



SPEC® CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECspeed2017_int_base = 8.91

ThinkSystem SR950
(3.00 GHz, Intel Xeon Platinum 8158)

SPECspeed2017_int_peak = 9.14

CPU2017 License: 9017

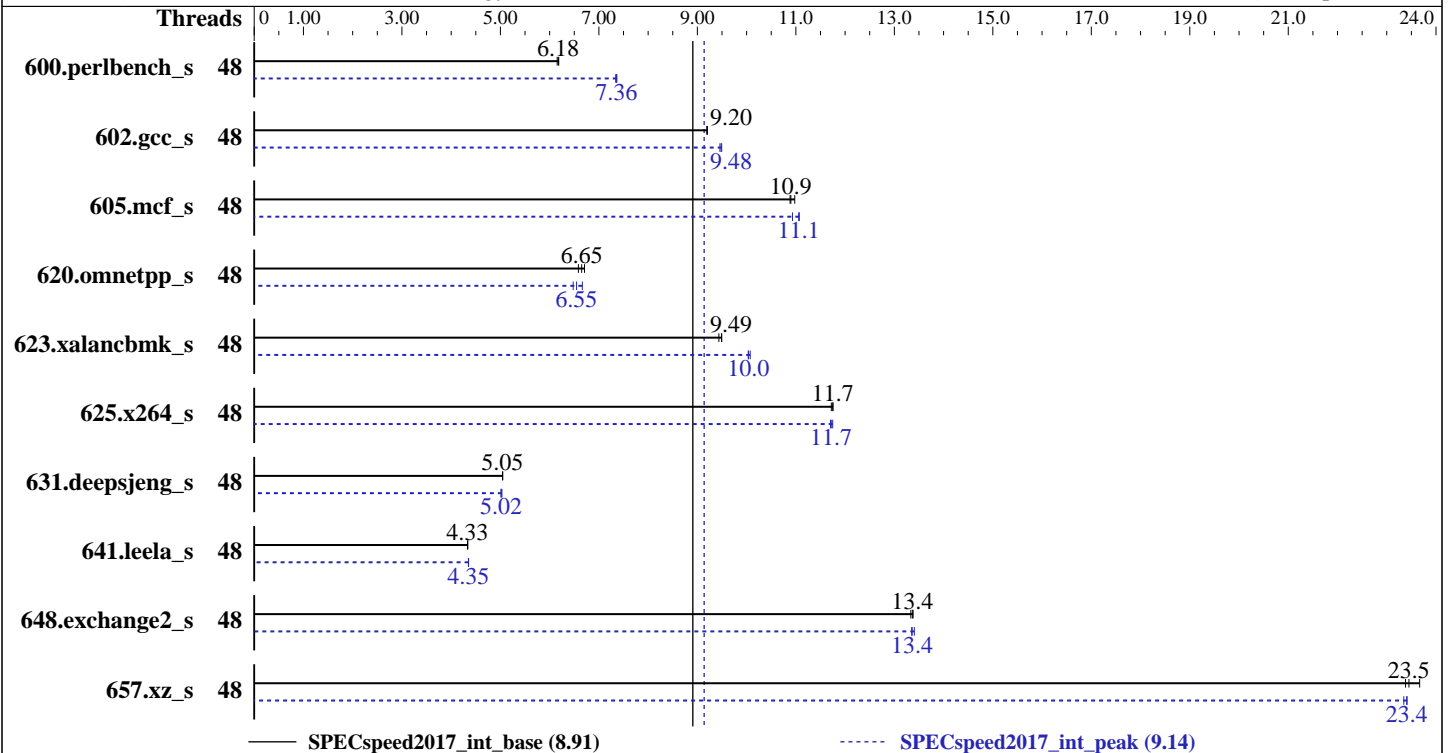
Test Date: Dec-2017

Test Sponsor: Lenovo Global Technology

Hardware Availability: Sep-2017

Tested by: Lenovo Global Technology

Software Availability: Sep-2017



Hardware

CPU Name: Intel Xeon Platinum 8158
 Max MHz.: 3700
 Nominal: 3000
 Enabled: 48 cores, 4 chips
 Orderable: 2,4 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: 1536 GB (48 x 32 GB 2Rx4 PC4-2666V-R)
 Storage: 1 x 800 GB SAS SSD
 Other: None

