

# SPEC® CPU2017 Integer Speed Result

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(Test Sponsor: Red Hat, Inc.)

SPECspeed2017\_int\_base = 6.85

SPECspeed2017\_int\_peak = 8.36

CPU2017 License: 0002991

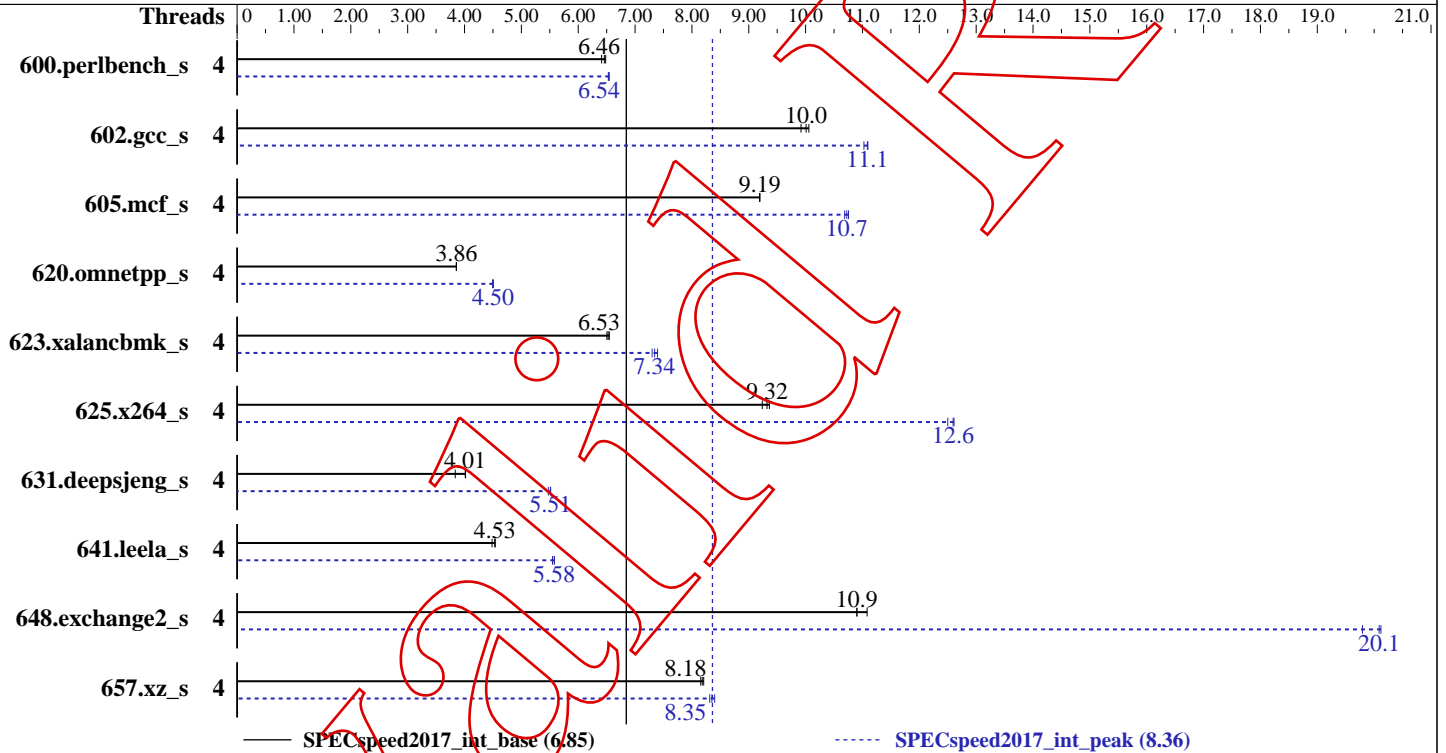
Test Sponsor: Red Hat, Inc.

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: 1952.293  
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 20240411 (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	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	4	277	6.41	<b>275</b>	<b>6.46</b>	274	6.48	4	271	6.55	272	6.53	<b>272</b>	<b>6.54</b>
602.gcc_s	4	396	10.1	<b>398</b>	<b>10.0</b>	401	9.92	4	359	11.1	<b>359</b>	<b>11.1</b>	361	11.0
605.mcf_s	4	514	9.19	<b>514</b>	<b>9.19</b>	513	9.20	4	<b>440</b>	<b>10.7</b>	442	10.7	439	10.8
620.omnetpp_s	4	423	3.86	423	3.86	<b>423</b>	<b>3.86</b>	4	<b>362</b>	<b>4.50</b>	362	4.51	363	4.49
623.xalancbmk_s	4	218	6.50	<b>217</b>	<b>6.53</b>	216	6.55	4	194	7.30	192	7.39	<b>193</b>	<b>7.34</b>
625.x264_s	4	191	9.24	188	9.36	<b>189</b>	<b>9.32</b>	4	141	12.5	<b>140</b>	<b>12.6</b>	140	12.6
631.deepsjeng_s	4	357	4.02	<b>357</b>	<b>4.01</b>	373	3.84	4	260	5.52	<b>260</b>	<b>5.51</b>	262	5.47
641.leela_s	4	<b>376</b>	<b>4.53</b>	380	4.48	376	4.54	4	<b>306</b>	<b>5.58</b>	307	5.55	306	5.58
648.exchange2_s	4	265	11.1	<b>270</b>	<b>10.9</b>	270	10.9	4	146	20.1	149	19.8	<b>146</b>	<b>20.1</b>
657.xz_s	4	758	8.15	753	8.21	<b>756</b>	<b>8.18</b>	4	736	8.40	<b>740</b>	<b>8.35</b>	744	8.31

