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Blender 3D Rendering CPU Tests

Tests for a future article on Phoronix.

Test Systems:

Core i7 6800K

Processor: Intel Core i7-6800K @ 3.80GHz (6 Cores / 12 Threads), Motherboard: MSI X99A WORKSTATION (MS-7A54) v1.0, Chipset: Intel Xeon E7 v4/Xeon, Memory: 16384MB, Disk: 2 x 120GB TOSHIBA-TR150, Graphics: NV120 12288MB, Audio: Realtek ALC1150, Monitor: ASUS PB278, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.14.0-999-generic (x86_64) 20171111, Desktop: GNOME Shell 3.26.1, Display Server: Wayland, OpenGL: 4.3 Mesa 17.2.2, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 2560x1440

Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: intel_pstate powersave

Core i7 8700K

Processor: Intel Core i7-8700K @ 4.70GHz (6 Cores / 12 Threads), Motherboard: ASUS PRIME Z370-A, Chipset: Intel Device 3ec2, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + Samsung SSD 950 PRO 256GB, Graphics: MSI AMD Radeon RX 580 8192MB, Audio: Realtek ALC1220, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 17.10, Kernel: 4.14.0-041400-generic (x86_64), Desktop: GNOME Shell 3.26.1, Display Server: Wayland, Display Driver: modesetting 1.19.5, OpenGL: 4.5 Mesa 17.4.0-devel- padoka PPA (LLVM 6.0.0), Vulkan: 1.0.61, Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 3840x2160

Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: intel_pstate powersave

Core i9 7960X

Processor: Intel Core i9-7960X @ 4.40GHz (16 Cores / 32 Threads), Motherboard: MSI X299 SLI PLUS (MS-7A93) v1.0, Chipset: Intel Device 2020, Memory: 16384MB, Disk: 128GB THNSN5128GPU7 TOSHIBA, Graphics: NVIDIA GeForce GTX 980 4096MB, Audio: Realtek Generic, Monitor: DELL P2415Q, Network: Intel Connection

OS: Ubuntu 16.04, Kernel: 4.10.0-041000-generic (x86_64), Desktop: Unity 7.4.0, Display Driver: nouveau 1.0.14, OpenGL: 4.3 Mesa 17.0.7 Gallium 0.4, Compiler: GCC 5.4.0 20160609, File-System: ext4, Screen Resolution: 3840x2160

Processor Notes: Scaling Governor: intel_pstate powersave

Core i9 7980XE

Processor: Intel Core i9-7980XE @ 4.40GHz (18 Cores / 36 Threads), Motherboard: ASUS PRIME X299-A, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16384MB, Disk: 525GB Crucial_CT525MX3 + 120GB Force MP500, Graphics: AMD Radeon 8192MB, Audio: Realtek ALC1220, Monitor: Acer B286HK, Network: Intel Connection

OS: Ubuntu 18.04, Kernel: 4.14.0-999-generic (x86_64) 20171119, Desktop: GNOME Shell 3.26.2, Display Server: Wayland, OpenGL: 4.5 Mesa 17.2.2 (LLVM 5.0.0), Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 3840x2160

Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: intel_pstate powersave

Intel Xeon Silver 4108

Processor: Intel Xeon Silver 4108 @ 3.00GHz (8 Cores / 16 Threads), Motherboard: TYAN S7100AG2NR, Chipset: Intel Device 2020, Memory: 23552MB, Disk: 240GB Force MP500, Graphics: LLVMpipe, Audio: Realtek ALC892, Monitor: VE228, Network: Intel I350 Gigabit Connection

OS: Ubuntu 17.04, Kernel: 4.13.0-041300-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: modesetting 1.19.3, OpenGL: 3.3 Mesa 17.0.7 Gallium 0.4 (LLVM 4.0 256 bits), Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: LIBGL_ALWAYS_SOFTWARE=1
Processor Notes: Scaling Governor: intel_pstate powersave

