



SPEC® CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017_int_base = 8.82

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_peak = 9.07

CPU2017 License: 55

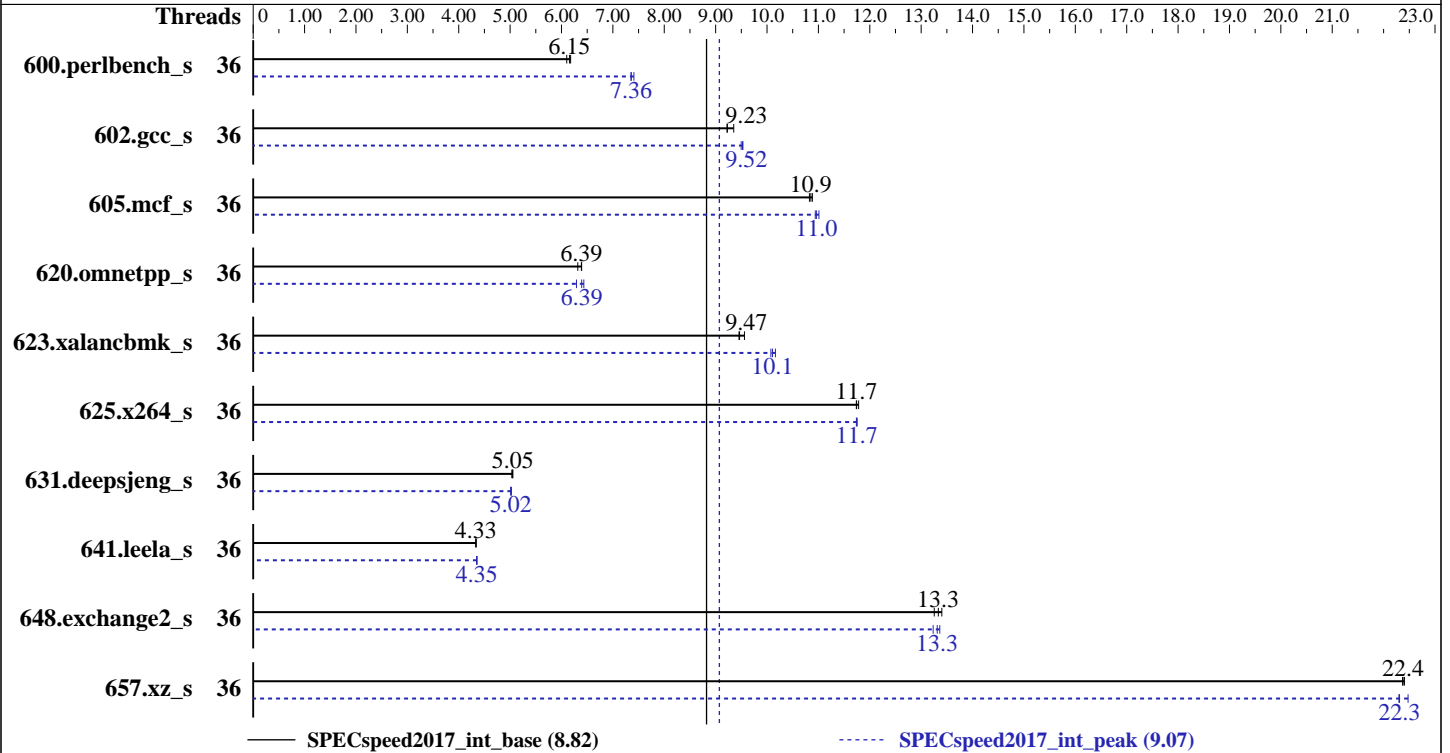
Test Date: Mar-2018

Test Sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Feb-2018



Hardware

CPU Name: Intel Xeon Gold 6154
 Max MHz.: 3700
 Nominal: 3000
 Enabled: 36 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: 24.75 MB I+D on chip per chip
 Other: None
 Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)
 Storage: 480 GB SATA SSD
 Other: None