Software

OS: SUSE Linux Enterprise Server 12 SP2 (x86_64)
 Kernel 4.4.21-69-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: Lenovo BIOS Version PSE105X 1.00 released Aug-2017
 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;
 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
 releases



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECspeed2017_int_base = 8.91

ThinkSystem SR950
(3.00 GHz, Intel Xeon Platinum 8158)

SPECspeed2017_int_peak = 9.14

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test Date: Dec-2017
Hardware Availability: Sep-2017
Software Availability: Sep-2017

Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	48	287	6.18	288	6.15	287	6.18	48	241	7.36	241	7.36	242	7.34
602.gcc_s	48	433	9.20	433	9.19	433	9.20	48	420	9.48	419	9.49	421	9.46
605.mcf_s	48	433	10.9	430	11.0	434	10.9	48	432	10.9	427	11.1	426	11.1
620.omnetpp_s	48	248	6.58	243	6.71	245	6.65	48	249	6.55	252	6.48	245	6.66
623.xalancbmk_s	48	149	9.49	149	9.49	150	9.44	48	141	10.0	141	10.1	141	10.0
625.x264_s	48	151	11.7	150	11.8	150	11.7	48	151	11.7	150	11.7	151	11.7
631.deepsjeng_s	48	284	5.04	284	5.05	284	5.05	48	286	5.01	286	5.02	285	5.03
641.leela_s	48	393	4.34	394	4.33	394	4.33	48	392	4.35	392	4.35	392	4.35
648.exchange2_s	48	220	13.4	220	13.4	220	13.3	48	220	13.4	220	13.4	219	13.4
657.xz_s	48	261	23.7	264	23.4	264	23.5	48	264	23.4	264	23.4	265	23.3

SPECspeed2017_int_base = **8.91**

SPECspeed2017_int_peak = **9.14**

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/cpu2017.1.0.2.ic18.0/lib/ia32:/home/cpu2017.1.0.2.ic18.0/lib/intel64"
LD_LIBRARY_PATH = "\$LD_LIBRARY_PATH:/home/cpu2017.1.0.2.ic18.0/je5.0.1-32:/home/cpu2017.1.0.2.ic18.0/je5.0.1-64"

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

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance
Hyper-Threading set to Disable
MONITORMWAIT set to Enable
DCU Streamer Prefetcher set to Disable
XPT Prefetcher set to Enable
Stale AtoS set to Enable
DCA set to Enable
Trusted Execution Technology set to Enable

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECspeed2017_int_base = 8.91

ThinkSystem SR950
(3.00 GHz, Intel Xeon Platinum 8158)

SPECspeed2017_int_peak = 9.14

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test Date: Dec-2017
Hardware Availability: Sep-2017
Software Availability: Sep-2017

Platform Notes (Continued)

LLC Deadline Alloc set to Disable
Sysinfo program /home/cpu2017.1.0.2.ic18.0/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on linux-ciok Wed Dec 13 10:24:38 2017

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) Platinum 8158 CPU @ 3.00GHz
4 "physical id"s (chips)
48 "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 : 12
siblings : 12
physical 0: cores 0 1 2 3 4 9 10 16 18 19 25 26
physical 1: cores 0 3 4 5 6 7 16 18 19 20 21 22
physical 2: cores 0 1 2 3 10 17 18 19 24 25 26 27
physical 3: cores 0 1 2 3 4 9 10 16 18 19 25 26

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 48
On-line CPU(s) list: 0-47
Thread(s) per core: 1
Core(s) per socket: 12
Socket(s): 4
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Platinum 8158 CPU @ 3.00GHz
Stepping: 4
CPU MHz: 2992.946
BogoMIPS: 5985.89
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
NUMA node0 CPU(s): 0-11
NUMA node1 CPU(s): 12-23
NUMA node2 CPU(s): 24-35

