810
Normalized	93.5%	100%	66.33%
OpenSSL - R.4.b.P (Signs/sec/Watt)	16.83	19.38	17.86
Normalized	86.84%	100%	92.16%
Sysbench - CPU (Events/sec/Watt)	152.74	177.76	241.78
Normalized	63.17%	73.52%	100%
libjpeg-turbo tbench - D.T	1.54	1.65	1.21
(Megapixels/sec/Watt)			
Normalized	93.33%	100%	73.33%
ASKAP - tConvolve OpenMP - Degridding (Million Grid	30.38	34.18	11.63
Normalized	88.88%	100%	34.03%
7-Zip Compression - C.S.T	352.69	381.32	256.19
Normalized	92.49%	100%	67.19%
Swet - Average (Operations/sec/Watt)	5975595	6242230	5078232
Normalized	95.73%	100%	81.35%
Crafty - Elapsed Time (Nodes/s/Watt)	63789	64139	48448
Normalized	99.45%	100%	75.54%
TSCP - A.C.P (Nodes/s/Watt)	10465	11571	8414
Normalized	90.44%	100%	72.72%
asmFish - 1.H.M.2.D (Nodes/s/Watt)	152502	170319	179983
Normalized	84.73%	94.63%	100%
Stockfish - Total Time (Nodes/s/Watt)	137491	155907	165427
Normalized	83.11%	94.25%	100%
Coremark - CoreMark Size 666 - I.P.S	2349	2479	3833
(Iterations/Sec/Watt)			
Normalized	61.27%	64.66%	100%
ACES DGEMM - S.F.P.R	0.03	0.03	0.01
(GFLOP/s/Watt)			
Normalized	100%	100%	33.33%
x265 - H.2.1.V.E (FPS/Watt)	0.26	0.27	0.22
Normalized	96.3%	100%	81.48%
x264 - H.2.V.E (FPS/Watt)	0.71	0.81	0.74
Normalized	87.65%	100%	91.36%

Intel Core i9-10980XE Linux Benchmarks

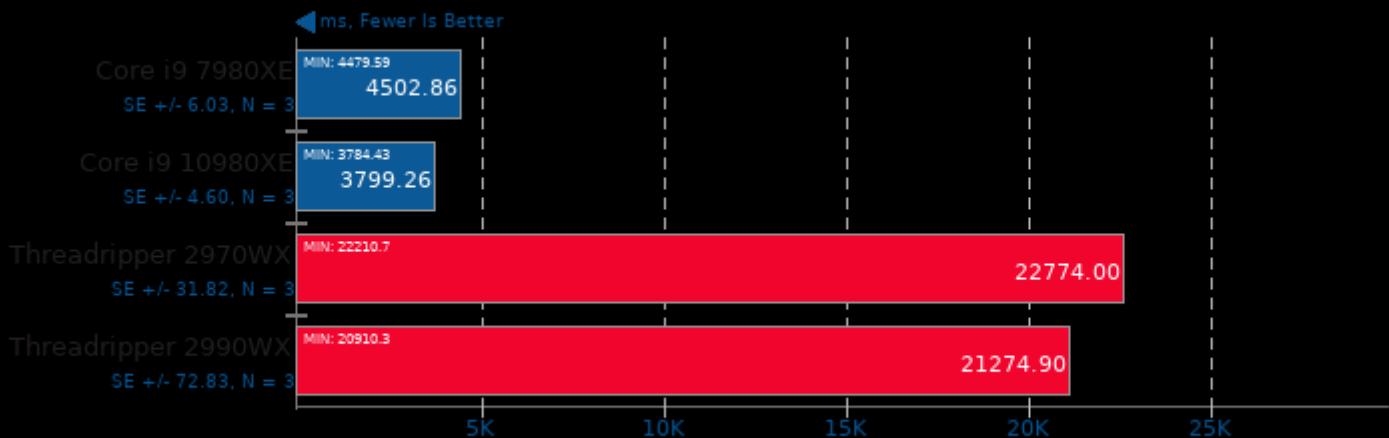


Intel Core i9-10980XE Linux Benchmarks

GraphicsMagick - Swirl	2.07	2.36	3.05
(Iterations/min/Watt)			
Normalized	67.87%	77.38%	100%
John The Ripper - Blowfish (Real	100.77	117.27	146.16
C/S/Watt)			
Normalized	68.94%	80.23%	100%
LuaJIT - Composite (Mflops/Watt)	12.12	12.19	9.70
Normalized	99.43%	100%	79.57%
FFTW - Float + SSE - 1D FFT Size 4096	441.78	459.70	261.28
(Mflops/Watt)			
Normalized	96.1%	100%	56.84%
NAS Parallel Benchmarks - EP.C	11.03	13.12	6.17
(Mop/s/Watt)			
Normalized	84.07%	100%	47.03%

MKL-DNN DNNL 1.1

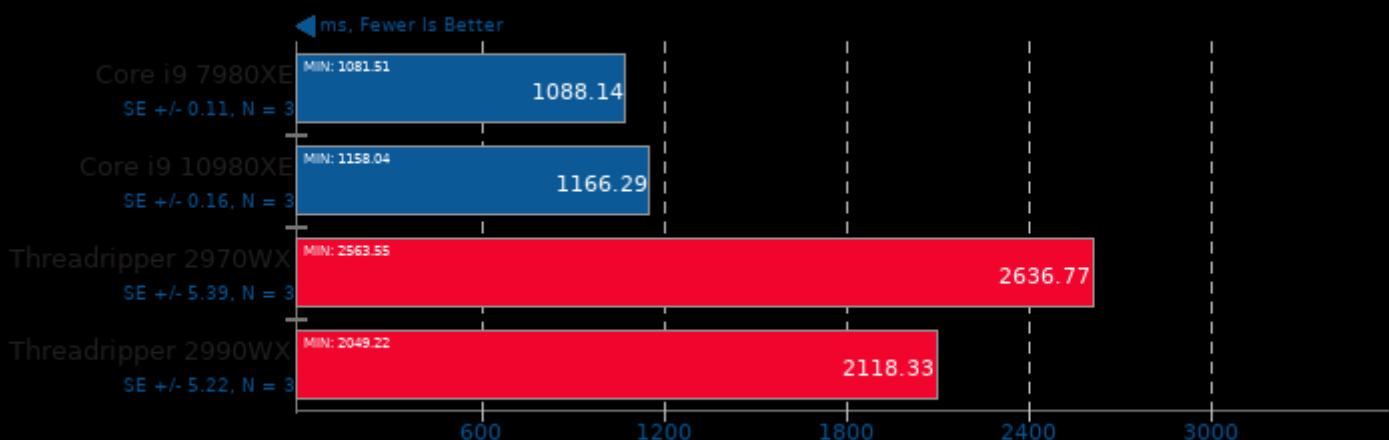
Harness: Convolution Batch conv_all - Data Type: u8s8f32



1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

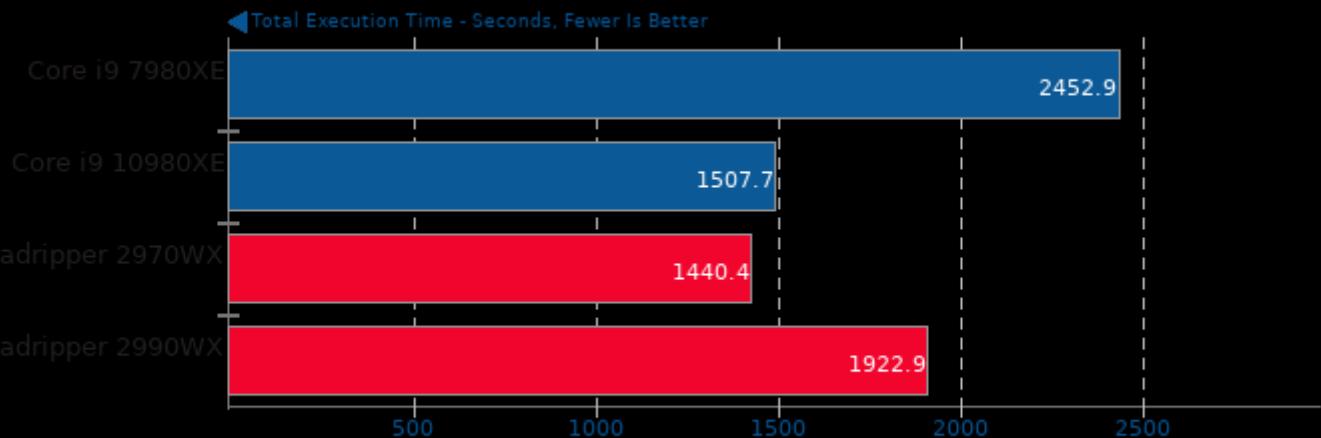
MKL-DNN DNNL 1.1

Harness: Convolution Batch conv_all - Data Type: f32



1. (CXX) g++ options: -O3 -march=native -std=c++11 -msse4.1 -fPIC -fopenmp -pie -lpthread -ldl

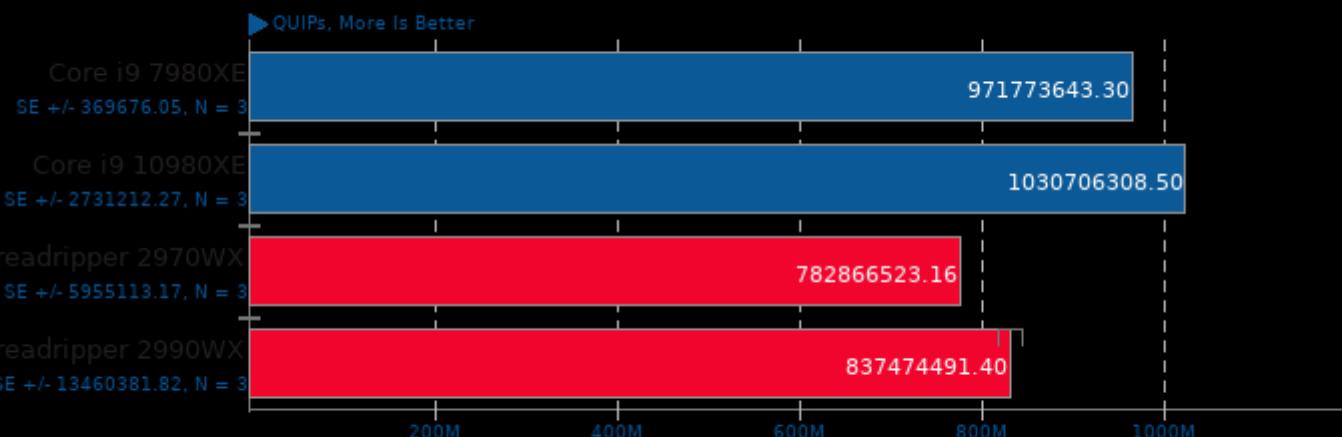
QMCPACK 3.8



1. (CXX) g++ options: -fopenmp -fomit-frame-pointer -finline-limit=1000 -fstrict-aliasing -funroll-all-loops -march=native -O3 -ffast-math -lm

Hierarchical INTegration 1.0

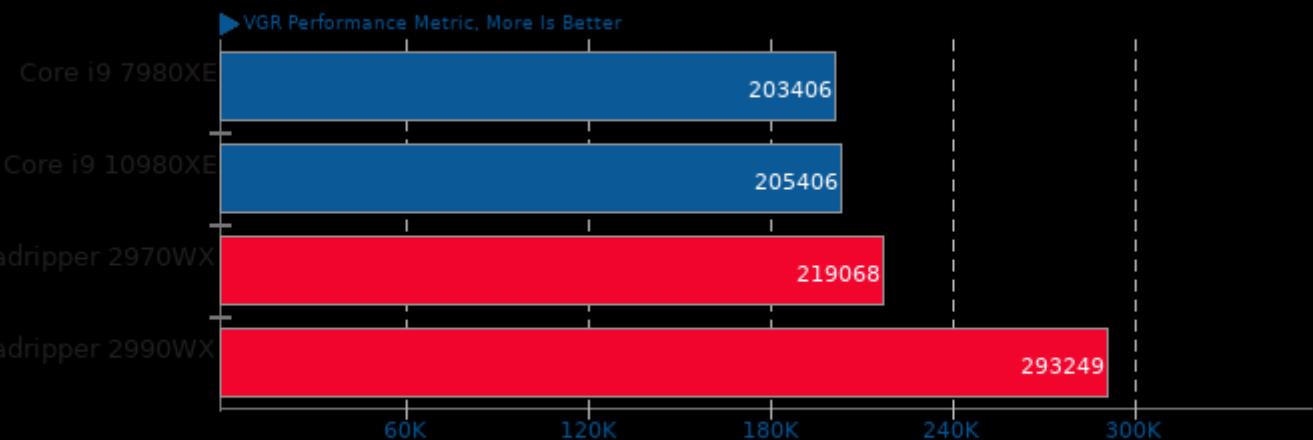
Test: DOUBLE



1. (CC) gcc options: -O3 -march=native -lm

BRL-CAD 7.28.0

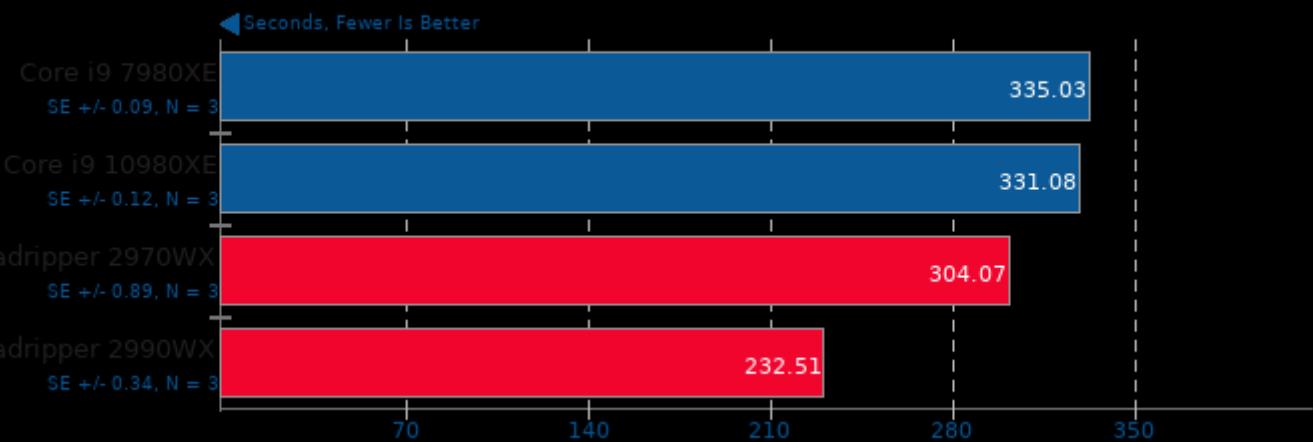
VGR Performance Metric



1. (CXX) g++ options: -std=c++98 -pipe -fno-strict-aliasing -fno-common -fexceptions -ftemplate-depth=128 -m64 -ggdb3 -O3 -fipa-pta -fstrength-reduce

Blender 2.80

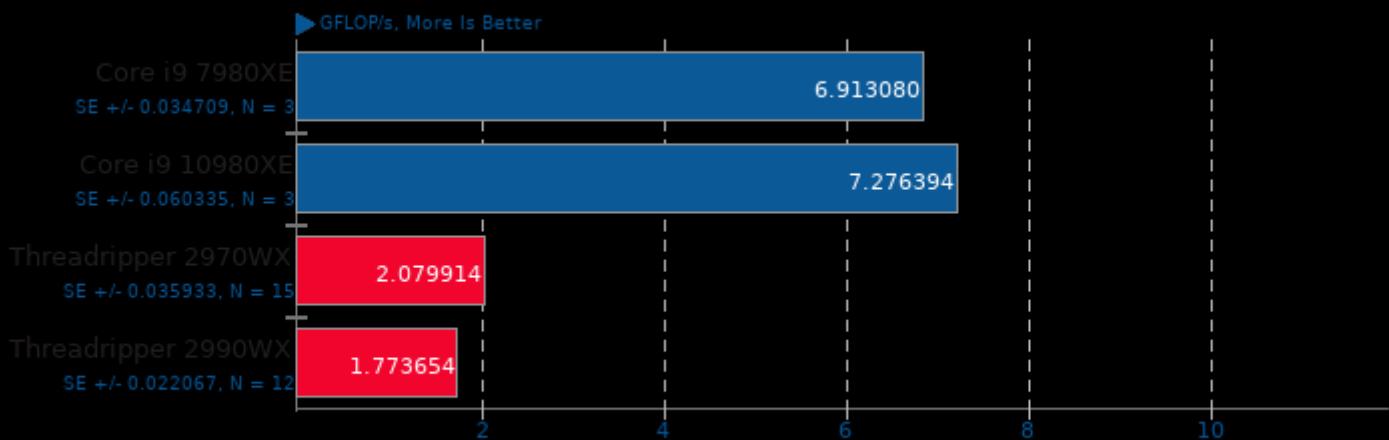
Blend File: Pabellon Barcelona - Compute: CPU-Only



Intel Core i9-10980XE Linux Benchmarks

ACES DGEMM 1.0

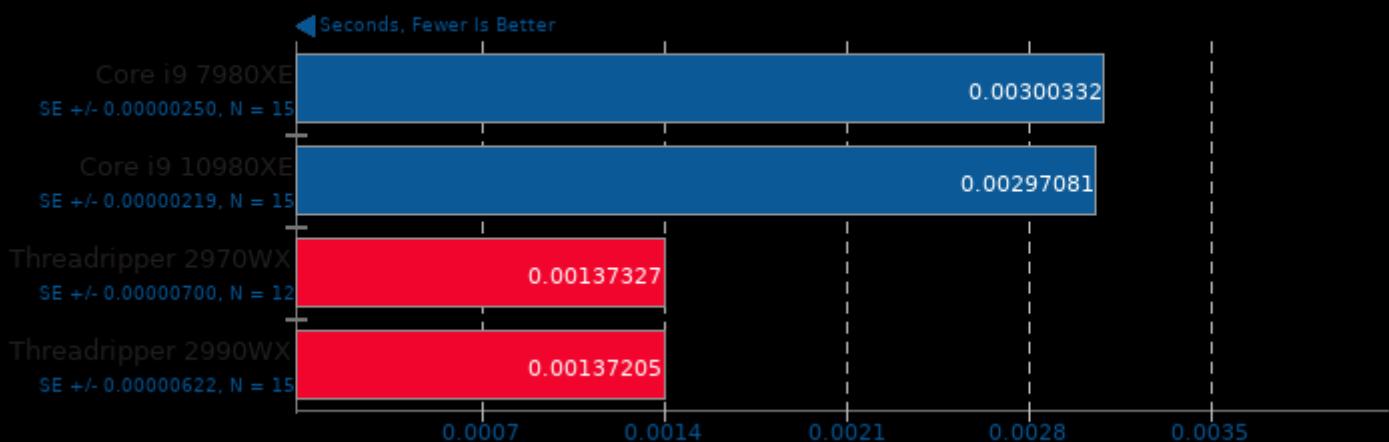
Sustained Floating-Point Rate



1. (CC) gcc options: -O3 -march=native -fopenmp

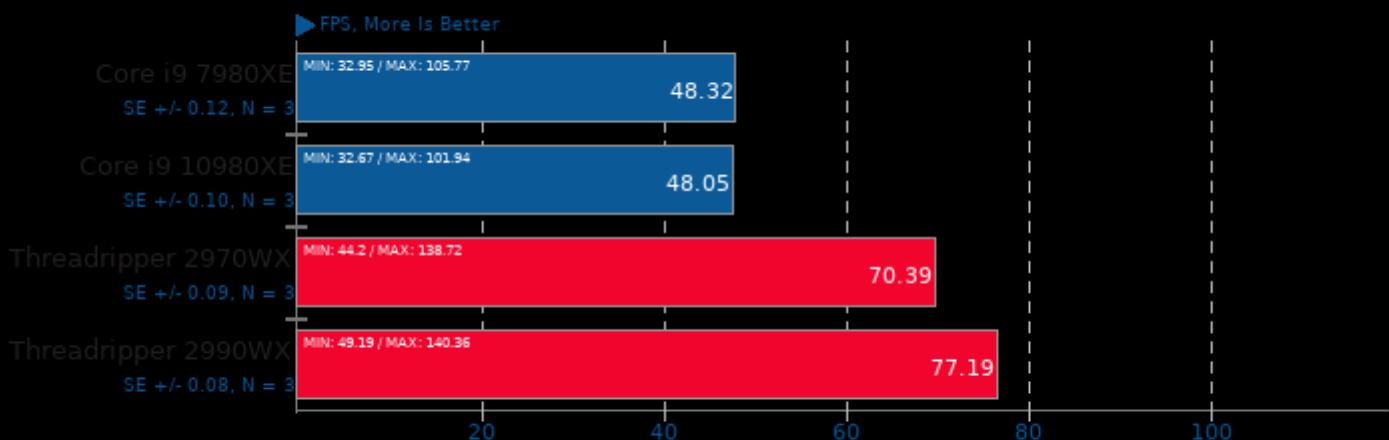
Perl Benchmarks

Test: Interpreter



dav1d 0.5.0

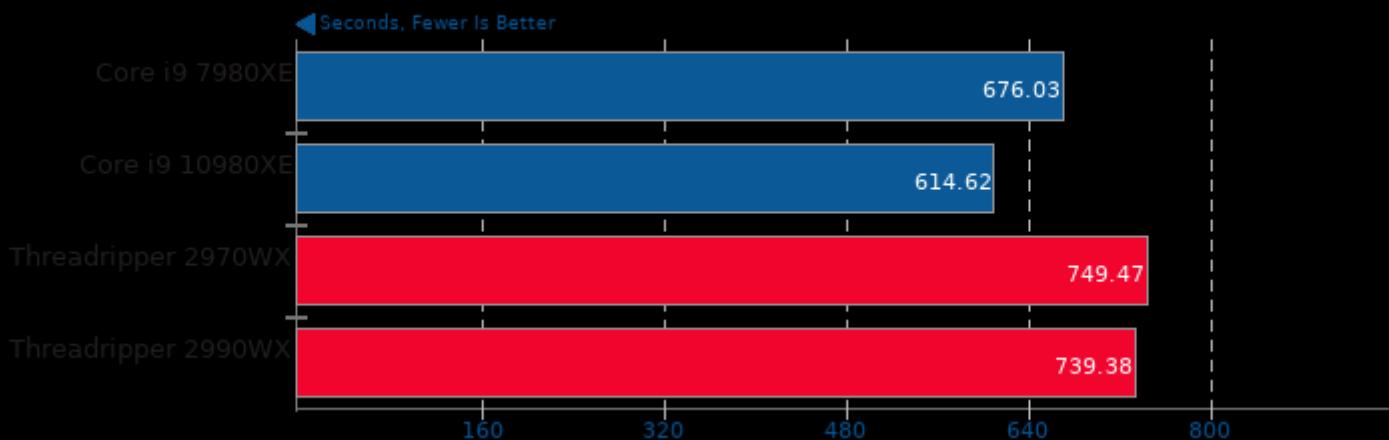
Video Input: Chimera 1080p 10-bit



1. (CC) gcc options: -pthread

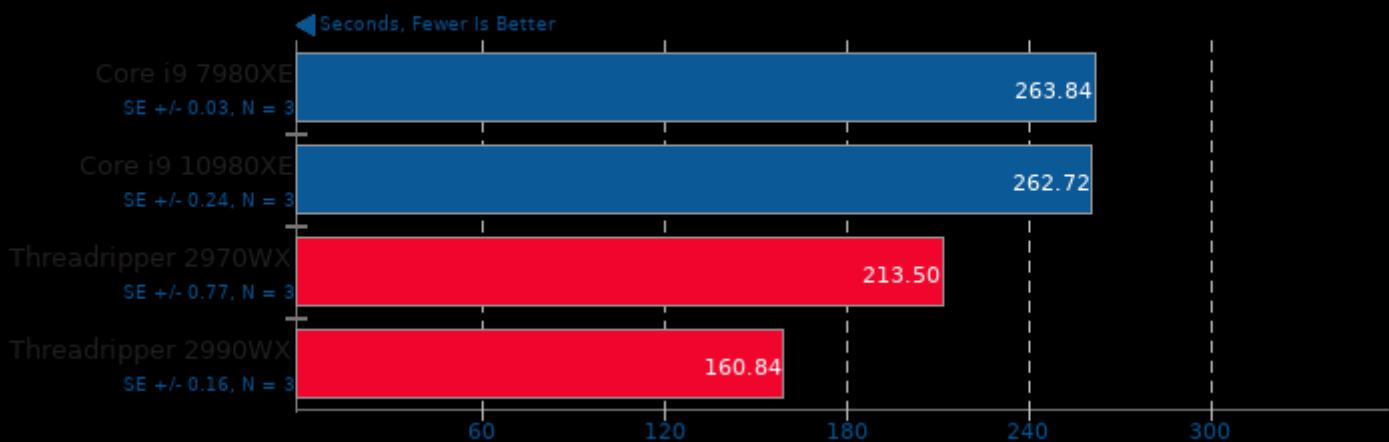
Radiance Benchmark 5.0

Test: Serial



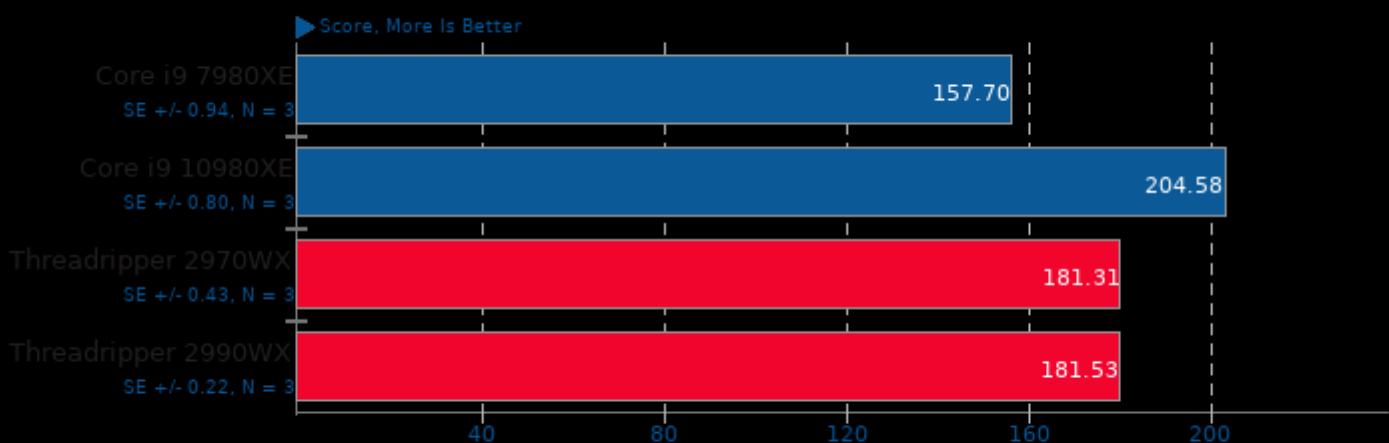
Blender 2.80

Blend File: Classroom - Compute: CPU-Only



Selenium

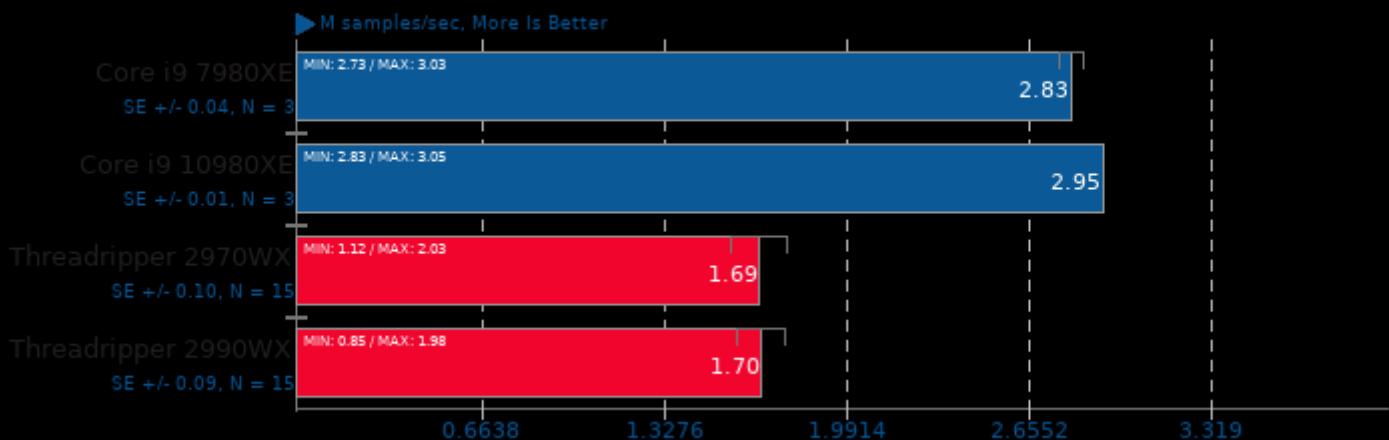
Benchmark: Jetstream - Browser: Google Chrome



1. chrome 78.0.3904.97

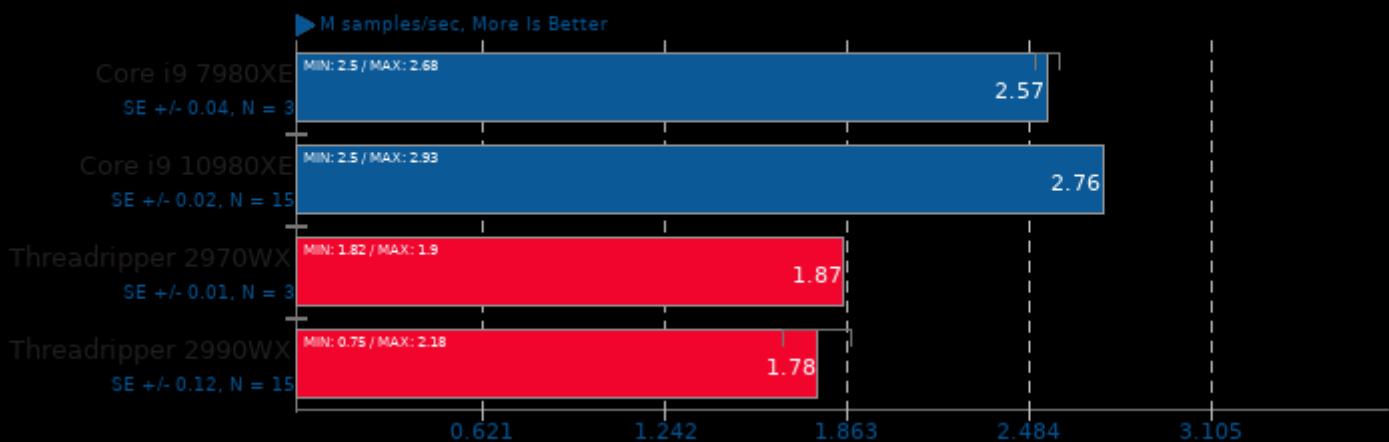
LuxCoreRender 2.2

Scene: DLSC



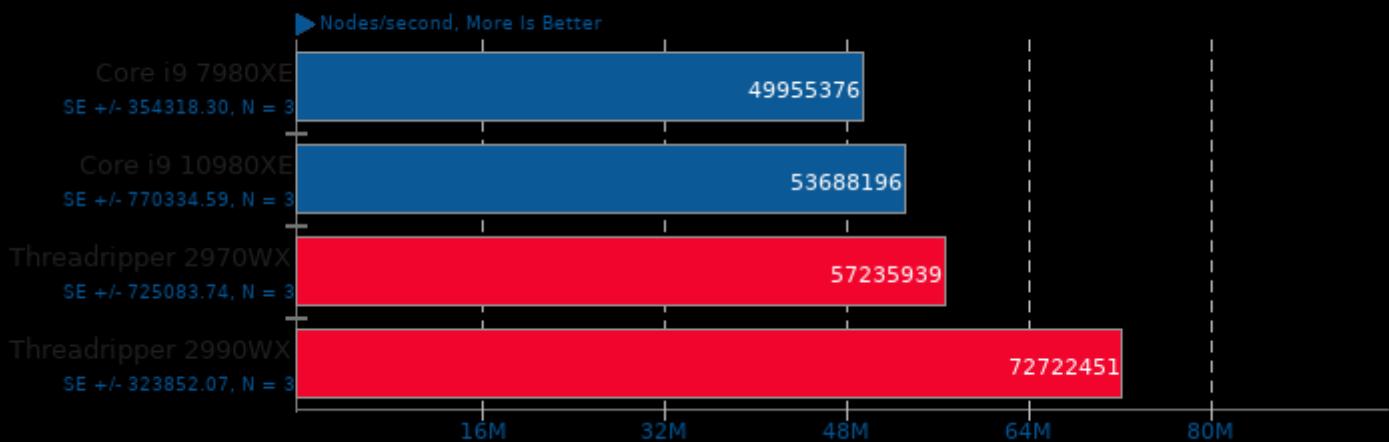
LuxCoreRender 2.2

Scene: Rainbow Colors and Prism



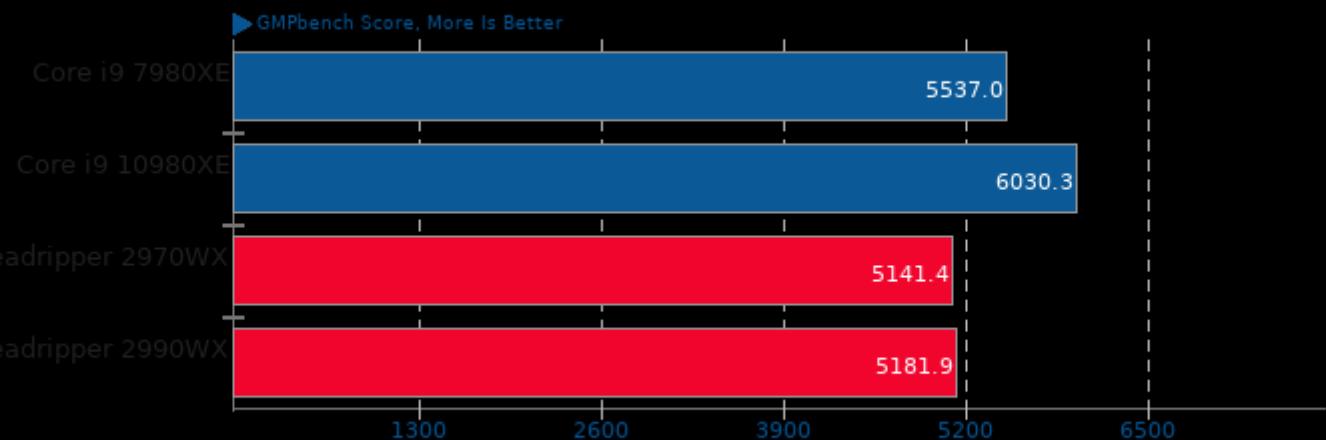
asmFish 2018-07-23

1024 Hash Memory, 26 Depth



GNU GMP GMPbench 6.1.2

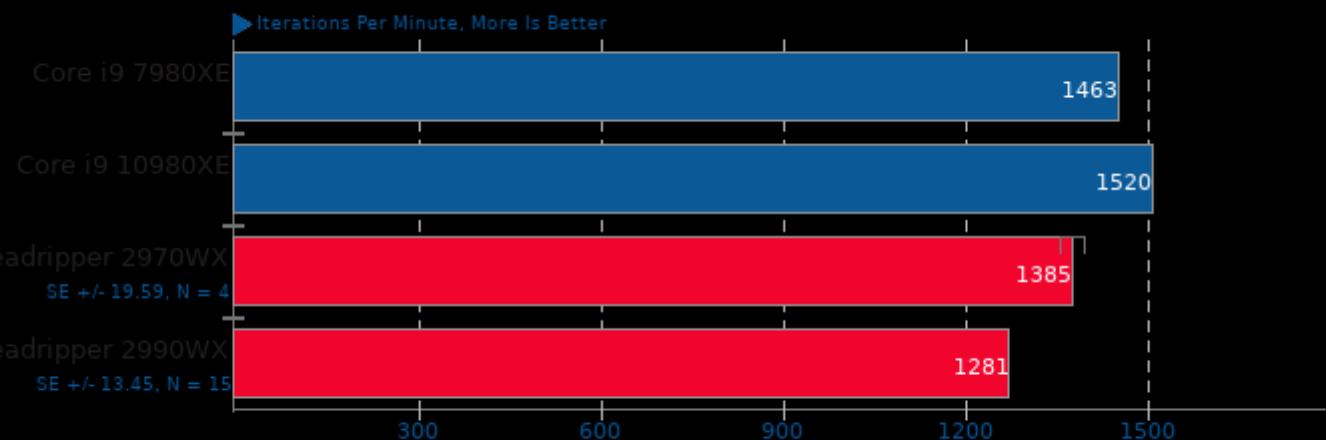
Total Time



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

GraphicsMagick 1.3.33

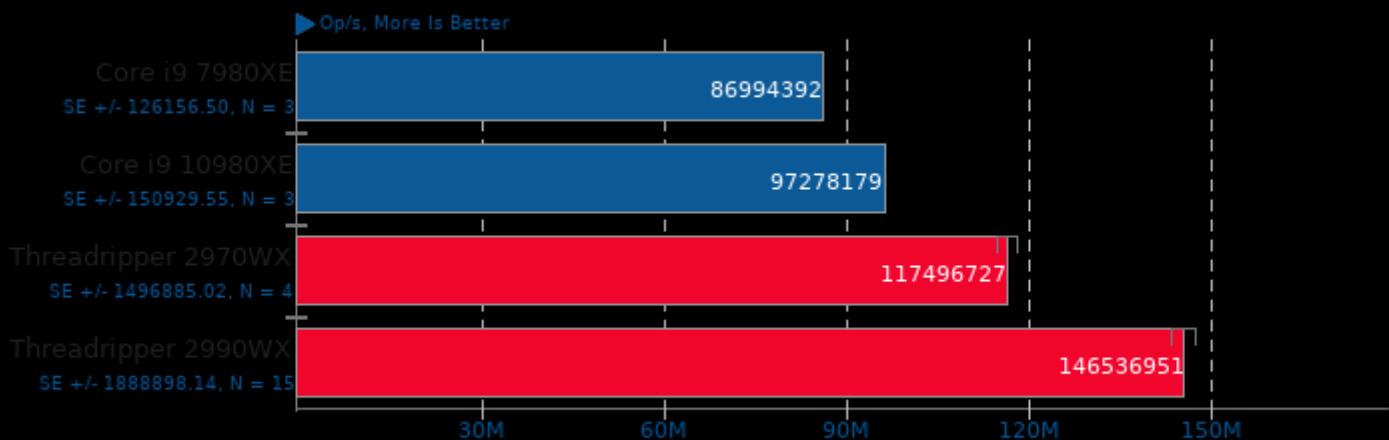
Operation: Resizing



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebrtc -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -lpthread

Facebook RocksDB 6.3.6

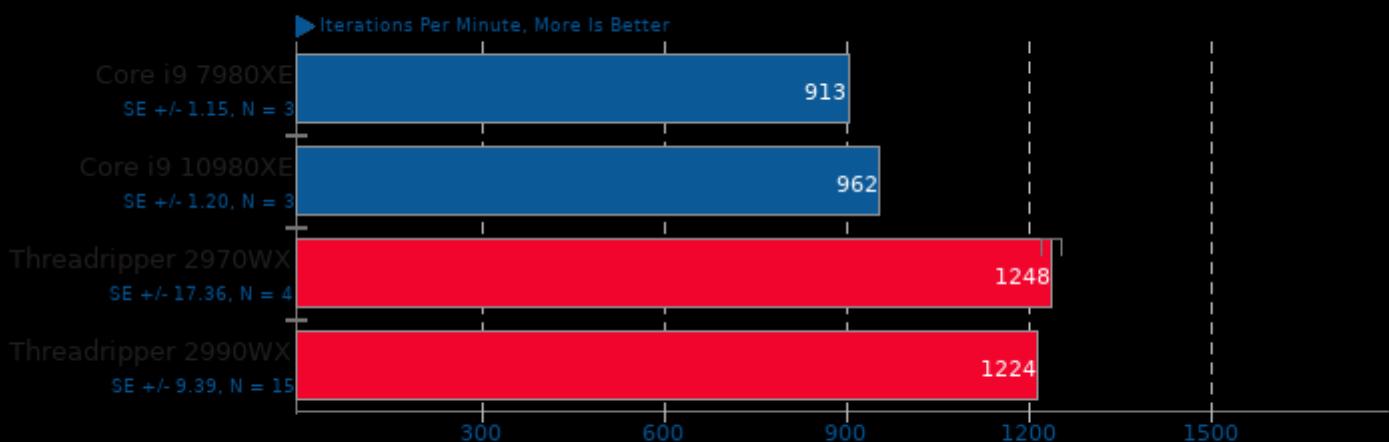
Test: Random Read



1. (CXX) g++ options: -O3 -march=native -std=c++11 -fno-built-in-memcmp -fno-rtti -rdynamic -lpthread

GraphicsMagick 1.3.33

Operation: HWB Color Space

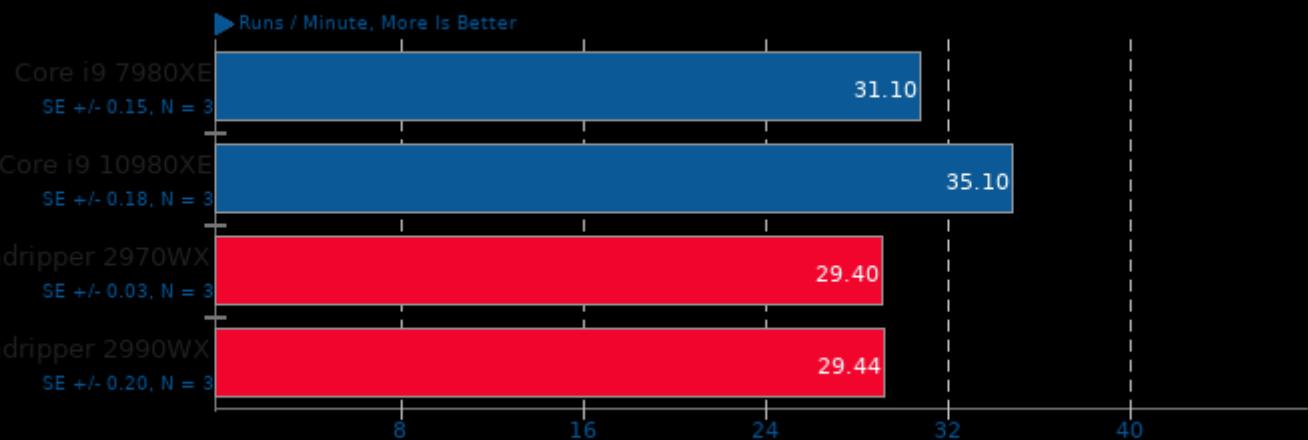


1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebrtc -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -lpthread

Intel Core i9-10980XE Linux Benchmarks

Selenium

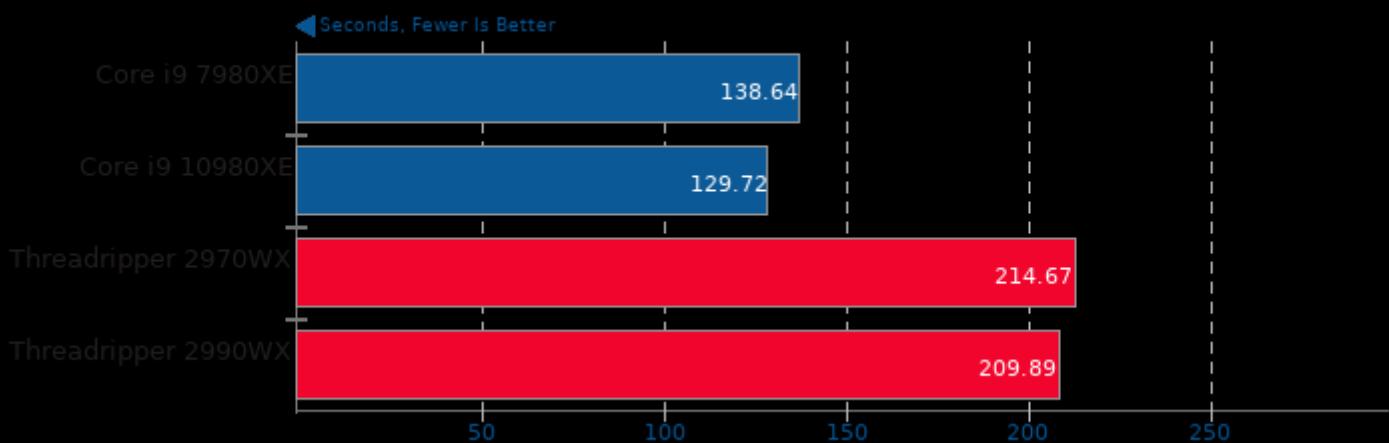
Benchmark: StyleBench - Browser: Google Chrome



1. chrome 78.0.3904.97

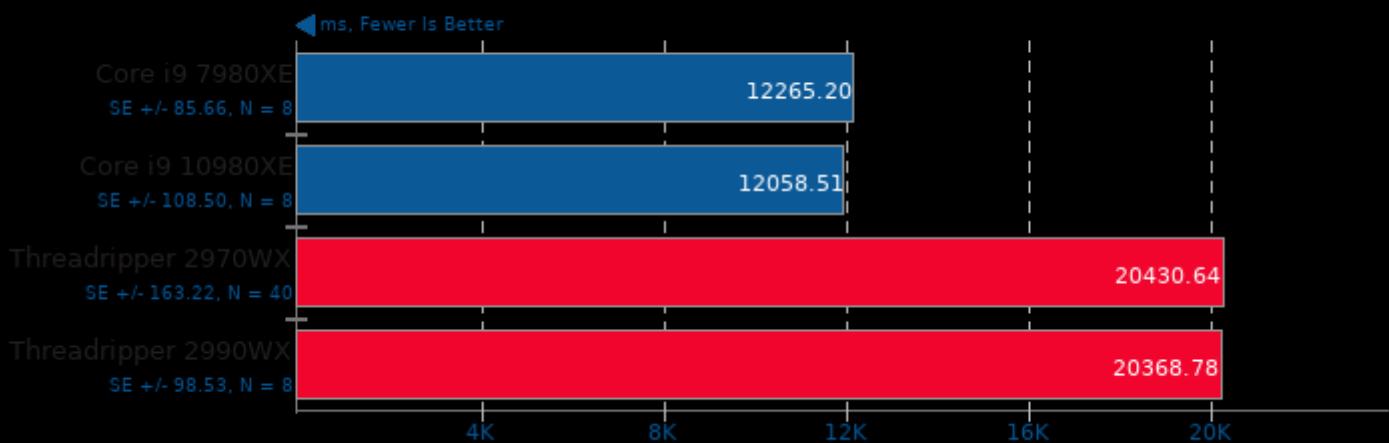
Appleseed 2.0 Beta

Scene: Material Tester



Renaissance 0.9.0

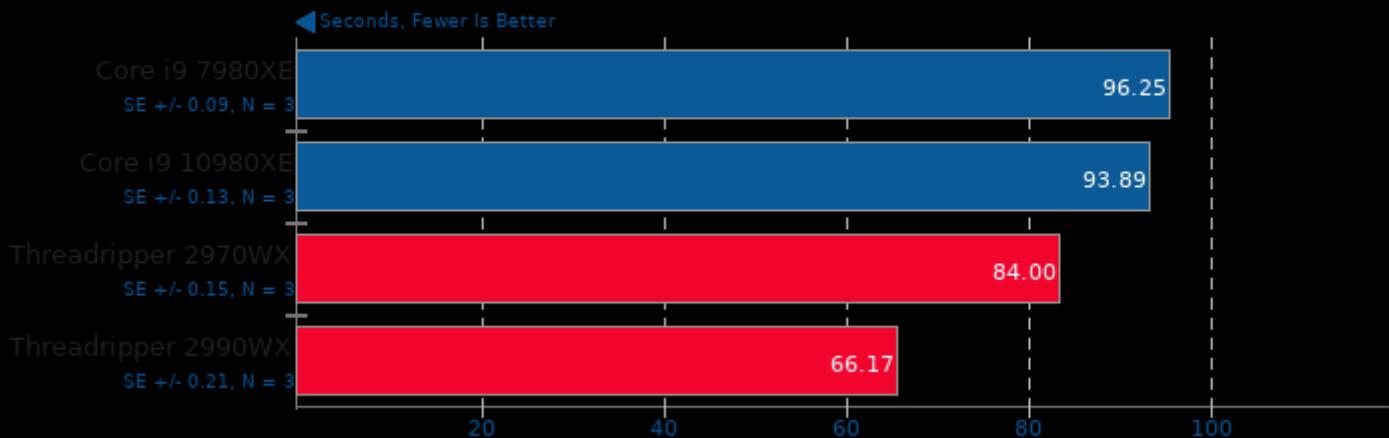
Test: Akka Unbalanced Cobwebbed Tree



Intel Core i9-10980XE Linux Benchmarks

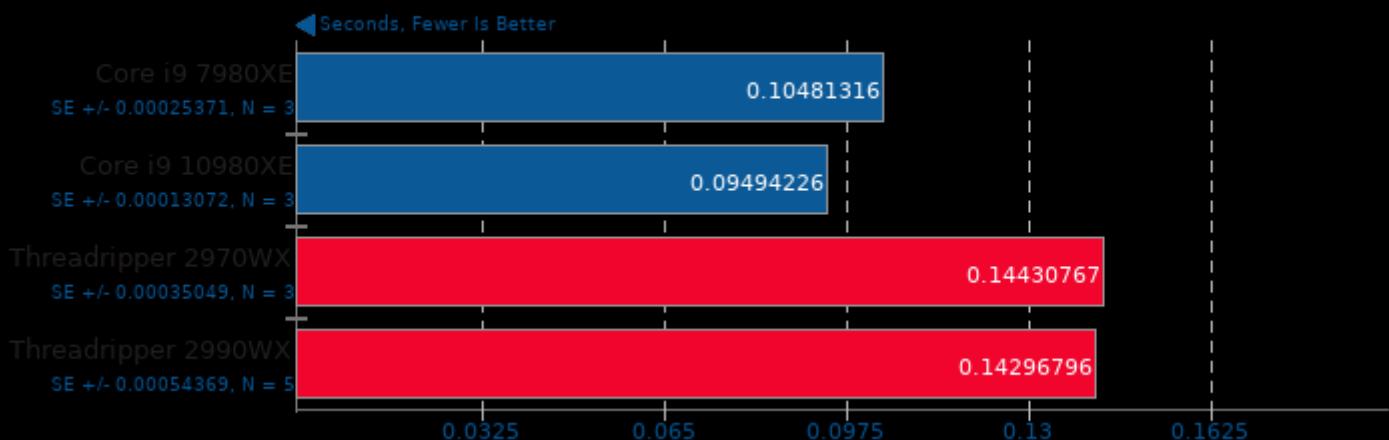
Blender 2.80

Blend File: BMW27 - Compute: CPU-Only



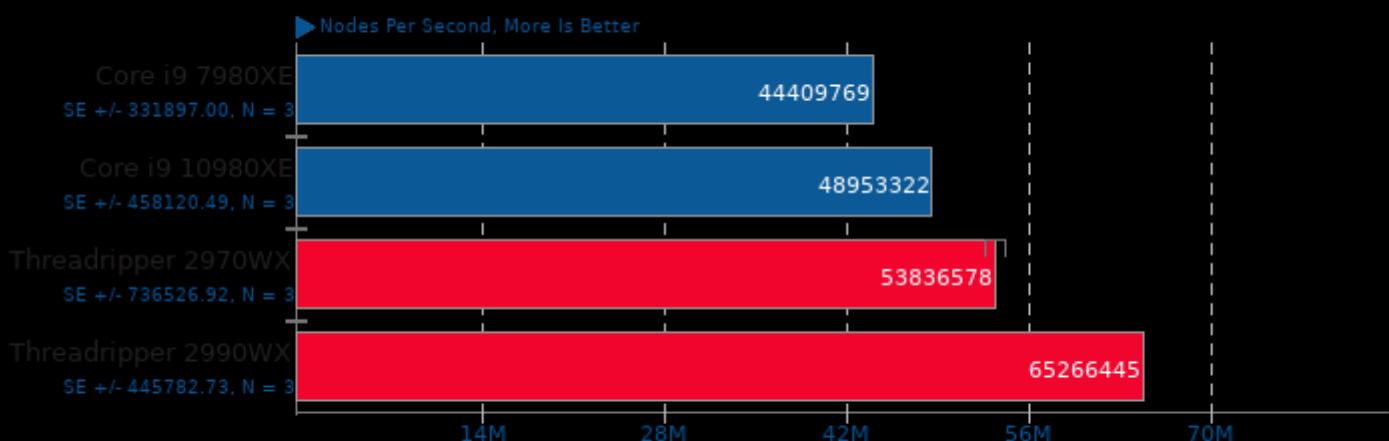
Perl Benchmarks

Test: Pod2html



Stockfish 9

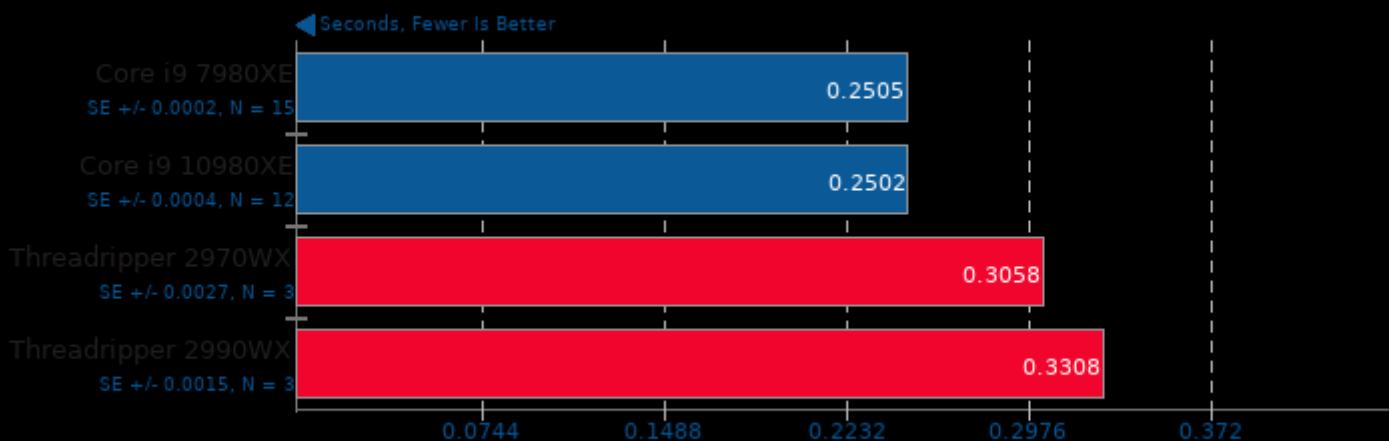
Total Time



1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++11 -pedantic -O3 -msse -msse3 -mpopcnt -fno-

Intel Core i9-10980XE Linux Benchmarks

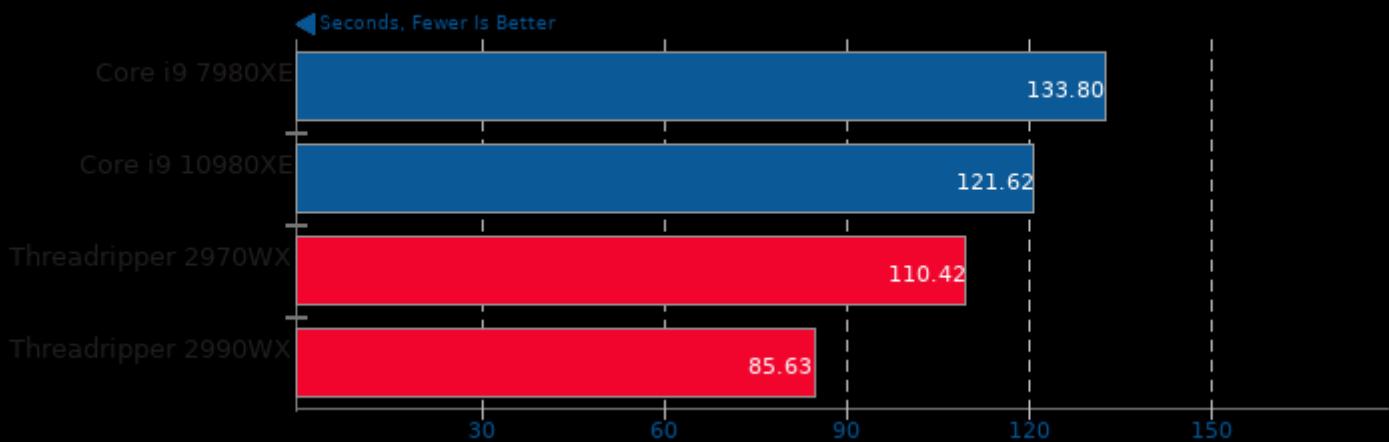
R Benchmark



1. R scripting front-end version 3.6.1 (2019-07-05)

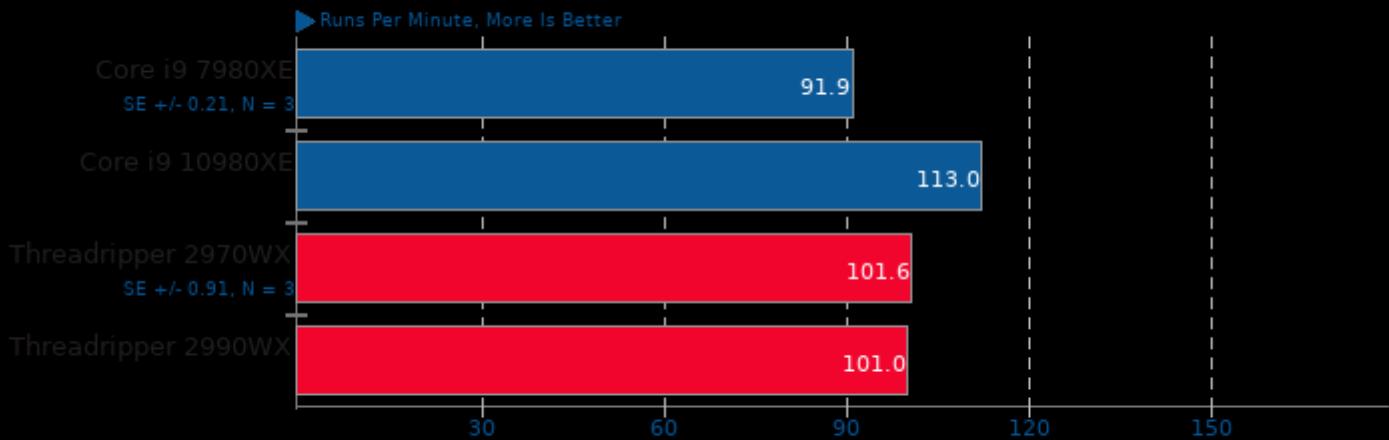
Appleseed 2.0 Beta

Scene: Disney Material



Selenium

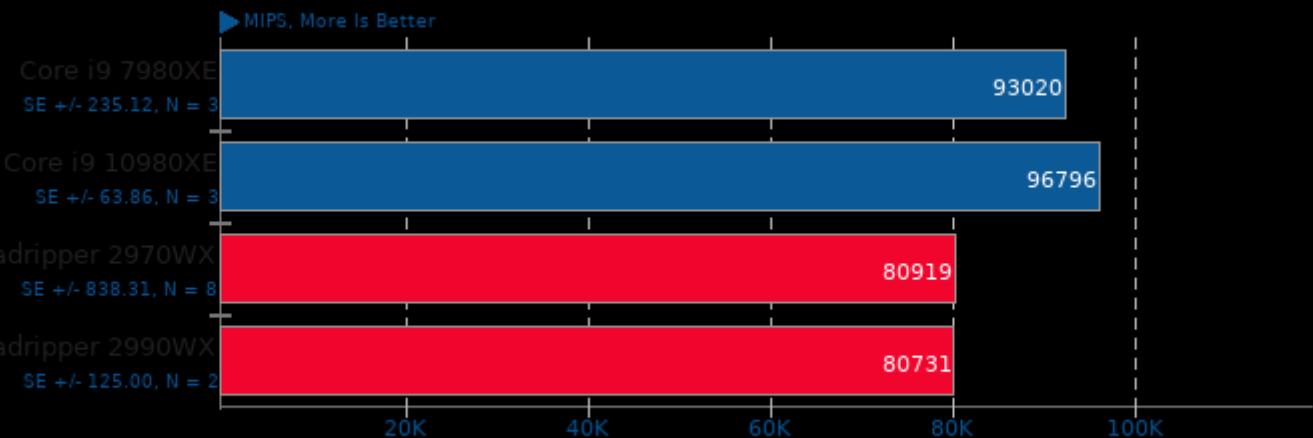
Benchmark: Speedometer - Browser: Google Chrome



1. chrome 78.0.3904.97

7-Zip Compression 16.02

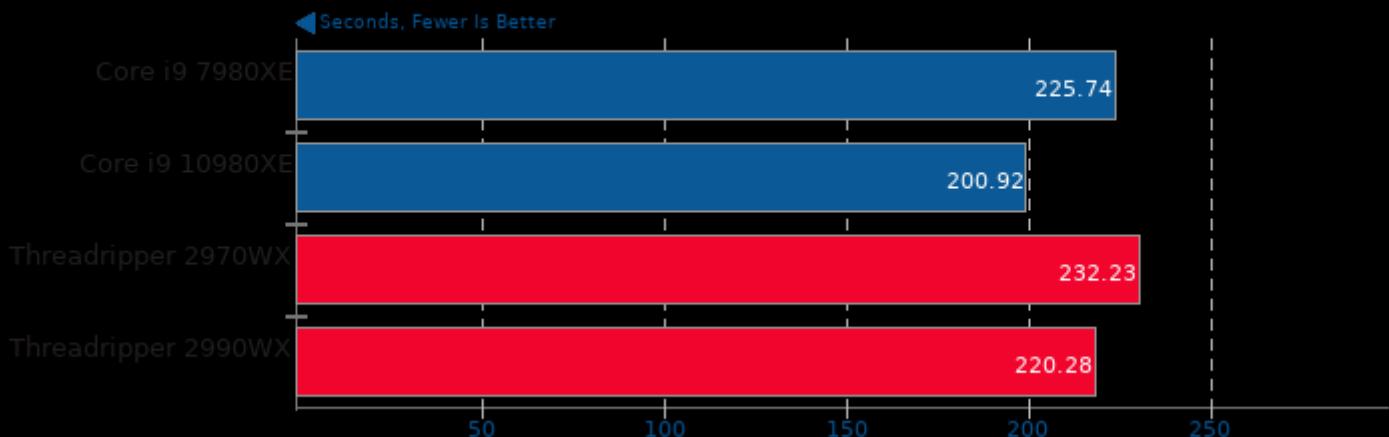
Compress Speed Test



1. (CXX) g++ options: -pipe -lpthread

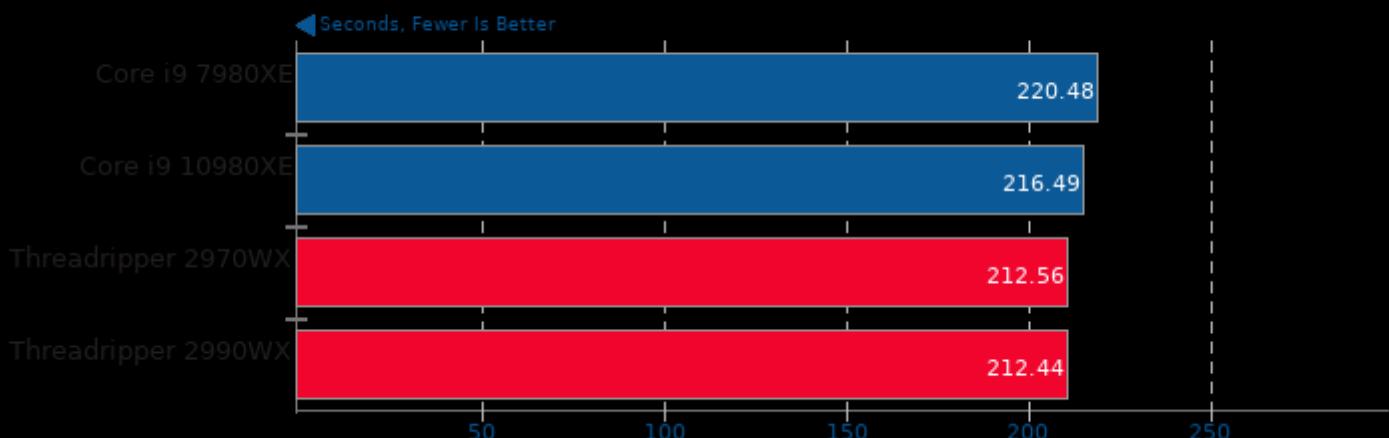
Radiance Benchmark 5.0

Test: SMP Parallel



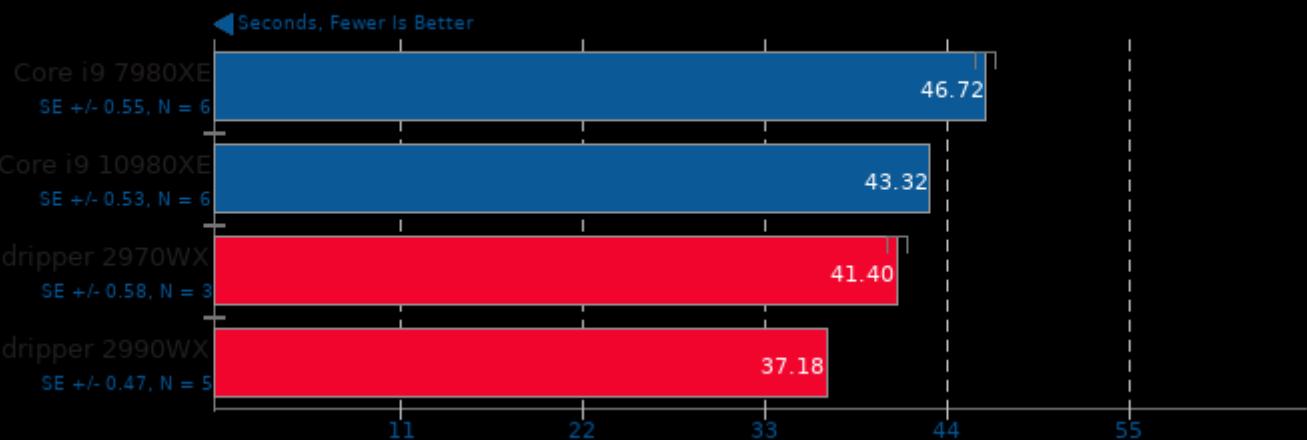
Timed LLVM Compilation 6.0.1

Time To Compile



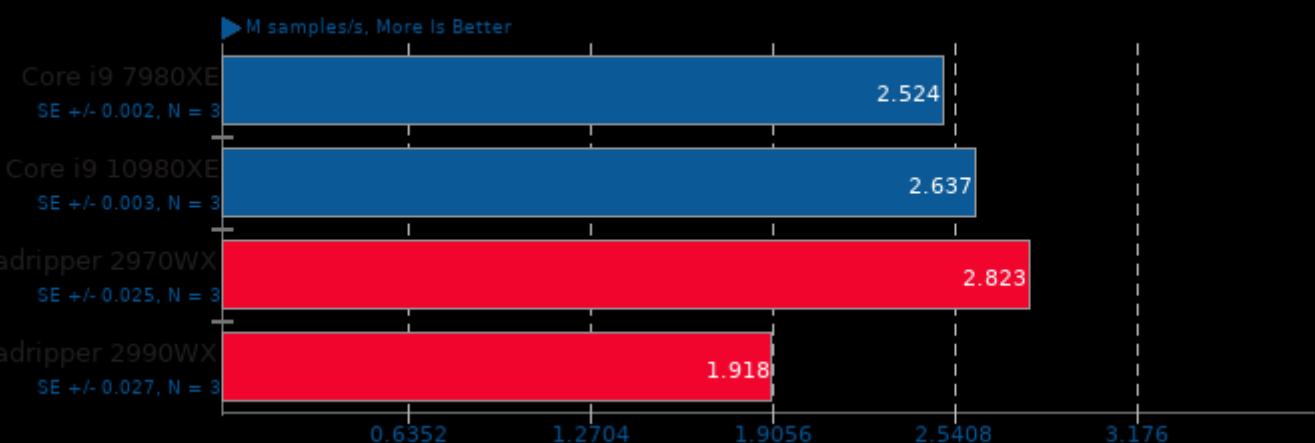
Timed Linux Kernel Compilation 5.4

Time To Compile



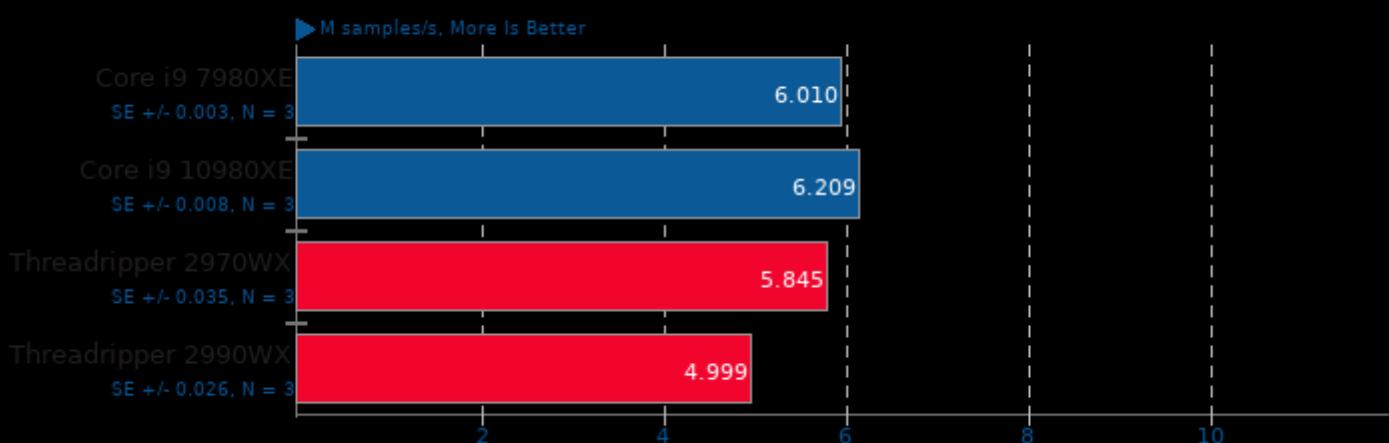
IndigoBench 4.0.64

Scene: Bedroom



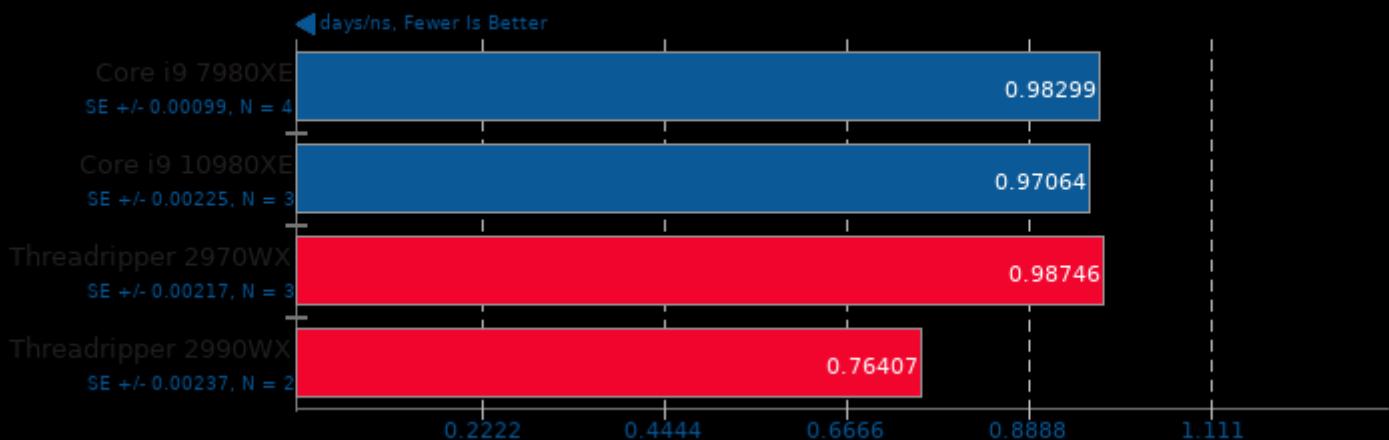
IndigoBench 4.0.64

Scene: Supercar



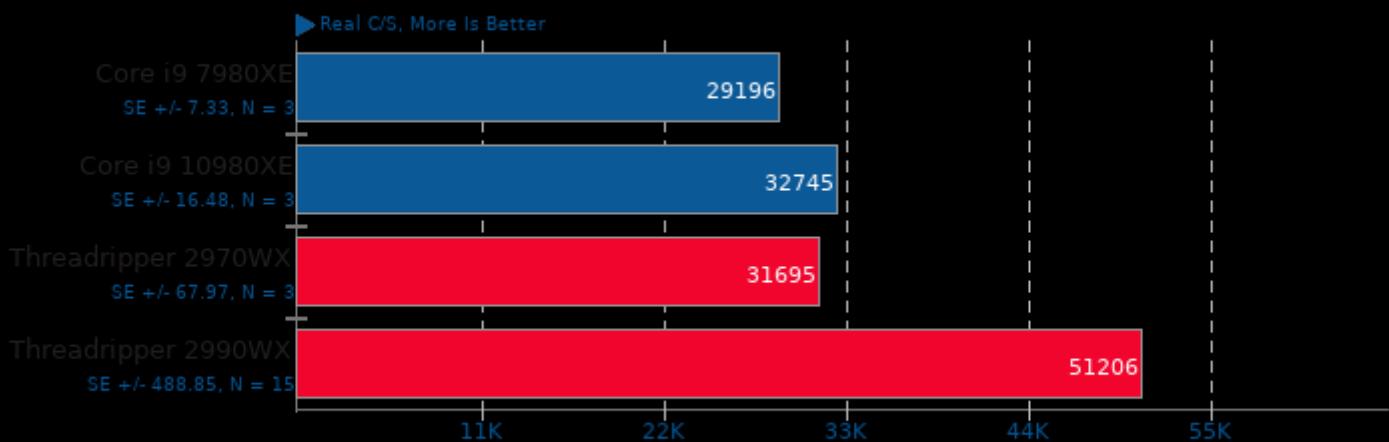
NAMD 2.13b1

ATPase Simulation - 327,506 Atoms



John The Ripper 1.9.0-jumbo-1

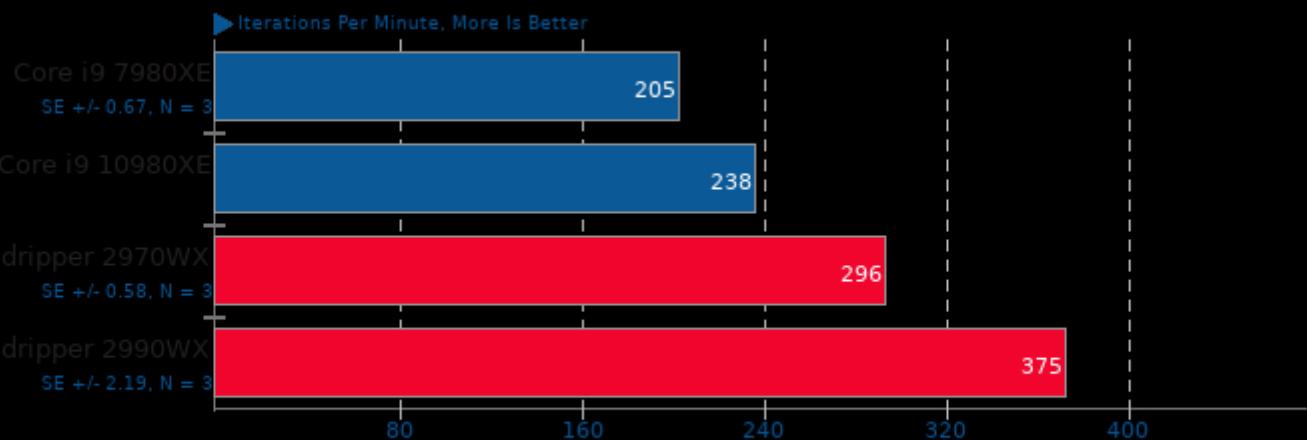
Test: Blowfish



1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2

GraphicsMagick 1.3.33

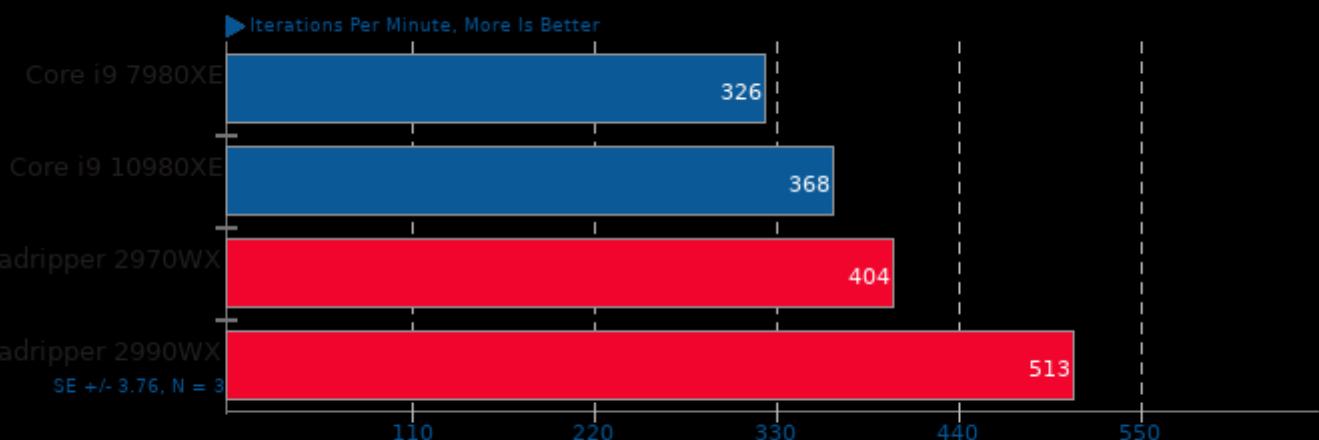
Operation: Sharpen



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -ICE -lX11 -lIzma -lbz2 -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

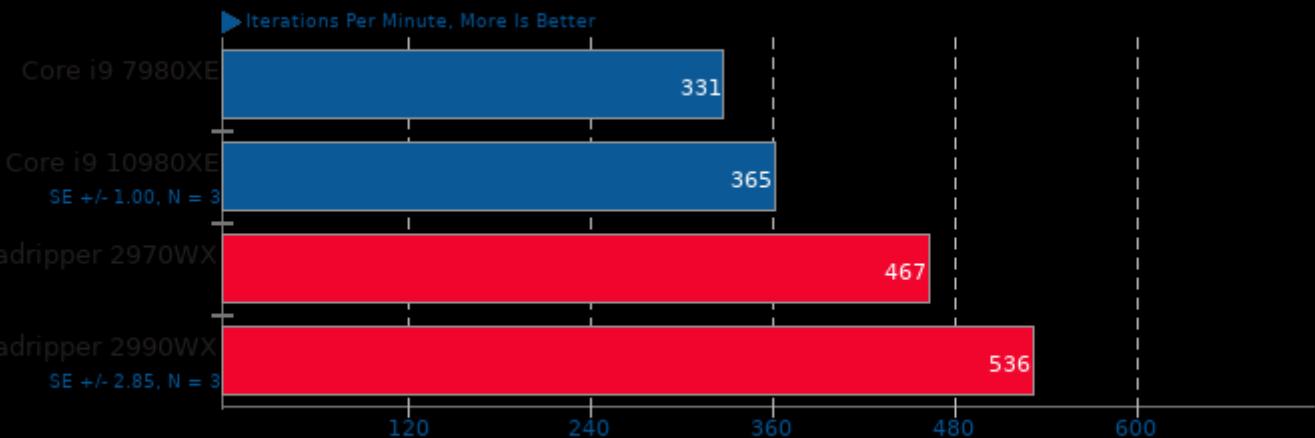
Operation: Enhanced



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -ICE -lX11 -lIzma -lbz2 -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

