SPEC® CPU2017 Integer Speed Result

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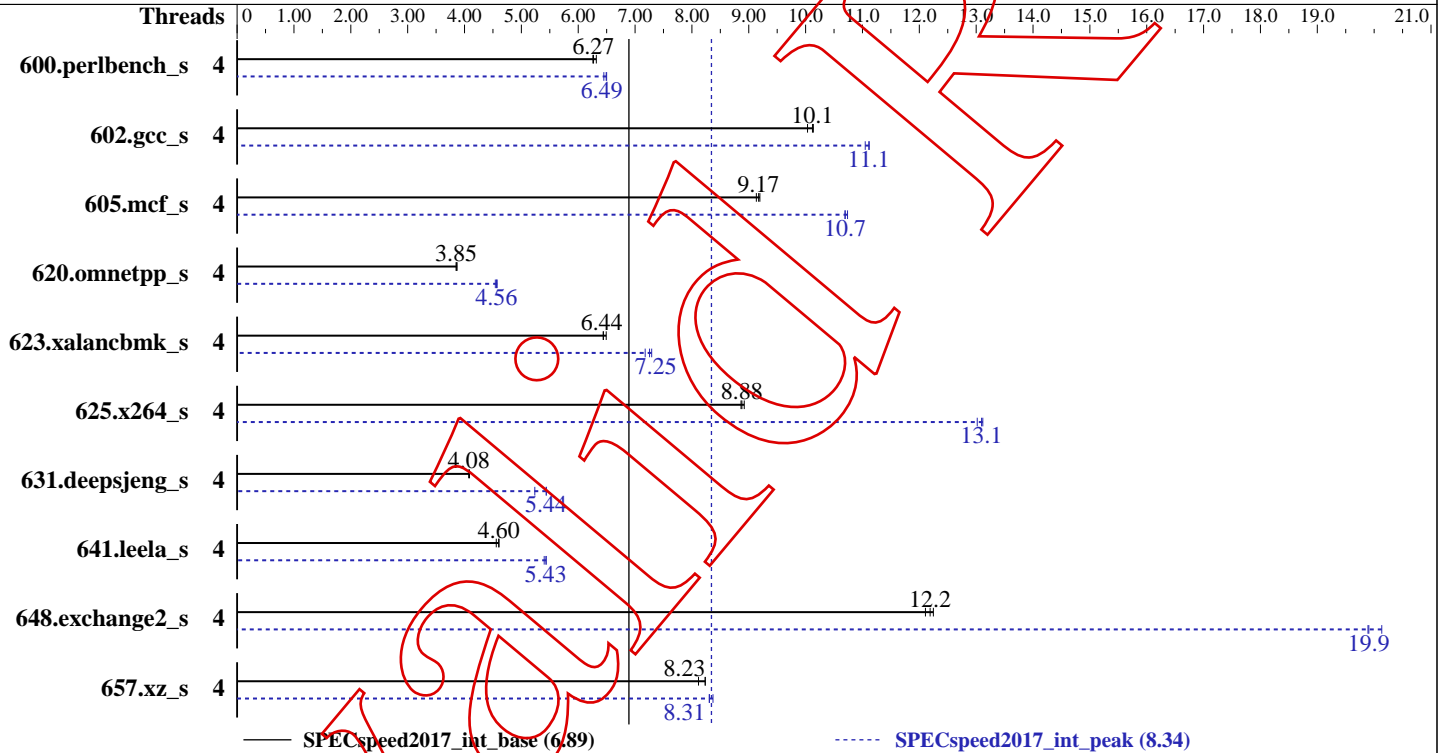
(Test Sponsor: Red Hat, Inc.)

