SPEC® CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

Inspur NF5270M5 (Intel Xeon Gold 5117)
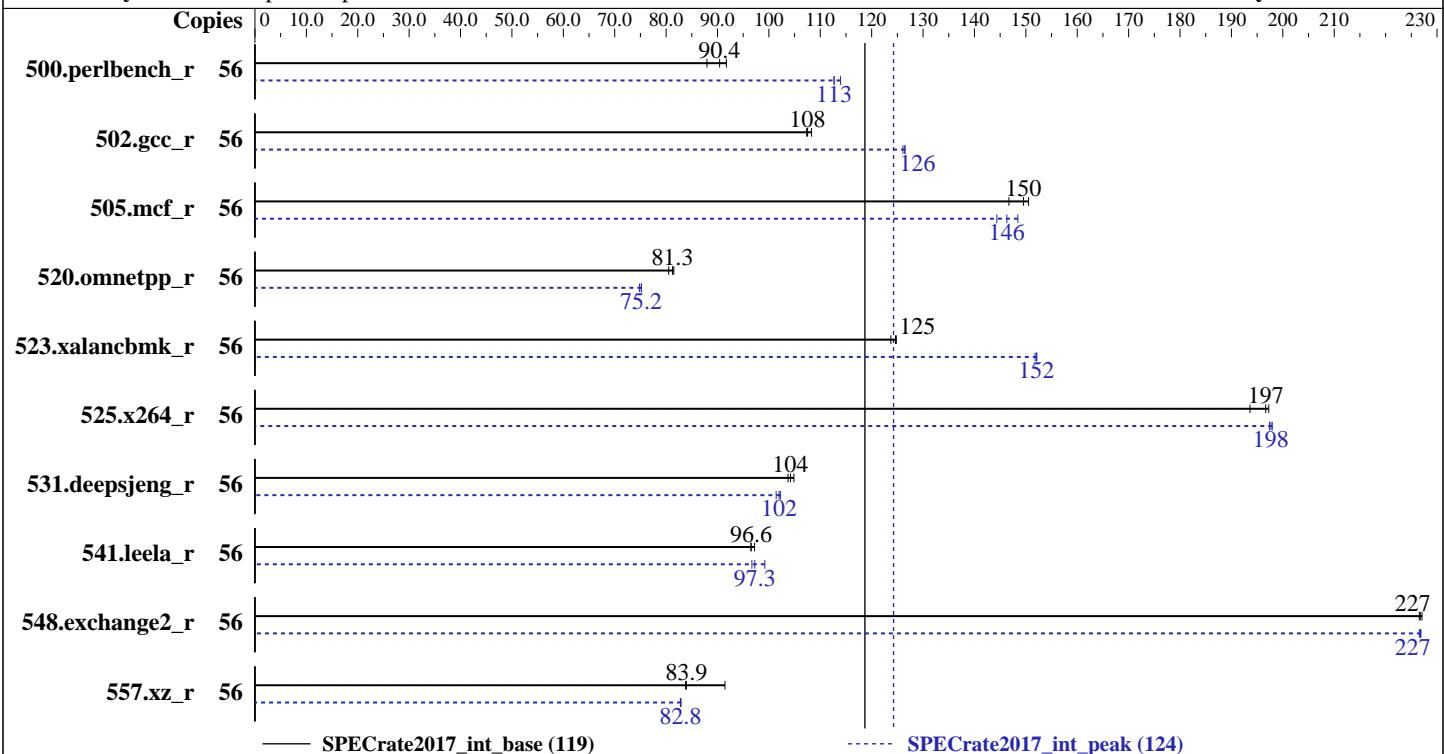
SPECrate2017_int_base = 119

SPECrate2017_int_peak = 124

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

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

Copies		
500.perlbench_r	56	90.4 / 113
502.gcc_r	56	108 / 126
505.mcf_r	56	150 / 146
520.omnetpp_r	56	81.3 / 75.2
523.xalancbmk_r	56	125 / 152
525.x264_r	56	197 / 198
531.deepsjeng_r	56	104 / 102
541.leela_r	56	96.6 / 97.3
548.exchange2_r	56	227 / 227
557.xz_r	56	83.9 / 82.8

——— SPECrate2017_int_base (119)   - - - - SPECrate2017_int_peak (124)

Hardware

CPU Name: Intel Xeon Gold 5117
 Max MHz.: 2800
 Nominal: 2000
Enabled: 28 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: 19.25 MB I+D on chip per chip
 Other: None
Memory: 384 GB (12 x 32 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

Inspur NF5270M5 (Intel Xeon Gold 5117)

SPECrate2017_int_base = 119

SPECrate2017_int_peak = 124

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Jun-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	56	**986**	**90.4**	1014	88.0	972	91.7	56	782	114	**791**	**113**	791	113
502.gcc_r	56	732	108	739	107	**737**	**108**	56	627	127	**627**	**126**	629	126
505.mcf_r	56	601	151	617	147	**605**	**150**	56	627	144	610	148	**619**	**146**
520.omnetpp_r	56	902	81.5	913	80.5	**904**	**81.3**	56	**977**	**75.2**	982	74.8	977	75.2
523.xalancbmk_r	56	478	124	474	125	**474**	**125**	56	389	152	**389**	**152**	390	152
525.x264_r	56	497	197	506	194	**499**	**197**	56	497	197	**496**	**198**	495	198
531.deepsjeng_r	56	612	105	**616**	**104**	619	104	56	633	101	**629**	**102**	628	102
541.leela_r	56	**960**	**96.6**	961	96.5	954	97.2	56	959	96.7	**954**	**97.3**	935	99.2
548.exchange2_r	56	**647**	**227**	648	227	646	227	56	**647**	**227**	648	227	647	227
557.xz_r	56	661	91.5	722	83.8	**720**	**83.9**	56	729	82.9	**730**	**82.8**	731	82.8
SPECrate2017_int_base =	**119**												
SPECrate2017_int_peak =	**124**												

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) is mitigated in the system as tested and documented.

