ns_4000000, sched_wakeup_granularity_ns_2000000, sched_wakeup_granularity_ns

increased wakeup granularity from 3000000 to 4000000

sched_wakeup_granularity_ns_2000000: reduced wakeup granularity from 3000000 to 2000000

sched_wakeup_granularity_ns_1000000: reduced wakeup granularity from 3000000 to 1000000

default_value_run: No tweaks to the Kernel Variables

Automated Executive Summary

1millisecond_wk_gran had the most wins, coming in first place for 66% of the tests.

Based on the geometric mean of all complete results, the fastest (1millisecond_wk_gran) was 2.399x the speed of the slowest (2millisecond_wk_gran). 4millisecond_wk_gran was 0.869x the speed of 1millisecond_wk_gran, Ran with out-of-box config was 0.655x the speed of 4millisecond_wk_gran, 2millisecond_wk_gran was 0.731x the speed of Ran with out-of-box config.

Test Systems:

4millisecond_wk_gran

2millisecond_wk_gran

Processor: Intel Core i5-1145G7 (4 Cores), Motherboard: Intel 440BX (6.00 BIOS), Chipset: Intel 440BX/ZX/DX, Memory: 8GB, Disk: 107GB VMware Virtual S, Graphics: VMware SVGA II, Audio: Ensoniq ES1371/ES1373, Network: Intel 82545EM

OS: Ubuntu 18.04, Kernel: 5.4.0-148-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Compiler: GCC 7.5.0, File-System: ext4, Screen Resolution: 1718x878, System Layer: VMware

Kernel Notes: Transparent Huge Pages: madvise
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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: CPU Microcode: 0xffffffff
Security Notes: itlb_multihit: Not affected + l1tf: Mitigation of PTE Inversion + mds: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown + meltdown: Mitigation of PTI + mmio_stale_data: Not affected + retbleed: Mitigation of IBRS + 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 IBRS IBPB: conditional RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

1millisecond_wk_gran

Processor: Intel Core i5-1145G7 (4 Cores), Motherboard: Intel 440BX (6.00 BIOS), Chipset: Intel 440BX/ZX/DX, Memory: 8GB, Disk: 107GB VMware Virtual S, Graphics: VMware SVGA II, Audio: Ensoniq ES1371/ES1373, Network: Intel 82545EM

OS: Ubuntu 18.04, Kernel: 5.4.0-147-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Compiler: GCC 7.5.0, File-System: ext4, Screen Resolution: 1718x878, System Layer: VMware

Kernel Notes: Transparent Huge Pages: madvise
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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: CPU Microcode: 0xffffffff
Security Notes: itlb_multihit: Not affected + l1tf: Mitigation of PTE Inversion + mds: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown + meltdown: Mitigation of PTI + mmio_stale_data: Not affected + retbleed: Mitigation of IBRS + 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 IBRS IBPB: conditional RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

Ran with out-of-box config

Processor: Intel Core i5-1145G7 (4 Cores), Motherboard: Intel 440BX (6.00 BIOS), Chipset: Intel 440BX/ZX/DX, Memory: 8GB, Disk: 107GB VMware Virtual S, Graphics: VMware SVGA II, Audio: Ensoniq ES1371/ES1373, Network: Intel 82545EM

OS: Ubuntu 18.04, Kernel: 5.4.0-148-generic (x86_64), Desktop: GNOME Shell 3.28.4, Display Server: X Server 1.20.8, Compiler: GCC 7.5.0, File-System: ext4, Screen Resolution: 1718x878, System Layer: VMware

Kernel Notes: Transparent Huge Pages: madvise
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++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v

Phoronix Test Suite

Processor Notes: CPU Microcode: 0xffffffff

Security Notes: itlb_multihit: Not affected + l1tf: Mitigation of PTE Inversion + mds: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown + meltdown: Mitigation of PTI + mmio_stale_data: Not affected + retbleed: Mitigation of IBRS + 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 IBRS IBPB: conditional RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

