

SPEC® CPU2017 Integer Speed Result

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(Test Sponsor: Red Hat, Inc.)

SPECspeed2017_int_base = 6.81

SPECspeed2017_int_peak = 8.10

CPU2017 License: 0002991

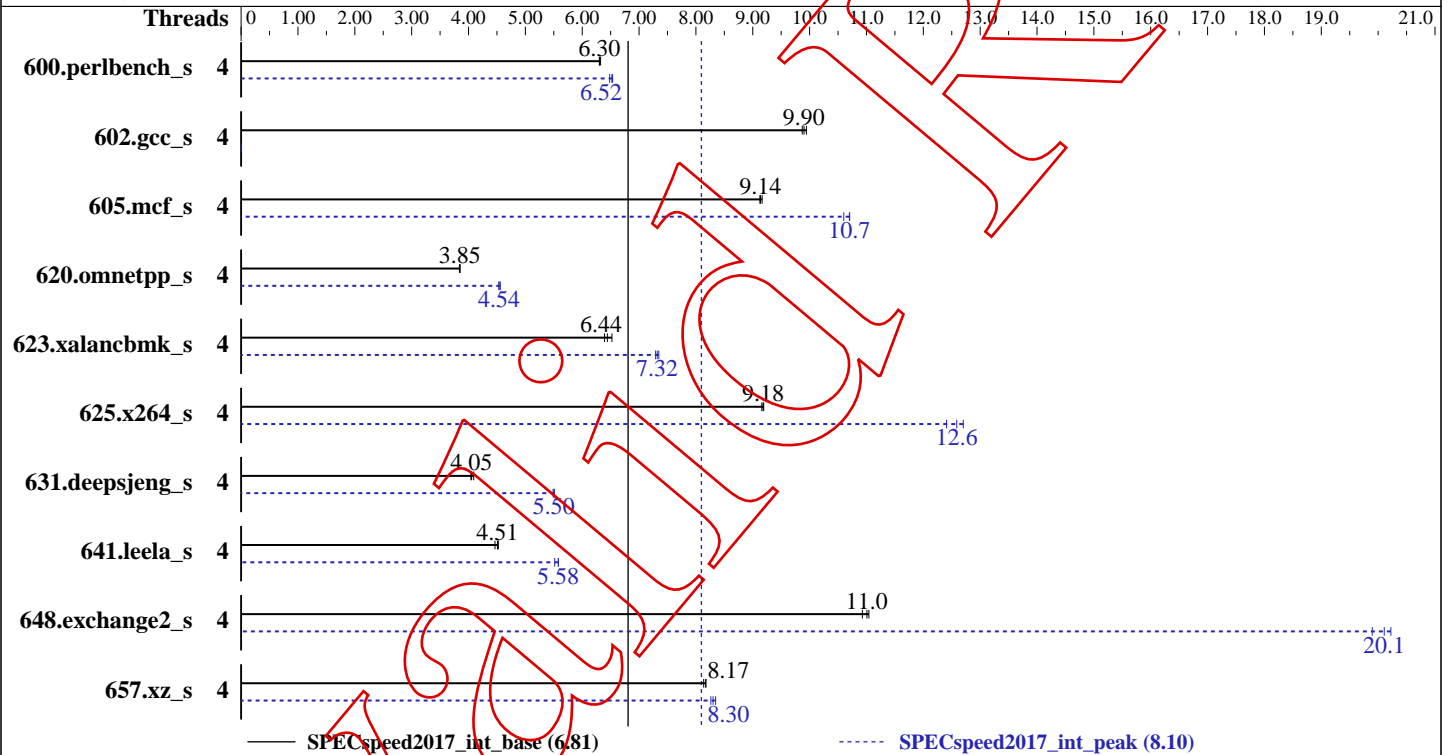
Test Sponsor: Red Hat, Inc.

Tested by: Vladimir Makarov

Test Date: Apr-2024

Hardware Availability: Now

Software Availability:



Hardware

CPU Name: AMD Ryzen 7 3800X 8-Core Processor
Max MHz.:
Nominal: 2063.468
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: 69 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 14.0.1 20240403 (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
602.gcc_s (peak) did not have enough runs!
602.gcc_s (peak) had invalid runs!
Run of 602.gcc_s (peak) was not valid; status is CE
Unknown flags were used! See

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Errors (Continued)

<https://www.spec.org/cpu2017/Docs/runcpu.html#flagsurl>
for information about how to get rid of this error.