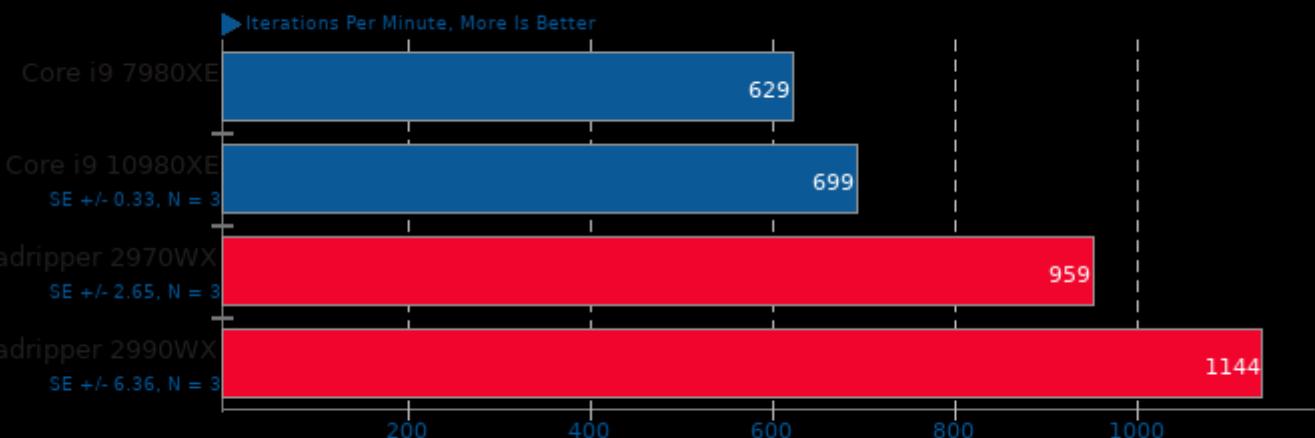
Operation: Noise-Gaussian



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

Operation: Swirl

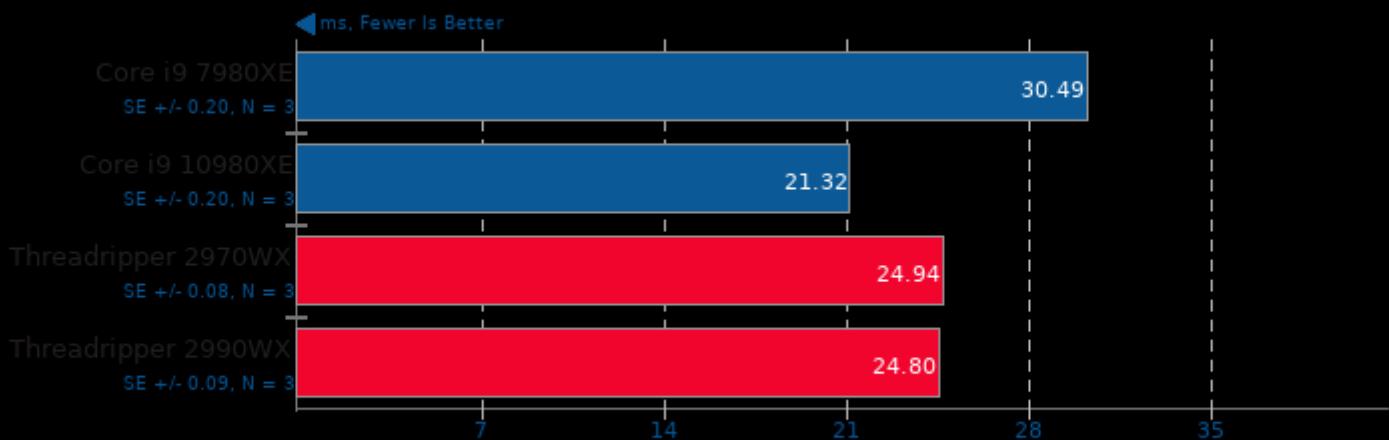


1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lxml2 -lz -lm -lpthread

Intel Core i9-10980XE Linux Benchmarks

Selenium

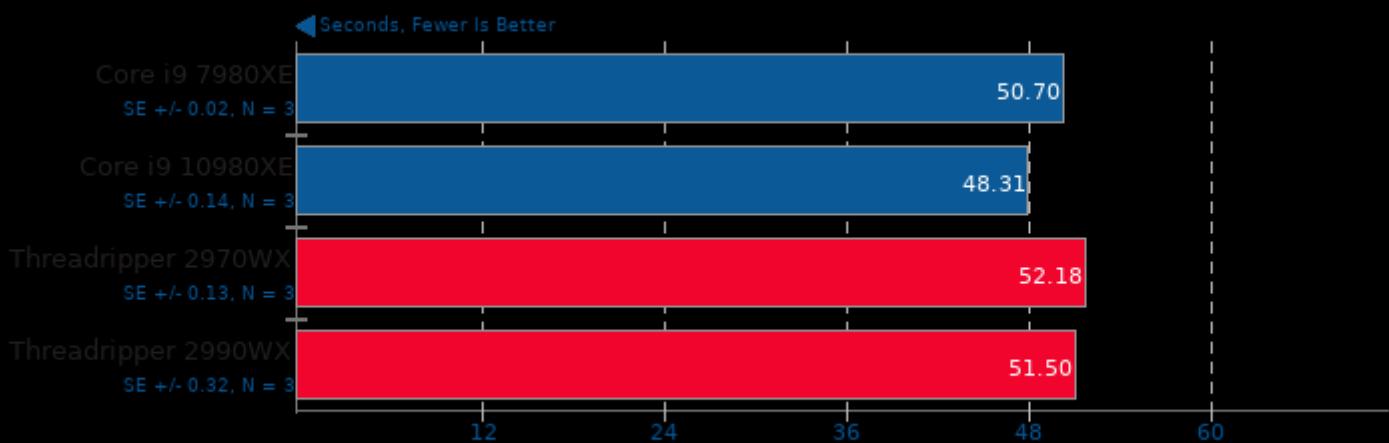
Benchmark: ARES-6 - Browser: Google Chrome



1. chrome 78.0.3904.97

Timed PHP Compilation 7.1.9

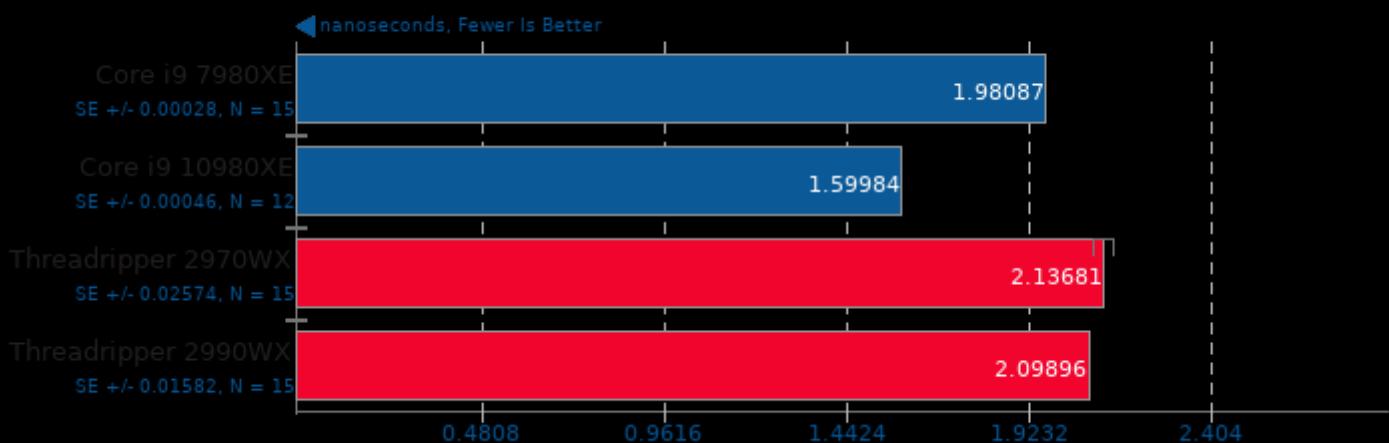
Time To Compile



1. (CC) gcc options: -O2 -pedantic -ldl -lz -lm

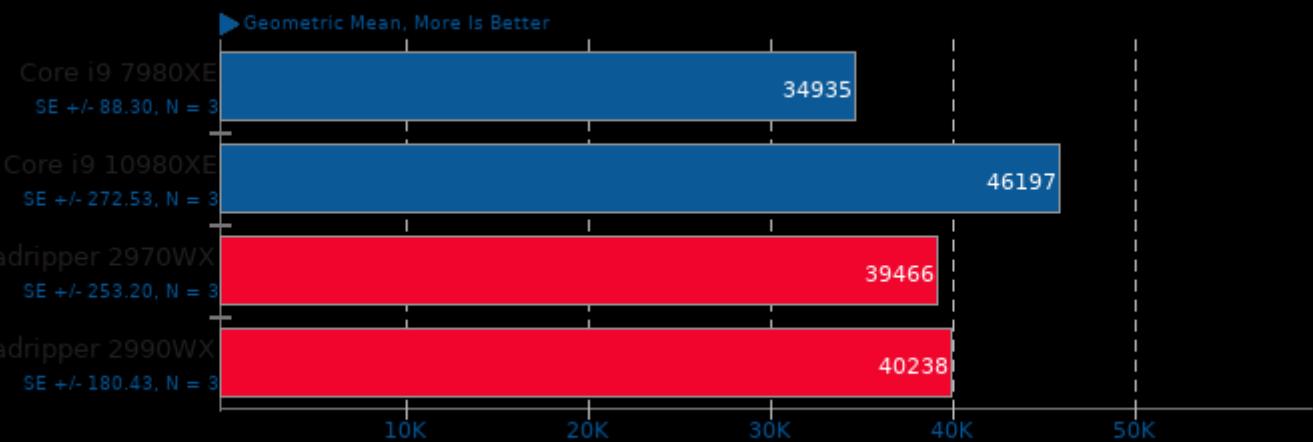
glibc bench 1.0

Benchmark: sqrt



Selenium

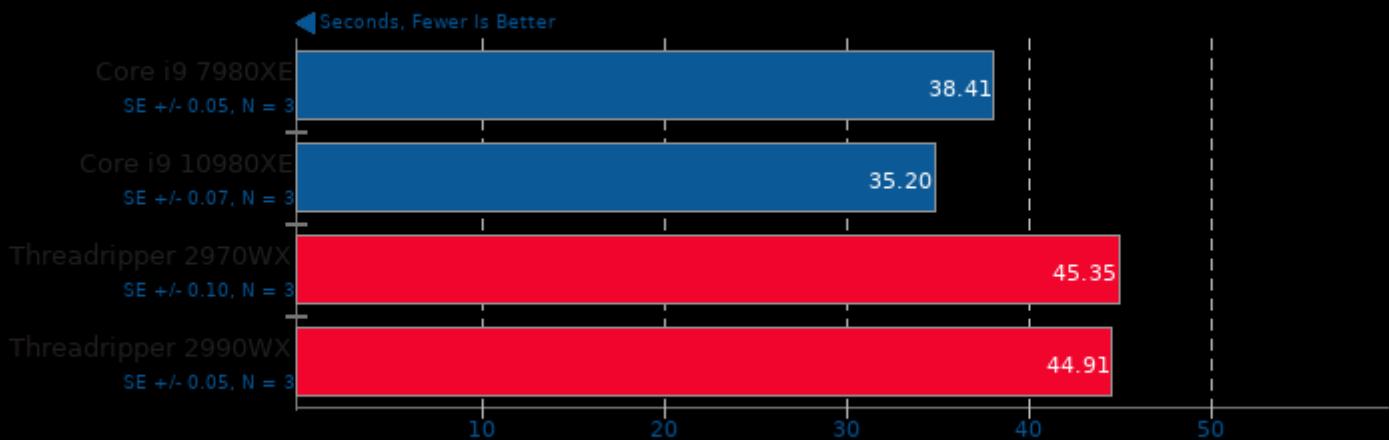
Benchmark: Octane - Browser: Google Chrome



1. chrome 78.0.3904.97

dcraw

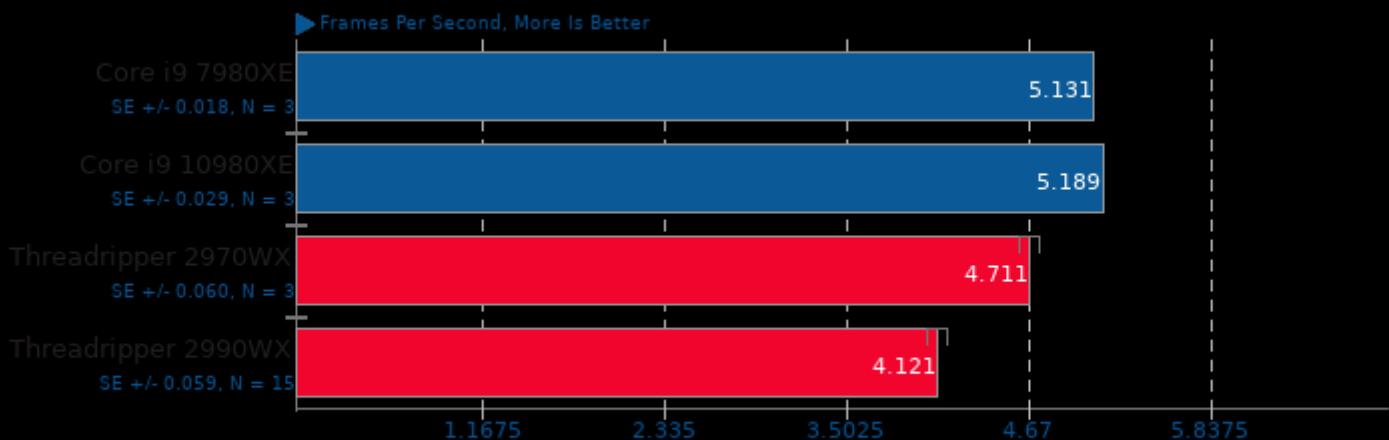
RAW To PPM Image Conversion



1. (CC) gcc options: -f

SVT-AV1 0.7

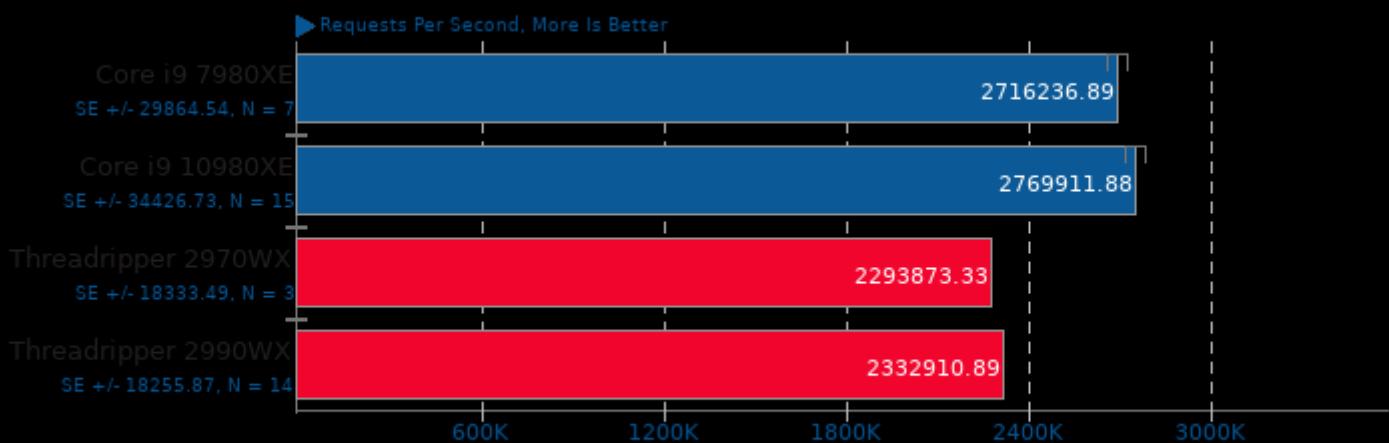
Encoder Mode: Enc Mode 4 - Input: 1080p



1. (CXX) g++ options: -fPIE -fPIC -pie

Redis 5.0.5

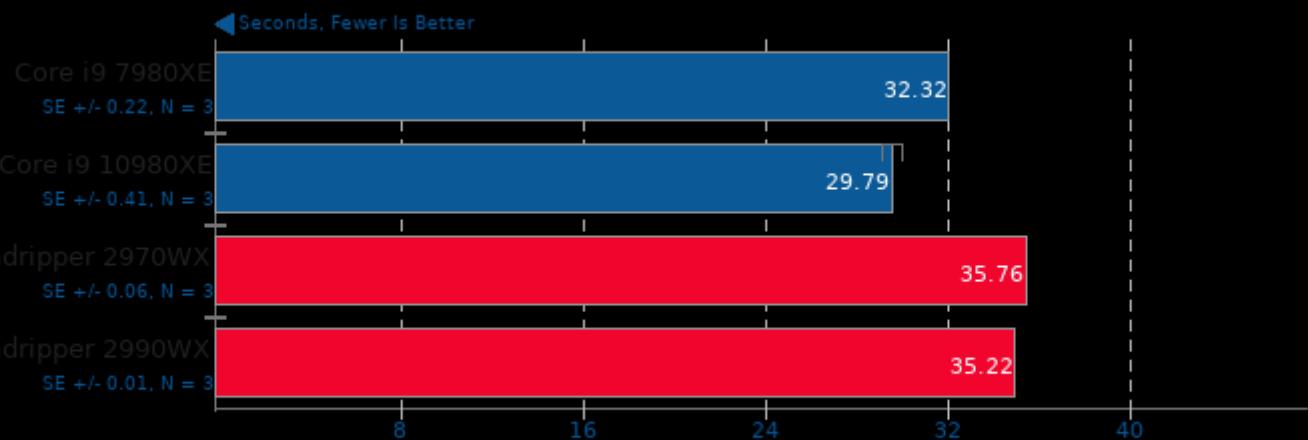
Test: GET



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

AOBench

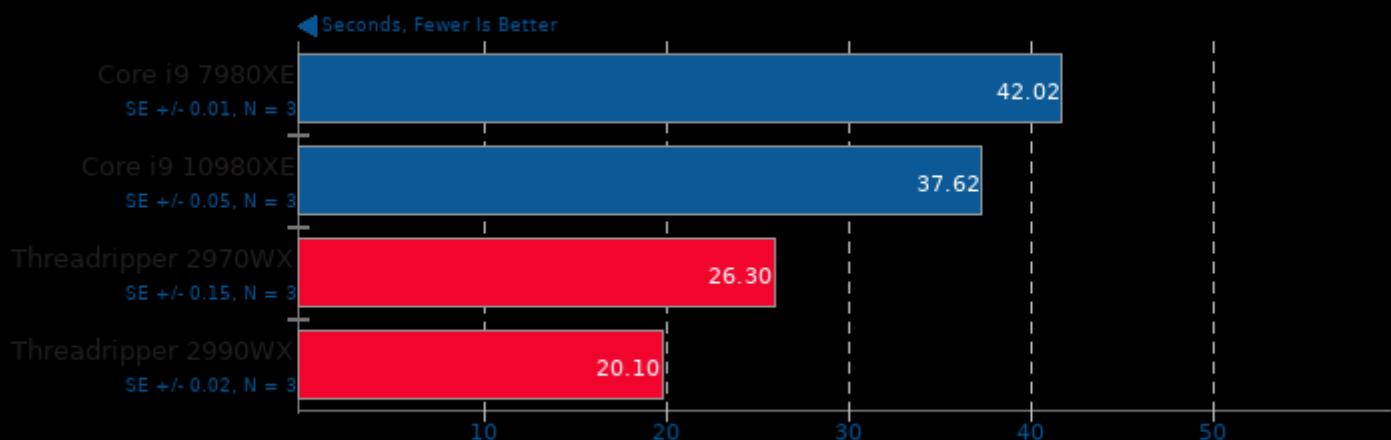
Size: 2048 x 2048 - Total Time



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

C-Ray 1.1

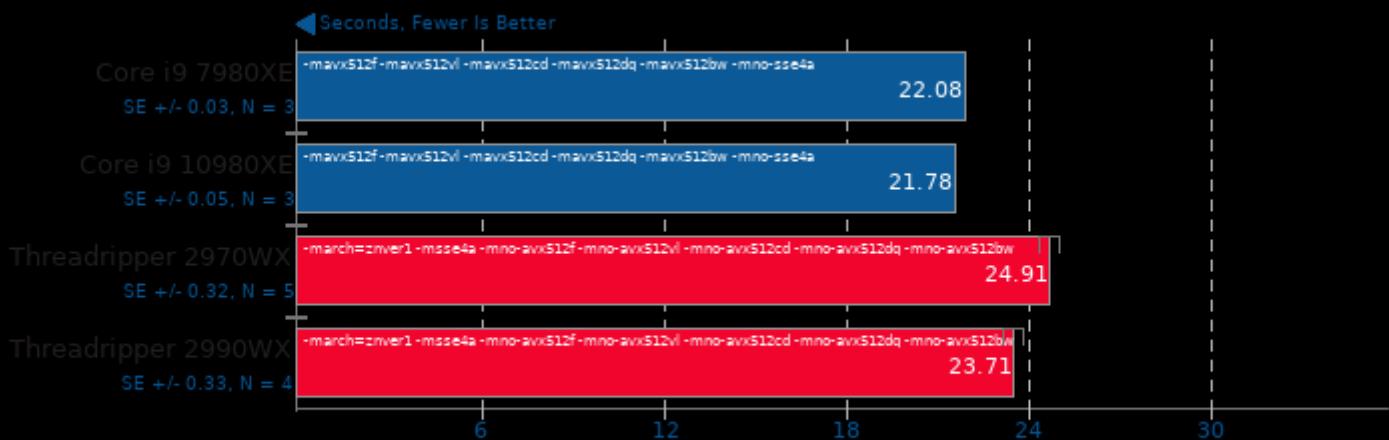
Total Time - 4K, 16 Rays Per Pixel



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

Tungsten Renderer 0.2.2

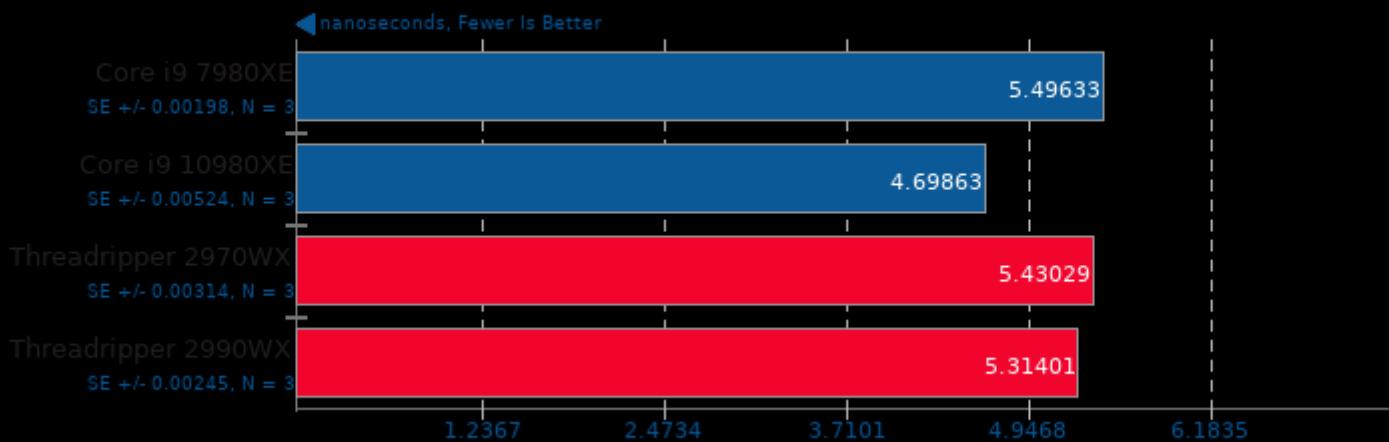
Scene: Water Caustic



1. (CXX) g++ options: -std=c++11 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512pf -

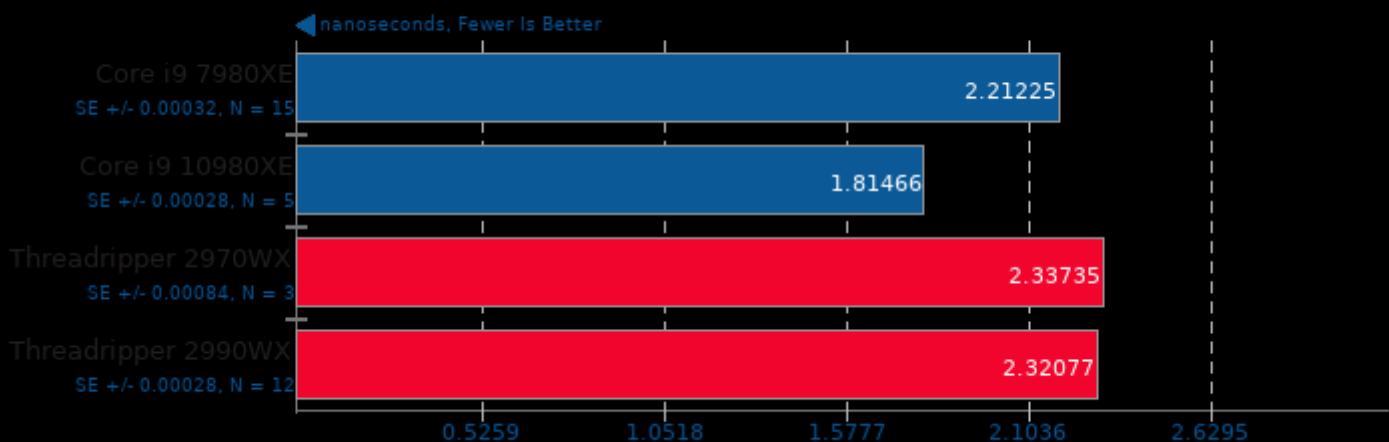
glibc bench 1.0

Benchmark: exp



glibc bench 1.0

Benchmark: modf



LuaJIT 2.1-git

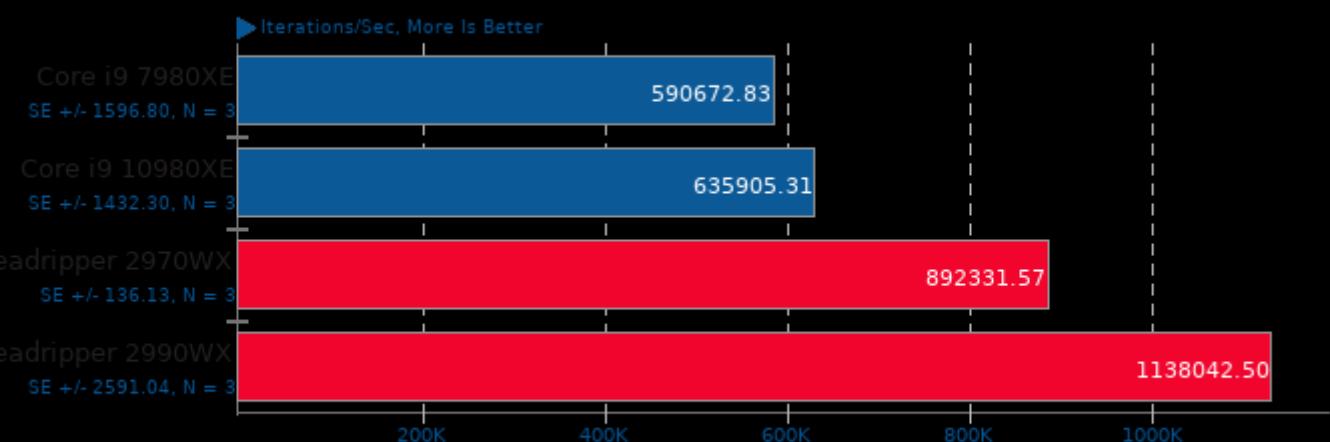
Test: Composite



1. (CC) gcc options: -lm -ldl -O2 -fomit-frame-pointer -U_FORTIFY_SOURCE -fno-stack-protector

Coremark 1.0

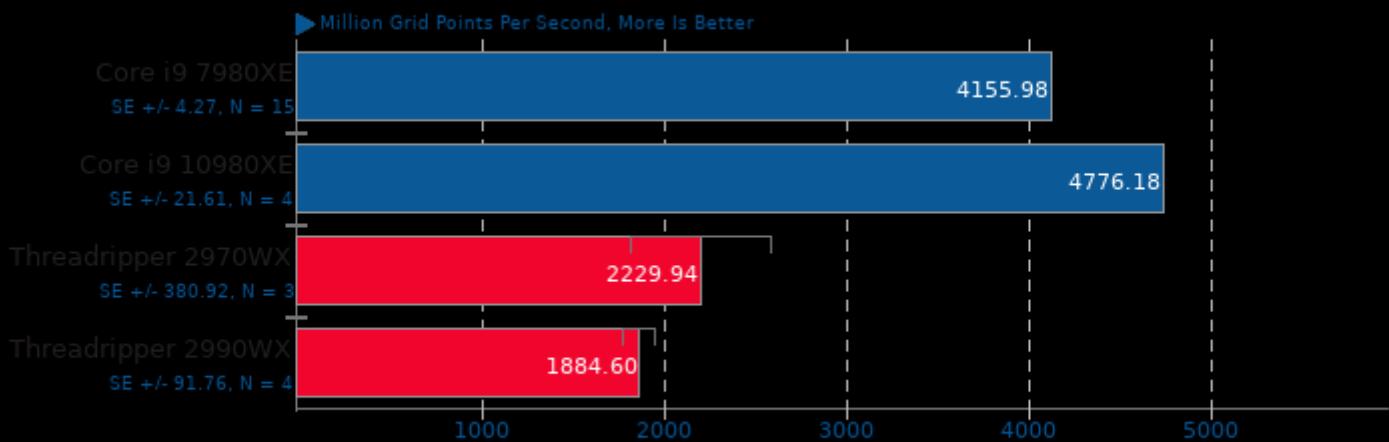
CoreMark Size 666 - Iterations Per Second



1. (CC) gcc options: -O2 -fipa -fipa

ASKAP 2018-11-10

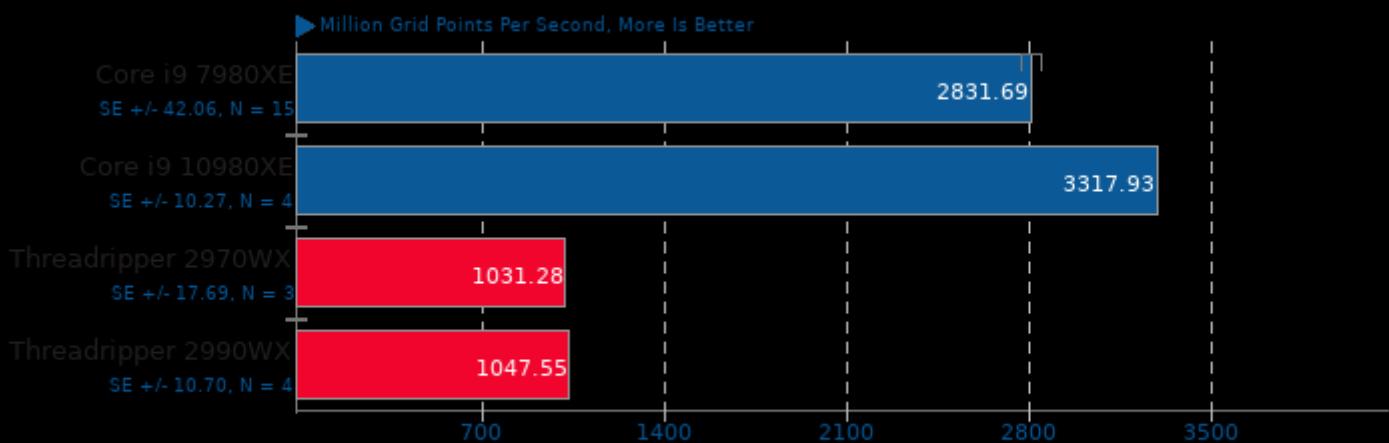
Test: tConvolve OpenMP - Degridding



1. (CXX) g++ options: -lpthread

ASKAP 2018-11-10

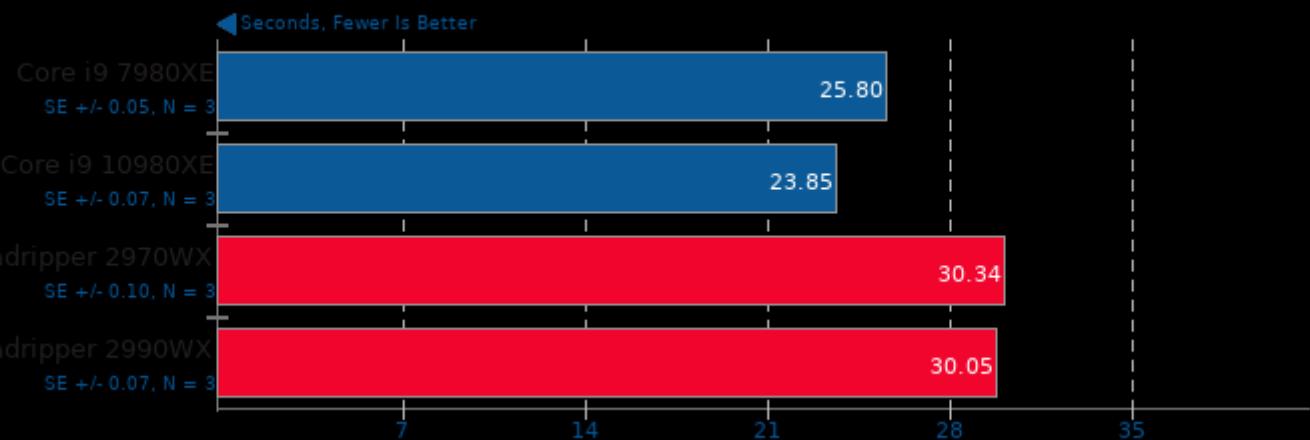
Test: tConvolve OpenMP - Gridding



1. (CXX) g++ options: -lpthread

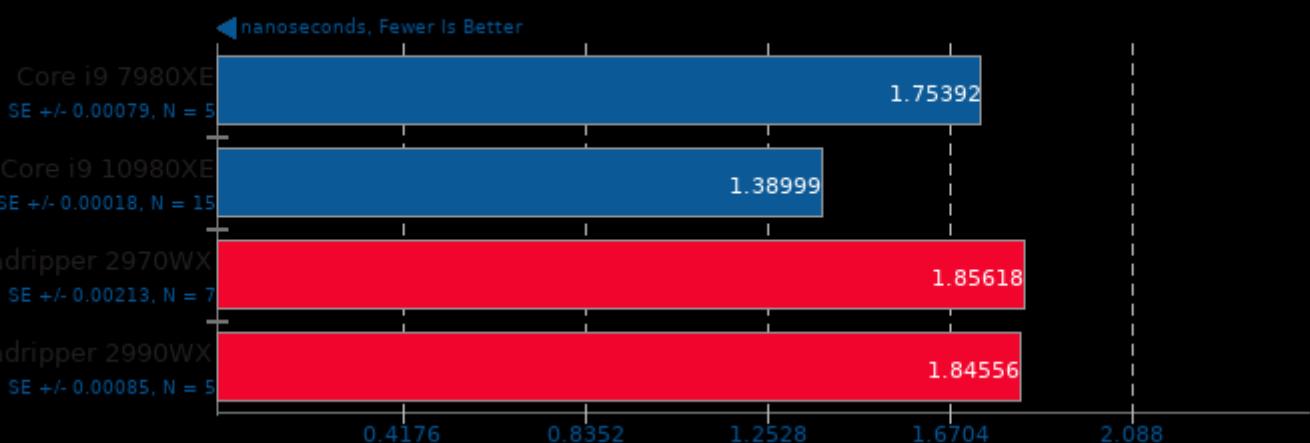
Tesseract OCR 4.1.0

Time To OCR 7 Images



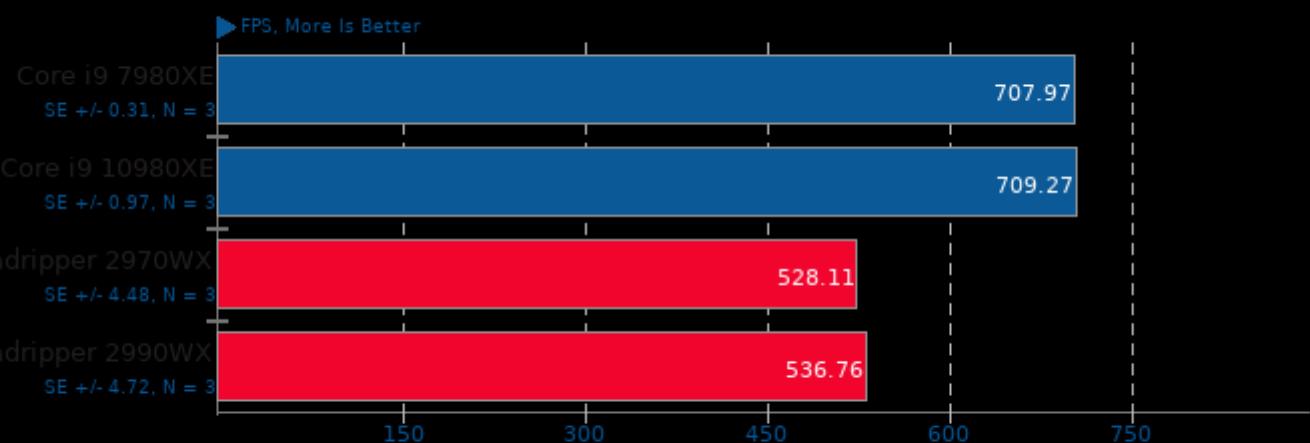
glibc bench 1.0

Benchmark: ffs



TTSIOD 3D Renderer 2.3b

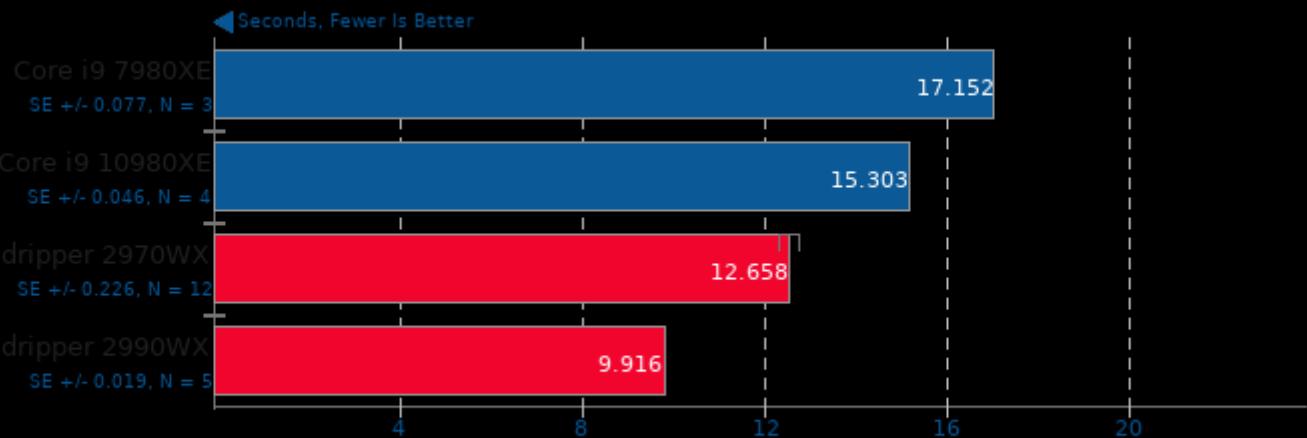
Phong Rendering With Soft-Shadow Mapping



1. (CXX) g++ options: -O3 -fomit-frame-pointer -ffast-math -mtune=native -fno-msse -mrecip -mfpmath=sse -msse2 -msse3 -msse4 -fopenmp -fwhole-pr

Rodinia 2.4

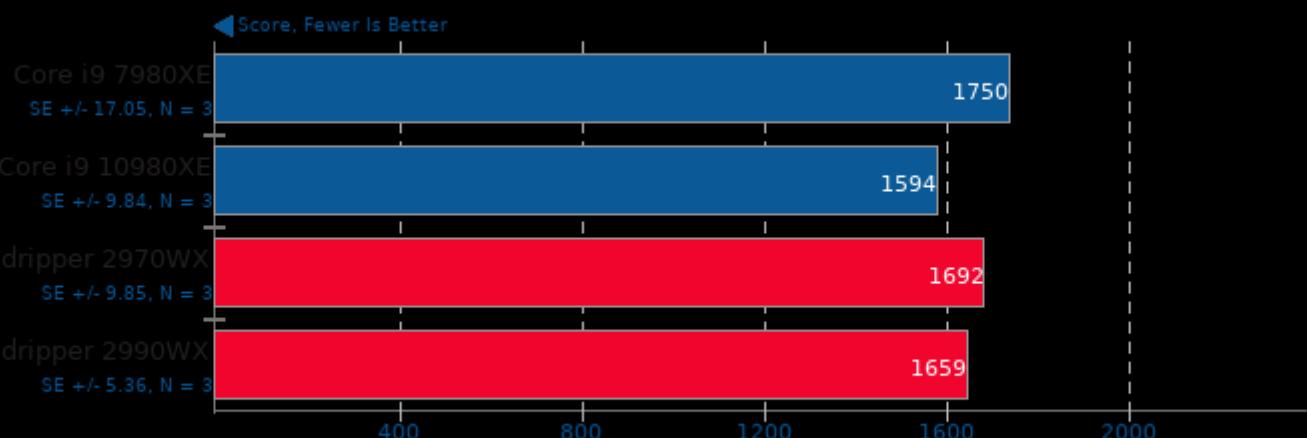
Test: OpenMP LavaMD



1. (CXX) g++ options: -O2 -fOpenCL

Selenium

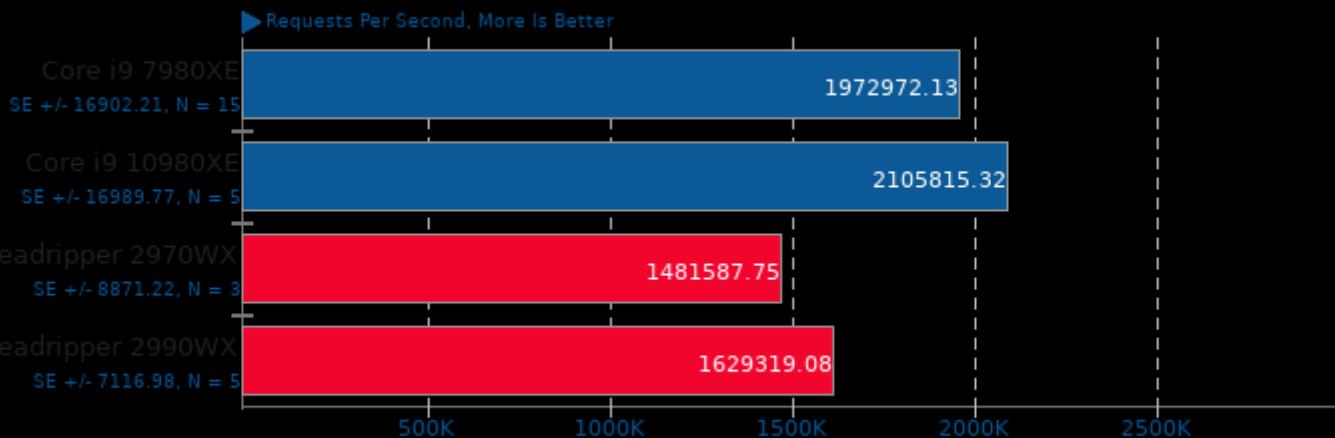
Benchmark: PSPDFKit WASM - Browser: Firefox



1. firefox 70.0.1

Redis 5.0.5

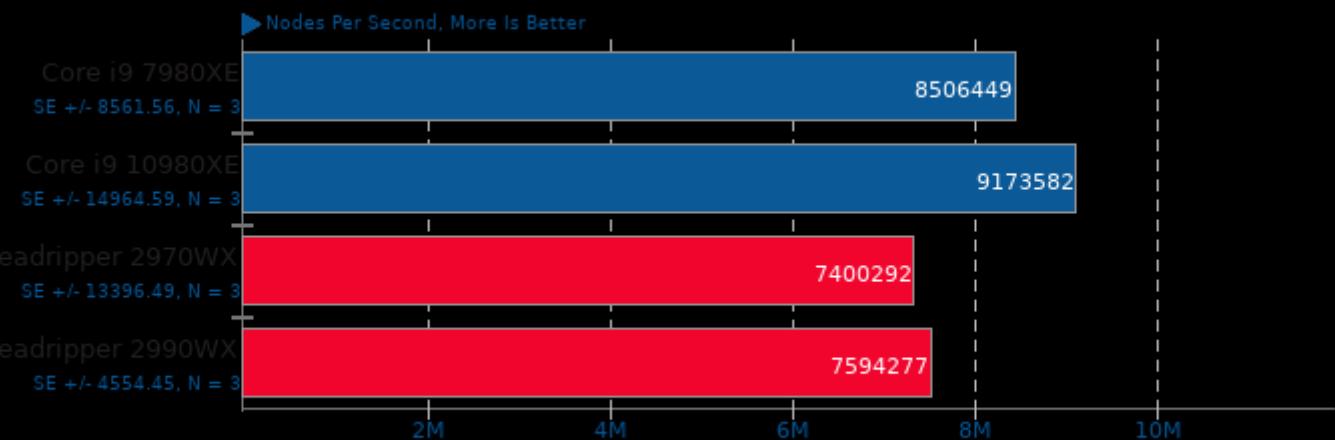
Test: SET



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Crafty 25.2

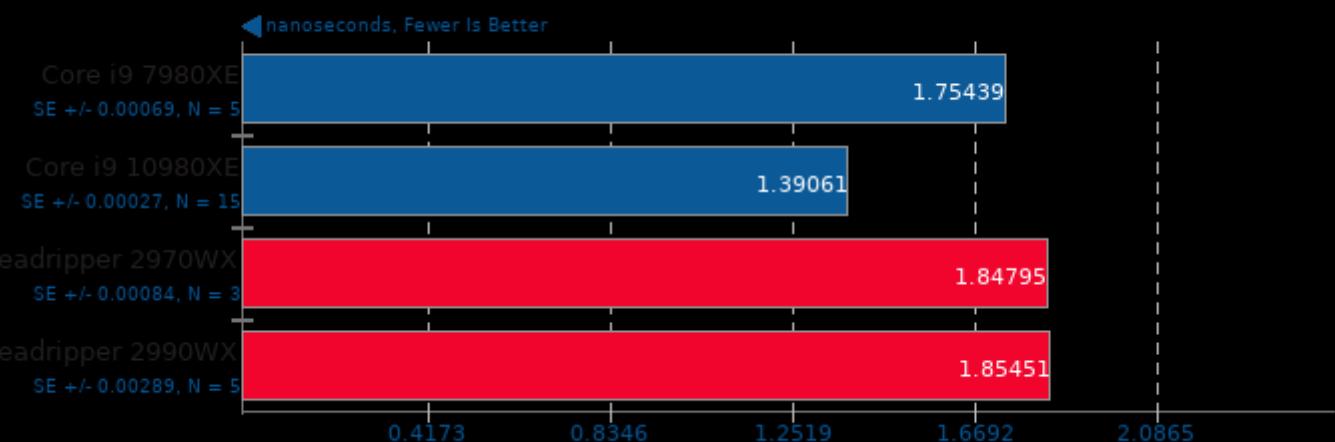
Elapsed Time



1. (CC) gcc options: -pthread -stdc++ -fprofile-use -lm

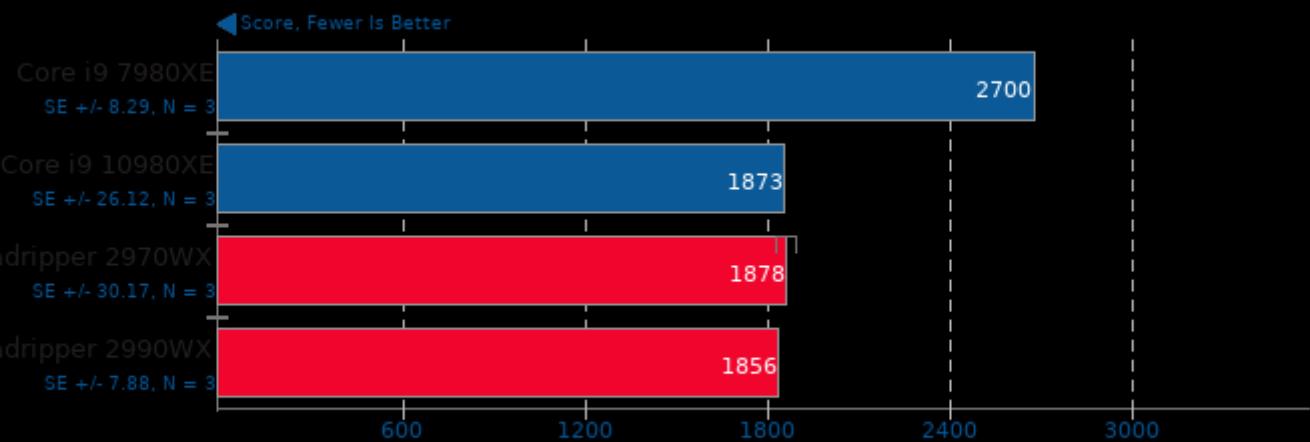
glibc bench 1.0

Benchmark: ffsl



Selenium

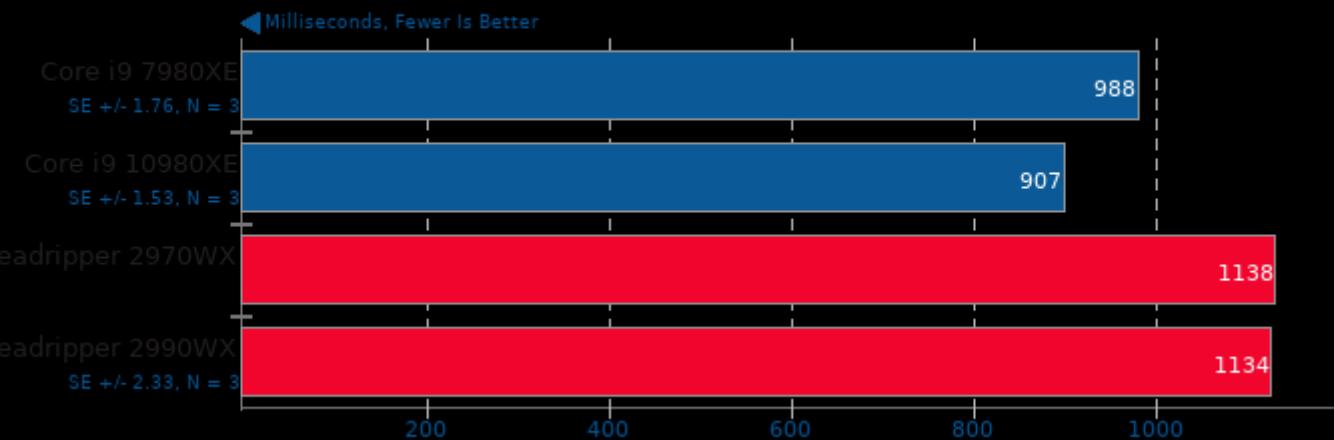
Benchmark: PSPDFKit WASM - Browser: Google Chrome



1. chrome 78.0.3904.97

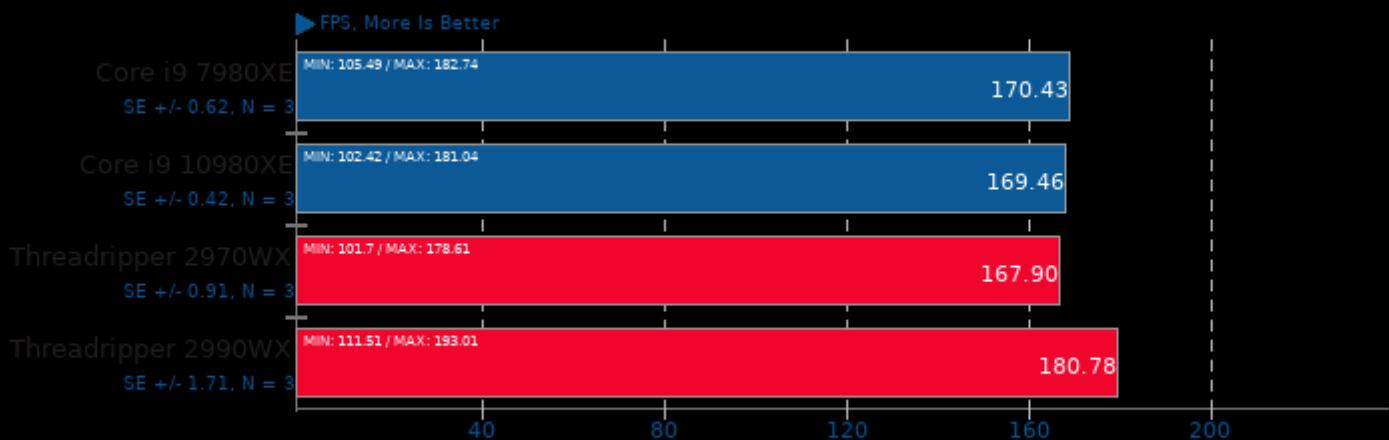
PyBench 2018-02-16

Total For Average Test Times



dav1d 0.5.0

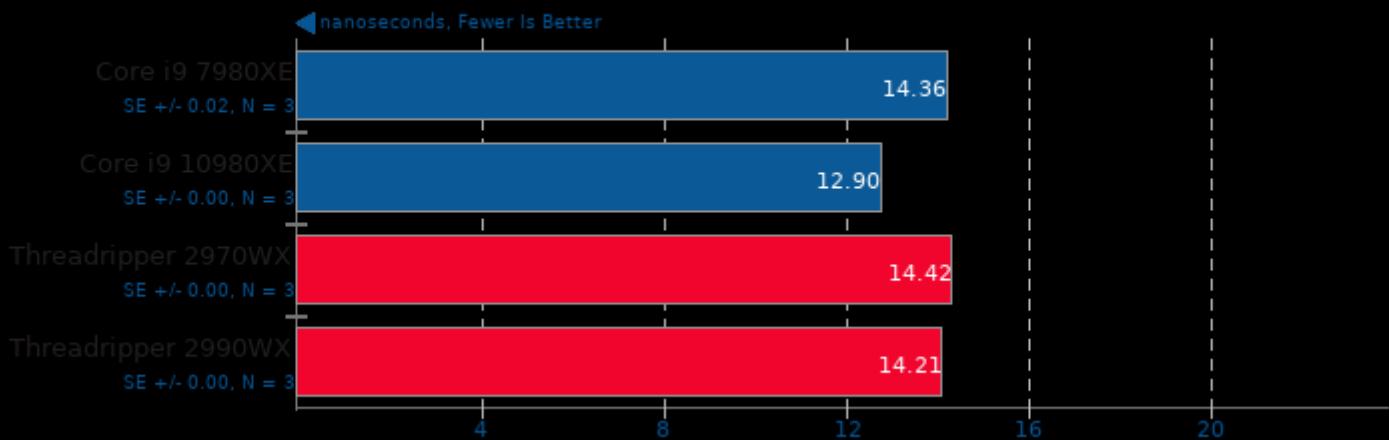
Video Input: Summer Nature 4K



1. (CC) gcc options: -pthread

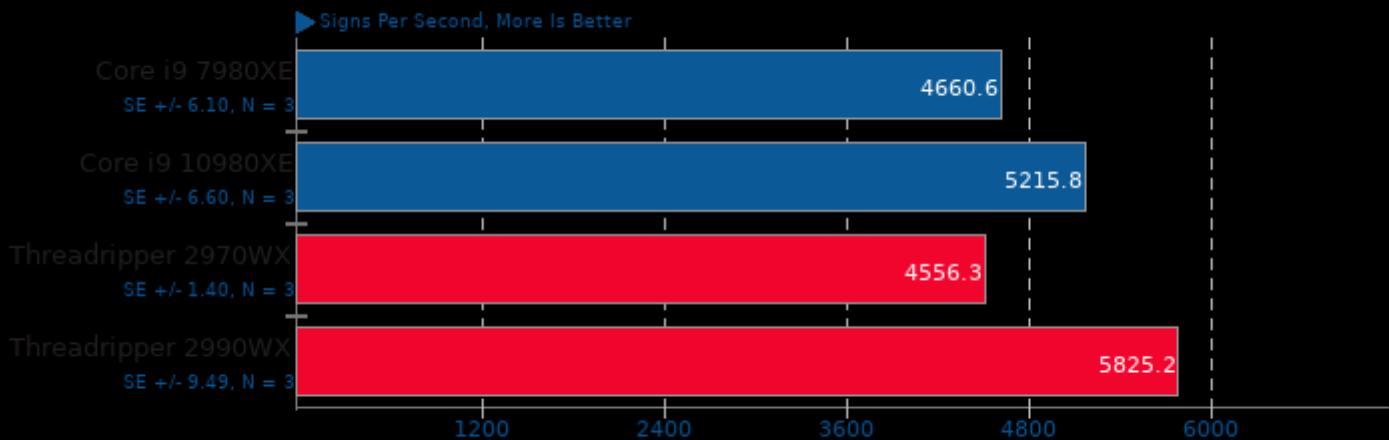
glibc bench 1.0

Benchmark: sincos



OpenSSL 1.1.1

RSA 4096-bit Performance

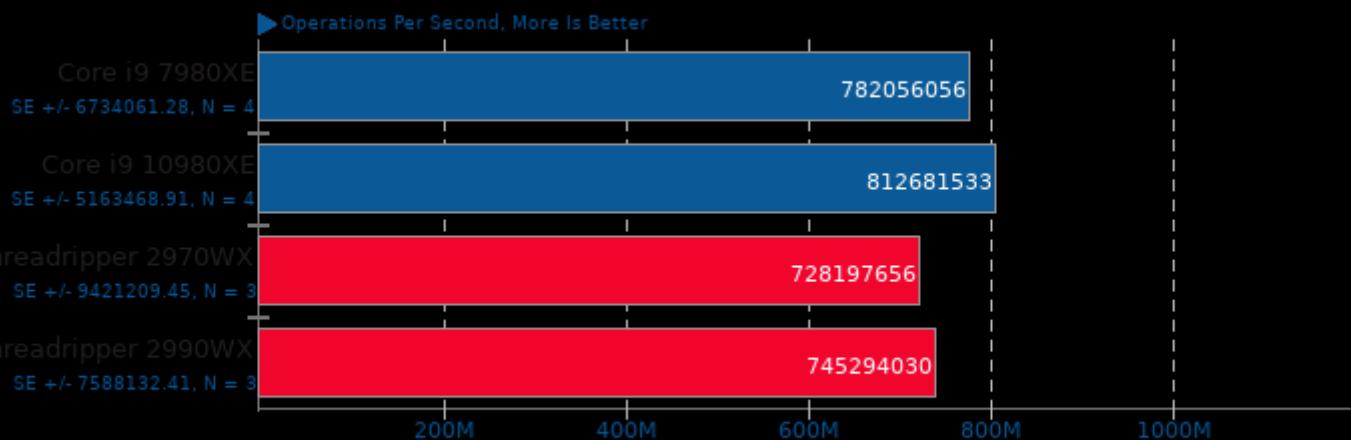


1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

Intel Core i9-10980XE Linux Benchmarks

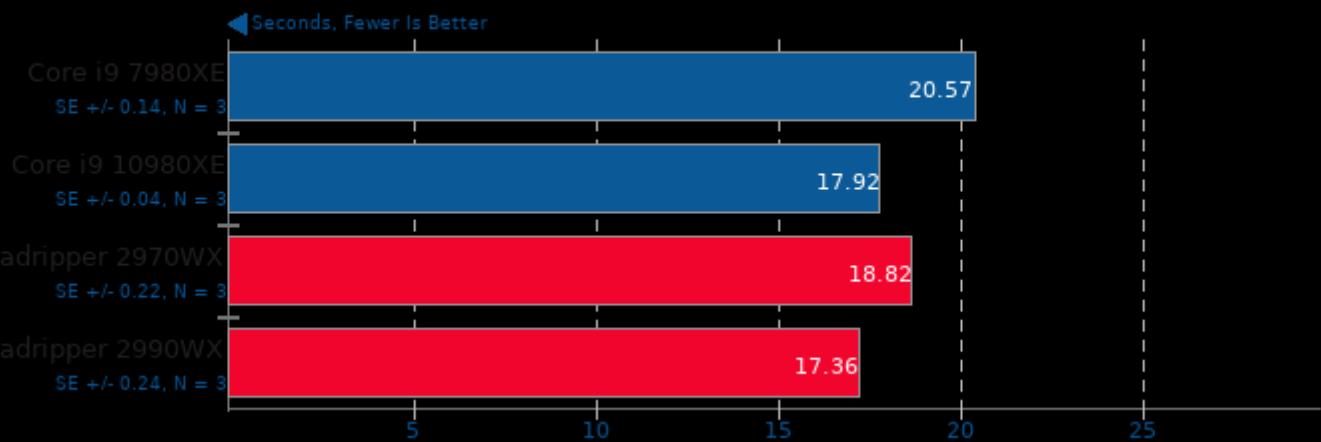
Swet 1.5.16

Average



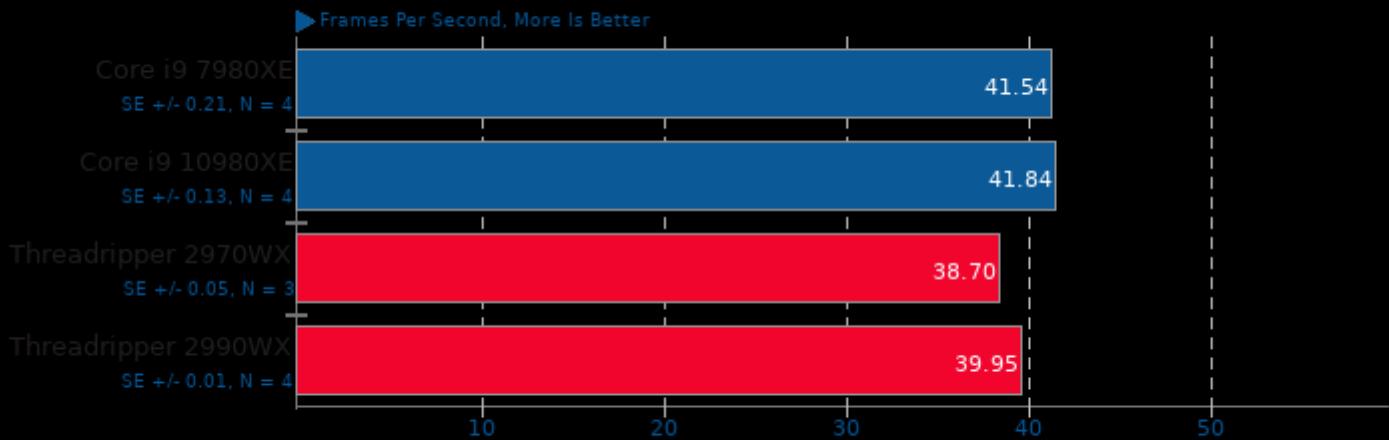
1. (CC) gcc options: -lm -lpthread -lcurses -lrt

GNU Octave Benchmark 4.4.1



x265 3.1.2

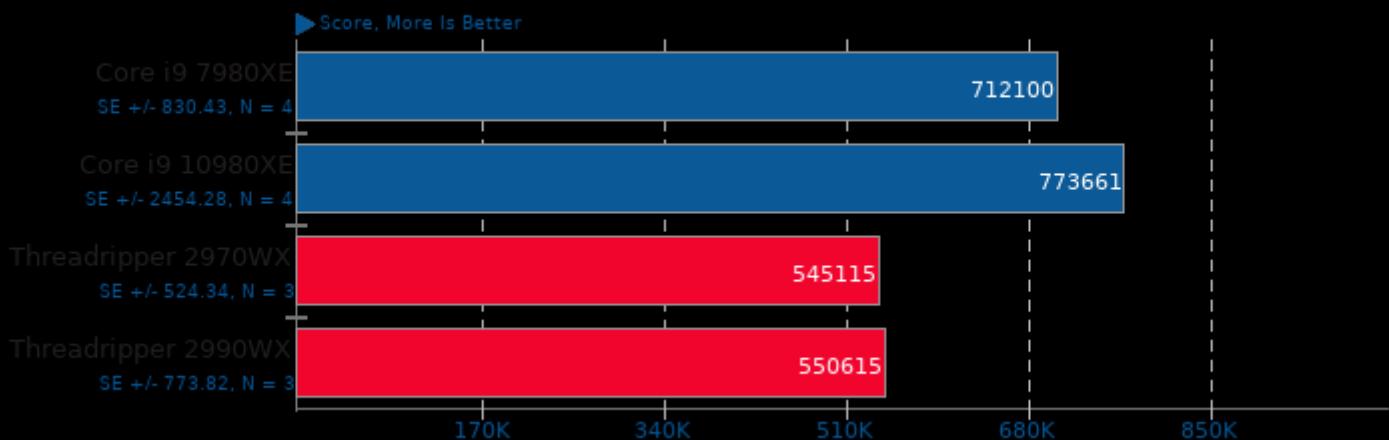
H.265 1080p Video Encoding



1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma

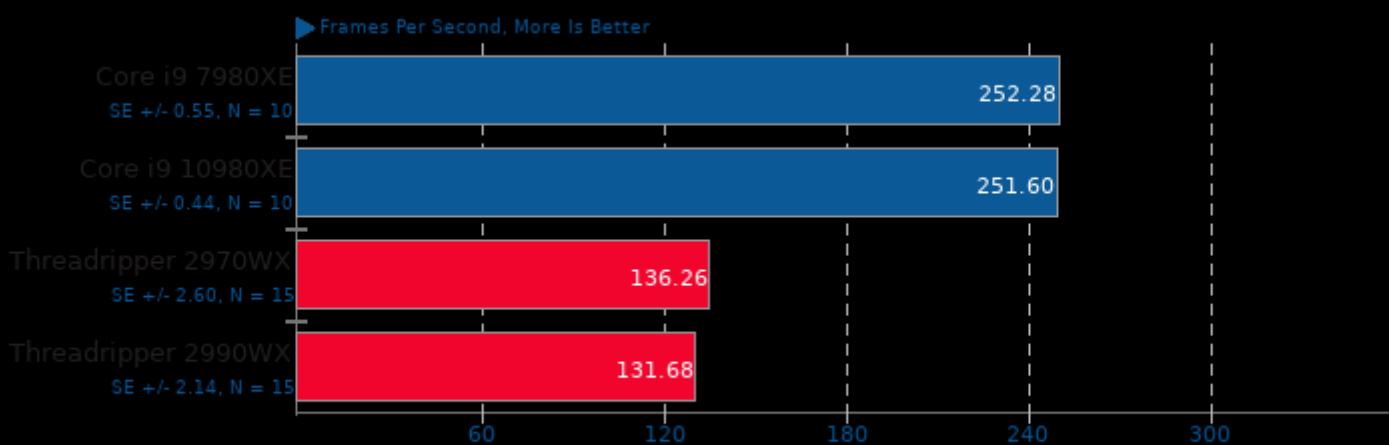
PHPBench 0.8.1

PHP Benchmark Suite



SVT-VP9 0.1

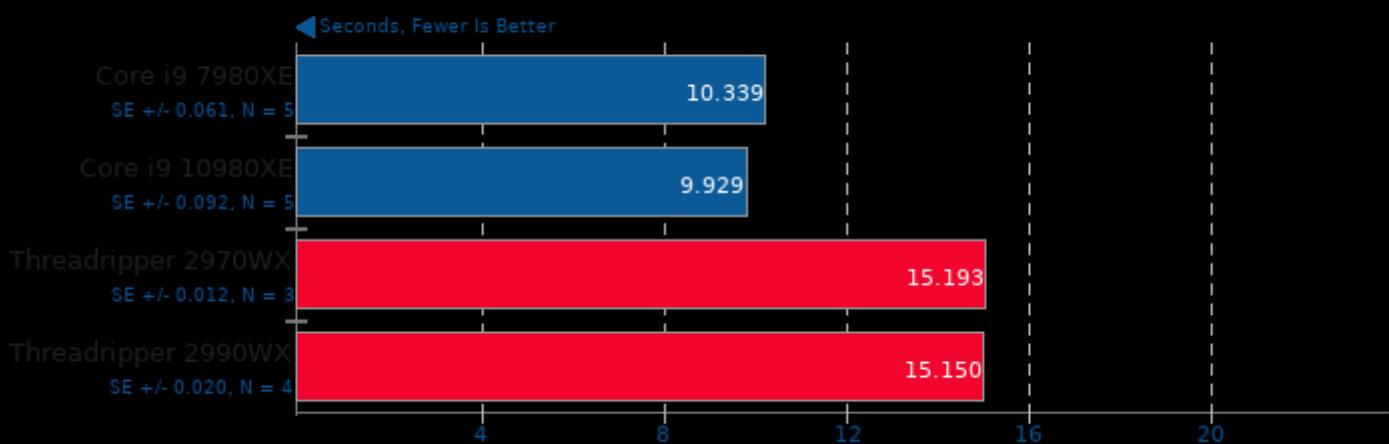
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -fPIE -fPIC -fvisibility=hidden -O3 -pie -rdynamic -lpthread -lrt -lm

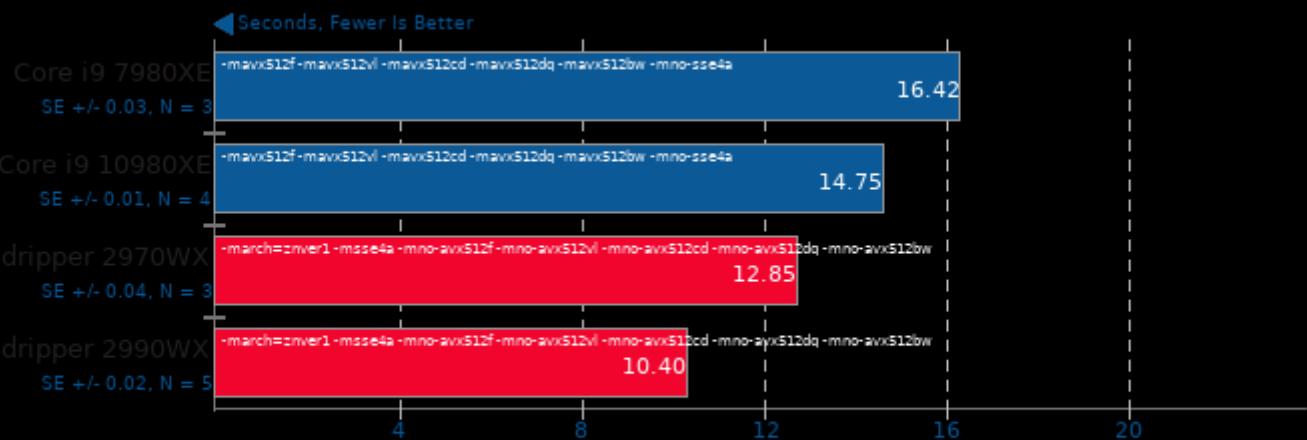
Sudokut 0.4

Total Time



Tungsten Renderer 0.2.2

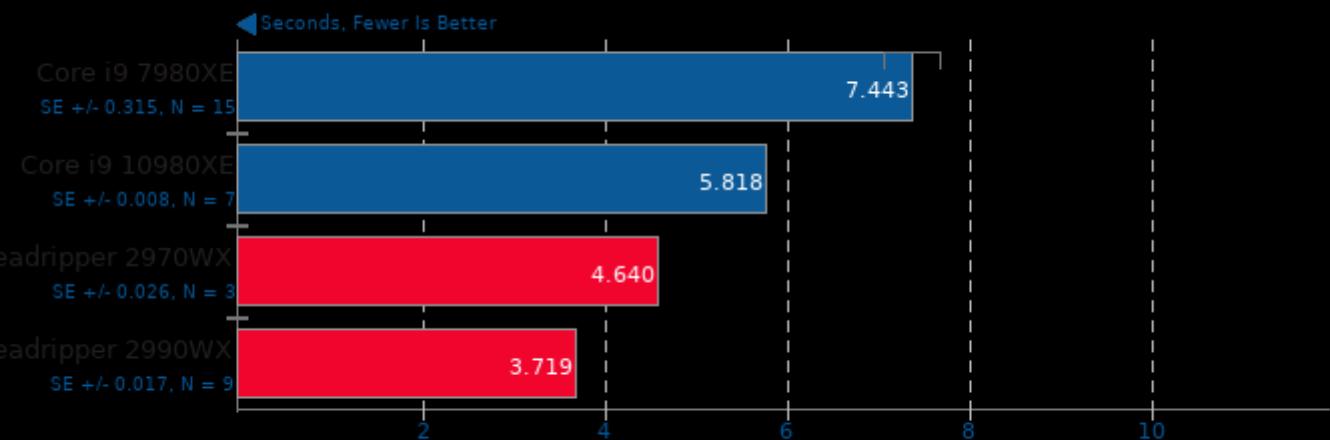
Scene: Hair



1. (CXX) g++ options: -std=c++11 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512pf -

Smallpt 1.0

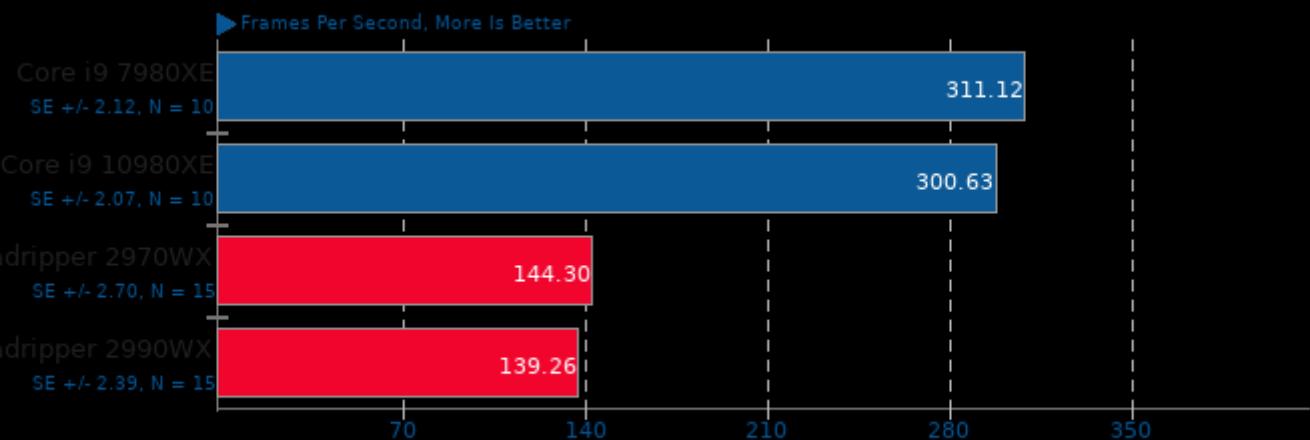
Global Illumination Renderer; 128 Samples



1. (CXX) g++ options: -fopenmp -O3

SVT-VP9 0.1

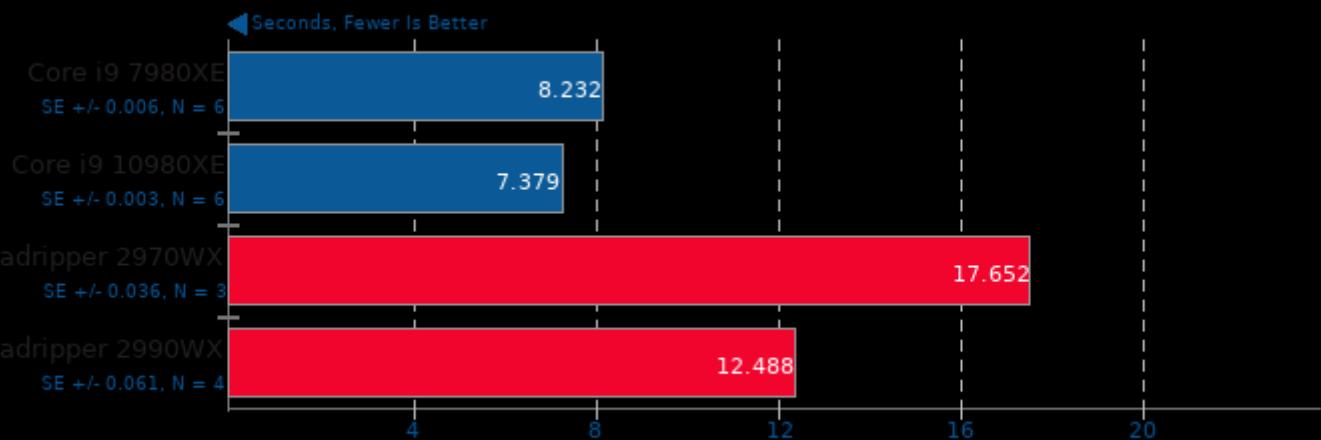
Tuning: VMAF Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -fPIE -fPIC -fvisibility=hidden -O3 -pie -rdynamic -lpthread -lrt -lm

Rust Prime Benchmark

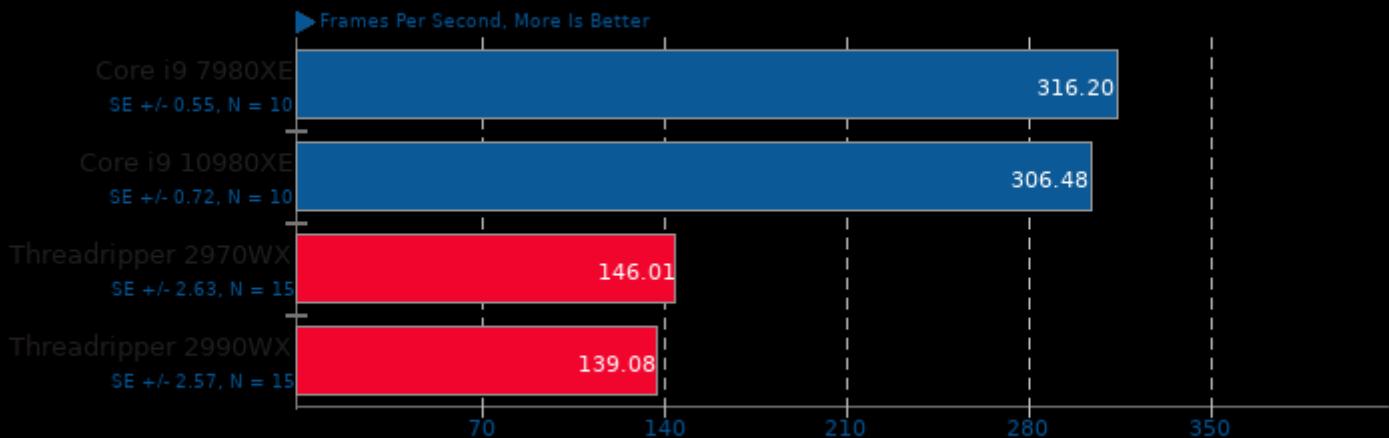
Prime Number Test To 200,000,000



1. (CC) gcc options: -m64 -pie -nodefaultlibs -ldl -lrt -lpthread -lgcc_s -lc -lm -util

SVT-VP9 0.1

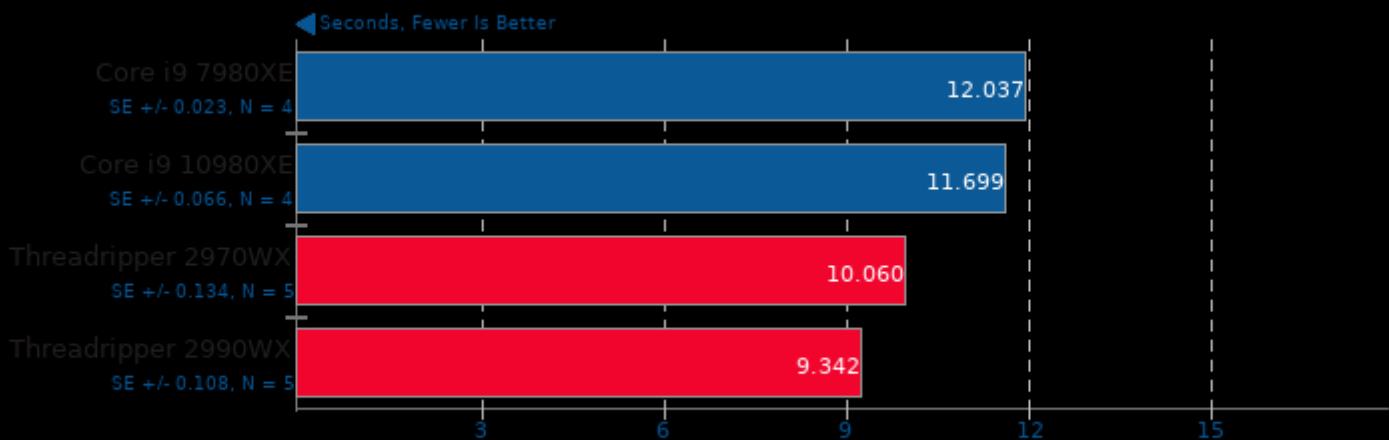
Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -fPIE -fPIC -fvisibility=hidden -O3 -pie -rdynamic -lpthread -lrt -lm