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(3.00 GHz, Intel Xeon Platinum 8158)

SPECspeed2017_int_base = 8.91

SPECspeed2017_int_peak = 9.14

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Dec-2017

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Platform Notes (Continued)

NUMA node3 CPU(s): 36-47

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 aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 sse3 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 pln pts dtherm intel_pt tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmil 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

```
/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: 4 nodes (0-3)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11
node 0 size: 386500 MB
node 0 free: 385438 MB
node 1 cpus: 12 13 14 15 16 17 18 19 20 21 22 23
node 1 size: 387042 MB
node 1 free: 386100 MB
node 2 cpus: 24 25 26 27 28 29 30 31 32 33 34 35
node 2 size: 387042 MB
node 2 free: 386096 MB
node 3 cpus: 36 37 38 39 40 41 42 43 44 45 46 47
node 3 size: 387038 MB
node 3 free: 385802 MB
node distances:
node 0 1 2 3
0: 10 21 21 21
1: 21 10 21 21
2: 21 21 10 21
3: 21 21 21 10
```

```
From /proc/meminfo
MemTotal: 1584767344 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

From /etc/*release* /etc/*version*

```
SuSE-release:
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.
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(3.00 GHz, Intel Xeon Platinum 8158)

SPECspeed2017_int_base = 8.91

SPECspeed2017_int_peak = 9.14

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test Date: Dec-2017
Hardware Availability: Sep-2017
Software Availability: Sep-2017

Platform Notes (Continued)

```
# 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-ciok 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67)
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Dec 13 10:20
```

```
SPEC is set to: /home/cpu2017.1.0.2.ic18.0
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       xfs   445G   39G  406G   9% /
```

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 Lenovo -[PSE105X-1.00]- 08/17/2017
Memory:
48x NO DIMM NO DIMM
48x Samsung M393A4K40BB2-CTD 32 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.  
-----
```

```
=====  
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.
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(3.00 GHz, Intel Xeon Platinum 8158)

SPECspeed2017_int_base = 8.91

SPECspeed2017_int_peak = 9.14

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Dec-2017

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Compiler Version Notes (Continued)

=====
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
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(3.00 GHz, Intel Xeon Platinum 8158)

SPECspeed2017_int_base = 8.91

SPECspeed2017_int_peak = 9.14

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Dec-2017

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Base Portability Flags (Continued)

```
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
```

Peak Compiler Invocation

C benchmarks:

```
icc
```

C++ benchmarks:

```
icpc
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(3.00 GHz, Intel Xeon Platinum 8158)

SPECspeed2017_int_base = 8.91

SPECspeed2017_int_peak = 9.14

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Dec-2017

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Peak Compiler Invocation (Continued)

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: -Wl,-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: -Wl,-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: -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

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

```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(3.00 GHz, Intel Xeon Platinum 8158)

SPECspeed2017_int_base = 8.91

SPECspeed2017_int_peak = 9.14

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Dec-2017

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Peak Optimization Flags (Continued)

657.xz_s: Same as 602.gcc_s

C++ benchmarks:

```
620.omnetpp_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
```

```
623.xalancbmk_s: -L/opt/intel/compilers_and_libraries_2018/linux/lib/ia32
-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/je5.0.1-32/lib -ljemalloc
```

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: Same as 620.omnetpp_s

Fortran benchmarks:

```
-W1,-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
```

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/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-A.html>



SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(3.00 GHz, Intel Xeon Platinum 8158)

SPECspeed2017_int_base = 8.91

SPECspeed2017_int_peak = 9.14

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Dec-2017

Hardware Availability: Sep-2017

Software Availability: Sep-2017

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/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-A.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 2017-12-12 21:24:38-0500.

Report generated on 2018-10-31 17:00:04 by CPU2017 PDF formatter v6067.

Originally published on 2018-01-10.