	4millisecond_wk_gran	2millisecond_wk_gran	1millisecond_wk_gran	Ran with out-of-box config
Apache HTTP Server - 4 (Reqs/sec)	8731	4608	11064	4365
Normalized	78.91%	41.64%	100%	39.45%
Standard Deviation	5.7%	1.9%	1.7%	0.6%
Apache HTTP Server - 20 (Reqs/sec)	10365	5437	12626	5354
Normalized	82.09%	43.06%	100%	42.4%
Standard Deviation	2.2%	2.3%	2.2%	0.5%
Apache HTTP Server - 100 (Reqs/sec)	12250	5927	13322	13568
Normalized	90.29%	43.69%	98.19%	100%
Standard Deviation	15.5%	0.6%	1.6%	25.9%
Apache HTTP Server - 200 (Reqs/sec)	13650	5990	13874	15664
Normalized	87.14%	38.24%	88.57%	100%
Standard Deviation	2.1%	0.4%	1%	8.5%
Apache HTTP Server - 500 (Reqs/sec)	12797	5786	13083	6844
Normalized	97.81%	44.23%	100%	52.31%
Standard Deviation	0.5%	0.8%	20.4%	46.3%
Apache HTTP Server - 1000	12585	5748	16700	5685
Normalized	75.36%	34.42%	100%	34.04%
Standard Deviation	7.3%	1.2%	10.7%	1.1%

Phoronix Test Suite

Apache HTTP Server 2.4.56
Concurrent Requests: 4

▶ Requests Per Second, More Is Better

4millisecond_wk_gran	8730.92
SE +/- 143.52, N = 12	
2millisecond_wk_gran	4607.65
SE +/- 49.46, N = 3	
1millisecond_wk_gran	11064.46
SE +/- 109.96, N = 3	
Ran with out-of-box config	4364.74
SE +/- 14.04, N = 3	

2K   4K   6K   8K   10K

1. (CC) gcc options: -lluajit-5.1 -lm -lssl -lcrypto -lpthread -ldl -std=c99 -O2

Apache HTTP Server 2.4.56
Concurrent Requests: 20

▶ Requests Per Second, More Is Better

4millisecond_wk_gran	10364.87
SE +/- 101.49, N = 5	
2millisecond_wk_gran	5436.75
SE +/- 71.68, N = 3	
1millisecond_wk_gran	12626.37
SE +/- 139.49, N = 4	
Ran with out-of-box config	5354.05
SE +/- 14.26, N = 3	