Rodinia 2.4

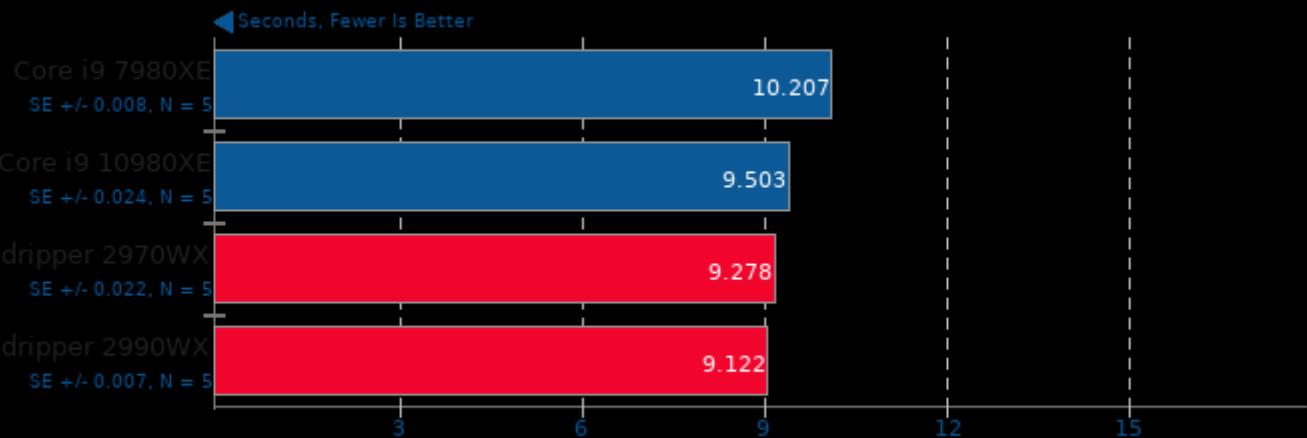
Test: OpenMP CFD Solver



1. (CXX) g++ options: -O2 -lOpenCL

FLAC Audio Encoding 1.3.2

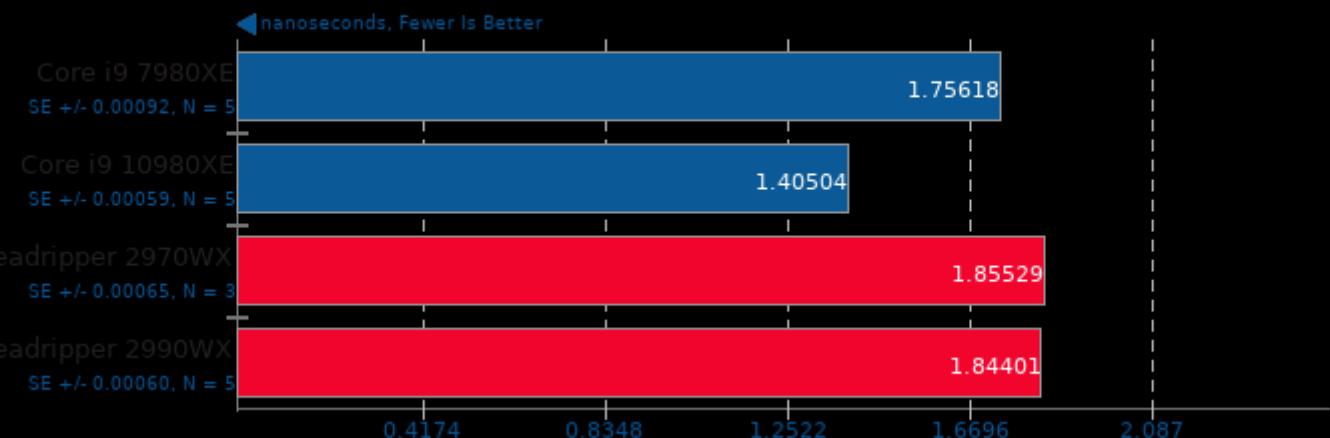
WAV To FLAC



1. (CXX) g++ options: -O2 -fvisibility=hidden -logg -lm

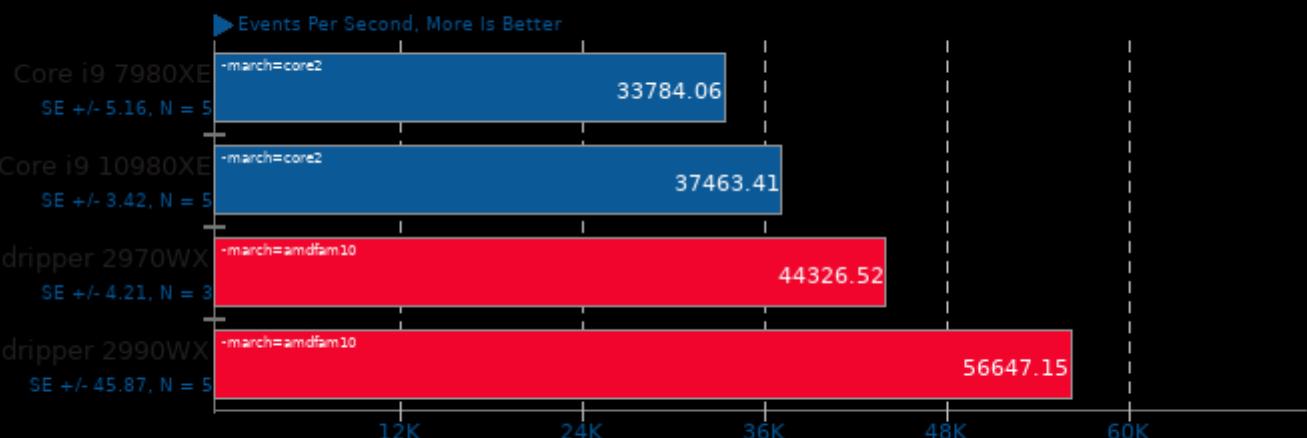
glibc bench 1.0

Benchmark: pthread_once



Sysbench 2018-07-28

Test: CPU

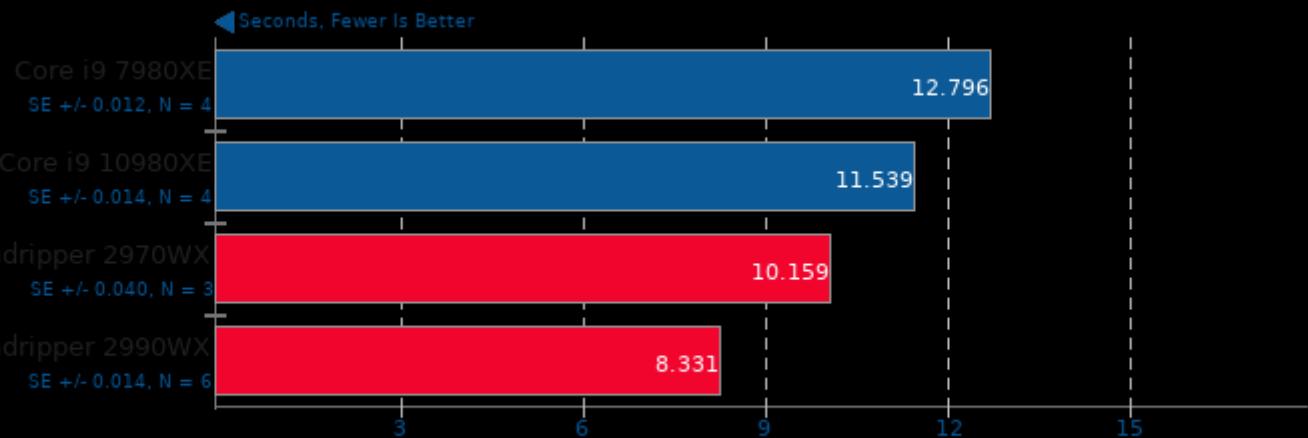


1. (CC) gcc options: -pthread -O3 -funroll-loops -ggdb3 -rdynamic -ldl -lai -lm

Intel Core i9-10980XE Linux Benchmarks

Primesieve 7.4

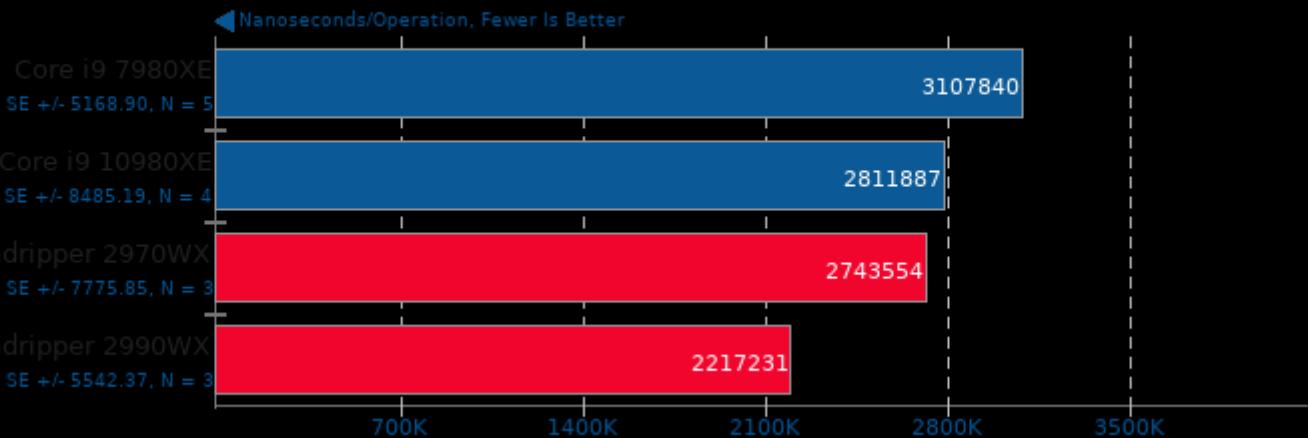
1e12 Prime Number Generation



1. (CXX) g++ options: -O3 -lpthread

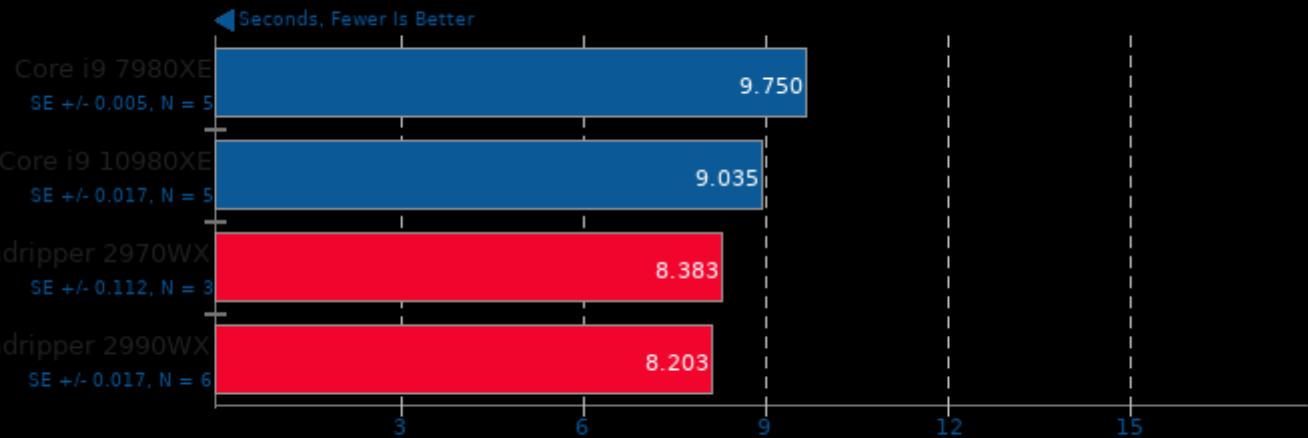
Go Benchmarks

Test: json



LAME MP3 Encoding 3.100

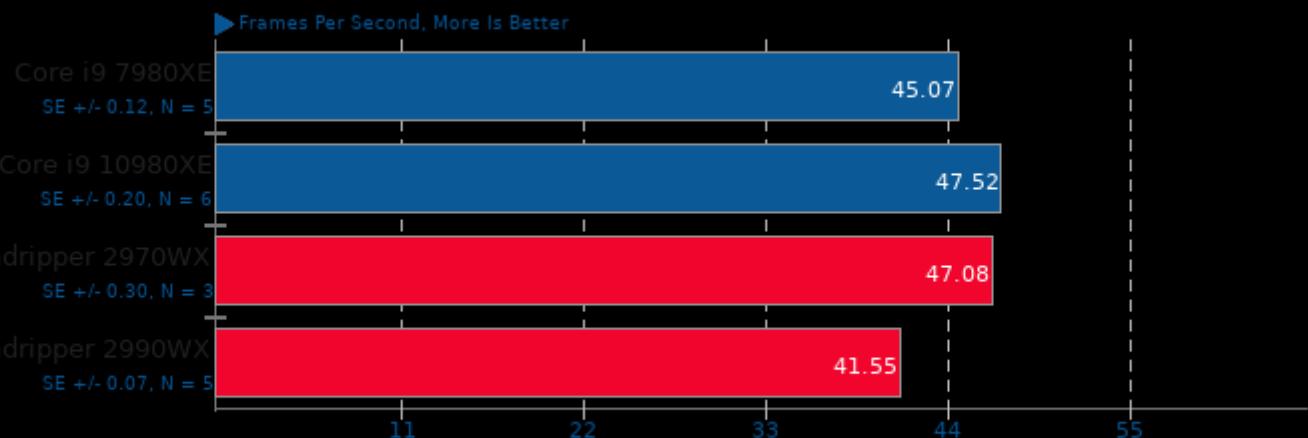
WAV To MP3



1. (CC) gcc options: -O3 -ffast-math -funroll-loops -fschedule-insns2 -fbranch-count-reg -fforce-addr -pipe -lncurses -lm

SVT-AV1 0.7

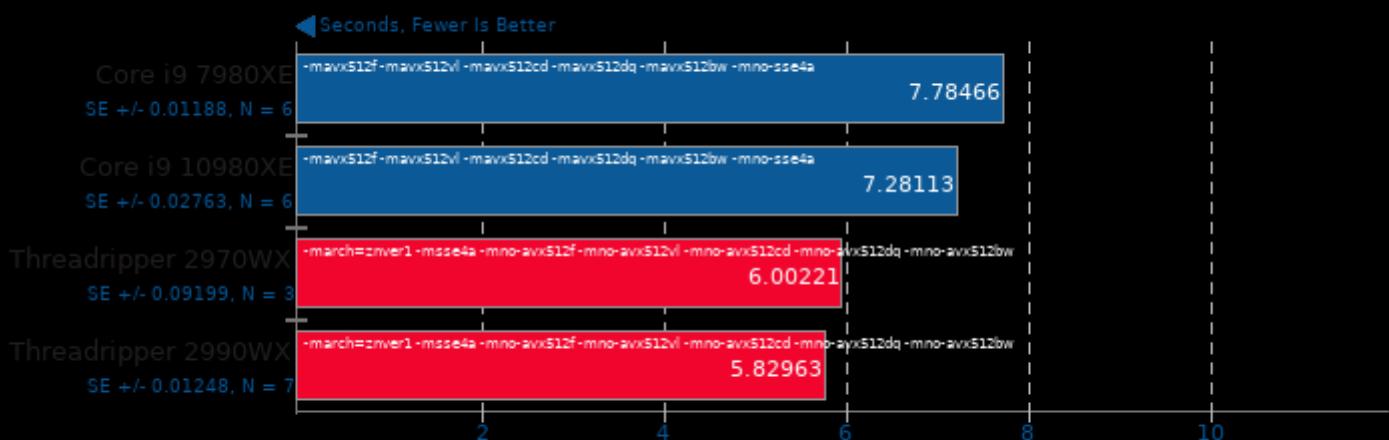
Encoder Mode: Enc Mode 8 - Input: 1080p



1. (CXX) g++ options: -fPIE -fPIC -pie

Tungsten Renderer 0.2.2

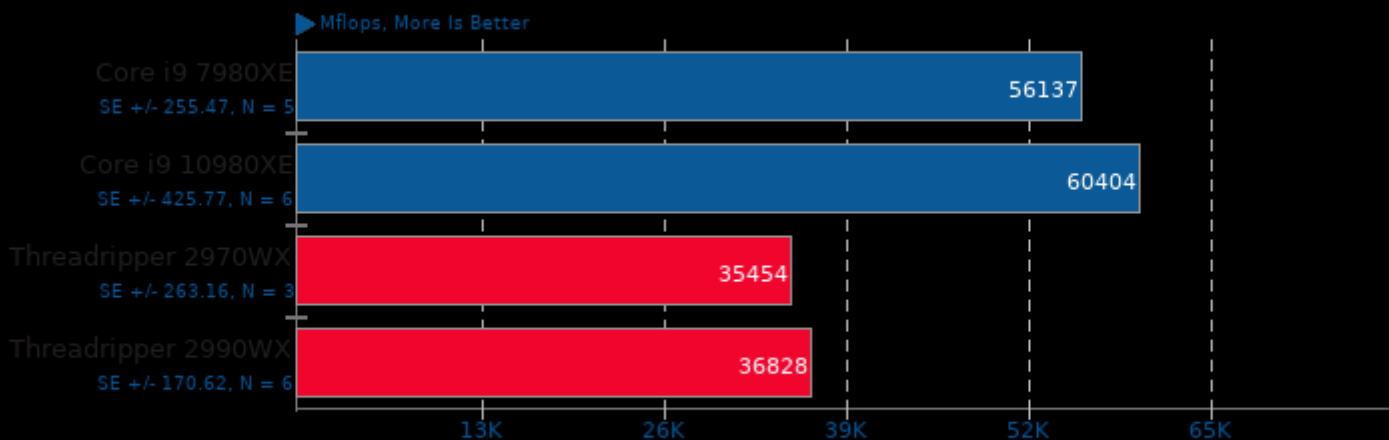
Scene: Volumetric Caustic



1. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -mssse4_1 -mssse4_2 -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512pf -

FFTW 3.3.6

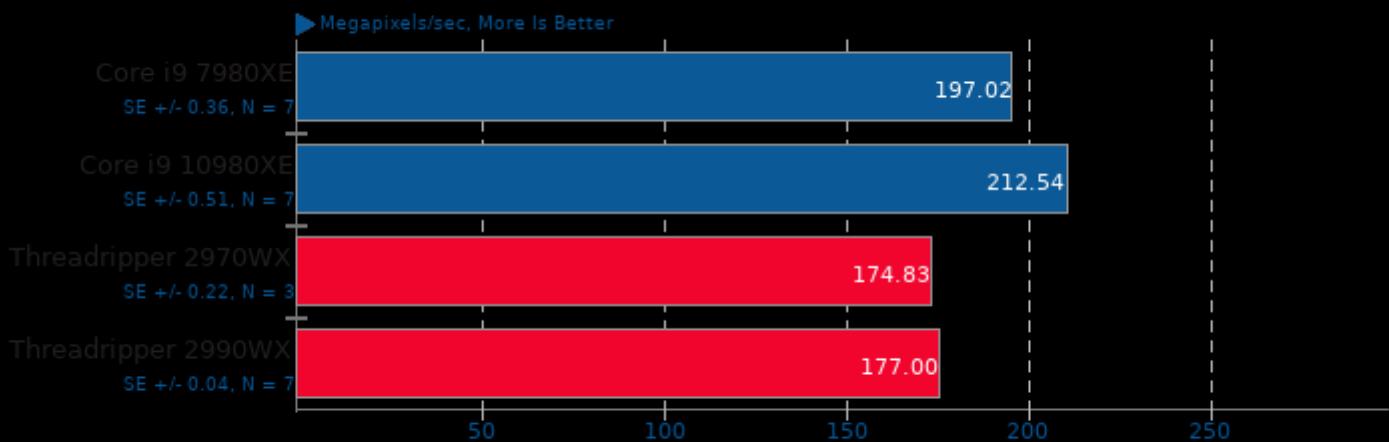
Build: Float + SSE - Size: 1D FFT Size 4096



1. (CC) gcc options: -pthread -O3 -fomit-frame-pointer -mtune=native -malign-double -fstrict-aliasing -fno-schedule-insns -ffast-math -lm

libjpeg-turbo tjbench 2.0.2

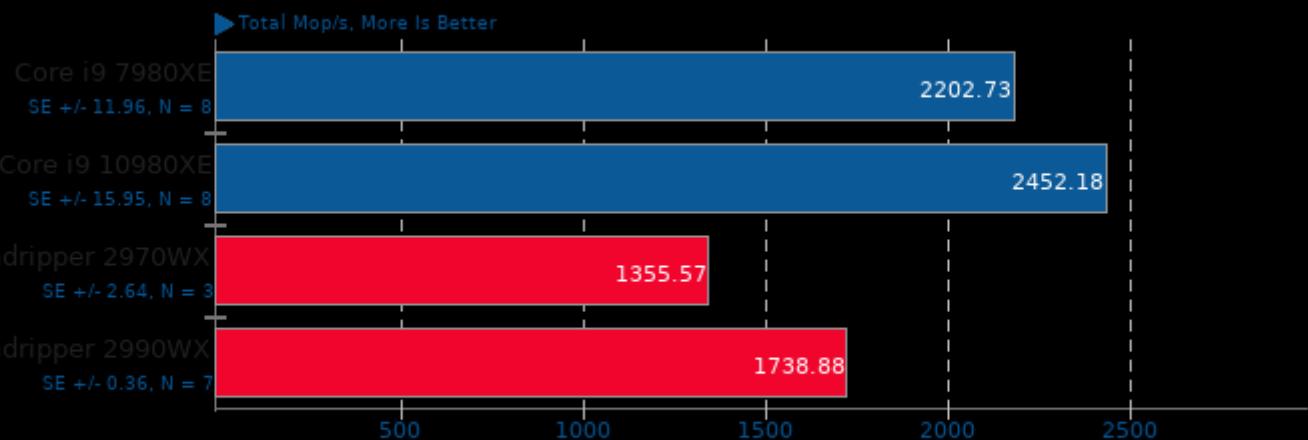
Test: Decompression Throughput



1. (CC) gcc options: -O3 -rdynamic

NAS Parallel Benchmarks 3.4

Test / Class: EP.C

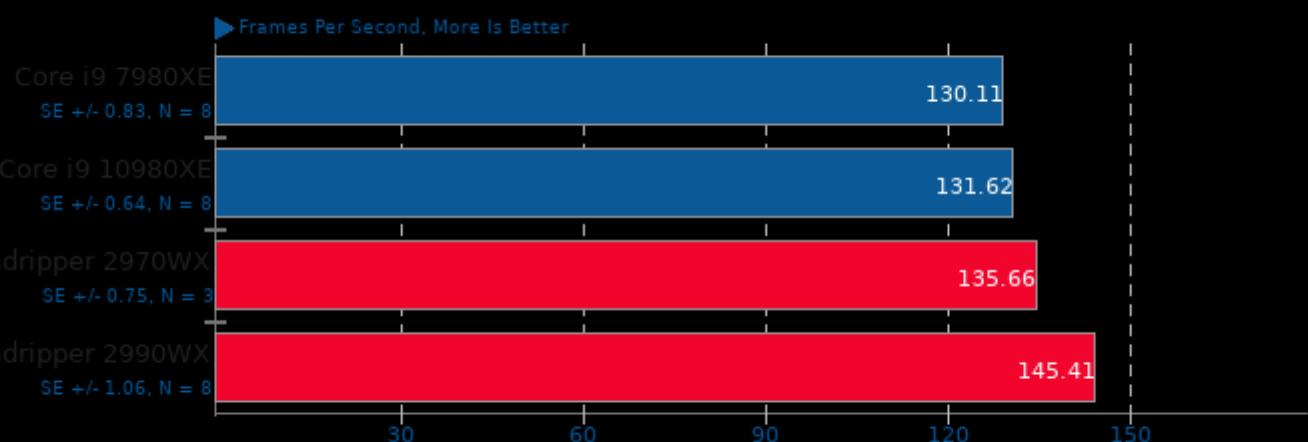


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 3.1.3

x264 2018-09-25

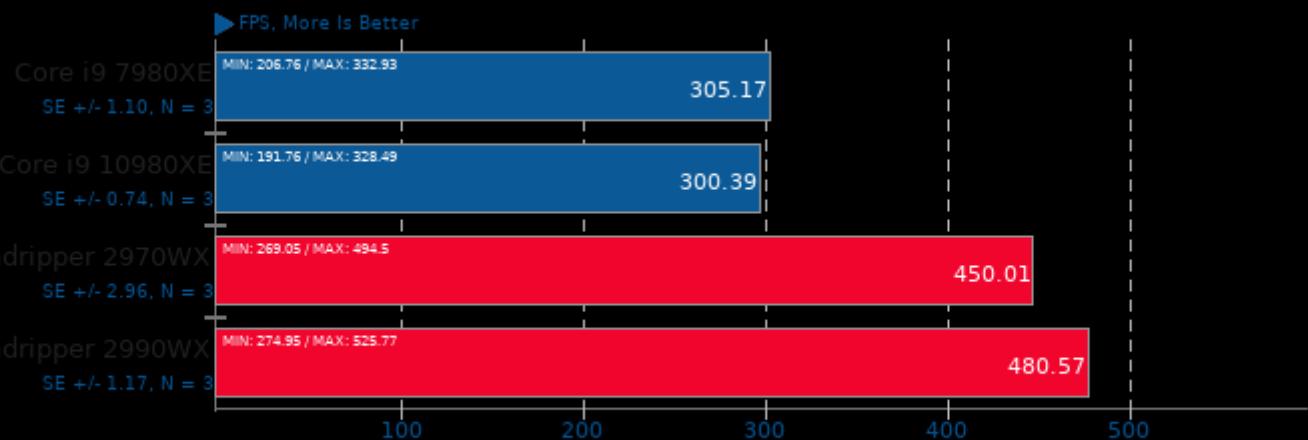
H.264 Video Encoding



1. (CC) gcc options: -ldl -m64 -lpthread -O3 -fast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize

dav1d 0.5.0

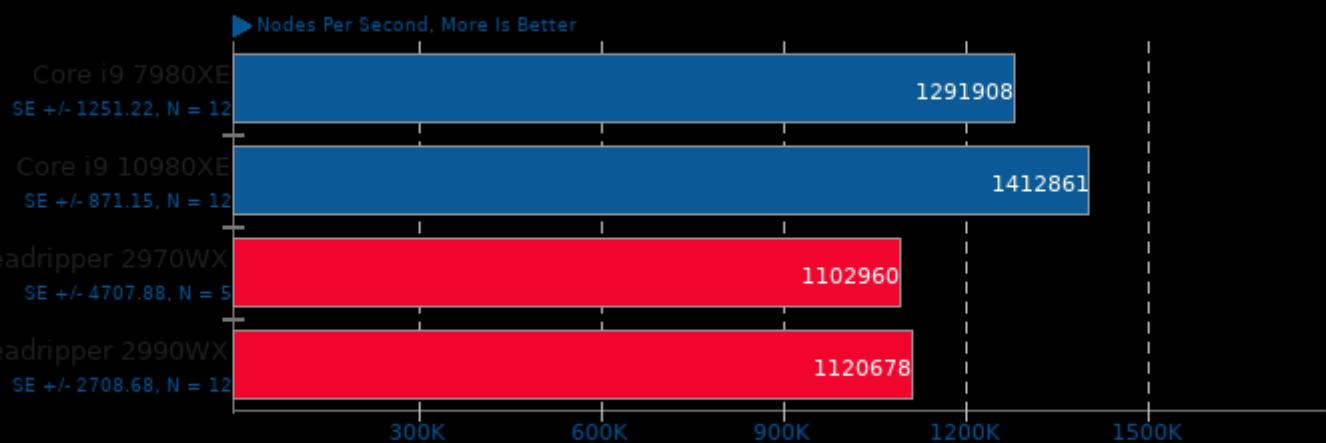
Video Input: Summer Nature 1080p



1. (CC) gcc options: -pthread

TSCP 1.81

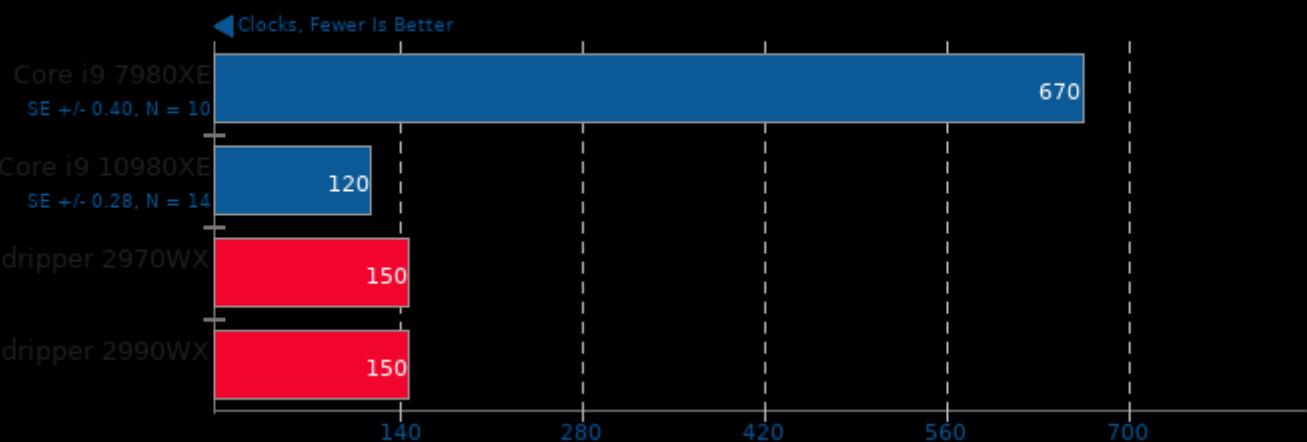
AI Chess Performance



1. (CC) gcc options: -O3 -march=native

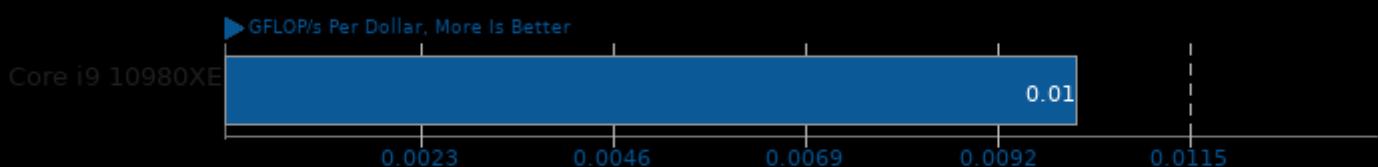
ctx_clock

Context Switch Time



ACES DGEMM 1.0

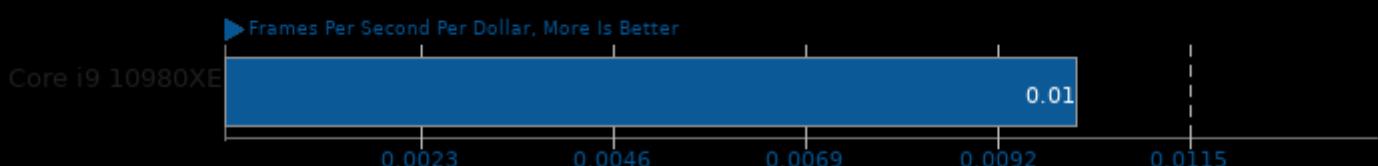
Performance / Cost - Sustained Floating-Point Rate



1. \$979 reported cost.

SVT-AV1 0.7

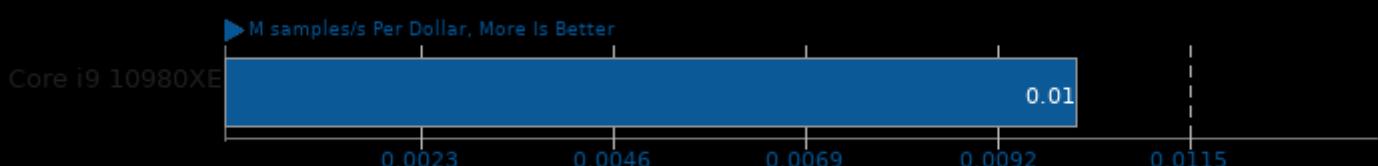
Performance / Cost - Encoder Mode: Enc Mode 4 - Input: 1080p



1. \$979 reported cost.

IndigoBench 4.0.64

Performance / Cost - Scene: Supercar

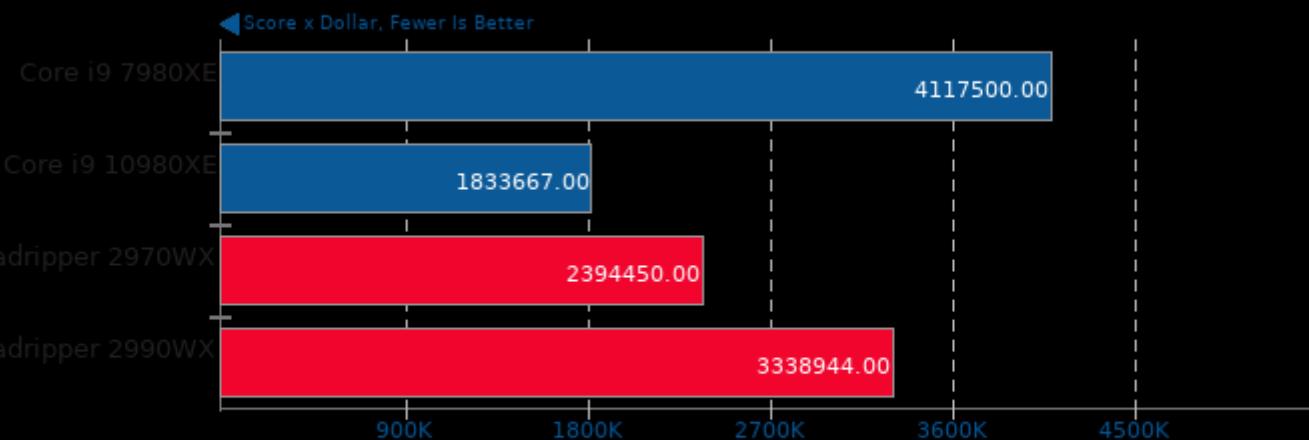


1. \$979 reported cost.

Intel Core i9-10980XE Linux Benchmarks

Selenium

Performance / Cost - Benchmark: PSPDFKit WASM - Browser: Google Chrome



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Selenium

Performance / Cost - Benchmark: Speedometer - Browser: Google Chrome



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Selenium

Performance / Cost - Benchmark: StyleBench - Browser: Google Chrome



1. Core i9 7980XE: \$1525 reported cost.

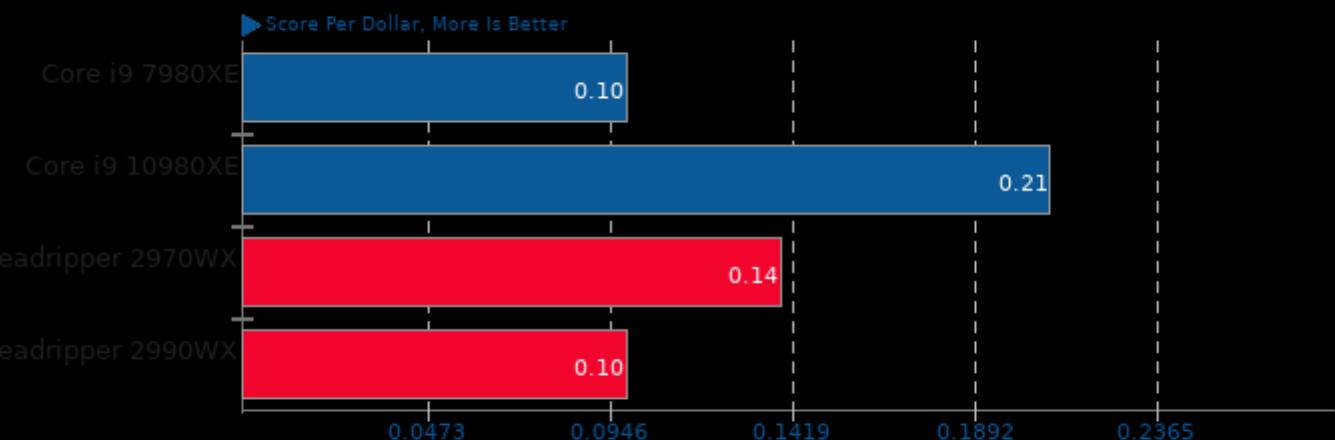
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Selenium

Performance / Cost - Benchmark: Jetstream - Browser: Google Chrome



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Intel Core i9-10980XE Linux Benchmarks

Selenium

Performance / Cost - Benchmark: PSPDFKit WASM - Browser: Firefox



1. Core i9 7980XE: \$1525 reported cost.

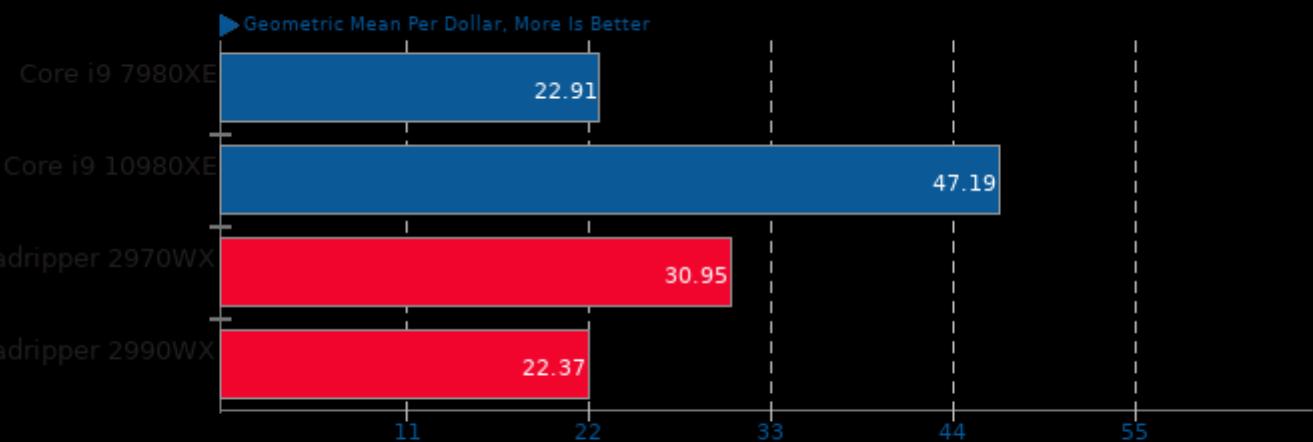
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Selenium

Performance / Cost - Benchmark: Octane - Browser: Google Chrome



1. Core i9 7980XE: \$1525 reported cost.

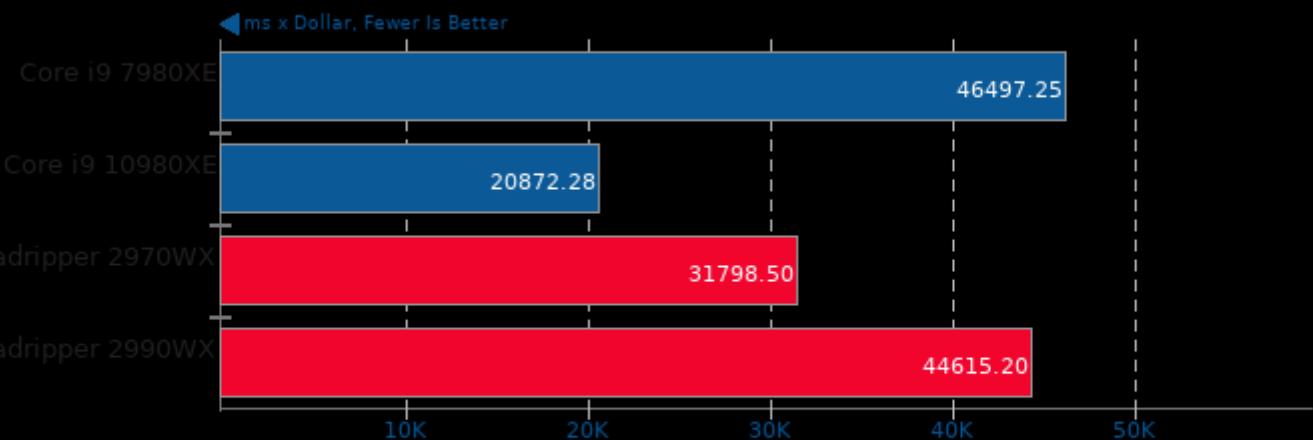
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Selenium

Performance / Cost - Benchmark: ARES-6 - Browser: Google Chrome



1. Core i9 7980XE: \$1525 reported cost.

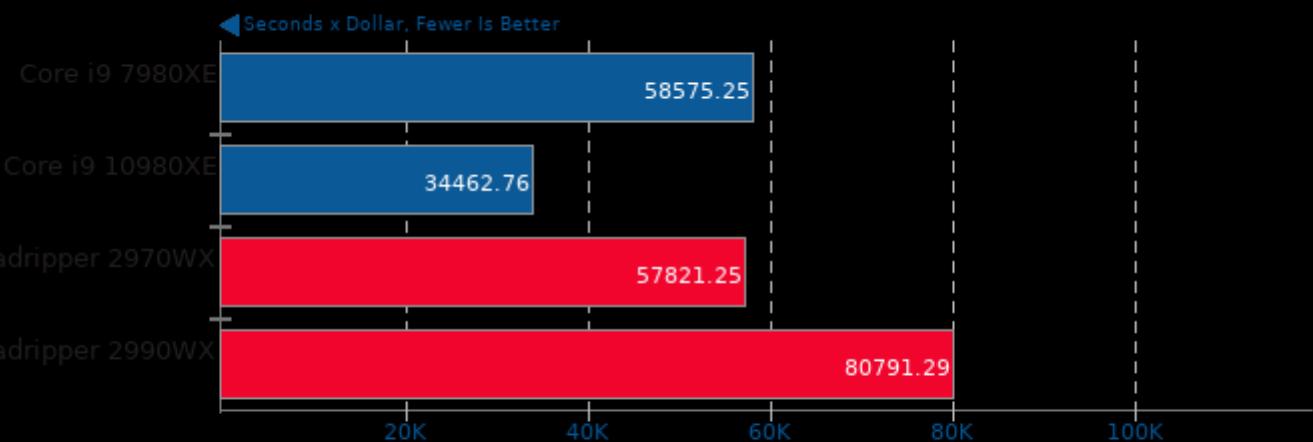
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

dcraw

Performance / Cost - RAW To PPM Image Conversion



1. Core i9 7980XE: \$1525 reported cost.

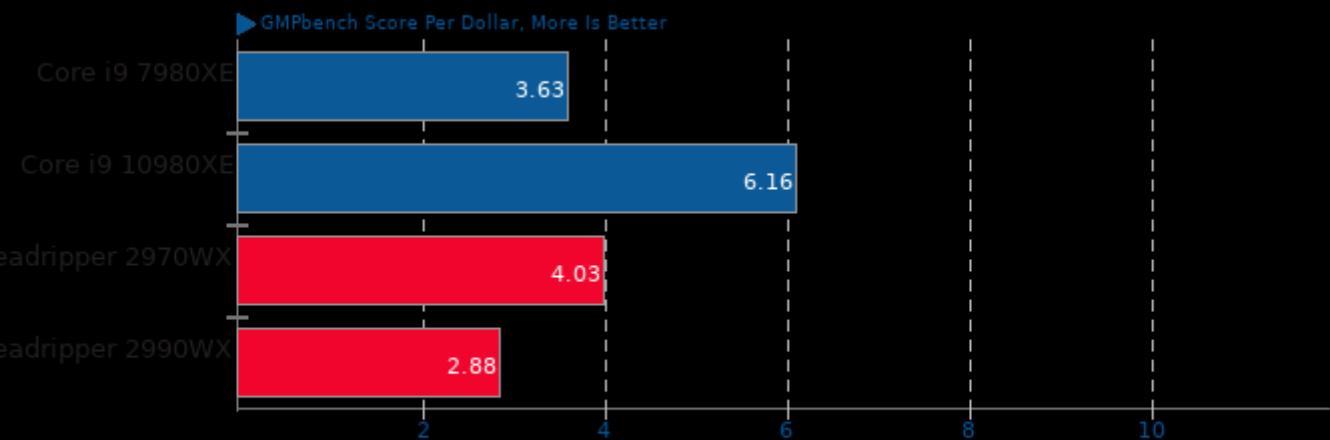
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

GNU GMP GMPbench 6.1.2

Performance / Cost - Total Time



1. Core i9 7980XE: \$1525 reported cost.

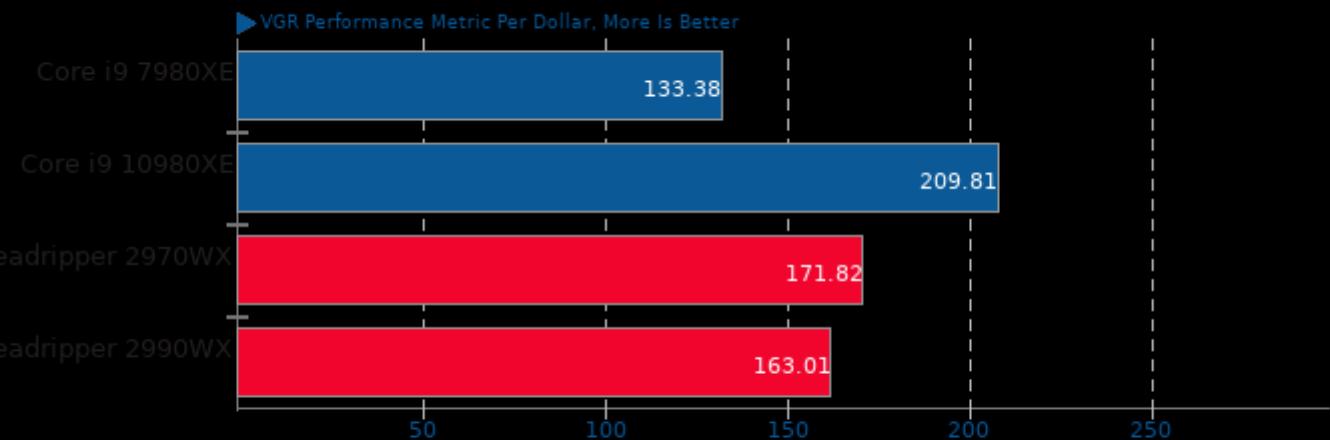
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

BRL-CAD 7.28.0

Performance / Cost - VGR Performance Metric



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Tesseract OCR 4.1.0

Performance / Cost - Time To OCR 7 Images



1. Core i9 7980XE: \$1525 reported cost.

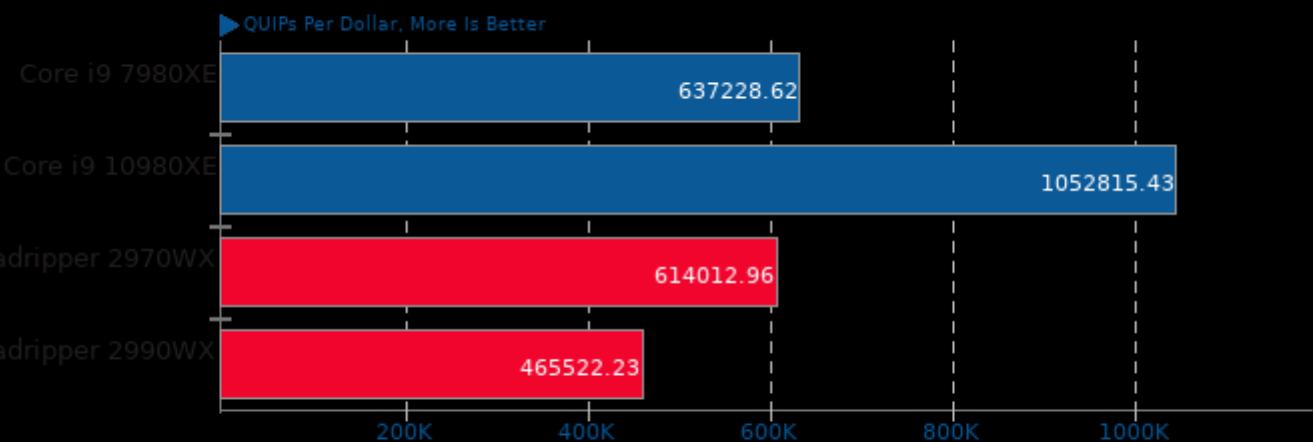
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Hierarchical INTegration 1.0

Performance / Cost - Test: DOUBLE



1. Core i9 7980XE: \$1525 reported cost.

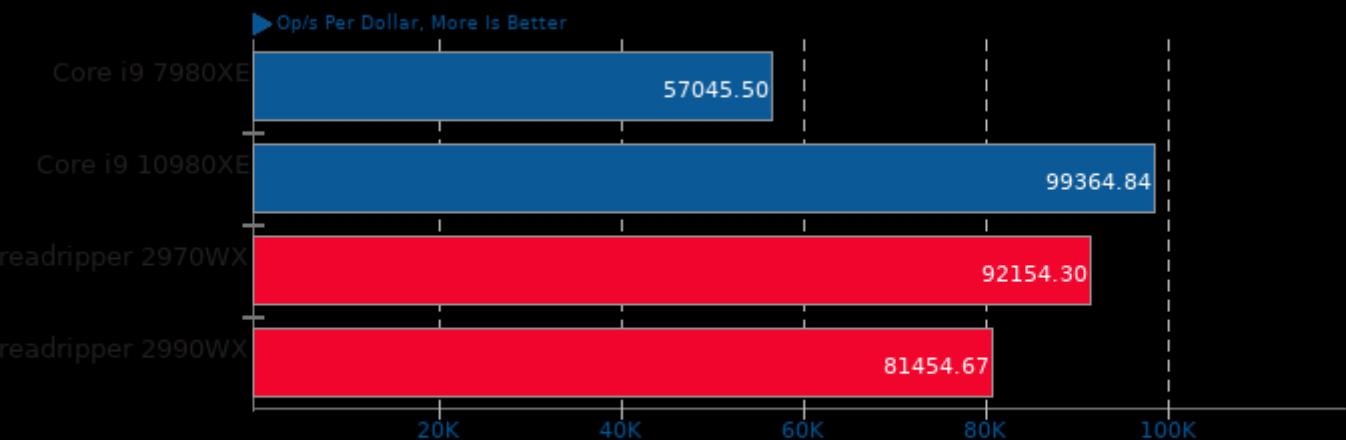
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Facebook RocksDB 6.3.6

Performance / Cost - Test: Random Read



1. Core i9 7980XE: \$1525 reported cost.

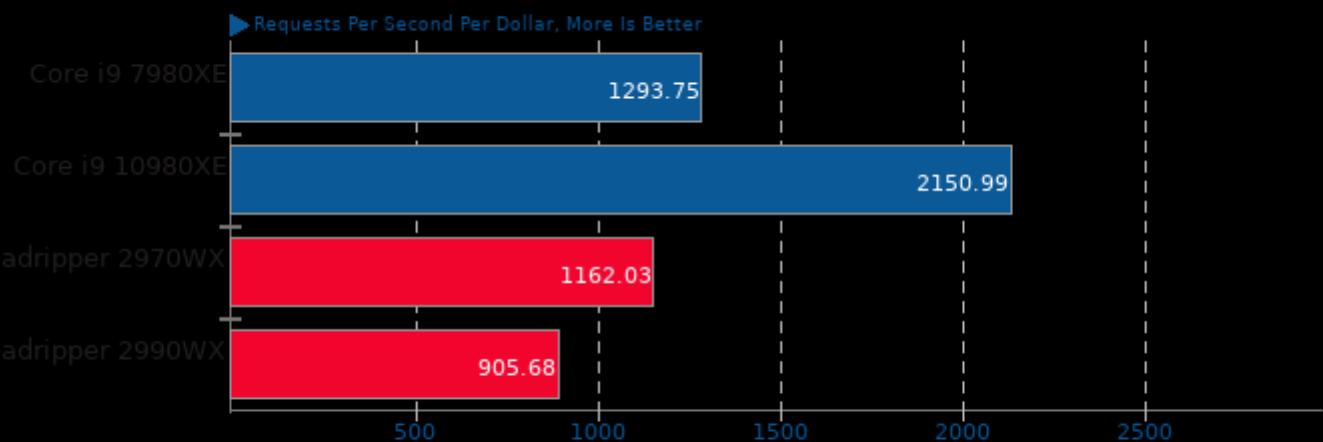
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Redis 5.0.5

Performance / Cost - Test: SET



1. Core i9 7980XE: \$1525 reported cost.

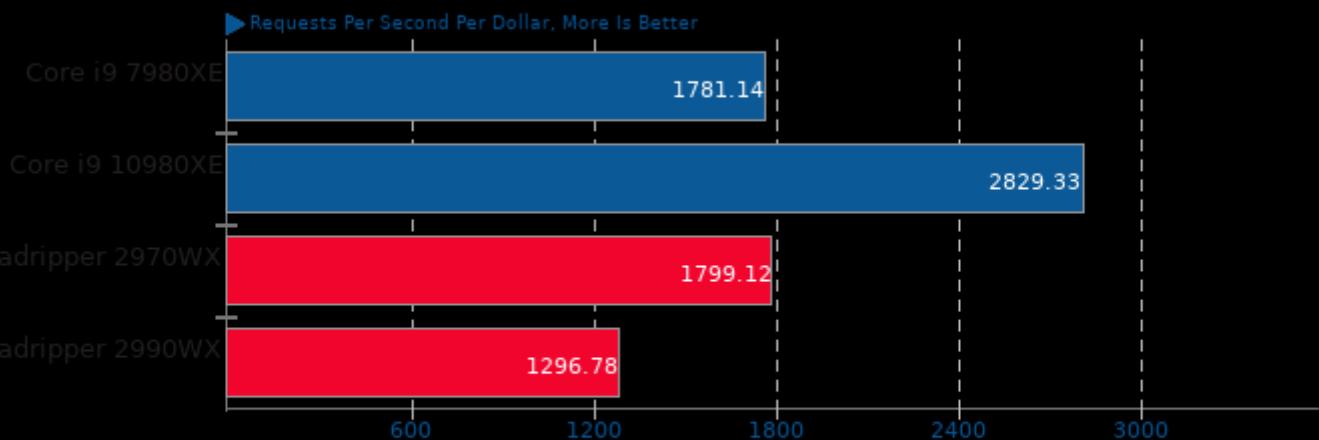
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Redis 5.0.5

Performance / Cost - Test: GET



1. Core i9 7980XE: \$1525 reported cost.

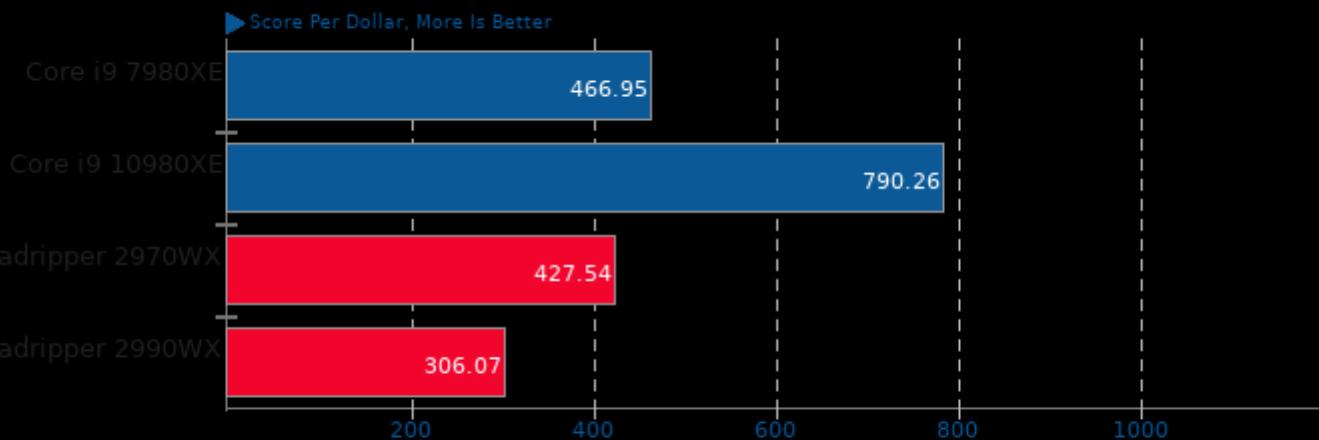
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

PHPBench 0.8.1

Performance / Cost - PHP Benchmark Suite



1. Core i9 7980XE: \$1525 reported cost.

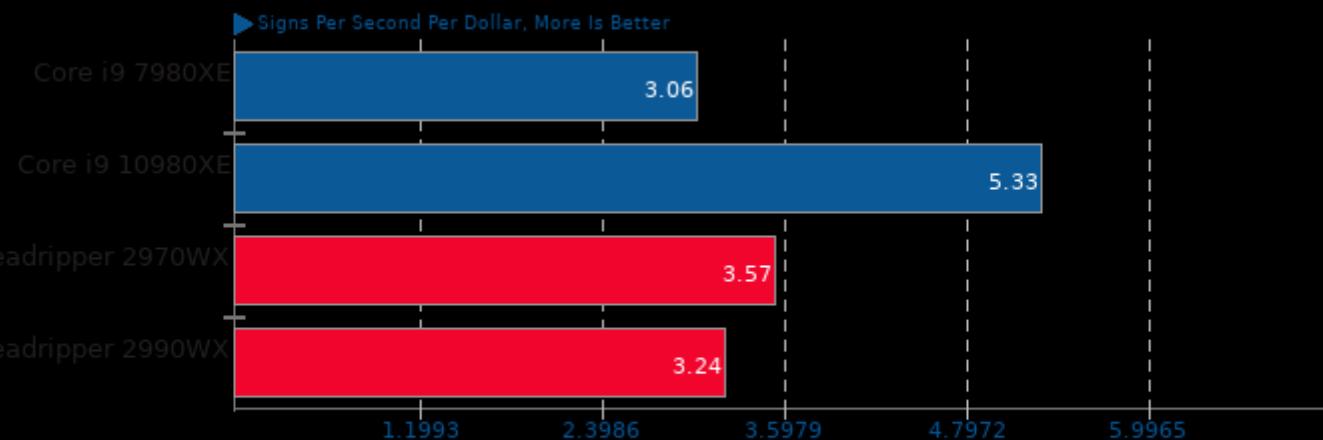
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

OpenSSL 1.1.1

Performance / Cost - RSA 4096-bit Performance



1. Core i9 7980XE: \$1525 reported cost.

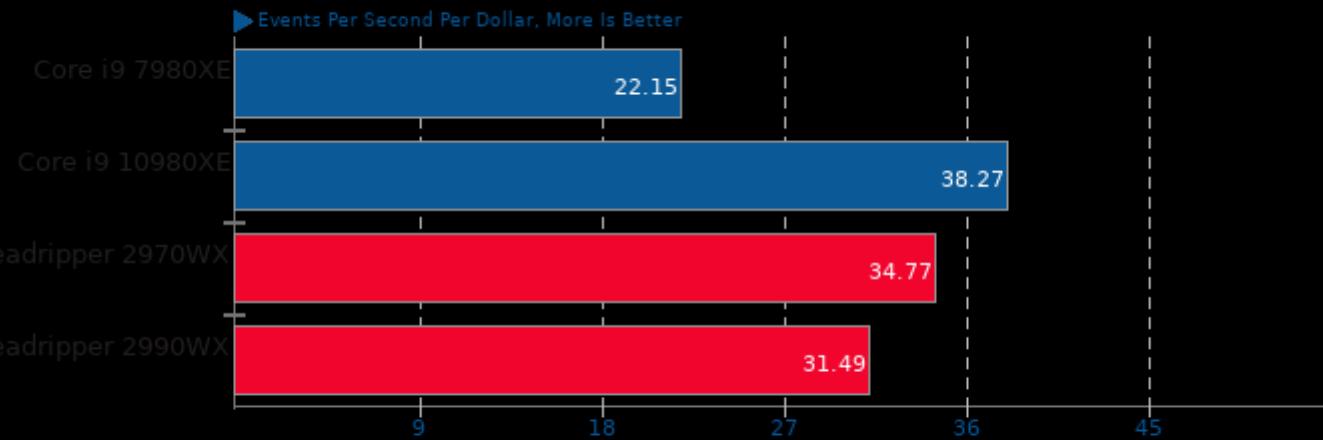
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Sysbench 2018-07-28

Performance / Cost - Test: CPU



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

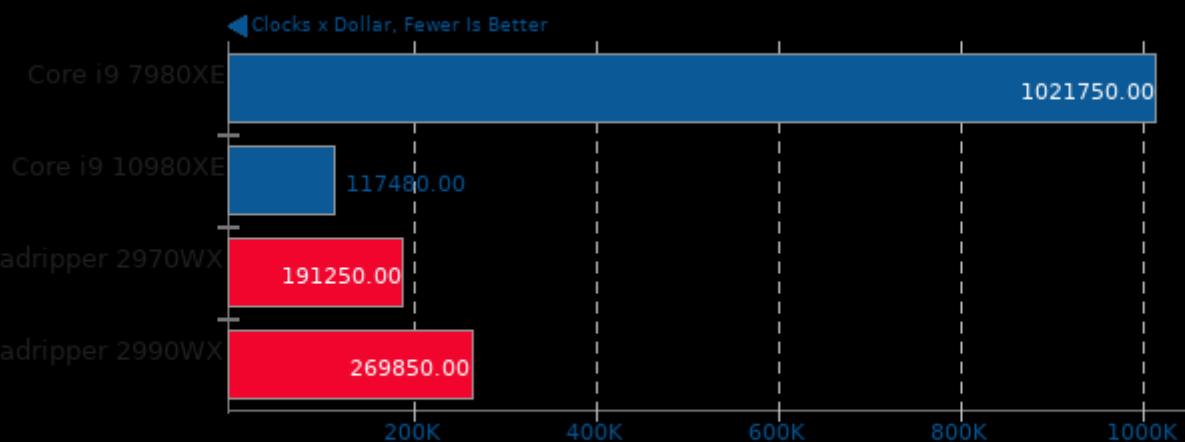
3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Intel Core i9-10980XE Linux Benchmarks

ctx_clock

Performance / Cost - Context Switch Time



1. Core i9 7980XE: \$1525 reported cost.

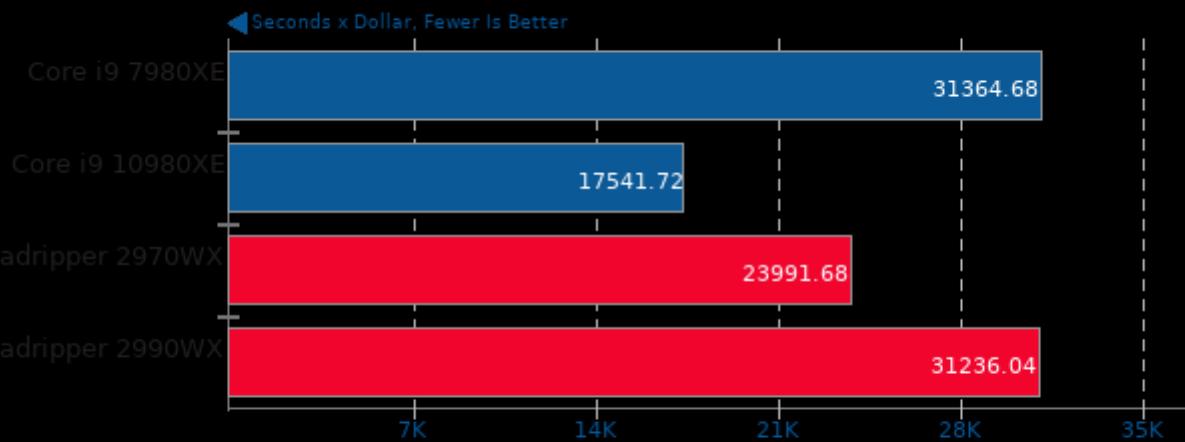
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

GNU Octave Benchmark 4.4.1

Performance / Cost -



1. Core i9 7980XE: \$1525 reported cost.

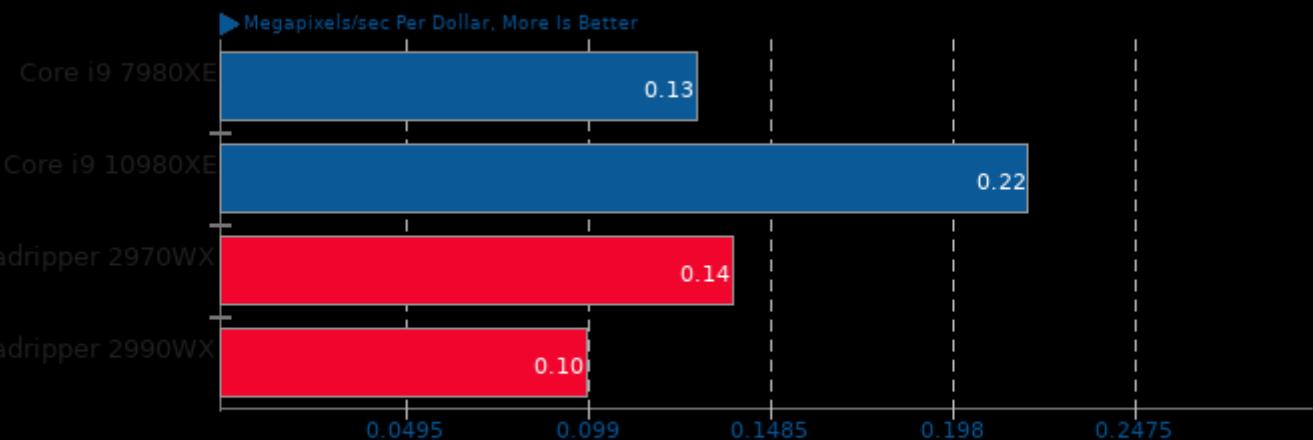
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

libjpeg-turbo tjbench 2.0.2

Performance / Cost - Test: Decompression Throughput



1. Core i9 7980XE: \$1525 reported cost.

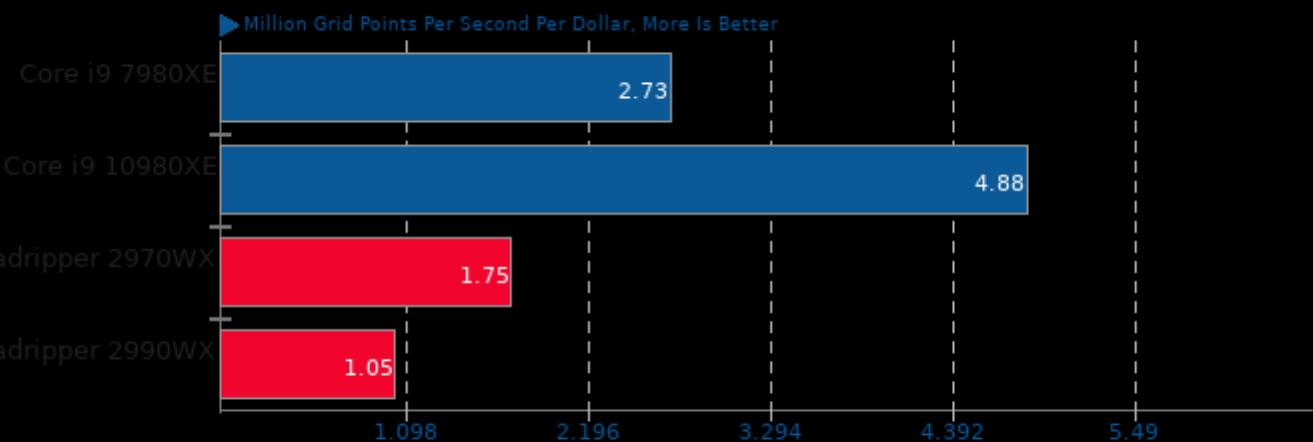
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

ASKAP 2018-11-10

Performance / Cost - Test: tConvolve OpenMP - Degridding



1. Core i9 7980XE: \$1525 reported cost.

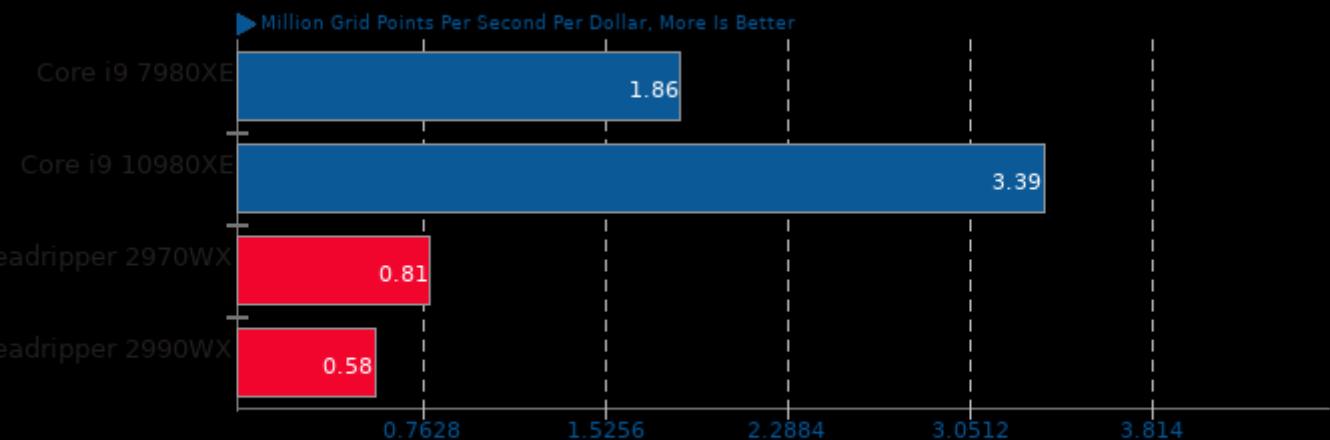
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

ASKAP 2018-11-10

Performance / Cost - Test: tConvolve OpenMP - Gridding



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

glibc bench 1.0

Performance / Cost - Benchmark: pthread_once



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

glibc bench 1.0

Performance / Cost - Benchmark: sincos



1. Core i9 7980XE: \$1525 reported cost.

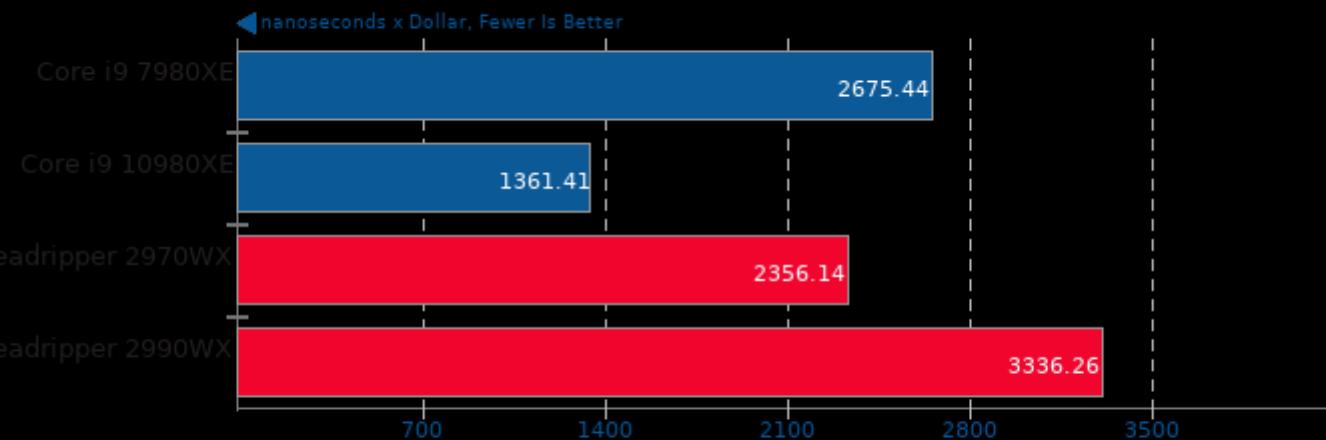
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

glibc bench 1.0

Performance / Cost - Benchmark: ffsl



1. Core i9 7980XE: \$1525 reported cost.

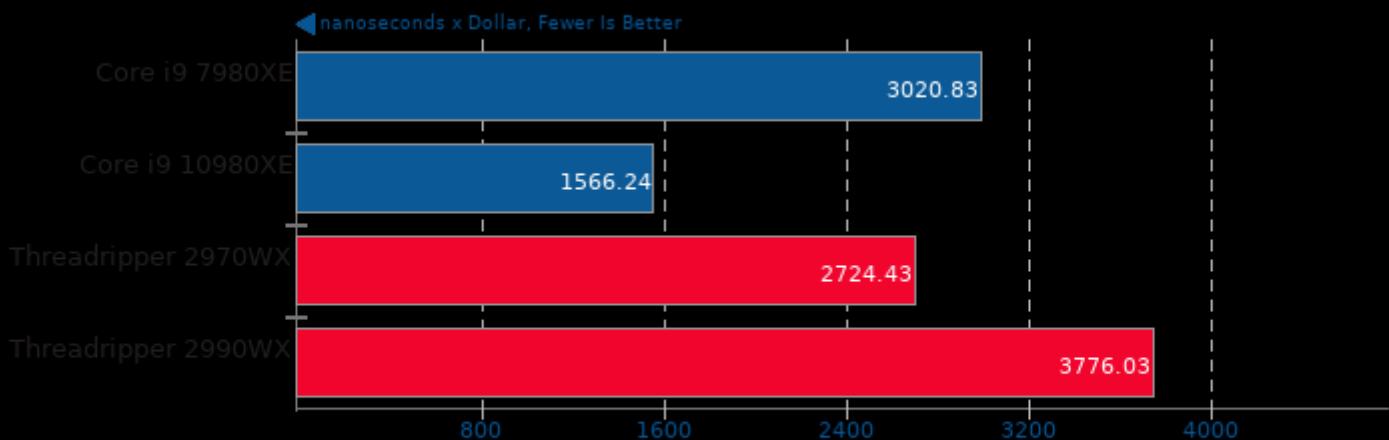
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

glibc bench 1.0

Performance / Cost - Benchmark: sqrt



1. Core i9 7980XE: \$1525 reported cost.

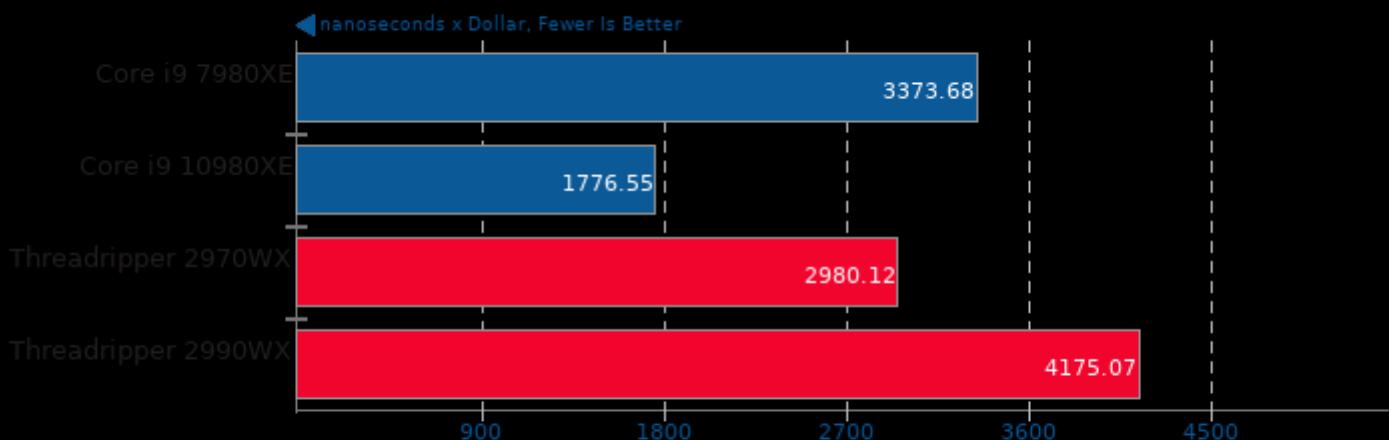
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

glibc bench 1.0

Performance / Cost - Benchmark: modf



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

glibc bench 1.0

Performance / Cost - Benchmark: ffs



1. Core i9 7980XE: \$1525 reported cost.

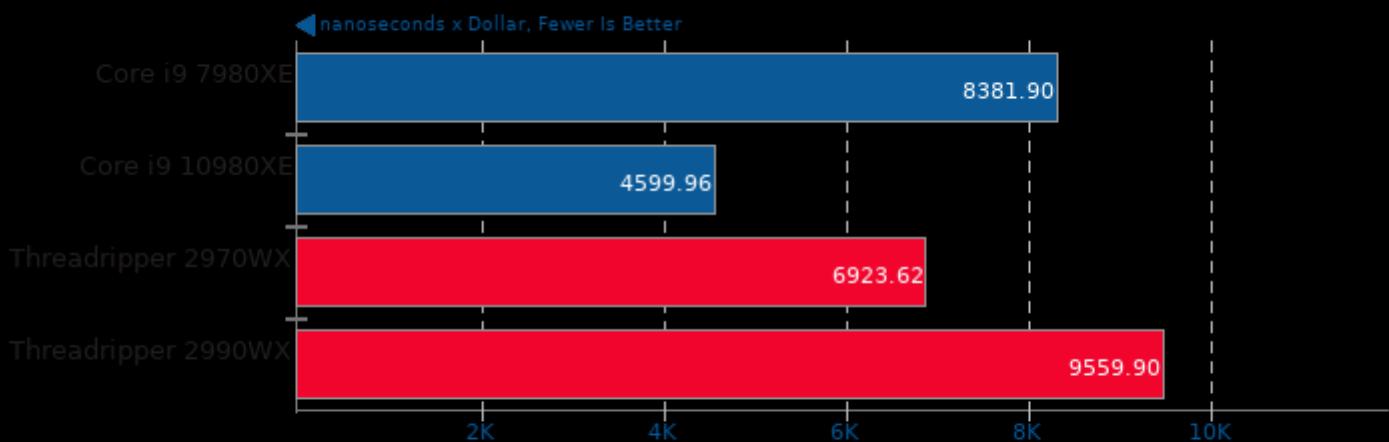
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

glibc bench 1.0

Performance / Cost - Benchmark: exp



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Radiance Benchmark 5.0

Performance / Cost - Test: SMP Parallel



1. Core i9 7980XE: \$1525 reported cost.

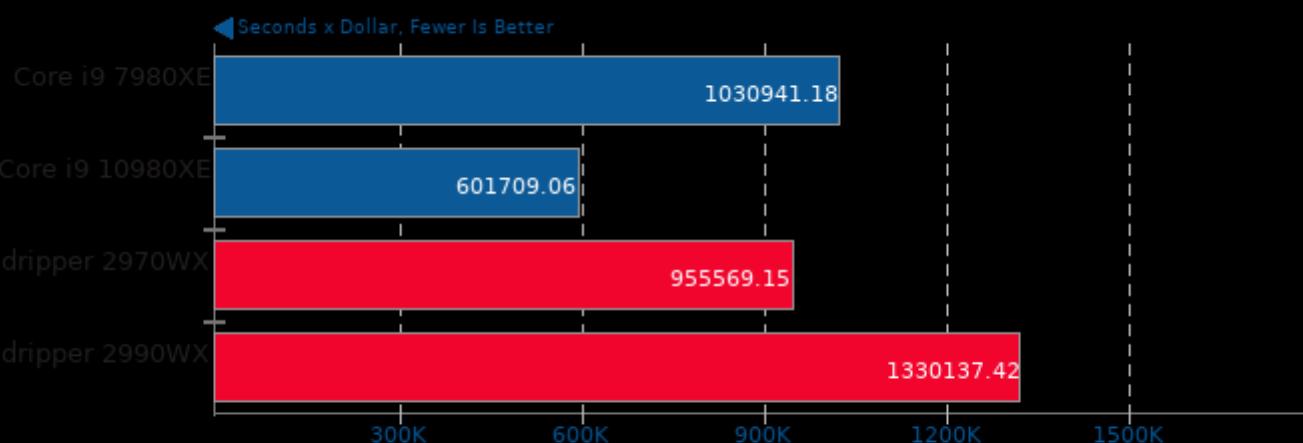
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Radiance Benchmark 5.0

