## Inspur Corp

**Inspur NF5288M5 (Intel Xeon Gold 6152)**

<table>
<thead>
<tr>
<th>SPECrate2017_int_base</th>
<th>201</th>
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</thead>
<tbody>
<tr>
<td>SPECrate2017_int_peak</td>
<td>216</td>
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</table>

**CPU2017 License:** 3358  
**Test Sponsor:** Inspur Corporation  
**Tested by:** Inspur Corporation  
**Hardware Availability:** Dec-2018  
**Software Availability:** Jul-2018

### Performance Results

**Test Date:** Jan-2019  
**Hardware**: Intel Xeon Gold 6152  
**Memory**: 256 GB (16 x 16 GB 2Rx4 PC4-2666V-R)  
**Storage**: 1 x 200 GB SATA SSD  
**Software**: SUSE Linux Enterprise Server 12 SP2  
**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**: No  
**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

### Hardware

<table>
<thead>
<tr>
<th>Benchmark</th>
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<tr>
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<td>deepsjeng_r</td>
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<tr>
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<td>exchange2_r</td>
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<tr>
<td>xz_r</td>
<td>88</td>
<td>144</td>
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</tbody>
</table>

### Software

**CPU Name:** Intel Xeon Gold 6152  
**Max MHz.:** 3700  
**Nominal:** 2100  
**Enabled:** 44 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:** 30.25 MB I+D on chip per chip  
**Orderable:** None  
**Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2666V-R)  
**Storage:** 1 x 200 GB SATA SSD  
**Other:** None

**OS:** SUSE Linux Enterprise Server 12 SP2  
**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:** No  
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### SPEC CPU2017 Integer Rate Result

**Inspur Corporation**

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<td>531.deepsjeng_r</td>
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<tr>
<td>557.xz_r</td>
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<td>659</td>
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<td>663</td>
<td>143</td>
</tr>
</tbody>
</table>

**SPECrate2017_int_base = 201**

**SPECrate2017_int_peak = 216**

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/java5.0.1-32:/home/CPU2017/java5.0.1-64"

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.

(Continued on next page)
SPEC CPU2017 Integer Rate Result

Inspur Corporation

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SPECrate2017_int_peak = 216

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

General Notes (Continued)

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.

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

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: r5797 of 2017-06-14 96c45e4568ad54c135fd618b091c0f
running on linux-obz8 Sat Jan 5 13:29:14 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 6152 CPU @ 2.10GHz
  2 "physical id"s (chips)
  88 "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 : 22
siblings : 44
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 88
On-line CPU(s) list: 0-87
Thread(s) per core: 2

(Continued on next page)
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Inspur NF5288M5 (Intel Xeon Gold 6152)

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Hardware Availability: Dec-2018
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Core(s) per socket: 22
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6152 CPU @ 2.10GHz
Stepping: 4
CPU MHz: 2799.995
CPU max MHz: 3700.0000
CPU min MHz: 1000.0000
BogoMIPS: 4190.12
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 30976K
NUMA node0 CPU(s): 0-21,44-65
NUMA node1 CPU(s): 22-43,66-87

Flags:
fpu vme de pse tsc msr pae 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 eplt invpcid_single l1tf cpuid ida pln pts dtherm hwp hwp_act_window hwp_epp hwp_kdkg_req intel_pt rdts_cxsw spec_ctrl stibp retpoline kaiser tpr_shadow vmm_replprior 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 xsaves xgetbv1 cqm_llc cqm_occup_llc

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 10 11 12 13 14 15 16 17 18 19 20 21 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65
node 0 size: 128261 MB
node 0 free: 127695 MB
node 1 cpus: 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87
node 1 size: 128883 MB
node 1 free: 128400 MB
node distances:
node 0 1
0: 10 21

(Continued on next page)
Platform Notes (Continued)

From /proc/meminfo
   MemTotal:       263317284 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-obz8 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

run-level 3 Jan 5 13:26 last=5

SPEC is set to: /home/CPU2017
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda4       xfs   145G   18G  127G  13% /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 4.0.8 12/15/2018
   Memory:
      16x Micron 18ASF2G72PZ-2G6D1 16 GB 1 rank 2666
      8x NO DIMM NO DIMM

(End of data from sysinfo program)
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SPECrate2017_int_peak = 216

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Tested by: Inspur Corporation

Test Date: Jan-2019
Hardware Availability: Dec-2018
Software Availability: Jul-2018

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)
==============================================================================
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
==============================================================================

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

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## SPEC CPU2017 Integer Rate Result

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</table>

### Base Compiler Invocation (Continued)

Fortran benchmarks:

```fortran
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:

```bash
-W1, -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:

```bash
-W1, -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:

```bash
-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
```

### Base Other Flags

C benchmarks:

```bash
-m64 -std=c11
```

C++ benchmarks:

```bash
-m64
```
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Inspur Corporation
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**SPECratenew_int_base = 201**

**SPECratenew_int_peak = 216**

**Base Other Flags (Continued)**

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: `-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`

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Peak Optimization Flags (Continued)

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


531.deepsjeng_r: Same as 520.omnetpp_r

541.leela_r: Same as 520.omnetpp_r

Fortran benchmarks:


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

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Peak Other Flags (Continued)

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

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

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

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