

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Laptop Rubens

SPECrate®2017_int_base = 5.03

SPECrate®2017_int_peak = Not Run

CPU2017 License: nnn (Your SPEC license number)

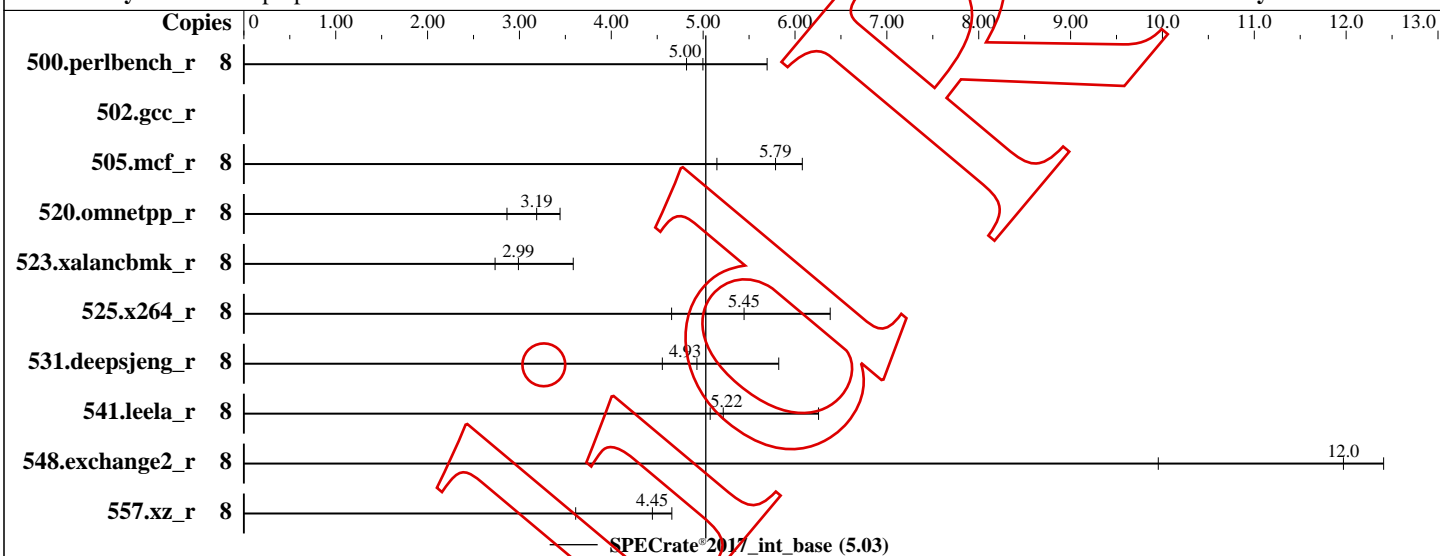
Test Sponsor: Laptop Rubens

Tested by: Laptop Rubens

Test Date: May-2023

Hardware Availability:

Software Availability:



Hardware

CPU Name: Intel Core i7-2620M

Max MHz:

Nominal:

Enabled: cores, 1 chip, threads/core

Orderable:

Cache L1:

L2:

L3:

Other:

Memory: 7.733 GB fixme: If using DDR4, the format is:

'N GB (N x N GB nRxn PC4-nnnnX-X)'

Storage: 1007 GB add more disk info here

Other:

OS:

Compiler:

Parallel:

Firmware:

File System:

System State:

Base Pointers:

Peak Pointers:

Other:

Power Management: --

Software

Ubuntu 22.04.2 LTS

5.15.90.1-microsoft-standard-WSL2

C/C++/Fortran: Version 7.2.1 of GCC, the GNU Compiler Collection

No

ext4

Run level 5 (add definition here)

64-bit

Not Applicable

Errors

'reportable' flag not set during run

502.gcc_r (base) did not have enough runs!