Performance / Cost - Test: Serial



1. Core i9 7980XE: \$1525 reported cost.

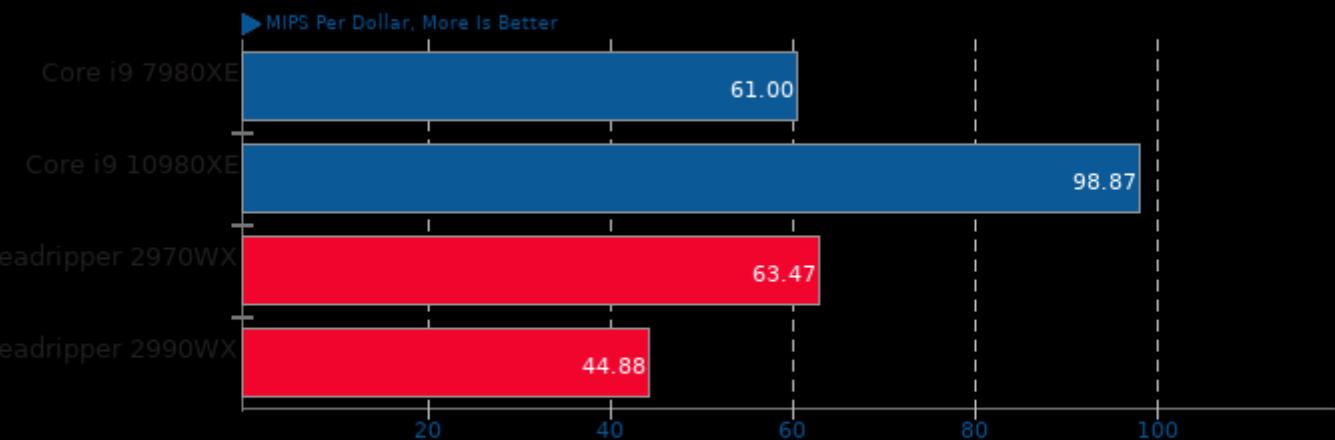
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

7-Zip Compression 16.02

Performance / Cost - Compress Speed Test



1. Core i9 7980XE: \$1525 reported cost.

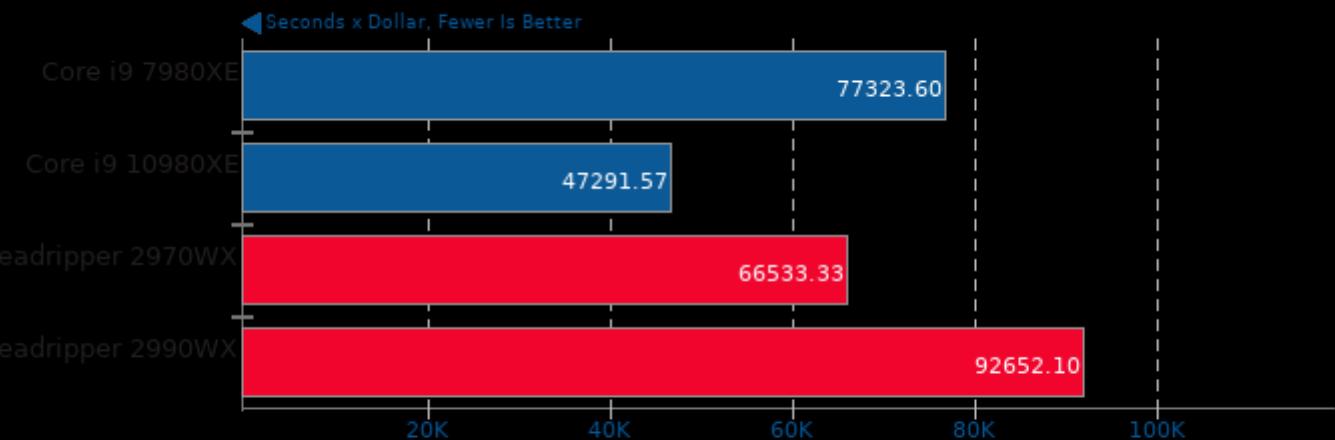
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Timed PHP Compilation 7.1.9

Performance / Cost - Time To Compile



1. Core i9 7980XE: \$1525 reported cost.

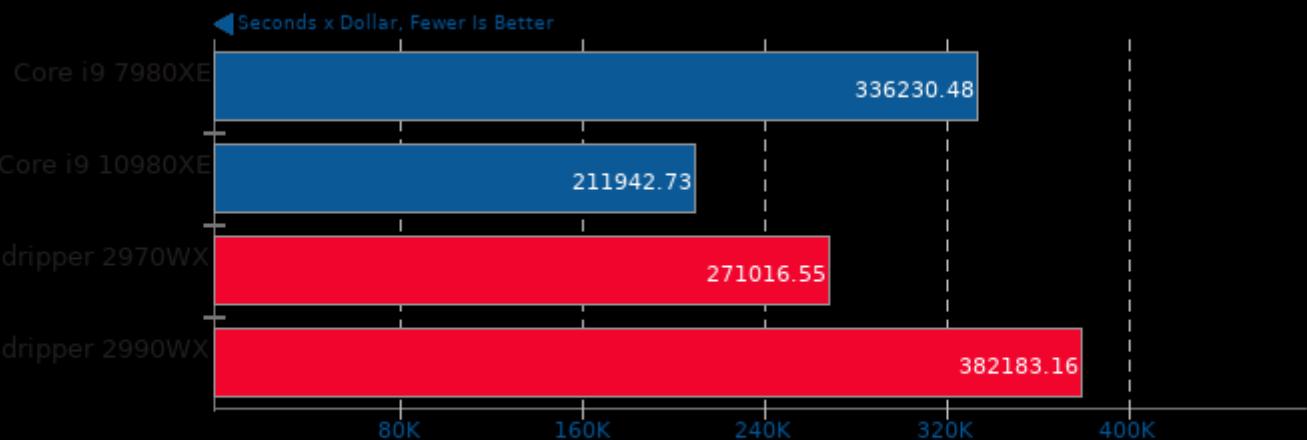
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Timed LLVM Compilation 6.0.1

Performance / Cost - Time To Compile



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Timed Linux Kernel Compilation 5.4

Performance / Cost - Time To Compile



1. Core i9 7980XE: \$1525 reported cost.

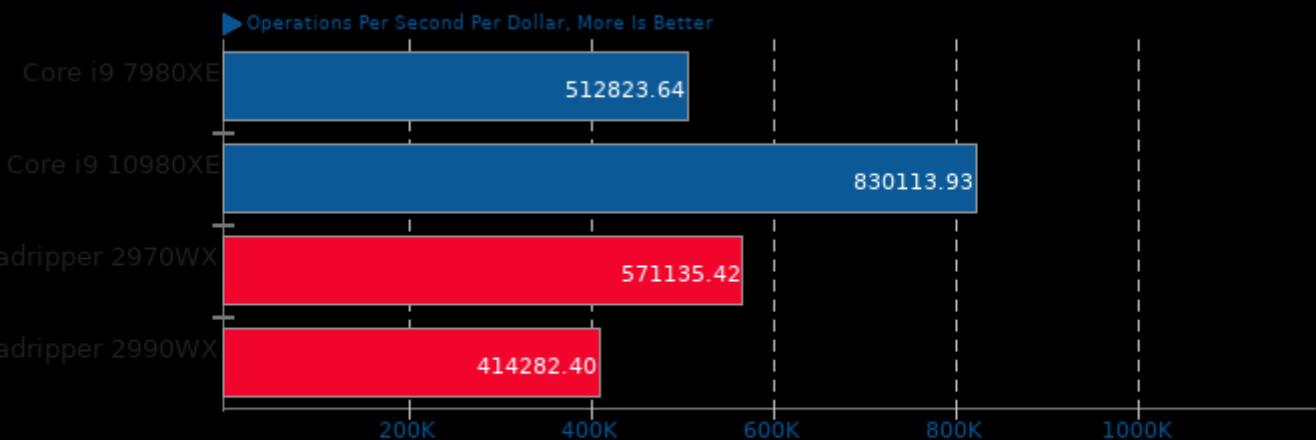
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Swet 1.5.16

Performance / Cost - Average



1. Core i9 7980XE: \$1525 reported cost.

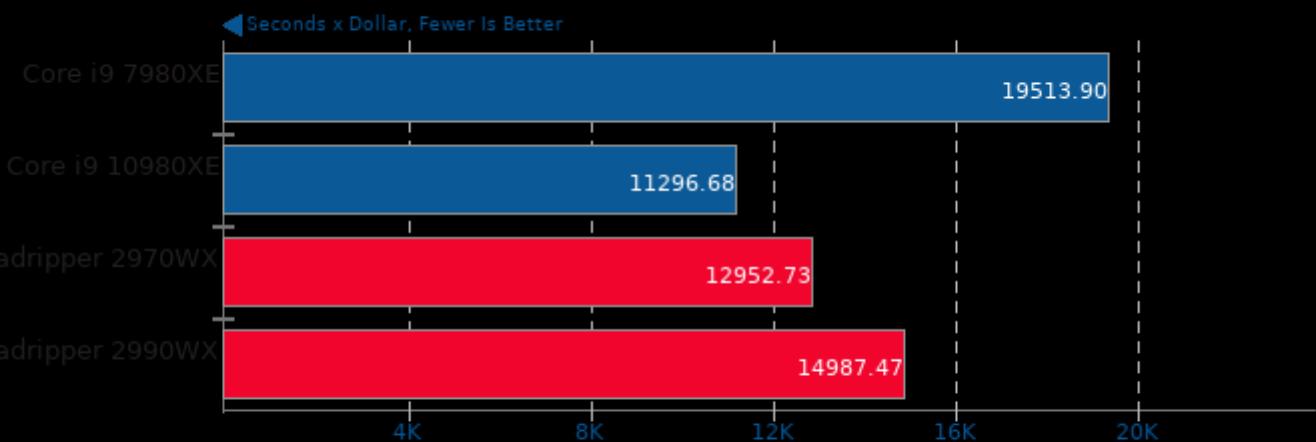
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Primesieve 7.4

Performance / Cost - 1e12 Prime Number Generation



1. Core i9 7980XE: \$1525 reported cost.

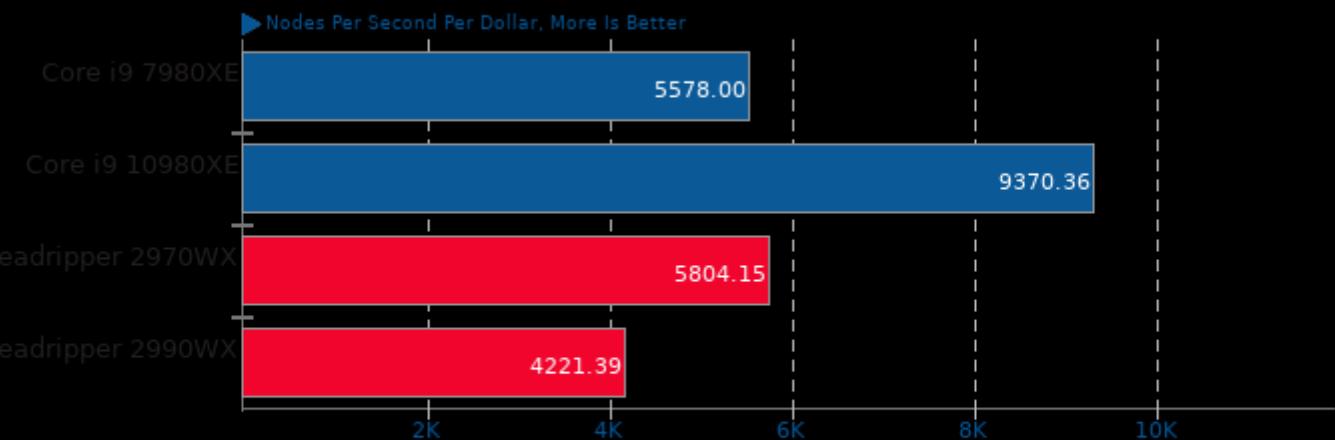
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Crafty 25.2

Performance / Cost - Elapsed Time



1. Core i9 7980XE: \$1525 reported cost.

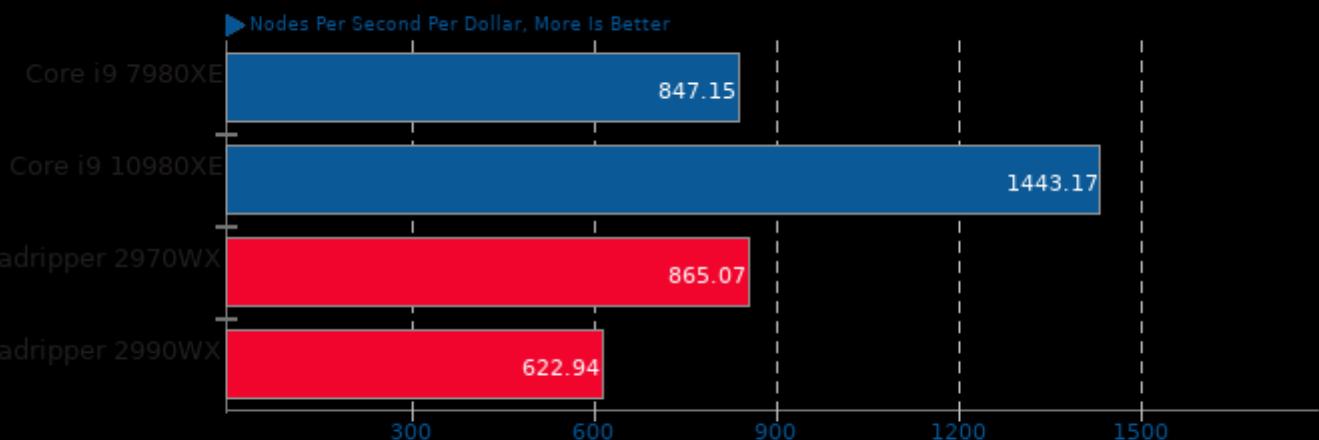
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

TSCP 1.81

Performance / Cost - AI Chess Performance



1. Core i9 7980XE: \$1525 reported cost.

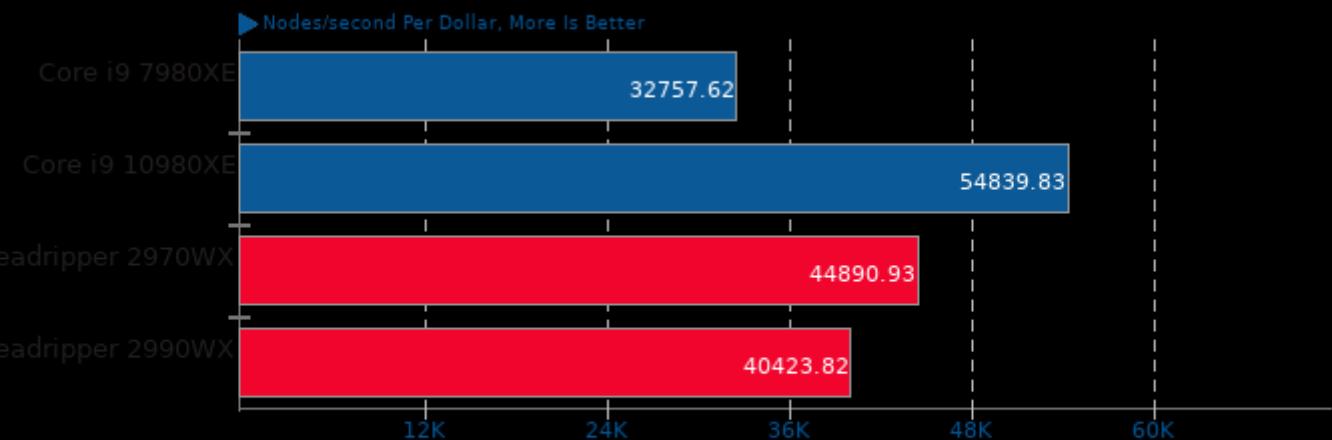
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

asmFish 2018-07-23

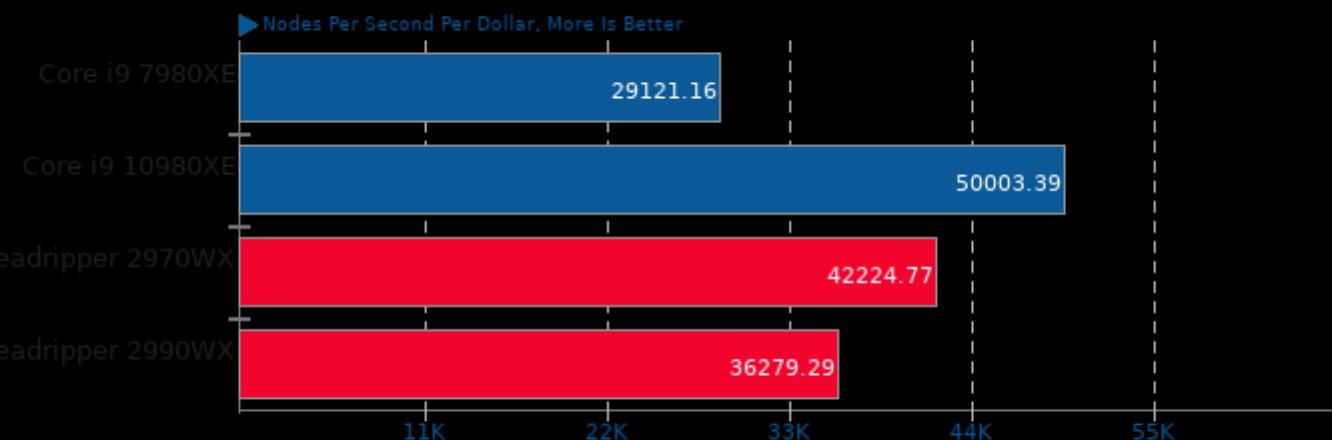
Performance / Cost - 1024 Hash Memory, 26 Depth



1. Core i9 7980XE: \$1525 reported cost.
2. Core i9 10980XE: \$979 reported cost.
3. Threadripper 2970WX: \$1275 reported cost.
4. Threadripper 2990WX: \$1799 reported cost.

Stockfish 9

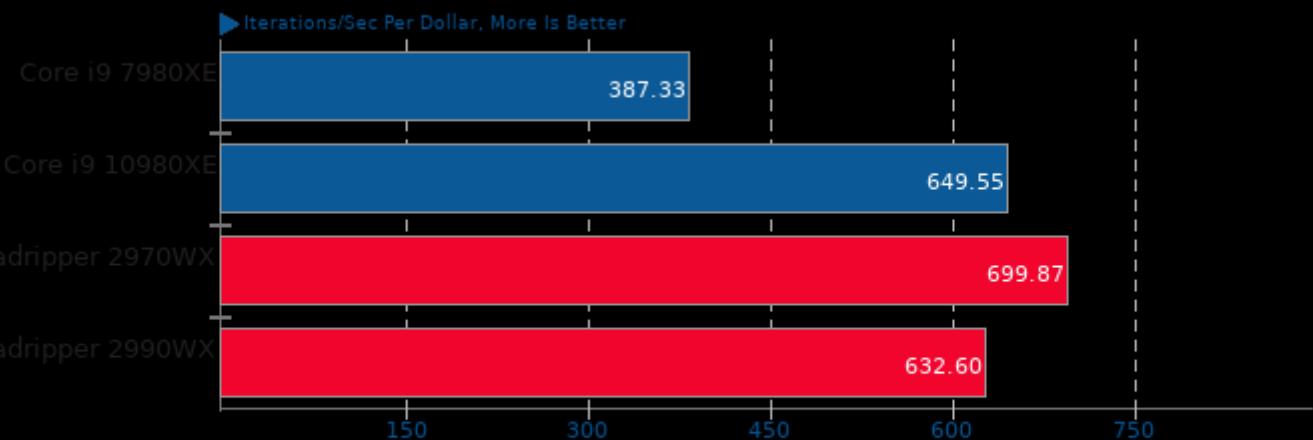
Performance / Cost - Total Time



1. Core i9 7980XE: \$1525 reported cost.
2. Core i9 10980XE: \$979 reported cost.
3. Threadripper 2970WX: \$1275 reported cost.
4. Threadripper 2990WX: \$1799 reported cost.

Coremark 1.0

Performance / Cost - CoreMark Size 666 - Iterations Per Second



1. Core i9 7980XE: \$1525 reported cost.

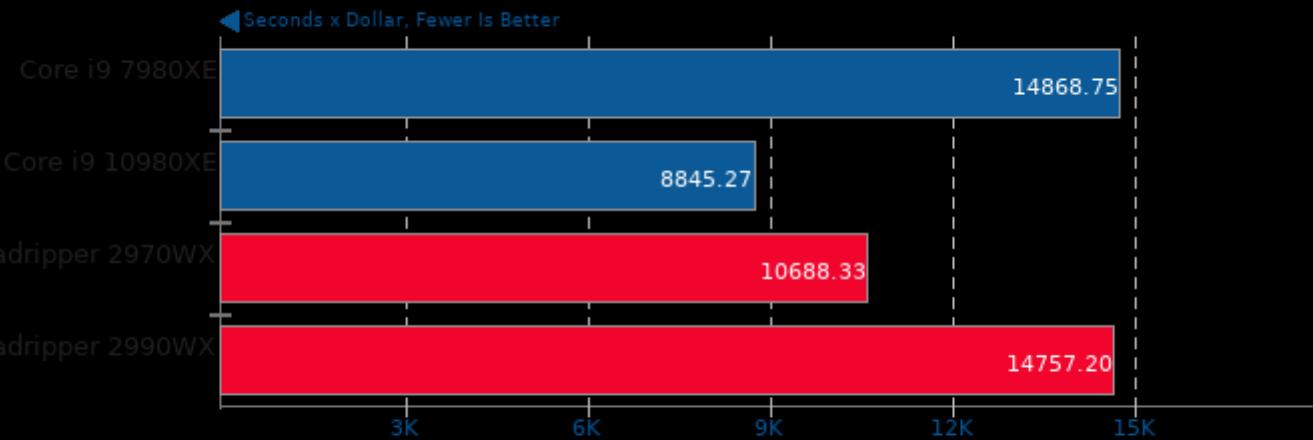
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

LAME MP3 Encoding 3.100

Performance / Cost - WAV To MP3



1. Core i9 7980XE: \$1525 reported cost.

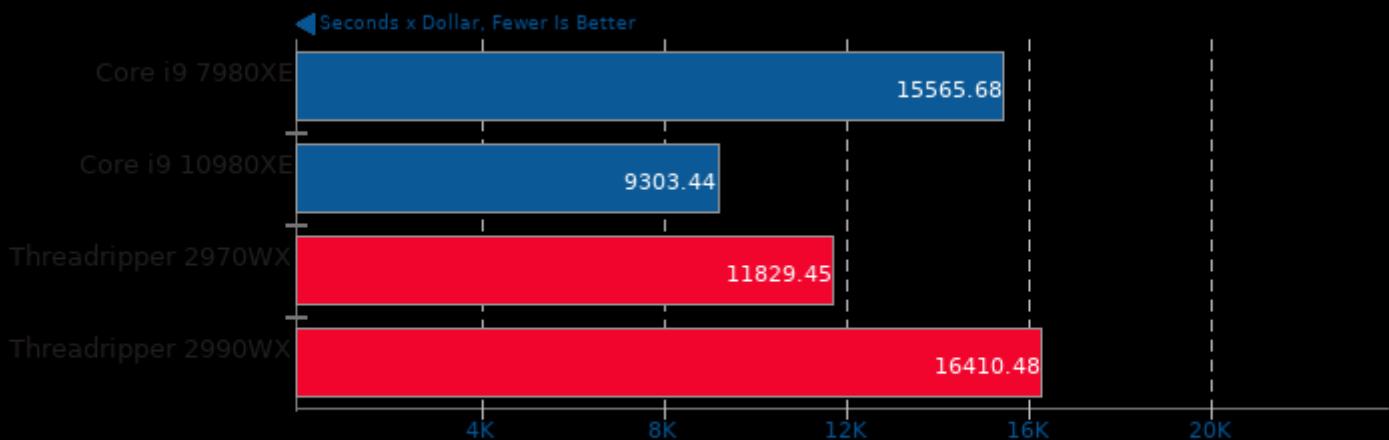
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

FLAC Audio Encoding 1.3.2

Performance / Cost - WAV To FLAC



1. Core i9 7980XE: \$1525 reported cost.

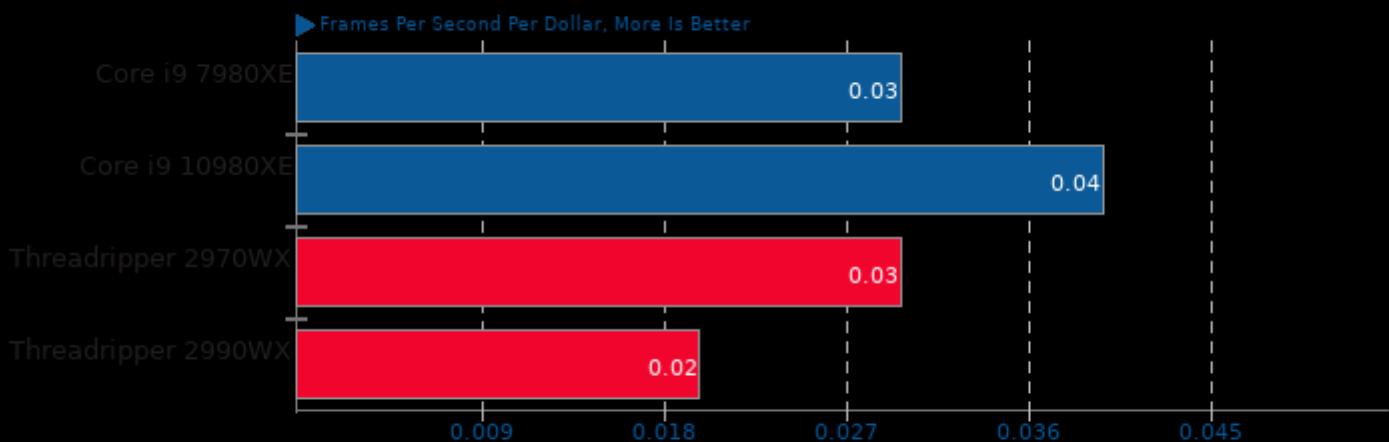
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

x265 3.1.2

Performance / Cost - H.265 1080p Video Encoding



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

x264 2018-09-25

Performance / Cost - H.264 Video Encoding



1. Core i9 7980XE: \$1525 reported cost.

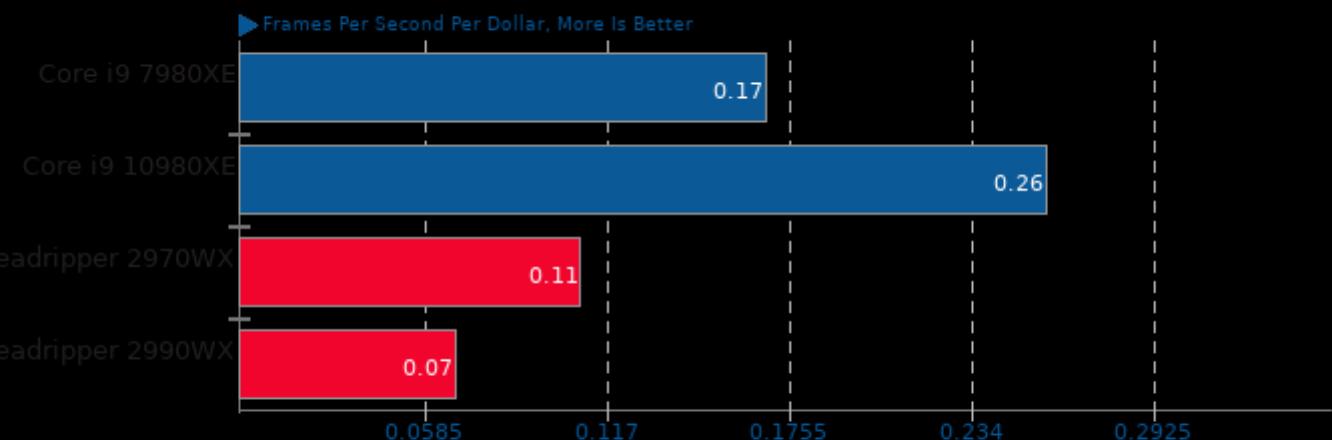
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

SVT-VP9 0.1

Performance / Cost - Tuning; Visual Quality Optimized - Input: Bosphorus 1080p



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

SVT-VP9 0.1

Performance / Cost - Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p



1. Core i9 7980XE: \$1525 reported cost.

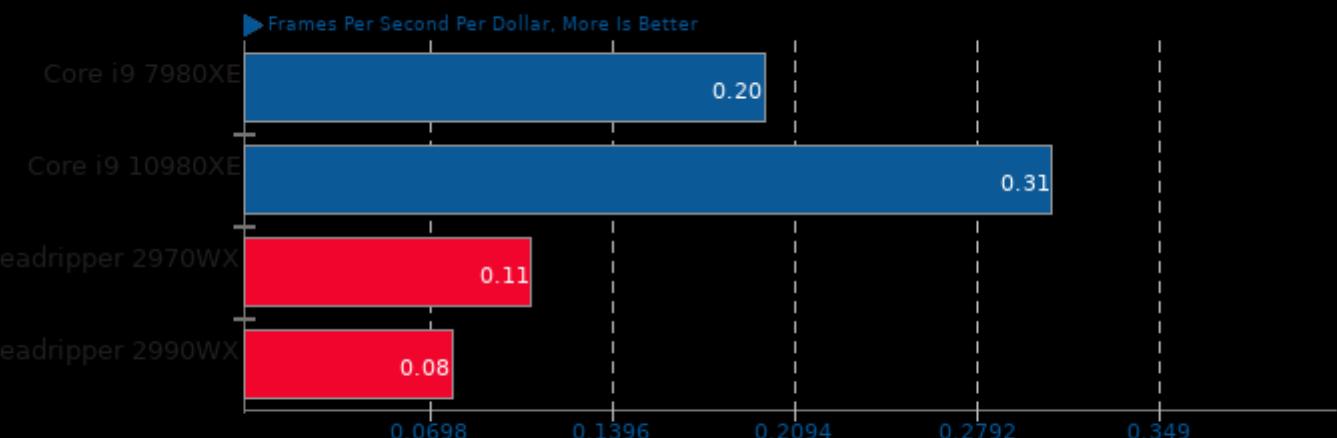
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

SVT-VP9 0.1

Performance / Cost - Tuning: VMAF Optimized - Input: Bosphorus 1080p



1. Core i9 7980XE: \$1525 reported cost.

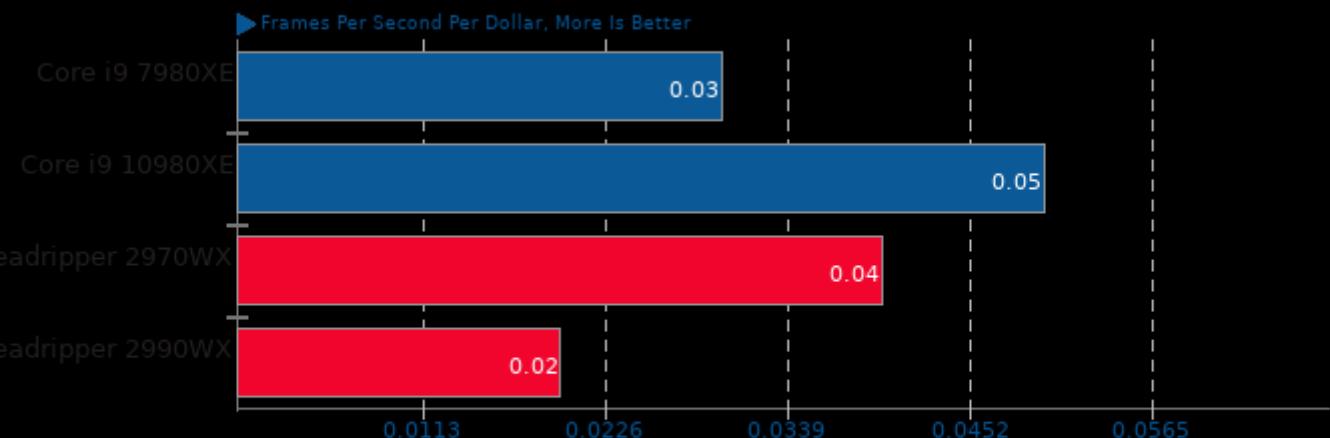
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

SVT-AV1 0.7

Performance / Cost - Encoder Mode: Enc Mode 8 - Input: 1080p



1. Core i9 7980XE: \$1525 reported cost.

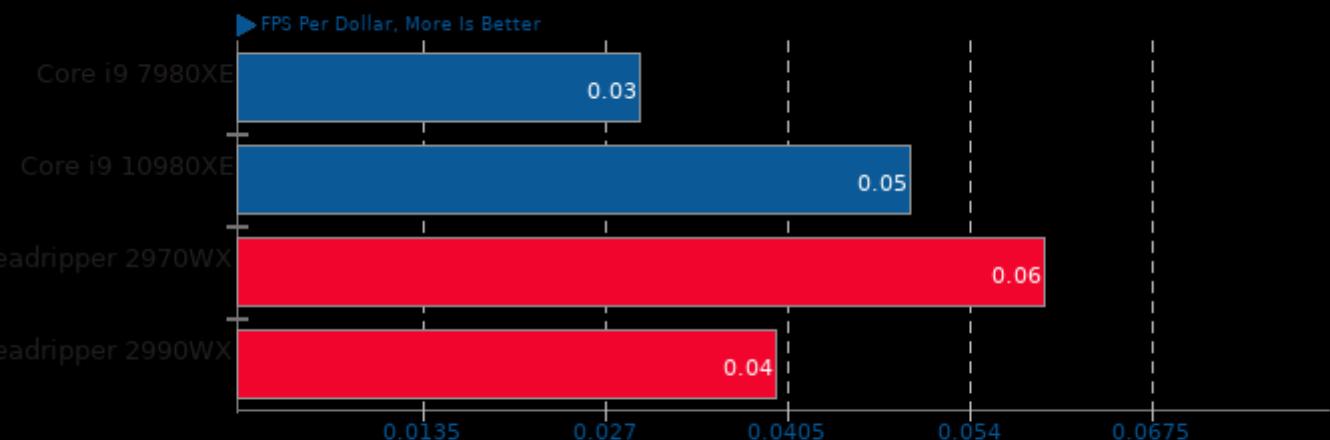
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

dav1d 0.5.0

Performance / Cost - Video Input: Chimera 1080p 10-bit



1. Core i9 7980XE: \$1525 reported cost.

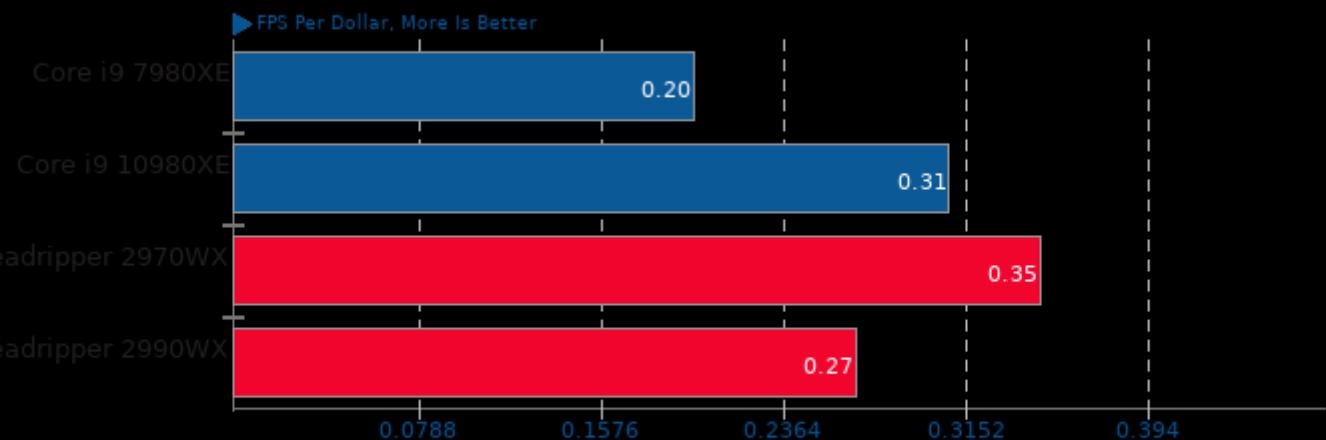
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

dav1d 0.5.0

Performance / Cost - Video Input: Summer Nature 1080p



1. Core i9 7980XE: \$1525 reported cost.

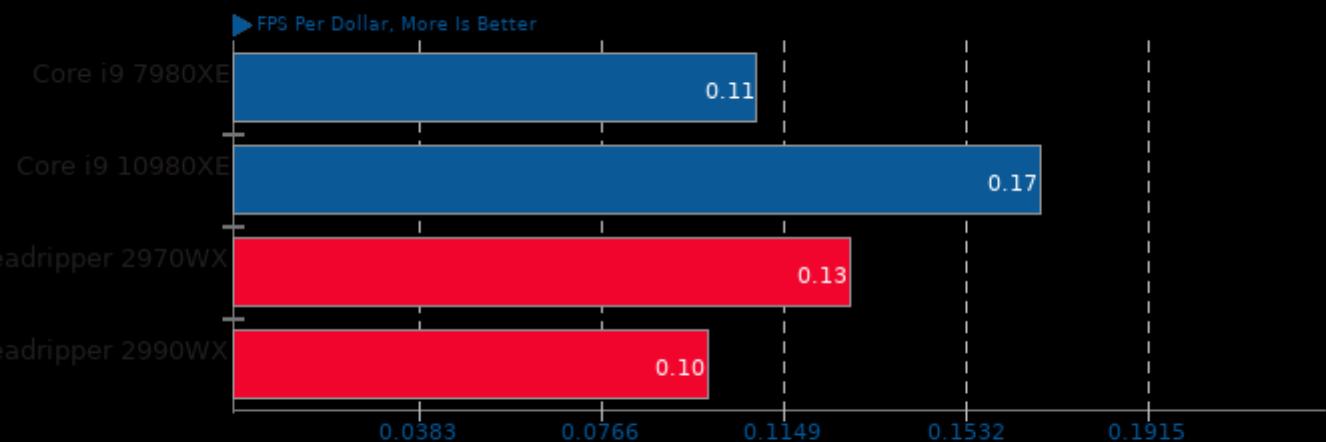
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

dav1d 0.5.0

Performance / Cost - Video Input: Summer Nature 4K



1. Core i9 7980XE: \$1525 reported cost.

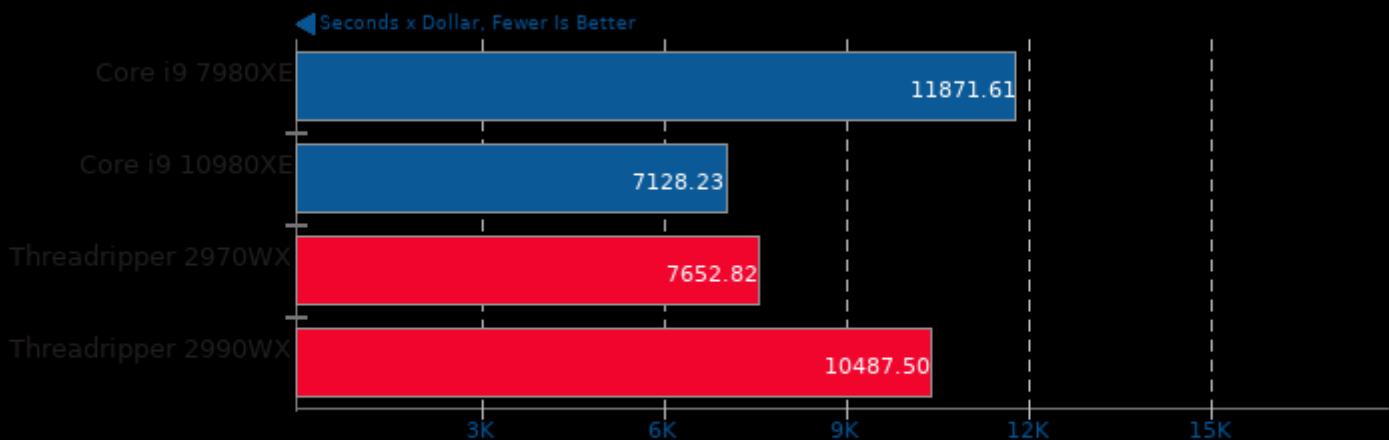
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Tungsten Renderer 0.2.2

Performance / Cost - Scene: Volumetric Caustic



1. Core i9 7980XE: \$1525 reported cost.

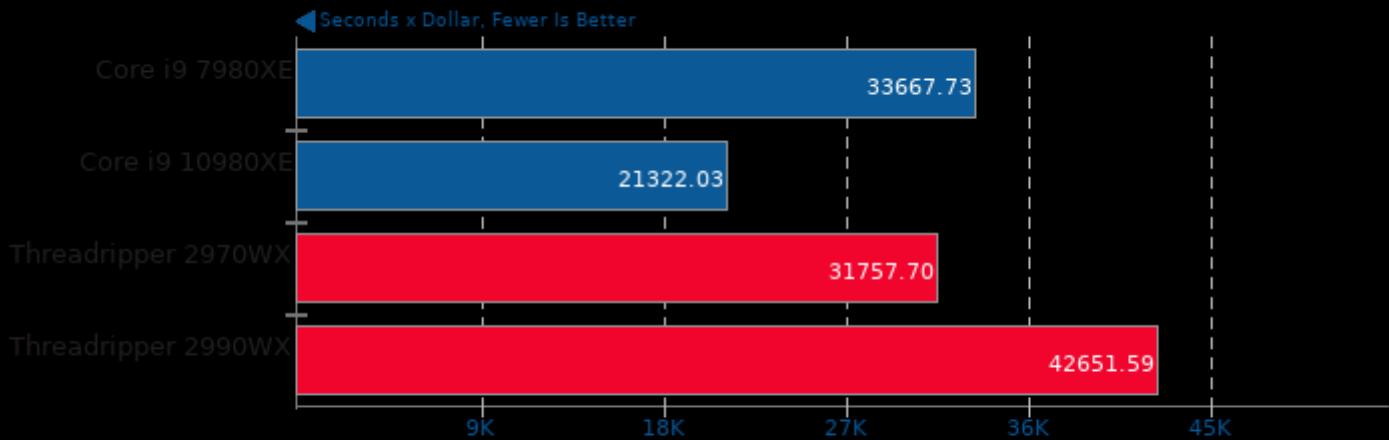
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Tungsten Renderer 0.2.2

Performance / Cost - Scene: Water Caustic



1. Core i9 7980XE: \$1525 reported cost.

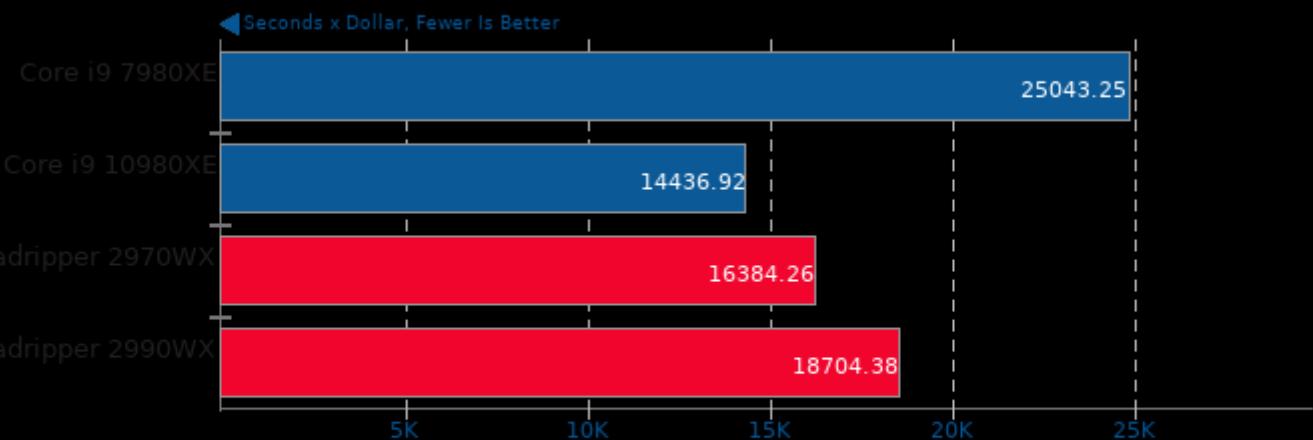
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Tungsten Renderer 0.2.2

Performance / Cost - Scene: Hair



1. Core i9 7980XE: \$1525 reported cost.

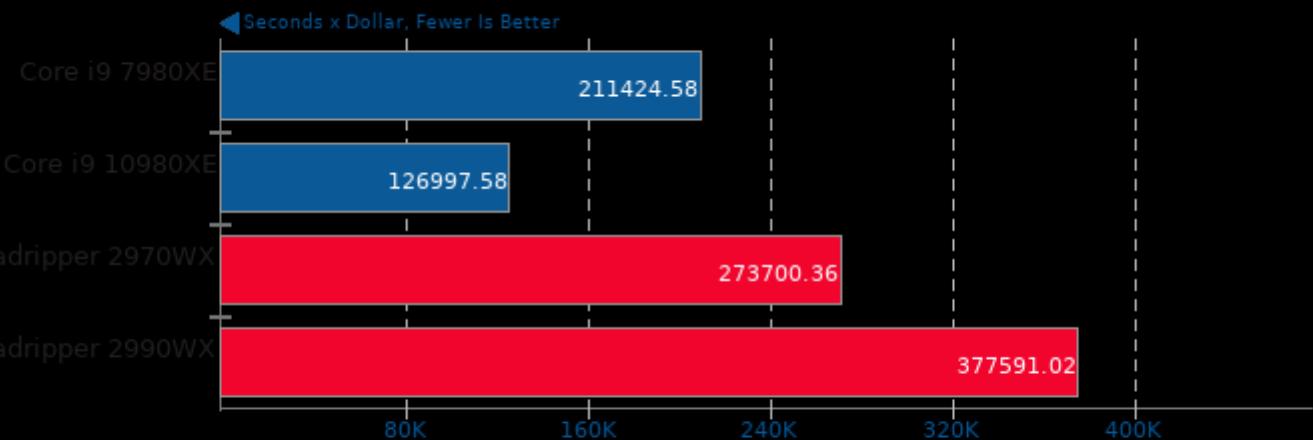
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Appleseed 2.0 Beta

Performance / Cost - Scene: Material Tester



1. Core i9 7980XE: \$1525 reported cost.

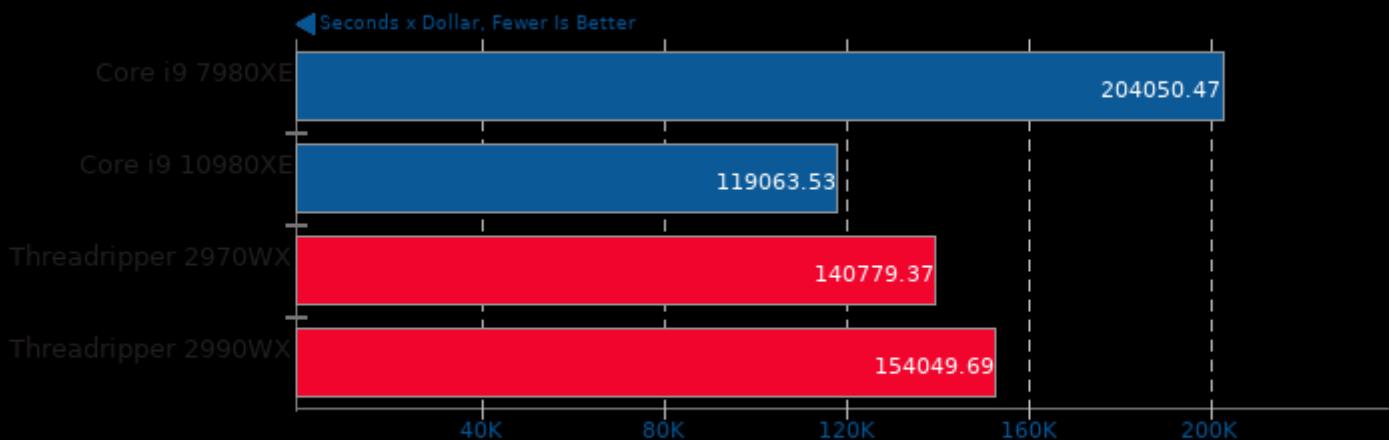
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Appleseed 2.0 Beta

Performance / Cost - Scene: Disney Material



1. Core i9 7980XE: \$1525 reported cost.

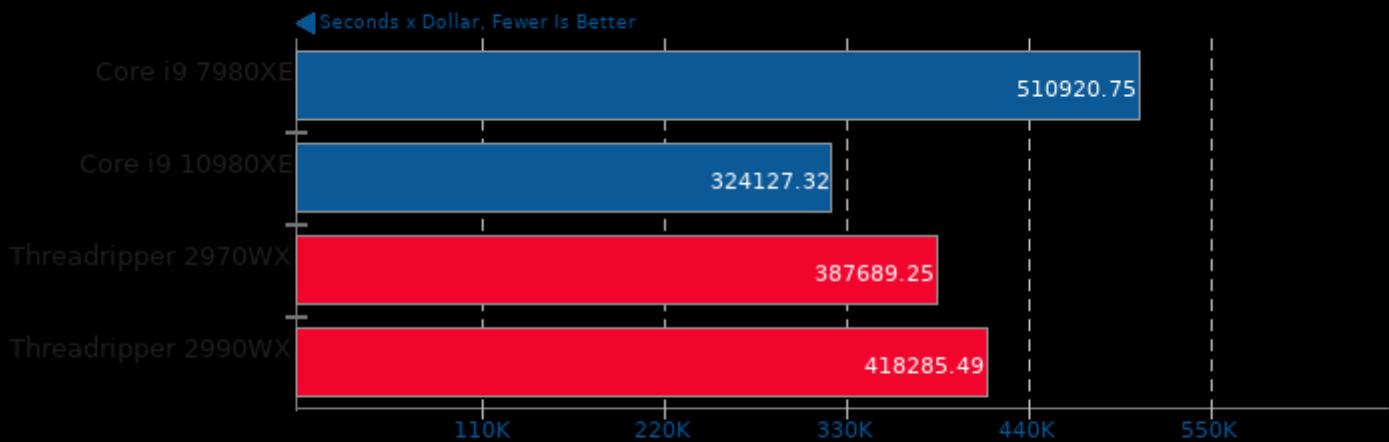
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Blender 2.80

Performance / Cost - Blend File: Pabellon Barcelona - Compute: CPU-Only



1. Core i9 7980XE: \$1525 reported cost.

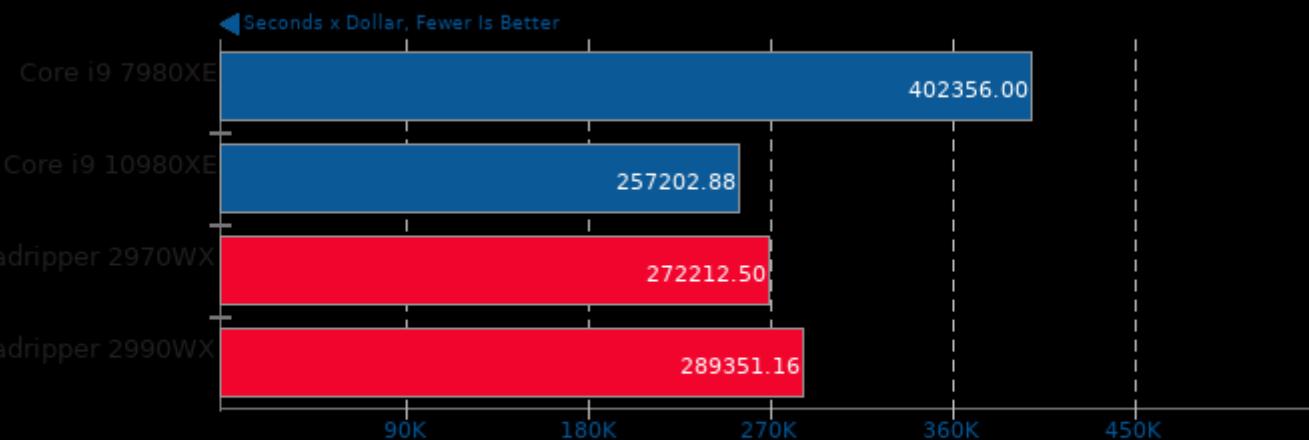
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Blender 2.80

Performance / Cost - Blend File: Classroom - Compute: CPU-Only



1. Core i9 7980XE: \$1525 reported cost.

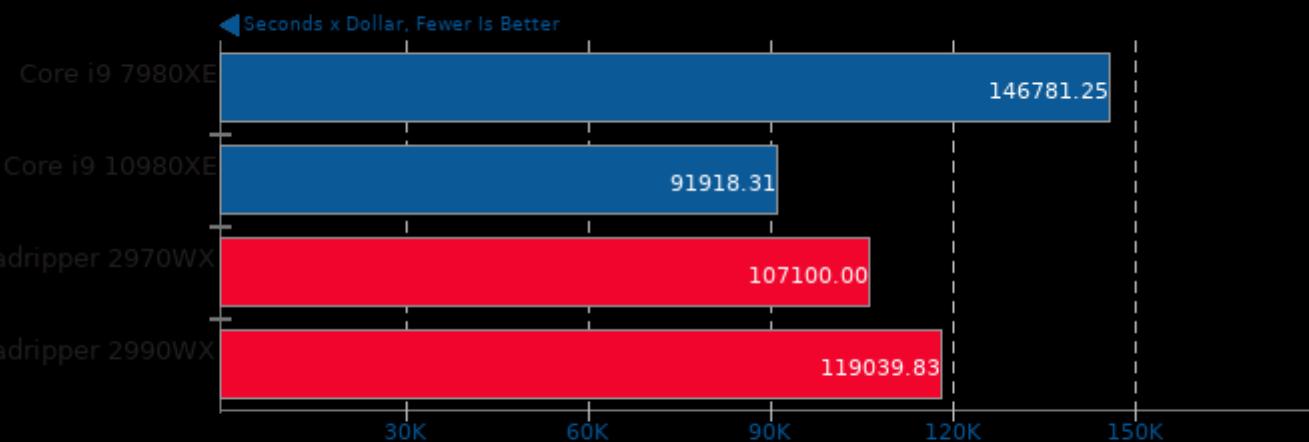
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Blender 2.80

Performance / Cost - Blend File: BMW27 - Compute: CPU-Only



1. Core i9 7980XE: \$1525 reported cost.

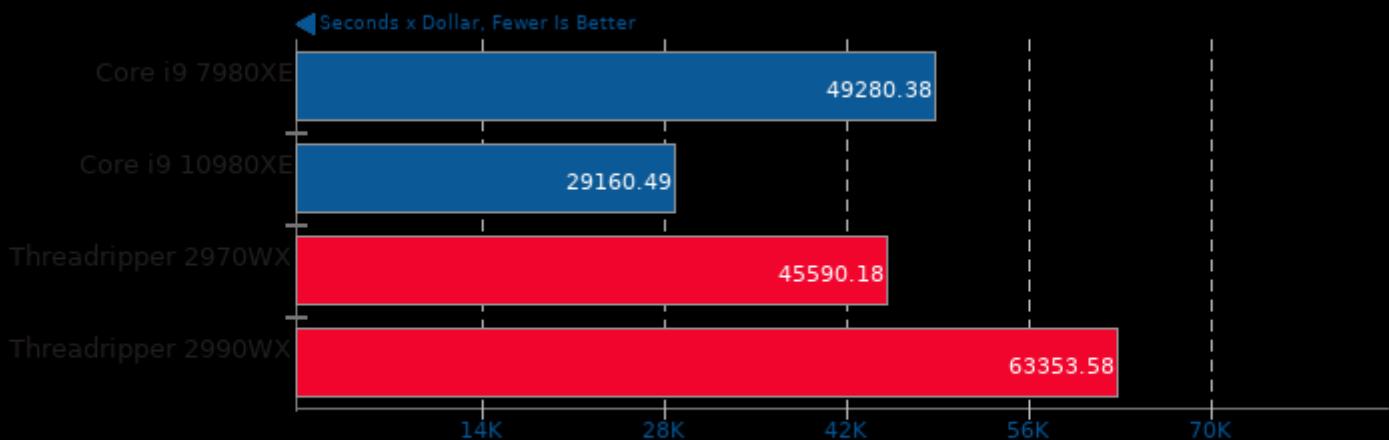
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

AOBench

Performance / Cost - Size: 2048 x 2048 - Total Time



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Smallpt 1.0

Performance / Cost - Global Illumination Renderer; 128 Samples



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

C-Ray 1.1

Performance / Cost - Total Time - 4K, 16 Rays Per Pixel



1. Core i9 7980XE: \$1525 reported cost.

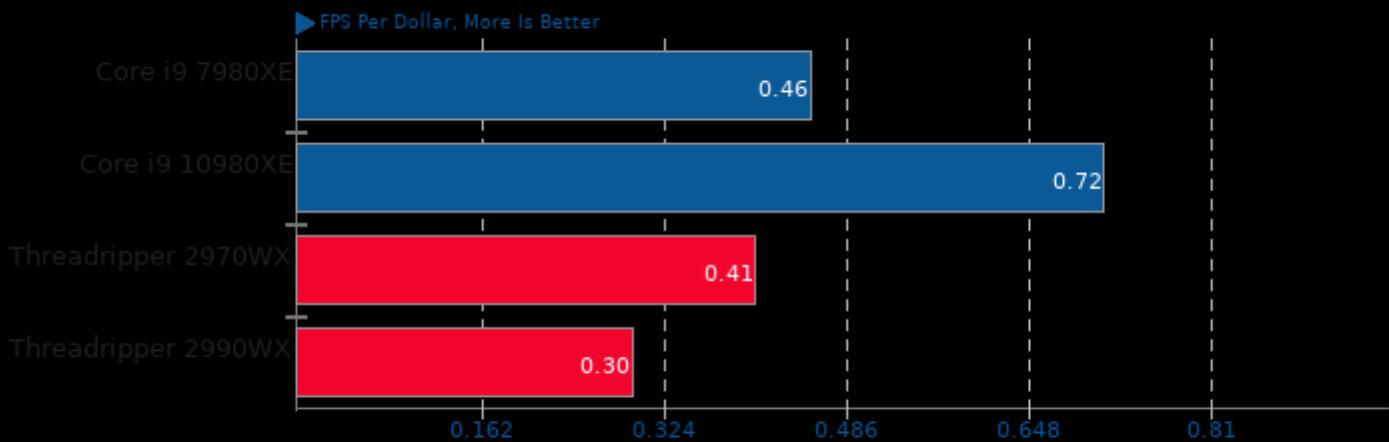
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

TTSIOD 3D Renderer 2.3b

Performance / Cost - Phong Rendering With Soft-Shadow Mapping



1. Core i9 7980XE: \$1525 reported cost.

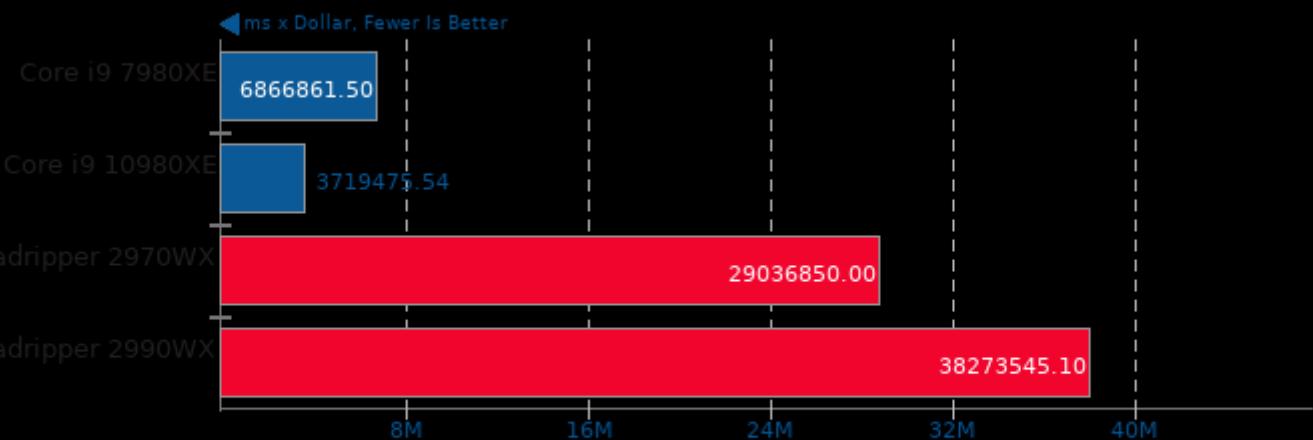
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

MKL-DNN DNNL 1.1

Performance / Cost - Harness: Convolution Batch conv_all - Data Type: u8s8f32



1. Core i9 7980XE: \$1525 reported cost.

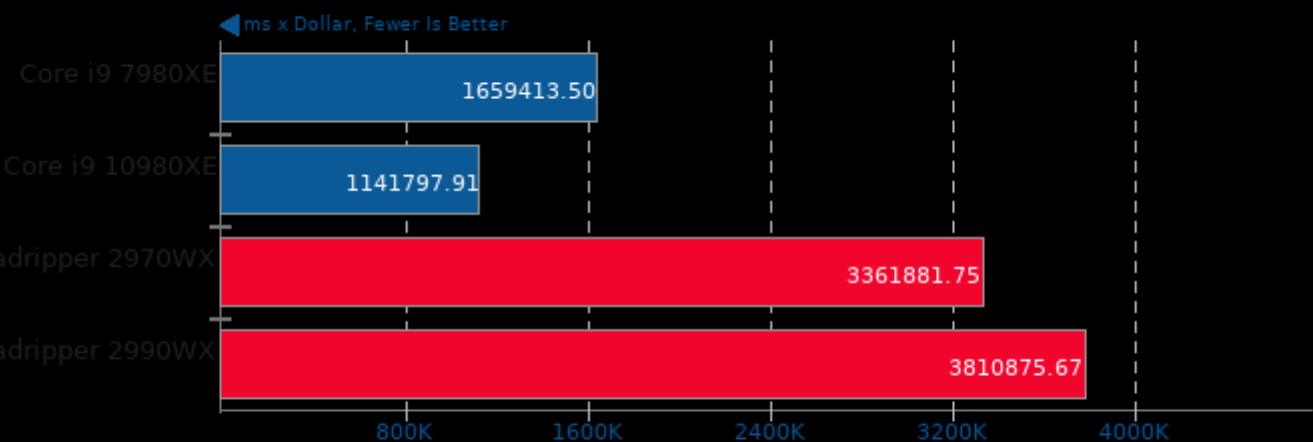
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

MKL-DNN DNNL 1.1

Performance / Cost - Harness: Convolution Batch conv_all - Data Type: f32



1. Core i9 7980XE: \$1525 reported cost.

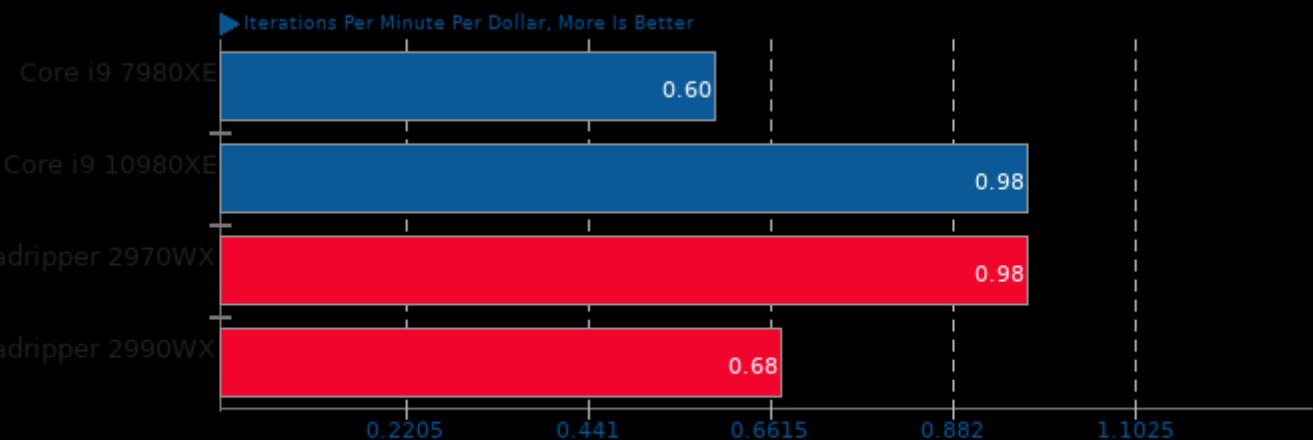
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

GraphicsMagick 1.3.33

Performance / Cost - Operation: HWB Color Space



1. Core i9 7980XE: \$1525 reported cost.

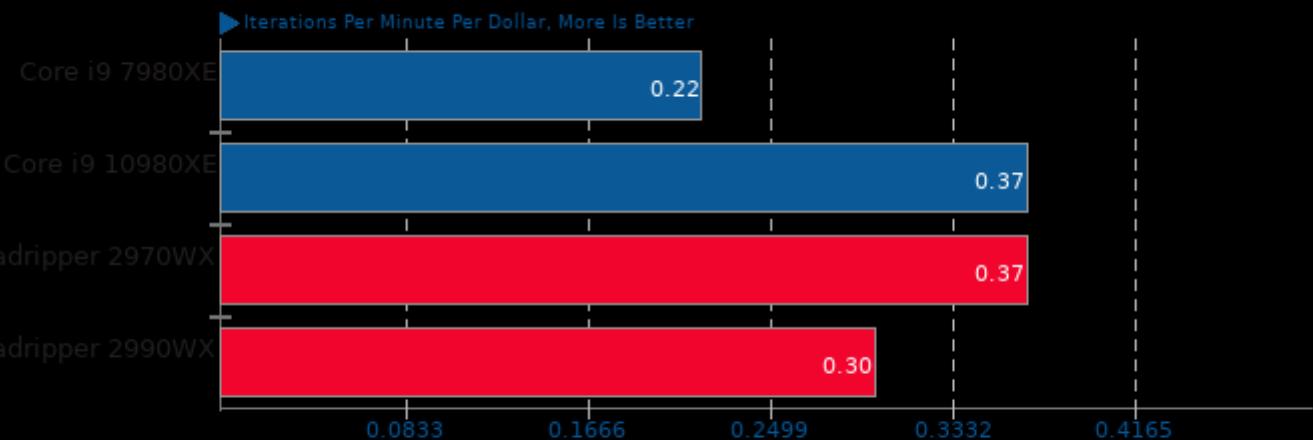
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

GraphicsMagick 1.3.33

Performance / Cost - Operation: Noise-Gaussian



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

GraphicsMagick 1.3.33

Performance / Cost - Operation: Resizing



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

GraphicsMagick 1.3.33

Performance / Cost - Operation: Enhanced



1. Core i9 7980XE: \$1525 reported cost.

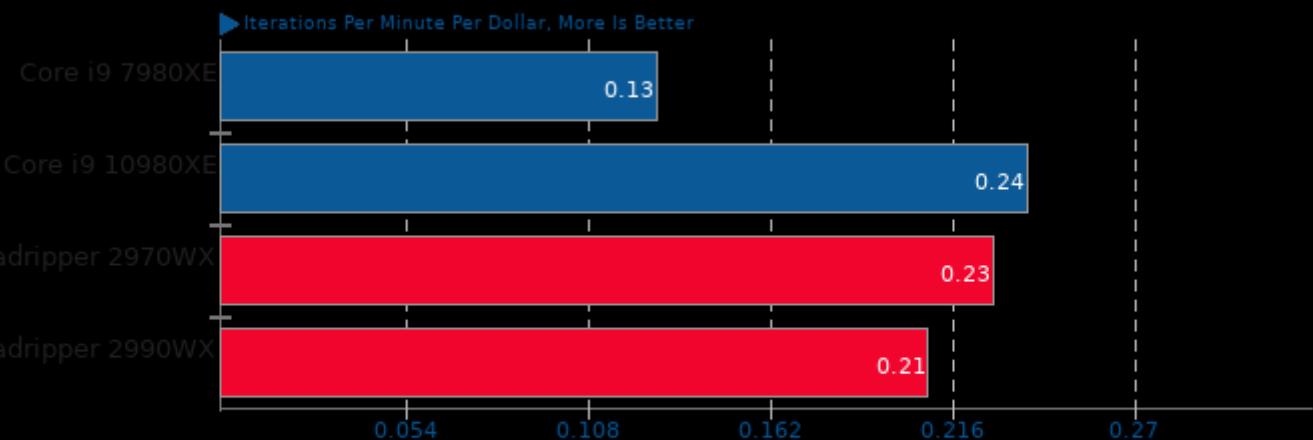
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

GraphicsMagick 1.3.33

Performance / Cost - Operation: Sharpen



1. Core i9 7980XE: \$1525 reported cost.

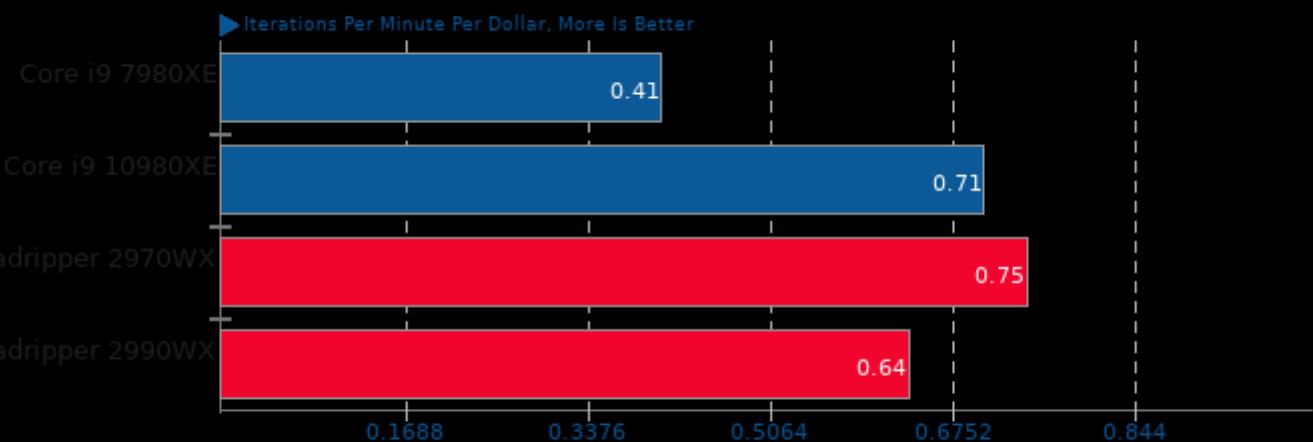
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

GraphicsMagick 1.3.33

Performance / Cost - Operation: Swirl



1. Core i9 7980XE: \$1525 reported cost.

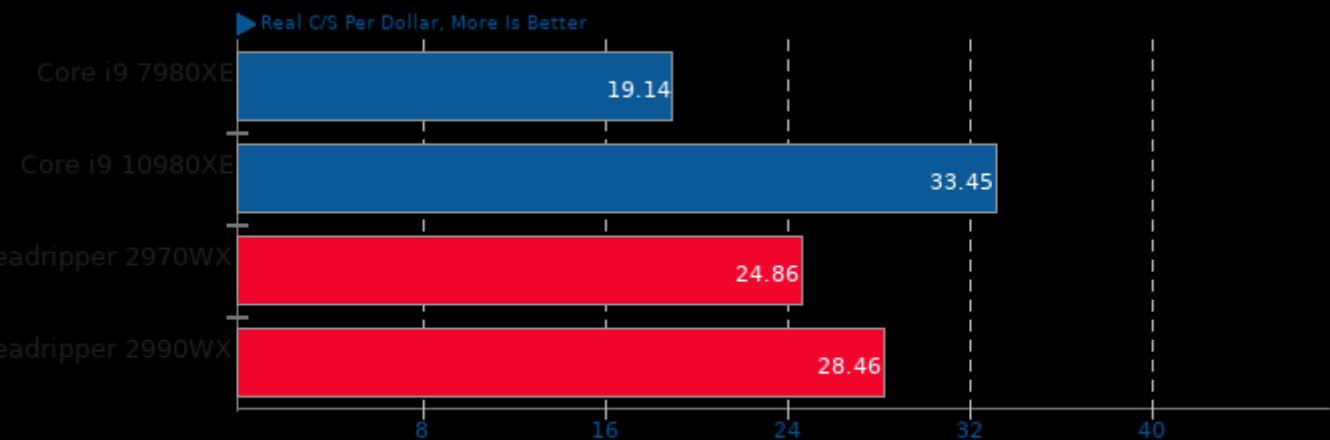
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

John The Ripper 1.9.0-jumbo-1

Performance / Cost - Test: Blowfish



1. Core i9 7980XE: \$1525 reported cost.

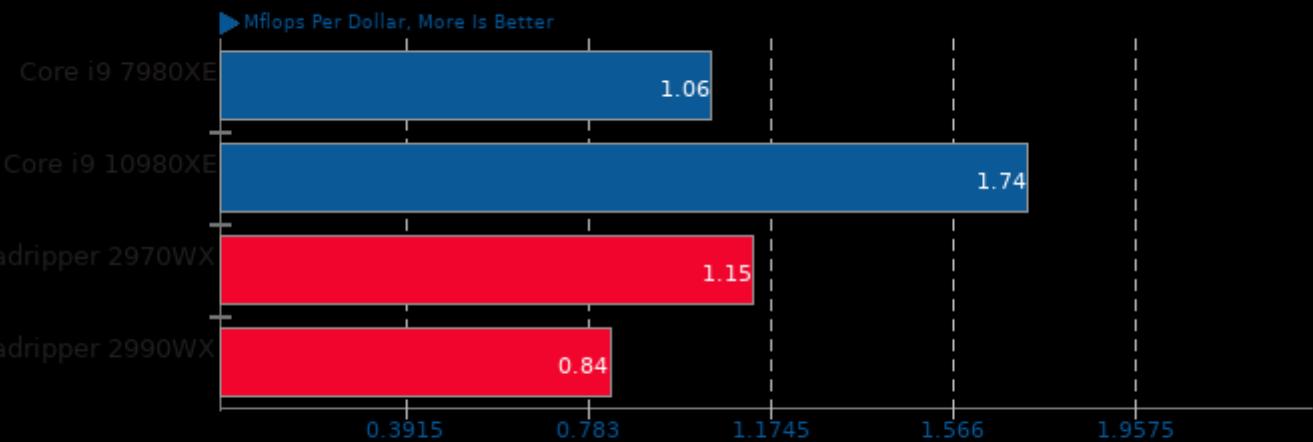
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

LuajIT 2.1-git

Performance / Cost - Test: Composite



1. Core i9 7980XE: \$1525 reported cost.

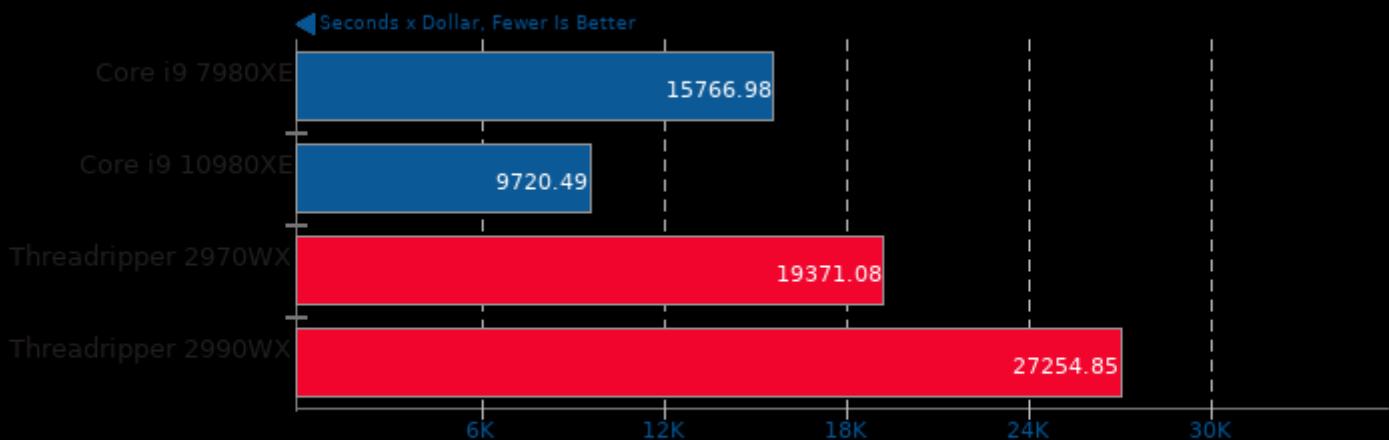
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Sudokut 0.4

Performance / Cost - Total Time



1. Core i9 7980XE: \$1525 reported cost.

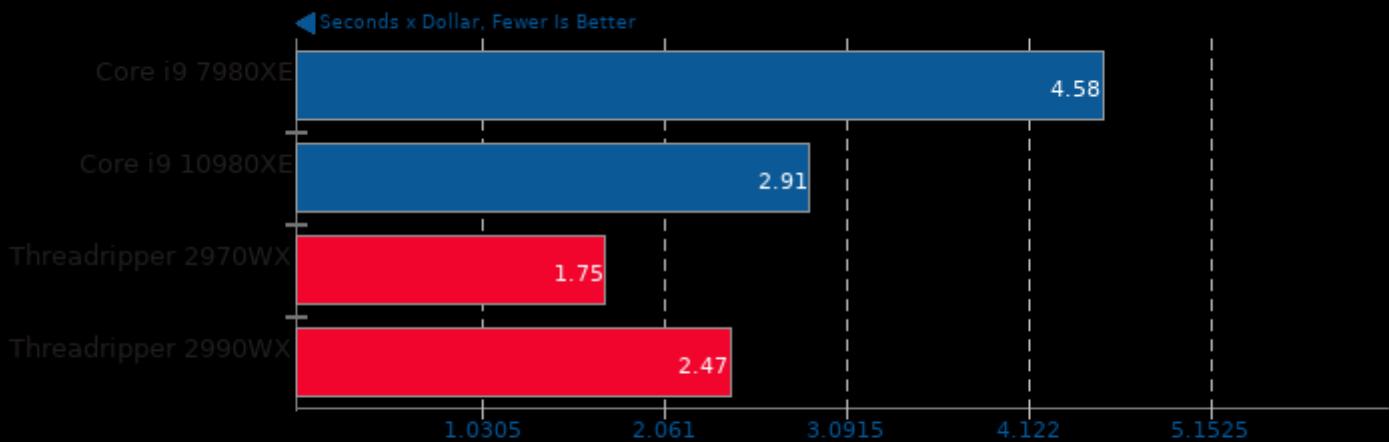
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Perl Benchmarks

Performance / Cost - Test: Interpreter



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

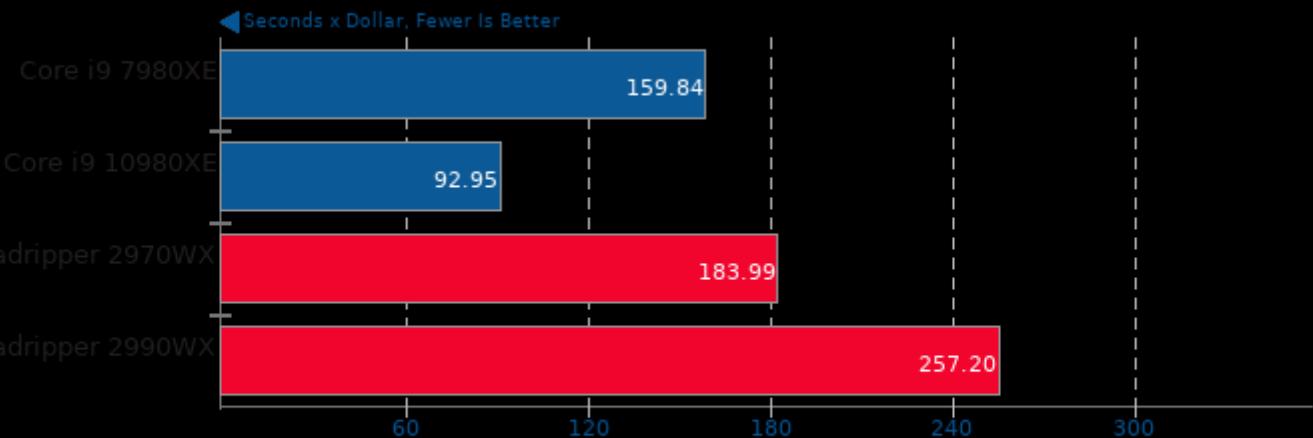
3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Intel Core i9-10980XE Linux Benchmarks

Perl Benchmarks

Performance / Cost - Test: Pod2html



1. Core i9 7980XE: \$1525 reported cost.

2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

PyBench 2018-02-16

Performance / Cost - Total For Average Test Times



1. Core i9 7980XE: \$1525 reported cost.

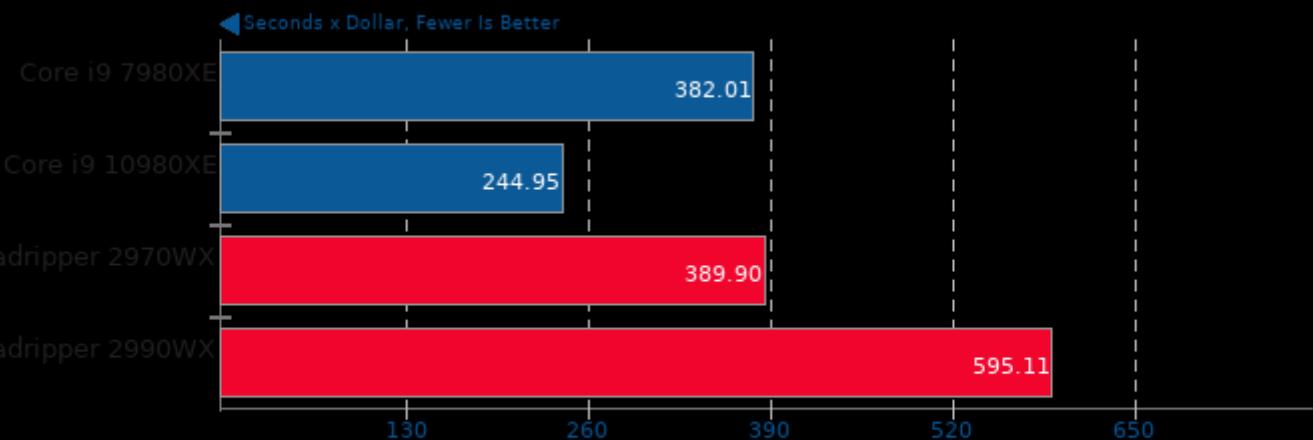
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

R Benchmark

Performance / Cost -



1. Core i9 7980XE: \$1525 reported cost.

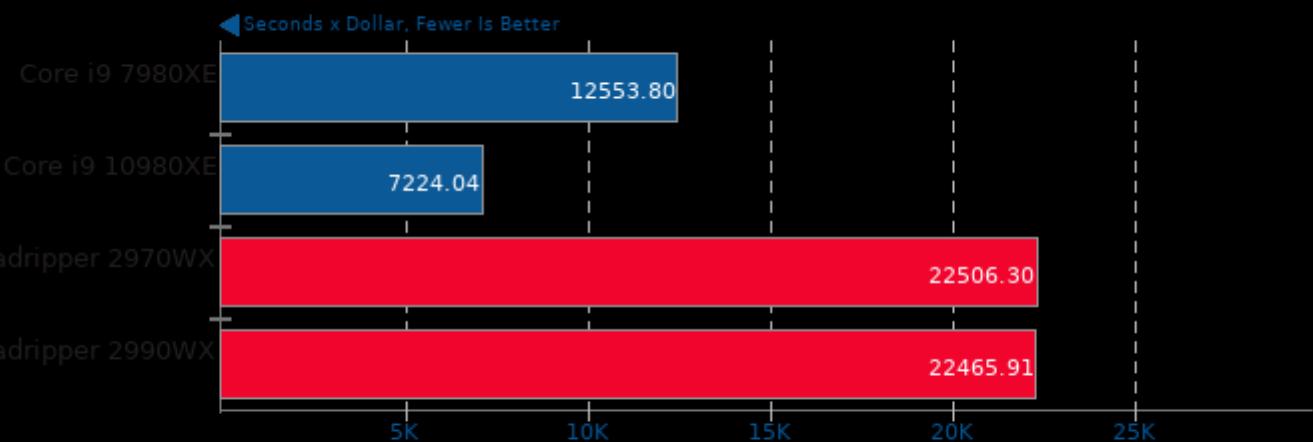
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Rust Prime Benchmark

Performance / Cost - Prime Number Test To 200,000,000



1. Core i9 7980XE: \$1525 reported cost.

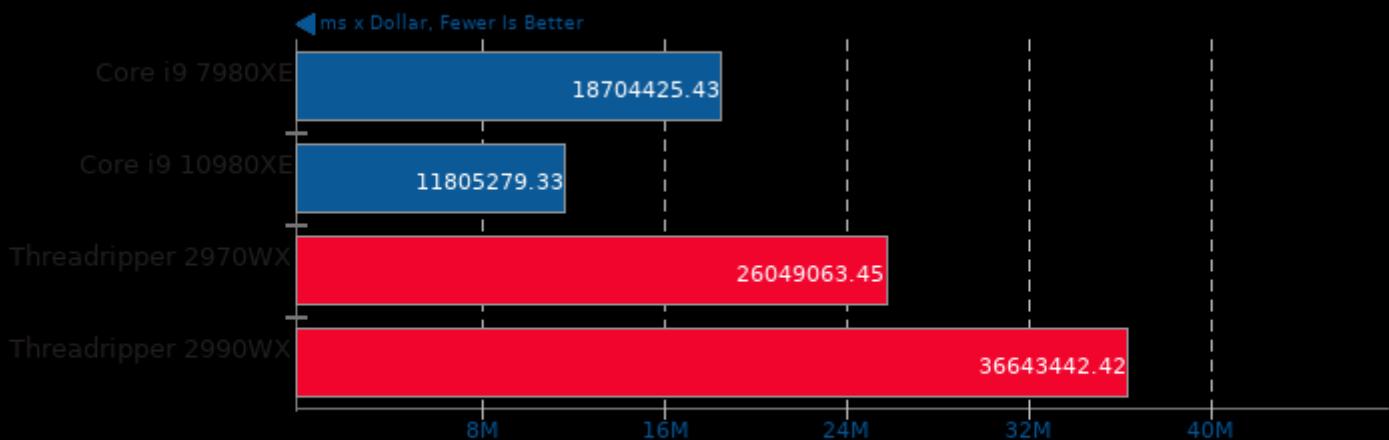
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

Renaissance 0.9.0

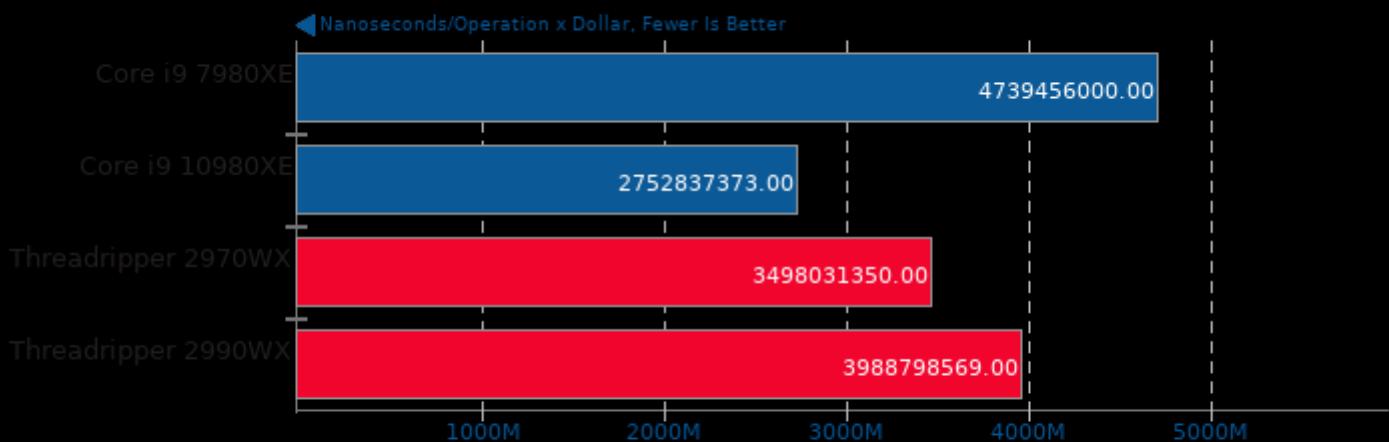
Performance / Cost - Test: Akka Unbalanced Cobwebbed Tree



1. Core i9 7980XE: \$1525 reported cost.
2. Core i9 10980XE: \$979 reported cost.
3. Threadripper 2970WX: \$1275 reported cost.
4. Threadripper 2990WX: \$1799 reported cost.