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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` Thu Apr 11 16:55:53 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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## 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: 2269.222  
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 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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## 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 2024-02-27 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	6.6G	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.
```

```
(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=/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 20240411 (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=/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 20240411 (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=/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
```

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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 14.0.1 20240411 (experimental) (GCC)
-----
```

## Base Unknown Flags

```
600.perlbench_s: "-fcommonARRAY(0xac14888) "-fcommonARRAY(0xac092e8)
602.gcc_s: "-fcommonARRAY(0xabf7138) "-fcommonARRAY(0xac1b3d0)
605.mcf_s: "-fcommonARRAY(0xac147f8) "-fcommonARRAY(0xac1eb88)
620.omnetpp_s: "-fcommon -std=c++14ARRAY(0xabef728)
"-fcommon -std=c++14ARRAY(0xac1ea20)
623.xalancbmk_s: "-fcommon -std=c++14ARRAY(0xac09b70)
"-fcommon -std=c++14ARRAY(0xad5d7b8)
625.x264_s: "-fcommonARRAY(0xac09be8) "-fcommonARRAY(0xad5df30)
631.deepsjeng_s: "-fcommon -std=c++14ARRAY(0xac14858)
"-fcommon -std=c++14ARRAY(0xad5c950)
641.leela_s: "-fcommon -std=c++14ARRAY(0xac4d950)
"-fcommon -std=c++14ARRAY(0xad5b9e0)
648.exchange2_s: "-fallow-argument-mismatchARRAY(0xad5d338)
"-fallow-argument-mismatchARRAY(0xad839c8)
657.xz_s: "-fcommonARRAY(0xad5da88) "-fcommonARRAY(0xad939b0)
```

## Peak Unknown Flags

```
600.perlbench_s: "-fcommonARRAY(0xac14888) "-fcommonARRAY(0xac092e8)
602.gcc_s: "-fcommonARRAY(0xabf7138) "-fcommonARRAY(0xac1b3d0)
605.mcf_s: "-fcommonARRAY(0xac147f8) "-fcommonARRAY(0xac1eb88)
```

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## Peak Unknown Flags (Continued)

620.omnetpp\_s: "-fcommon -std=c++14ARRAY(0xabef728)  
"-fcommon -std=c++14ARRAY(0xac1ea20)

623.xalancbmk\_s: "-fcommon -std=c++14ARRAY(0xac09b70)  
"-fcommon -std=c++14ARRAY(0xad5d7b8)

625.x264\_s: "-fcommonARRAY(0xac09be8) "-fcommonARRAY(0xad5df30)

631.deepsjeng\_s: "-fcommon -std=c++14ARRAY(0xac14858)  
"-fcommon -std=c++14ARRAY(0xad5c950)

641.leela\_s: "-fcommon -std=c++14ARRAY(0xac4d950)  
"-fcommon -std=c++14ARRAY(0xad5b9e0)

648.exchange2\_s: "-fallow-argument-mismatchARRAY(0xad5d338)  
"-fallow-argument-mismatchARRAY(0xad839c8)

657.xz\_s: "-fcommonARRAY(0xad5da88) "-fcommonARRAY(0xad939b0)

600.perlbench\_s: "-fcommonARRAY(0xad5dfd8) "-fcommonARRAY(0xad83a10)  
"-fltoARRAY(0xad988c0)

602.gcc\_s: "-fcommonARRAY(0xad5bd68) "-fcommonARRAY(0xada4488)  
"-fltoARRAY(0xad9cea8)

605.mcf\_s: "-fcommonARRAY(0xad874e0) "-fcommonARRAY(0xada1468)  
"-fltoARRAY(0xada46c8)

620.omnetpp\_s: "-fcommon -std=c++14ARRAY(0xad5d320)  
"-fcommon -std=c++14ARRAY(0xada2e50)  
"-fltoARRAY(0xad9d9b8)

623.xalancbmk\_s: "-fcommon -std=c++14ARRAY(0xad7c358)  
"-fcommon -std=c++14ARRAY(0xada4500)  
"-fltoARRAY(0xada3588)

625.x264\_s: "-fcommonARRAY(0xada30a8) "-fcommonARRAY(0xad9cb80)  
"-fltoARRAY(0xada2dc0)

631.deepsjeng\_s: "-fcommon -std=c++14ARRAY(0xad9c190)  
"-fcommon -std=c++14ARRAY(0xad9d118)  
"-fltoARRAY(0xadad8d0)

641.leela\_s: "-fcommon -std=c++14ARRAY(0xada4518)  
"-fcommon -std=c++14ARRAY(0xad9d4d8)  
"-fltoARRAY(0xadae3e0)

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## Peak Unknown Flags (Continued)

648.exchange2\_s: "-fallow-argument-mismatchARRAY(0xad9cb98)  
"-fallow-argument-mismatchARRAY(0xada2200)  
"-fltoARRAY(0xadaf008)

657.xz\_s: "-fcommonARRAY(0xad9c5c8) "-fcommonARRAY(0xadae218)  
"-fltoARRAY(0xadafc30)

## 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.xalanbmk\_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](mailto:info@spec.org).

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