



# SPEC® CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate2017\_int\_base = 92.6

### Inspur NF5280M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 99.9

CPU2017 License: 3358

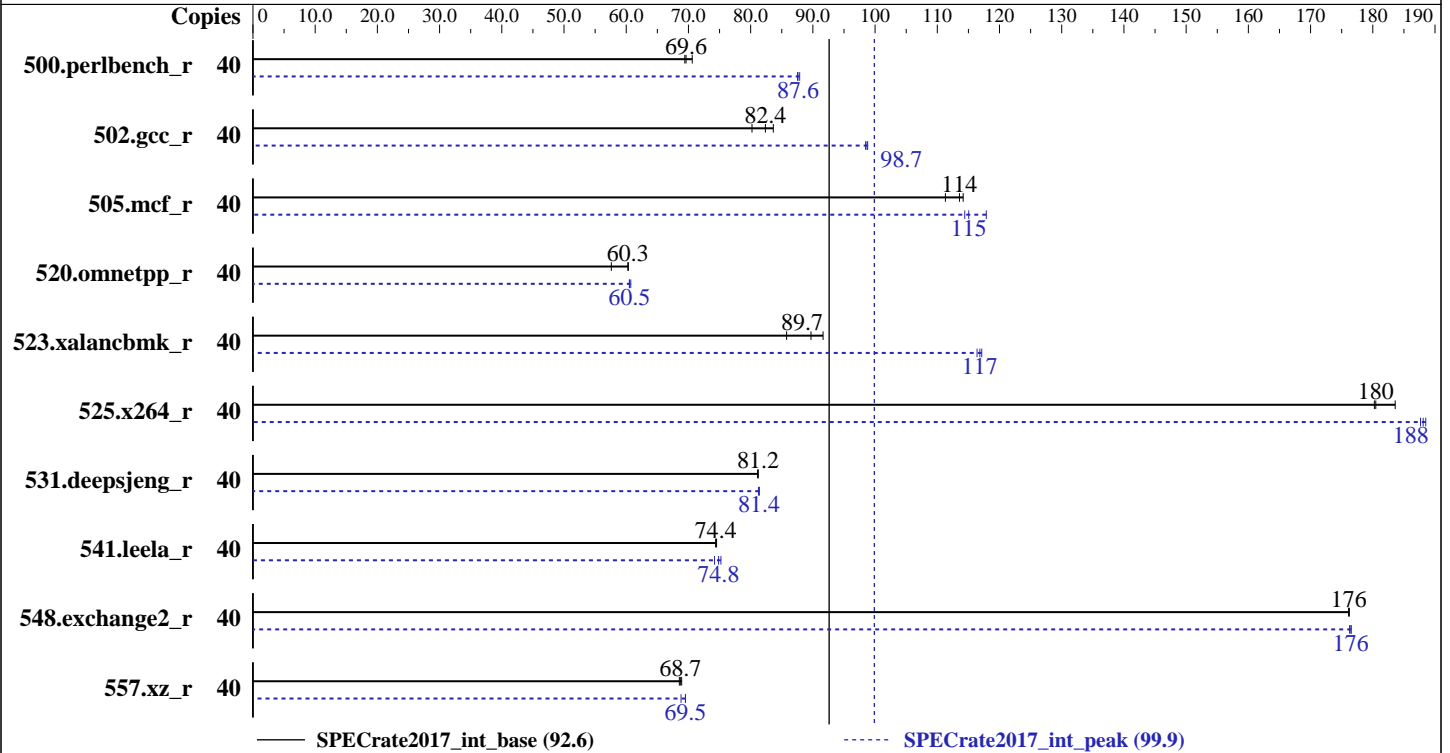
Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Oct-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017



### 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: 768 GB (24 x 32 GB 2Rx4 PC4-2666V-R, running at 2400 )  
 Storage: 1 x 800 GB SATA SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 12 SP2  
 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: No  
 Firmware: Version 3.0.4 released Sep-2017  
 File System: xfs  
 System State: Run level 5 (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 Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate2017\_int\_base = 92.6

## Inspur NF5280M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 99.9

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

Test Date: Oct-2017  
Hardware Availability: Aug-2017  
Software Availability: Sep-2017

### Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	40	<b>915</b>	<b>69.6</b>	917	69.4	902	70.6	40	727	87.5	725	87.9	<b>727</b>	<b>87.6</b>
502.gcc_r	40	706	80.2	677	83.6	<b>688</b>	<b>82.4</b>	40	<b>574</b>	<b>98.7</b>	573	98.8	575	98.5
505.mcf_r	40	581	111	<b>569</b>	<b>114</b>	566	114	40	548	118	565	114	<b>562</b>	<b>115</b>
520.omnetpp_r	40	911	57.6	<b>871</b>	<b>60.3</b>	870	60.3	40	864	60.7	867	60.5	<b>867</b>	<b>60.5</b>
523.xalancbmk_r	40	492	85.8	<b>471</b>	<b>89.7</b>	461	91.6	40	<b>362</b>	<b>117</b>	361	117	363	116
525.x264_r	40	389	180	<b>388</b>	<b>180</b>	381	184	40	373	188	<b>372</b>	<b>188</b>	372	189
531.deepsjeng_r	40	565	81.1	565	81.2	<b>565</b>	<b>81.2</b>	40	563	81.4	564	81.3	<b>563</b>	<b>81.4</b>
541.leela_r	40	890	74.4	889	74.5	<b>890</b>	<b>74.4</b>	40	<b>885</b>	<b>74.8</b>	893	74.2	881	75.2
548.exchange2_r	40	595	176	595	176	<b>595</b>	<b>176</b>	40	594	177	595	176	<b>594</b>	<b>176</b>
557.xz_r	40	<b>629</b>	<b>68.7</b>	630	68.5	627	68.9	40	621	69.5	628	68.8	<b>622</b>	<b>69.5</b>

SPECrate2017\_int\_base = **92.6**

SPECrate2017\_int\_peak = **99.9**

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>
```

### Platform Notes

BIOS and OS configuration:

SCALING\_GOVERNOR set to Performance

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate2017\_int\_base = 92.6

## Inspur NF5280M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 99.9

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

**Test Date:** Oct-2017  
**Hardware Availability:** Aug-2017  
**Software Availability:** Sep-2017

### Platform Notes (Continued)

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: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f  
running on linux-lcr2 Wed Oct 11 01:18:00 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) 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  
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: 2342.376  
CPU max MHz: 3000.0000  
CPU min MHz: 800.0000  
BogoMIPS: 4389.67  
Virtualization: VT-x  
L1d cache: 32K  
L1i cache: 32K  
L2 cache: 1024K

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate2017\_int\_base = 92.6

## Inspur NF5280M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 99.9

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

**Test Date:** Oct-2017  
**Hardware Availability:** Aug-2017  
**Software Availability:** Sep-2017

### Platform Notes (Continued)

```
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
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 pln pts dtherm hwp
hwp_act_window hwp_epp hwp_pkg_req intel_pt 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: 386499 MB
node 0 free: 385187 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: 386902 MB
node 1 free: 385759 MB
node distances:
node 0 1
0: 10 21
1: 21 10
```

```
From /proc/meminfo
MemTotal: 791963896 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:
```

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 92.6

Inspur NF5280M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 99.9

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

Test Date: Oct-2017  
Hardware Availability: Aug-2017  
Software Availability: Sep-2017

## Platform Notes (Continued)

```
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-lcr2 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 5 Oct 11 00:56
```

```
SPEC is set to: /home/CPU2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4        xfs   733G   62G  672G   9% /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 3.0.4 09/15/2017
Memory:
24x Samsung M393A4K40CB2-CTD 32 GB 2 rank 2666, configured at 2400
```

(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.  
-----  
=====
```

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 92.6

Inspur NF5280M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 99.9

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Oct-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017

## Compiler Version Notes (Continued)

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.  
-----

=====  
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

(Continued on next page)



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 92.6

Inspur NF5280M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 99.9

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Oct-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017

## Base Portability Flags (Continued)

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

## 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



# SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 92.6

Inspur NF5280M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 99.9

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Oct-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017

## 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
-ljemalloc
```

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

```
505.mcf_r: -w1,-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: -w1,-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: -w1,-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
-w1,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3
```

(Continued on next page)





# SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate2017\_int\_base = 92.6

Inspur NF5280M5 (Intel Xeon Silver 4114)

SPECrate2017\_int\_peak = 99.9

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Oct-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017

## Peak Optimization Flags (Continued)

523.xalancbmk\_r (continued):

`-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`

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-V1.0-HSW.2018-01-10.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-V1.0-HSW.2018-01-10.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 v1.0.2 on 2017-10-10 13:17:59-0400.

Report generated on 2018-10-31 16:59:55 by CPU2017 PDF formatter v6067.

Originally published on 2018-01-10.