



SPEC® CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

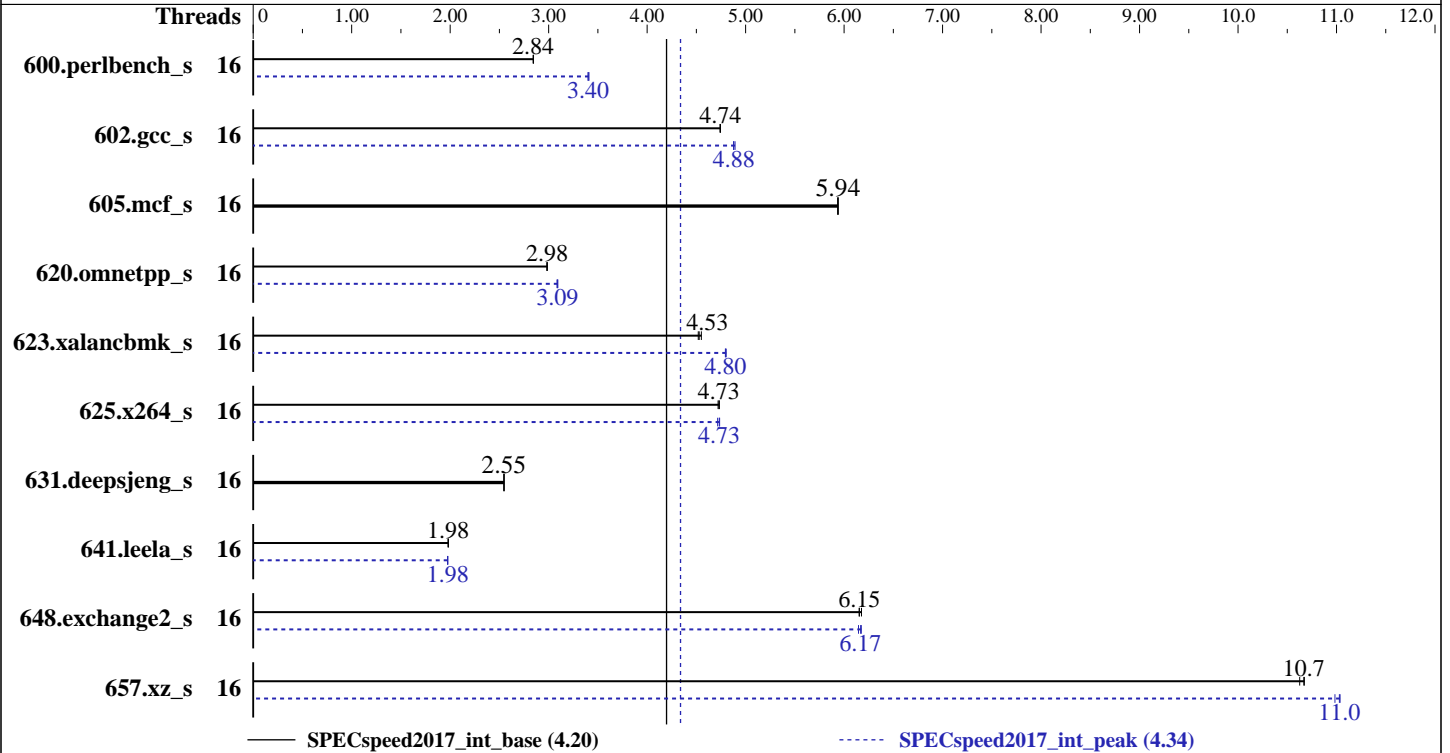
SPECspeed2017_int_base = 4.20

Huawei 2288H V5 (Intel Xeon Bronze 3106)

SPECspeed2017_int_peak = 4.34

CPU2017 License: 3175
Test Sponsor: Huawei
Tested by: Huawei

Test Date: Jun-2018
Hardware Availability: Jul-2017
Software Availability: Jan-2018



Hardware

CPU Name: Intel Xeon Bronze 3106
 Max MHz.: 1700
 Nominal: 1700
 Enabled: 16 cores, 2 chips
 Orderable: 1,2 chips
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 11 MB I+D on chip per chip
 Other: None
 Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R, running at 2133)
 Storage: 1 x 1200 GB SAS, 10000 RPM
 Other: None

Software

OS: Red Hat Enterprise Linux Server release 7.4 (Maipo)
 Compiler: C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux;
 Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux
 Parallel: Yes
 Firmware: Version 0.62 Released Mar-2018
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other: jemalloc: jemalloc memory allocator library V5.0.1;



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017_int_base = 4.20

Huawei 2288H V5 (Intel Xeon Bronze 3106)

SPECspeed2017_int_peak = 4.34

CPU2017 License: 3175
Test Sponsor: Huawei
Tested by: Huawei

Test Date: Jun-2018
Hardware Availability: Jul-2017
Software Availability: Jan-2018