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Laptop Rubens

SPECrate®2017_int_base = 5.03

SPECrate®2017_int_peak = Not Run

CPU2017 License: nnn (Your SPEC license number)

Test Sponsor: Laptop Rubens

Tested by: Laptop Rubens

Test Date: May-2023

Hardware Availability:

Software Availability:

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	8	<u>2549</u>	<u>5.00</u>	2236	5.70	2643	4.82							
502.gcc_r														
505.mcf_r	8	2510	5.15	2126	6.08	<u>2234</u>	<u>5.79</u>							
520.omnetpp_r	8	3664	2.86	3049	3.44	<u>3293</u>	<u>3.19</u>							
523.xalancbmk_r	8	3089	2.73	2356	3.59	<u>2826</u>	<u>2.99</u>							
525.x264_r	8	3008	4.66	2195	6.38	<u>2572</u>	<u>5.45</u>							
531.deepsjeng_r	8	2012	4.56	<u>1574</u>	5.82	<u>1859</u>	<u>4.93</u>							
541.leela_r	8	<u>2539</u>	<u>5.22</u>	2118	6.26	2610	5.08							
548.exchange2_r	8	<u>1751</u>	<u>12.0</u>	1689	12.4	2105	9.96							
557.xz_r	8	1854	4.66	<u>1943</u>	<u>4.45</u>	2392	3.61							

SPECrate®2017_int_base = 5.03

SPECrate®2017_int_peak = Not Run

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/usr/lib64/:/usr/lib/:/lib64"

Platform Notes

Sysinfo program /usr/local/spec_cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89d7ed5c36ae2c92cc097bec197
running on NotebookRubens Wed May 24 20:43:10 2023

SUT (System Under Test) info as seen by some common utilities.

Table of contents

1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl warning
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.9)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. sysctl
15. /sys/kernel/mm/transparent_hugepage
16. /sys/kernel/mm/transparent_hugepage/khugepaged
17. OS release
18. Disk information

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Laptop Rubens

SPECrate®2017_int_base = 5.03

SPECrate®2017_int_peak = Not Run

CPU2017 License: nnn (Your SPEC license number)

Test Sponsor: Laptop Rubens

Tested by: Laptop Rubens

Test Date: May-2023

Hardware Availability:

Software Availability:

Platform Notes (Continued)

19. dmidecode

1. uname -a
Linux NotebookRubens 5.15.90.1-microsoft-standard-WSL2 #1 SMP Fri Jan 27 02:56:13 UTC 2023 x86_64 x86_64
x86_64 GNU/Linux

2. w
20:43:10 up 2:33, 2 users, load average: 0.12, 0.21, 0.24
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
rubens pts/1 - 18:09 2:33m 0.11s 0.09s bash
rubens pts/2 - 18:21 6.00s 2.22s 0.20s sudo -i

3. Username
From environment variable \$USER: root
From the command 'logname': rubens

4. ulimit -a
time(seconds) unlimited
file(blocks) unlimited
data(kbytes) unlimited
stack(kbytes) 8192
coredump(blocks) 0
memory(kbytes) unlimited
locked memory(kbytes) 1013600
process 31649
nofiles 1024
vmemory(kbytes) unlimited
locks unlimited
rtprio 0

5. sysinfo process ancestry
/sbin/init
/init
/init
/init
/init
-bash
sudo -i
sudo -i
-bash
runcpu --config=rubens-try1 --noreportable --iterations=3 500.perlbench_r 505.mcf_r 520.omnetpp_r
523.xalancbmk_r 525.x264_r 531.deepsjeng_r 541.leela_r 548.exchange2_r 557.xz_r 999.specrand_ir
runcpu --configfile rubens-try1 --noreportable --iterations 3 --noreportable --nopower --runmode rate --tune
base --size refrate 500.perlbench_r 505.mcf_r 520.omnetpp_r 523.xalancbmk_r 525.x264_r 531.deepsjeng_r
541.leela_r 548.exchange2_r 557.xz_r 999.specrand_ir --nopreenv --note-preenv --logfile
\$SPEC/tmp/CPU2017.072/templots/preenv.intrate.072.0.log --lognum 072.0 --from_runcpu 2
specperl \$SPEC/bin/sysinfo
\$SPEC = /usr/local/spec_cpu2017