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

SPEC CPU2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Inspur Corporation

Inspur NF5270M5 (Intel Xeon Gold 5117)

SPECrate2017_int_base =   119

SPECrate2017_int_peak =   124

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

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

General Notes (Continued)

```
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
 C1E 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 Tue Jun 11 11:21:13 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 5117 CPU @ 2.00GHz
       2  "physical id"s (chips)
       56 "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 : 14
       siblings  : 28
       physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
       physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

 From lscpu:
    Architecture:          x86_64
    CPU op-mode(s):        32-bit, 64-bit
    Byte Order:            Little Endian
    CPU(s):                56
    On-line CPU(s) list:   0-55
    Thread(s) per core:    2
    Core(s) per socket:    14
    Socket(s):             2
    NUMA node(s):          4
    Vendor ID:             GenuineIntel
```

(Continued on next page)

Inspur Corporation

Inspur NF5270M5 (Intel Xeon Gold 5117)

SPECrate2017_int_base = 119

SPECrate2017_int_peak = 124

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Jun-2019

Hardware Availability: Dec-2018

Software Availability: Mar-2018

Platform Notes (Continued)

```
       CPU family:            6
       Model:                 85
       Model name:            Intel(R) Xeon(R) Gold 5117 CPU @ 2.00GHz
       Stepping:              4
       CPU MHz:               2300.004
       CPU max MHz:           2800.0000
       CPU min MHz:           800.0000
       BogoMIPS:              3990.63
       Virtualization:        VT-x
       L1d cache:             32K
       L1i cache:             32K
       L2 cache:              1024K
       L3 cache:              19712K
       NUMA node0 CPU(s):     0-3,7-9,28-31,35-37
       NUMA node1 CPU(s):     4-6,10-13,32-34,38-41
       NUMA node2 CPU(s):     14-17,21-23,42-45,49-51
       NUMA node3 CPU(s):     18-20,24-27,46-48,52-55
       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 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 : 19712 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 7 8 9 28 29 30 31 35 36 37
   node 0 size: 95271 MB
   node 0 free: 95038 MB
   node 1 cpus: 4 5 6 10 11 12 13 32 33 34 38 39 40 41
   node 1 size: 96760 MB
   node 1 free: 96550 MB
   node 2 cpus: 14 15 16 17 21 22 23 42 43 44 45 49 50 51
   node 2 size: 96760 MB
   node 2 free: 96487 MB
   node 3 cpus: 18 19 20 24 25 26 27 46 47 48 52 53 54 55
   node 3 size: 96624 MB
   node 3 free: 96411 MB
   node distances:
```

(Continued on next page)

Inspur Corporation

Inspur NF5270M5 (Intel Xeon Gold 5117)

SPECrate2017_int_base = 119

SPECrate2017_int_peak = 124

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

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

Platform Notes (Continued)

```
   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:       394666372 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 Jun 11 11:19 last=5

 SPEC is set to: /home/CPU2017
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sdb3       xfs   407G   64G  344G  16% /home

 Additional information from dmidecode follows.  WARNING: Use caution when you interpret
```

(Continued on next page)

Inspur Corporation

Inspur NF5270M5 (Intel Xeon Gold 5117)

SPECrate2017_int_base = 119

SPECrate2017_int_peak = 124

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

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

Platform Notes (Continued)

```
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 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.
------------------------------------------------------------------------------


==============================================================================
 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)
------------------------------------------------------------------------------
```

(Continued on next page)

Inspur Corporation

Inspur NF5270M5 (Intel Xeon Gold 5117)

SPECrate2017_int_base = 119

SPECrate2017_int_peak = 124

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

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

Compiler Version Notes (Continued)

```
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`

Fortran benchmarks:
`-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div`
`-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte`

(Continued on next page)

Inspur Corporation

SPECrate2017_int_base = 119

Inspur NF5270M5 (Intel Xeon Gold 5117)

SPECrate2017_int_peak = 124

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

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

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
```
-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

Inspur NF5270M5 (Intel Xeon Gold 5117)

SPECrate2017_int_base = 119

SPECrate2017_int_peak = 124

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

Test Date: Jun-2019
Hardware Availability: Dec-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`

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

Inspur Corporation

Inspur NF5270M5 (Intel Xeon Gold 5117)

SPECrate2017_int_base = 119

SPECrate2017_int_peak = 124

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Jun-2019

Hardware Availability: Dec-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
```

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU2017 v1.0.5 on 2019-06-11 11:21:12-0400.
Report generated on 2019-07-09 15:46:56 by CPU2017 PDF formatter v6067.
Originally published on 2019-07-09.