2 x Intel Xeon Gold 6138

Processor: 2 x Intel Xeon Gold 6138 @ 3.70GHz (40 Cores / 80 Threads), Motherboard: TYAN S7106, Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 96256MB, Disk: 256GB Samsung SSD 850 + 2000GB Seagate

ST2000DM006-2DM1 + 2 x 120GB TOSHIBA-TR150, Graphics: llvmpipe 95360MB, Monitor: VE228, Network: Intel I210 Gigabit Connection

OS: Ubuntu 18.04, Kernel: 4.13.0-16-generic (x86_64), Desktop: GNOME Shell 3.26.2, Display Driver: modesetting 1.19.5, OpenGL: 3.3 Mesa 17.2.2 (LLVM 5.0 256 bits), Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: intel_pstate powersave

Ryzen 7 1700

Processor: AMD Ryzen 7 1700 Eight-Core @ 3.00GHz (8 Cores / 16 Threads), Motherboard: MSI B350 TOMAHAWK (MS-7A34) v1.0, Chipset: AMD Device 1450, Memory: 16384MB, Disk: 120GB Samsung SSD 840, Graphics: llvmpipe 16128MB, Audio: AMD Cape Verde/Pitcairn, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 17.10, Kernel: 4.13.0-12-generic (x86_64), Desktop: GNOME Shell 3.26.0, Display Driver: modesetting 1.19.3, OpenGL: 3.3 Mesa 17.2.0 (LLVM 5.0 128 bits), Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 1024x768

Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: acpi-cpufreq ondemand

Ryzen 7 1800X

Processor: AMD Ryzen 7 1800X Eight-Core @ 3.60GHz (8 Cores / 16 Threads), Motherboard: MSI X370 XPOWER GAMING TITANIUM (MS-7A31) v1.0, Chipset: AMD Device 1450, Memory: 16384MB, Disk: 128GB INTEL SSDPEKKW128G7, Graphics: AMD Radeon RX 460, Audio: AMD Device aae0, Network: Intel I211 Gigabit Connection

OS: Ubuntu 17.04, Kernel: 4.13.0-041300-generic (x86_64), Desktop: Unity 7.5.0, Display Server: X Server 1.19.3, Display Driver: modesetting 1.19.3, OpenGL: 3.3 Mesa 17.0.7 Gallium 0.4 (LLVM 4.0 256 bits), Compiler: GCC 6.3.0 20170406, File-System: ext4, Screen Resolution: 1920x1080

Processor Notes: Scaling Governor: acpi-cpufreq performance

Ryzen Threadripper 1950X

Processor: AMD Ryzen Threadripper 1950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: Gigabyte X399 AORUS Gaming 7, Chipset: AMD Device 1450, Memory: 16384MB, Disk: 120GB Force MP500, Graphics: MSI AMD Radeon R7 370 / R9 270/370 OEM 4096MB, Audio: Realtek ALC1220, Monitor: VE228, Network: Qualcomm Atheros Device e0b1 + Intel Wireless 8265 / 8275

OS: Ubuntu 17.10, Kernel: 4.13.0-17-generic (x86_64), Desktop: GNOME Shell 3.26.1, Display Server: Wayland, OpenGL: 4.5 Mesa 17.2.2 (LLVM 5.0.0), Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: acpi-cpufreq ondemand

AMD EPYC 7601

Processor: AMD EPYC 7601 32-Core @ 2.20GHz (32 Cores / 64 Threads), Motherboard: TYAN B8026T70AE24HR, Chipset: AMD Device 1450, Memory: 129024MB, Disk: 120GB Force MP500, Graphics: llvmpipe 128896MB, Monitor: VE228, Network: Broadcom Limited NetXtreme BCM5720 Gigabit PCIe