6. /proc/cpuinfo
model name : Intel(R) Core(TM) i7-2620M CPU @ 2.70GHz
vendor_id : GenuineIntel
cpu family : 6
model : 42

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Laptop Rubens

SPECrate®2017_int_base = 5.03

SPECrate®2017_int_peak = Not Run

CPU2017 License: nnn (Your SPEC license number)

Test Sponsor: Laptop Rubens

Tested by: Laptop Rubens

Test Date: May-2023

Hardware Availability:

Software Availability:

Platform Notes (Continued)

```
stepping      : 7
microcode     : 0xffffffff
bugs          : cpu_meltdown spectre_v1 spectre_v2 spec_store_bypass l1tf mds swapgs itlb_multihit
               mmio_unknown
cpu cores     : 2
siblings      : 4
1 physical ids (chips)
4 processors (hardware threads)
physical id 0: core ids 0-1
physical id 0: apicids 0-3
```

Caution: /proc/cpuinfo data regarding chips, cores and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu

From lscpu from util-linux 2.37.2:

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Address sizes: 36 bits physical, 48 bits virtual
Byte Order: Little Endian
CPU(s): 4
On-line CPU(s) list: 0-3
Vendor ID: GenuineIntel
Model name: Intel(R) Core(TM) i7-2620M CPU @ 2.70GHz
CPU family: 6
Model: 42
Thread(s) per core: 2
Core(s) per socket: 2
Socket(s): 1
Stepping: 7
BogoMIPS: 5387.75
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
       clflush mmx fxsr sse sse2 ht syscall nx rdtscp lm constant_tsc
       arch_perfmon rep_good nopl xtopology cpuid pni pclmulqdq ssse3 cx16 pdcm
       pcid sse4_1 sse4_2 popcnt aes xsave avx hypervisor lahf_lm pti ssbd ibrs
       ibpb stibp xsaveopt flush_lld arch_capabilities
Hypervisor vendor: Microsoft
Virtualization type: full
L1d cache: 64 KiB (2 instances)
L1i cache: 64 KiB (2 instances)
L2 cache: 512 KiB (2 instances)
L3 cache: 4 MiB (1 instance)
Vulnerability Itlb multihit: KVM: Mitigation: VMX unsupported
Vulnerability L1tf: Mitigation: PTE Inversion
Vulnerability Mds: Vulnerable: Clear CPU buffers attempted, no microcode; SMT Host state
                    unknown
Vulnerability Meltdown: Mitigation: PTI
Vulnerability Mmio stale data: Unknown: No mitigations
Vulnerability Retbleed: Not affected
Vulnerability Spec store bypass: Mitigation: Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation: usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation: Retpolines, IBPB conditional, IBRS_FW, STIBP conditional, RSB
                          filling, PBRSE-eIBRS Not affected
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected
```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K	64K	8	Data	1	64	1	64

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Laptop Rubens

SPECrate®2017_int_base = 5.03

SPECrate®2017_int_peak = Not Run

CPU2017 License: nnn (Your SPEC license number)

Test Sponsor: Laptop Rubens

Tested by: Laptop Rubens

Test Date: May-2023

Hardware Availability:

Software Availability:

Platform Notes (Continued)

L1i	32K	64K	8 Instruction	1	64	1	64
L2	256K	512K	8 Unified	2	512	1	64
L3	4M	4M	16 Unified	3	4096	1	64

8. numactl warning

Unable to get information from 'numactl --hardware'. Please consider installing numactl.

9. /proc/meminfo

MemTotal: 8108808 kB

10. who -r

run-level 5 May 24 18:09

11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.9)

Default Target Status
graphical running

12. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	apparmor console-setup cron dmesg e2scrub_reap getty@ irqbalance keyboard-setup rsyslog setvtrgb snmpd systemd-store systemd-resolved systemd-timesyncd
enabled-runtime	console-getty systemd-remount-fs
disabled	debug-shell nftables rsync serial-getty@ systemd-boot-check-no-failures systemd-network-generator systemd-networkd systemd-networkd-wait-online systemd-sysext systemd-time-wait-sync
generated	apport wslg-mount
indirect	uidd
masked	cryptdisks cryptdisks-early hwclock networkd-dispatcher rc rcS screen-cleanup sudo systemd-binfmt ua-reboot-cmds ubuntu-advantage ufw unattended-upgrades x11-common

13. Linux kernel boot time arguments, from /proc/cmdline

initrd=\initrd.img
WSL_ROOT_INIT=1
panic=-1
nr_cpus=4
bonding.max_bonds=0
dummy.numdummies=0
fb.tunnels=none
swiotlb=force
console=hvc0
debug
pty.legacy_count=0

14. sysctl

kernel.randomize_va_space	2
vm.compaction_proactiveness	20
vm.dirty_background_bytes	0
vm.dirty_background_ratio	10
vm.dirty_bytes	0
vm.dirty_expire_centisecs	3000
vm.dirty_ratio	20
vm.dirty_writeback_centisecs	500

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Laptop Rubens

SPECrate®2017_int_base = 5.03

SPECrate®2017_int_peak = Not Run

CPU2017 License: nnn (Your SPEC license number)

Test Sponsor: Laptop Rubens

Tested by: Laptop Rubens

Test Date: May-2023

Hardware Availability:

Software Availability:

Platform Notes (Continued)