3K   6K   9K   12K   15K

1. (CC) gcc options: -lluajit-5.1 -lm -lssl -lcrypto -lpthread -ldl -std=c99 -O2

Phoronix Test Suite

Apache HTTP Server 2.4.56
Concurrent Requests: 100

Requests Per Second, More Is Better

4millisecond_wk_gran
SE +/- 546.90, N = 12
12250.49

2millisecond_wk_gran
SE +/- 22.22, N = 3
5927.25

1millisecond_wk_gran
SE +/- 122.17, N = 3
13322.40

Ran with out-of-box config
SE +/- 908.53, N = 15
13567.69

3K 6K 9K 12K 15K
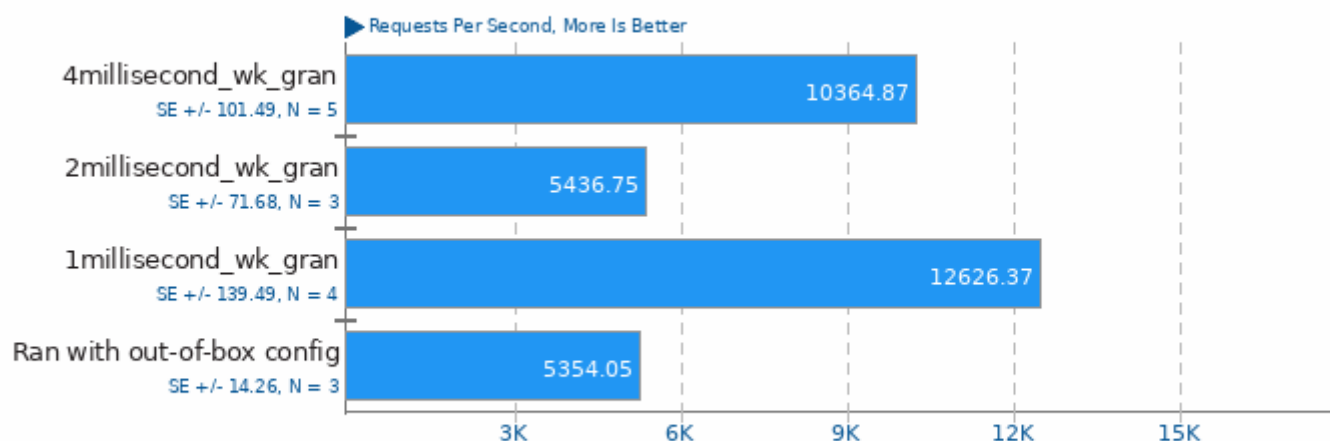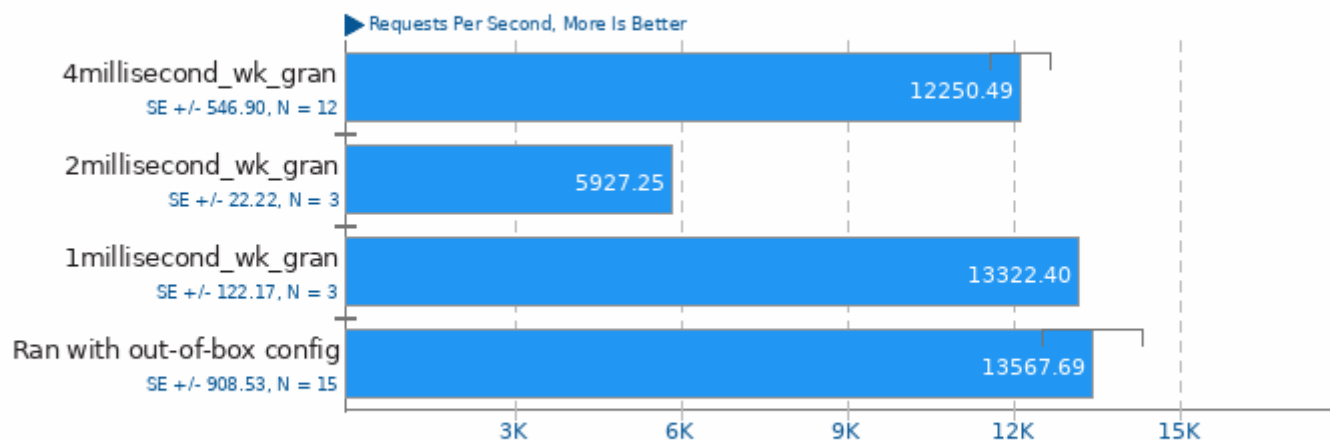
1. (CC) gcc options: -lluajit-5.1 -lm -lssl -lcrypto -lpthread -ldl -std=c99 -O2

Apache HTTP Server 2.4.56
Concurrent Requests: 200

Requests Per Second, More Is Better

4millisecond_wk_gran
SE +/- 166.67, N = 3
13650.24

2millisecond_wk_gran
SE +/- 13.50, N = 3
5989.98

1millisecond_wk_gran
SE +/- 81.28, N = 3
13873.77

Ran with out-of-box config
SE +/- 383.69, N = 12
15663.91

3K 6K 9K 12K 15K

1. (CC) gcc options: -lluajit-5.1 -lm -lssl -lcrypto -lpthread -ldl -std=c99 -O2

Phoronix Test Suite

Apache HTTP Server 2.4.56
Concurrent Requests: 500

▶ Requests Per Second, More Is Better

4millisecond_wk_gran	12796.52
SE +/- 36.87, N = 3	
2millisecond_wk_gran	5786.38
SE +/- 25.44, N = 3	
1millisecond_wk_gran	13083.13
SE +/- 770.91, N = 12	
Ran with out-of-box config	6843.91
SE +/- 817.85, N = 15	