SPECspeed2017_int_base = 6.89

SPECspeed2017_int_peak = 8.34

CPU2017 License: 0002991 **Test Date:** Jun-2024
Test Sponsor: Red Hat, Inc. **Hardware Availability:** Now
Tested by: Vladimir Makarov **Software Availability:**

Benchmark	Threads	base	peak
600.perlbench_s	4	6.27	6.49
602.gcc_s	4	10.1	11.1
605.mcf_s	4	9.17	10.7
620.omnetpp_s	4	3.85	4.56
623.xalancbmk_s	4	6.44	7.25
625.x264_s	4	8.88	13.1
631.deepsjeng_s	4	4.08	5.44
641.leela_s	4	4.60	5.43
648.exchange2_s	4	12.2	19.9
657.xz_s	4	8.23	8.31

——— SPECspeed2017_int_base (6.89)   - - - - SPECspeed2017_int_peak (8.34)

Hardware

CPU Name: AMD Ryzen 7 3800X 8-Core Processor
  Max MHz.:
  Nominal: 2227.558
Enabled: 16 cores, 1 chip, threads/core
Orderable:
Cache L1:
  L2: 512 KB
  L3:
  Other:
Memory: 32889052 kB
  'N GB (M x N GB nRxn PCn-nnnnnR-n, ECC)'
Storage: 372 GB add more disk info here
Other:

Software

OS: Linux 5.5.11-200.fc31.x86_64
  5.5.11-200.fc31.x86_64
Compiler: gcc version 15.0.0 20240621 (experimental) (GCC)
Parallel: Yes
Firmware:
File System: ext4
System State: multiuser
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other:

Errors

'reportable' flag not set during run
Unknown flags were used! See
    https://www.spec.org/cpu2017/Docs/runcpu.html#flagsurl
for information about how to get rid of this error.

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Results Table

Benchmark	Threads	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	4	281	6.32	284	6.26	**283**	**6.27**	4	**273**	**6.49**	275	6.45	273	6.50
602.gcc_s	4	393	10.1	397	10.0	**393**	**10.1**	4	360	11.0	**358**	**11.1**	358	11.1
605.mcf_s	4	**515**	**9.17**	517	9.13	513	9.20	4	**441**	**10.7**	442	10.7	440	10.7
620.omnetpp_s	4	423	3.85	422	3.87	**423**	**3.85**	4	**357**	**4.56**	359	4.54	357	4.57
623.xalancbmk_s	4	218	6.49	220	6.44	**220**	**6.44**	4	197	7.18	194	7.29	**195**	**7.25**
625.x264_s	4	198	8.92	199	8.86	**199**	**8.88**	4	134	13.1	135	13.0	**135**	**13.1**
631.deepsjeng_s	4	352	4.08	351	4.09	**351**	**4.08**	4	274	5.24	**264**	**5.44**	263	5.44
641.leela_s	4	**371**	**4.60**	370	4.61	374	4.56	4	316	5.40	314	5.44	**314**	**5.43**
648.exchange2_s	4	240	12.2	243	12.1	**241**	**12.2**	4	146	20.1	**148**	**19.9**	148	19.9
657.xz_s	4	751	8.23	762	8.12	**751**	**8.23**	4	739	8.37	**744**	**8.31**	744	8.30
SPECspeed2017_int_base =		**6.89**												
SPECspeed2017_int_peak =									**8.34**					

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

General Notes

Environment variables set by runcpu before the start of the run:

LD_LIBRARY_PATH = "/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/lib64:/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/lib::/usr/lib64/:/usr/lib/:/lib64"

Platform Notes

```
 Sysinfo program /notnfs/vmakarov/spec2017/bin/sysinfo
 Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
 running on to-ryzen.usersys.redhat.com Fri Jun 21 16:57:23 2024

 SUT (System Under Test) info as seen by some common utilities.
 For more information on this section, see
    https://www.spec.org/cpu2017/Docs/config.html#sysinfo

 From /proc/cpuinfo
    model name : AMD Ryzen 7 3800X 8-Core Processor
       1  "physical id"s (chips)
       16 "processors"
    cores, siblings (Caution: counting these is hw and system dependent. The following
    excerpts from /proc/cpuinfo might not be reliable.  Use with caution.)
       cpu cores : 8
       siblings  : 16
       physical 0: cores 0 1 2 3 4 5 6 7

 From lscpu:
    Architecture:                    x86_64
    CPU op-mode(s):                  32-bit, 64-bit
```