```
vm.dirtytime_expire_seconds 43200
vm.extfrag_threshold        500
vm.nr_hugepages              0
vm.nr_overcommit_hugepages   0
vm.swappiness                 60
vm.watermark_boost_factor    15000
vm.watermark_scale_factor    10
```

```
-----
15. /sys/kernel/mm/transparent_hugepage
defrag      always defer+madvise [madvise] never
enabled     [always] madvise never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force
-----
```

```
-----
16. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs 60000
defrag                 1
max_ptes_none          511
max_ptes_shared        256
max_ptes_swap          64
pages_to_scan          4096
scan_sleep_millisecs   10000
-----
```

```
-----
17. OS release
From /etc/*-release /etc/*-version
os-release Ubuntu 22.04.2 LTS
-----
```

```
-----
18. Disk information
SPEC is set to: /usr/local/spec_cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdc         ext4 1007G  750G  881G   8% /
-----
```

```
-----
19. dmidecode
Additional information from dmidecode 3.3 follows.  WARNING: Use caution when you interpret this section.
The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
"DMTF SMBIOS" standard.
-----
```

BIOS: (could not find information)

Compiler Version Notes

```
=====
C      | 500.perlbench_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)
=====
```

Using built-in specs.

COLLECT_GCC=/usr/bin/gcc

COLLECT_LTO_WRAPPER=/usr/lib/gcc/x86_64-linux-gnu/11/lto-wrapper

OFFLOAD_TARGET_NAMES=nvptx-none:amdgc-n-amdhsa

OFFLOAD_TARGET_DEFAULT=1

Target: x86_64-linux-gnu

Configured with: ../src/configure -v --with-pkgversion='Ubuntu 11.3.0-1ubuntu1~22.04'

--with-bugurl=file:///usr/share/doc/gcc-11/README.Bugs

--enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --prefix=/usr

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Laptop Rubens

SPECrate®2017_int_base = 5.03

SPECrate®2017_int_peak = Not Run

CPU2017 License: nnn (Your SPEC license number)

Test Sponsor: Laptop Rubens

Tested by: Laptop Rubens

Test Date: May-2023

Hardware Availability:

Software Availability:

Compiler Version Notes (Continued)