Software

OS: SUSE Linux Enterprise Server 12 SP2
 4.4.114-94.11-default
 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 1.3.7 released Feb-2018
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other: jemalloc memory allocator library V5.0.1



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017_int_base = 8.82

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_peak = 9.07

CPU2017 License: 55

Test Date: Mar-2018

Test Sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Feb-2018

Results Table

| Benchmark | Base | | | | | | Peak | | | | | | | |
|-----------------|---------|------------|-------------|------------|-------------|------------|-------------|---------|------------|-------------|------------|-------------|------------|-------------|
| | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 600.perlbench_s | 36 | 287 | 6.18 | 291 | 6.10 | 288 | 6.15 | 36 | 241 | 7.35 | 240 | 7.41 | 241 | 7.36 |
| 602.gcc_s | 36 | 426 | 9.35 | 432 | 9.22 | 432 | 9.23 | 36 | 418 | 9.53 | 419 | 9.50 | 418 | 9.52 |
| 605.mcf_s | 36 | 435 | 10.9 | 434 | 10.9 | 436 | 10.8 | 36 | 431 | 11.0 | 432 | 10.9 | 429 | 11.0 |
| 620.omnetpp_s | 36 | 258 | 6.32 | 255 | 6.39 | 255 | 6.39 | 36 | 259 | 6.29 | 253 | 6.43 | 255 | 6.39 |
| 623.xalancbmk_s | 36 | 150 | 9.45 | 148 | 9.56 | 150 | 9.47 | 36 | 140 | 10.1 | 139 | 10.2 | 141 | 10.1 |
| 625.x264_s | 36 | 150 | 11.7 | 150 | 11.8 | 150 | 11.7 | 36 | 150 | 11.7 | 150 | 11.8 | 150 | 11.7 |
| 631.deepsjeng_s | 36 | 284 | 5.05 | 285 | 5.03 | 284 | 5.05 | 36 | 286 | 5.02 | 286 | 5.01 | 285 | 5.03 |
| 641.leela_s | 36 | 394 | 4.33 | 393 | 4.34 | 394 | 4.33 | 36 | 392 | 4.35 | 392 | 4.35 | 392 | 4.35 |
| 648.exchange2_s | 36 | 220 | 13.3 | 219 | 13.4 | 222 | 13.3 | 36 | 221 | 13.3 | 220 | 13.4 | 222 | 13.2 |
| 657.xz_s | 36 | 276 | 22.4 | 276 | 22.4 | 276 | 22.4 | 36 | 277 | 22.3 | 277 | 22.3 | 275 | 22.5 |

SPECspeed2017_int_base = 8.82

SPECspeed2017_int_peak = 9.07

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 = "/home/cpu2017rev5/cpu2017/lib/ia32:/home/cpu2017rev5/cpu2017/lib/intel64:/home/cpu2017rev5/cpu2017/je5.0.1-32:/home/cpu2017rev5/cpu2017/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

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.

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 via jemalloc.net

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



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017_int_base = 8.82

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_peak = 9.07

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2018

Hardware Availability: Sep-2017

Software Availability: Feb-2018

Platform Notes

BIOS settings:

Sub NUMA Cluster disabled
 Virtualization Technology disabled
 System Profile set to Custom
 CPU Performance set to Maximum Performance
 C States set to Autonomous
 C1E disabled
 Uncore Frequency set to Dynamic
 Energy Efficiency Policy set to Performance
 Memory Patrol Scrub disabled
 Logical Processor disabled
 CPU Interconnect Bus Link Power Management disabled
 PCI ASPM L1 Link Power Management disabled
 Sysinfo program /home/cpu2017rev5/cpu2017/bin/sysinfo
 Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
 running on linux-bgfp Wed Mar 21 11:16:16 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) Gold 6154 CPU @ 3.00GHz
  2 "physical id"s (chips)
  36 "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 : 18
siblings  : 18
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

```

From lscpu:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:             Little Endian
CPU(s):                 36
On-line CPU(s) list:   0-35
Thread(s) per core:    1
Core(s) per socket:    18
Socket(s):              2
NUMA node(s):          2
Vendor ID:              GenuineIntel
CPU family:             6
Model:                  85
Model name:             Intel(R) Xeon(R) Gold 6154 CPU @ 3.00GHz
Stepping:               4