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Tested by:	Vladimir Makarov	**Software Availability:**	

Platform Notes (Continued)

```
        Byte Order:                      Little Endian
        Address sizes:                   43 bits physical, 48 bits virtual
        CPU(s):                          16
        On-line CPU(s) list:             0-15
        Thread(s) per core:              2
        Core(s) per socket:              8
        Socket(s):                       1
        NUMA node(s):                    1
        Vendor ID:                       AuthenticAMD
        CPU family:                      23
        Model:                           113
        Model name:                      AMD Ryzen 7 3800X 8-Core Processor
        Stepping:                        0
        Frequency boost:                 enabled
        CPU MHz:                         2578.096
        CPU max MHz:                     3900.0000
        CPU min MHz:                     2200.0000
        BogoMIPS:                        7785.39
        Virtualization:                  AMD-V
        L1d cache:                       256 KiB
        L1i cache:                       256 KiB
        L2 cache:                        4 MiB
        L3 cache:                        32 MiB
        NUMA node0 CPU(s):               0-15
        Vulnerability Itlb multihit:     Not affected
        Vulnerability L1tf:              Not affected
        Vulnerability Mds:               Not affected
        Vulnerability Meltdown:          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; Full AMD retpoline, IBPB conditional,
        STIBP always-on, RSB filling
        Vulnerability Tsx async abort:   Not affected
        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 mmxext fxsr_opt
        pdpe1gb rdtscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid
        aperfmperf pni pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 movbe popcnt aes xsave
        avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse
        3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext
        perfctr_llc mwaitx cpb cat_l3 cdp_l3 hw_pstate sme ssbd mba sev ibpb stibp vmmcall
        fsgsbase bmi1 avx2 smep bmi2 cqm rdt_a rdseed adx smap clflushopt clwb sha_ni
        xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
        clzero irperf xsaveerptr rdpru wbnoinvd arat npt lbrv svm_lock nrip_save tsc_scale
        vmcb_clean flushbyasid decodeassists pausefilter pfthreshold avic v_vmsave_vmload
        vgif umip rdpid overflow_recov succor smca
```

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Tested by: Vladimir Makarov   **Software Availability:**

Platform Notes (Continued)

```
/proc/cpuinfo cache data
   cache size : 512 KB

From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
physical chip.

From /proc/meminfo
   MemTotal:        32889052 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

From /etc/*release* /etc/*version*
   fedora-release: Fedora release 31 (Thirty One)
   os-release:
      NAME=Fedora
      VERSION="31 (Workstation Edition)"
      ID=fedora
      VERSION_ID=31
      VERSION_CODENAME=""
      PLATFORM_ID="platform:f31"
      PRETTY_NAME="Fedora 31 (Workstation Edition)"
      ANSI_COLOR="0;34"
   redhat-release: Fedora release 31 (Thirty One)
   system-release: Fedora release 31 (Thirty One)
   system-release-cpe: cpe:/o:fedoraproject:fedora:31

uname -a:
   Linux to-ryzen.usersys.redhat.com 5.5.11-200.fc31.x86_64 #1 SMP Mon Mar 23 17:32:43
   UTC 2020 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 2024-06-02 10:19

SPEC is set to: /notnfs/vmakarov/spec2017
   Filesystem                             Type  Size  Used Avail Use% Mounted on
   /dev/mapper/fedora_localhost--live-home ext4  372G   95G  259G  27% /home

Additional information from dmidecode 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.

(End of data from sysinfo program)
```