Results Table

Benchmark	Base								Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
600.perlbench_s	4	282	6.30	281	6.32	<u>282</u>	<u>6.30</u>	4	<u>272</u>	<u>6.52</u>	274	6.48	272	6.54		
602.gcc_s	4	400	9.94	<u>402</u>	<u>9.90</u>	403	9.87	1	0.00	0.00						
605.mcf_s	4	517	9.12	<u>517</u>	<u>9.14</u>	515	9.16	4	441	10.7	445	10.6	<u>441</u>	<u>10.7</u>		
620.omnetpp_s	4	424	3.85	425	3.84	<u>424</u>	<u>3.85</u>	4	<u>359</u>	<u>4.54</u>	360	4.54	358	4.56		
623.xalancbmk_s	4	217	6.52	<u>220</u>	<u>6.44</u>	222	6.39	4	194	7.29	<u>194</u>	<u>7.32</u>	193	7.35		
625.x264_s	4	<u>192</u>	<u>9.18</u>	192	9.19	193	9.16	4	142	12.4	139	12.7	<u>140</u>	<u>12.6</u>		
631.deepsjeng_s	4	350	4.09	<u>353</u>	<u>4.05</u>	355	4.04	4	260	5.51	261	5.49	<u>260</u>	<u>5.50</u>		
641.leela_s	4	<u>378</u>	<u>4.51</u>	377	4.52	382	4.47	4	306	5.58	<u>306</u>	<u>5.58</u>	309	5.52		
648.exchange2_s	4	<u>267</u>	<u>11.0</u>	269	10.9	266	11.0	4	145	20.2	148	19.9	<u>146</u>	<u>20.1</u>		
657.xz_s	4	756	8.18	<u>756</u>	<u>8.17</u>	760	8.14	4	<u>745</u>	<u>8.30</u>	741	8.35	748	8.26		

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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 Wed Apr 3 16:49:54 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
```

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Platform Notes (Continued)

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
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: 2164.608
CPU max MHz: 3900.0000
CPU min MHz: 2200.0000
BogoMIPS: 7785.73
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 F1lb 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

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Platform Notes (Continued)

```
perfctr_llc mwaitx cpb cat_l3 cdp_l3 hw_pstate sme ssbd mba sev ibpb stibp vmmcall
fsgsbase bml 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_omsave_vmload
vgif umip rdpid overflow_recov succor smca
```

```
/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 2024-02-27 12:34
```

SPEC is set to: /notnfs/vmakarov/spec2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/fedora_localhost--live-root	ext4	69G	59G	6.9G	90%	/

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.

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Platform Notes (Continued)

(End of data from sysinfo program)

Compiler Version Notes

```
=====
CXXC 620.omnetpp_s(base, peak) 623.xalanofmk_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=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/libexec/gcc/x86_64-pc-linux-gnu/14.0.1/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 14.0.1 20240403 (experimental) (GCC)
-----
```

```
=====
CC 600.perlbench_s(base, peak) 602.gcc_s(base) 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=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/libexec/gcc/x86_64-pc-linux-gnu/14.0.1/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 14.0.1 20240403 (experimental) (GCC)
-----
```