```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017_int_base = 8.82

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_peak = 9.07

CPU2017 License: 55

Test Date: Mar-2018

Test Sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Feb-2018

Platform Notes (Continued)

```

CPU MHz:                2992.989
BogoMIPS:               5985.97
Virtualization:        VT-x
L1d cache:              32K
L1i cache:              32K
L2 cache:               1024K
L3 cache:               25344K
NUMA node0 CPU(s):    0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34
NUMA node1 CPU(s):    1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35
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 sdbg
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 ida arat epb invpcid_single pln pts
dtherm intel_pt rsb_ctxsw spec_ctrl retpoline kaiser tpr_shadow vmi flexpriority
ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx
avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt
xsavec xgetbv1 cqm_llc cqm_occup_llc pku ospke

```

```

/proc/cpuinfo cache data
cache size : 25344 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 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34
node 0 size: 191988 MB
node 0 free: 191584 MB
node 1 cpus: 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35
node 1 size: 193516 MB
node 1 free: 193087 MB
node distances:
node  0  1
 0:  10  21
 1:  21  10

```

```

From /proc/meminfo
MemTotal:      394757388 kB
HugePages_Total:      0
Hugepagesize:   2048 kB

```

```

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2

```

```

From /etc/*release* /etc/*version*
SuSE-release:

```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017_int_base = 8.82

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_peak = 9.07

CPU2017 License: 55

Test Date: Mar-2018

Test Sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Feb-2018

Platform Notes (Continued)

SUSE Linux Enterprise Server 12 (x86_64)

VERSION = 12

PATCHLEVEL = 2

This file is deprecated and will be removed in a future service pack or release.

Please check /etc/os-release for details about this release.

os-release:

NAME="SLES"

VERSION="12-SP2"

VERSION_ID="12.2"

PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"

ID="sles"

ANSI_COLOR="0;32"

CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:

Linux linux-bgfp 4.4.114-94.11-default #1 SMP Thu Feb 1 19:28:26 UTC 2018 (4309ff9)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 21 11:15

SPEC is set to: /home/cpu2017rev5/cpu2017

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   405G   53G  353G  14% /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.

BIOS Dell Inc. 1.3.7 02/08/2018

Memory:

22x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666

2x 00CE063200CE M393A2K43BB1-CTD 16 GB 2 rank 2666

(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.
=====

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017_int_base = 8.82

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_peak = 9.07

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2018

Hardware Availability: Sep-2017

Software Availability: Feb-2018

Compiler Version Notes (Continued)

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.

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

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017_int_base = 8.82

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_peak = 9.07

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2018

Hardware Availability: Sep-2017

Software Availability: Feb-2018

Base Portability Flags (Continued)

```
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
```

Base Optimization Flags

C benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -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-AVX512 -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-AVX512 -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
```



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017_int_base = 8.82

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_peak = 9.07

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2018

Hardware Availability: Sep-2017

Software Availability: Feb-2018

Peak Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Peak 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: -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: -w1,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX512 -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: -w1,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX512 -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: -w1,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017_int_base = 8.82

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_peak = 9.07

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2018

Hardware Availability: Sep-2017

Software Availability: Feb-2018

Peak Optimization Flags (Continued)

625.x264_s: -Wl,-z,muldefs -xCORE-AVX512 -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-AVX512 -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-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-32/lib -ljemalloc

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: Same as 620.omnetpp_s

Fortran benchmarks:

-Wl,-z,muldefs -xCORE-AVX512 -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



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017_int_base = 8.82

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_peak = 9.07

CPU2017 License: 55

Test Date: Mar-2018

Test Sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Feb-2018

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-10-19.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge14G-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-linux64.2017-10-19.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge14G-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 2018-03-21 12:16:15-0400.

Report generated on 2018-10-31 17:45:04 by CPU2017 PDF formatter v6067.

Originally published on 2018-05-01.