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Compiler Version Notes

```
==============================================================================
  CXXC 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak)
       631.deepsjeng_s(base, peak) 641.leela_s(base, peak)
------------------------------------------------------------------------------
Using built-in specs.
COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/g++
COLLECT_LTO_WRAPPER=/home/vmakarov/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/../libexec/gcc/x86_64-pc-linux-gnu/15.0.0/lto-wrapper
Target: x86_64-pc-linux-gnu
Configured with:
  /notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src/configure
  --prefix=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen
  --srcdir=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src
  --disable-bootstrap --disable-libcilkrts --enable-checking=release
  --enable-languages=c,c++,fortran
Thread model: posix
Supported LTO compression algorithms: zlib
gcc version 15.0.0 20240621 (experimental) (GCC)
------------------------------------------------------------------------------

==============================================================================
  CC  600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak)
       625.x264_s(base, peak) 657.xz_s(base, peak)
------------------------------------------------------------------------------
Using built-in specs.
COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/gcc
COLLECT_LTO_WRAPPER=/home/vmakarov/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/../libexec/gcc/x86_64-pc-linux-gnu/15.0.0/lto-wrapper
Target: x86_64-pc-linux-gnu
Configured with:
  /notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src/configure
  --prefix=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen
  --srcdir=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src
  --disable-bootstrap --disable-libcilkrts --enable-checking=release
  --enable-languages=c,c++,fortran
Thread model: posix
Supported LTO compression algorithms: zlib
gcc version 15.0.0 20240621 (experimental) (GCC)
------------------------------------------------------------------------------

==============================================================================
  FC  648.exchange2_s(base, peak)
------------------------------------------------------------------------------
Using built-in specs.
COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/gfortran
COLLECT_LTO_WRAPPER=/home/vmakarov/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/../libexec/gcc/x86_64-pc-linux-gnu/15.0.0/lto-wrapper
Target: x86_64-pc-linux-gnu
Configured with:
  /notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src/configure
```

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Compiler Version Notes (Continued)

```
  --prefix=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen
  --srcdir=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src
  --disable-bootstrap --disable-libcilkrts --enable-checking=release
  --enable-languages=c,c++,fortran
Thread model: posix
Supported LTO compression algorithms: zlib
gcc version 15.0.0 20240621 (experimental) (GCC)
--------------------------------------------------------------------------
```

Base Unknown Flags

600.perlbench_s: "-fcommonARRAY(0xabf28d0) "-fcommonARRAY(0xac11ac8)

602.gcc_s: "-fcommonARRAY(0xac1ad30) "-fcommonARRAY(0xac1dad8)

605.mcf_s: "-fcommonARRAY(0xac1b1e0) "-fcommonARRAY(0xac245c8)

620.omnetpp_s: "-fcommon -std=c++14ARRAY(0xabd2fa0)
"-fcommon -std=c++14ARRAY(0xad244a8)

623.xalancbmk_s: "-fcommon -std=c++14ARRAY(0xac0e638)
"-fcommon -std=c++14ARRAY(0xad62f68)

625.x264_s: "-fcommonARRAY(0xac1b978) "-fcommonARRAY(0xad636e0)

631.deepsjeng_s: "-fcommon -std=c++14ARRAY(0xac1ac40)
"-fcommon -std=c++14ARRAY(0xad62100)

641.leela_s: "-fcommon -std=c++14ARRAY(0xac64c60)
"-fcommon -std=c++14ARRAY(0xad61190)

648.exchange2_s: "-fallow-argument-mismatchARRAY(0xad62ae8)
"-fallow-argument-mismatchARRAY(0xad8a578)

657.xz_s: "-fcommonARRAY(0xad63238) "-fcommonARRAY(0xad9d540)

Peak Unknown Flags

600.perlbench_s: "-fcommonARRAY(0xabf28d0) "-fcommonARRAY(0xac11ac8)

602.gcc_s: "-fcommonARRAY(0xac1ad30) "-fcommonARRAY(0xac1dad8)

605.mcf_s: "-fcommonARRAY(0xac1b1e0) "-fcommonARRAY(0xac245c8)

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Peak Unknown Flags (Continued)

620.omnetpp_s: "-fcommon -std=c++14ARRAY(0xabd2fa0)
"-fcommon -std=c++14ARRAY(0xac244a8)

623.xalancbmk_s: "-fcommon -std=c++14ARRAY(0xac0e638)
"-fcommon -std=c++14ARRAY(0xad62f68)

625.x264_s: "-fcommonARRAY(0xac1b978) "-fcommonARRAY(0xad636e0)

631.deepsjeng_s: "-fcommon -std=c++14ARRAY(0xac1ac40)
"-fcommon -std=c++14ARRAY(0xad62100)