OS: Ubuntu 17.10, Kernel: 4.14.0-999-generic (x86_64) 20171119, Desktop: GNOME Shell 3.26.1, Display Driver: modesetting 1.19.5, OpenGL: 3.3 Mesa 17.2.2 (LLVM 5.0 128 bits), Compiler: GCC 7.2.0, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: GJS_DEBUG_TOPICS=JS ERROR;JS LOG GJS_DEBUG_OUTPUT=stderr
Processor Notes: Scaling Governor: acpi-cpufreq ondemand

Ryzen 5 1600X

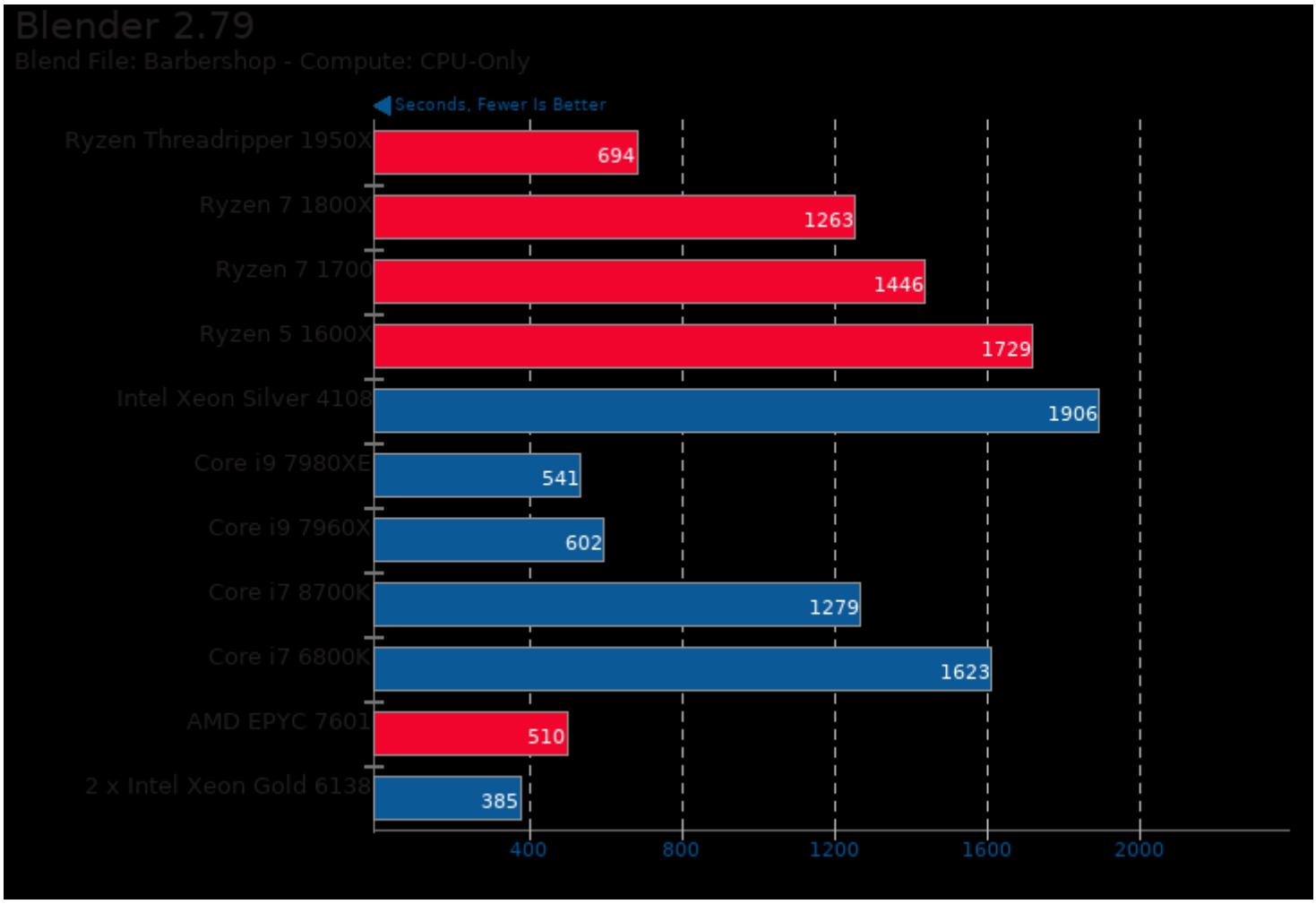
Processor: AMD Ryzen 5 1600X Six-Core @ 3.60GHz (6 Cores / 12 Threads), Motherboard: ASUS PRIME B350M-A (5007 BIOS), Chipset: AMD Family 17h, Memory: 16384MB, Disk: Samsung SSD 960 EVO 500GB + 2000GB Samsung SSD 860, Graphics: MSI AMD Radeon RX 550 640SP / 560/560X 4GB (1196/1750MHz), Audio: AMD Baffin HDMI/DP, Monitor: PHL 276E8V, Network: Realtek RTL8111/8168/8411