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	16	624	2.84	624	2.84	624	2.85	16	521	3.41	522	3.40	522	3.40
602.gcc_s	16	840	4.74	839	4.74	839	4.74	16	816	4.88	816	4.88	814	4.89
605.mcf_s	16	795	5.94	795	5.94	796	5.93	16	795	5.94	795	5.94	796	5.93
620.omnetpp_s	16	546	2.99	546	2.98	547	2.98	16	528	3.09	529	3.08	527	3.09
623.xalancbmk_s	16	313	4.53	314	4.52	311	4.55	16	295	4.80	295	4.80	296	4.79
625.x264_s	16	374	4.72	373	4.73	373	4.73	16	373	4.73	374	4.72	372	4.74
631.deepsjeng_s	16	563	2.55	563	2.55	562	2.55	16	563	2.55	563	2.55	562	2.55
641.leela_s	16	861	1.98	861	1.98	862	1.98	16	864	1.98	864	1.97	864	1.98
648.exchange2_s	16	476	6.18	478	6.15	478	6.15	16	478	6.15	476	6.17	477	6.17
657.xz_s	16	579	10.7	579	10.7	582	10.6	16	561	11.0	563	11.0	560	11.0

SPECspeed2017_int_base = 4.20

SPECspeed2017_int_peak = 4.34

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

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

General Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/spec2017/lib/ia32:/spec2017/lib/intel64:/spec2017/je5.0.1-32:/spec2017/je5.0.1-64"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.4

Transparent Huge Pages enabled by default
Prior to runcpu invocation

Filesystem page cache synced and cleared with:
sync; echo 3> /proc/sys/vm/drop_caches
jemalloc: configured and built at default for
32bit (i686) and 64bit (x86_64) targets;
jemalloc: built with the RedHat Enterprise 7.4,
and the system compiler gcc 4.8.5;
jemalloc: sources available from jemalloc.net or
<https://github.com/jemalloc/jemalloc/releases>

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017_int_base = 4.20

Huawei 2288H V5 (Intel Xeon Bronze 3106)

SPECspeed2017_int_peak = 4.34

CPU2017 License: 3175

Test Sponsor: Huawei

Tested by: Huawei

Test Date: Jun-2018

Hardware Availability: Jul-2017

Software Availability: Jan-2018

Platform Notes

BIOS configuration:

Power Policy Set to Load Balance

XPT Prefetch Set to Enabled

Sysinfo program /spec2017/bin/sysinfo

Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f

running on localhost.localdomain Thu Jun 21 10:06:34 2018

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 : Intel(R) Xeon(R) Bronze 3106 CPU @ 1.70GHz

2 "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 : 8

physical 0: cores 0 1 2 3 4 5 6 7

physical 1: 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

CPU(s): 16

On-line CPU(s) list: 0-15

Thread(s) per core: 1

Core(s) per socket: 8

Socket(s): 2

NUMA node(s): 2

Vendor ID: GenuineIntel

CPU family: 6

Model: 85

Model name: Intel(R) Xeon(R) Bronze 3106 CPU @ 1.70GHz

Stepping: 4

CPU MHz: 1700.000

CPU max MHz: 1700.0000

CPU min MHz: 800.0000

BogoMIPS: 3400.00

Virtualization: VT-x

L1d cache: 32K

L1i cache: 32K

L2 cache: 1024K

L3 cache: 11264K

NUMA node0 CPU(s): 0-7

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017_int_base = 4.20

Huawei 2288H V5 (Intel Xeon Bronze 3106)

SPECspeed2017_int_peak = 4.34

CPU2017 License: 3175
Test Sponsor: Huawei
Tested by: Huawei

Test Date: Jun-2018
Hardware Availability: Jul-2017
Software Availability: Jan-2018

Platform Notes (Continued)

```
NUMA node1 CPU(s):      8-15
Flags:                  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperfmpperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 fma
cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsave avx f16c rdrand lahf_lm abm 3dnowprefetch epb cat_l3 cdp_l3 invpcid_single
intel_pt spec_ctrl ibpb_support tpr_shadow vnmi flexpriority ept vpid fsgsbase
tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt_a avx512f avx512dq
rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1
cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm arat pln pts
```

```
/proc/cpuinfo cache data
cache size : 11264 KB
```