```
--with-gcc-major-version-only --program-suffix=-11 --program-prefix=x86_64-linux-gnu- --enable-shared
--enable-linker-build-id --libexecdir=/usr/lib --without-included-gettext --enable-threads=posix
--libdir=/usr/lib --enable-nls --enable-bootstrap --enable-clocale=gnu --enable-libstdcxx-debug
--enable-libstdcxx-time=yes --with-default-libstdcxx-abi=new --enable-gnu-unique-object
--disable-vtable-verify --enable-plugin --enable-default-pie --with-system-zlib
--enable-libphobos-checking=release --with-target-system-zlib=auto --enable-objc-gc=auto
--enable-multiarch --disable-werror --enable-cet --with-arch=32=i686 --with-abi=m64
--with-multilib-list=m32,m64,mx32 --enable-multilib --with-tune=generic
--enable-offload-targets=nvptx-none=/build/gcc-11-xKiWfi/gcc-11-11.3.0/debian/tmp-nvptx/usr,amdgc-n-amdhsa=/build/gcc-11-xKiWfi/gcc-11-11.3.0/debian/tmp-gcn/usr
--without-cuda-driver --enable-checking=release --build=x86_64-linux-gnu --host=x86_64-linux-gnu
--target=x86_64-linux-gnu --with-build-config=bootstrap-lto-lean --enable-link-serialization=2
Thread model: posix
Supported LTO compression algorithms: zlib zstd
gcc version 11.3.0 (Ubuntu 11.3.0-1ubuntu1~22.04)
```

```
=====  
C++      | 520.omnetpp_r(base) 525.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(base)  
=====
```

```
Using built-in specs.
COLLECT_GCC=/usr/bin/g++
COLLECT_LTO_WRAPPER=/usr/lib/gcc/x86_64-linux-gnu/11/lto-wrapper
OFFLOAD_TARGET_NAMES=nvptx-none:amdgc-n-amdhsa
OFFLOAD_TARGET_DEFAULT=1
Target: x86_64-linux-gnu
Configured with: ../src/configure -v --with-pkgversion='Ubuntu 11.3.0-1ubuntu1~22.04'
--with-bugurl=file:///usr/share/doc/gcc-11/README.Bugs
--enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --prefix=/usr
--with-gcc-major-version-only --program-suffix=-11 --program-prefix=x86_64-linux-gnu- --enable-shared
--enable-linker-build-id --libexecdir=/usr/lib --without-included-gettext --enable-threads=posix
--libdir=/usr/lib --enable-nls --enable-bootstrap --enable-clocale=gnu --enable-libstdcxx-debug
--enable-libstdcxx-time=yes --with-default-libstdcxx-abi=new --enable-gnu-unique-object
--disable-vtable-verify --enable-plugin --enable-default-pie --with-system-zlib
--enable-libphobos-checking=release --with-target-system-zlib=auto --enable-objc-gc=auto
--enable-multiarch --disable-werror --enable-cet --with-arch=32=i686 --with-abi=m64
--with-multilib-list=m32,m64,mx32 --enable-multilib --with-tune=generic
--enable-offload-targets=nvptx-none=/build/gcc-11-xKiWfi/gcc-11-11.3.0/debian/tmp-nvptx/usr,amdgc-n-amdhsa=/build/gcc-11-xKiWfi/gcc-11-11.3.0/debian/tmp-gcn/usr
--without-cuda-driver --enable-checking=release --build=x86_64-linux-gnu --host=x86_64-linux-gnu
--target=x86_64-linux-gnu --with-build-config=bootstrap-lto-lean --enable-link-serialization=2
Thread model: posix
Supported LTO compression algorithms: zlib zstd
gcc version 11.3.0 (Ubuntu 11.3.0-1ubuntu1~22.04)
```