Go Benchmarks

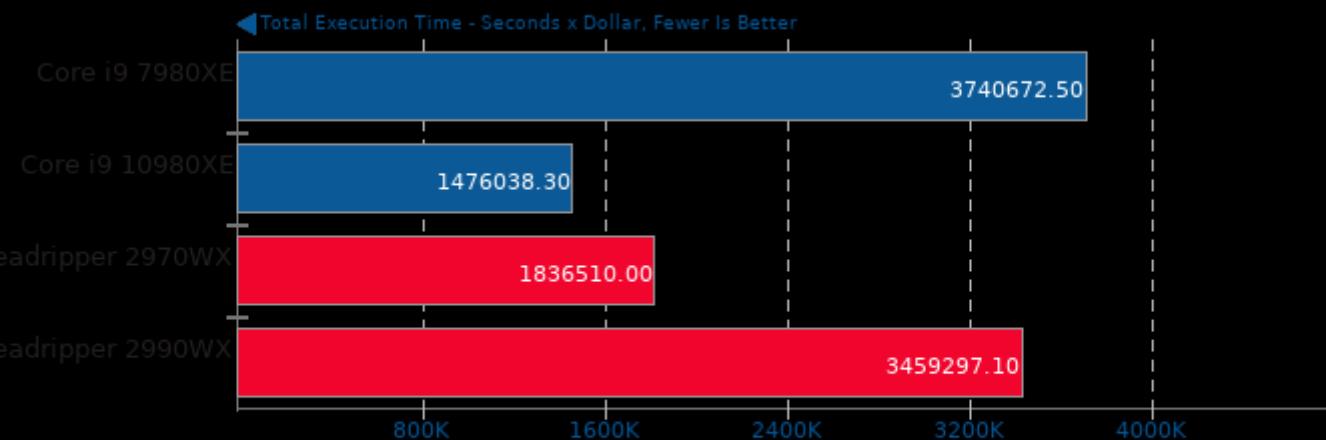
Performance / Cost - Test: json



1. Core i9 7980XE: \$1525 reported cost.
2. Core i9 10980XE: \$979 reported cost.
3. Threadripper 2970WX: \$1275 reported cost.
4. Threadripper 2990WX: \$1799 reported cost.

QMCPACK 3.8

Performance / Cost -



1. Core i9 7980XE: \$1525 reported cost.

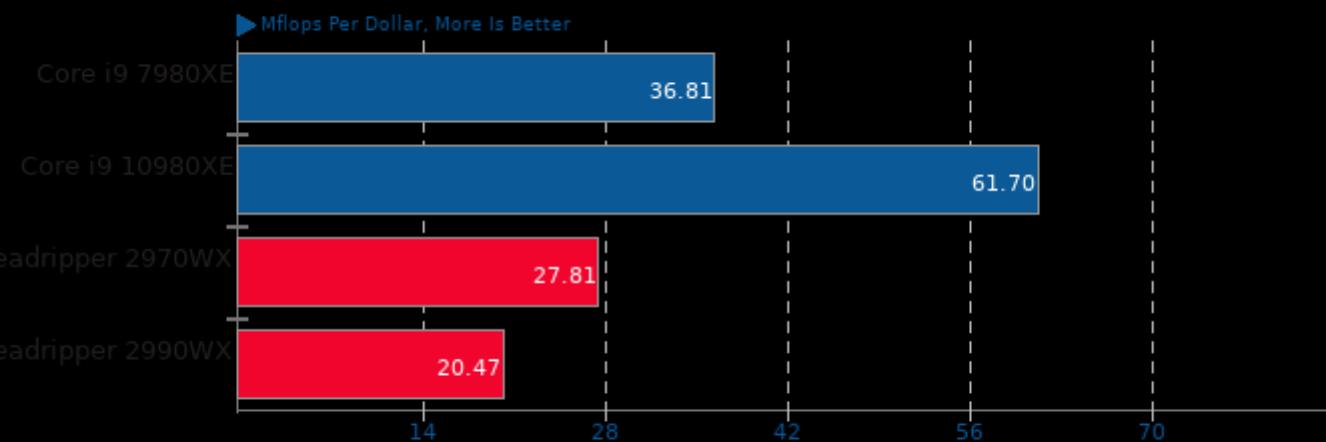
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

FFTW 3.3.6

Performance / Cost - Build: Float + SSE - Size: 1D FFT Size 4096



1. Core i9 7980XE: \$1525 reported cost.

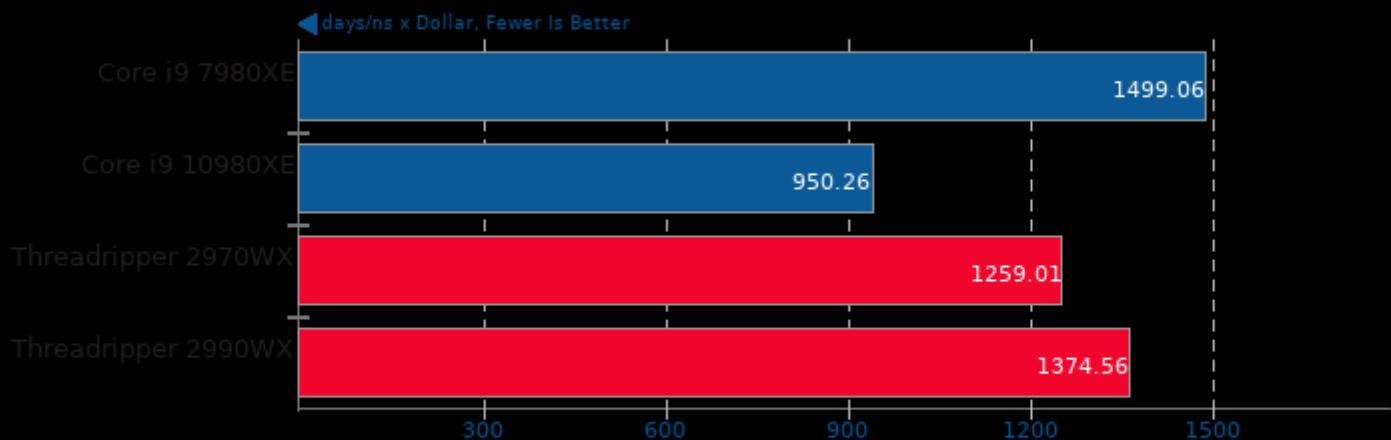
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

NAMD 2.13b1

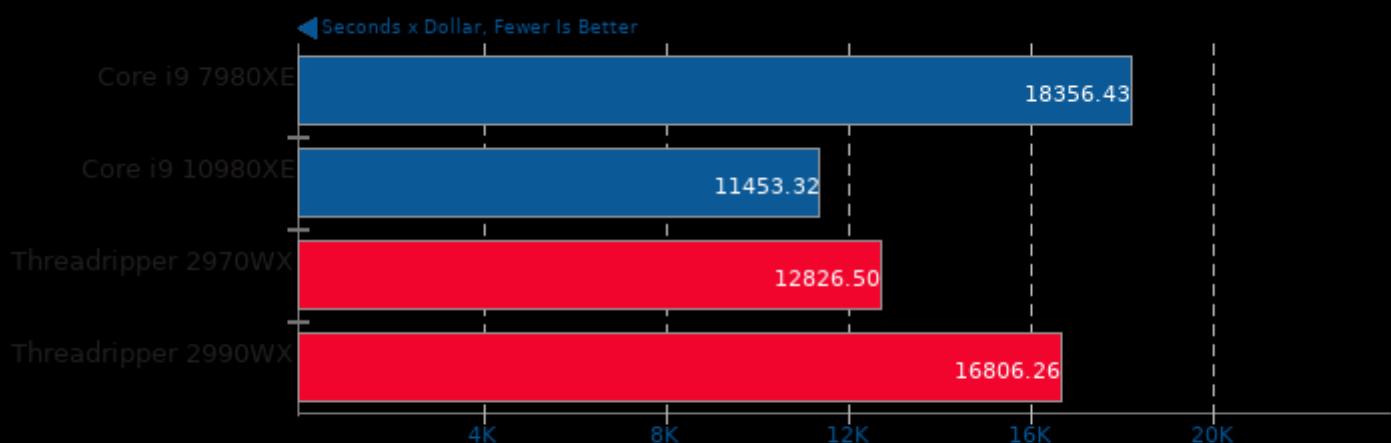
Performance / Cost - ATPase Simulation - 327,506 Atoms



1. Core i9 7980XE: \$1525 reported cost.
2. Core i9 10980XE: \$979 reported cost.
3. Threadripper 2970WX: \$1275 reported cost.
4. Threadripper 2990WX: \$1799 reported cost.

Rodinia 2.4

Performance / Cost - Test: OpenMP CFD Solver

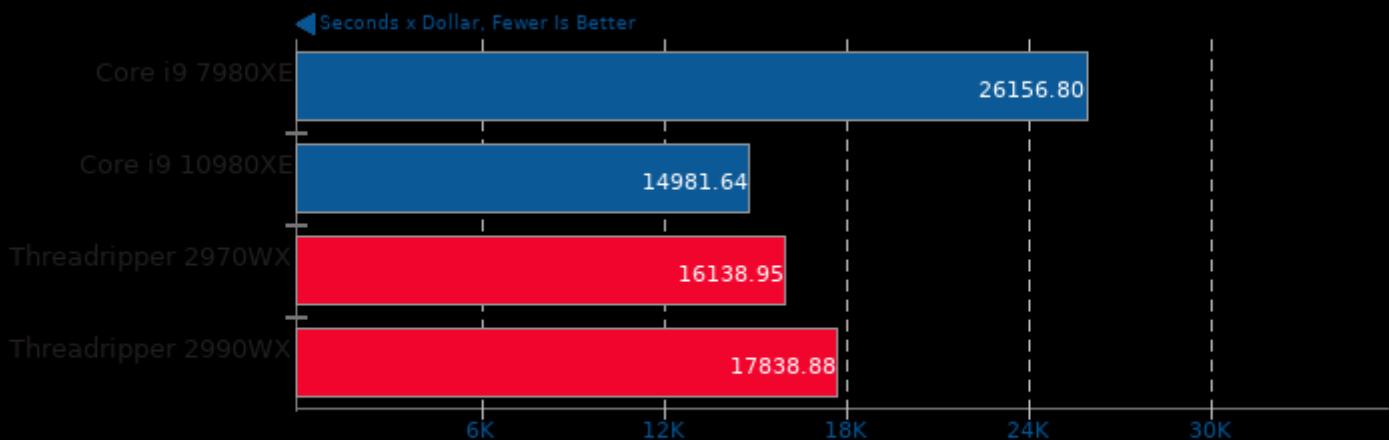


1. Core i9 7980XE: \$1525 reported cost.
2. Core i9 10980XE: \$979 reported cost.
3. Threadripper 2970WX: \$1275 reported cost.
4. Threadripper 2990WX: \$1799 reported cost.

Intel Core i9-10980XE Linux Benchmarks

Rodinia 2.4

Performance / Cost - Test: OpenMP LavaMD



1. Core i9 7980XE: \$1525 reported cost.

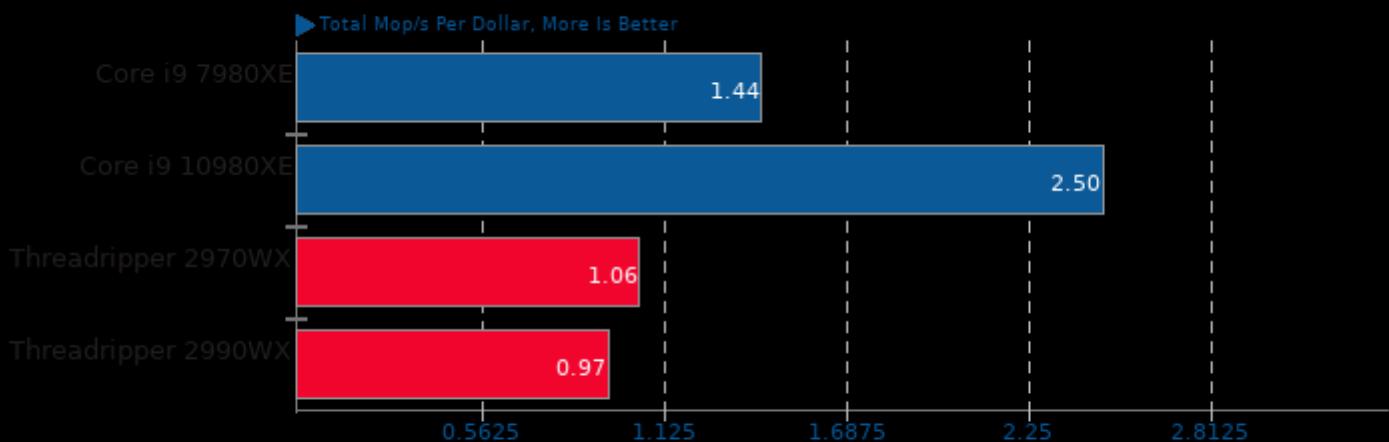
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

NAS Parallel Benchmarks 3.4

Performance / Cost - Test / Class: EP.C



1. Core i9 7980XE: \$1525 reported cost.

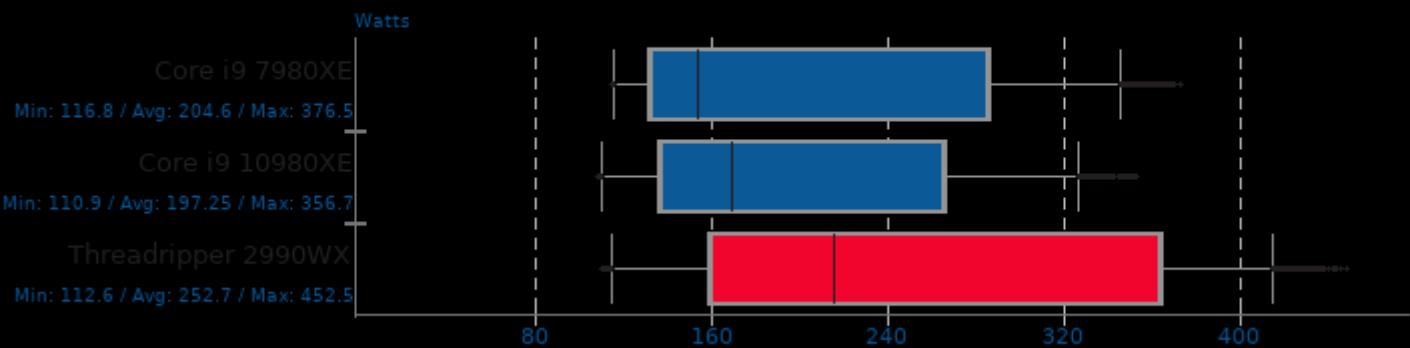
2. Core i9 10980XE: \$979 reported cost.

3. Threadripper 2970WX: \$1275 reported cost.

4. Threadripper 2990WX: \$1799 reported cost.

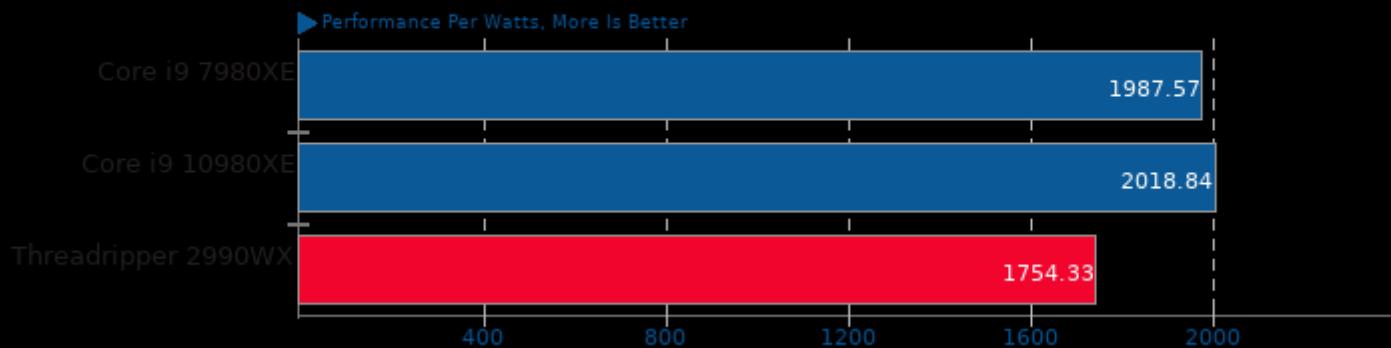
System Power Consumption Monitor

Phoronix Test Suite System Monitoring



Meta Performance Per Watts

Performance Per Watts

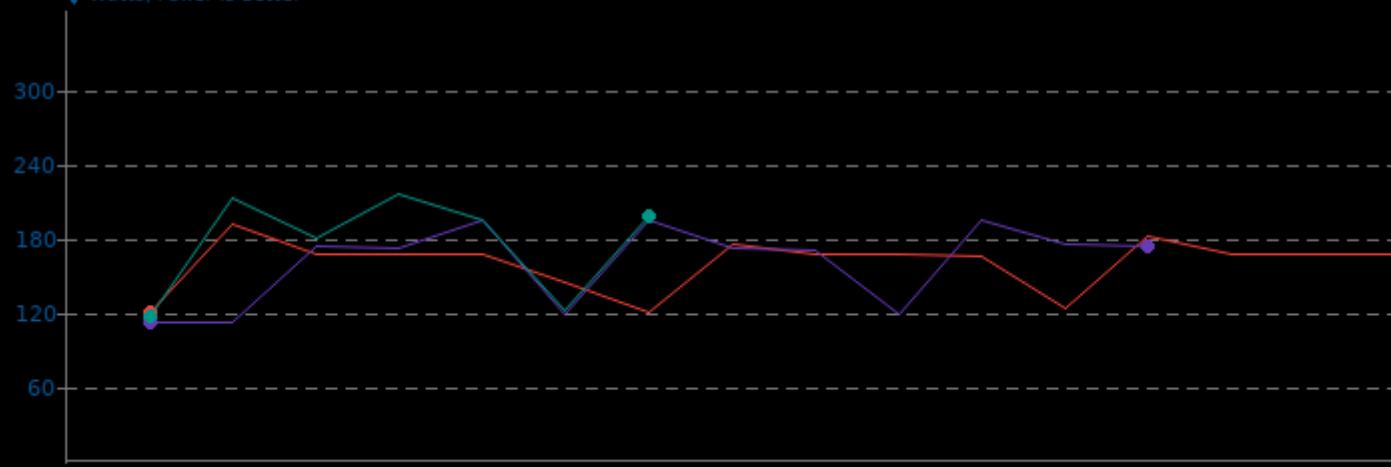


Selenium

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	120.4	159.9	191.2
Core i9 10980XE	112.8	160.6	195.0
Threadripper 2990WX	117.5	177.1	215.6

▼ Watts, Fewer Is Better

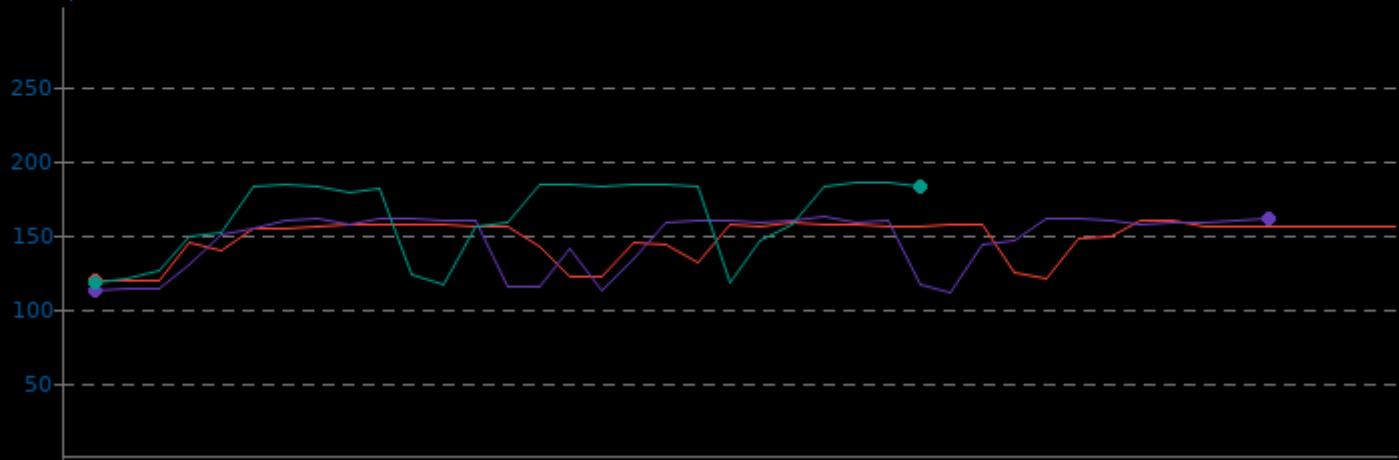


Selenium

System Power Consumption Monitor

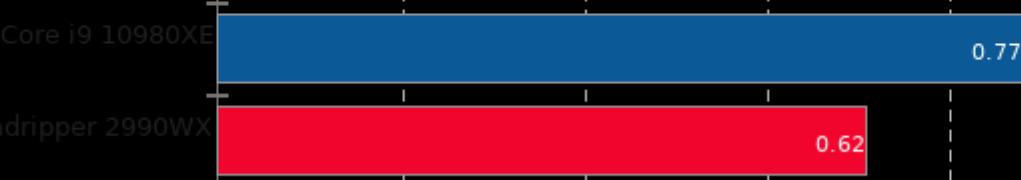
	Min	Avg	Max
Core i9 7980XE	118.6	147.7	159.7
Core i9 10980XE	111.5	146.8	162.6
Threadripper 2990WX	116.7	162.1	184.9

▼ Watts, Fewer Is Better



Selenium

Benchmark: Speedometer - Browser: Google Chrome

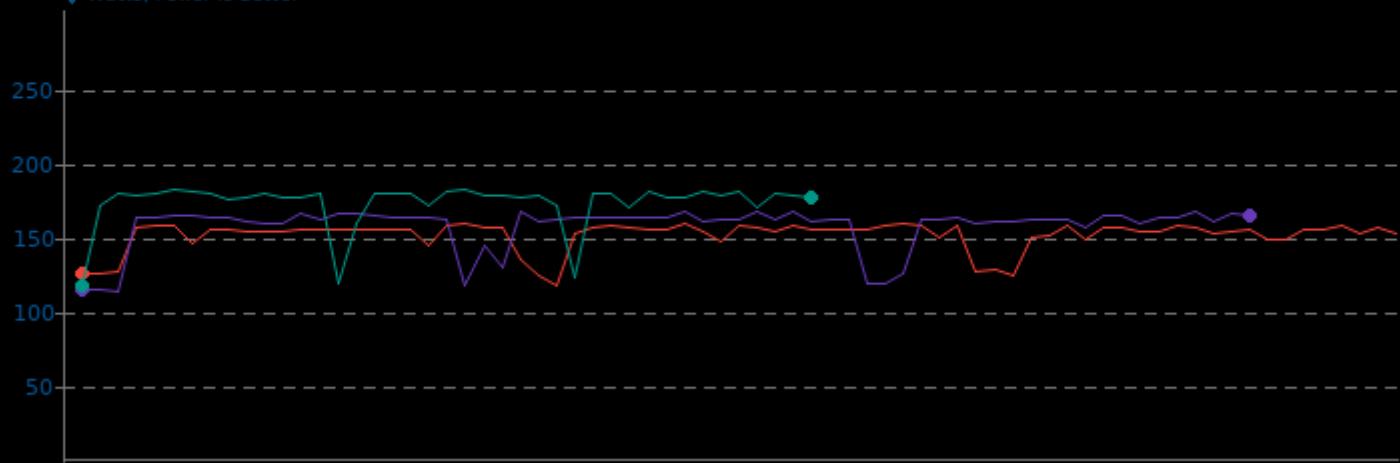


Selenium

System Power Consumption Monitor

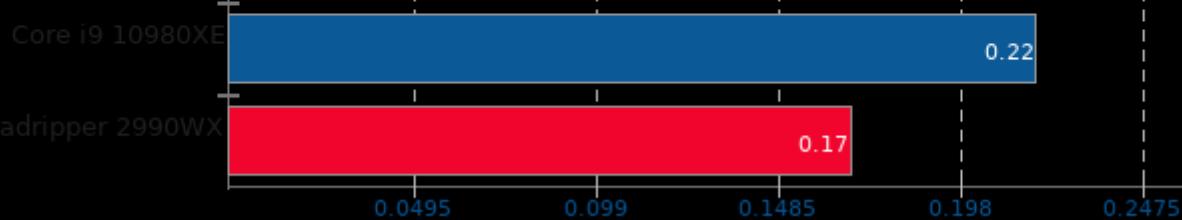
	Min	Avg	Max
Core i9 7980XE	118.3	151.5	159.6
Core i9 10980XE	114.1	157.5	167.7
Threadripper 2990WX	118.4	173.2	182.6

▼ Watts, Fewer Is Better



Selenium

Benchmark: StyleBench - Browser: Google Chrome

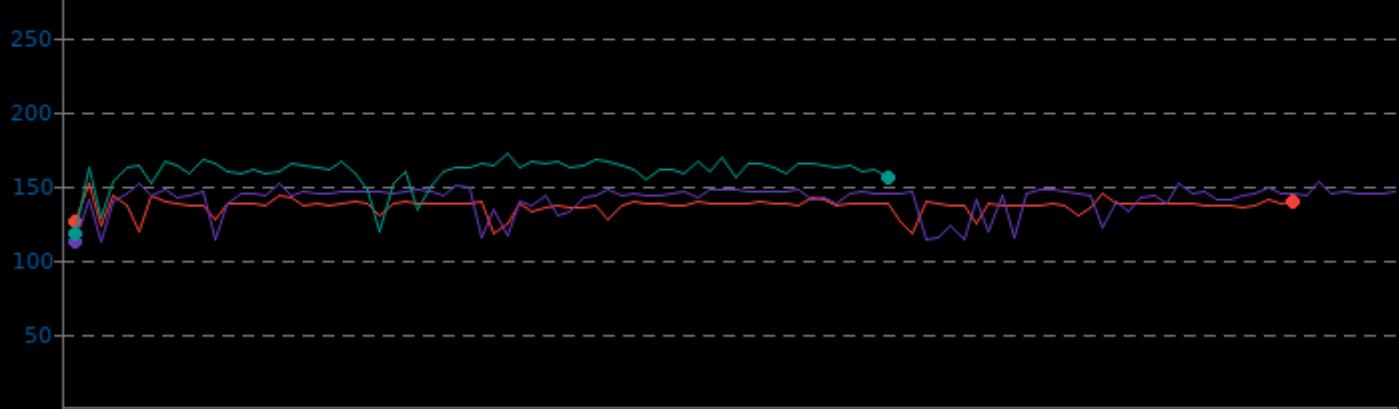


Selenium

System Power Consumption Monitor

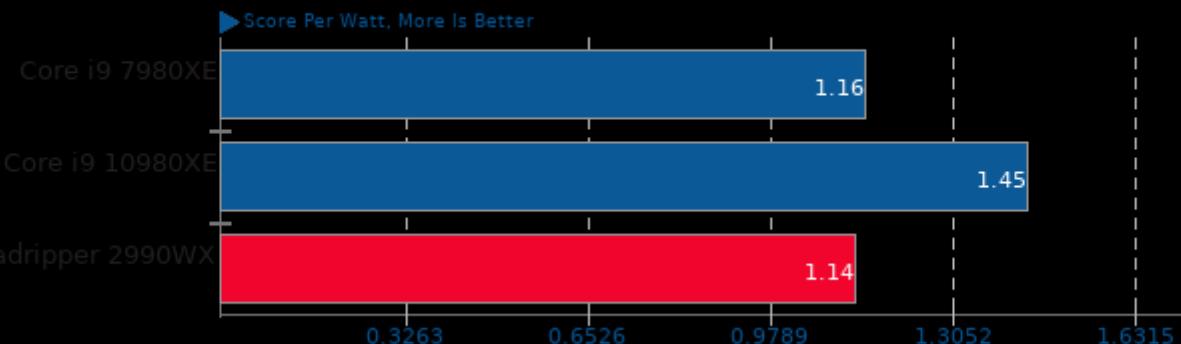
	Min	Avg	Max
Core i9 7980XE	117.6	136.3	152.0
Core i9 10980XE	112.3	140.9	152.7
Threadripper 2990WX	117.5	159.0	171.3

▼ Watts, Fewer Is Better



Selenium

Benchmark: Jetstream - Browser: Google Chrome

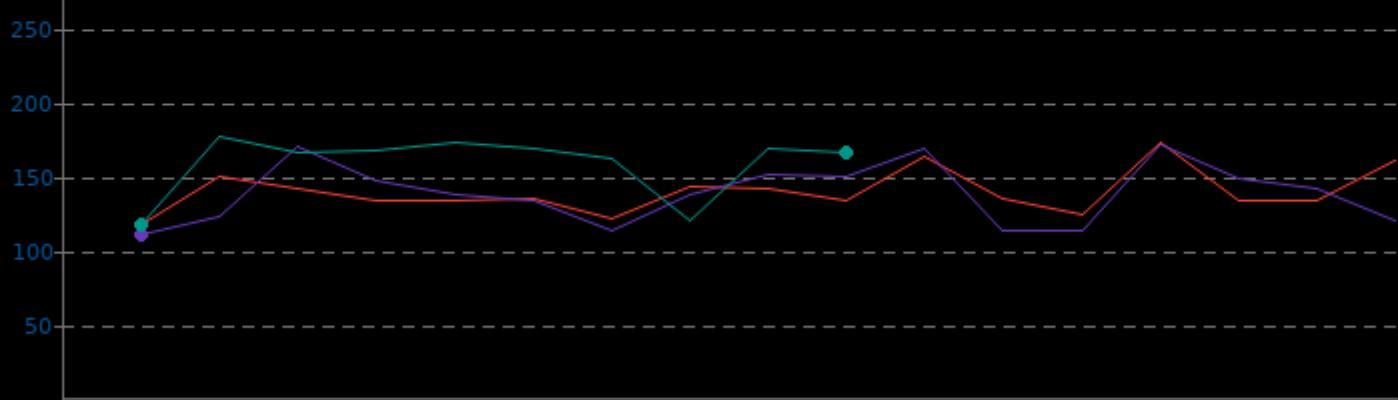


Selenium

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.3	140.0	172.3
Core i9 10980XE	111.4	138.8	171.7
Threadripper 2990WX	117.2	158.5	177.0

▼ Watts, Fewer Is Better

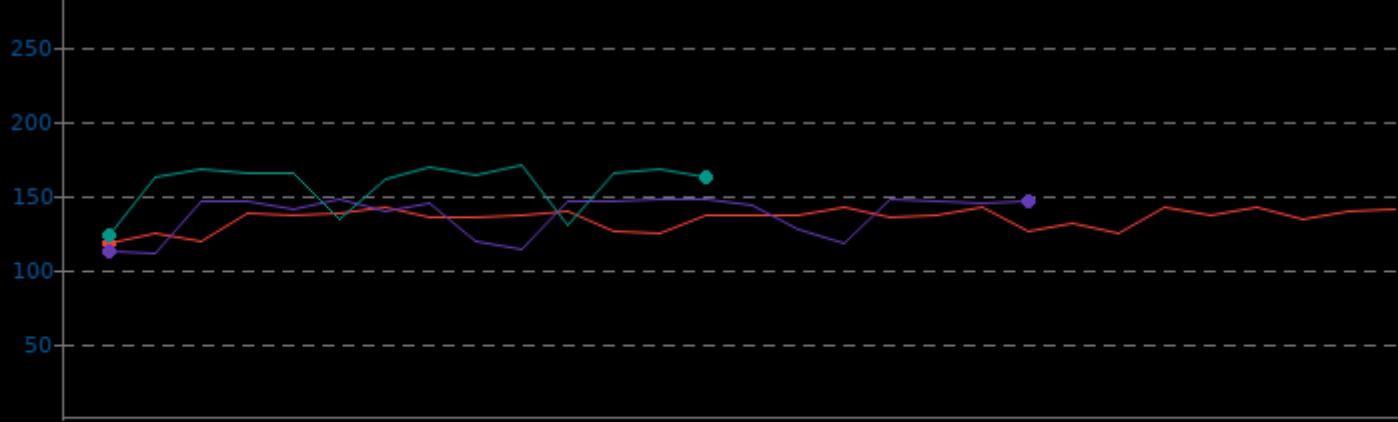


Selenium

System Power Consumption Monitor

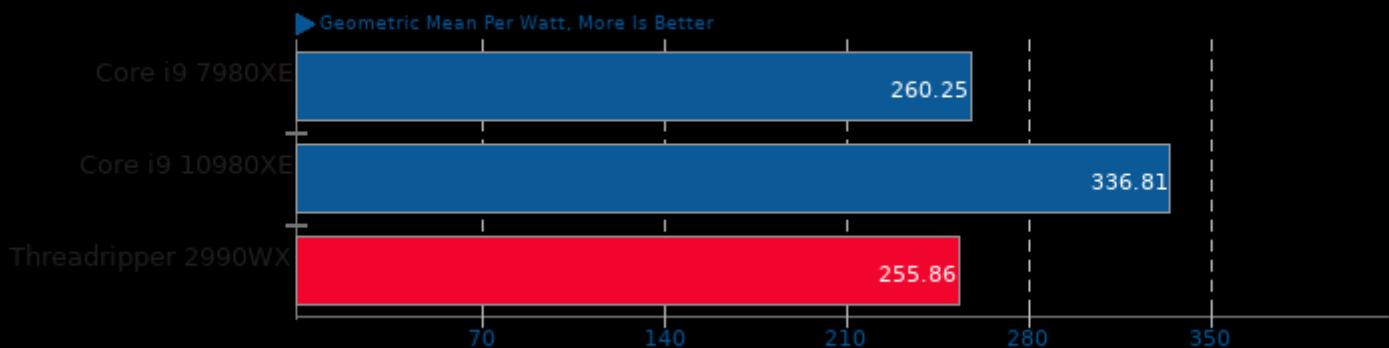
	Min	Avg	Max
Core i9 7980XE	118.3	134.2	142.1
Core i9 10980XE	111.7	137.2	147.8
Threadripper 2990WX	123.4	157.3	170.1

▼ Watts, Fewer Is Better



Selenium

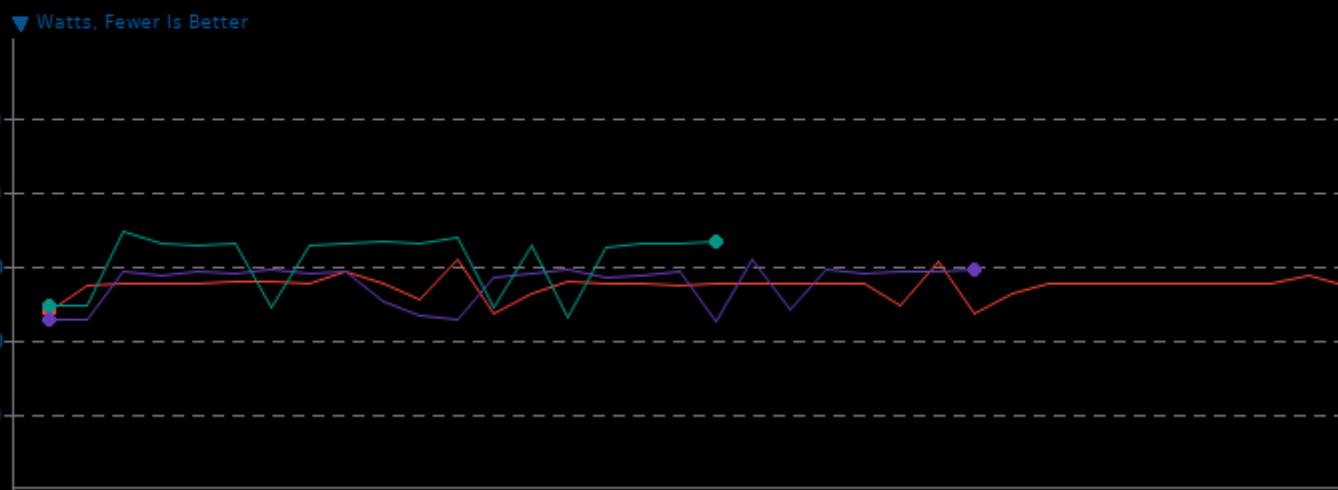
Benchmark: Octane - Browser: Google Chrome



Selenium

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.4	136.4	153.5
Core i9 10980XE	113.1	137.8	153.5
Threadripper 2990WX	115.7	153.6	172.9

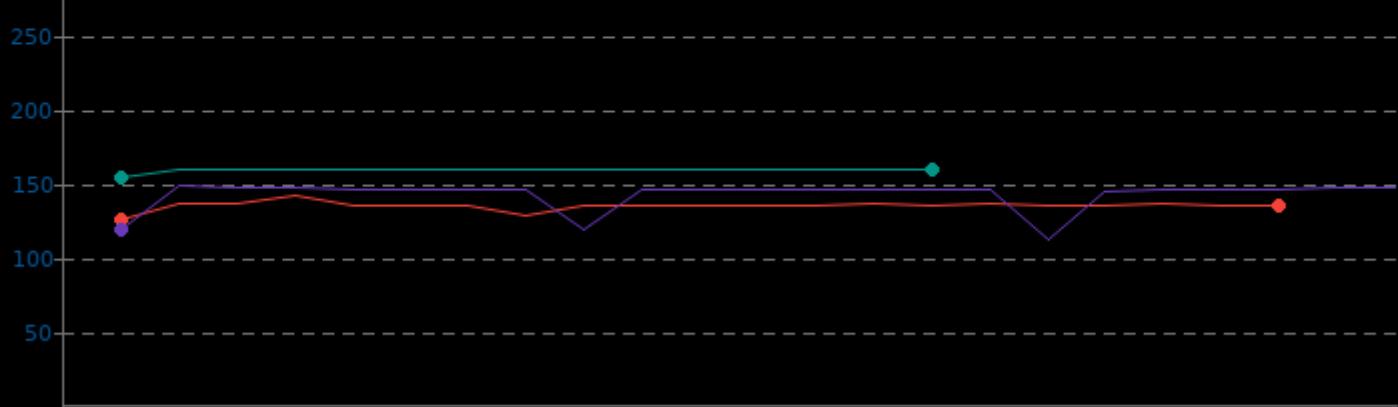


dcraw

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	125.3	135.3	141.3
Core i9 10980XE	112.4	142.5	148.0
Threadripper 2990WX	153.5	159.1	159.8

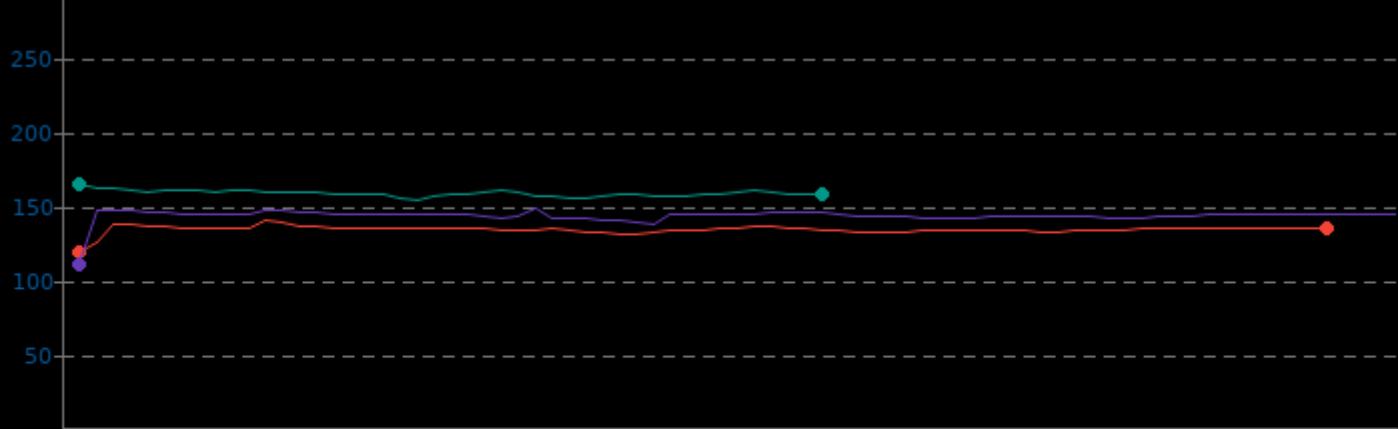
▼ Watts, Fewer Is Better

**GNU GMP GMPbench 6.1.2**

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.8	134.4	140.1
Core i9 10980XE	111.5	143.8	148.7
Threadripper 2990WX	154.5	158.7	165.4

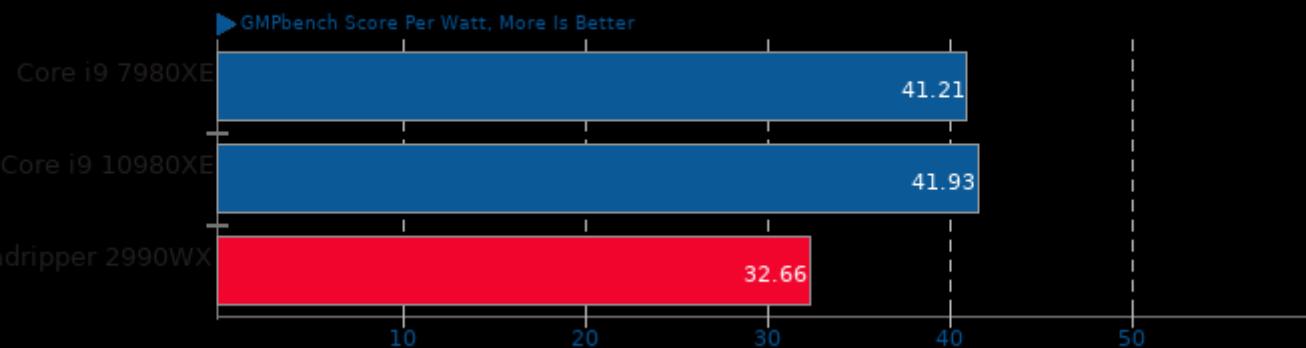
▼ Watts, Fewer Is Better



Intel Core i9-10980XE Linux Benchmarks

GNU GMP GMPbench 6.1.2

Total Time



BRL-CAD 7.28.0

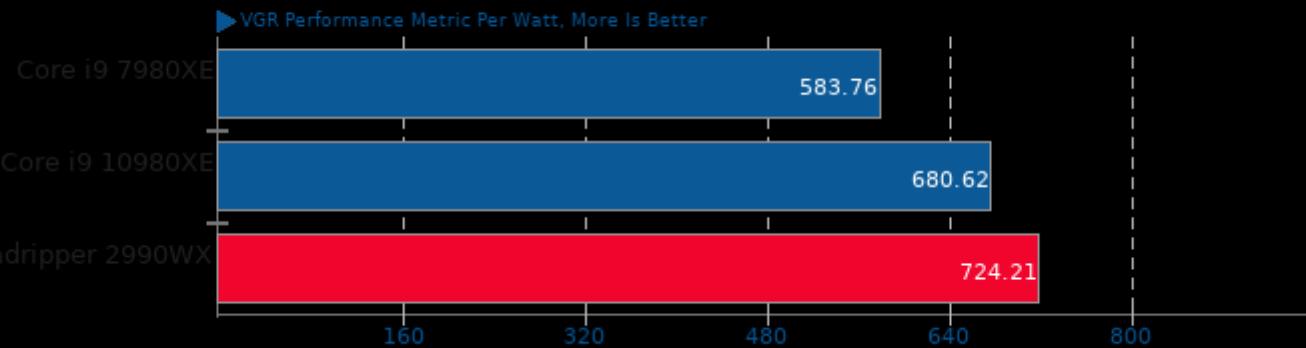
System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	120.6	348.4	376.5
Core i9 10980XE	111.7	301.8	344.1
Threadripper 2990WX	116.5	404.9	418.2



BRL-CAD 7.28.0

VGR Performance Metric

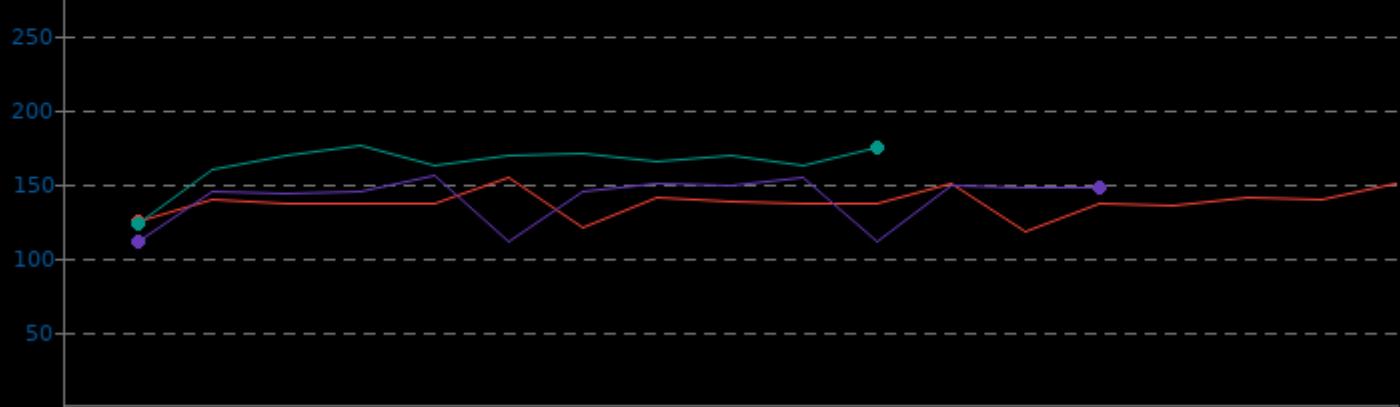


Tesseract OCR 4.1.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.6	137.2	154.5
Core i9 10980XE	111.5	140.3	155.5
Threadripper 2990WX	122.9	163.5	175.2

▼ Watts, Fewer Is Better

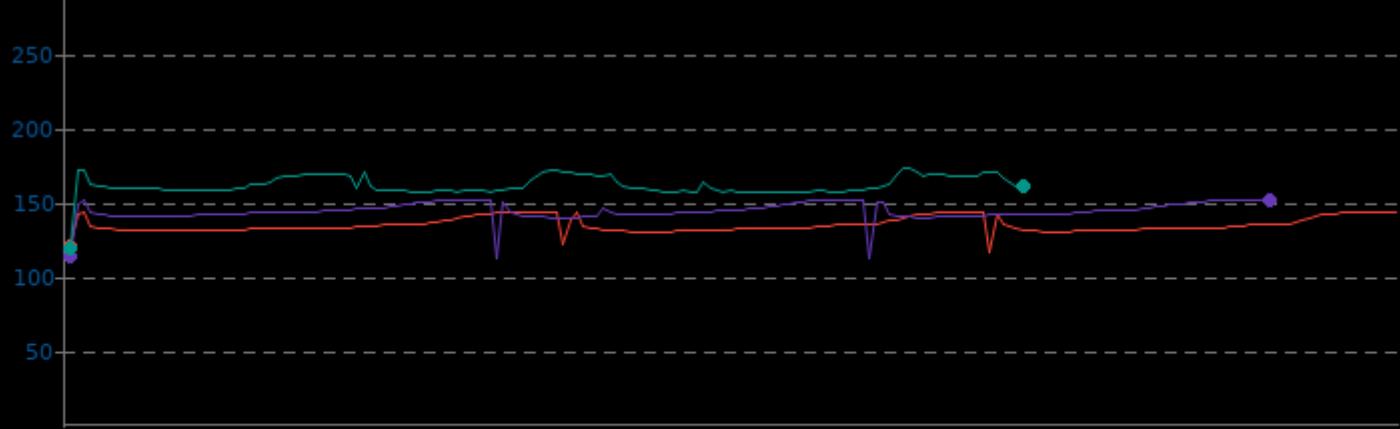


Hierarchical INTegration 1.0

System Power Consumption Monitor

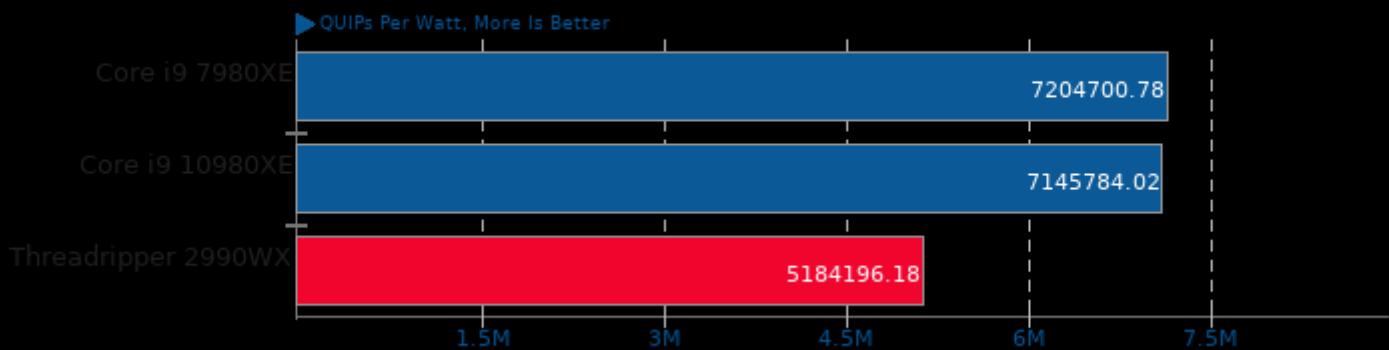
	Min	Avg	Max
Core i9 7980XE	117.0	134.9	143.6
Core i9 10980XE	111.9	144.2	151.6
Threadripper 2990WX	119.8	161.5	173.0

▼ Watts, Fewer Is Better



Hierarchical INTegration 1.0

Test: DOUBLE



Facebook RocksDB 6.3.6

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	120.6	233.3	262.9
Core i9 10980XE	113.3	262.5	302.6
Threadripper 2990WX	118.6	207.7	219.8

▼ Watts, Fewer Is Better



Facebook RocksDB 6.3.6

System Power Consumption Monitor

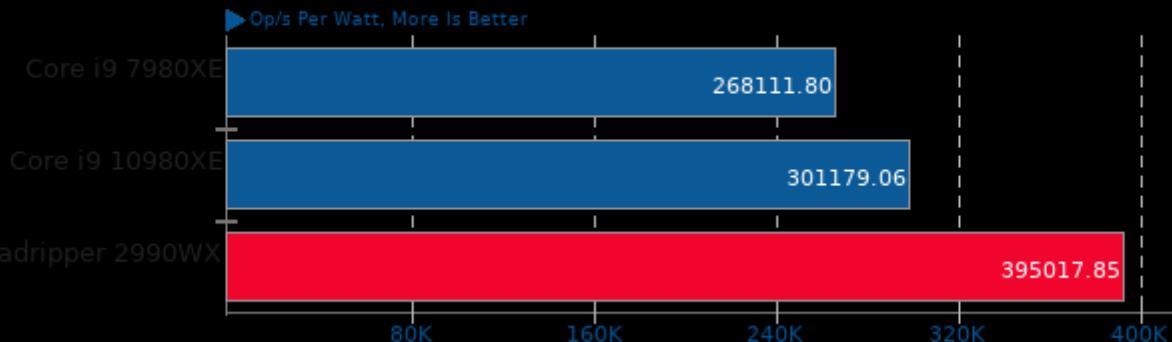
	Min	Avg	Max
Core i9 7980XE	119.1	324.5	350.6
Core i9 10980XE	113.3	323.0	345.9
Threadripper 2990WX	118.6	371.0	401.1

▼ Watts, Fewer Is Better



Facebook RocksDB 6.3.6

Test: Random Read



Facebook RocksDB 6.3.6

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.6	250.7	264.5
Core i9 10980XE	111.4	282.3	311.1
Threadripper 2990WX	122.3	214.3	238.1

▼ Watts, Fewer Is Better

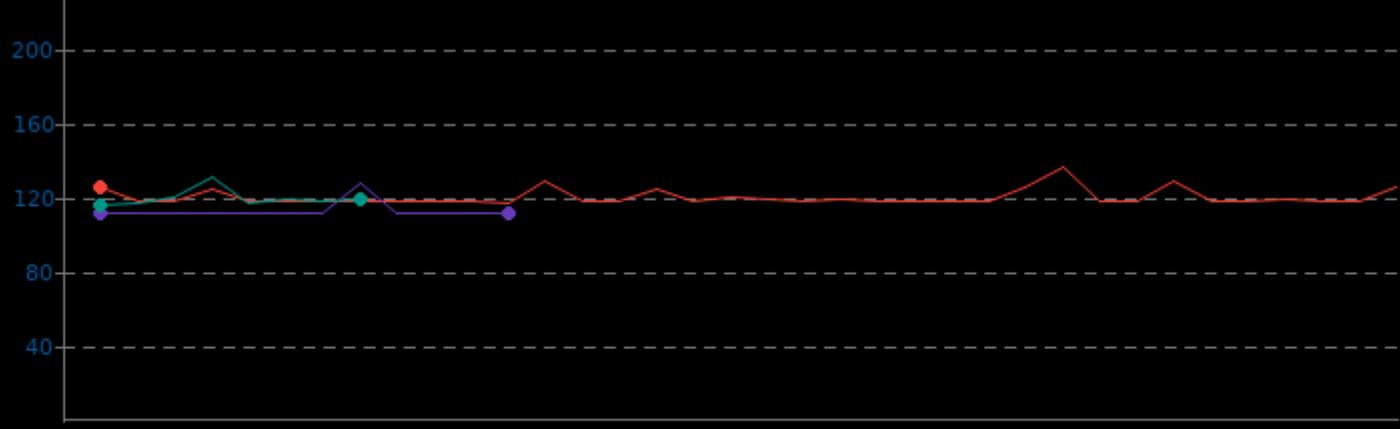


Redis 5.0.5

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.3	120.0	136.6
Core i9 10980XE	111.5	112.9	127.5
Threadripper 2990WX	116.2	119.5	130.3

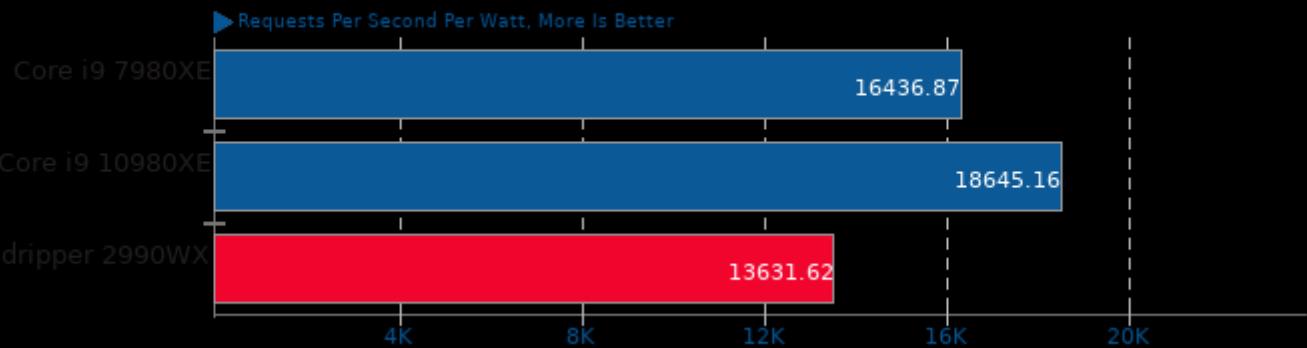
▼ Watts, Fewer Is Better



Intel Core i9-10980XE Linux Benchmarks

Redis 5.0.5

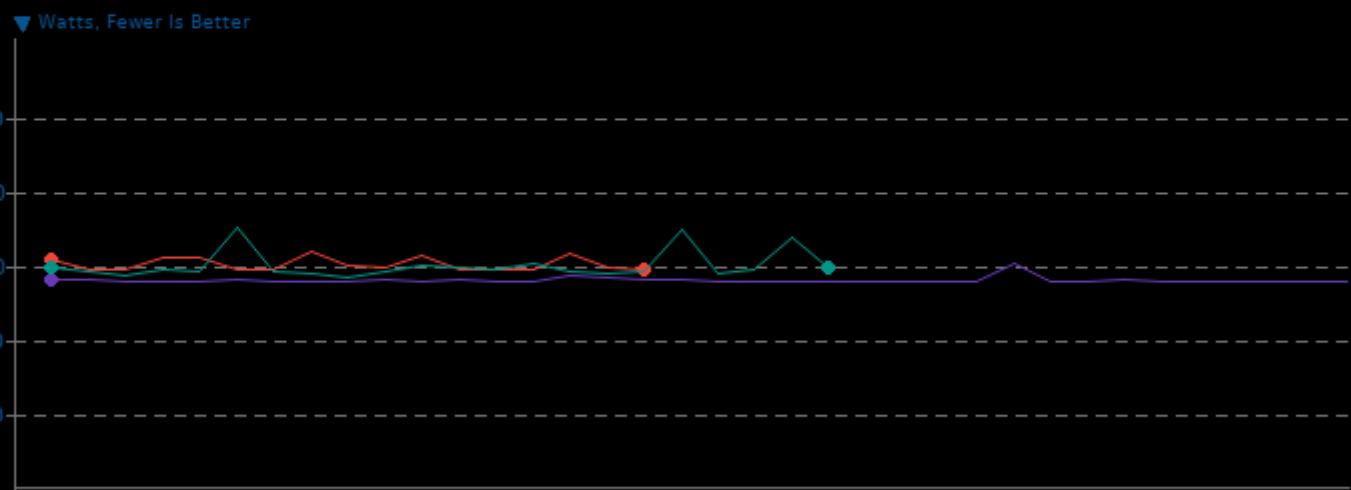
Test: SET



Redis 5.0.5

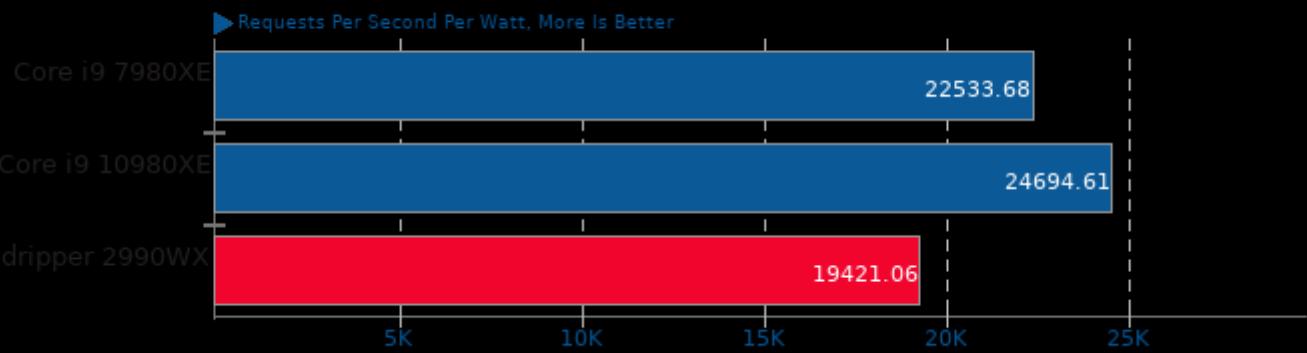
System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.4	120.5	127.1
Core i9 10980XE	111.3	112.2	121.4
Threadripper 2990WX	113.3	120.1	140.3



Redis 5.0.5

Test: GET

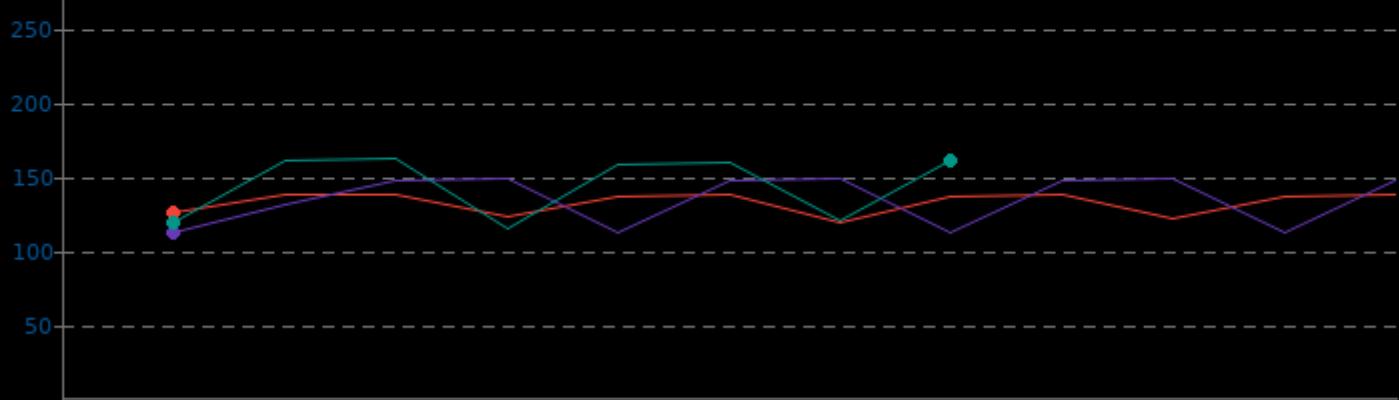


PHPBench 0.8.1

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.8	132.6	138.6
Core i9 10980XE	112.3	134.7	148.8
Threadripper 2990WX	115.3	144.5	161.7

▼ Watts, Fewer Is Better

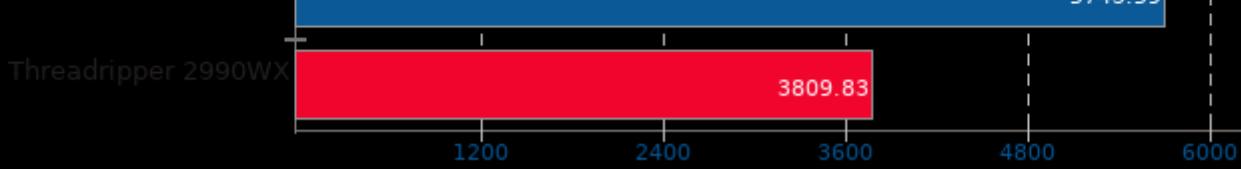


PHPBench 0.8.1

PHP Benchmark Suite



► Score Per Watt, More Is Better

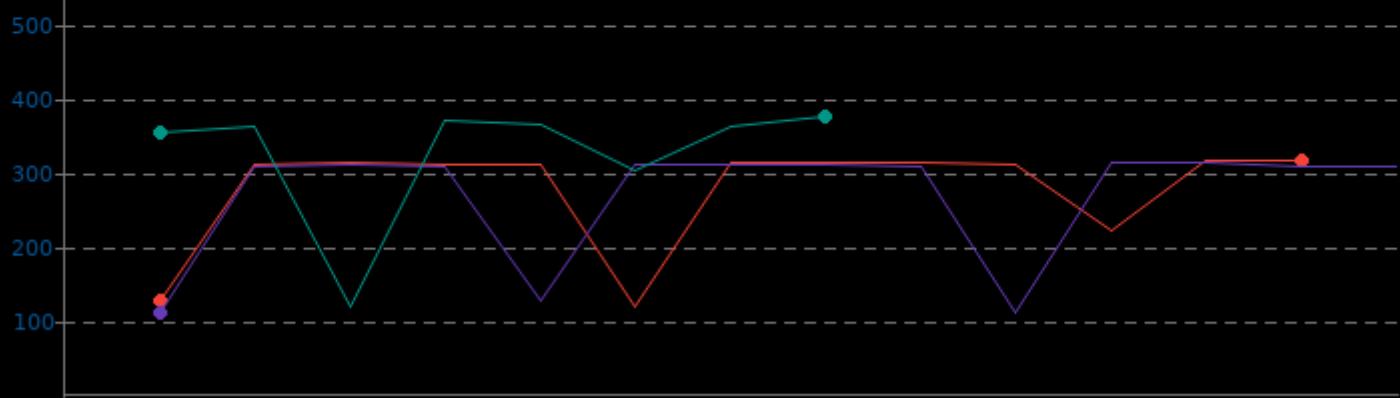


OpenSSL 1.1.1

System Power Consumption Monitor

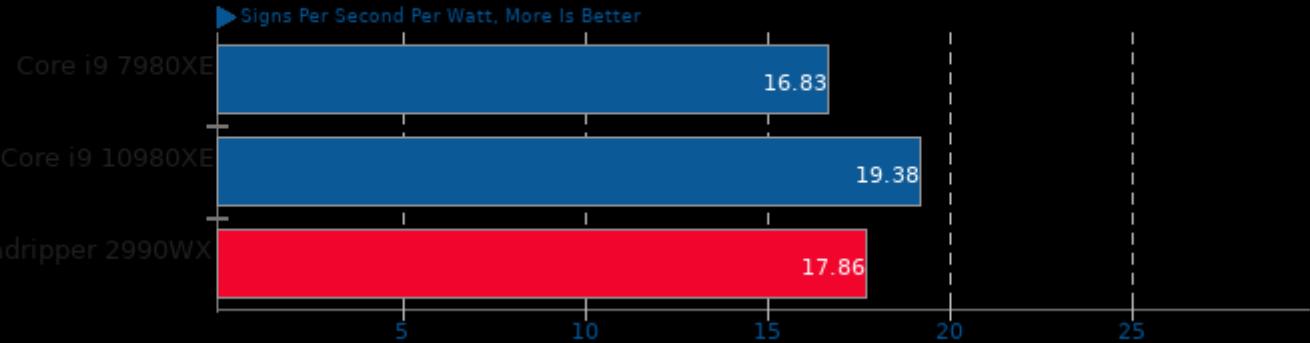
	Min	Avg	Max
Core i9 7980XE	119.6	276.9	316.2
Core i9 10980XE	112.7	269.1	314.3
Threadripper 2990WX	119.3	326.1	374.8

▼ Watts, Fewer Is Better



OpenSSL 1.1.1

RSA 4096-bit Performance

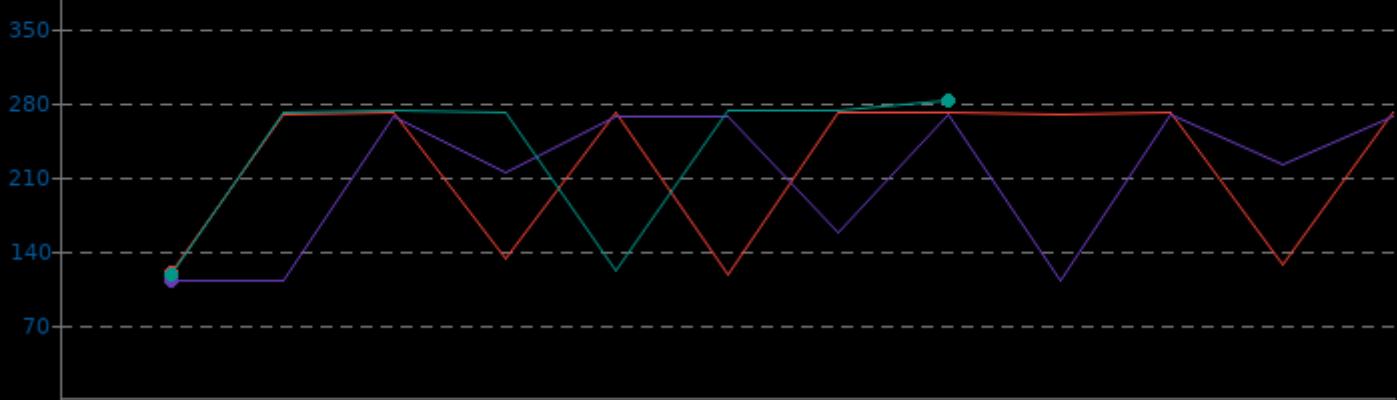


Sysbench 2018-07-28

System Power Consumption Monitor

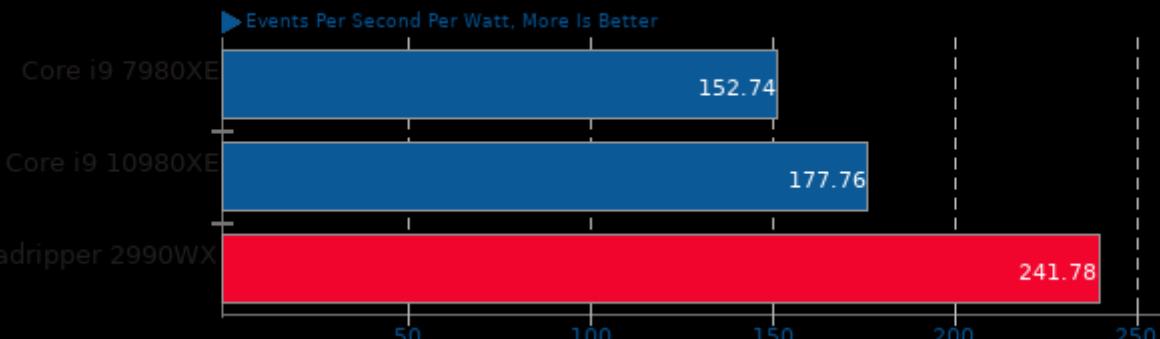
	Min	Avg	Max
Core i9 7980XE	118.8	221.2	270.8
Core i9 10980XE	111.9	210.8	268.0
Threadripper 2990WX	117.5	234.3	280.5

▼ Watts, Fewer Is Better



Sysbench 2018-07-28

Test: CPU

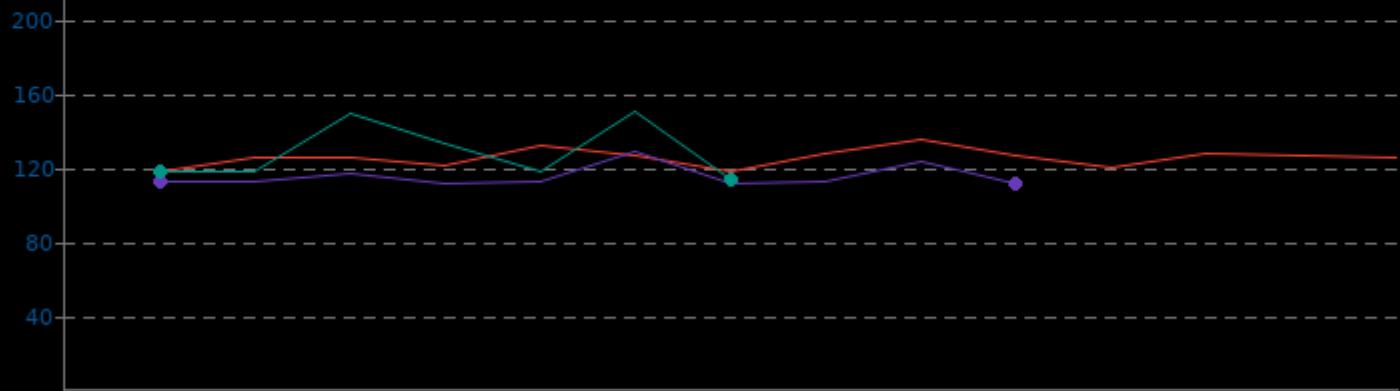


ctx_clock

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.1	125.3	134.6
Core i9 10980XE	111.3	115.3	128.1
Threadripper 2990WX	114.1	128.5	150.0

▼ Watts, Fewer Is Better

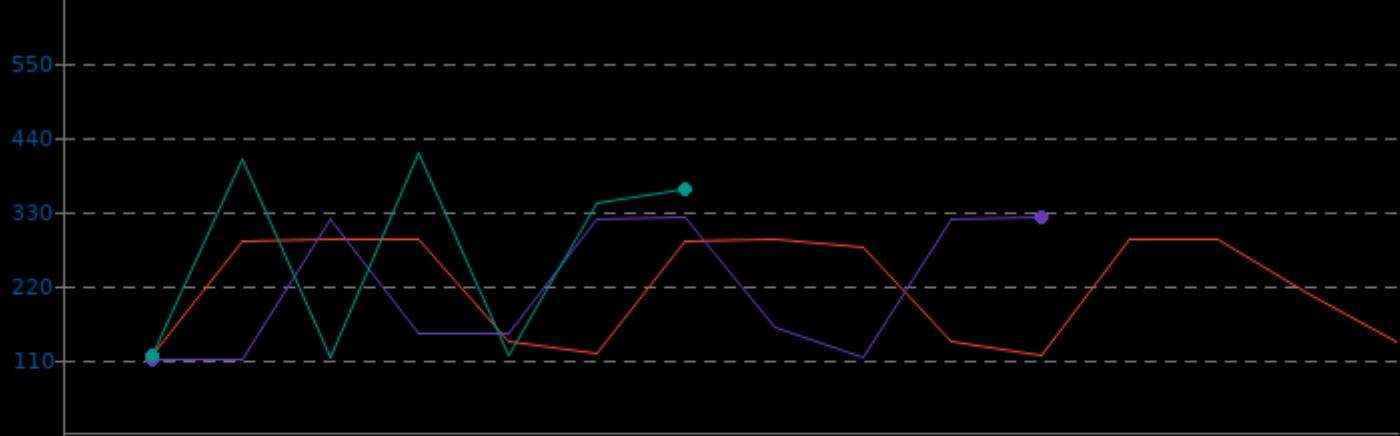


GNU Octave Benchmark 4.4.1

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.5	218.5	289.1
Core i9 10980XE	111.7	218.0	321.1
Threadripper 2990WX	115.4	268.1	415.3

