SPEC CPU®2017 Integer Rate Result

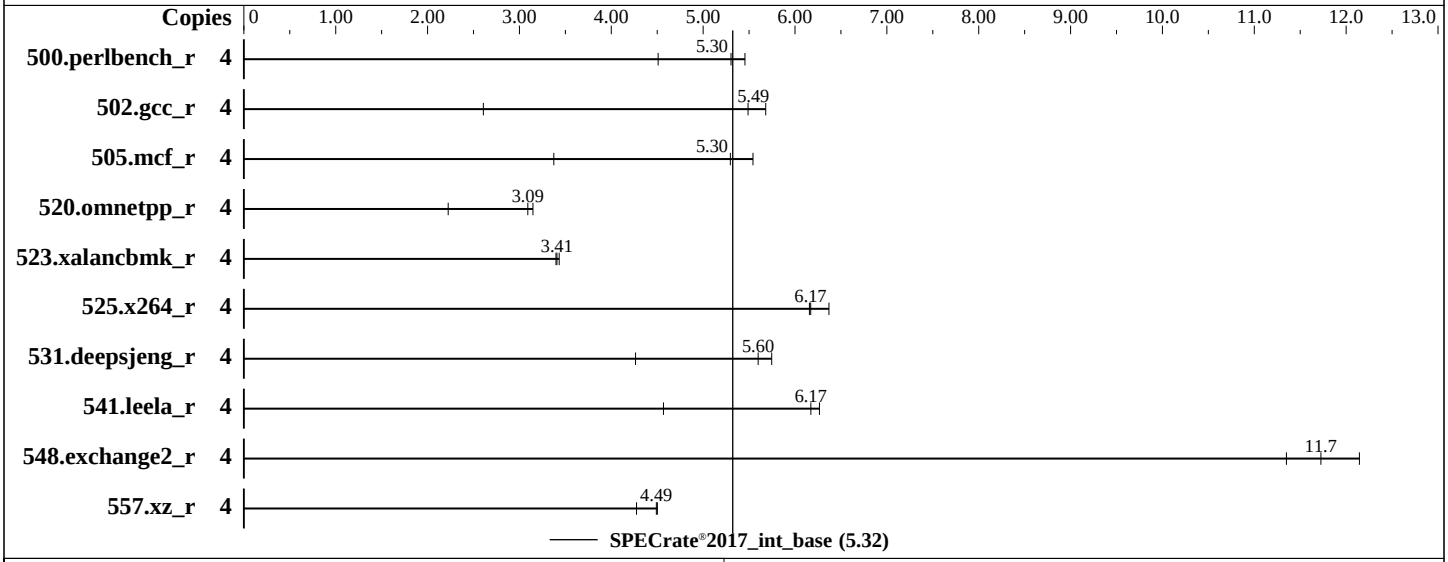
Laptop Rubens

SPECrate®2017_int_base = 5.32

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:

Software

OS: Ubuntu 22.04.2 LTS 5.15.90.1-microsoft-standard-WSL2
Compiler: C/C++/Fortran: Version 7.2.1 of GCC, the GNU Compiler Collection
Parallel: No
Firmware:
File System: ext4
System State: Run level 5 (add definition here)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other:
Power Management: --

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	4	1412	4.51	**1201**	**5.30**	1167	5.46							
502.gcc_r	4	2172	2.61	**1032**	**5.49**	997	5.68							
505.mcf_r	4	1916	3.37	**1221**	**5.30**	1166	5.54							
520.omnetpp_r	4	2359	2.22	1668	3.15	**1698**	**3.09**							
523.xalancbmk_r	4	1230	3.43	1243	3.40	**1239**	**3.41**							
525.x264_r	4	**1135**	**6.17**	1100	6.37	1138	6.16							
531.deepsjeng_r	4	**819**	**5.60**	798	5.75	1075	4.26							
541.leela_r	4	**1073**	**6.17**	1057	6.27	1450	4.57							
548.exchange2_r	4	**894**	**11.7**	863	12.1	923	11.4							
557.xz_r	4	**962**	**4.49**	960	4.50	1011	4.27							

SPECrate®2017_int_base = 5.32

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 fe91c89b7ed5c36ae2c92cc097bec197
 running on NotebookRubens Sun May 21 22:04:12 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)

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
   22:04:12 up  3:00,  2 users,  load average: 17.66, 24.21, 23.59
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  rubens   pts/1    -                19:04    2:59m  0.04s  0.02s -bash
  rubens   pts/2    -                19:04    4.00s  3.21s  0.24s 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
 -bash
 sudo -i
 sudo -i
 -bash
 runcpu --config=rubens-try1 --reportable --iterations=3 intrate
 runcpu --configfile rubens-try1 --reportable --iterations 3 --nopower --runmode rate --tune base --size
   refrate intrate --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.067/templogs/preenv.intrate.067.0.log
   --lognum 067.0 --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
    stepping        : 7
    microcode       : 0xffffffff
```

(Continued on next page)

Platform Notes (Continued)

```
    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_l1d 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, PBRSB-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
     L1i       32K      64K    8 Instruction     1   64        1             64
     L2       256K     512K    8 Unified         2  512        1             64
```

(Continued on next page)

Platform Notes (Continued)

```
     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 21 19:04

------------------------------------------------------------
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 snapd systemd-pstore 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         uuidd
  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
  vm.dirtytime_expire_seconds     43200
  vm.extfrag_threshold              500
```

(Continued on next page)

Platform Notes (Continued)

```
  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 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   46G  911G   5% /

------------------------------------------------------------
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) 502.gcc_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:amdgcn-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
```

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Compiler Version Notes (Continued)

```
  --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,amdgcn-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) 523.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:amdgcn-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,amdgcn-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:amdgcn-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
```

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Compiler Version Notes (Continued)

```
  --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,amdgcn-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)
------------------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Fortran benchmarks:
gfortran

Base Portability Flags

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -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:
-m64 -std=c99 -g -O3 -march=native -fno-unsafe-math-optimizations
-fno-tree-loop-vectorize -fno-strict-aliasing -fgnu89-inline

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

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Base Optimization Flags (Continued)

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`

Tested with SPEC CPU®2017 v1.1.9 on 2023-05-21 22:04:11-0300.
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