OS: Fedora 29, Kernel: 5.1.16-200.fc29.x86_64 (x86_64), Desktop: GNOME Shell 3.30.2, Display Server: X Server 1.19.6 + Wayland, Display Driver: modesetting 1.19.6, OpenGL: 4.5 Mesa 18.3.6 (LLVM 7.0.1), OpenCL: OpenCL 1.2 LINUX + OpenCL 2.1 AMD-APP (2833.0) + OpenCL 2.0 beignet 1.3 + OpenCL 1.1 Mesa 18.3.6 + OpenCL 1.2 pocl 1.2 RelWithDebInfo LLVM 7.0.1 SLEEF DISTRO POCL_DEBUG, Compiler: Clang 7.0.1, File-System: ext4, Screen Resolution: 3840x2160

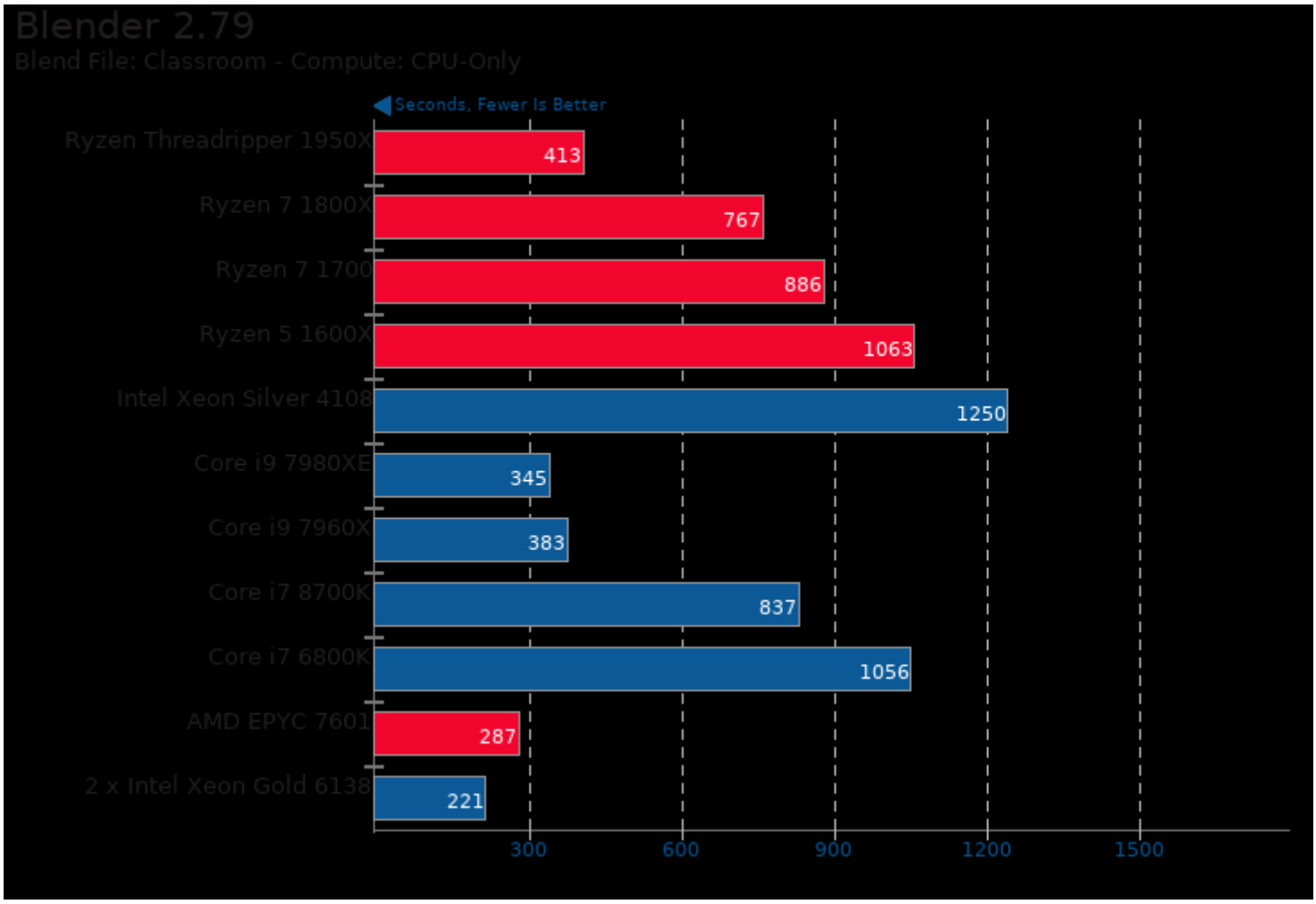
Processor Notes: Scaling Governor: acpi-cpufreq ondemand
Security Notes: SELinux + __user pointer sanitization + Full AMD retpoline IBPB: conditional STIBP: disabled RSB filling + SSB disabled via prctl and seccomp

