



# SPEC® CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate2017\_int\_base = 91.4

### Inspur NF5270M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 96.6

CPU2017 License: 3358

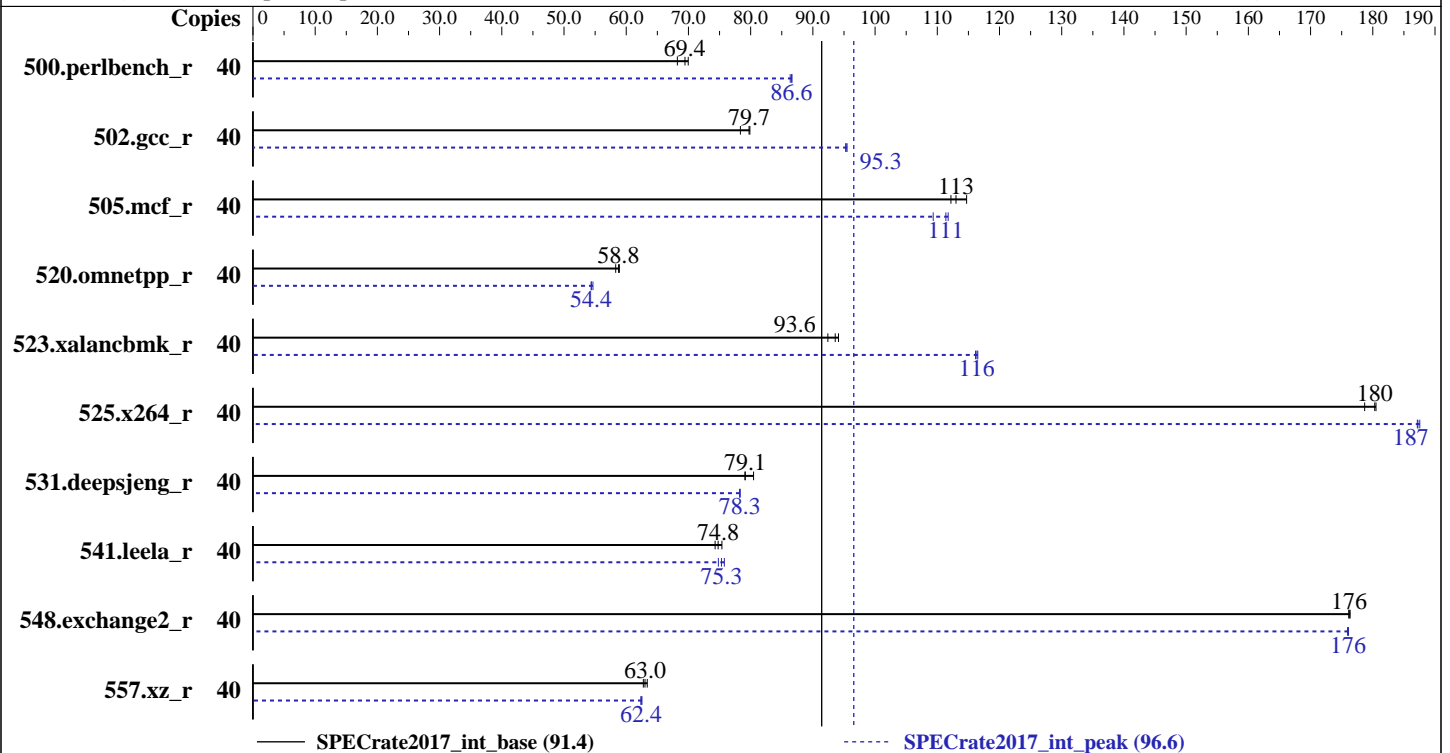
Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Dec-2018

Software Availability: Mar-2018



### Hardware

CPU Name: Intel Xeon Silver 4114  
 Max MHz.: 3000  
 Nominal: 2200  
 Enabled: 20 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: 13.75 MB I+D on chip per chip  
 Other: None  
 Memory: 192 GB (12 x 16 GB 2Rx4 PC4-2666V-R, running at 2400)  
 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 4.0.0 released Dec-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 = 91.4