▼ Watts, Fewer Is Better

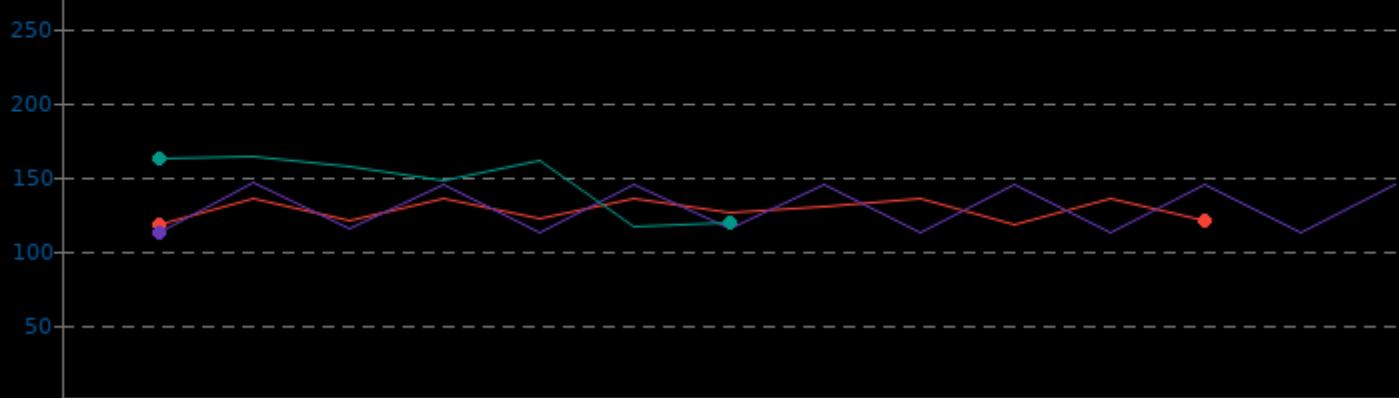


libjpeg-turbo tjbench 2.0.2

System Power Consumption Monitor

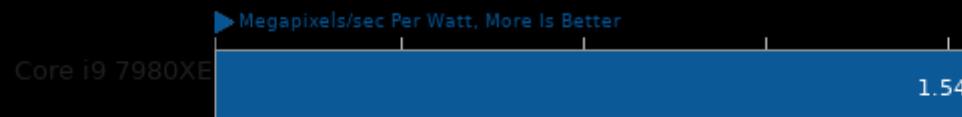
	Min	Avg	Max
Core i9 7980XE	117.6	127.6	135.6
Core i9 10980XE	112.1	129.1	145.4
Threadripper 2990WX	117.1	146.6	163.0

▼ Watts, Fewer Is Better



libjpeg-turbo tjbench 2.0.2

Test: Decompression Throughput



Core i9 10980XE

1.54

Core i9 10980XE

1.65

Threadripper 2990WX

1.21

0.3713

0.7426

1.1139

1.4852

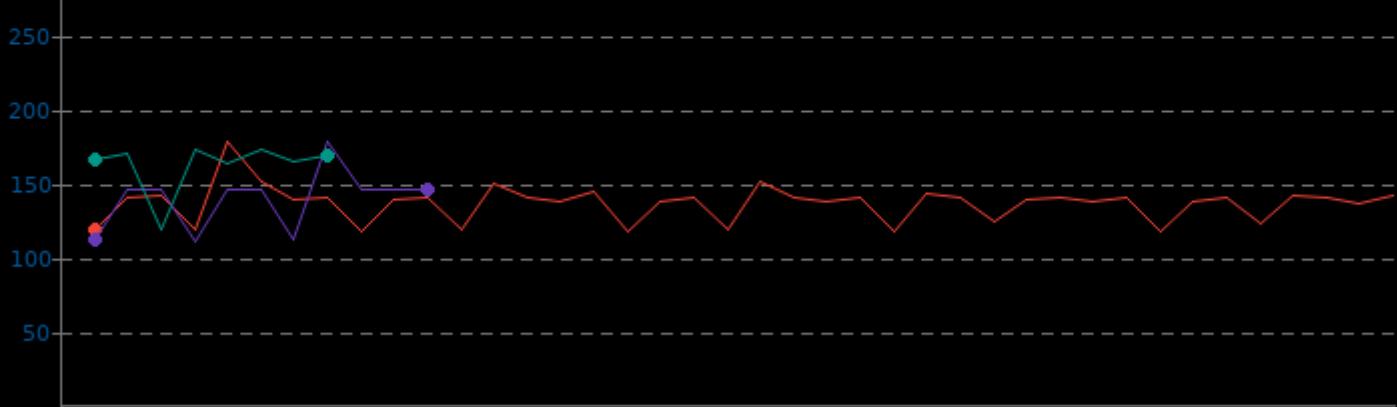
1.8565

ASKAP 2018-11-10

System Power Consumption Monitor

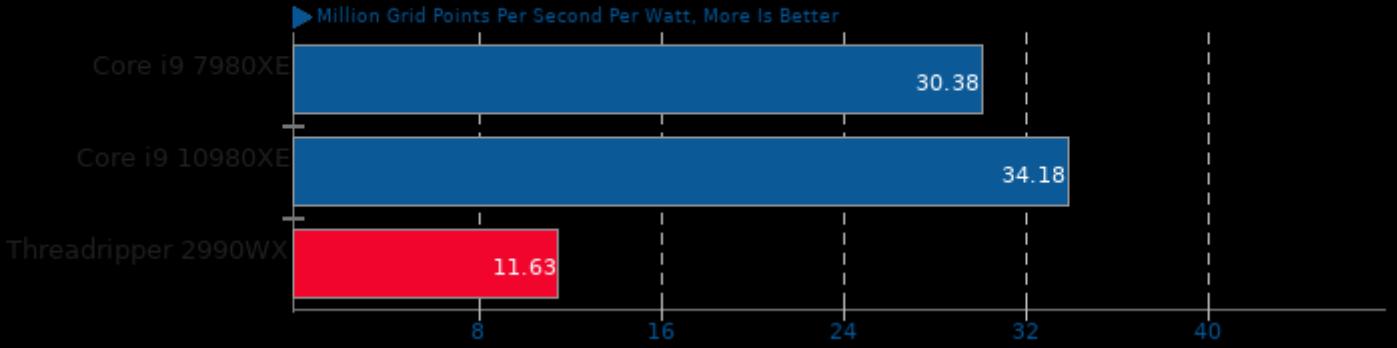
	Min	Avg	Max
Core i9 7980XE	117.8	136.8	178.6
Core i9 10980XE	111.7	139.7	177.6
Threadripper 2990WX	118.7	162.1	173.2

▼ Watts, Fewer Is Better



ASKAP 2018-11-10

Test: tConvolve OpenMP - Degridding

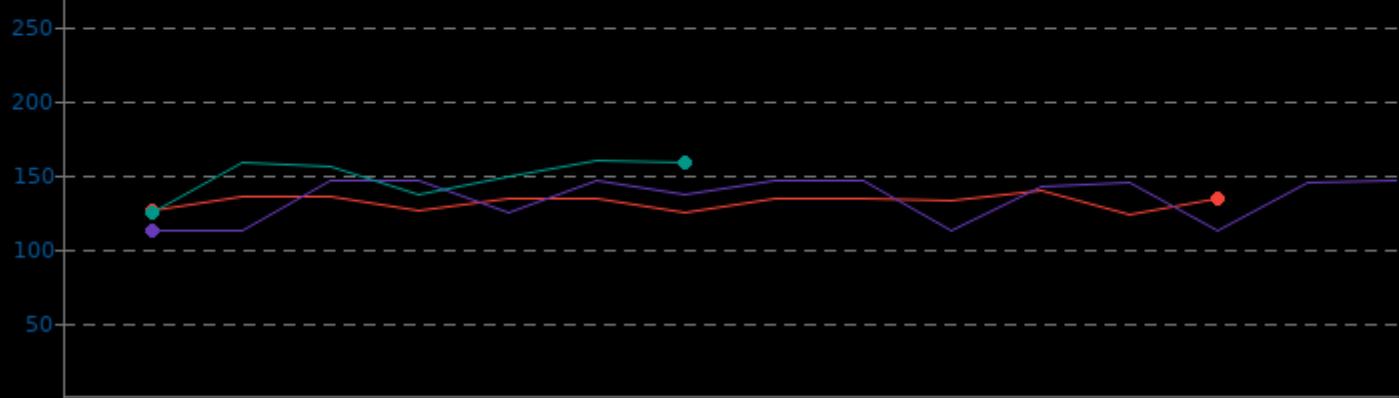


glibc bench 1.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	123.0	131.6	139.3
Core i9 10980XE	112.1	134.4	145.8
Threadripper 2990WX	124.7	148.5	159.4

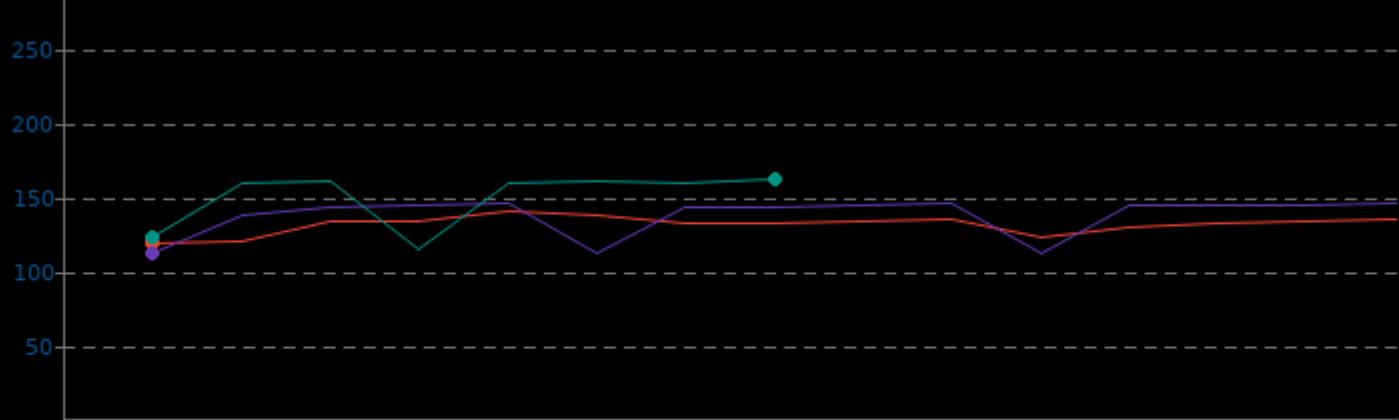
▼ Watts, Fewer Is Better

**glibc bench 1.0**

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.7	131.6	140.0
Core i9 10980XE	112.1	137.8	146.6
Threadripper 2990WX	115.1	150.1	161.8

▼ Watts, Fewer Is Better

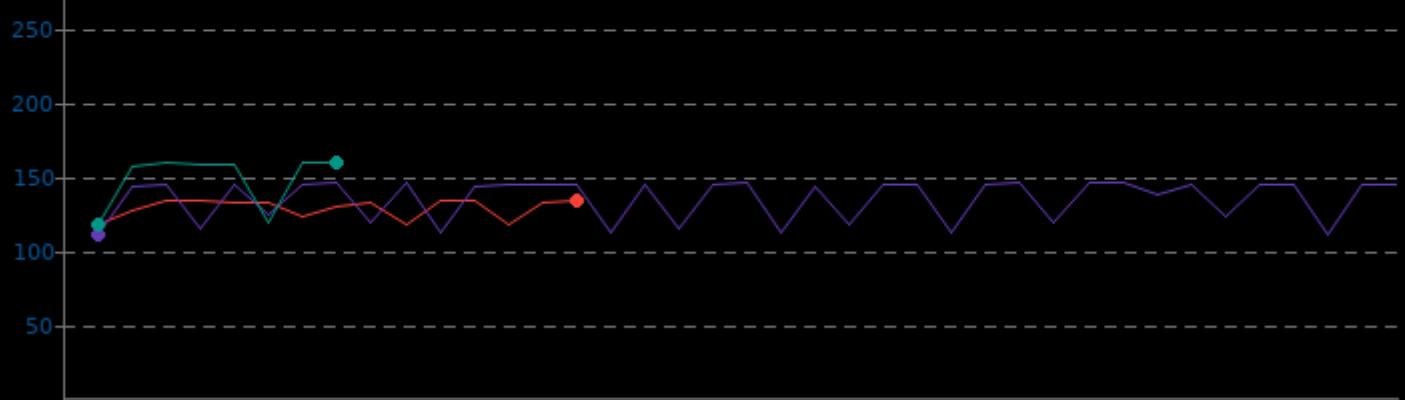


glibc bench 1.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.4	128.9	134.1
Core i9 10980XE	111.7	135.1	145.7
Threadripper 2990WX	117.7	148.4	159.6

▼ Watts, Fewer Is Better

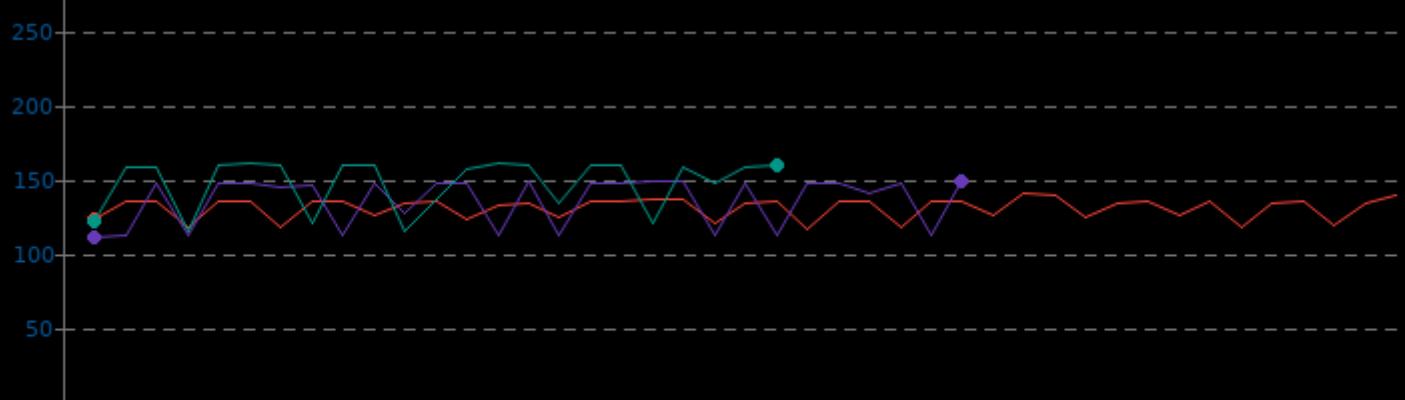


glibc bench 1.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.0	131.0	140.1
Core i9 10980XE	111.7	135.6	149.0
Threadripper 2990WX	115.3	147.6	160.2

▼ Watts, Fewer Is Better

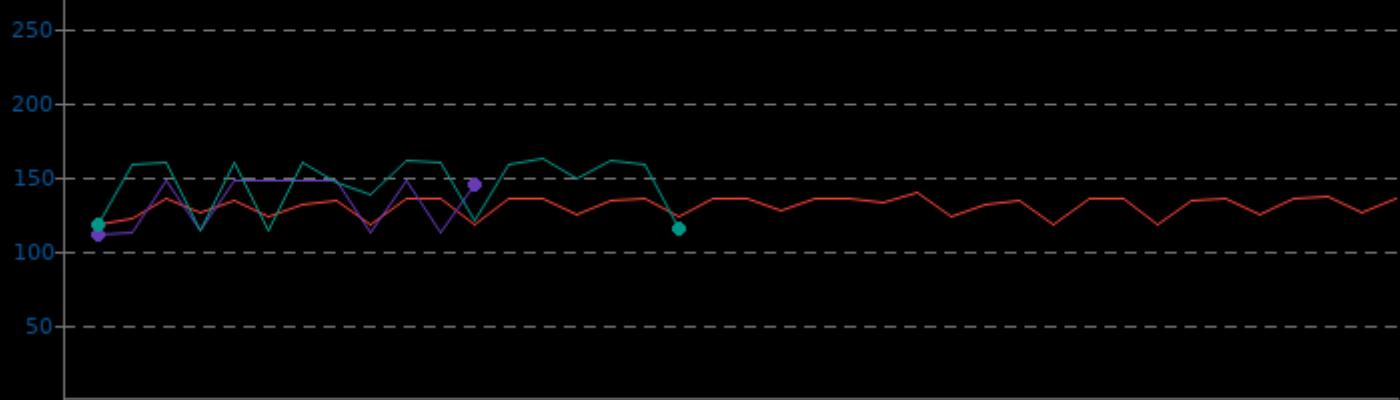


glibc bench 1.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.2	130.2	139.7
Core i9 10980XE	111.6	132.5	147.3
Threadripper 2990WX	114.3	145.1	161.9

▼ Watts, Fewer Is Better

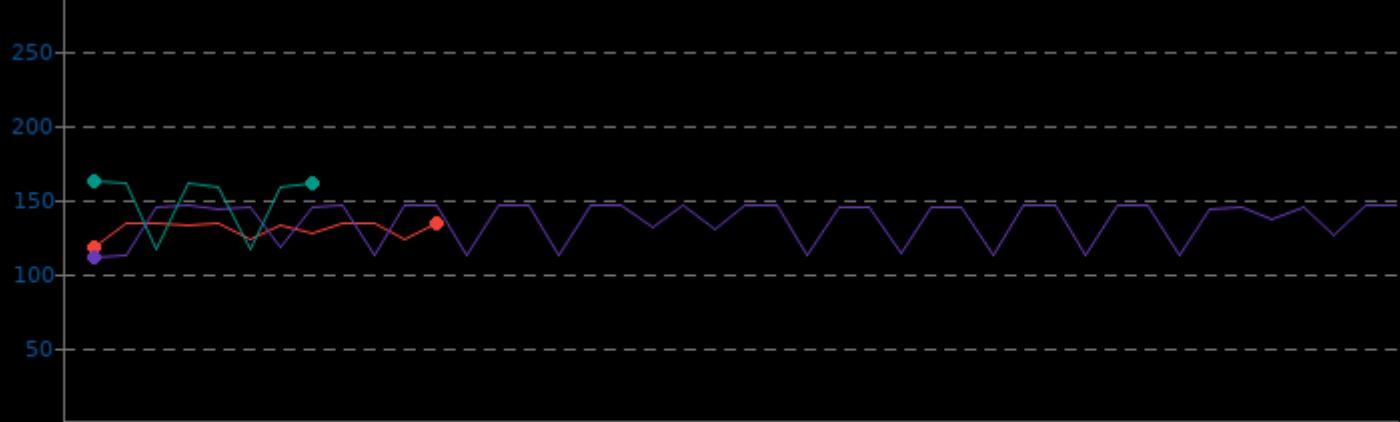


glibc bench 1.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.0	130.1	134.5
Core i9 10980XE	111.8	135.7	146.3
Threadripper 2990WX	116.0	149.3	162.2

▼ Watts, Fewer Is Better

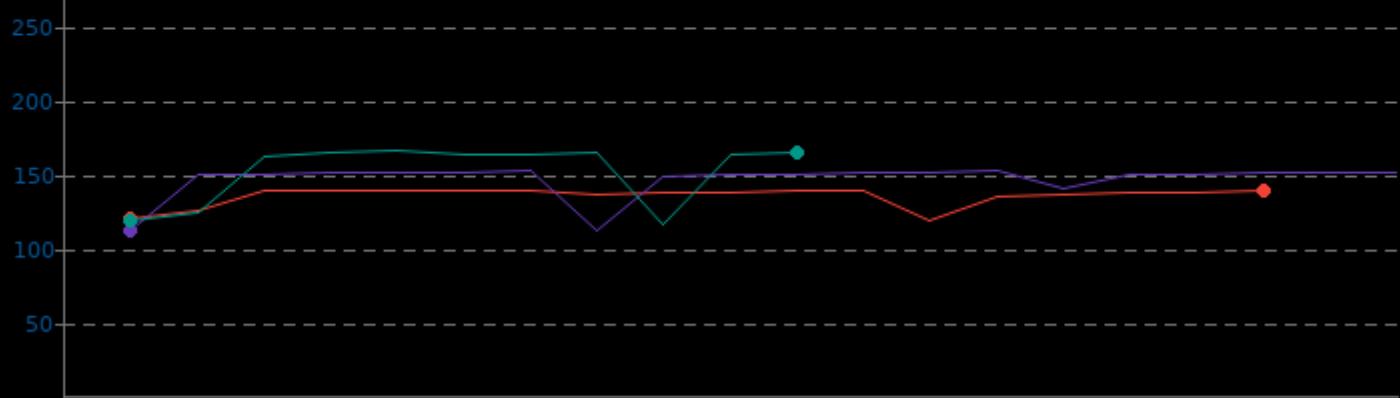


glibc bench 1.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.8	135.5	139.4
Core i9 10980XE	112.6	146.5	152.9
Threadripper 2990WX	116.8	152.0	165.8

▼ Watts, Fewer Is Better

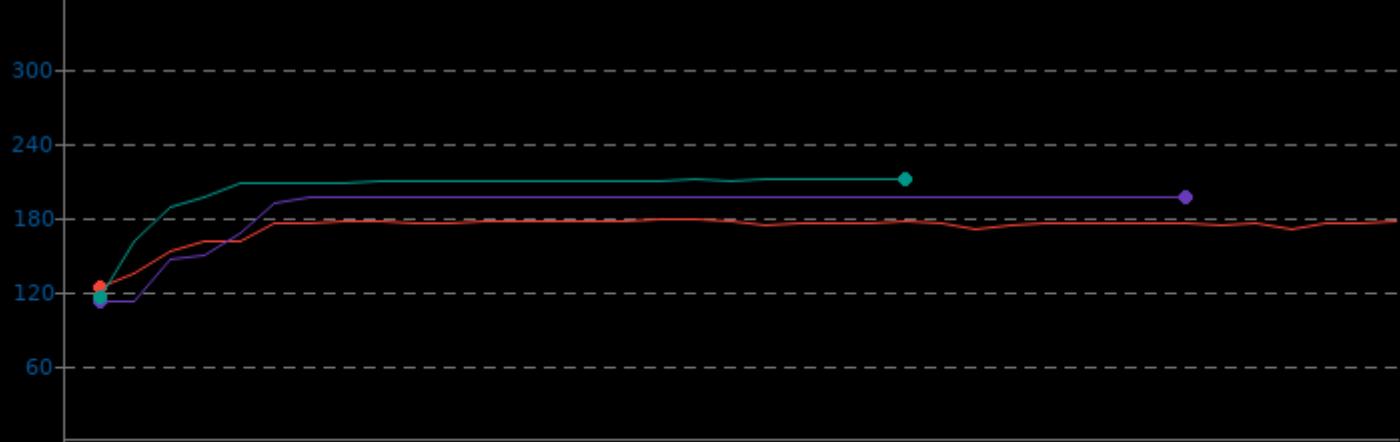


Radiance Benchmark 5.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	124.5	171.6	177.9
Core i9 10980XE	111.7	186.4	196.2
Threadripper 2990WX	116.2	201.8	210.2

▼ Watts, Fewer Is Better

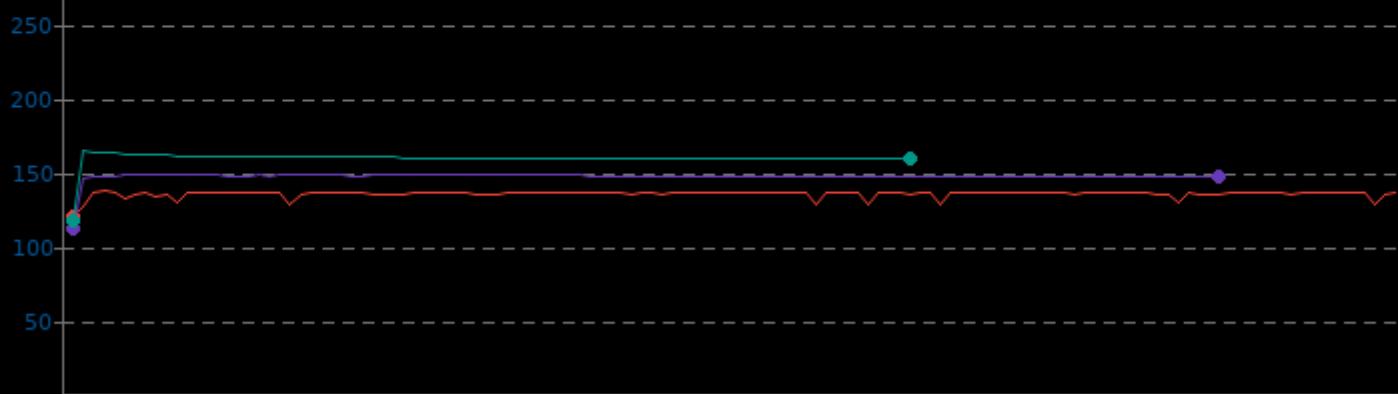


Radiance Benchmark 5.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	121.1	135.6	137.6
Core i9 10980XE	112.8	147.5	148.2
Threadripper 2990WX	118.5	159.7	164.1

▼ Watts, Fewer Is Better

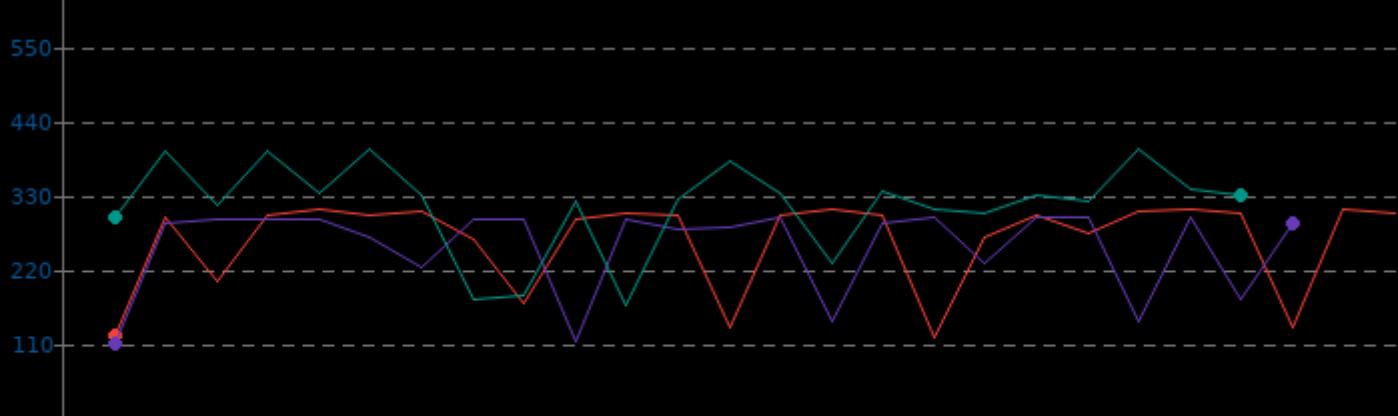


7-Zip Compression 16.02

System Power Consumption Monitor

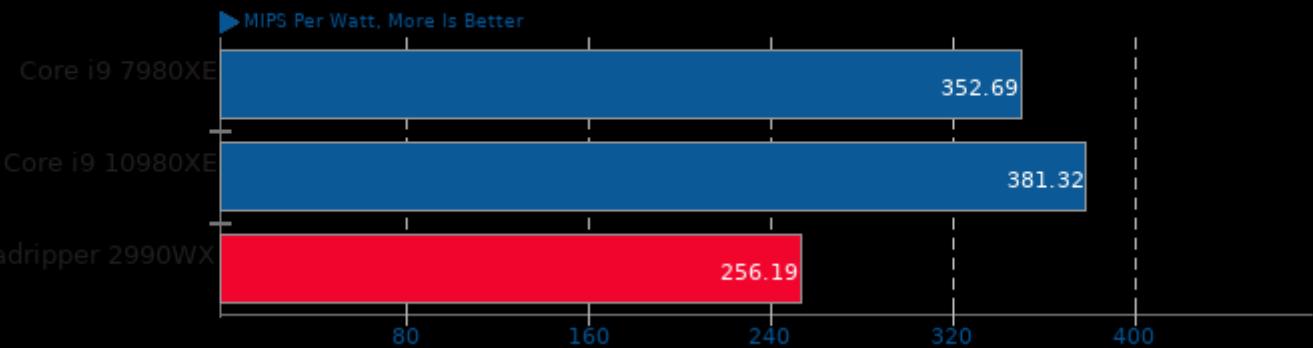
	Min	Avg	Max
Core i9 7980XE	119.7	263.7	310.1
Core i9 10980XE	112.7	253.8	298.5
Threadripper 2990WX	166.9	315.1	398.2

▼ Watts, Fewer Is Better



7-Zip Compression 16.02

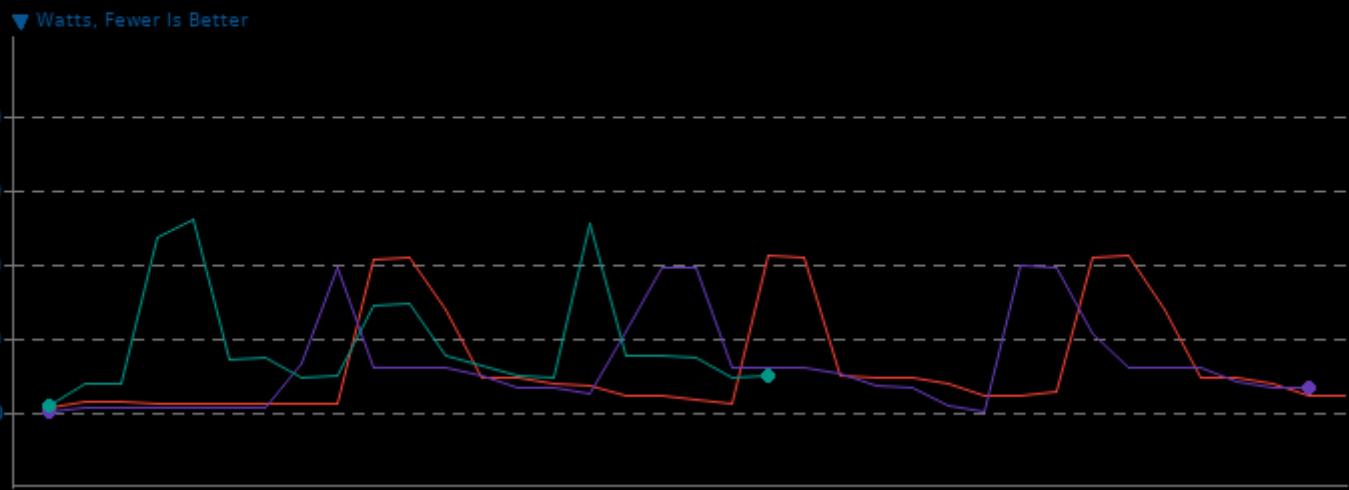
Compress Speed Test



Timed PHP Compilation 7.1.9

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.8	179.2	342.8
Core i9 10980XE	112.5	178.0	325.8
Threadripper 2990WX	121.3	211.2	394.5

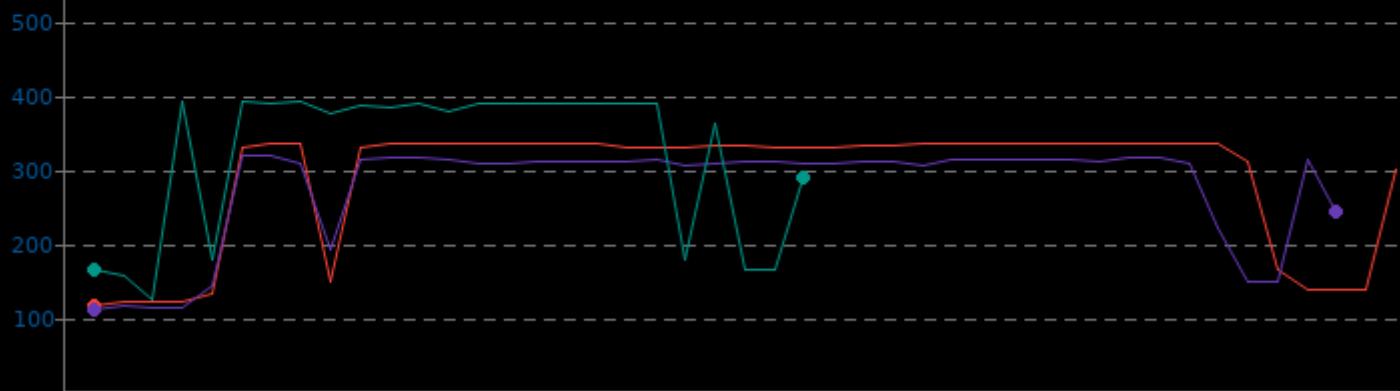


Timed LLVM Compilation 6.0.1

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.3	288.0	336.1
Core i9 10980XE	112.5	275.7	319.7
Threadripper 2990WX	125.1	319.2	391.8

▼ Watts, Fewer Is Better

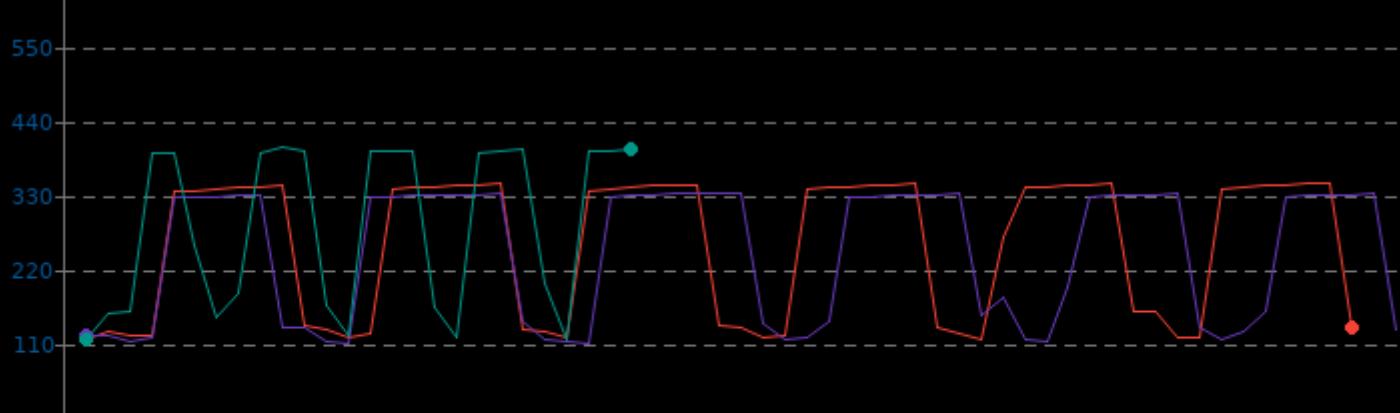


Timed Linux Kernel Compilation 5.4

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.6	258.5	347.1
Core i9 10980XE	112.2	245.8	333.7
Threadripper 2990WX	116.9	286.3	399.7

▼ Watts, Fewer Is Better

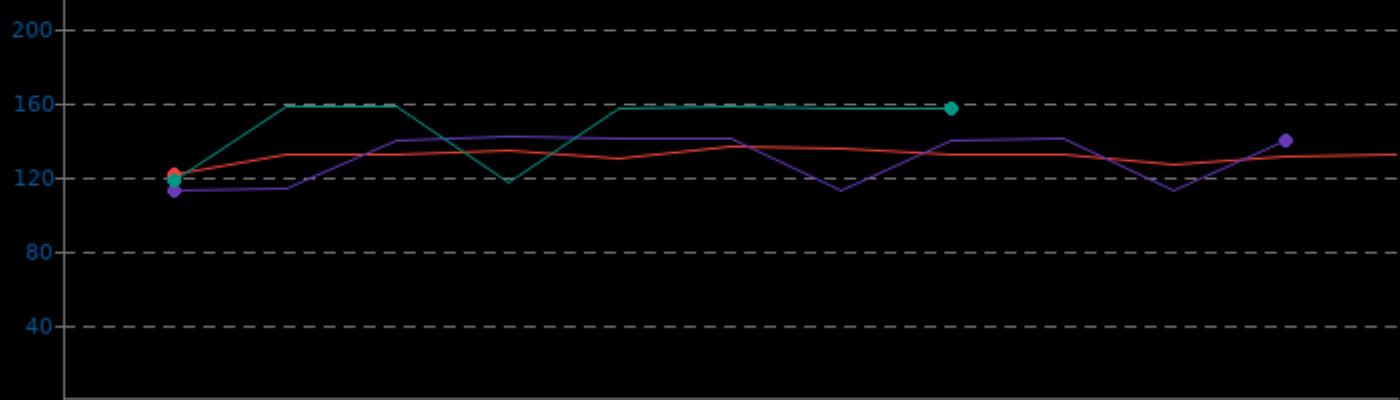


Swet 1.5.16

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	120.8	130.9	135.6
Core i9 10980XE	112.5	130.2	141.5
Threadripper 2990WX	116.5	146.8	157.5

▼ Watts, Fewer Is Better



Swet 1.5.16

Average



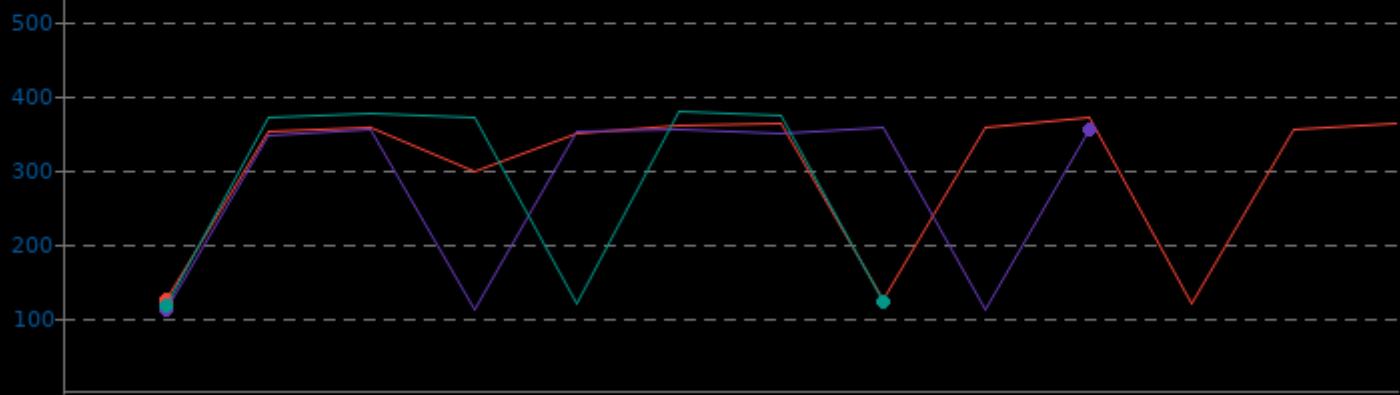
Operations Per Second Per Watt, More Is Better

Primesieve 7.4

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.6	298.7	369.5
Core i9 10980XE	113.1	280.3	356.5
Threadripper 2990WX	117.0	278.2	378.3

▼ Watts, Fewer Is Better

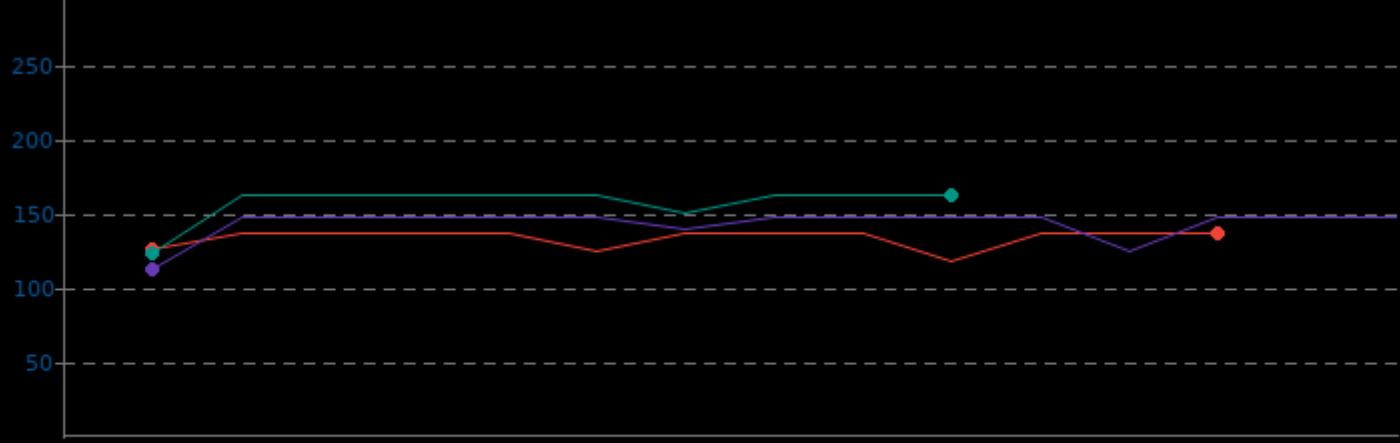


Crafty 25.2

System Power Consumption Monitor

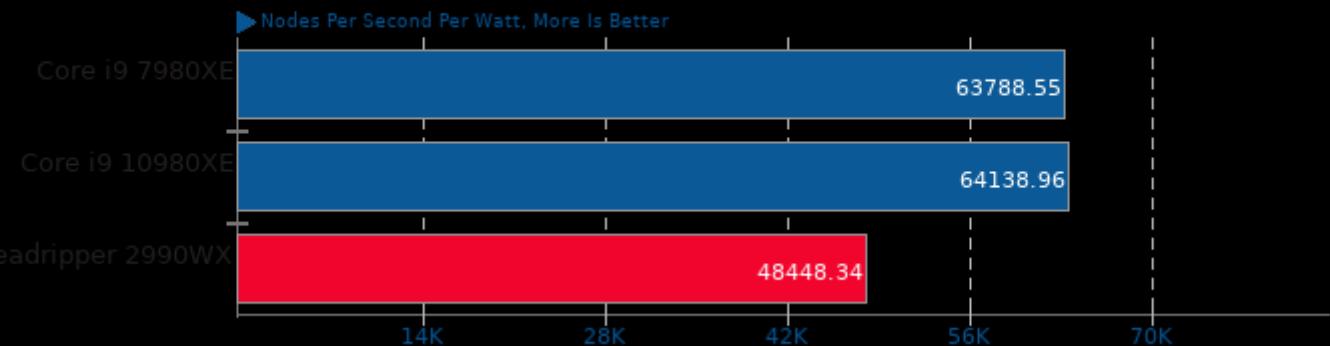
	Min	Avg	Max
Core i9 7980XE	118.2	133.4	136.9
Core i9 10980XE	112.5	143.0	147.8
Threadripper 2990WX	123.0	156.8	162.1

▼ Watts, Fewer Is Better



Crafty 25.2

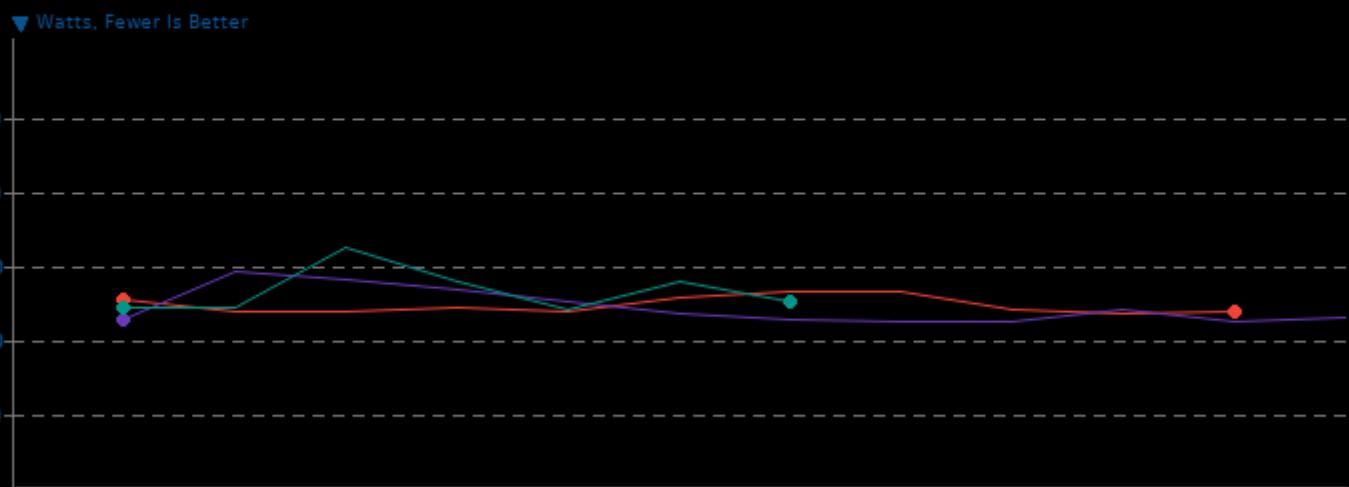
Elapsed Time



TSCP 1.81

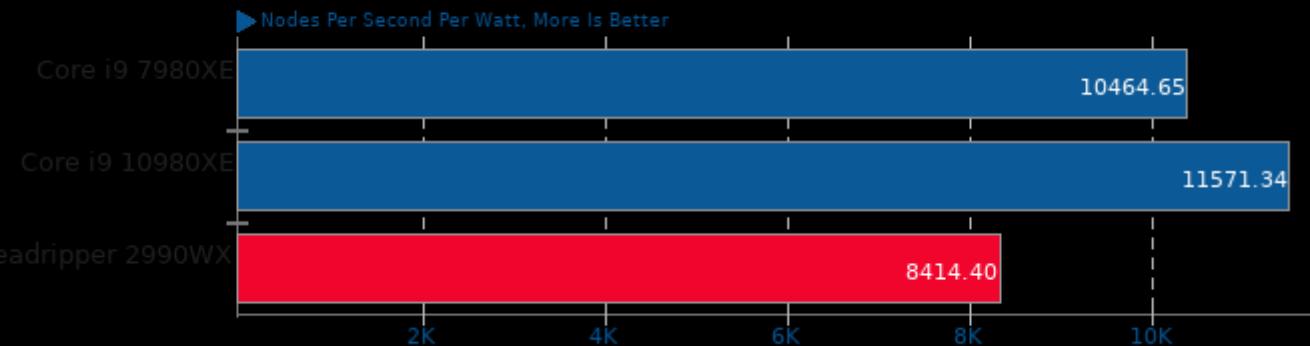
System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.2	123.5	132.0
Core i9 10980XE	112.7	122.1	145.4
Threadripper 2990WX	121.2	133.2	162.4



TSCP 1.81

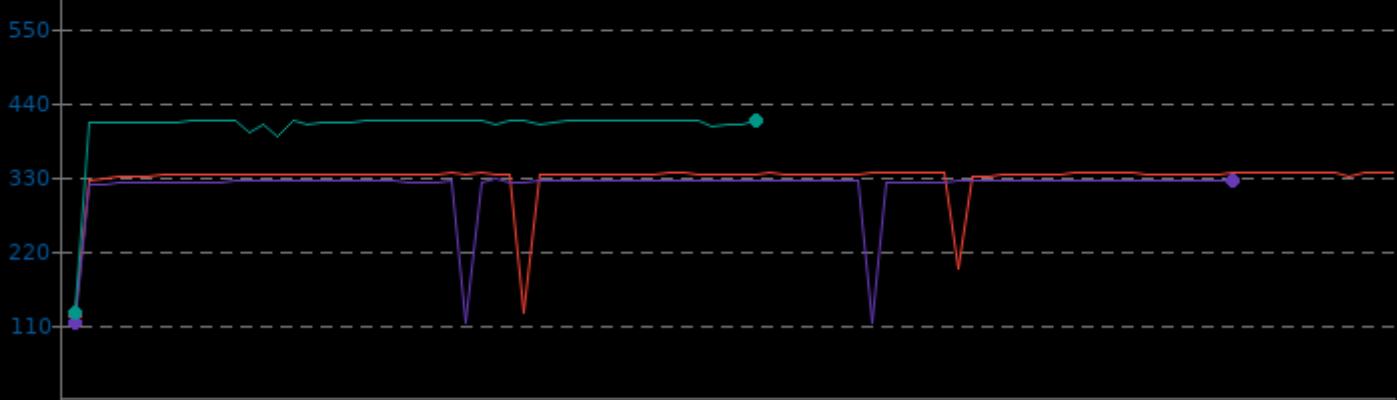
AI Chess Performance



asmFish 2018-07-23 System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	127.3	327.6	336.5
Core i9 10980XE	113.7	315.2	326.9
Threadripper 2990WX	131.0	404.1	412.4

▼ Watts, Fewer Is Better



asmFish 2018-07-23

1024 Hash Memory, 26 Depth

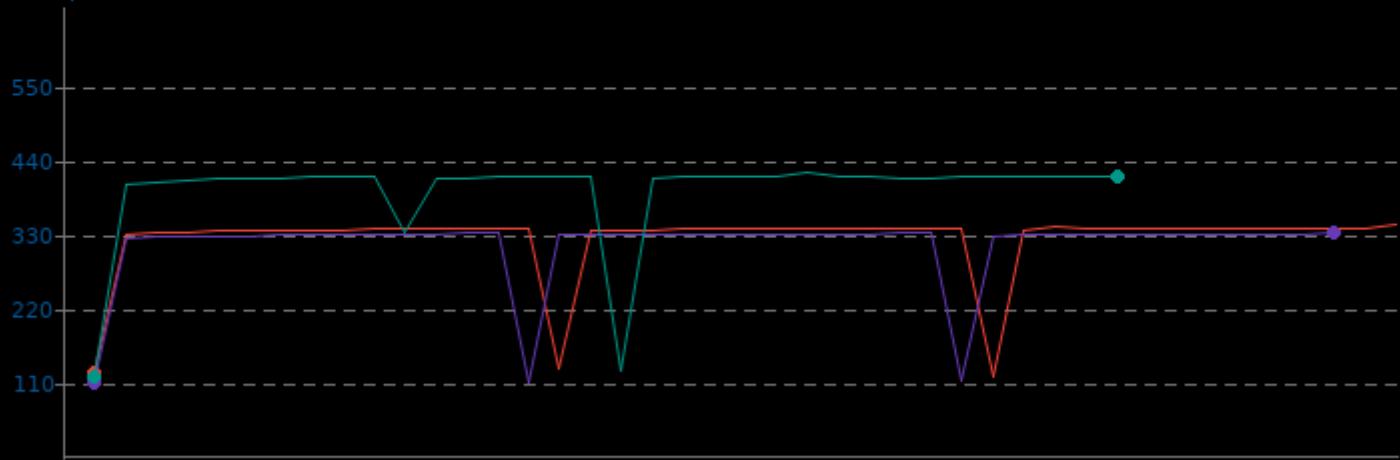


Stockfish 9

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	121.2	323.0	343.8
Core i9 10980XE	113.0	314.0	332.1
Threadripper 2990WX	120.1	394.5	420.2

▼ Watts, Fewer Is Better



Stockfish 9

Total Time

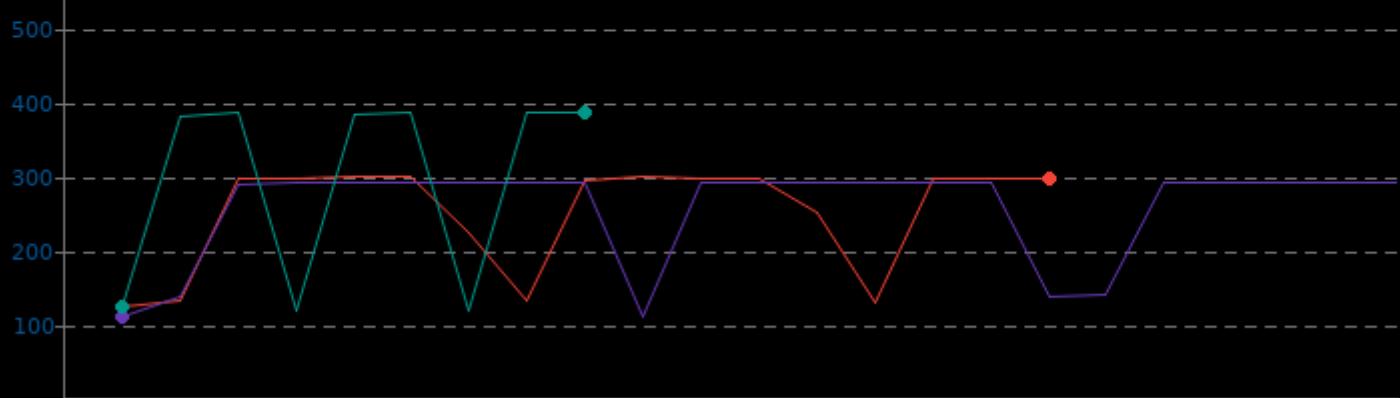


Coremark 1.0

System Power Consumption Monitor

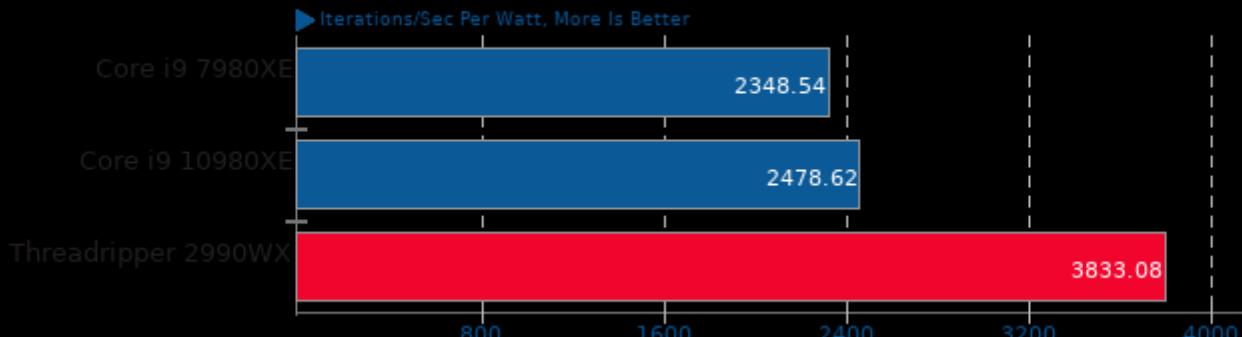
	Min	Avg	Max
Core i9 7980XE	125.7	251.5	299.9
Core i9 10980XE	112.4	256.6	293.3
Threadripper 2990WX	121.4	296.9	386.8

▼ Watts, Fewer Is Better



Coremark 1.0

CoreMark Size 666 - Iterations Per Second



ACES DGEMM 1.0

System Power Consumption Monitor

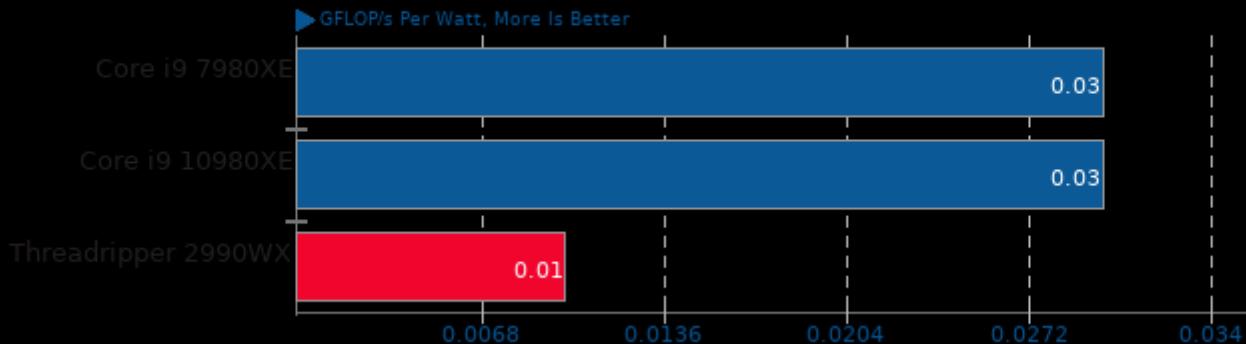
	Min	Avg	Max
Core i9 7980XE	119.0	232.9	262.1
Core i9 10980XE	111.8	220.9	250.4
Threadripper 2990WX	115.7	260.1	285.0

▼ Watts, Fewer Is Better



ACES DGEMM 1.0

Sustained Floating-Point Rate

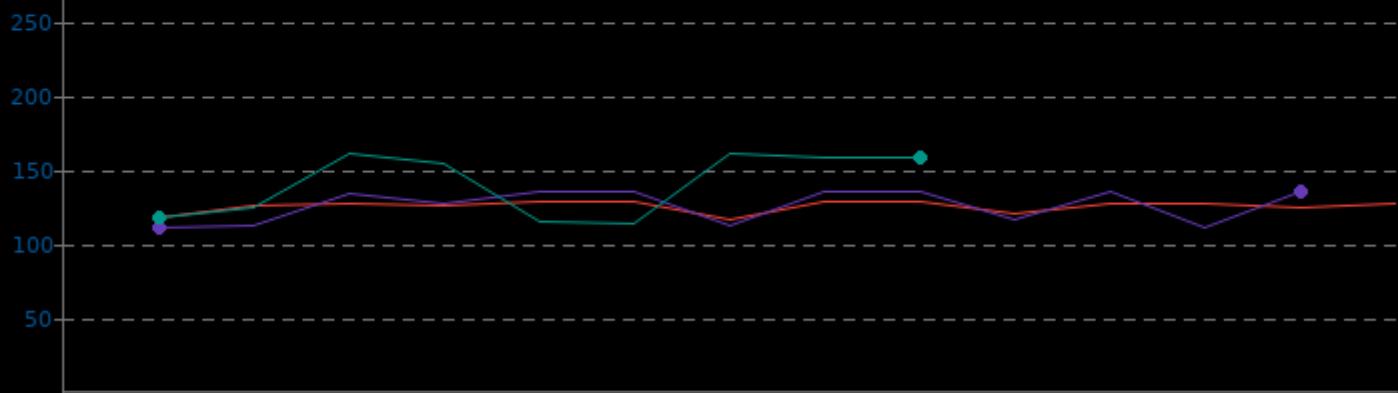


LAME MP3 Encoding 3.100

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.0	125.2	128.3
Core i9 10980XE	111.3	125.9	135.5
Threadripper 2990WX	113.7	140.3	160.3

▼ Watts, Fewer Is Better

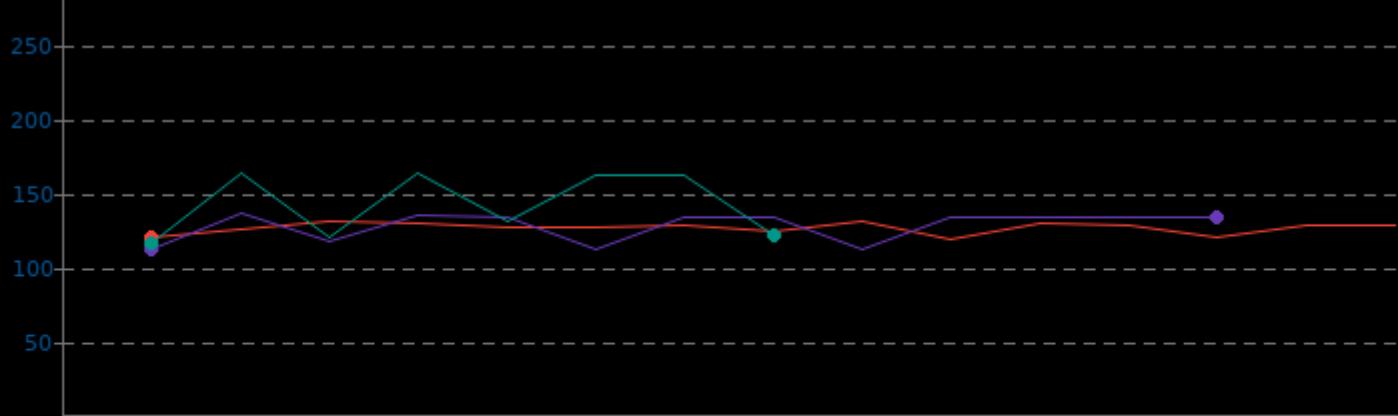


FLAC Audio Encoding 1.3.2

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.0	126.7	131.7
Core i9 10980XE	111.9	128.1	136.3
Threadripper 2990WX	117.0	142.5	163.7

▼ Watts, Fewer Is Better

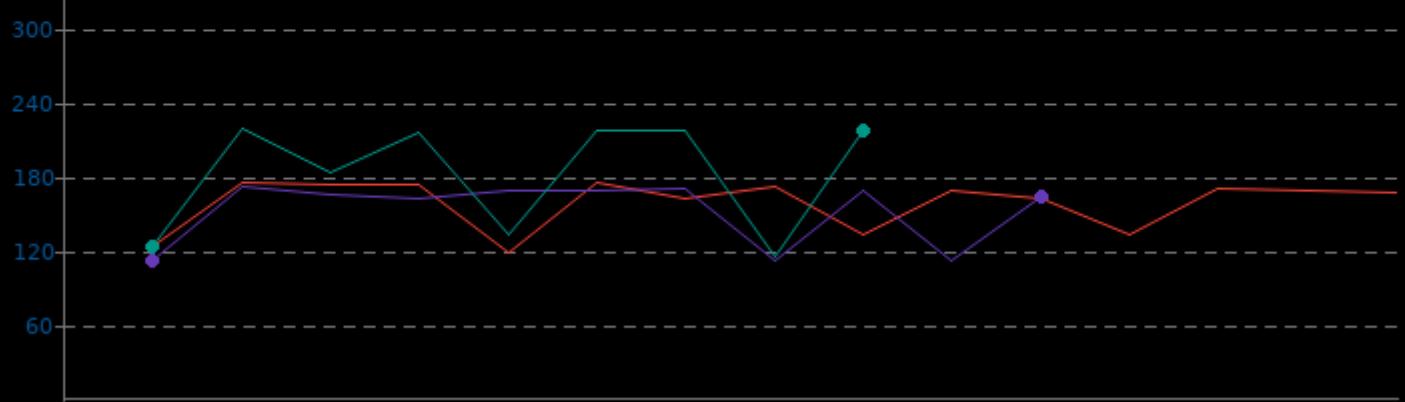


x265 3.1.2

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.3	158.5	175.1
Core i9 10980XE	111.9	152.5	171.4
Threadripper 2990WX	115.9	182.1	218.2

▼ Watts, Fewer Is Better



x265 3.1.2

H.265 1080p Video Encoding

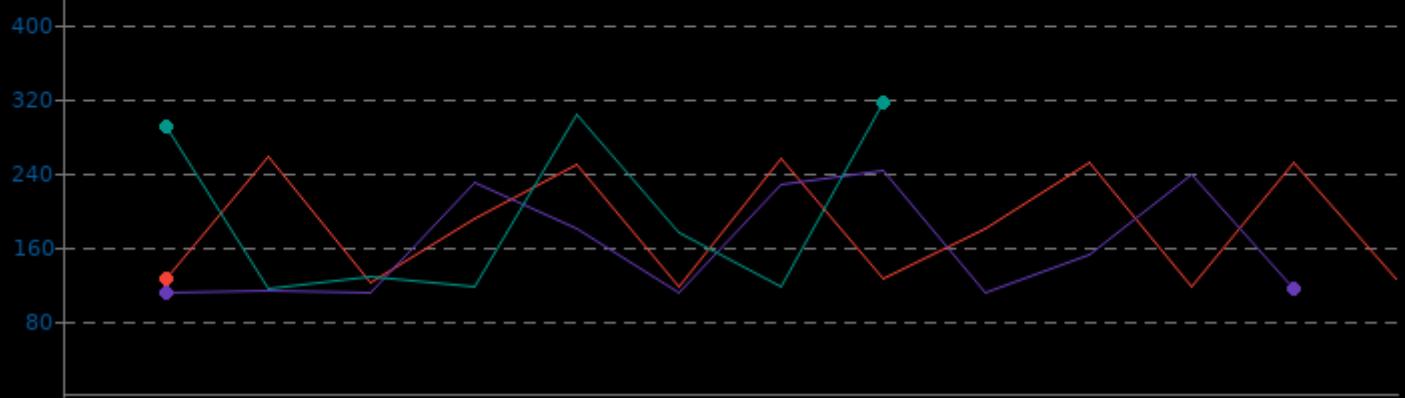


x264 2018-09-25

System Power Consumption Monitor

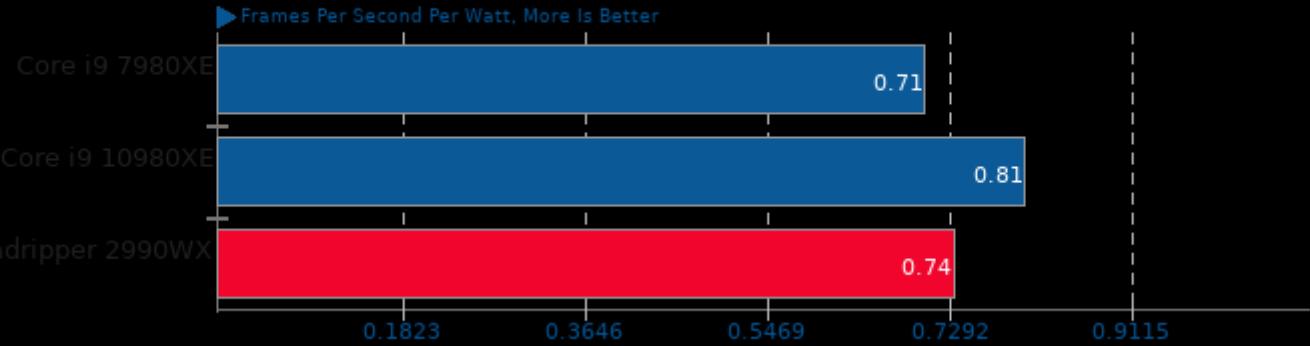
	Min	Avg	Max
Core i9 7980XE	118.2	182.2	257.5
Core i9 10980XE	111.5	162.0	241.3
Threadripper 2990WX	116.3	195.5	315.3

▼ Watts, Fewer Is Better



x264 2018-09-25

H.264 Video Encoding

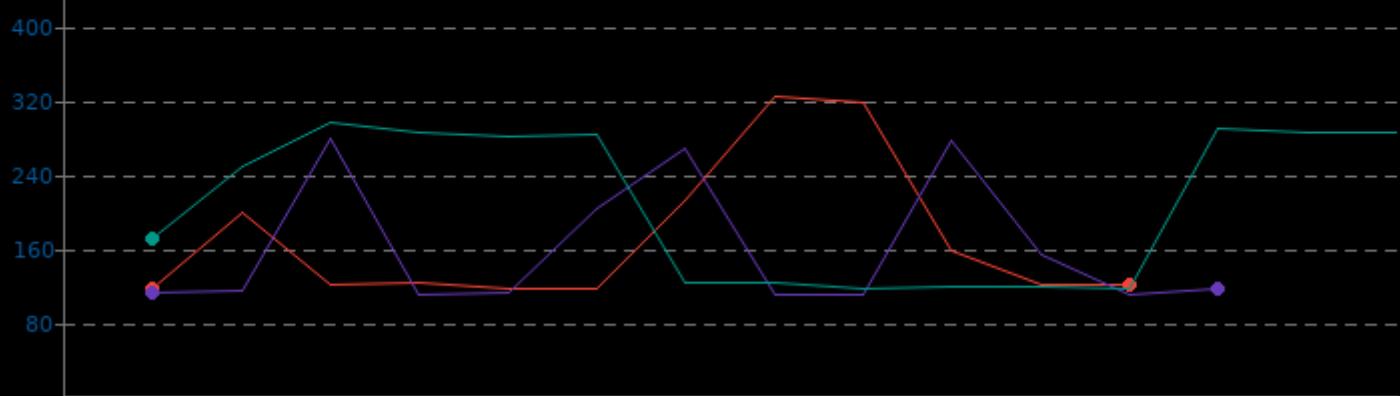


SVT-VP9 0.1

System Power Consumption Monitor

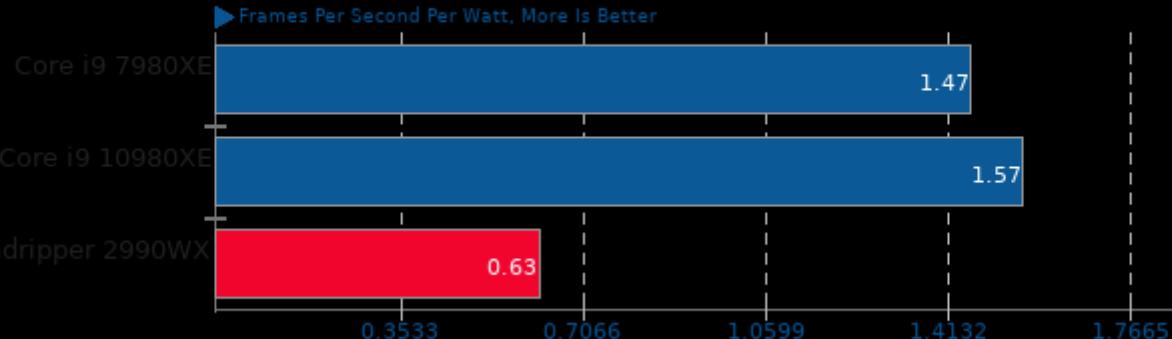
	Min	Avg	Max
Core i9 7980XE	117.6	171.6	323.9
Core i9 10980XE	111.7	160.7	278.6
Threadripper 2990WX	118.0	210.0	295.5

▼ Watts, Fewer Is Better



SVT-VP9 0.1

Tuning: Visual Quality Optimized - Input: Bosphorus 1080p

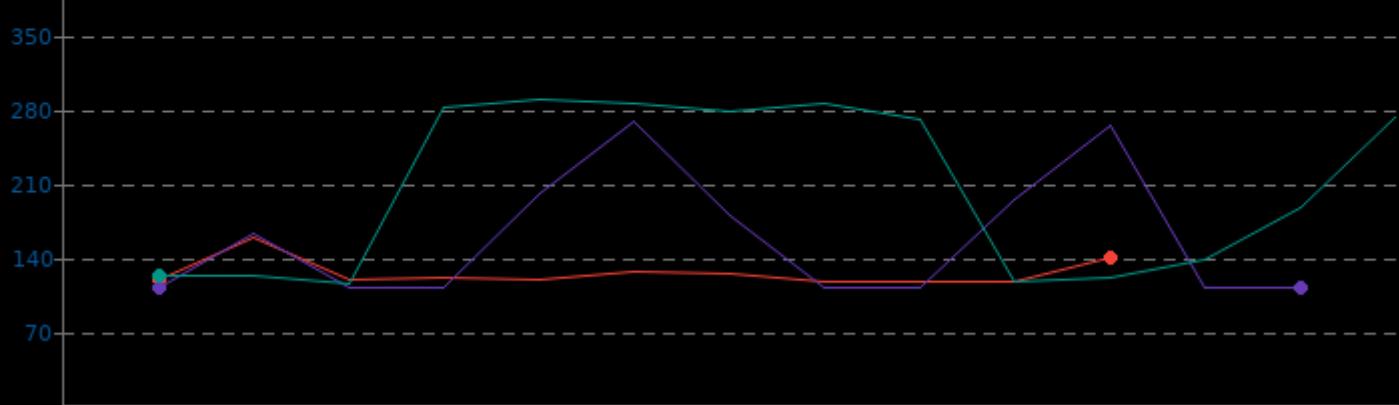


SVT-VP9 0.1

System Power Consumption Monitor

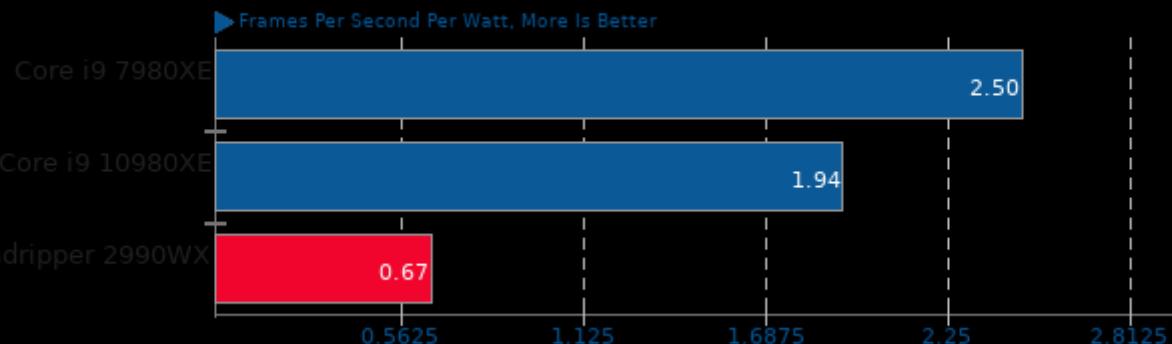
	Min	Avg	Max
Core i9 7980XE	118.2	126.2	159.4
Core i9 10980XE	111.7	158.1	268.7
Threadripper 2990WX	117.0	206.6	288.2

▼ Watts, Fewer Is Better



SVT-VP9 0.1

Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p

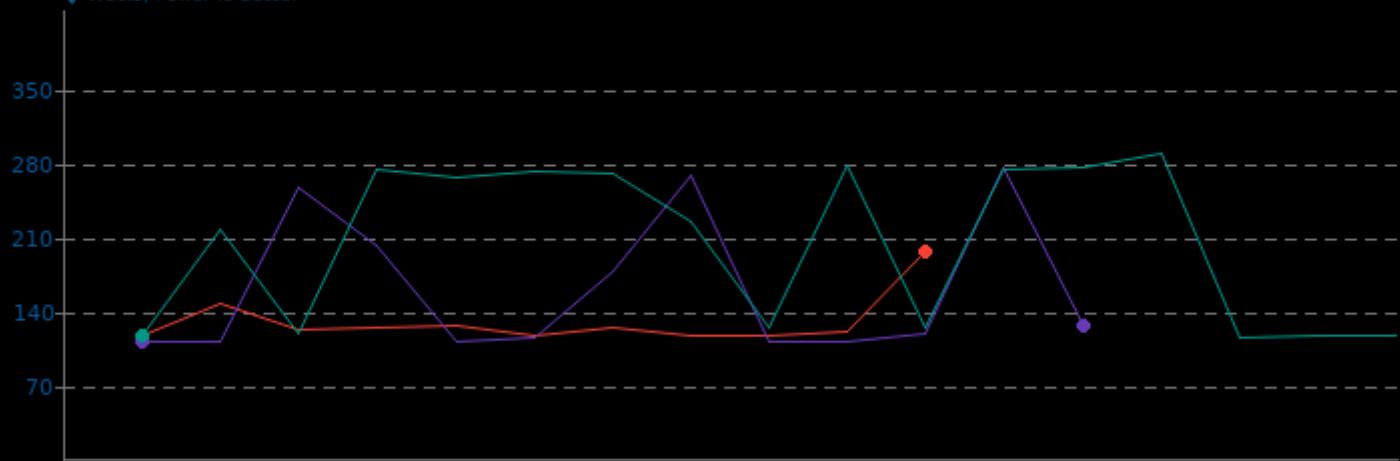


SVT-VP9 0.1

System Power Consumption Monitor

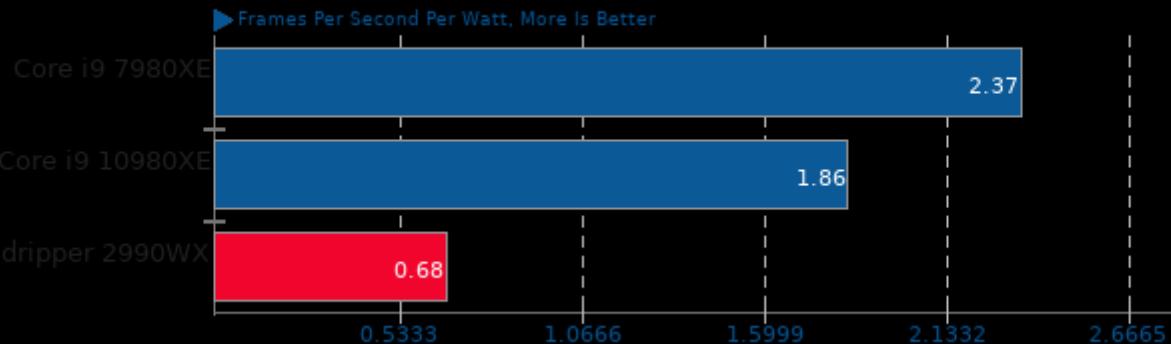
	Min	Avg	Max
Core i9 7980XE	118.0	131.4	197.5
Core i9 10980XE	111.9	162.0	275.0
Threadripper 2990WX	117.0	204.7	289.0

▼ Watts, Fewer Is Better



SVT-VP9 0.1

Tuning: VMAF Optimized - Input: Bosphorus 1080p

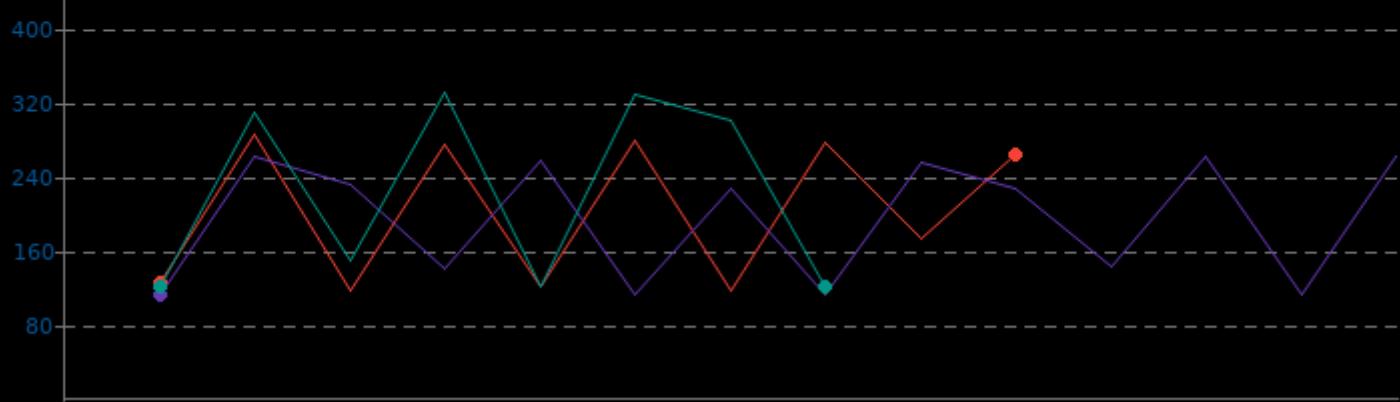


SVT-AV1 0.7

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.6	204.0	285.1
Core i9 10980XE	112.5	194.2	261.6
Threadripper 2990WX	121.1	222.8	330.2

▼ Watts, Fewer Is Better



SVT-AV1 0.7

Encoder Mode: Enc Mode 8 - Input: 1080p



Core i9 7980XE

0.22

Core i9 10980XE

0.24

Threadripper 2990WX

0.19

0.054

0.108

0.162

0.216

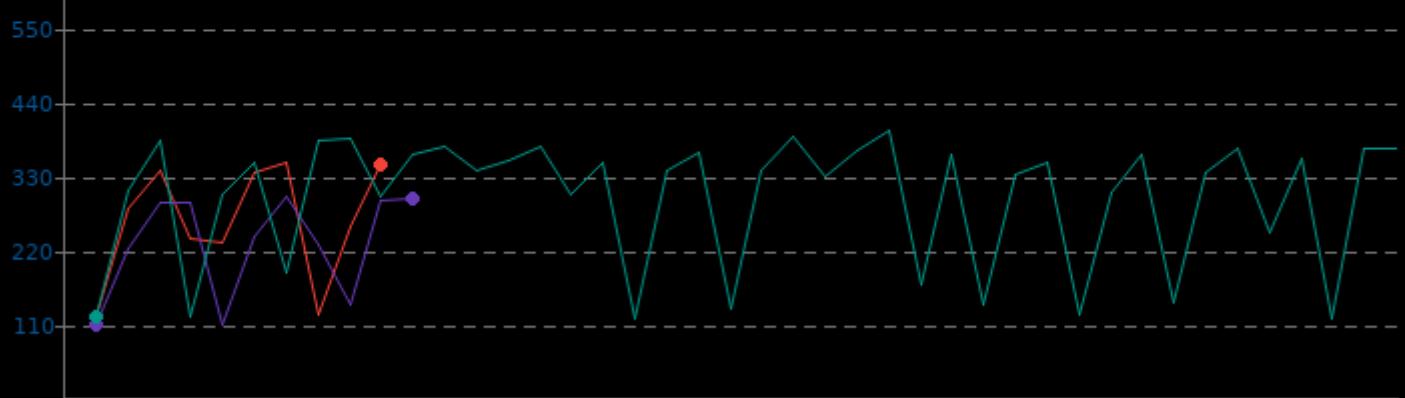
0.27

SVT-AV1 0.7

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	122.4	263.2	349.7
Core i9 10980XE	112.4	230.5	299.7
Threadripper 2990WX	120.8	299.0	396.9