	Core i7 6800K	Core i7 8700K	Core i9 7960X	Core i9 7980XE	Intel Xeon Silver 4108	2 x Intel Xeon Gold 6138	Ryzen 7 1700	Ryzen 7 1800X	Ryzen Threadripper 1950X	AMD EPYC 7601	Ryzen 5 1600X
Blender - Barbershop - CPU-Only (sec)	1623	1279	602	541	**1906**	**385**	1446	1263	694	510	1729
Normalized	23.72%	30.1%	63.95%	71.16%	20.2%	100%	26.63%	30.48%	55.48%	75.49%	22.27%
Blender - Classroom - CPU-Only (sec)	1056	837	383	345	**1250**	**221**	886	767	413	287	1063
Normalized	20.93%	26.4%	57.7%	64.06%	17.68%	100%	24.94%	28.81%	53.51%	77%	20.79%
Blender - Pabellon Barcelona - CPU-Only (sec)	856	680	310	279	**1023**	**180**	718	622	337	241	872
Normalized	21.03%	26.47%	58.06%	64.52%	17.6%	100%	25.07%	28.94%	53.41%	74.69%	20.64%
Blender - Fishy Cat - CPU-Only	494	386	186	173	**649**	**118**	404	349	192	141	489
Normalized	23.89%	30.57%	63.44%	68.21%	18.18%	100%	29.21%	33.81%	61.46%	83.69%	24.13%
Blender - BMW27 - CPU-Only (sec)	344.23	268.10	130	117.68	**434.86**	**77.79**	290.77	250.44	138.09	103.13	342.30
Normalized	22.6%	29.02%	59.84%	66.1%	17.89%	100%	26.75%	31.06%	56.33%	75.43%	22.73%

