



# SPEC® CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate2017\_int\_base = 55.6

### Inspur NS5162M5 (Intel Xeon Gold 5122)

SPECrate2017\_int\_peak = 58.1

CPU2017 License: 3358

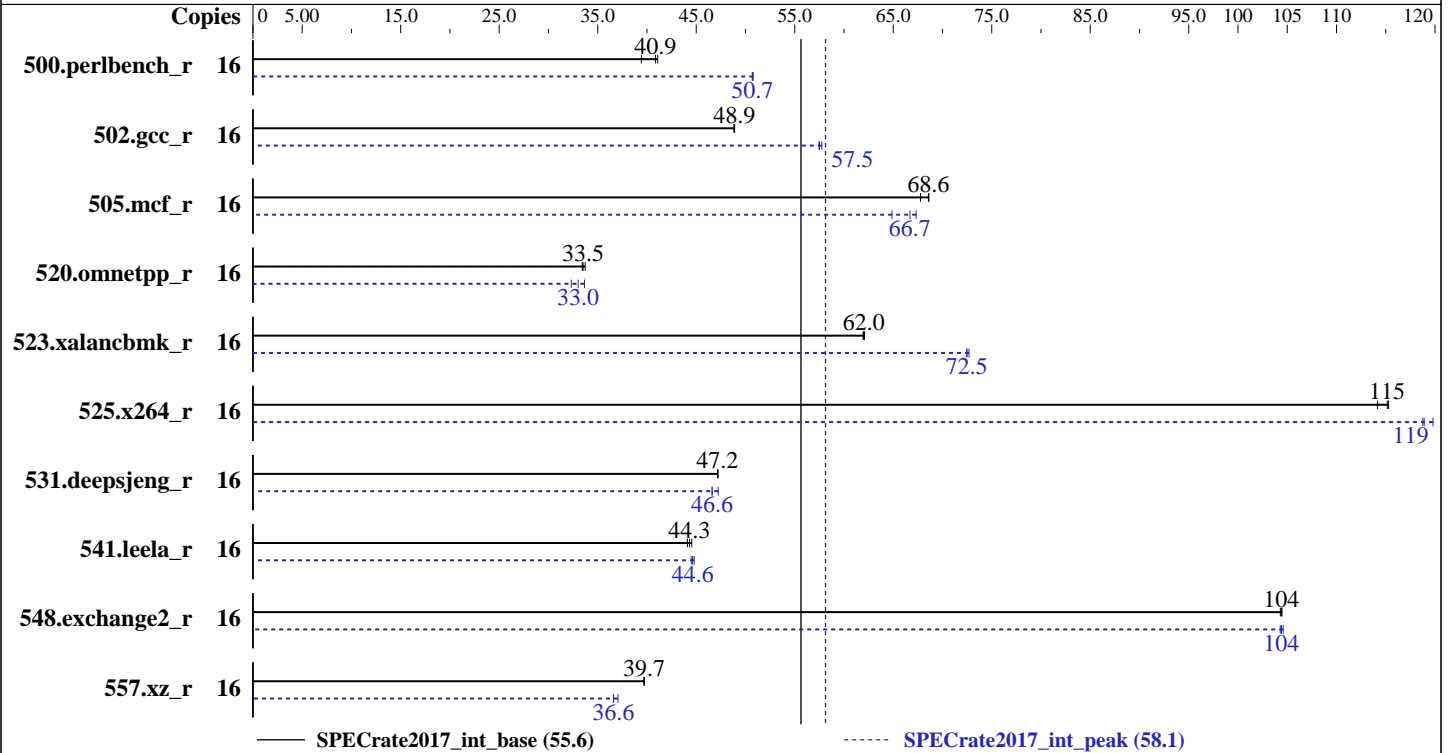
Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Aug-2018

Software Availability: Mar-2018



### Hardware

CPU Name: Intel Xeon Gold 5122  
 Max MHz.: 3700  
 Nominal: 3600  
 Enabled: 8 cores, 2 chips, 2 threads/core  
 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: 16.5 MB I+D on chip per chip  
 Other: None  
 Memory: 192 GB (12 x 16 GB 2Rx4 PC4-2666V-R)  
 Storage: 1 x 480 GB SATA SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 12 SP2  
 4.4.120-92.70-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: No  
 Firmware: Version 4.0.1 released Aug-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 Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate2017\_int\_base = 55.6

## Inspur NS5162M5 (Intel Xeon Gold 5122)

SPECrate2017\_int\_peak = 58.1

CPU2017 License: 3358  
Test Sponsor: Inspur Corporation  
Tested by: Inspur Corporation

Test Date: May-2019  
Hardware Availability: Aug-2018  
Software Availability: Mar-2018

### Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	16	<b>623</b>	<b>40.9</b>	620	41.1	646	39.4	16	502	50.7	<b>502</b>	<b>50.7</b>	502	50.8
502.gcc_r	16	<b>463</b>	<b>48.9</b>	463	48.9	464	48.8	16	<b>394</b>	<b>57.5</b>	392	57.8	394	57.5
505.mcf_r	16	377	68.6	382	67.8	<b>377</b>	<b>68.6</b>	16	<b>388</b>	<b>66.7</b>	384	67.3	399	64.9
520.omnetpp_r	16	622	33.7	628	33.4	<b>626</b>	<b>33.5</b>	16	624	33.7	<b>636</b>	<b>33.0</b>	650	32.3
523.xalancbmk_r	16	<b>273</b>	<b>62.0</b>	272	62.1	273	61.9	16	232	72.7	<b>233</b>	<b>72.5</b>	233	72.5
525.x264_r	16	243	115	<b>243</b>	<b>115</b>	245	114	16	<b>236</b>	<b>119</b>	236	119	234	120
531.deepsjeng_r	16	389	47.2	388	47.2	<b>389</b>	<b>47.2</b>	16	388	47.2	<b>393</b>	<b>46.6</b>	393	46.6
541.leela_r	16	<b>598</b>	<b>44.3</b>	601	44.1	595	44.6	16	<b>594</b>	<b>44.6</b>	595	44.5	592	44.8
548.exchange2_r	16	401	104	402	104	<b>402</b>	<b>104</b>	16	401	105	402	104	<b>401</b>	<b>104</b>
557.xz_r	16	435	39.7	435	39.7	<b>435</b>	<b>39.7</b>	16	466	37.1	<b>472</b>	<b>36.6</b>	472	36.6

SPECrate2017\_int\_base = 55.6

SPECrate2017\_int\_peak = 58.1

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

### Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

### 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:

LD\_LIBRARY\_PATH = "/home/CPU2017/lib/ia32:/home/CPU2017/lib/intel64:/home/CPU2017/je5.0.1-32:/home/CPU2017/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
```

runcpu command invoked through numactl i.e.:

```
numactl --interleave=all runcpu <etc>
```

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)

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 55.6

Inspur NS5162M5 (Intel Xeon Gold 5122)

SPECrate2017\_int\_peak = 58.1

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Aug-2018

Software Availability: Mar-2018

## General Notes (Continued)

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 from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

## Platform Notes

BIOS and OS configuration:  
SCALING\_GOVNOR set to Performance  
Hardware Prefetch set to Disable  
VT Support set to Disable  
ClE Support set to Disable  
IMC (Integrated memory controller) Interleaving set to 1-way  
Sub NUMA Cluster (SNC) set to Enable  
Sysinfo program /home/CPU2017/bin/sysinfo  
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9  
running on linux-q537 Wed May 15 12:03:21 2019

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 5122 CPU @ 3.60GHz  
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 : 4  
siblings : 8  
physical 0: cores 1 2 5 11  
physical 1: cores 1 5 9 13

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: 2  
Core(s) per socket: 4

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate2017\_int\_base = 55.6

## Inspur NS5162M5 (Intel Xeon Gold 5122)

SPECrate2017\_int\_peak = 58.1

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Aug-2018

Software Availability: Mar-2018

### Platform Notes (Continued)

```

Socket(s):                2
NUMA node(s):             4
Vendor ID:                GenuineIntel
CPU family:               6
Model:                    85
Model name:               Intel(R) Xeon(R) Gold 5122 CPU @ 3.60GHz
Stepping:                 4
CPU MHz:                  3653.640
CPU max MHz:              3700.0000
CPU min MHz:              1200.0000
BogoMIPS:                 7183.10
Virtualization:          VT-x
L1d cache:                32K
L1i cache:                32K
L2 cache:                 1024K
L3 cache:                 16896K
NUMA node0 CPU(s):       0,1,8,9
NUMA node1 CPU(s):       2,3,10,11
NUMA node2 CPU(s):       4,6,12,14
NUMA node3 CPU(s):       5,7,13,15

```

```

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 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
hwp hwp_act_window hwp_epp hwp_pkg_req intel_pt rsb_ctxsw spec_ctrl stibp retpoline
kaiser tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bml 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 : 16896 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 8 9
node 0 size: 46875 MB
node 0 free: 46678 MB
node 1 cpus: 2 3 10 11
node 1 size: 48376 MB
node 1 free: 48181 MB
node 2 cpus: 4 6 12 14
node 2 size: 48376 MB
node 2 free: 48179 MB
node 3 cpus: 5 7 13 15

```

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate2017\_int\_base = 55.6

## Inspur NS5162M5 (Intel Xeon Gold 5122)

SPECrate2017\_int\_peak = 58.1

**CPU2017 License:** 3358  
**Test Sponsor:** Inspur Corporation  
**Tested by:** Inspur Corporation

**Test Date:** May-2019  
**Hardware Availability:** Aug-2018  
**Software Availability:** Mar-2018

### Platform Notes (Continued)

```
node 3 size: 48240 MB
node 3 free: 47990 MB
node distances:
node  0  1  2  3
  0:  10  11  21  21
  1:  11  10  21  21
  2:  21  21  10  11
  3:  21  21  11  10
```