641.leela_s: "-fcommon -std=c++14ARRAY(0xac64c60)
"-fcommon -std=c++14ARRAY(0xad61190)

648.exchange2_s: "-fallow-argument-mismatchARRAY(0xad62ae8)
"-fallow-argument-mismatchARRAY(0xad8a578)

657.xz_s: "-fcommonARRAY(0xad63238) "-fcommonARRAY(0xad9d540)

600.perlbench_s: "-fcommonARRAY(0xad63788) "-fcommonARRAY(0xad917c0)
"-fltoARRAY(0xada3450)

602.gcc_s: "-fcommonARRAY(0xad61518) "-fcommonARRAY(0xadad408)
"-fltoARRAY(0xadaa418)

605.mcf_s: "-fcommonARRAY(0xad83a18) "-fcommonARRAY(0xadaa3e8)
"-fltoARRAY(0xadad648)

620.omnetpp_s: "-fcommon -std=c++14ARRAY(0xad62ad0)
"-fcommon -std=c++14ARRAY(0xadabdd0)
"-fltoARRAY(0xada6890)

623.xalancbmk_s: "-fcommon -std=c++14ARRAY(0xad8eb68)
"-fcommon -std=c++14ARRAY(0xadad480)
"-fltoARRAY(0xadac568)

625.x264_s: "-fcommonARRAY(0xadad030) "-fcommonARRAY(0xada3e70)
"-fltoARRAY(0xadabd40)

631.deepsjeng_s: "-fcommon -std=c++14ARRAY(0xadacfa0)
"-fcommon -std=c++14ARRAY(0xada6068)
"-fltoARRAY(0xadb6850)

641.leela_s: "-fcommon -std=c++14ARRAY(0xadad498)
"-fcommon -std=c++14ARRAY(0xada6458)
"-fltoARRAY(0xadb7360)

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Peak Unknown Flags (Continued)

```
648.exchange2_s: "-fallow-argument-mismatchARRAY(0xada3e88)
"-fallow-argument-mismatchARRAY(0xadab180)
"-fltoARRAY(0xadb7f88)

657.xz_s: "-fcommonARRAY(0xada37b0) "-fcommonARRAY(0xadb7198)
"-fltoARRAY(0xadb8bb0)
```

Base Compiler Invocation

C benchmarks:
```
gcc
```

C++ benchmarks:
```
g++
```

Fortran benchmarks:
```
gfortran
```

Base Portability Flags

```
 600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64
 602.gcc_s: -DSPEC_LP64
 605.mcf_s: -DSPEC_LP64
 620.omnetpp_s: -DSPEC_LP64
 623.xalancbmk_s: -DSPEC_LINUX -DSPEC_LP64
 625.x264_s: -DSPEC_LP64
 631.deepsjeng_s: -DSPEC_LP64
 641.leela_s: -DSPEC_LP64
 648.exchange2_s: -DSPEC_LP64
 657.xz_s: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:
```
-z muldefs -O2 -mtune=generic -fopenmp -DSPEC_OPENMP -fgnu89-inline
-fno-strict-aliasing
```

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Base Optimization Flags (Continued)

C++ benchmarks:
-O2 -mtune=generic -fopenmp -DSPEC_OPENMP

Fortran benchmarks:
-O2 -mtune=generic -DSPEC_OPENMP -fopenmp

Peak Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Fortran benchmarks:
gfortran

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
-z muldefs -Ofast -mtune=corei7 -march=core-avx2 -fopenmp
-DSPEC_OPENMP -fgnu89-inline -fno-strict-aliasing

C++ benchmarks:
-Ofast -mtune=corei7 -march=core-avx2 -fopenmp -DSPEC_OPENMP

Fortran benchmarks:
-Ofast -mtune=corei7 -march=core-avx2 -DSPEC_OPENMP -fopenmp

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

Tested with SPEC CPU2017 v1.0.1 on 2024-06-21 16:57:22-0400.
Report generated on 2024-06-21 22:50:00 by CPU2017 PDF formatter v5748.