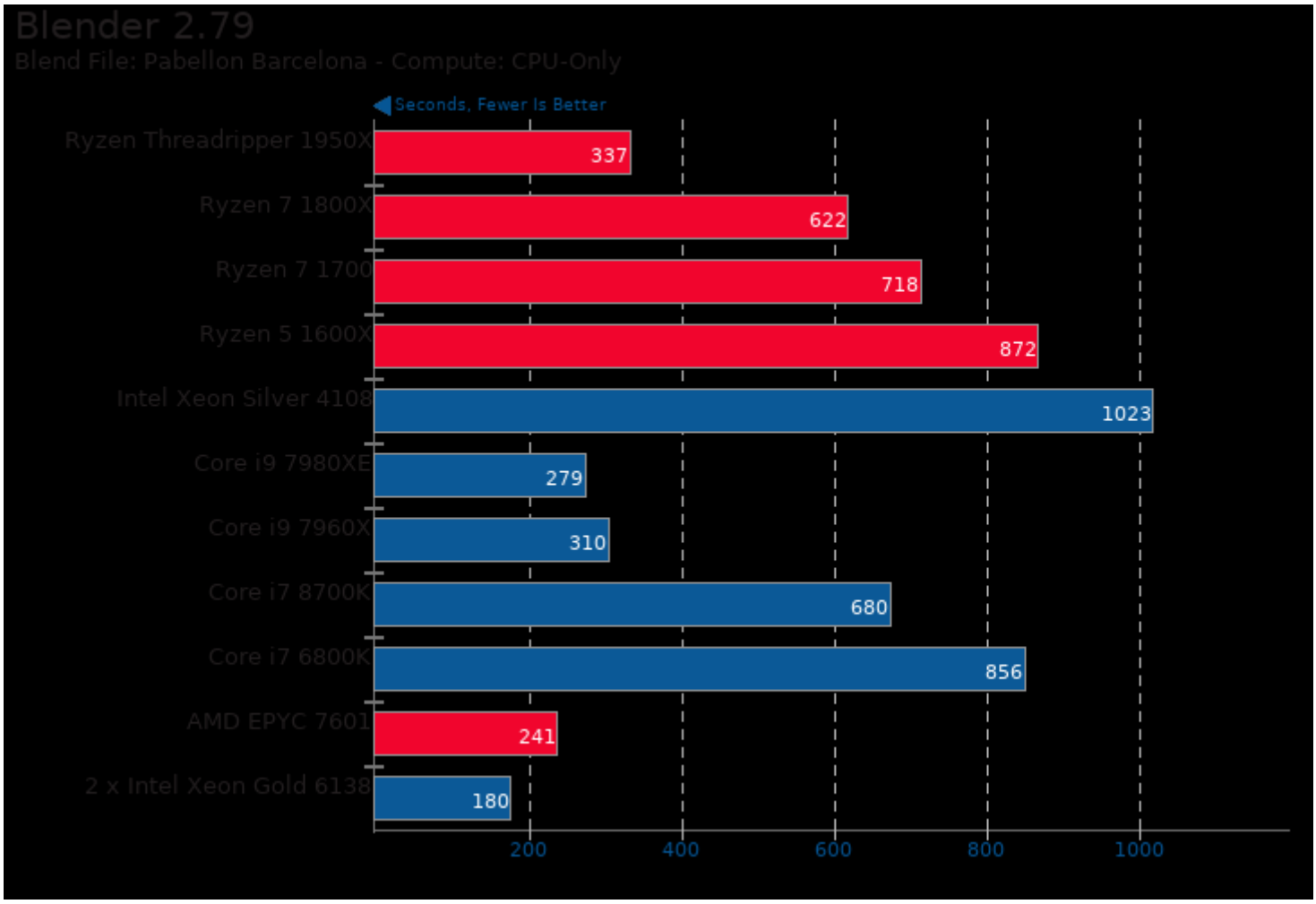
Blender 3D Rendering CPU Tests