```
=====  
Fortran  | 548.exchange2_r(base)  
=====
```

```
Using built-in specs.
COLLECT_GCC=/usr/bin/gfortran
COLLECT_LTO_WRAPPER=/usr/lib/gcc/x86_64-linux-gnu/11/lto-wrapper
OFFLOAD_TARGET_NAMES=nvptx-none:amdgc-n-amdhsa
OFFLOAD_TARGET_DEFAULT=1
Target: x86_64-linux-gnu
Configured with: ../src/configure -v --with-pkgversion='Ubuntu 11.3.0-1ubuntu1~22.04'
--with-bugurl=file:///usr/share/doc/gcc-11/README.Bugs
--enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --prefix=/usr
--with-gcc-major-version-only --program-suffix=-11 --program-prefix=x86_64-linux-gnu- --enable-shared
--enable-linker-build-id --libexecdir=/usr/lib --without-included-gettext --enable-threads=posix
--libdir=/usr/lib --enable-nls --enable-bootstrap --enable-clocale=gnu --enable-libstdcxx-debug
--enable-libstdcxx-time=yes --with-default-libstdcxx-abi=new --enable-gnu-unique-object
```

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Laptop Rubens

SPECrate®2017_int_base = 5.03

SPECrate®2017_int_peak = Not Run

CPU2017 License: nnn (Your SPEC license number)

Test Sponsor: Laptop Rubens

Tested by: Laptop Rubens

Test Date: May-2023

Hardware Availability:

Software Availability:

Compiler Version Notes (Continued)

```
--disable-vtable-verify --enable-plugin --enable-default-pie --with-system-zlib
--enable-libphobos-checking=release --with-target-system-zlib=auto --enable-objc-gc=auto
--enable-multiarch --disable-werror --enable-cet --with-arch-32=i686 --with-abi=m64
--with-multilib-list=m32,m64,mx32 --enable-multilib --with-tune=generic
--enable-offload-targets=nvptx-none=/build/gcc-11-xKiWfi/gcc-11-11.3.0/debian/tmp-nvptx/usr,amdgc-nv-none=/build/gcc-11-xKiWfi/gcc-11-11.3.0/debian/tmp-gcn/usr
--without-cuda-driver --enable-checking=release --build=x86_64-linux-gnu --host=x86_64-linux-gnu
--target=x86_64-linux-gnu --with-build-config=bootstrap-lto-lean --enable-link-serialization=2
Thread model: posix
Supported LTO compression algorithms: zlib zstd
gcc version 11.3.0 (Ubuntu 11.3.0-1ubuntu1~22.04)
```

Base Compiler Invocation

C benchmarks (except as noted below):

gcc

C++ benchmarks:

g++

Fortran benchmarks:

gfortran

Base Portability Flags

```
500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:

```
500.perlbench_r: -m64 -std=c99 -g -O3 -march=native
-fno-unsafe-math-optimizations -fno-tree-loop-vectorize
-fno-strict-aliasing -fgnu89-inline
```

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Laptop Rubens

SPECrate®2017_int_base = 5.03

SPECrate®2017_int_peak = Not Run

CPU2017 License: nnn (Your SPEC license number)

Test Sponsor: Laptop Rubens

Tested by: Laptop Rubens

Test Date: May-2023

Hardware Availability:

Software Availability:

Base Optimization Flags (Continued)

505.mcf_r: Same as 500.perlbench_r

525.x264_r: Same as 500.perlbench_r

557.xz_r: Same as 500.perlbench_r

C++ benchmarks:

-m64 -std=c++03 -g -O3 -march=native -fno-unsafe-math-optimizations
-fno-tree-loop-vectorize

Fortran benchmarks:

-m64 -g -O3 -march=native -fno-unsafe-math-optimizations
-fno-tree-loop-vectorize

Base Other Flags

C benchmarks (except as noted below):

-fallow-argument-mismatch

525.x264_r: -fallow-argument-mismatch -fcommon

557.xz_r: -fallow-argument-mismatch -fcommon

C++ benchmarks:

-fallow-argument-mismatch

Fortran benchmarks:

-fallow-argument-mismatch

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU®2017 v1.1.9 on 2023-05-24 20:43:09-0300.

Report generated on 2023-05-25 14:48:26 by CPU2017 PDF formatter v6716.