```
From /proc/meminfo
MemTotal:      196473032 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:
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-q537 4.4.120-92.70-default #1 SMP Wed Mar 14 15:59:43 UTC 2018 (52a83de)
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

```
CVE-2017-5754 (Meltdown):      Mitigation: PTI
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS+IBPB
```

```
run-level 3 May 15 12:02 last=5
```

```
SPEC is set to: /home/CPU2017
Filesystem      Type  Size  Used Avail Use% Mounted on
```

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 55.6

Inspur NS5162M5 (Intel Xeon Gold 5122)

SPECrate2017\_int\_peak = 58.1

CPU2017 License: 3358  
Test Sponsor: Inspur Corporation  
Tested by: Inspur Corporation

Test Date: May-2019  
Hardware Availability: Aug-2018  
Software Availability: Mar-2018

## Platform Notes (Continued)

/dev/sdb3 xfs 407G 60G 348G 15% /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 Inspur 4.0.1 08/30/2018

Memory:

12x Micron 18ASF2G72PZ-2G6D1 16 GB 1 rank 2666  
4x NO DIMM NO DIMM

(End of data from sysinfo program)

## Compiler Version Notes

=====  
CC 500.perlbench\_r(base) 502.gcc\_r(base) 505.mcf\_r(base, peak)  
525.x264\_r(base, peak) 557.xz\_r(base, peak)  
-----

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

=====  
CC 500.perlbench\_r(peak) 502.gcc\_r(peak)  
-----

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

=====  
CXXC 520.omnetpp\_r(base) 523.xalancbmk\_r(base) 531.deepsjeng\_r(base)  
541.leela\_r(base)  
-----

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

=====  
CXXC 520.omnetpp\_r(peak) 523.xalancbmk\_r(peak) 531.deepsjeng\_r(peak)  
541.leela\_r(peak)  
-----

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

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 55.6

Inspur NS5162M5 (Intel Xeon Gold 5122)

SPECrate2017\_int\_peak = 58.1

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Aug-2018

Software Availability: Mar-2018

## Compiler Version Notes (Continued)

=====  
FC 548.exchange2\_r(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

500.perlbench\_r: -DSPEC\_LP64 -DSPEC\_LINUX\_X64

502 gcc\_r: -DSPEC\_LP64

505.mcf\_r: -DSPEC\_LP64

520.omnetpp\_r: -DSPEC\_LP64

523.xalancbmk\_r: -DSPEC\_LP64 -DSPEC\_LINUX

525.x264\_r: -DSPEC\_LP64

531.deepsjeng\_r: -DSPEC\_LP64

541.leela\_r: -DSPEC\_LP64

548.exchange2\_r: -DSPEC\_LP64

557.xz\_r: -DSPEC\_LP64

## Base Optimization Flags

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

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

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 55.6

Inspur NS5162M5 (Intel Xeon Gold 5122)

SPECrate2017\_int\_peak = 58.1

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Aug-2018

Software Availability: Mar-2018

## Base Optimization Flags (Continued)

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
```

Fortran benchmarks:

```
ifort
```

## Peak Portability Flags

```
500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64  
502.gcc_r: -D_FILE_OFFSET_BITS=64  
505.mcf_r: -DSPEC_LP64  
520.omnetpp_r: -DSPEC_LP64  
523.xalancbmk_r: -D_FILE_OFFSET_BITS=64 -DSPEC_LINUX  
525.x264_r: -DSPEC_LP64  
531.deepsjeng_r: -DSPEC_LP64  
541.leela_r: -DSPEC_LP64  
548.exchange2_r: -DSPEC_LP64  
557.xz_r: -DSPEC_LP64
```





# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 55.6

Inspur NS5162M5 (Intel Xeon Gold 5122)

SPECrate2017\_int\_peak = 58.1

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Aug-2018

Software Availability: Mar-2018

## Peak Optimization Flags

C benchmarks:

```
500.perlbench_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3
-fno-strict-overflow -L/usr/local/je5.0.1-64/lib
-ljemalloc
```

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

```
505.mcf_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib
-ljemalloc
```

```
525.x264_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -fno-alias
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

557.xz\_r: Same as 505.mcf\_r

C++ benchmarks:

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

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

531.deepsjeng\_r: Same as 520.omnetpp\_r

541.leela\_r: Same as 520.omnetpp\_r

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
```



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 55.6

Inspur NS5162M5 (Intel Xeon Gold 5122)

SPECrate2017\_int\_peak = 58.1

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Aug-2018

Software Availability: Mar-2018

## Peak Other Flags

C benchmarks (except as noted below):

-m64 -std=c11

502.gcc\_r: -m32 -std=c11

C++ benchmarks (except as noted below):

-m64

523.xalancbmk\_r: -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/Inspur-Platform-Settings-V1.1-SKL.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/Inspur-Platform-Settings-V1.1-SKL.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](mailto:info@spec.org).

Tested with SPEC CPU2017 v1.0.5 on 2019-05-15 12:03:20-0400.

Report generated on 2019-06-11 17:23:46 by CPU2017 PDF formatter v6067.

Originally published on 2019-06-11.