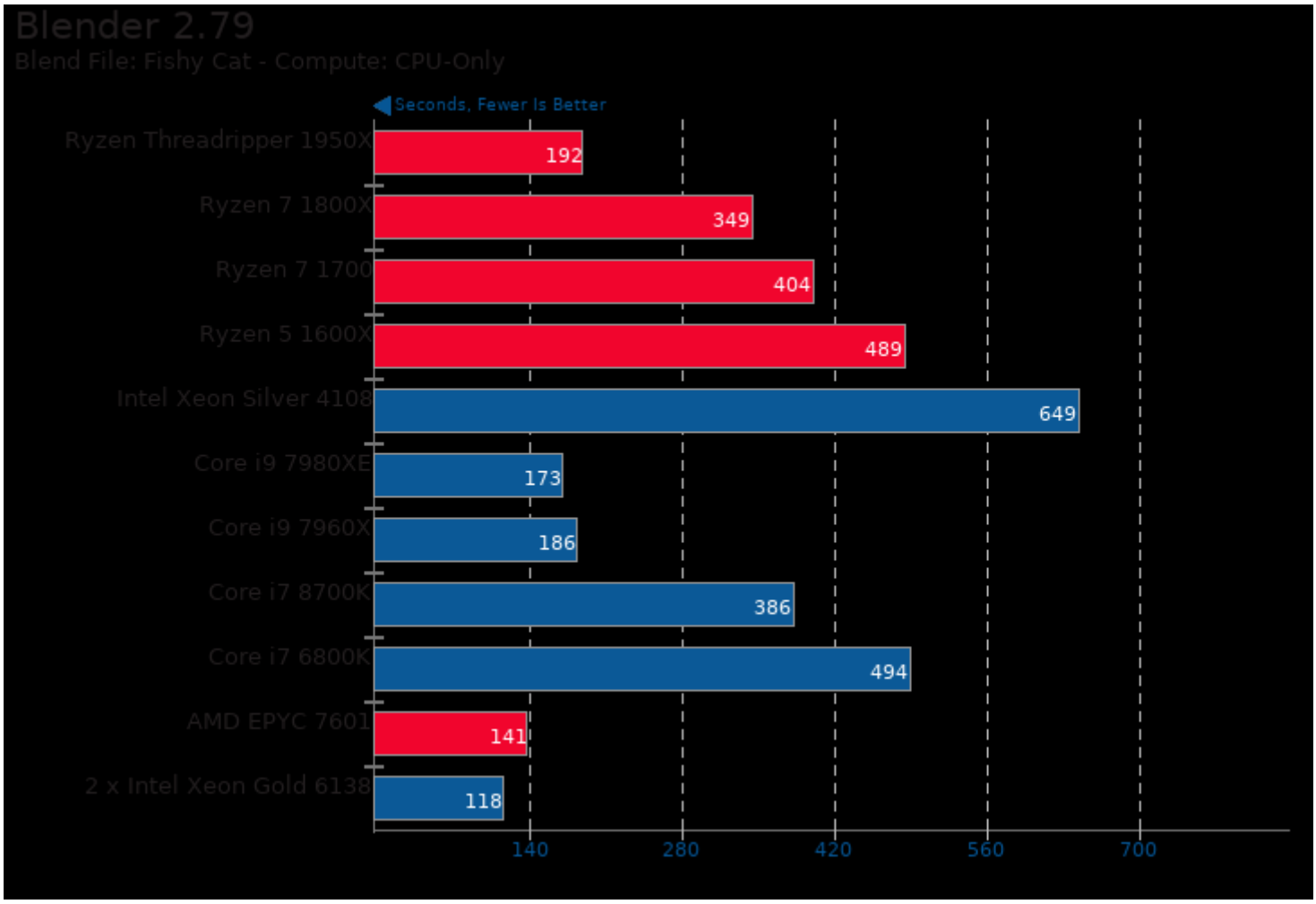
Blender 3D Rendering CPU Tests



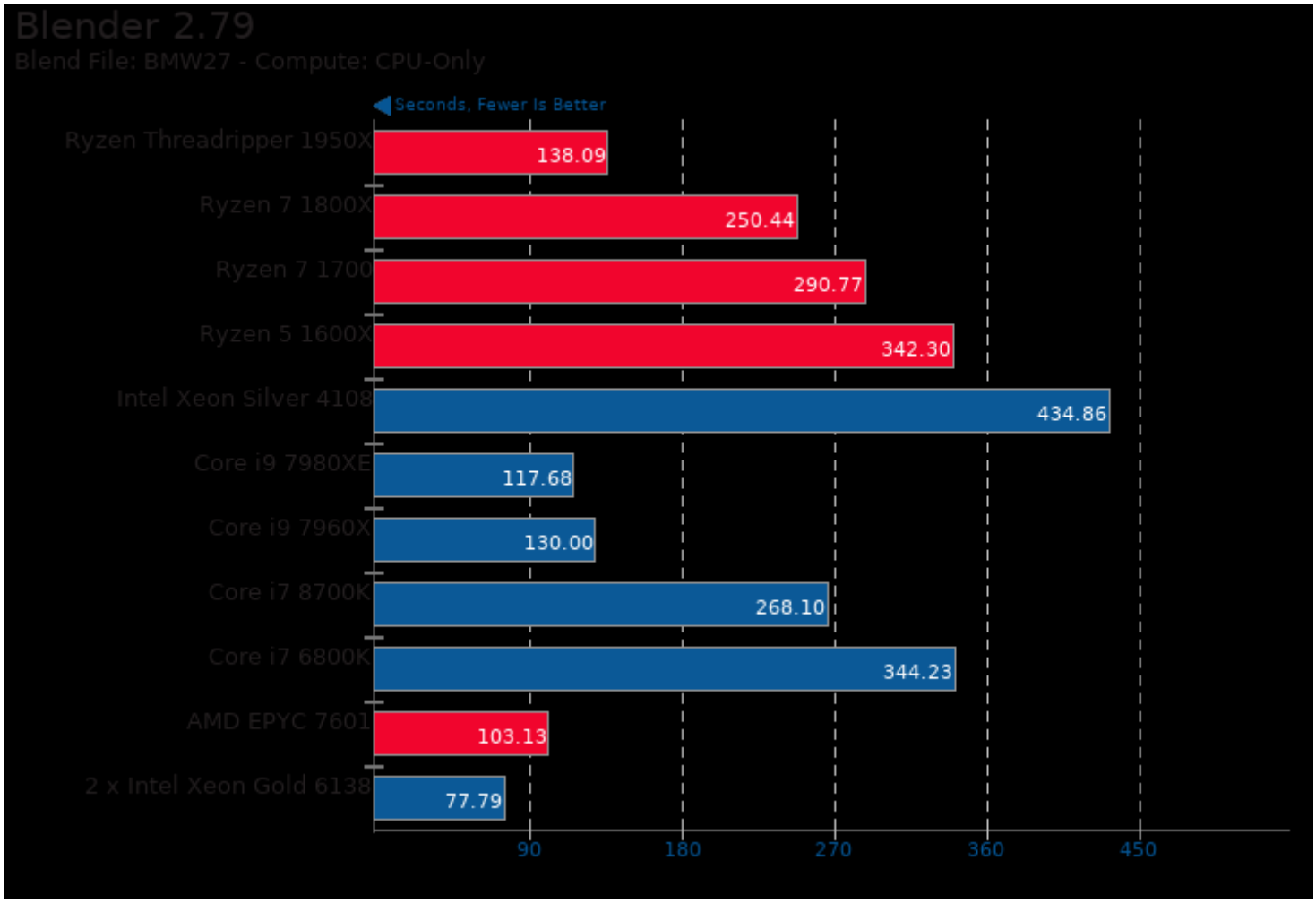
Blender 3D Rendering CPU Tests



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