3K   6K   9K   12K   15K
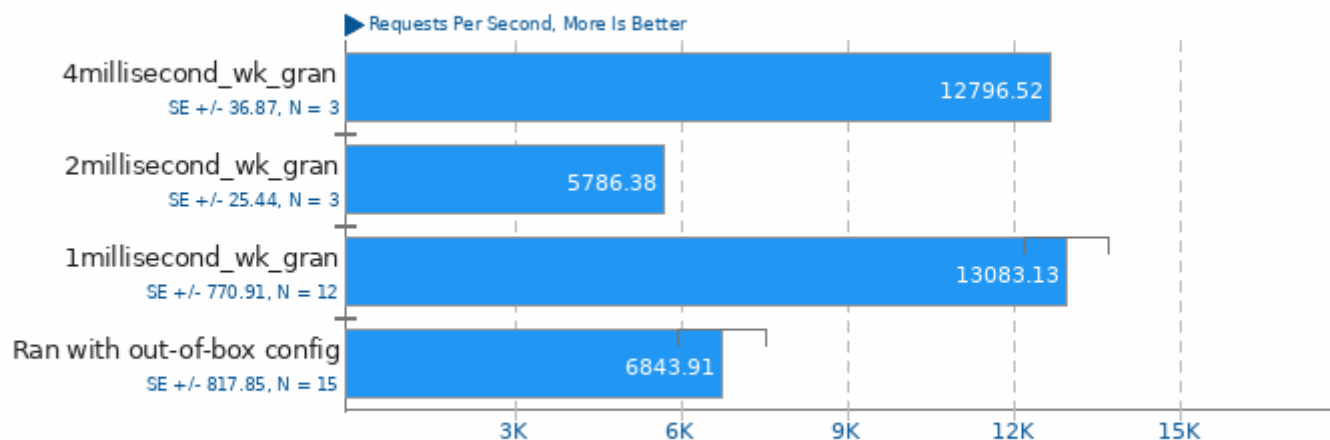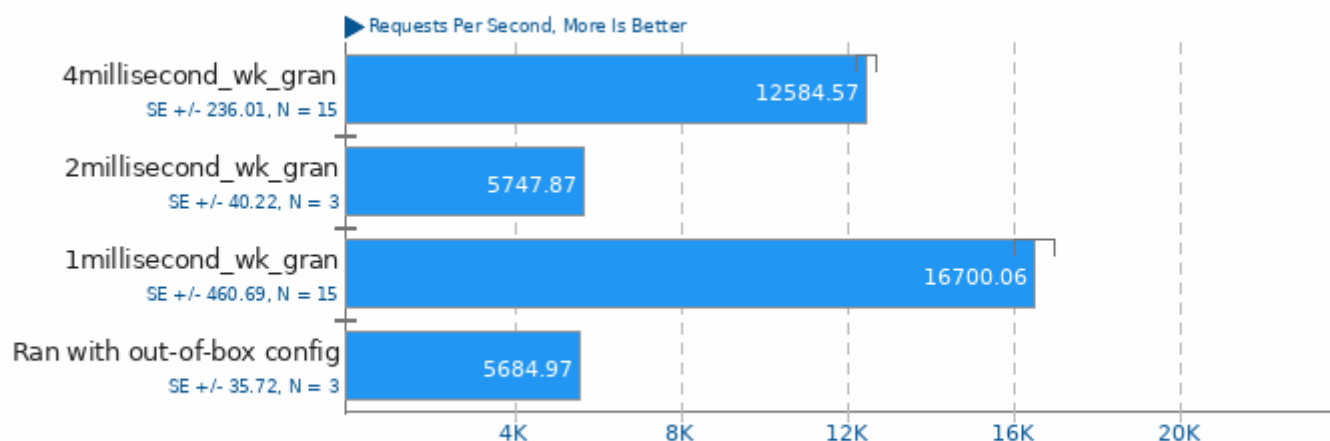
1. (CC) gcc options: -lluajit-5.1 -lm -lssl -lcrypto -lpthread -ldl -std=c99 -O2

Apache HTTP Server 2.4.56
Concurrent Requests: 1000

▶ Requests Per Second, More Is Better

4millisecond_wk_gran	12584.57
SE +/- 236.01, N = 15	
2millisecond_wk_gran	5747.87
SE +/- 40.22, N = 3	
1millisecond_wk_gran	16700.06
SE +/- 460.69, N = 15	
Ran with out-of-box config	5684.97
SE +/- 35.72, N = 3	

4K   8K   12K   16K   20K

1. (CC) gcc options: -lluajit-5.1 -lm -lssl -lcrypto -lpthread -ldl -std=c99 -O2

This file was automatically generated via the Phoronix Test Suite benchmarking software on Saturday, 6 May 2023 18:49.