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

```
available: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7
node 0 size: 194741 MB
node 0 free: 189351 MB
node 1 cpus: 8 9 10 11 12 13 14 15
node 1 size: 196608 MB
node 1 free: 190368 MB
node distances:
node  0  1
  0:  10  21
  1:  21  10
```

```
From /proc/meminfo
MemTotal:      394174584 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.4 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VARIANT="Server"
VARIANT_ID="server"
VERSION_ID="7.4"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.4 (Maipo)"
redhat-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.4:ga:server
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017_int_base = 4.20

Huawei 2288H V5 (Intel Xeon Bronze 3106)

SPECspeed2017_int_peak = 4.34

CPU2017 License: 3175
Test Sponsor: Huawei
Tested by: Huawei

Test Date: Jun-2018
Hardware Availability: Jul-2017
Software Availability: Jan-2018

Platform Notes (Continued)

```

uname -a:
Linux localhost.localdomain 3.10.0-693.11.6.el7.x86_64 #1 SMP Thu Dec 28 14:23:39 EST
2017 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 19 06:46

SPEC is set to: /spec2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4        xfs   700G  35G  666G   5% /

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.
BIOS INSYDE Corp. 0.62 03/26/2018
Memory:
24x Samsung M393A2K43BB1-CTD 16 GB 2 rank 2666, configured at 2133

(End of data from sysinfo program)

```

Compiler Version Notes

```

=====
CC 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base,
peak) 657.xz_s(base)
-----

icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

=====
CC 600.perlbench_s(peak) 602.gcc_s(peak) 605.mcf_s(peak) 657.xz_s(peak)
-----

icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

=====
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)
641.leela_s(base)
-----

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017_int_base = 4.20

Huawei 2288H V5 (Intel Xeon Bronze 3106)

SPECspeed2017_int_peak = 4.34

CPU2017 License: 3175
Test Sponsor: Huawei
Tested by: Huawei

Test Date: Jun-2018
Hardware Availability: Jul-2017
Software Availability: Jan-2018

Compiler Version Notes (Continued)

=====
CXXC 620.omnetpp_s(peak) 623.xalancbmk_s(peak) 631.deepsjeng_s(peak)
641.leela_s(peak)

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

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

ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Base Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
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



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017_int_base = 4.20

Huawei 2288H V5 (Intel Xeon Bronze 3106)

SPECspeed2017_int_peak = 4.34

CPU2017 License: 3175

Test Sponsor: Huawei

Tested by: Huawei

Test Date: Jun-2018

Hardware Availability: Jul-2017

Software Availability: Jan-2018

Base Optimization Flags

C benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP  
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

C++ benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc
```

Fortran benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte  
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

Base Other Flags

C benchmarks:

```
-m64 -std=c11
```

C++ benchmarks:

```
-m64
```

Fortran benchmarks:

```
-m64
```

Peak Compiler Invocation

C benchmarks:

```
icc
```

C++ benchmarks:

```
icpc
```

Fortran benchmarks:

```
ifort
```

Peak Portability Flags

```
600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017_int_base = 4.20

Huawei 2288H V5 (Intel Xeon Bronze 3106)

SPECspeed2017_int_peak = 4.34

CPU2017 License: 3175

Test Sponsor: Huawei

Tested by: Huawei

Test Date: Jun-2018

Hardware Availability: Jul-2017

Software Availability: Jan-2018

Peak Portability Flags (Continued)

```
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -D_FILE_OFFSET_BITS=64 -DSPEC_LINUX
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: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX2 -qopt-mem-layout-trans=3 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -fno-strict-overflow
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

```
602.gcc_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX2 -qopt-mem-layout-trans=3 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc
```

```
605.mcf_s: basepeak = yes
```

```
625.x264_s: -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

```
657.xz_s: Same as 602.gcc_s
```

C++ benchmarks:

```
620.omnetpp_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

```
623.xalancbmk_s: -L/opt/intel/compilers_and_libraries_2018/linux/lib/ia32
-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017_int_base = 4.20

Huawei 2288H V5 (Intel Xeon Bronze 3106)

SPECspeed2017_int_peak = 4.34

CPU2017 License: 3175

Test Sponsor: Huawei

Tested by: Huawei

Test Date: Jun-2018

Hardware Availability: Jul-2017

Software Availability: Jan-2018

Peak Optimization Flags (Continued)

623.xalancbmk_s (continued):

`-L/usr/local/je5.0.1-32/lib -ljemalloc`

631.deepsjeng_s: basepeak = yes

641.leela_s: Same as 620.omnetpp_s

Fortran benchmarks:

`-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div`

`-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte`

`-L/usr/local/je5.0.1-64/lib -ljemalloc`

Peak Other Flags

C benchmarks:

`-m64 -std=c11`

C++ benchmarks (except as noted below):

`-m64`

623.xalancbmk_s: `-m32`

Fortran benchmarks:

`-m64`

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.9-revC.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.9-revC.xml>

SPEC is a registered trademark 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 CPU2017 v1.0.2 on 2018-06-21 10:06:33-0400.

Report generated on 2018-10-31 18:50:22 by CPU2017 PDF formatter v6067.

Originally published on 2018-07-10.