▼ Watts, Fewer Is Better

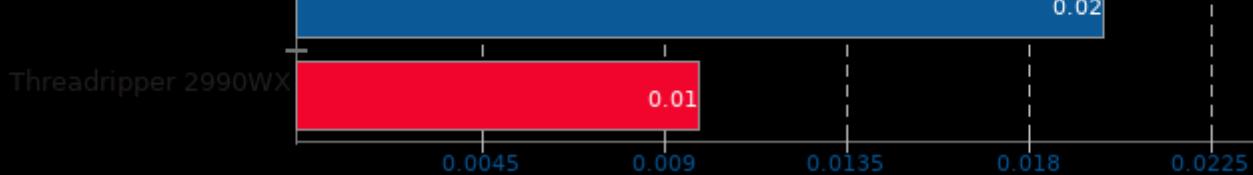


SVT-AV1 0.7

Encoder Mode: Enc Mode 4 - Input: 1080p



► Frames Per Second Per Watt, More Is Better

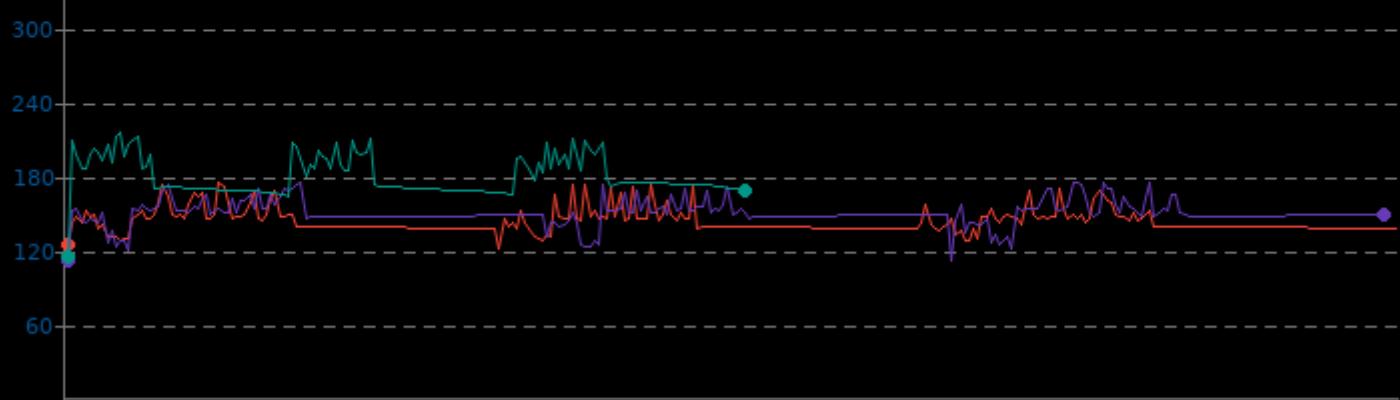


dav1d 0.5.0

System Power Consumption Monitor

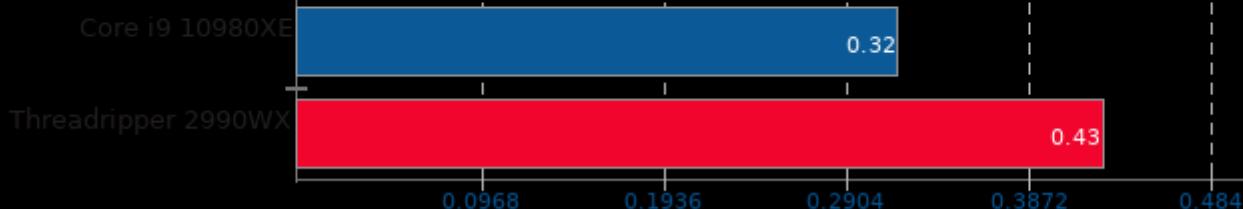
	Min	Avg	Max
Core i9 7980XE	122.6	143.9	174.4
Core i9 10980XE	111.7	150.5	175.6
Threadripper 2990WX	116.1	180.2	215.3

▼ Watts, Fewer Is Better



dav1d 0.5.0

Video Input: Chimera 1080p 10-bit

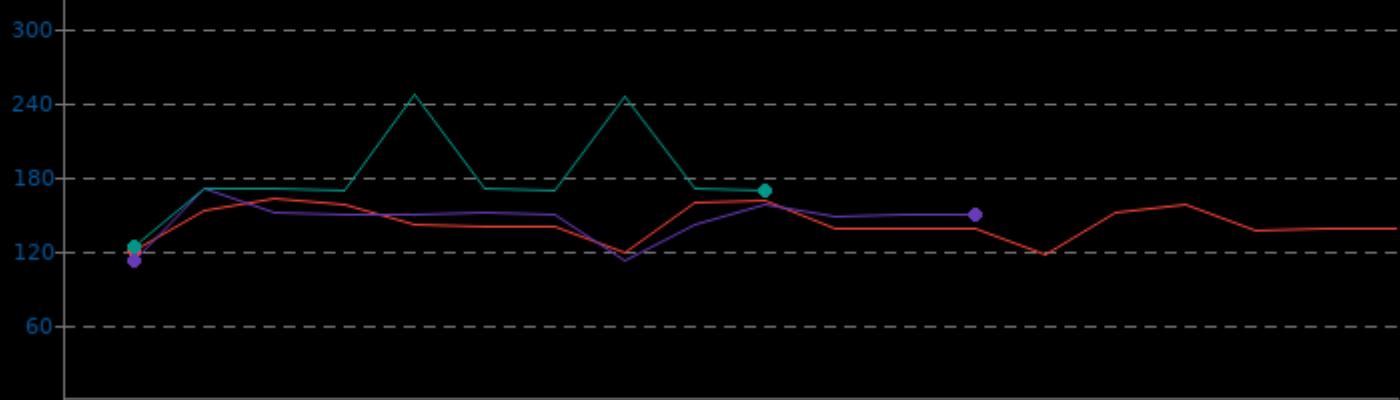


dav1d 0.5.0

System Power Consumption Monitor

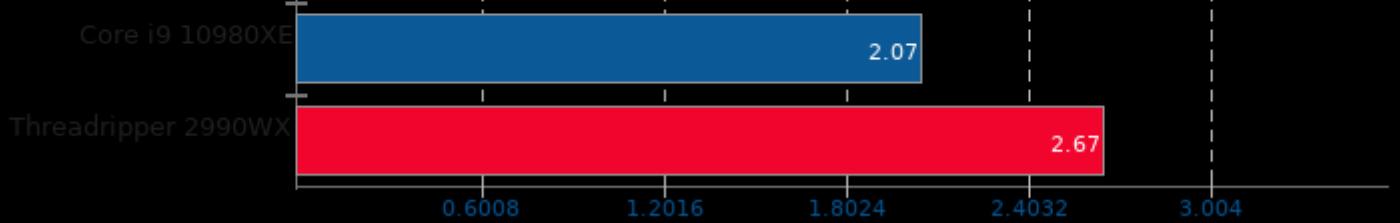
	Min	Avg	Max
Core i9 7980XE	117.4	142.3	161.8
Core i9 10980XE	112.1	145.4	169.7
Threadripper 2990WX	124.2	180.3	246.2

▼ Watts, Fewer Is Better



dav1d 0.5.0

Video Input: Summer Nature 1080p

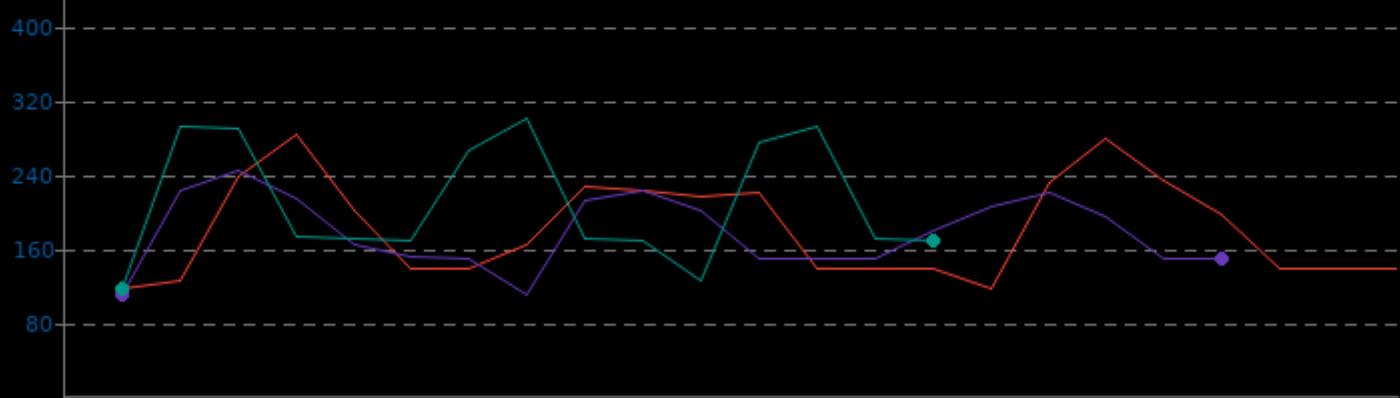


dav1d 0.5.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.5	182.3	282.7
Core i9 10980XE	112.2	177.9	244.6
Threadripper 2990WX	117.2	210.2	300.5

▼ Watts, Fewer Is Better



dav1d 0.5.0

Video Input: Summer Nature 4K



Threadripper 2990WX

0.2138 0.4276 0.6414 0.8552 1.069

LuxCoreRender 2.2

System Power Consumption Monitor

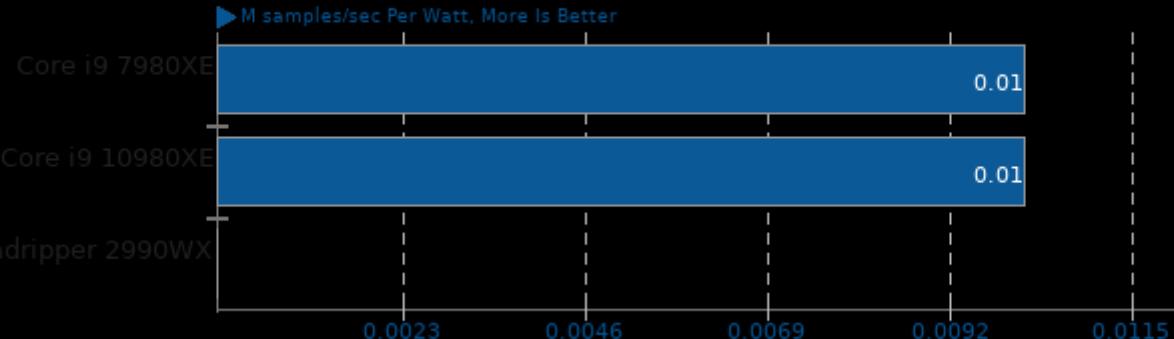
	Min	Avg	Max
Core i9 7980XE	120.2	313.3	334.4
Core i9 10980XE	112.4	274.2	284.9
Threadripper 2990WX	120.8	377.0	411.1

▼ Watts, Fewer Is Better



LuxCoreRender 2.2

Scene: Rainbow Colors and Prism

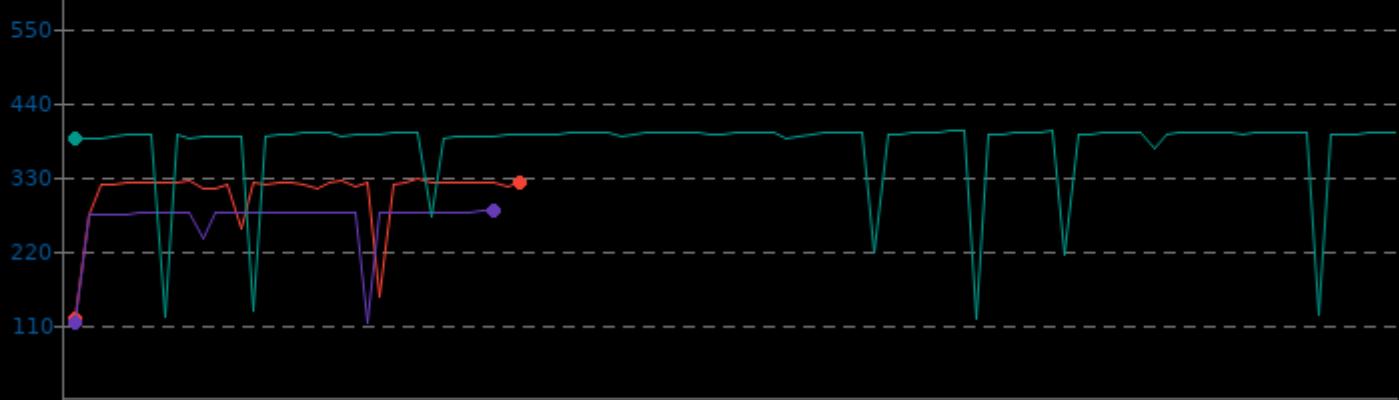


LuxCoreRender 2.2

System Power Consumption Monitor

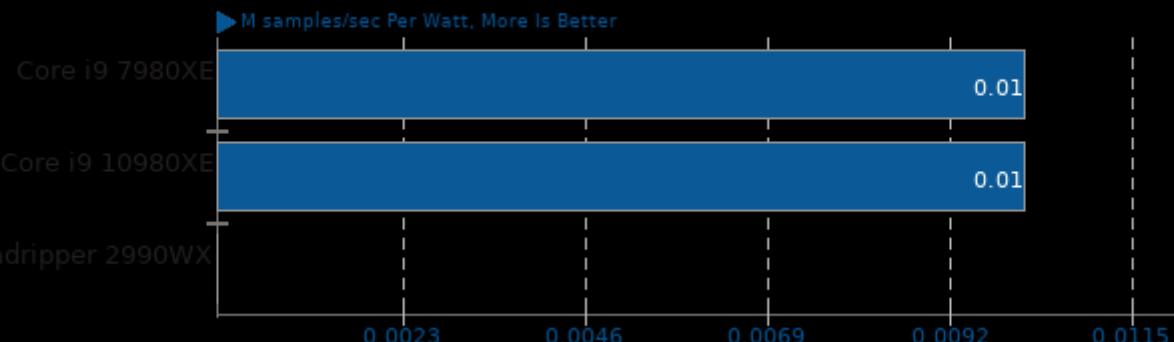
	Min	Avg	Max
Core i9 7980XE	119.5	306.4	326.3
Core i9 10980XE	113.7	265.9	279.3
Threadripper 2990WX	121.6	378.0	396.8

▼ Watts, Fewer Is Better



LuxCoreRender 2.2

Scene: DLSC

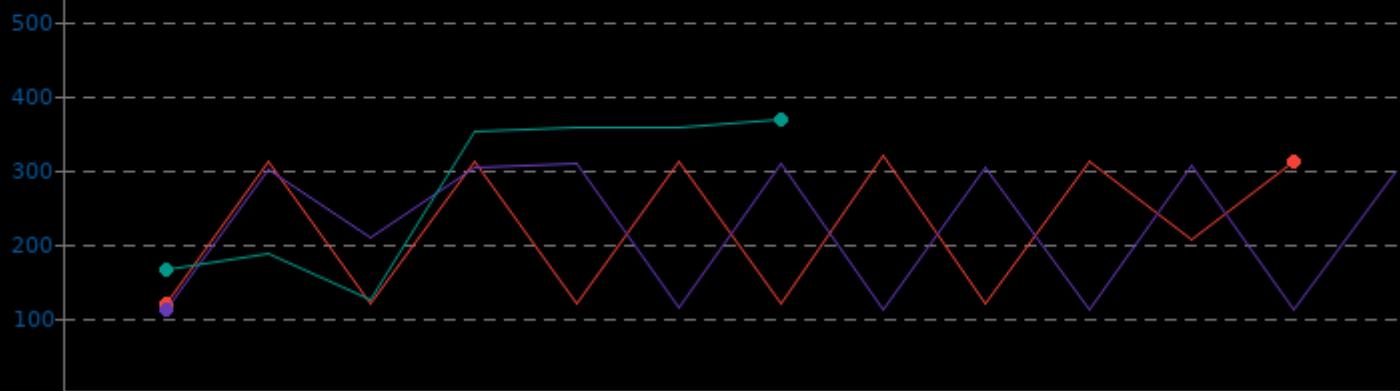


Tungsten Renderer 0.2.2

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.6	223.5	318.6
Core i9 10980XE	112.9	222.8	308.7
Threadripper 2990WX	126.7	273.0	366.3

▼ Watts, Fewer Is Better

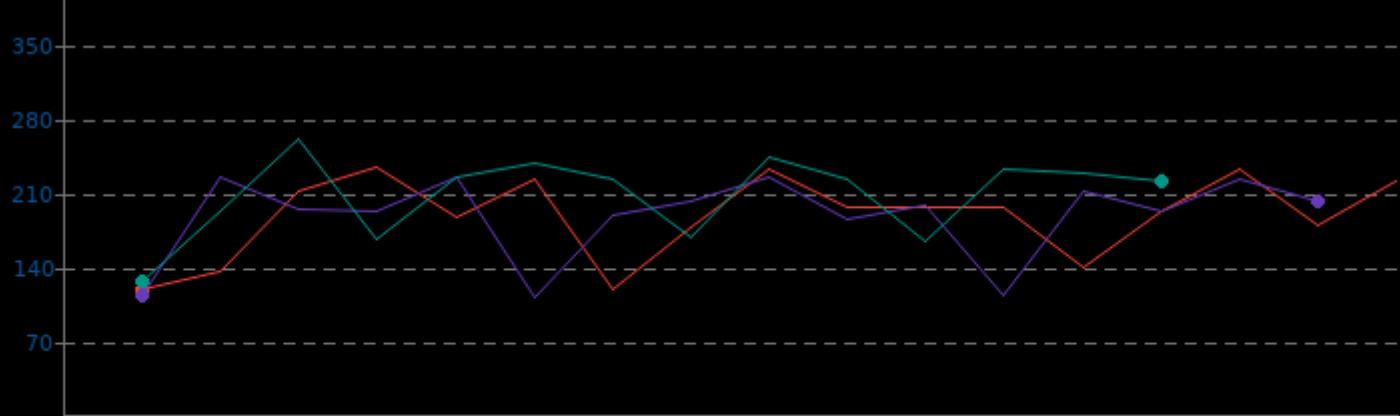


Tungsten Renderer 0.2.2

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.1	188.1	234.8
Core i9 10980XE	113.1	188.1	225.3
Threadripper 2990WX	127.5	208.3	261.0

▼ Watts, Fewer Is Better

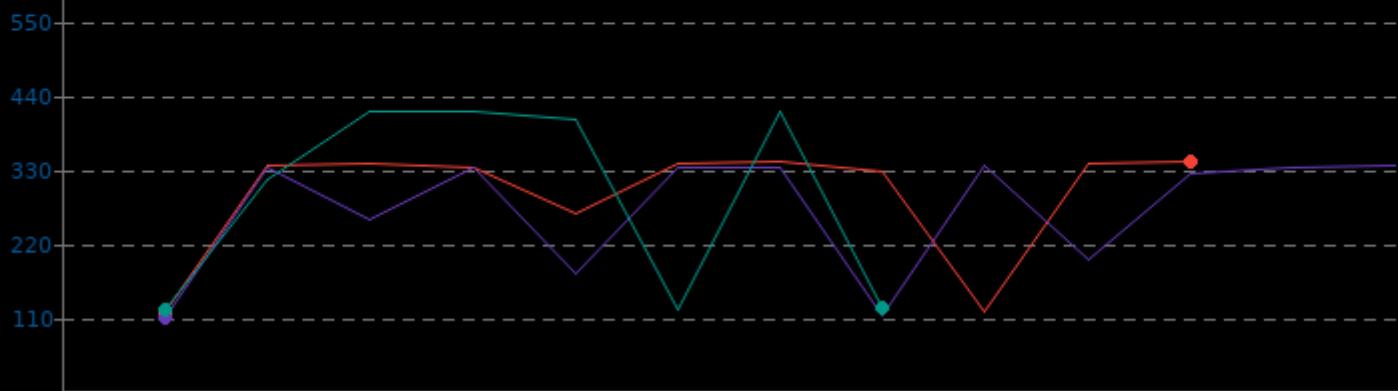


Tungsten Renderer 0.2.2

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.7	291.4	342.3
Core i9 10980XE	113.2	270.5	334.8
Threadripper 2990WX	123.0	291.5	415.2

▼ Watts, Fewer Is Better

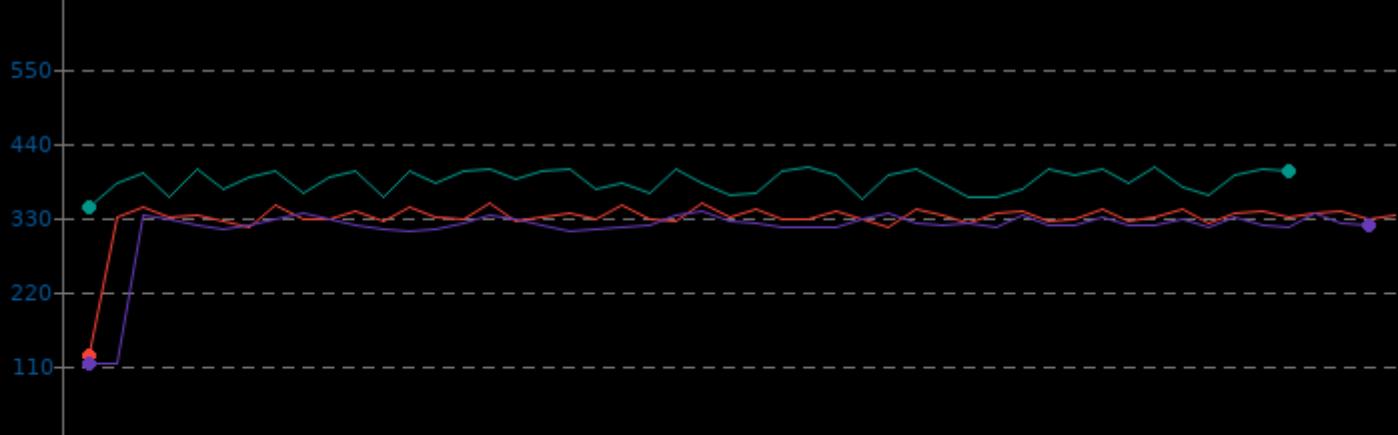


Appleseed 2.0 Beta

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	127.6	328.1	350.0
Core i9 10980XE	113.7	313.4	337.7
Threadripper 2990WX	346.2	383.8	403.6

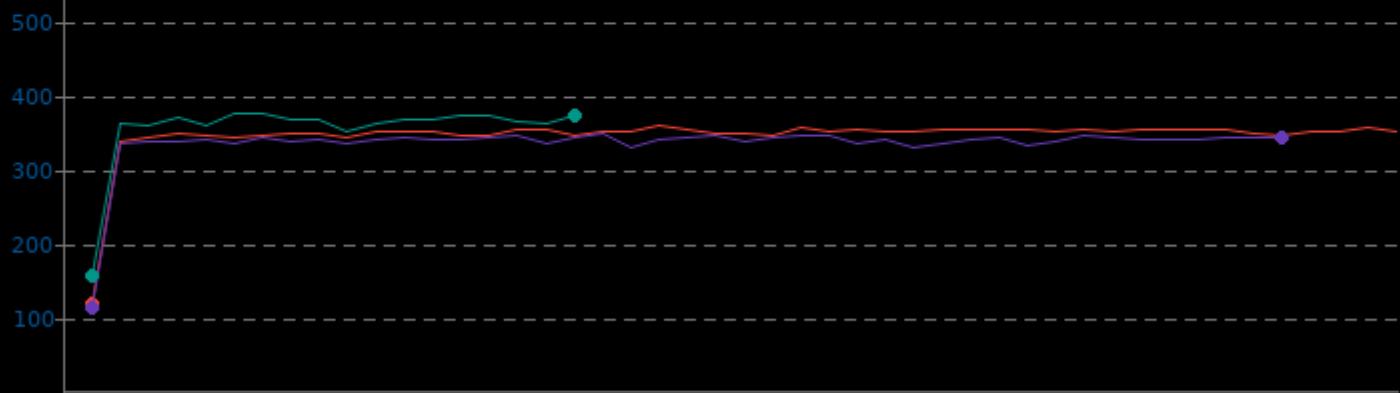
▼ Watts, Fewer Is Better



Appleseed 2.0 Beta System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.6	345.2	360.2
Core i9 10980XE	114.1	334.7	348.0
Threadripper 2990WX	158.9	354.3	374.6

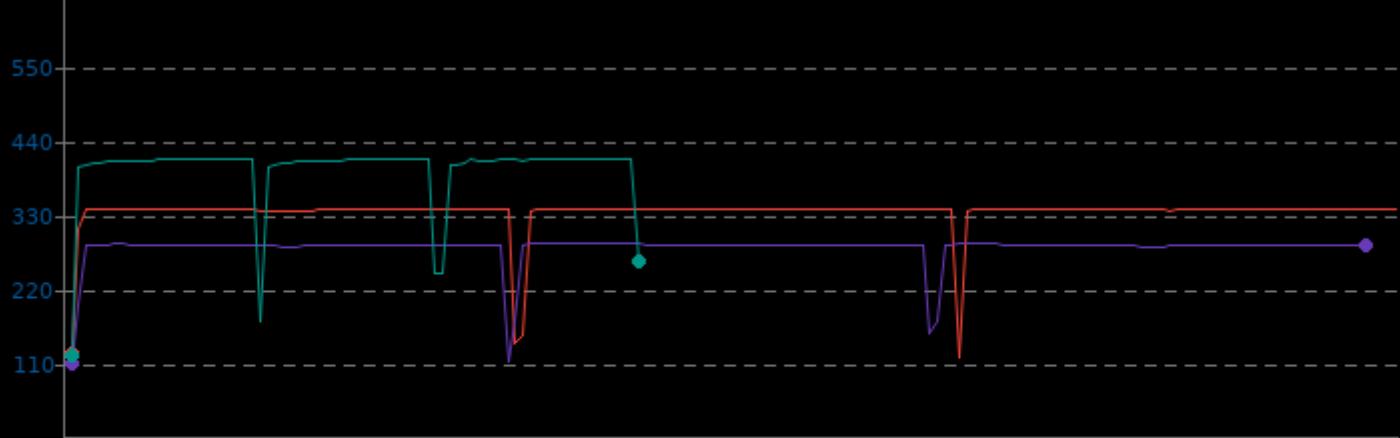
▼ Watts, Fewer Is Better



Blender 2.80 System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	120.6	334.1	340.2
Core i9 10980XE	113.2	281.6	289.6
Threadripper 2990WX	123.4	397.8	413.6

▼ Watts, Fewer Is Better



Blender 2.80

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	120.7	309.8	330.0
Core i9 10980XE	113.9	266.4	279.6
Threadripper 2990WX	120.5	376.9	407.4

▼ Watts, Fewer Is Better

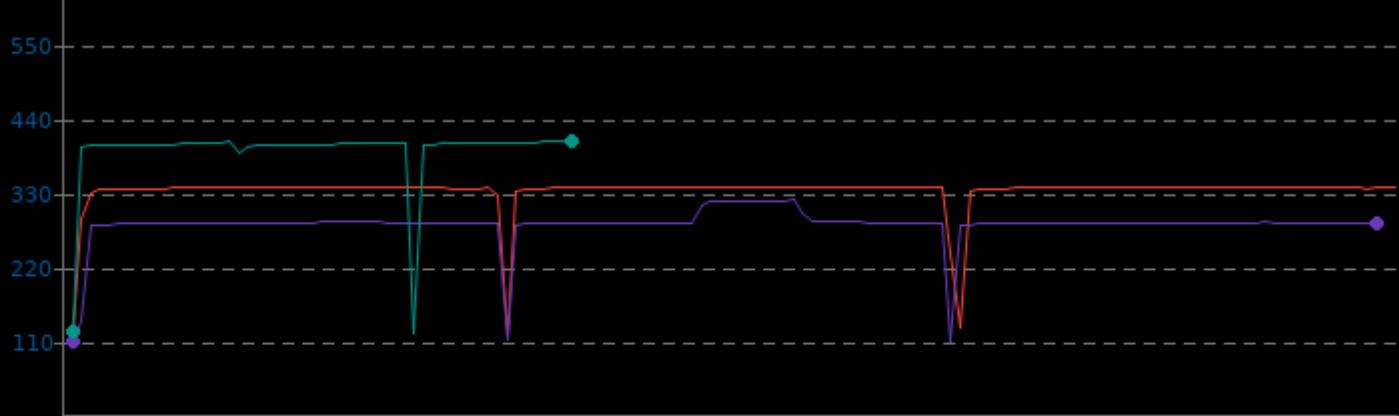


Blender 2.80

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	121.6	332.8	340.2
Core i9 10980XE	112.9	284.1	319.7
Threadripper 2990WX	124.1	392.2	405.9

▼ Watts, Fewer Is Better



Blender 2.80

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	120.6	316.9	339.4
Core i9 10980XE	113.7	275.8	288.3
Threadripper 2990WX	139.9	364.4	408.1

▼ Watts, Fewer Is Better

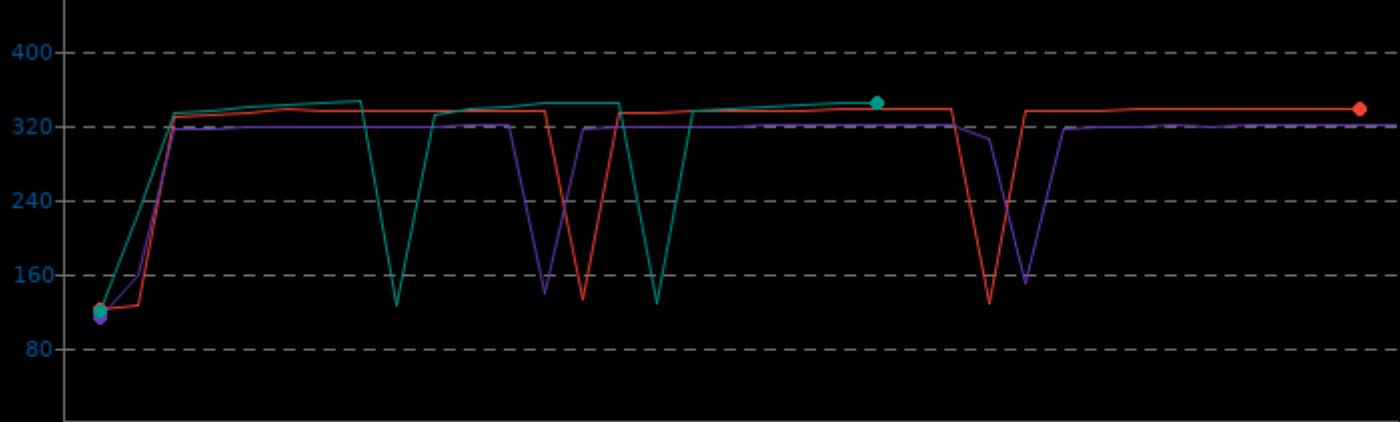


IndigoBench 4.0.64

System Power Consumption Monitor

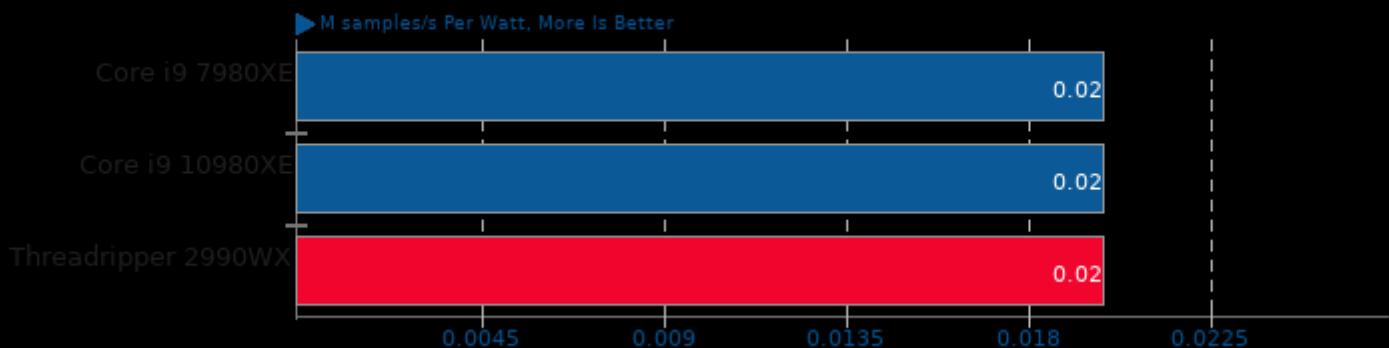
	Min	Avg	Max
Core i9 7980XE	121.7	311.0	336.3
Core i9 10980XE	113.0	297.6	319.3
Threadripper 2990WX	120.5	304.6	344.6

▼ Watts, Fewer Is Better



IndigoBench 4.0.64

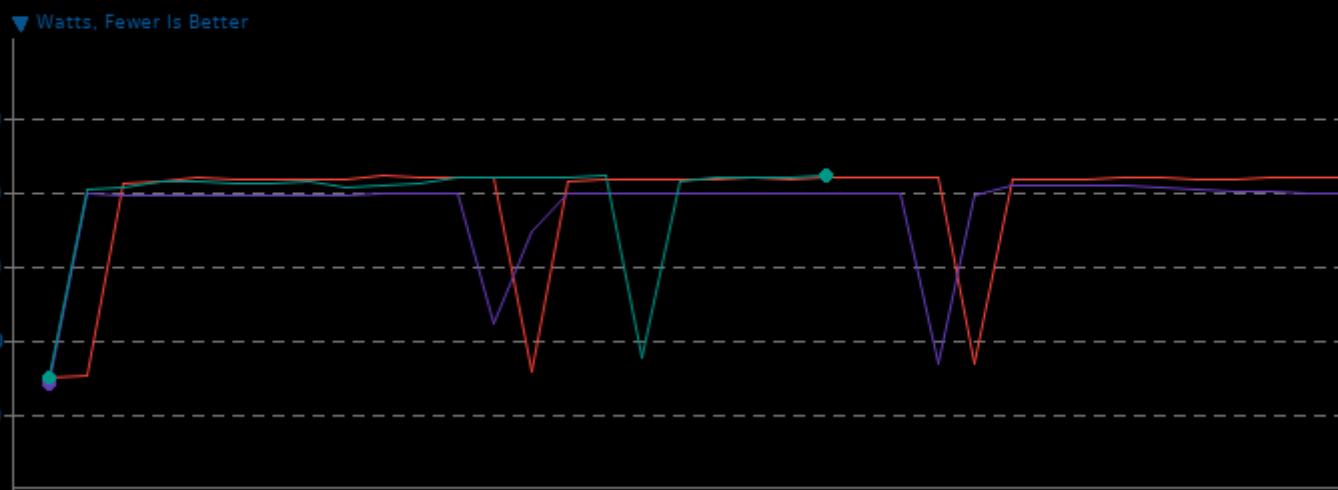
Scene: Supercar



IndigoBench 4.0.64

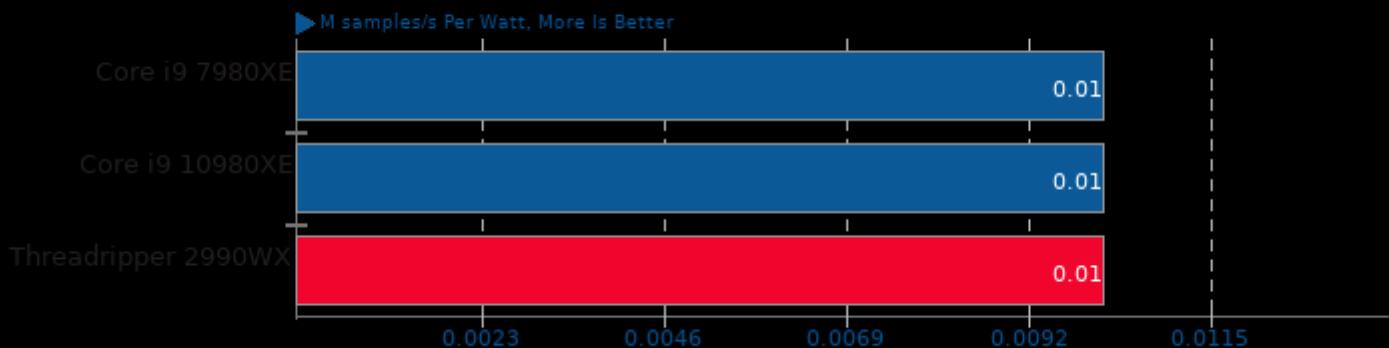
System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.6	309.7	335.6
Core i9 10980XE	113.3	302.3	325.8
Threadripper 2990WX	120.1	312.3	336.5



IndigoBench 4.0.64

Scene: Bedroom

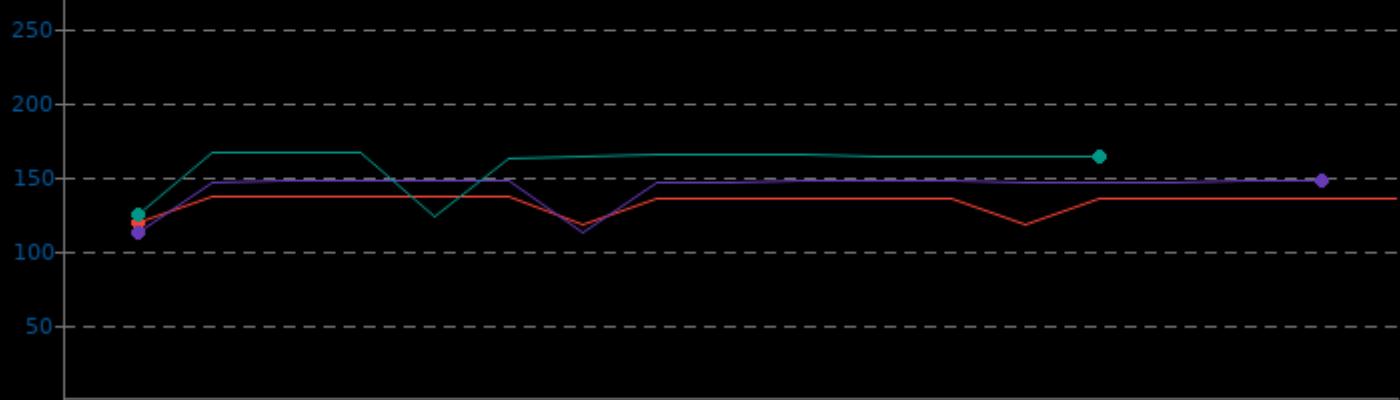


AOBench

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.8	133.0	136.7
Core i9 10980XE	112.9	142.8	147.3
Threadripper 2990WX	123.6	158.7	166.3

▼ Watts, Fewer Is Better

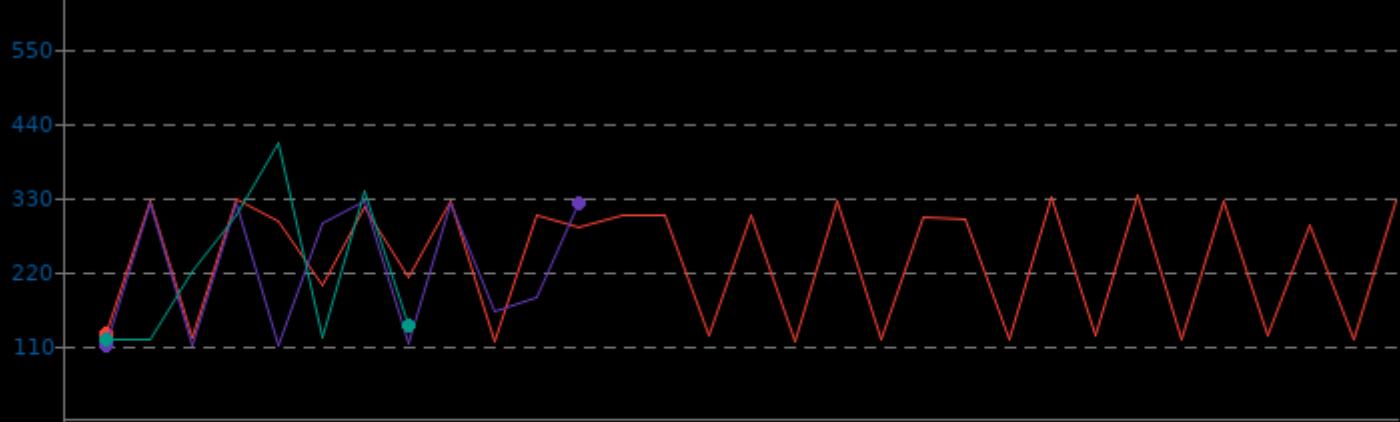


Smallpt 1.0

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.8	237.8	332.0
Core i9 10980XE	112.5	224.6	323.1
Threadripper 2990WX	120.4	222.5	408.8

▼ Watts, Fewer Is Better

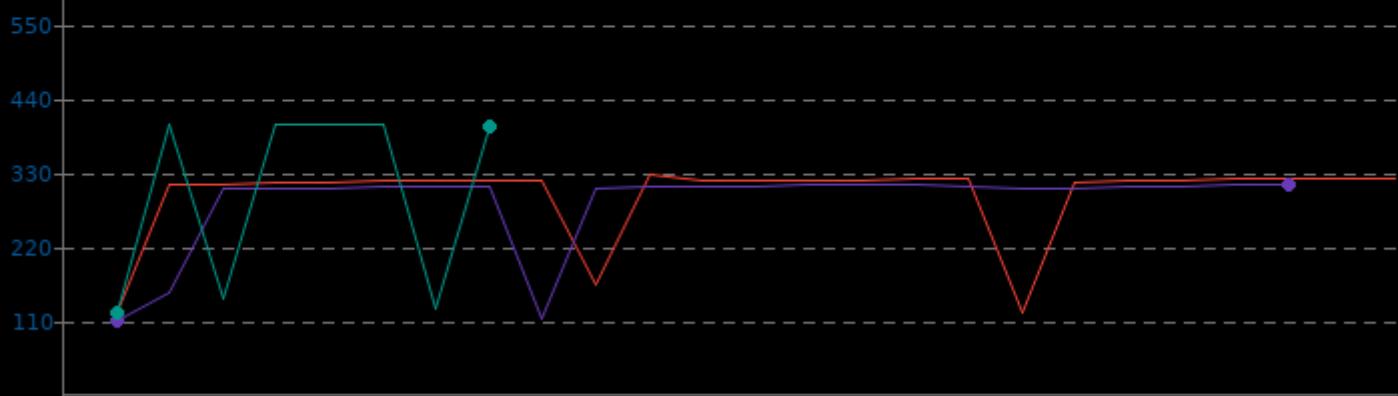


C-Ray 1.1

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	122.8	296.7	325.8
Core i9 10980XE	112.4	285.4	311.5
Threadripper 2990WX	125.1	299.9	400.6

▼ Watts, Fewer Is Better

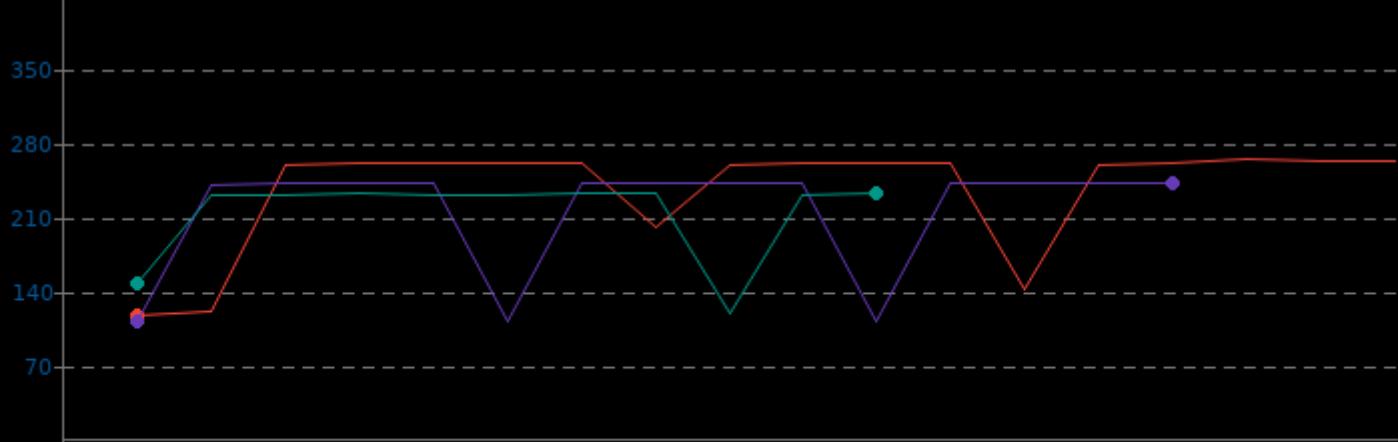


TTSIOD 3D Renderer 2.3b

System Power Consumption Monitor

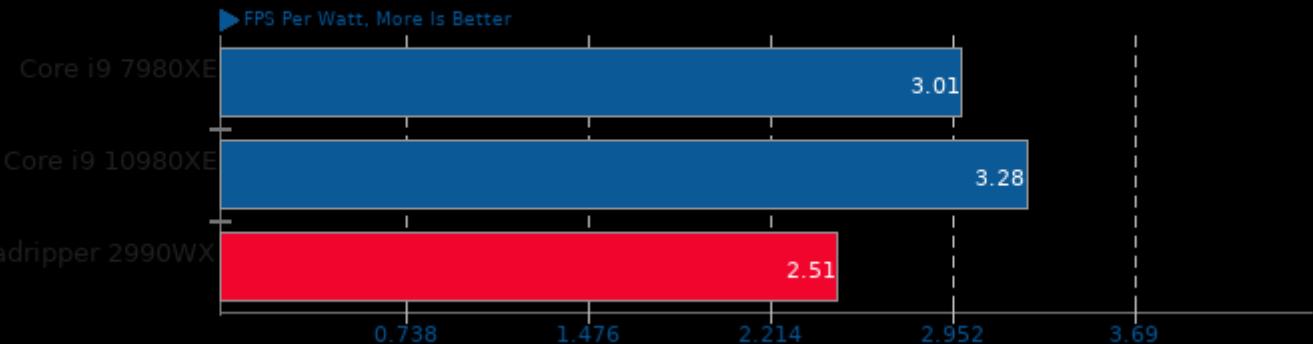
	Min	Avg	Max
Core i9 7980XE	119.0	235.3	264.0
Core i9 10980XE	112.5	216.0	242.4
Threadripper 2990WX	120.8	213.7	233.2

▼ Watts, Fewer Is Better



TTSIOD 3D Renderer 2.3b

Phong Rendering With Soft-Shadow Mapping



MKL-DNN DNNL 1.1

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.6	270.2	335.0
Core i9 10980XE	112.9	266.0	322.2
Threadripper 2990WX	127.5	362.0	413.3

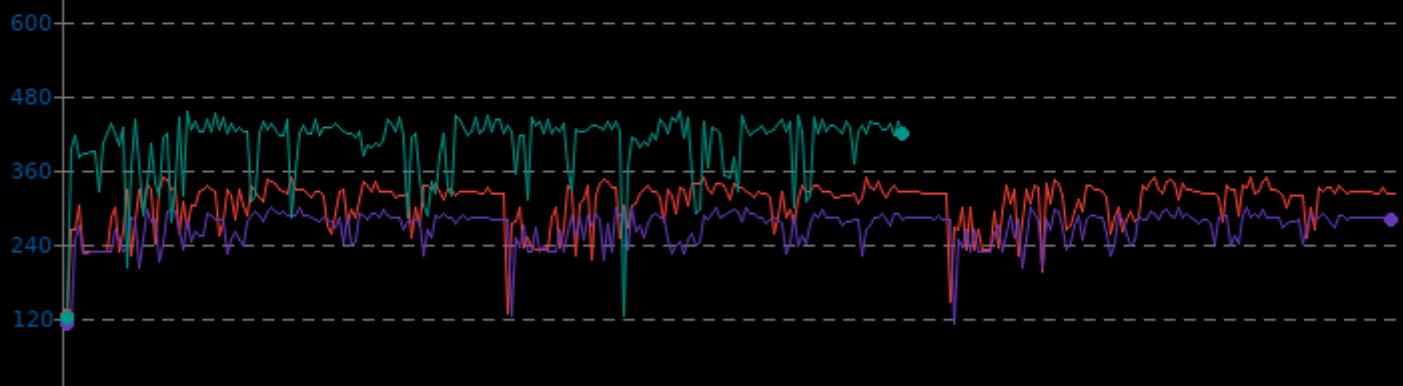


MKL-DNN DNNL 1.1

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	124.9	306.8	347.8
Core i9 10980XE	112.7	267.9	299.7
Threadripper 2990WX	120.9	401.6	452.5

▼ Watts, Fewer Is Better



GraphicsMagick 1.3.33

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.8	178.6	183.5
Core i9 10980XE	112.1	168.6	173.7
Threadripper 2990WX	117.6	217.5	230.8

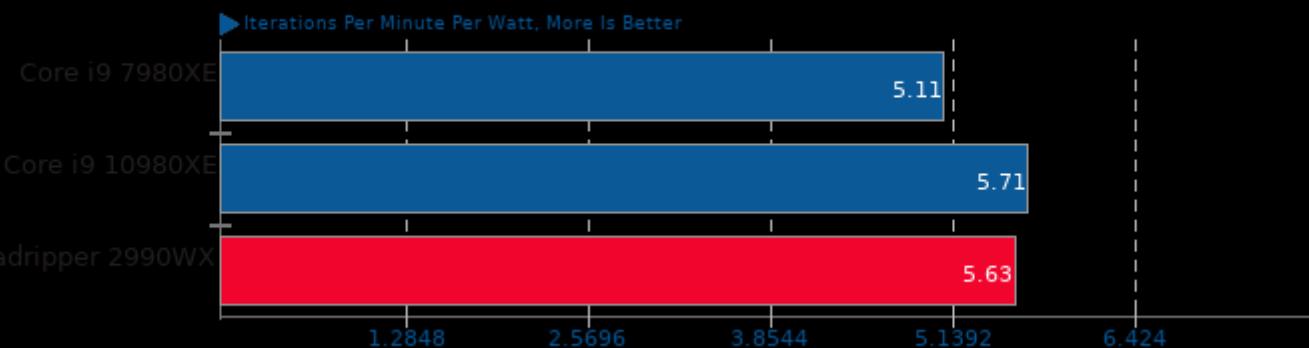
▼ Watts, Fewer Is Better



Intel Core i9-10980XE Linux Benchmarks

GraphicsMagick 1.3.33

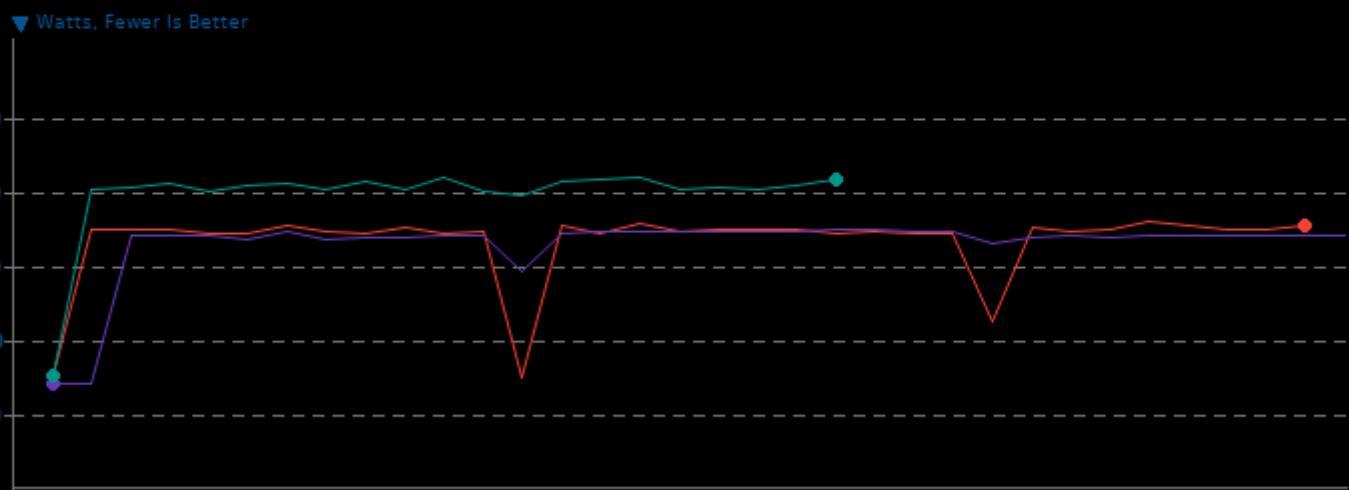
Operation: HWB Color Space



GraphicsMagick 1.3.33

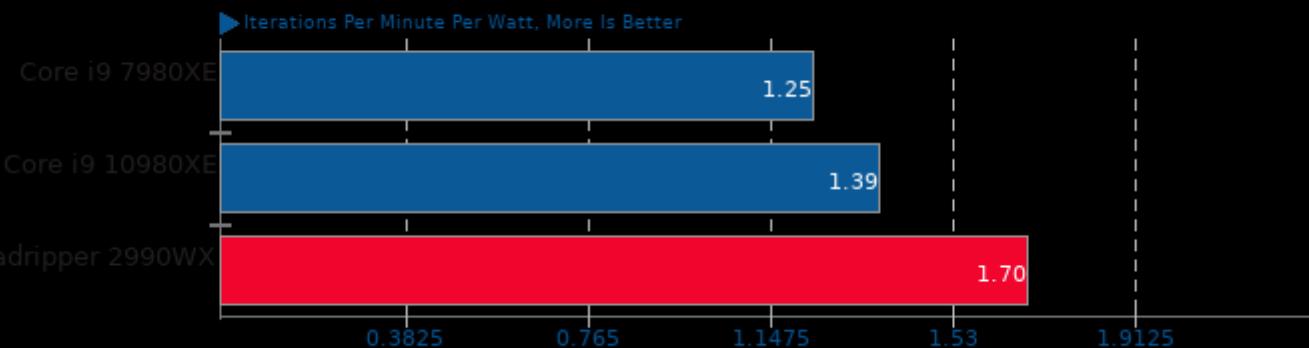
System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.2	265.6	287.2
Core i9 10980XE	113.5	262.4	277.9
Threadripper 2990WX	122.7	315.7	334.6



GraphicsMagick 1.3.33

Operation: Noise-Gaussian

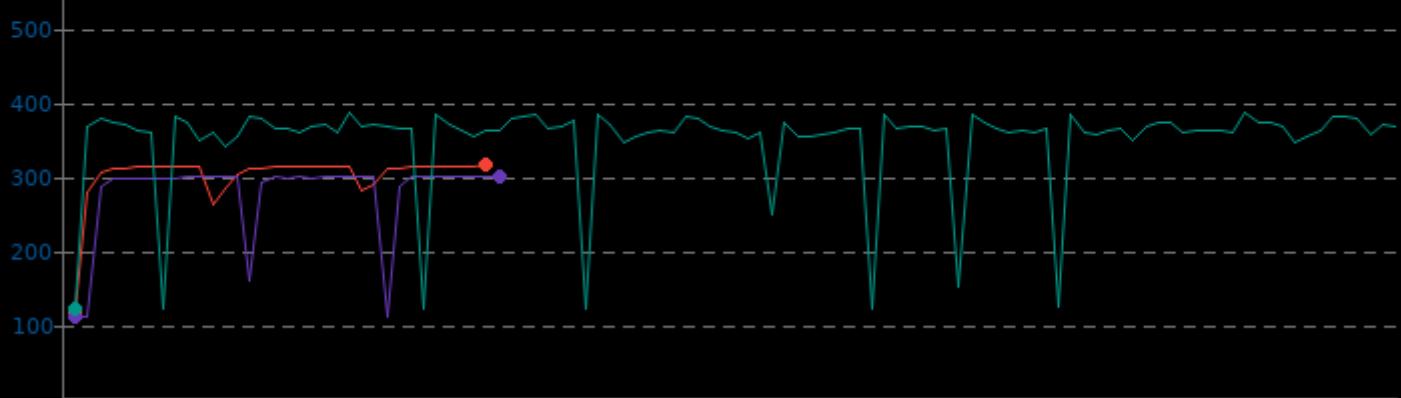


GraphicsMagick 1.3.33

System Power Consumption Monitor

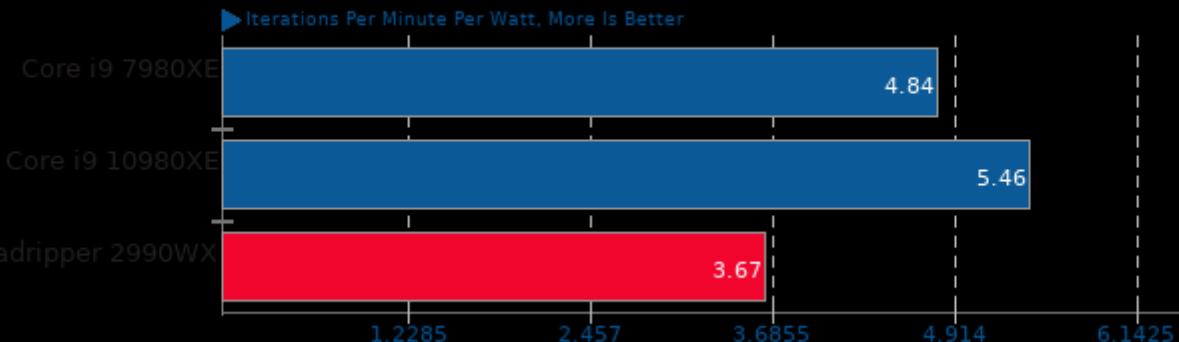
	Min	Avg	Max
Core i9 7980XE	119.1	302.0	314.8
Core i9 10980XE	112.8	278.2	299.9
Threadripper 2990WX	122.8	349.2	386.3

▼ Watts, Fewer Is Better



GraphicsMagick 1.3.33

Operation: Resizing

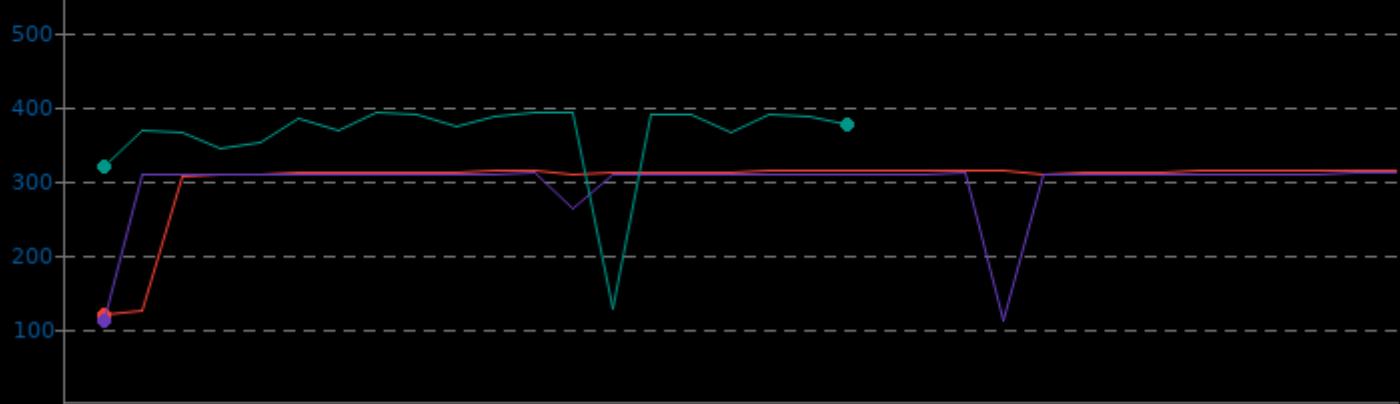


GraphicsMagick 1.3.33

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.6	300.3	313.0
Core i9 10980XE	113.3	295.7	309.8
Threadripper 2990WX	128.5	361.4	390.6

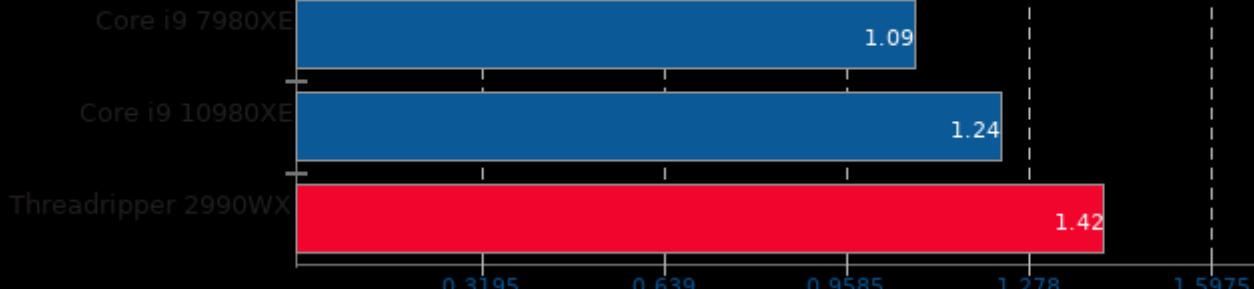
▼ Watts, Fewer Is Better



GraphicsMagick 1.3.33

Operation: Enhanced

► Iterations Per Minute Per Watt, More Is Better

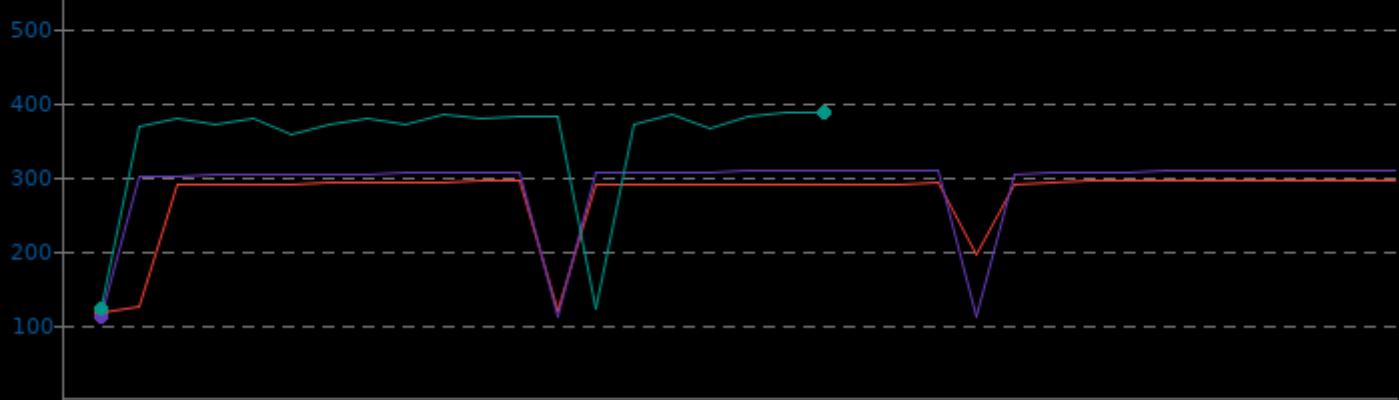


GraphicsMagick 1.3.33

System Power Consumption Monitor

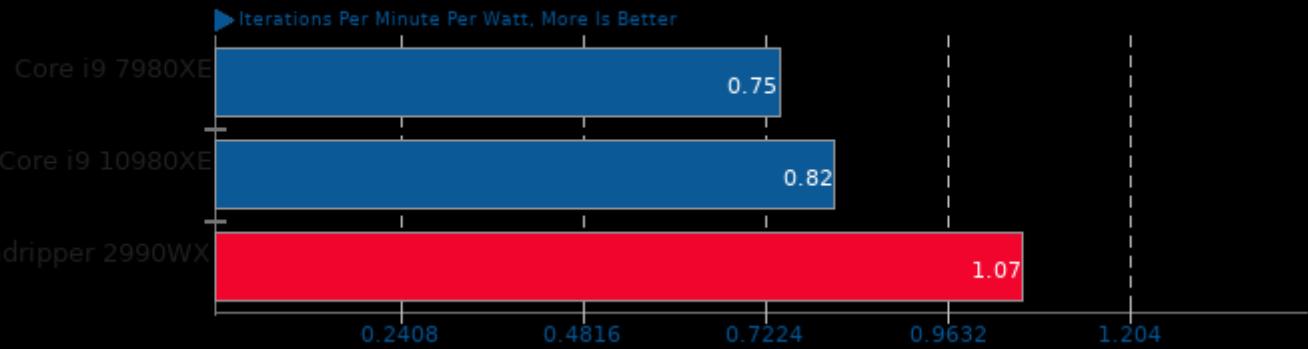
	Min	Avg	Max
Core i9 7980XE	119.0	274.5	295.2
Core i9 10980XE	112.6	288.8	307.3
Threadripper 2990WX	123.4	350.2	385.5

▼ Watts, Fewer Is Better



GraphicsMagick 1.3.33

Operation: Sharpen

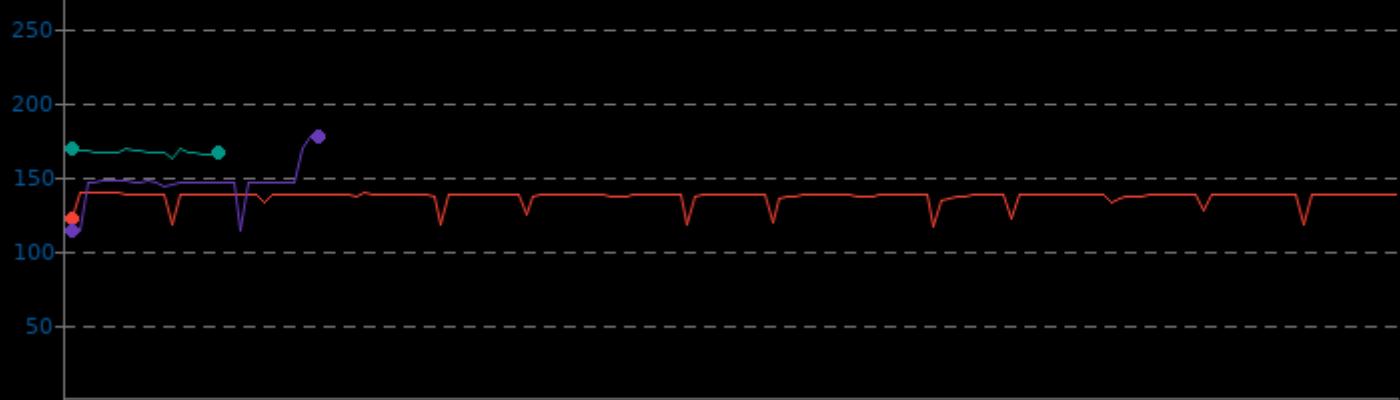


GraphicsMagick 1.3.33

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.0	136.5	139.5
Core i9 10980XE	113.3	145.6	176.4
Threadripper 2990WX	161.4	166.4	169.1

▼ Watts, Fewer Is Better

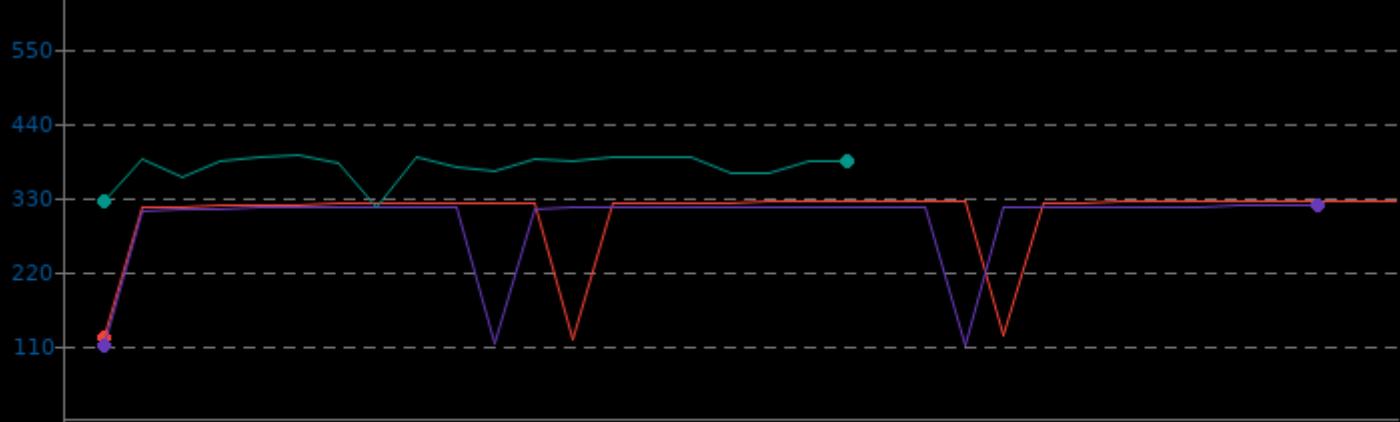


GraphicsMagick 1.3.33

System Power Consumption Monitor

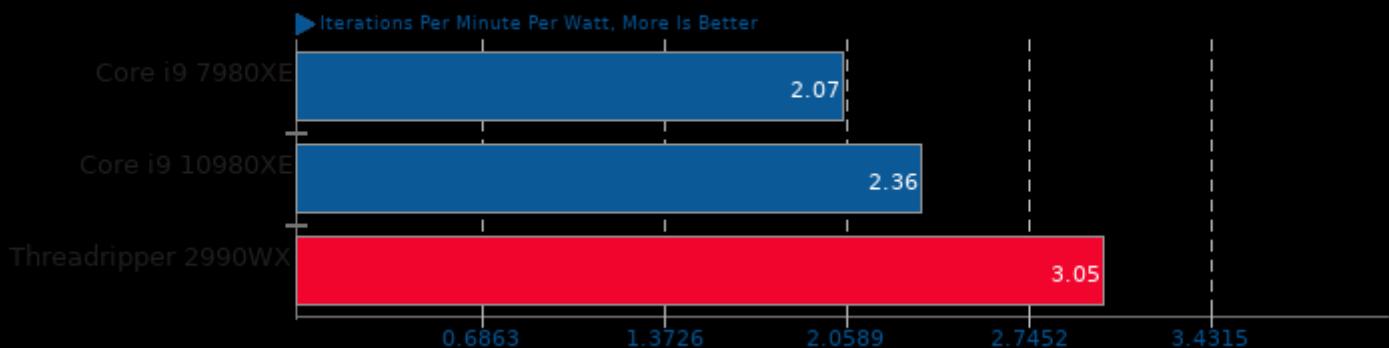
	Min	Avg	Max
Core i9 7980XE	120.7	304.4	324.2
Core i9 10980XE	112.7	296.2	316.9
Threadripper 2990WX	314.9	374.9	392.6

▼ Watts, Fewer Is Better



GraphicsMagick 1.3.33

Operation: Swirl



John The Ripper 1.9.0-jumbo-1

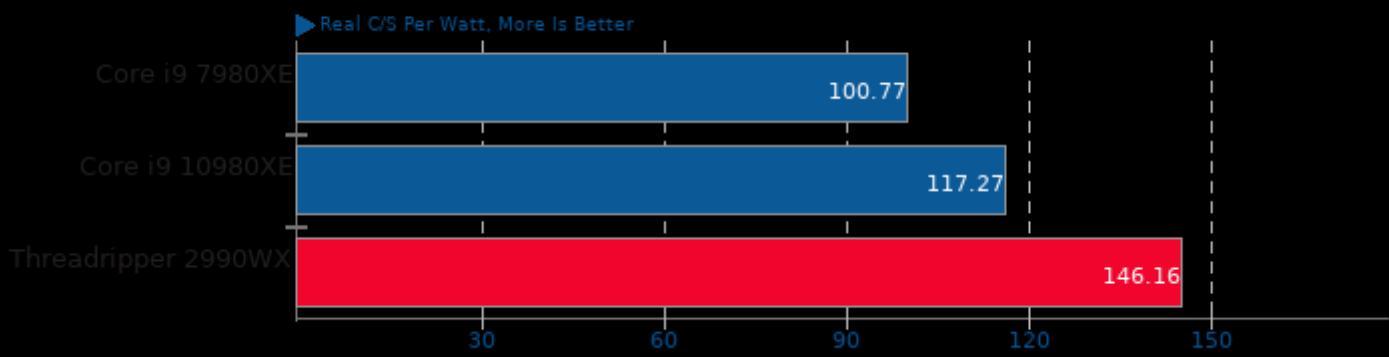
System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.3	289.7	315.4
Core i9 10980XE	112.5	279.2	312.7
Threadripper 2990WX	117.7	350.3	396.9



John The Ripper 1.9.0-jumbo-1

Test: Blowfish

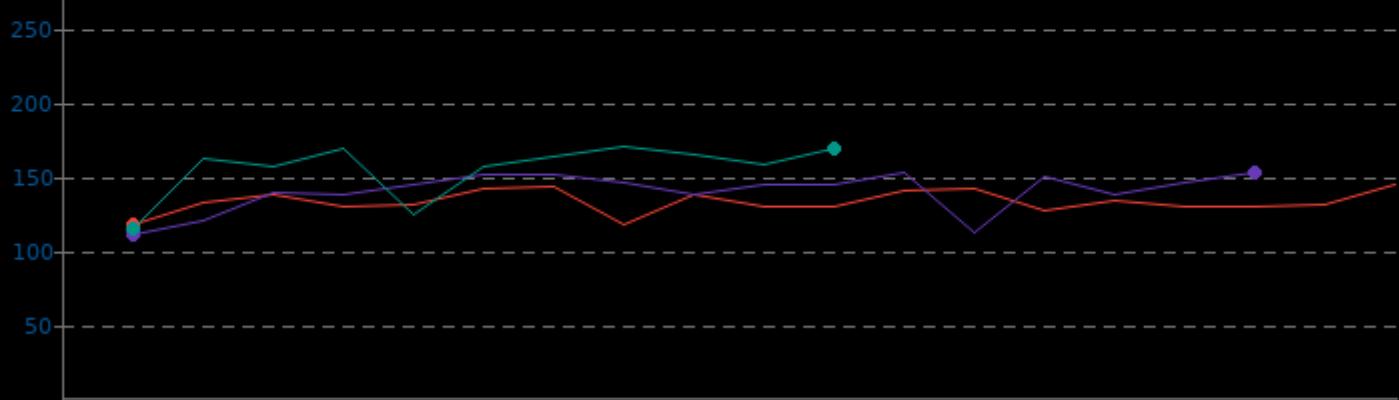


LuaJIT 2.1-git

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.4	133.1	145.1
Core i9 10980XE	111.6	140.0	152.4
Threadripper 2990WX	115.8	155.4	170.1

▼ Watts, Fewer Is Better



LuaJIT 2.1-git

Test: Composite

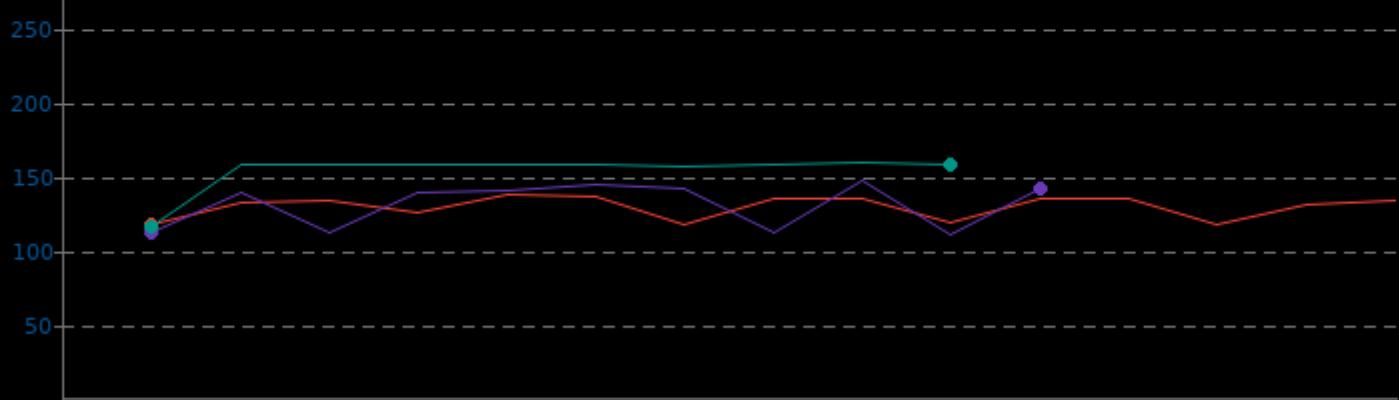


Sudokut 0.4

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.3	129.7	137.6
Core i9 10980XE	111.7	131.2	147.8
Threadripper 2990WX	116.3	153.9	159.9

▼ Watts, Fewer Is Better

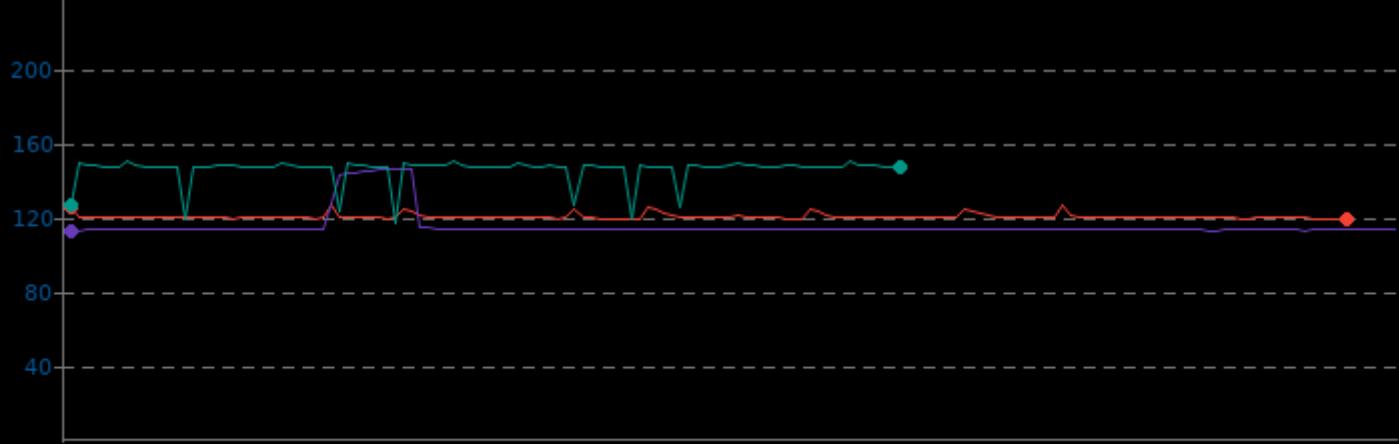


Perl Benchmarks

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.3	120.1	126.3
Core i9 10980XE	112.3	115.4	145.5
Threadripper 2990WX	116.5	145.7	149.7