```
=====
FC 648.exchange2_s(base, peak)
-----
```

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Software Availability:

Compiler Version Notes (Continued)

Using built-in specs.

COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/gfortran

COLLECT_LTO_WRAPPER=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/libexec/gcc/x86_64-pc-linux-gnu/14.0.1/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 14.0.1 20240403 (experimental) (GCC)

Base Unknown Flags

600.perlbench_s: "-fcommonARRAY(0xa7b72d0) "+fcommonARRAY(0xa7caf40)

602.gcc_s: "-fcommonARRAY(0xa7bc9e8) "+fcommonARRAY(0xa7ca778)

605.mcf_s: "-fcommonARRAY(0xa7c79d0) "+fcommonARRAY(0xa813840)

620.omnetpp_s: "-fcommon -std=c++14ARRAY(0xa7e7c28)

"-fcommon -std=c++14ARRAY(0xa820bb0)

623.xalancbmk_s: "-fcommon -std=c++14ARRAY(0xa7cab68)

"-fcommon -std=c++14ARRAY(0xa94e318)

625.x264_s: "-fcommonARRAY(0xa7fdbb0) "+fcommonARRAY(0xa94ea68)

631.deepsjeng_s: "-fcommon -std=c++14ARRAY(0xa7dfea0)

"-fcommon -std=c++14ARRAY(0xa94d4b0)

641.leela_s: "-fcommon -std=c++14ARRAY(0xa846c80)

"-fcommon -std=c++14ARRAY(0xa94c540)

648.exchange2_s: "-fallow-argument-mismatchARRAY(0xa94de98)

"-fallow-argument-mismatchARRAY(0xa976528)

657.xz_s: "-fcommonARRAY(0xa94e5e8) "+fcommonARRAY(0xa98ce68)

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Software Availability:

Peak Unknown Flags

600.perlbench_s: "-fcommonARRAY(0xa7b72d0) "-fcommonARRAY(0xa7caf40)

602.gcc_s: "-fcommonARRAY(0xa7bc9e8) "-fcommonARRAY(0xa7ca778)

605.mcf_s: "-fcommonARRAY(0xa7c79d0) "-fcommonARRAY(0xa813840)

620.omnetpp_s: "-fcommon -std=c++14ARRAY(0xa7e7c28)
"-fcommon -std=c++14ARRAY(0xa820bb0)

623.xalancbmk_s: "-fcommon -std=c++14ARRAY(0xa7cab68)
"-fcommon -std=c++14ARRAY(0xa94e318)

625.x264_s: "-fcommonARRAY(0xa7fdbb0) "-fcommonARRAY(0xa94ea68)

631.deepsjeng_s: "-fcommon -std=c++14ARRAY(0xa7dfea0)
"-fcommon -std=c++14ARRAY(0xa94d4b0)

641.leela_s: "-fcommon -std=c++14ARRAY(0xa846c80)
"-fcommon -std=c++14ARRAY(0xa94c540)

648.exchange2_s: "-fallow-argument-mismatchARRAY(0xa94de98)
"-fallow-argument-mismatchARRAY(0xa976528)

657.xz_s: "-fcommonARRAY(0xa94e5e8) "-fcommonARRAY(0xa98ce68)

600.perlbench_s: "-fcommonARRAY(0xa94eb10) "-fcommonARRAY(0xa978420)
"-fltoARRAY(0xa992b78)

605.mcf_s: "-fcommonARRAY(0xa94c8a0) "-fcommonARRAY(0xa9947a8)
"-fltoARRAY(0xa99cea0)

620.omnetpp_s: "-fcommon -std=c++14ARRAY(0xa98cac0)
"-fcommon -std=c++14ARRAY(0xa99ce70)
"-fltoARRAY(0xa991ec0)

623.xalancbmk_s: "-fcommon -std=c++14ARRAY(0xa94de80)
"-fcommon -std=c++14ARRAY(0xa9940e8)
"-fltoARRAY(0xa993718)

625.x264_s: "-fcommonARRAY(0xa973140) "-fcommonARRAY(0xa991cf8)
"-fltoARRAY(0xa994838)

631.deepsjeng_s: "-fcommon -std=c++14ARRAY(0xa992cb0)
"-fcommon -std=c++14ARRAY(0xa9842e0)
"-fltoARRAY(0xa98eaf0)

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Peak Unknown Flags (Continued)

```
641.leela_s: "-fcommon -std=c++14ARRAY(0xa993178)
"-fcommon -std=c++14ARRAY(0xa994370)
"-fltoARRAY(0xa99a0c8)

648.exchange2_s: "-fallow-argument-mismatchARRAY(0xa991d10)
"-fallow-argument-mismatchARRAY(0xa993f80)
"-fltoARRAY(0xa99acc8)

657.xz_s: "-fcommonARRAY(0xa98c850) "-fcommonARRAY(0xa99dc08)
"-fltoARRAY(0xa99b8f0)
```

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 (except as noted below):

gcc

C++ benchmarks:

g++

Fortran benchmarks:

gfortran

Peak Portability Flags

600.perlbench_s: -DSPEC_LINUX_X64 -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

Peak Optimization Flags

C benchmarks:

600.perlbench_s: -z muldefs -Ofast -mtune=corei7 -march=core-avx2

-fopenmp -DSPEC_OPENMP -fgnu89-inline

-fno-strict-aliasing

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Peak Optimization Flags (Continued)

605.mcf_s: Same as 600.perlbench_s

625.x264_s: Same as 600.perlbench_s

657.xz_s: Same as 600.perlbench_s

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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Tested with SPEC CPU2017 v1.0.1 on 2024-04-03 16:49:54-0400.

Report generated on 2024-04-03 22:25:27 by CPU2017 PDF formatter v5748.