## Inspur NF5270M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 96.6

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

Test Date: May-2019  
Hardware Availability: Dec-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	40	933	68.2	910	70.0	<u>917</u>	<u>69.4</u>	40	735	86.6	<u>735</u>	<u>86.6</u>	737	86.4
502.gcc_r	40	723	78.4	709	79.9	<u>710</u>	<u>79.7</u>	40	<u>594</u>	<u>95.3</u>	593	95.5	595	95.3
505.mcf_r	40	564	115	<u>572</u>	<u>113</u>	576	112	40	591	109	578	112	<u>580</u>	<u>111</u>
520.omnetpp_r	40	900	58.3	891	58.9	<u>893</u>	<u>58.8</u>	40	960	54.7	965	54.4	<u>965</u>	<u>54.4</u>
523.xalancbmk_r	40	457	92.4	<u>451</u>	<u>93.6</u>	449	94.1	40	363	117	364	116	<u>363</u>	<u>116</u>
525.x264_r	40	388	181	392	179	<u>388</u>	<u>180</u>	40	<u>374</u>	<u>187</u>	373	188	374	187
531.deepsjeng_r	40	570	80.5	<u>579</u>	<u>79.1</u>	580	79.1	40	586	78.3	<u>586</u>	<u>78.3</u>	586	78.3
541.leela_r	40	879	75.4	892	74.3	<u>886</u>	<u>74.8</u>	40	<u>880</u>	<u>75.3</u>	874	75.8	885	74.8
548.exchange2_r	40	595	176	<u>595</u>	<u>176</u>	594	176	40	595	176	596	176	<u>595</u>	<u>176</u>
557.xz_r	40	682	63.4	688	62.7	<u>686</u>	<u>63.0</u>	40	693	62.4	<u>692</u>	<u>62.4</u>	691	62.5

SPECrate2017\_int\_base = 91.4

SPECrate2017\_int\_peak = 96.6

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 = 91.4

Inspur NF5270M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 96.6

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Dec-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\_GOVERNOR 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-hma5 Mon May 20 00:00:18 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) Silver 4114 CPU @ 2.20GHz  
2 "physical id"s (chips)  
40 "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 : 10  
siblings : 20  
physical 0: cores 0 1 2 3 4 8 9 10 11 12  
physical 1: cores 0 1 2 3 4 8 9 10 11 12

From lscpu:  
Architecture: x86\_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian  
CPU(s): 40  
On-line CPU(s) list: 0-39  
Thread(s) per core: 2  
Core(s) per socket: 10

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate2017\_int\_base = 91.4

## Inspur NF5270M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 96.6

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

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

### Platform Notes (Continued)

```

Socket(s):                2
NUMA node(s):             2
Vendor ID:                GenuineIntel
CPU family:               6
Model:                   85
Model name:               Intel(R) Xeon(R) Silver 4114 CPU @ 2.20GHz
Stepping:                 4
CPU MHz:                  2499.987
CPU max MHz:              3000.0000
CPU min MHz:              800.0000
BogoMIPS:                 4389.65
Virtualization:          VT-x
L1d cache:                32K
L1i cache:                32K
L2 cache:                 1024K
L3 cache:                 14080K
NUMA node0 CPU(s):       0-9,20-29
NUMA node1 CPU(s):       10-19,30-39
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
aperfperf 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 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

```

```
/proc/cpuinfo cache data
cache size : 14080 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 8 9 20 21 22 23 24 25 26 27 28 29
node 0 size: 96208 MB
node 0 free: 95794 MB
node 1 cpus: 10 11 12 13 14 15 16 17 18 19 30 31 32 33 34 35 36 37 38 39
node 1 size: 96616 MB
node 1 free: 96152 MB
node distances:
node  0  1
 0:  10  21
 1:  21  10

```

From /proc/meminfo

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 91.4

Inspur NF5270M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 96.6

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Dec-2018

Software Availability: Mar-2018

## Platform Notes (Continued)

MemTotal: 197452928 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-hma5 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 Nov 19 02:09 last=5
```

```
SPEC is set to: /home/CPU2017
```

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda5        xfs   404G   45G  359G  12% /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 4.0.0 12/03/2018

Memory:

4x NO DIMM NO DIMM

12x Samsung M393A2K40CB2-CVF 16 GB 1 rank 2933, configured at 2400

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 91.4

Inspur NF5270M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 96.6

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

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

## Platform Notes (Continued)

(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.xalanbmk_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.xalanbmk_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.
-----

=====
FC 548.exchange2_r(base, peak)
-----
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

```



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 91.4

Inspur NF5270M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 96.6

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Dec-2018

Software Availability: Mar-2018

## 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
```

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 = 91.4

Inspur NF5270M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 96.6

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Dec-2018

Software Availability: Mar-2018

## 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

## Peak Optimization Flags

C benchmarks:

500.perlbench\_r: -w1, -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

(Continued on next page)





# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 91.4

Inspur NF5270M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 96.6

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Dec-2018

Software Availability: Mar-2018

## Peak Optimization Flags (Continued)

500.perlbench\_r (continued):

-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

## Peak Other Flags

C benchmarks (except as noted below):

-m64 -std=c11

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 91.4

Inspur NF5270M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 96.6

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: May-2019

Hardware Availability: Dec-2018

Software Availability: Mar-2018

## Peak Other Flags (Continued)

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 2019-05-20 00:00:17-0400.

Report generated on 2019-06-11 17:23:49 by CPU2017 PDF formatter v6067.

Originally published on 2019-06-11.