▼ Watts, Fewer Is Better

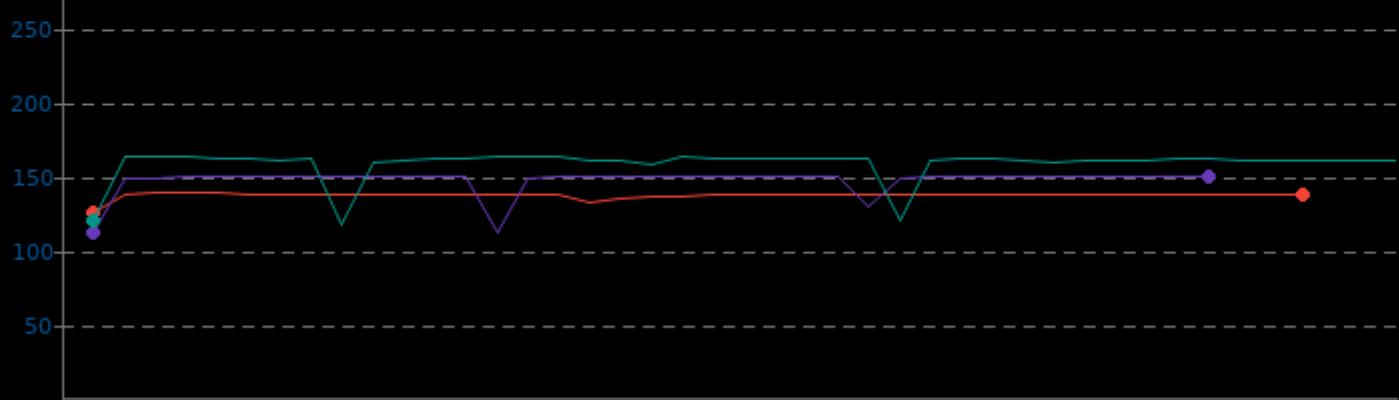


Perl Benchmarks

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	125.5	137.4	139.1
Core i9 10980XE	112.7	147.0	149.9
Threadripper 2990WX	117.2	158.6	163.5

▼ Watts, Fewer Is Better

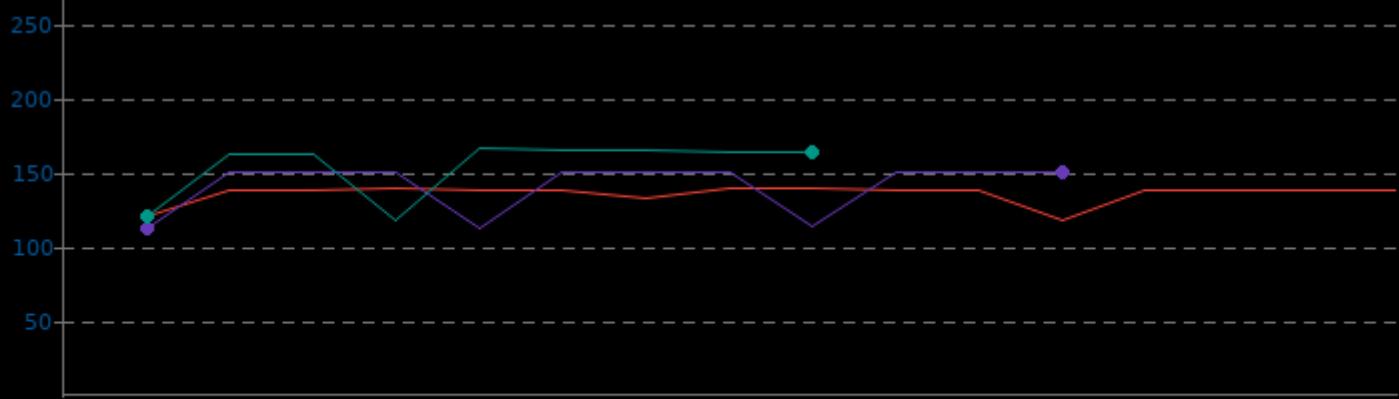


PyBench 2018-02-16

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.0	135.7	139.1
Core i9 10980XE	112.5	140.5	150.2
Threadripper 2990WX	117.4	154.0	166.2

▼ Watts, Fewer Is Better

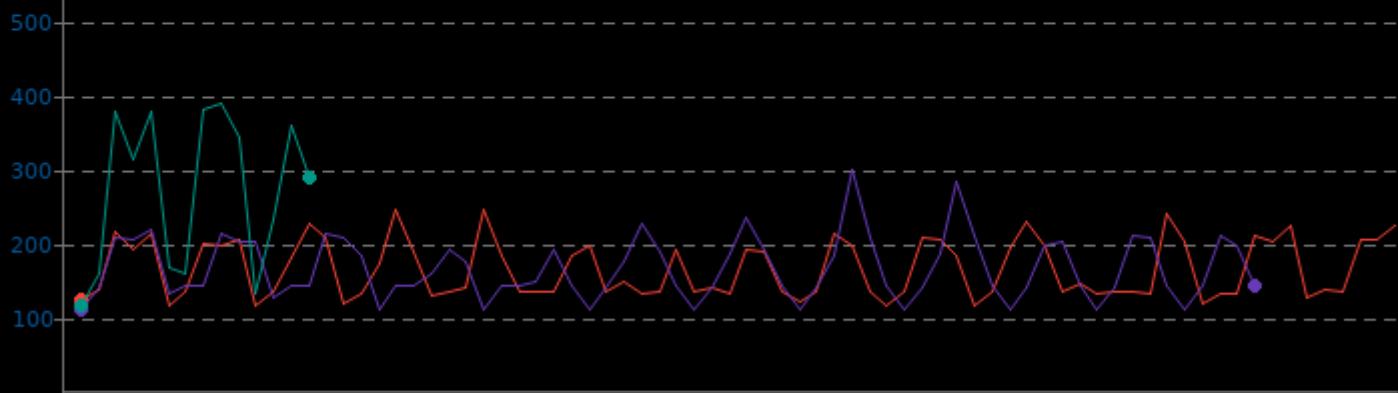


R Benchmark

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.8	167.0	246.8
Core i9 10980XE	112.3	167.8	299.5
Threadripper 2990WX	118.1	272.1	388.8

▼ Watts, Fewer Is Better

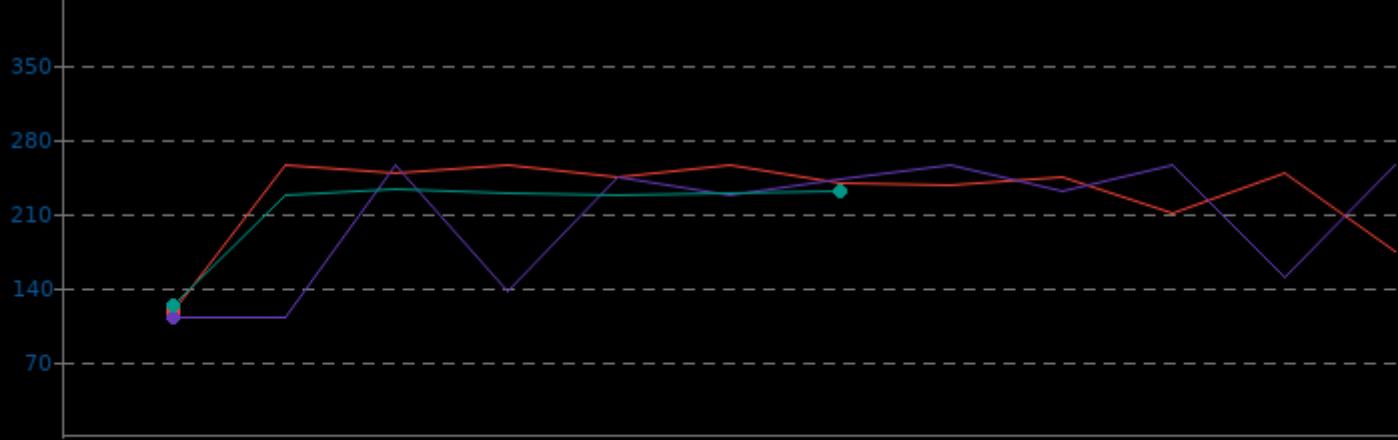


Rust Prime Benchmark

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.0	226.8	255.1
Core i9 10980XE	112.2	206.3	255.9
Threadripper 2990WX	124.6	214.1	231.6

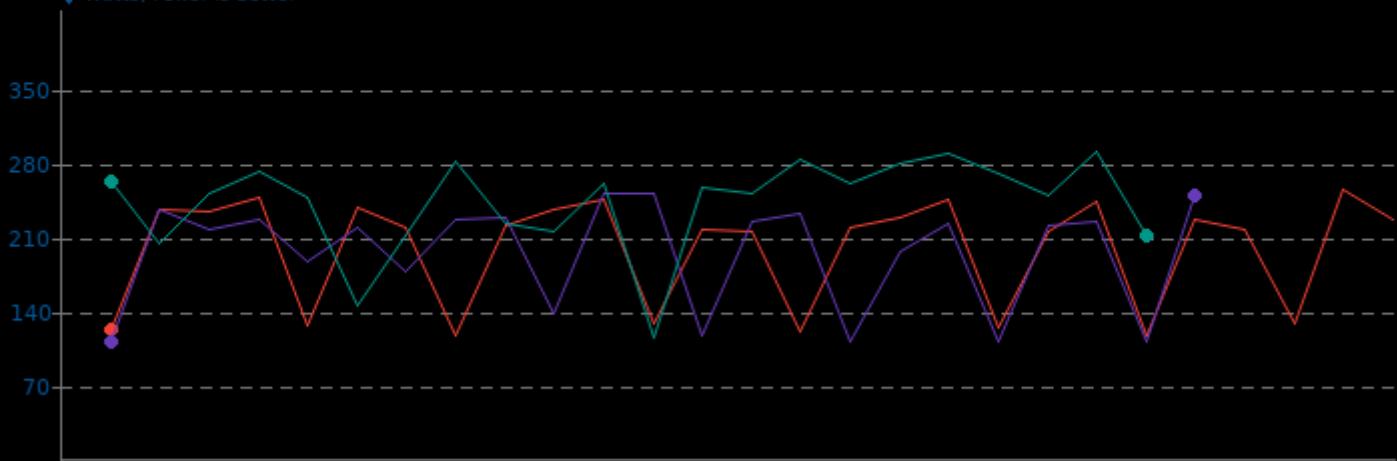
▼ Watts, Fewer Is Better



Renaissance 0.9.0 System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.8	199.5	255.7
Core i9 10980XE	112.1	195.7	251.4
Threadripper 2990WX	117.0	242.6	290.8

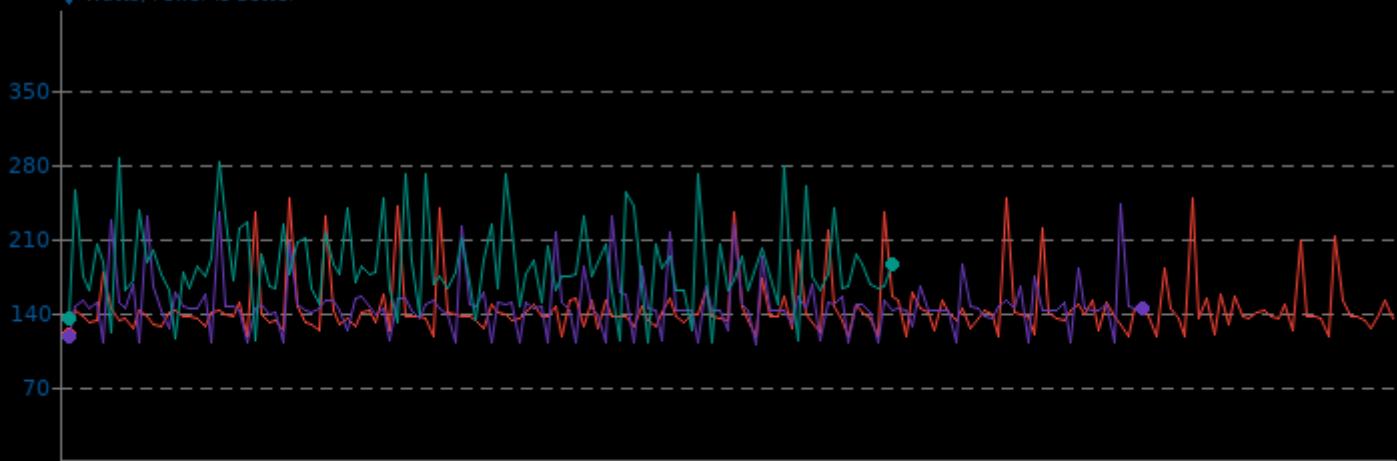
▼ Watts, Fewer Is Better



Renaissance 0.9.0 System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.4	144.4	247.4
Core i9 10980XE	111.5	147.6	242.7
Threadripper 2990WX	113.1	184.8	285.1

▼ Watts, Fewer Is Better

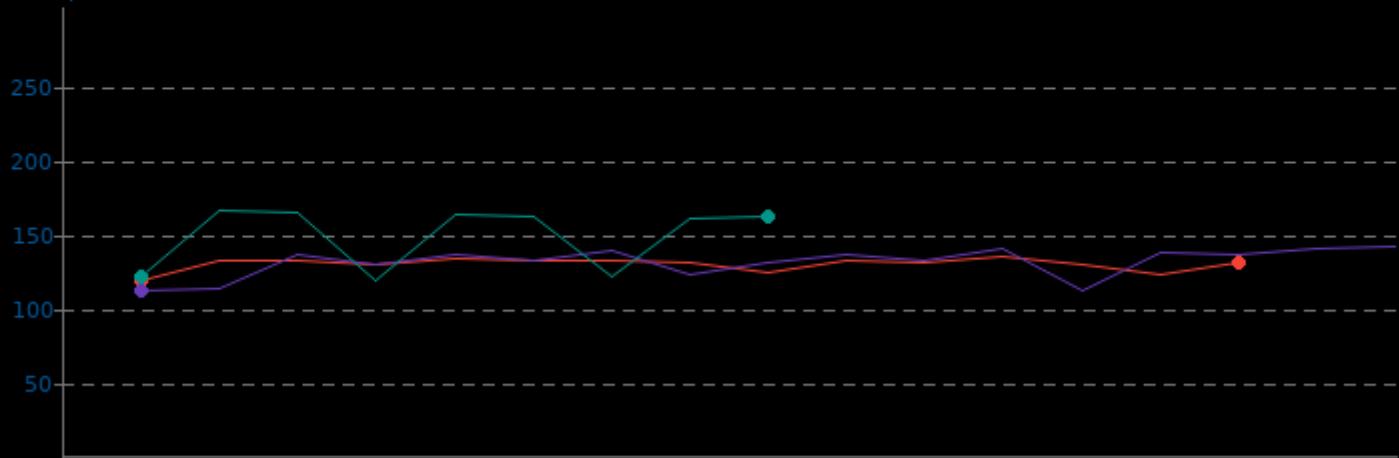


Go Benchmarks

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	119.6	130.3	135.4
Core i9 10980XE	112.7	131.5	142.4
Threadripper 2990WX	119.3	149.0	166.2

▼ Watts, Fewer Is Better

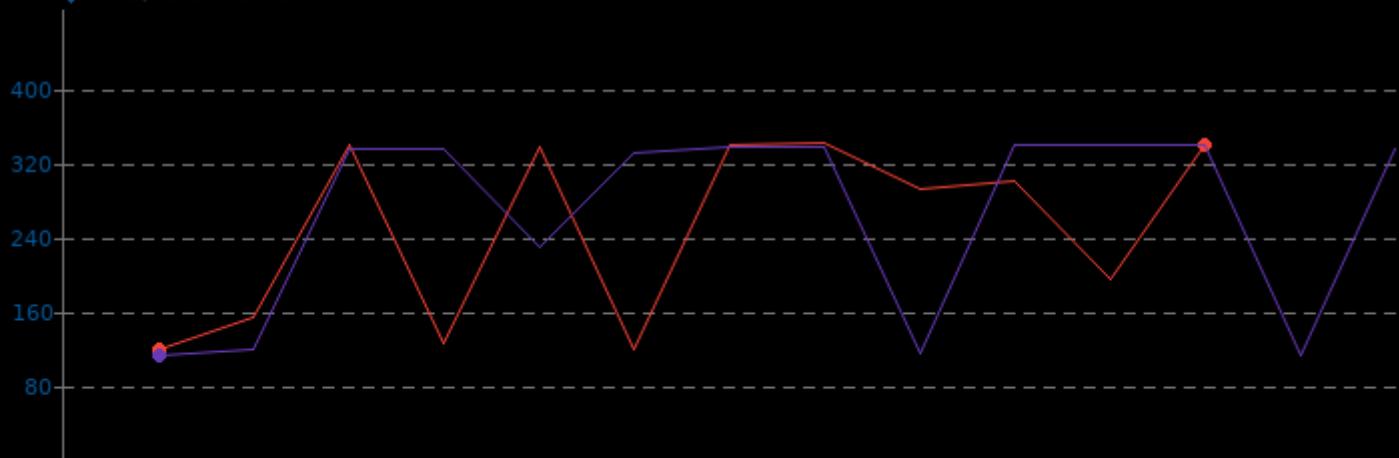


Go Benchmarks

System Power Consumption Monitor

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Core i9 7980XE	119.6	249.8	340.2
Core i9 10980XE	112.7	265.3	339.3

▼ Watts, Fewer Is Better

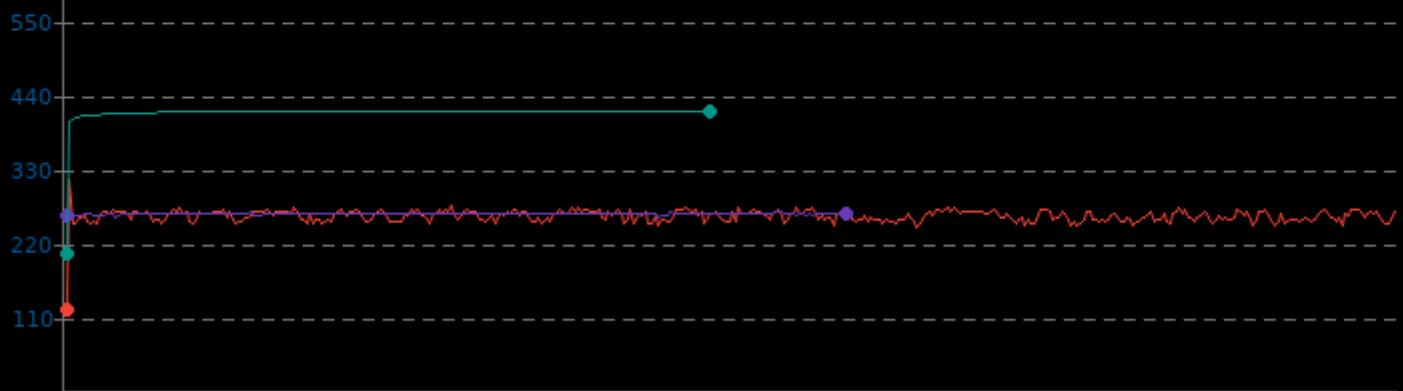


QMCPACK 3.8

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	124.2	261.7	314.9
Core i9 10980XE	260.2	265.2	267.3
Threadripper 2990WX	205.4	414.0	416.4

▼ Watts, Fewer Is Better

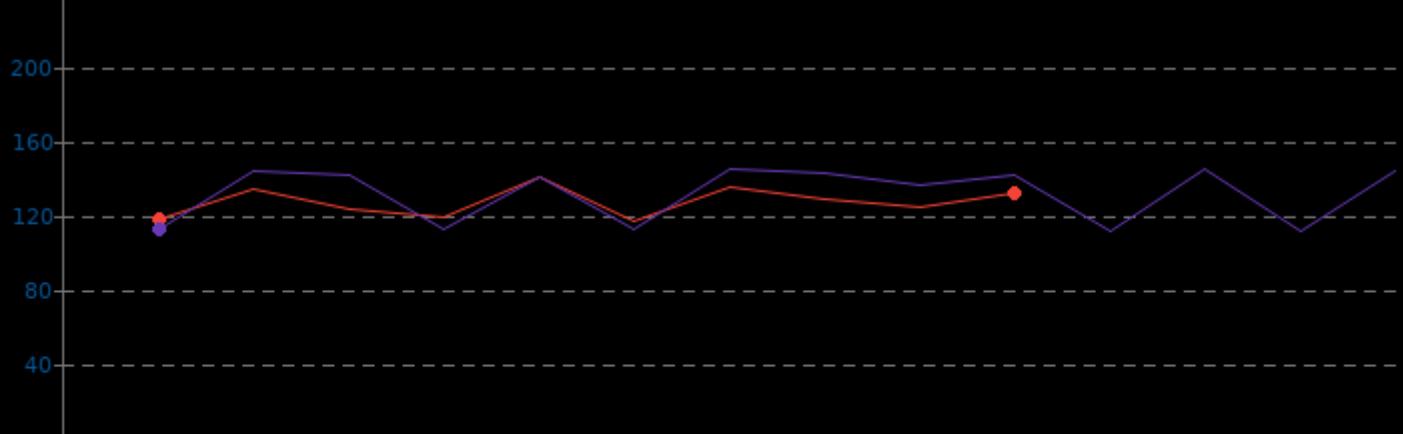


FFTW 3.3.6

System Power Consumption Monitor

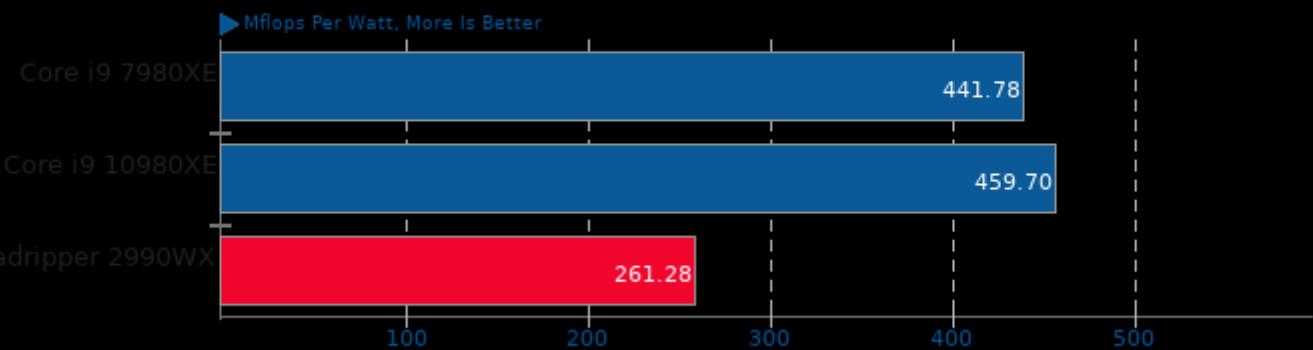
	Min	Avg	Max
Core i9 7980XE	117.0	127.1	140.0
Core i9 10980XE	111.9	131.4	144.8

▼ Watts, Fewer Is Better



FFTW 3.3.6

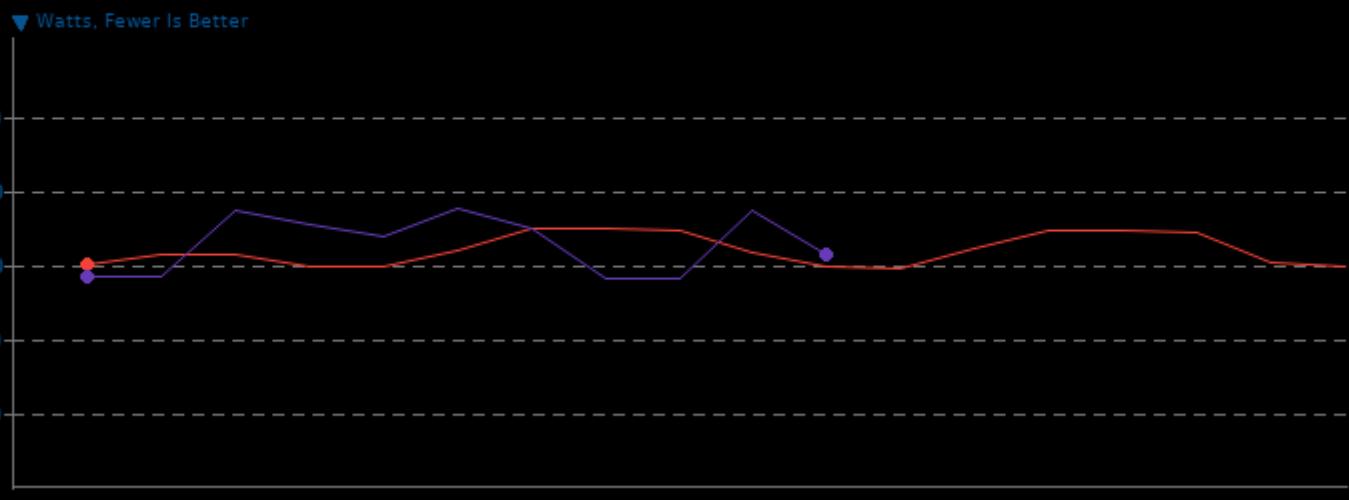
Build: Float + SSE - Size: 1D FFT Size 4096



FFTW 3.3.6

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	117.6	127.6	139.5
Core i9 10980XE	112.1	131.0	149.8

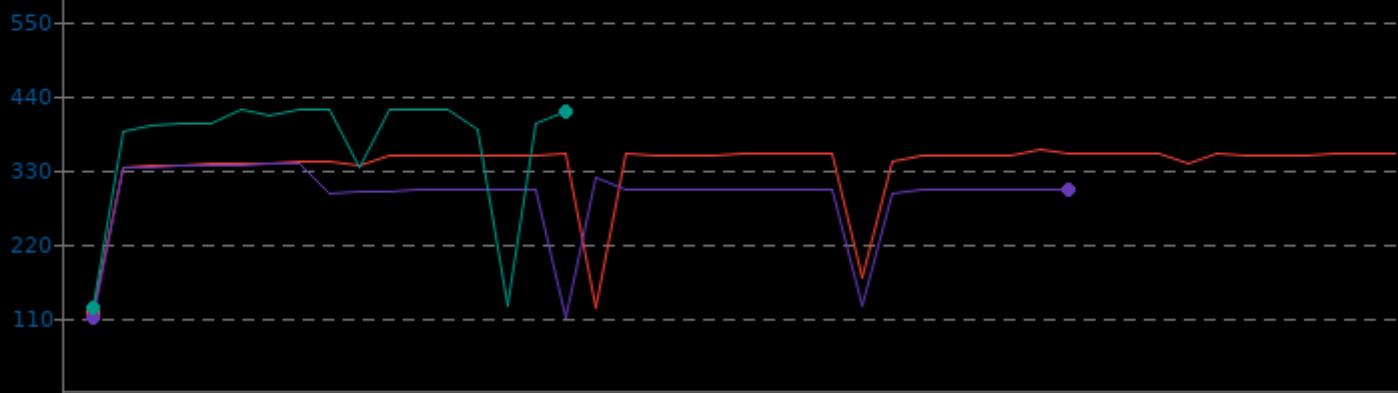


NAMD 2.13b1

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	121.1	334.7	360.4
Core i9 10980XE	112.8	291.8	338.8
Threadripper 2990WX	125.9	369.7	418.8

▼ Watts, Fewer Is Better

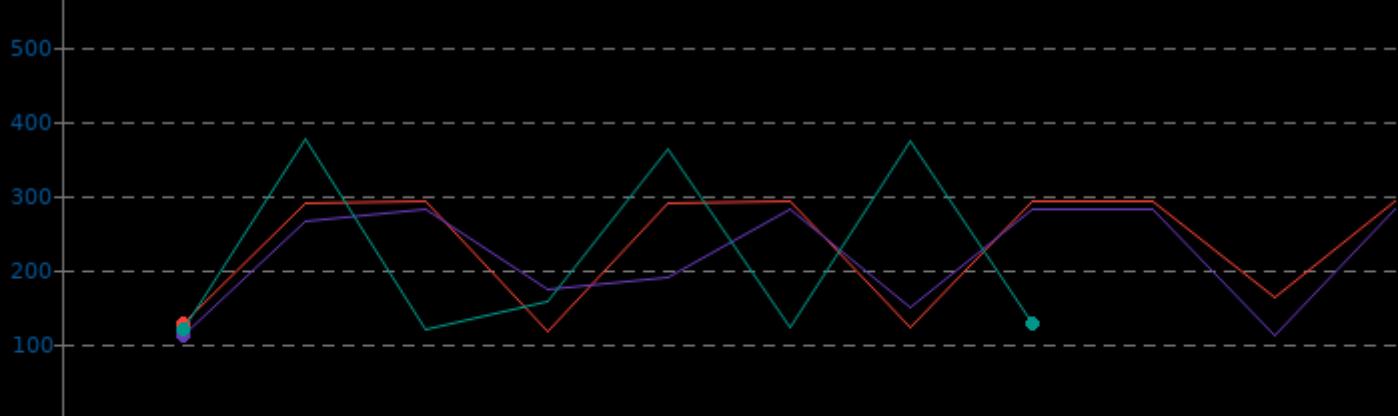


Rodinia 2.4

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	118.8	234.1	292.1
Core i9 10980XE	112.9	219.3	282.4
Threadripper 2990WX	120.5	220.3	375.4

▼ Watts, Fewer Is Better

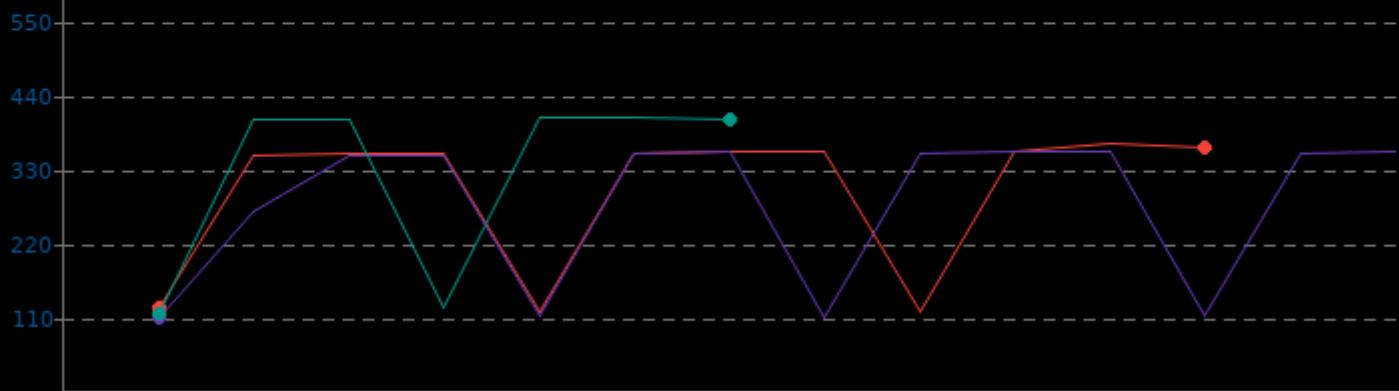


Rodinia 2.4

System Power Consumption Monitor

	Min	Avg	Max
Core i9 7980XE	120.2	298.2	366.9
Core i9 10980XE	112.4	279.6	356.7
Threadripper 2990WX	117.5	324.6	407.6

▼ Watts, Fewer Is Better

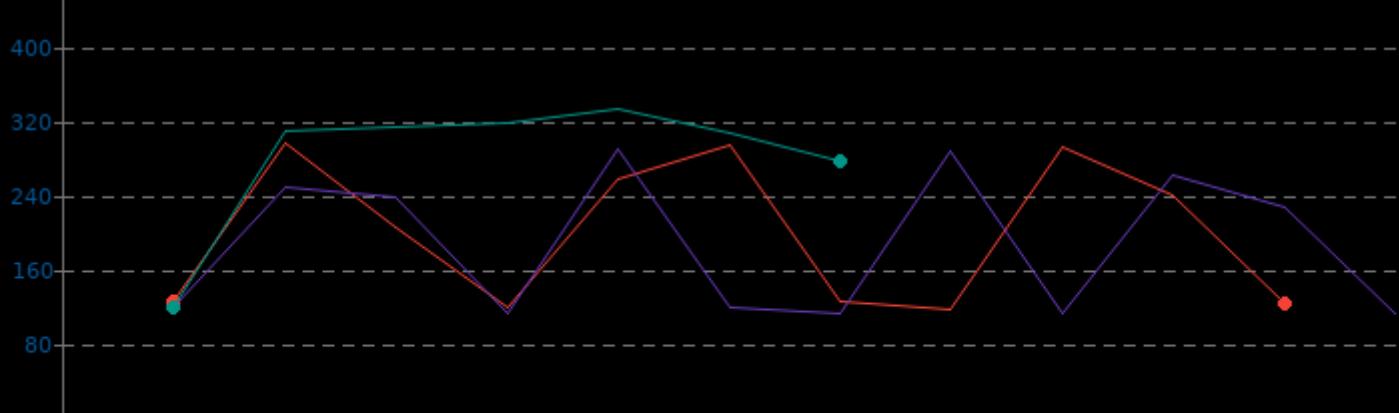


NAS Parallel Benchmarks 3.4

System Power Consumption Monitor

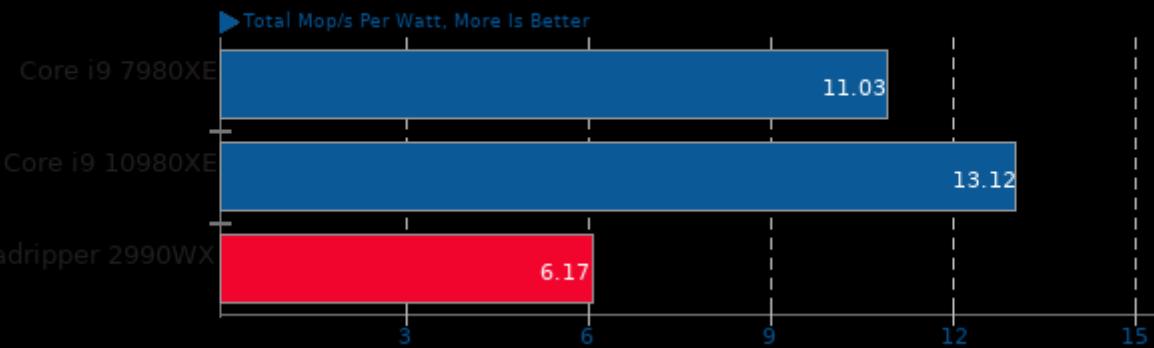
	Min	Avg	Max
Core i9 7980XE	118.6	199.7	294.9
Core i9 10980XE	112.5	186.9	288.7
Threadripper 2990WX	120.0	281.7	332.0

▼ Watts, Fewer Is Better



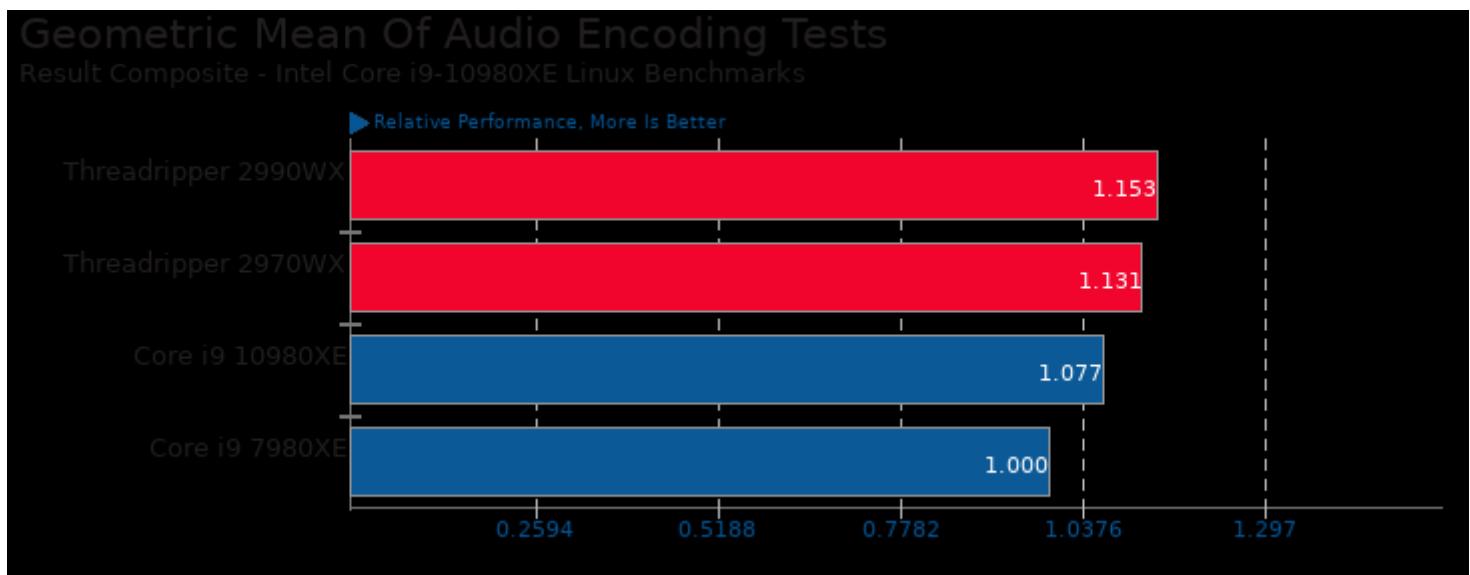
NAS Parallel Benchmarks 3.4

Test / Class: EP.C

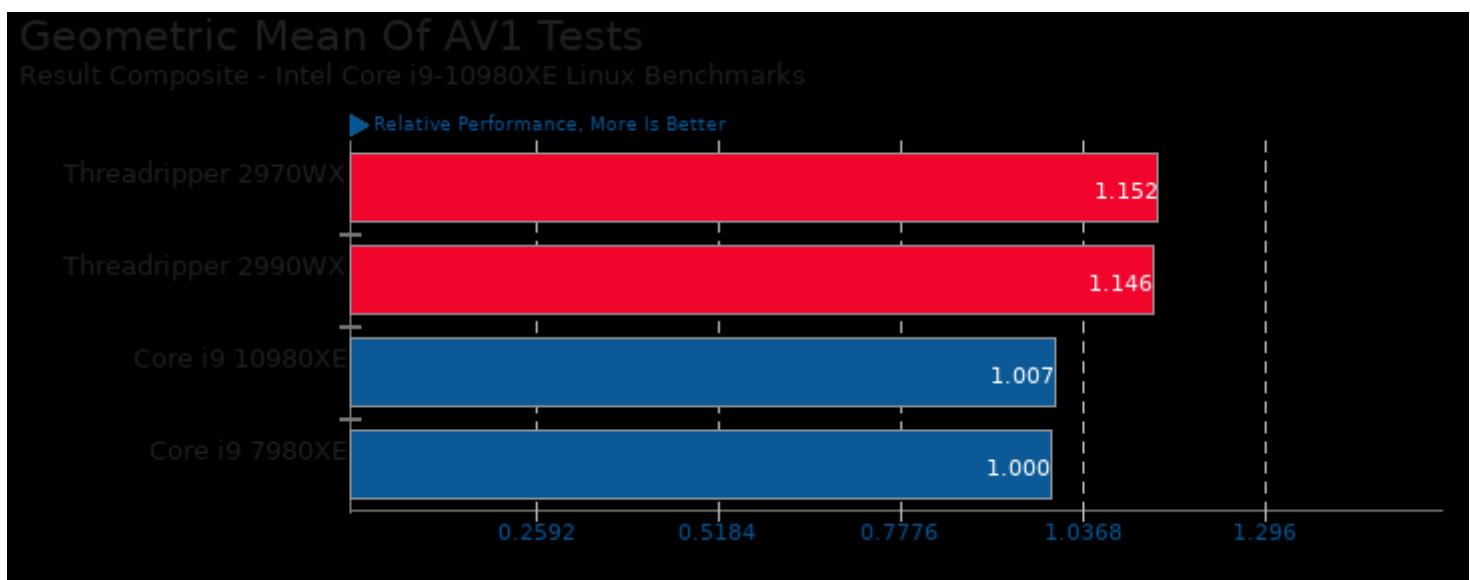


Intel Core i9-10980XE Linux Benchmarks

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



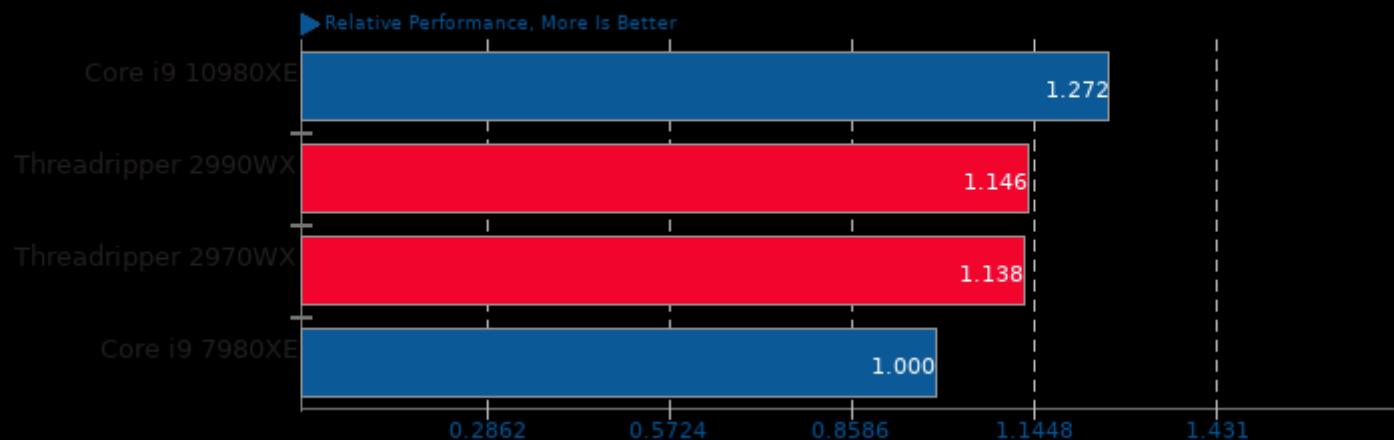
Geometric mean based upon tests: pts/encode-mp3 and pts/encode-flac



Geometric mean based upon tests: pts/dav1d and pts/svt-av1

Geometric Mean Of Web Browsers Tests

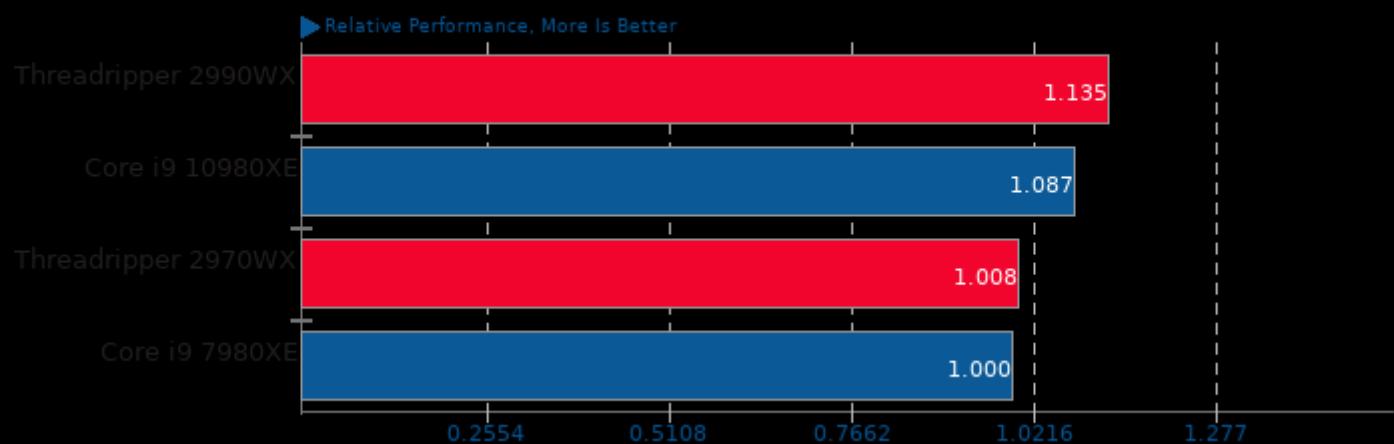
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: system/selenium

Geometric Mean Of Chess Test Suite

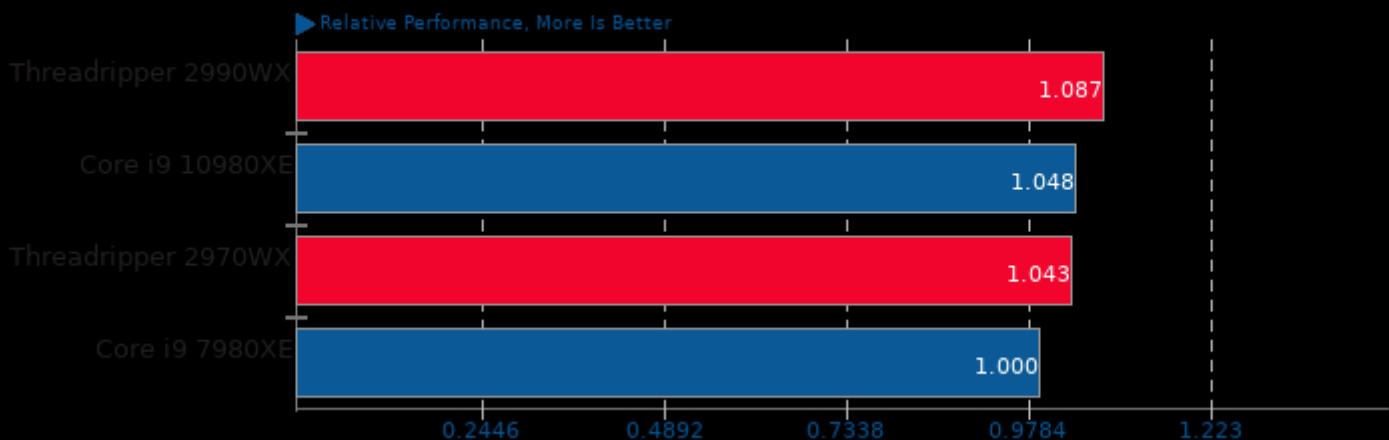
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/crafty, pts/tscp, pts/stockfish and pts/asmfish

Geometric Mean Of Timed Code Compilation Tests

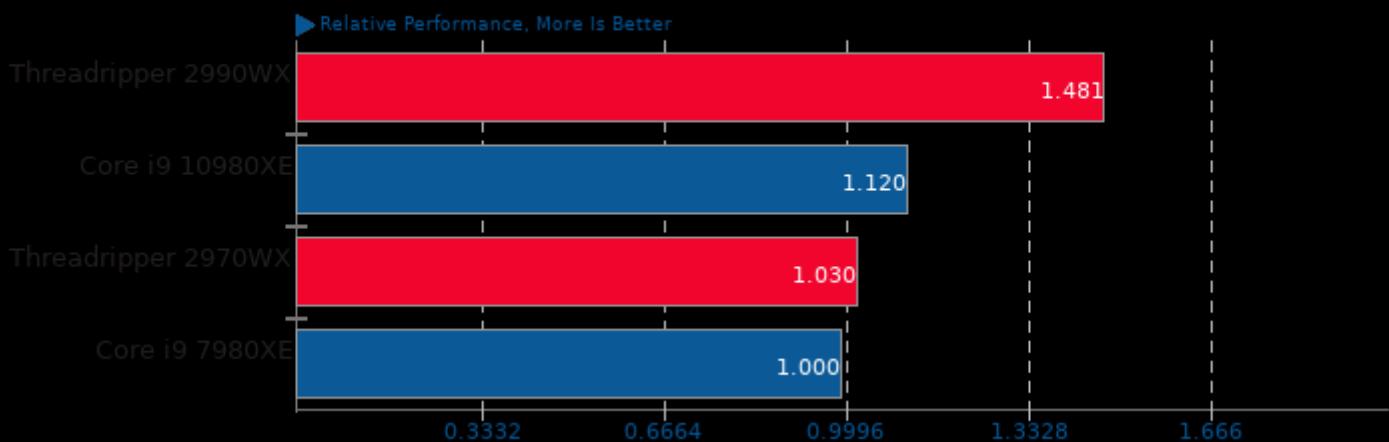
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/build-php, pts/build-linux-kernel and pts/build-llvm

Geometric Mean Of Cryptography Tests

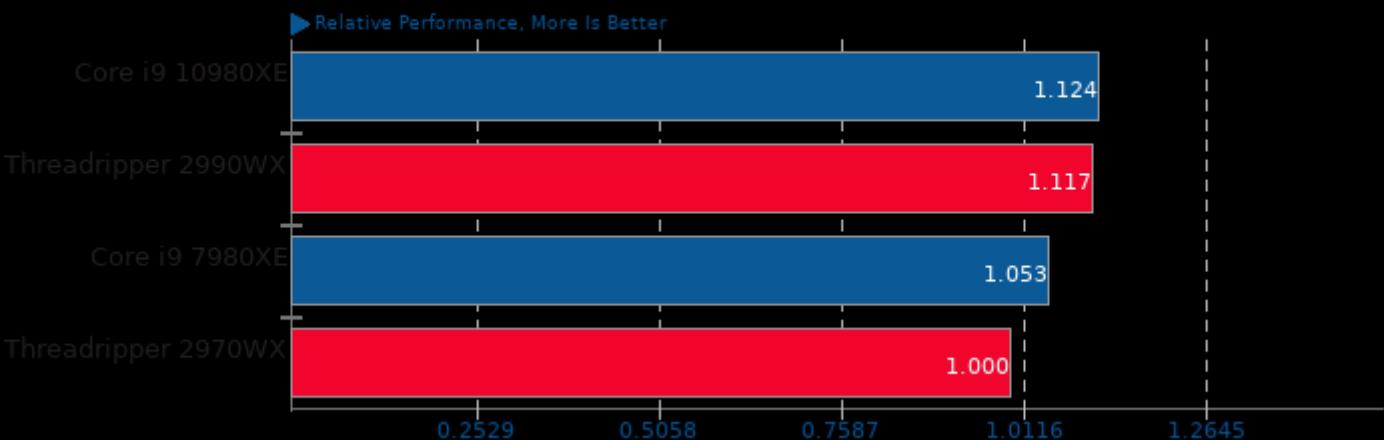
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/openssl and pts/john-the-ripper

Geometric Mean Of Database Test Suite

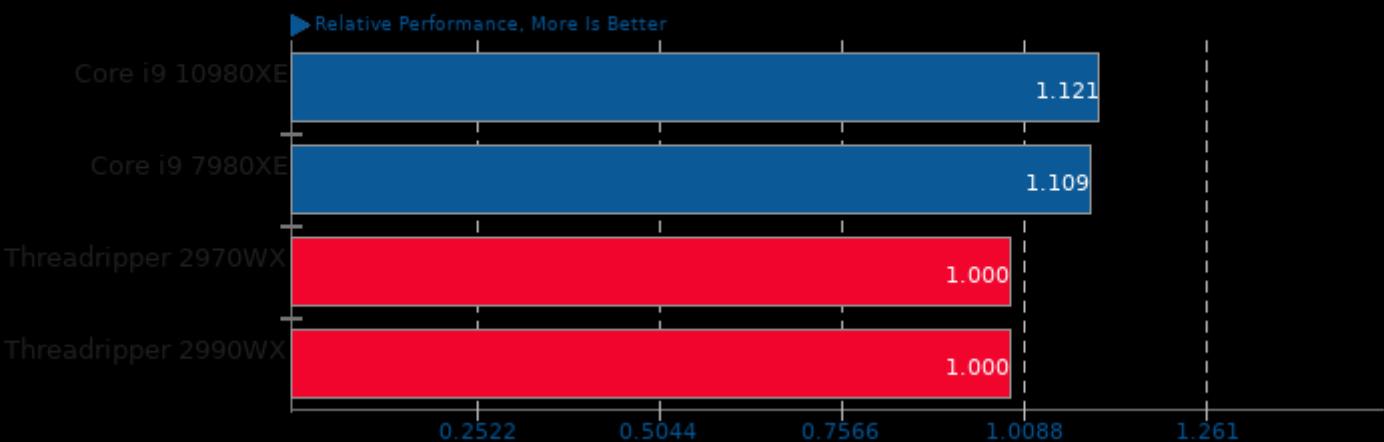
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/redis and pts/rocksdb

Geometric Mean Of Encoding Tests

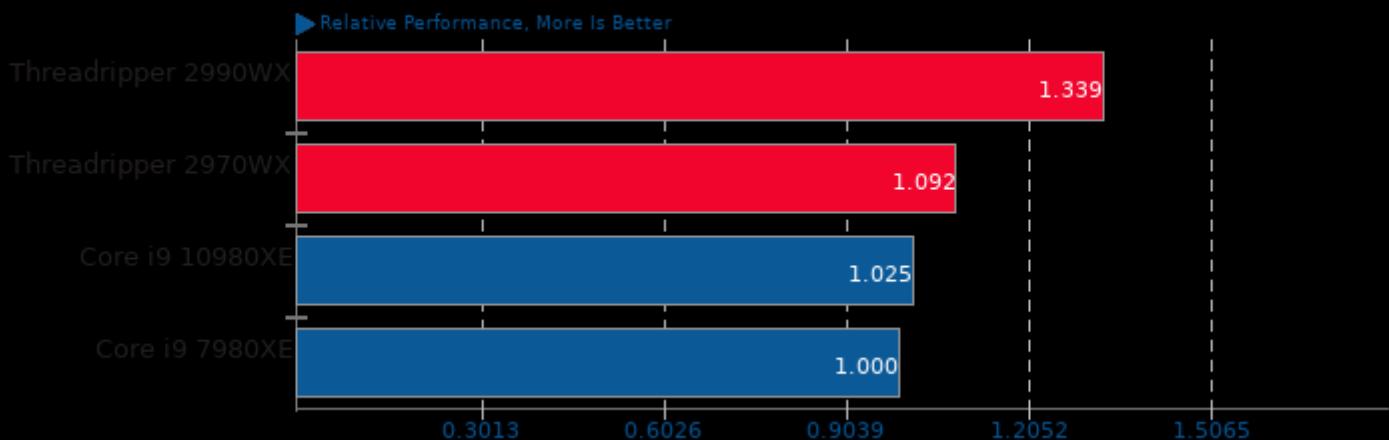
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/encode-mp3, pts/encode-flac, pts/svt-vp9, pts/x264, pts/x265, pts/dav1d and pts/svt-av1

Geometric Mean Of Game Development Tests

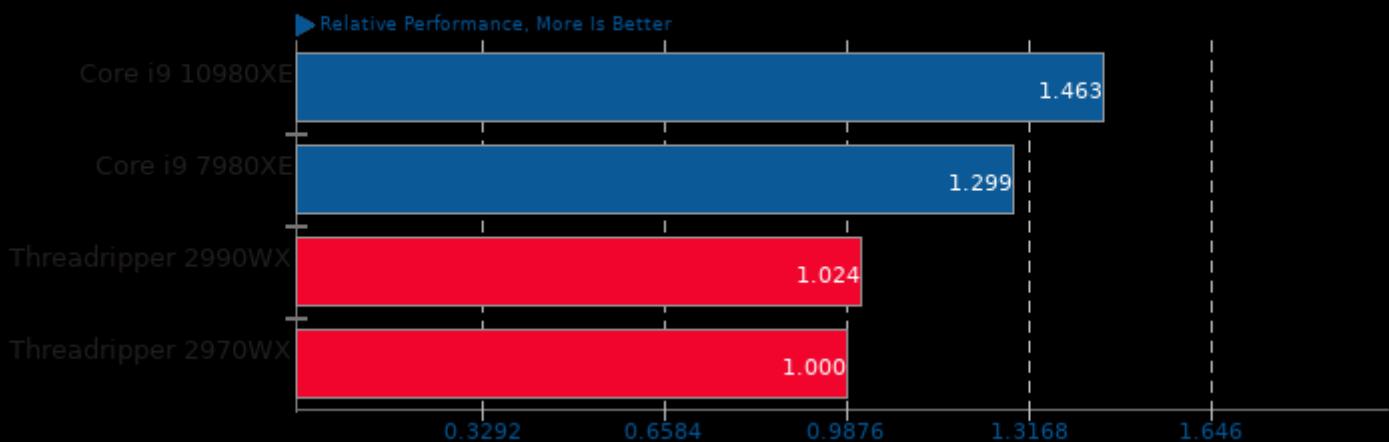
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/luajit and pts/blender

Geometric Mean Of HPC - High Performance Computing Tests

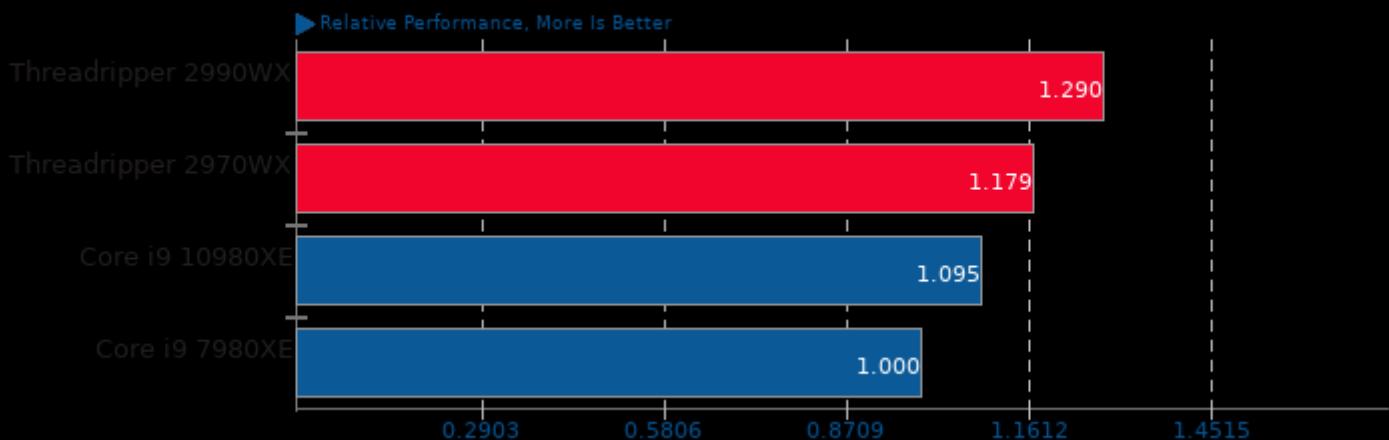
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/npb, pts/rodinia, pts/askap, pts/fftw, system/octave-benchmark, pts/mt-dgemm, pts/namd, pts/qmcpack and pts/rbenchmark

Geometric Mean Of Imaging Tests

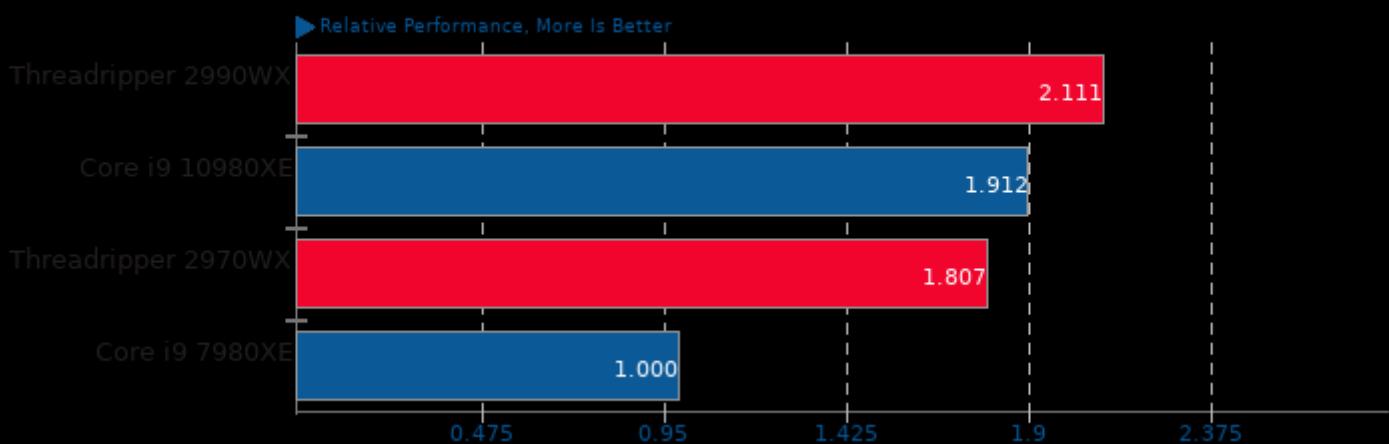
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/graphics-magick, pts/tjbench and pts/dcraw

Geometric Mean Of Common Kernel Benchmarks Tests

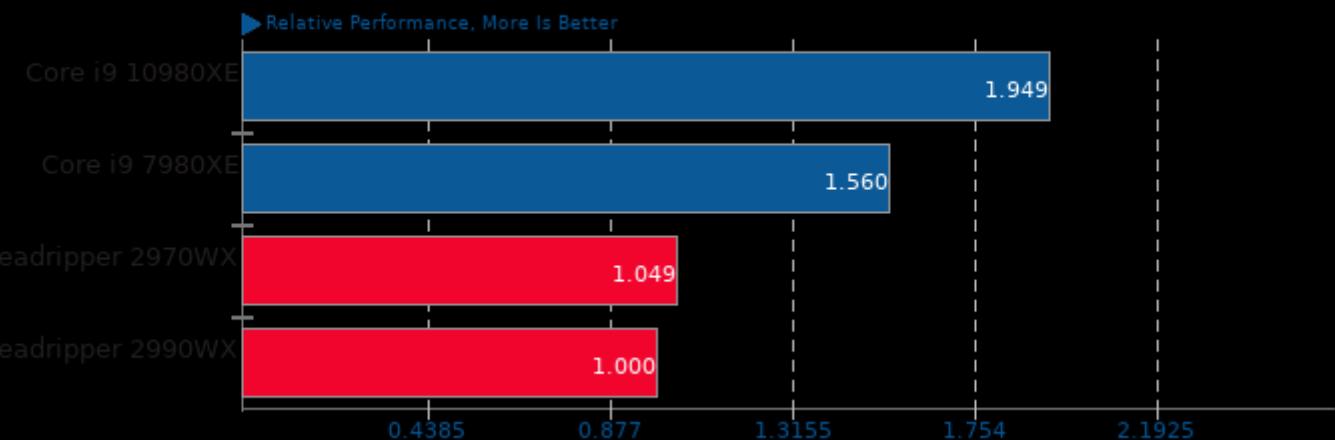
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/openssl, pts/ctx-clock and pts/rocksdb

Geometric Mean Of MPI Benchmarks Tests

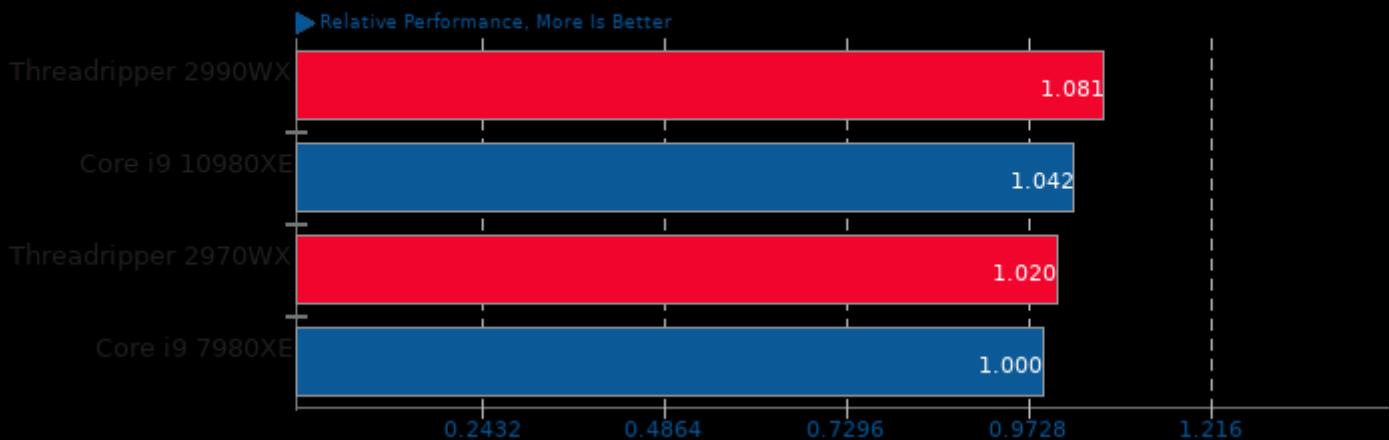
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/askap, pts/qmcpack and pts/npb

Geometric Mean Of NVIDIA GPU Compute Tests

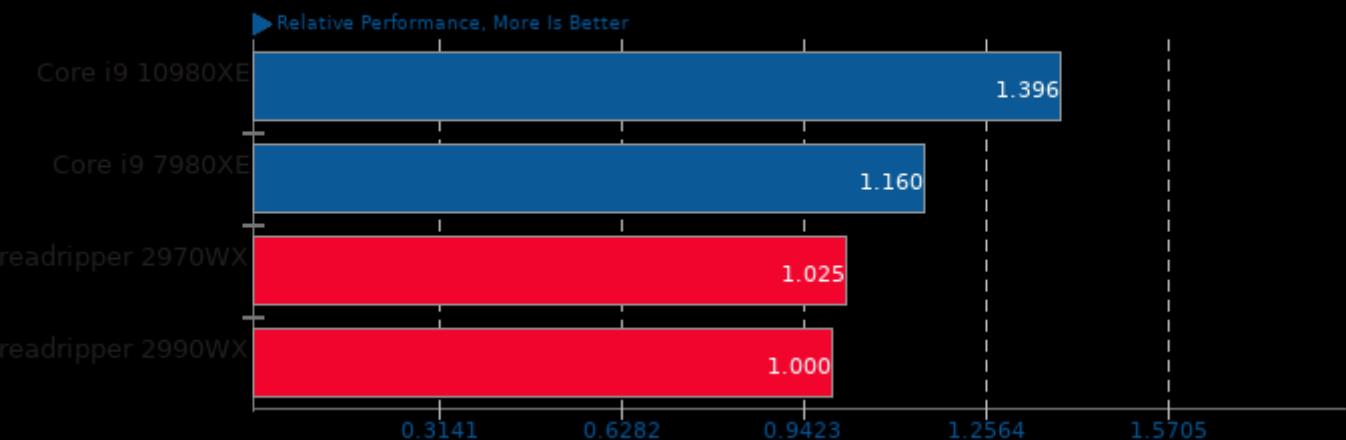
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/luxcorerender, pts/rodinia, pts/indigobench and pts/blender

Geometric Mean Of OpenMPI Tests

Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/qmcpack, pts/askap and pts/rodinia

Geometric Mean Of Programmer / Developer System Benchmarks Tests

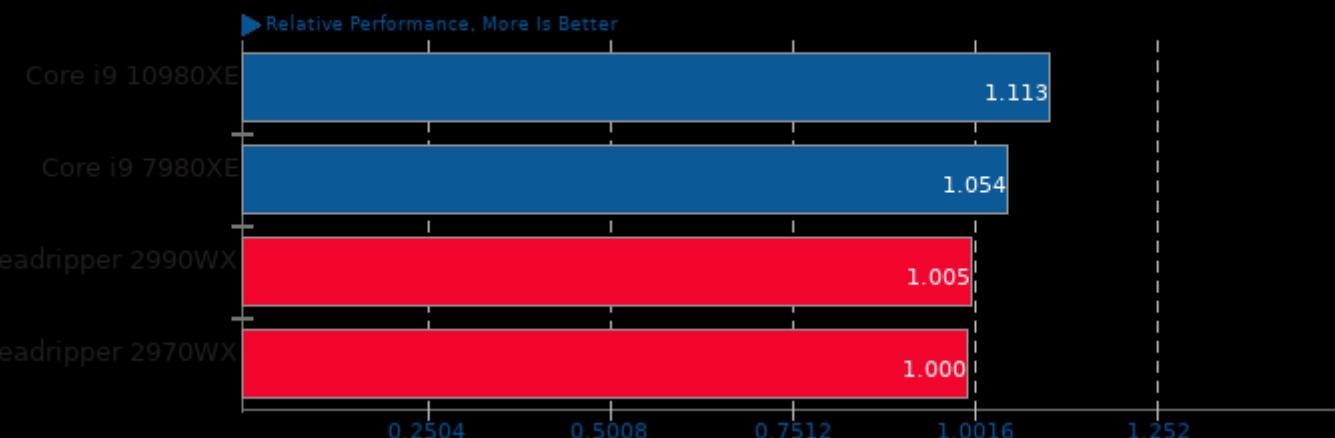
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/pybench, pts/build-php, pts/build-linux-kernel, pts/build-llvm and pts/mt-dgemm

Geometric Mean Of Python Tests

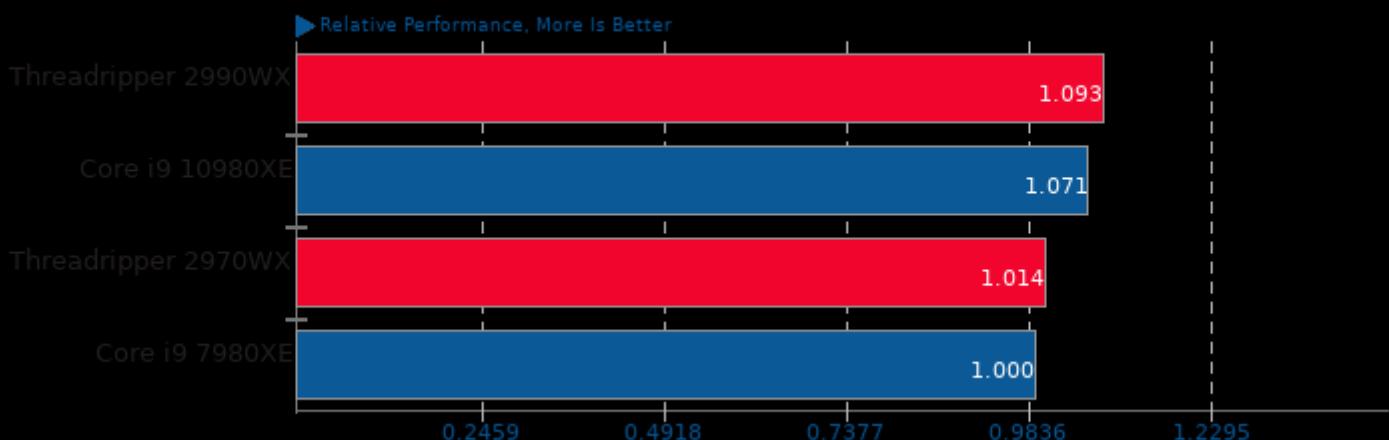
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/build-llvm and pts/pybench

Geometric Mean Of Renderers Tests

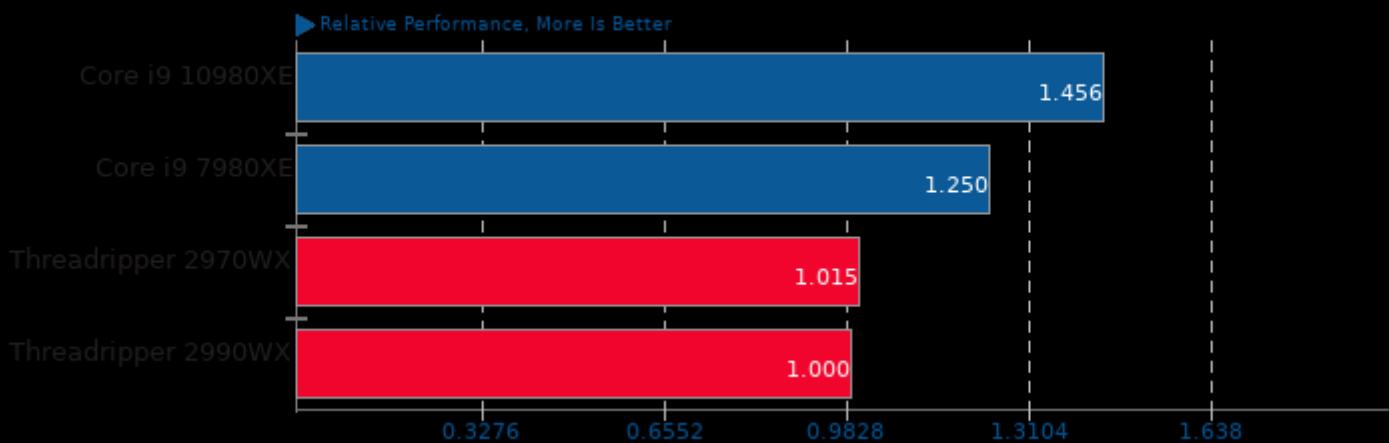
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/c-ray, pts/blender, pts/tungsten, pts/appleseed, pts/radiance, pts/aobench, pts/luxcorerender, pts/smallpt, pts/ttsiod-renderer and pts/indigobench

Geometric Mean Of Scientific Computing Tests

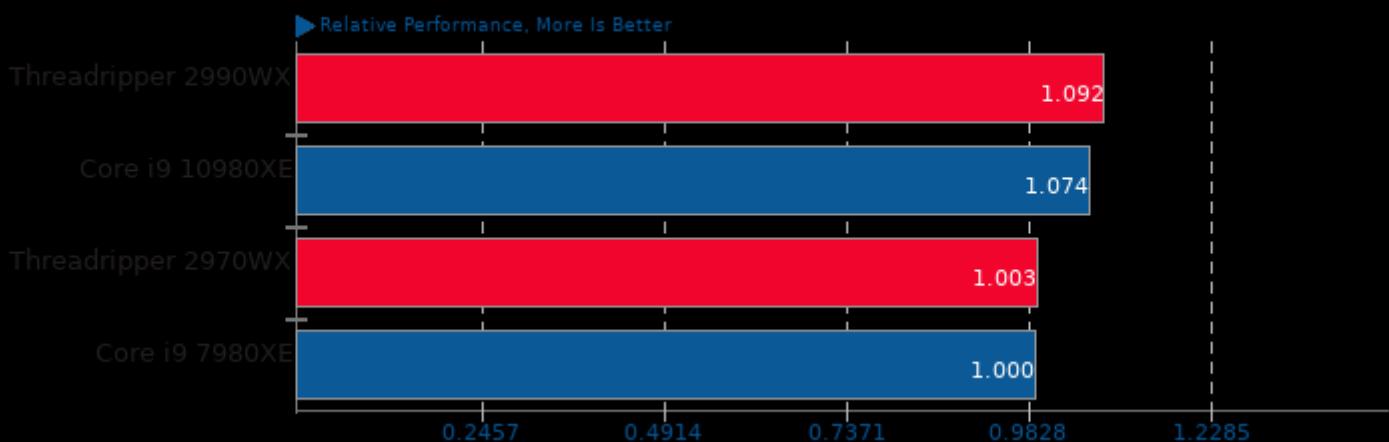
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/fftw, system/octave-benchmark, pts/mt-dgemm, pts/namd and pts/qmcpack

Geometric Mean Of Server Tests

Result Composite - Intel Core i9-10980XE Linux Benchmarks

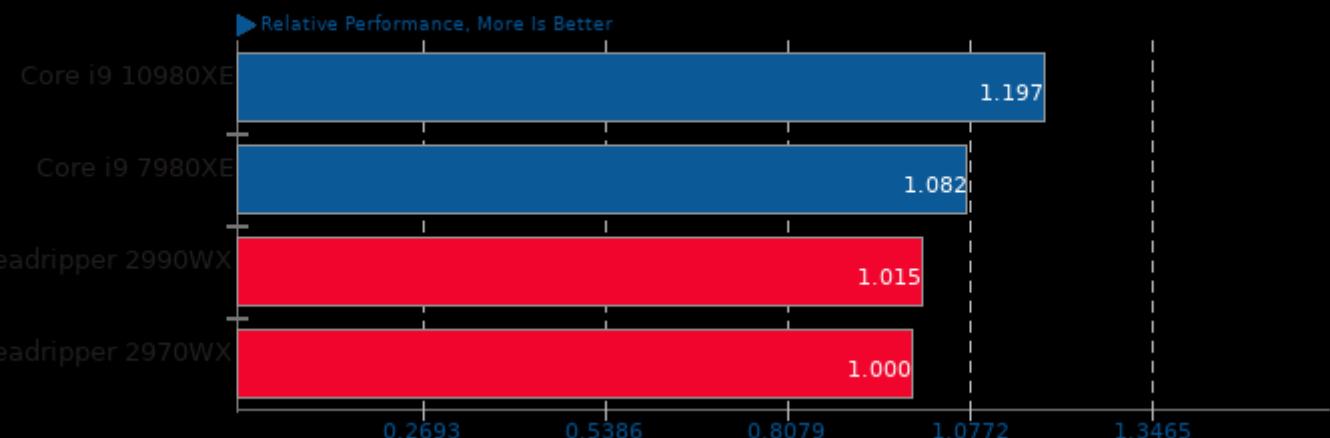


Geometric mean based upon tests: pts/redis, pts/rocksdb, pts/phpbench, pts/openssl and pts/perl-benchmark

Intel Core i9-10980XE Linux Benchmarks

Geometric Mean Of Single-Threaded Tests

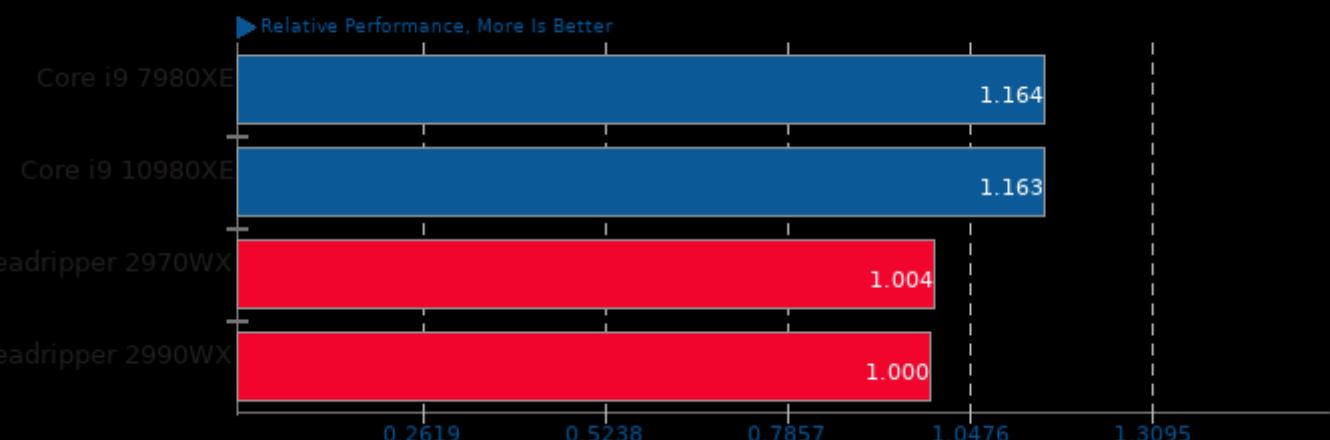
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/gmpbench, pts/luajit, pts/swet, pts/dcraw, pts/encode-flac, pts/encode-mp3, pts/perl-benchmark, pts/radiance, pts/rbenchmark, pts/sudokut, pts/glibc-bench, pts/tjbench, pts/redis, pts/pybench, pts/phpbench, pts/hint and system/tesseract-ocr

Geometric Mean Of Video Encoding Tests

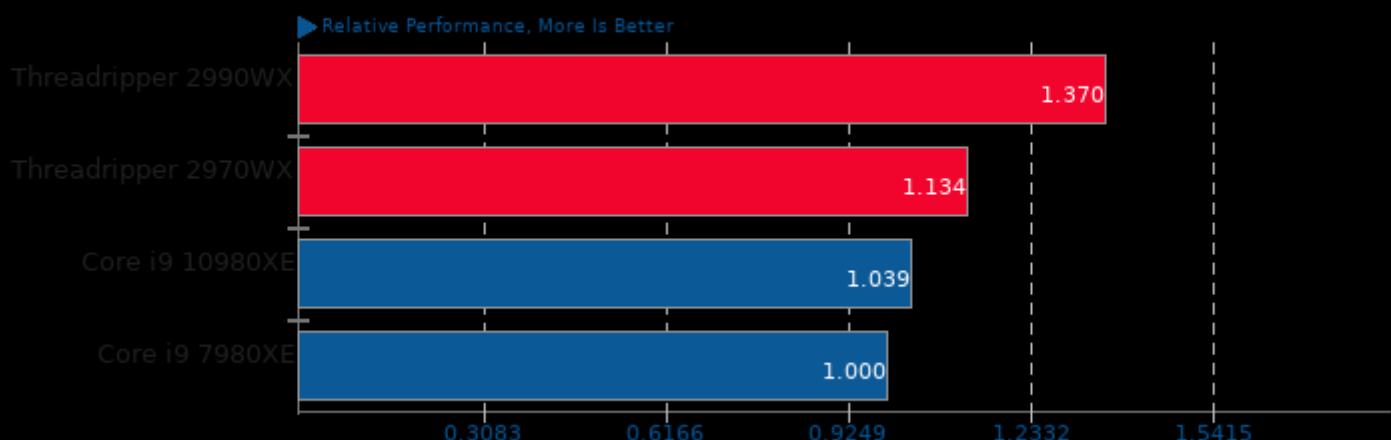
Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/svt-vp9, pts/x264, pts/x265, pts/dav1d and pts/svt-av1

Geometric Mean Of Common Workstation Benchmarks Tests

Result Composite - Intel Core i9-10980XE Linux Benchmarks



Geometric mean based upon tests: pts/blender, pts/rodinia, pts/brl-cad, pts/x265, pts/swet and pts/sysbench

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 15:03.