Inspur Corporation

Inspur NF5180M6 (Intel Xeon Gold 5315Y)

SPECraten®2017_int_base = 140
SPECraten®2017_int_peak = 144

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

Test Date: Jun-2021
Hardware Availability: May-2021
Software Availability: Jan-2021

Cores

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
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<th>SPECrate®2017_int_peak (144)</th>
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<tr>
<td>perlbench_r</td>
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<td>109</td>
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<td>gcc_r</td>
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<td>mcf_r</td>
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<td>omnetpp_r</td>
<td>32</td>
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<td>xalancbmk_r</td>
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<td>x264_r</td>
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<td>leela_r</td>
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<td>exchange2_r</td>
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<tr>
<td>xz_r</td>
<td>32</td>
<td>75.2</td>
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</tbody>
</table>

Hardware

CPU Name: Intel Xeon Gold 5315Y
Max MHz: 3600
Nominal: 3200
Enabled: 16 cores, 2 chips, 2 threads/core
Orderable: 1.2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1.25 MB I+D on chip per core
L3: 12 MB I+D on chip per chip
Other: None
Memory: 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R, running at 2933)
Storage: 1 x 4 TB NVME SSD
Other: None

Software

OS: Red Hat Enterprise Linux release 8.2 (Ootpa) 4.18.0-193.el8.x86_64
Compiler: C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;
C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux;
Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux
Parallel: No
Firmware: Version 5.00.00 released Apr-2021
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: Jemalloc memory allocator V5.0.1
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.
### SPEC CPU®2017 Integer Rate Result

**Inspur Corporation**

Inspur NF5180M6 (Intel Xeon Gold 5315Y)

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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"

SCALING_GOVERNOR set to Performance

### Environment Variables Notes

Environment variables set by runcpu before the start of the run:

LD_LIBRARY_PATH = 

"/home/CPU2017/lib/intel64:/home/CPU2017/lib/ia32:/home/CPU2017/je5.0.1-32"

MALLOC_CONF = "retain:true"

### General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1

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

(Continued on next page)
**SPEC CPU®2017 Integer Rate Result**

**Inspur Corporation**

**Inspur NF5180M6 (Intel Xeon Gold 5315Y)**

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**CPU2017 License:** 3358  
**Test Date:** Jun-2021  
**Test Sponsor:** Inspur Corporation  
**Hardware Availability:** May-2021  
**Tested by:** Inspur Corporation  
**Software Availability:** Jan-2021

---

**General Notes (Continued)**

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

NA: 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.


---

**Platform Notes**

BIOS configuration:
ENERGY_PERF_BIAS_CFG mode set to Performance
Hardware Prefetch set to Disable
VT Support set to Disable
C1E Support set to Disable
Sub NUMA Cluster (SNC) set to Enable
Intel Hyper Threading Technology set to Enable

Sysinfo program /home/CPU2017/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16aca64d  
running on localhost.localdomain Sat Jun 12 11:59:21 2021

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 5315Y CPU @ 3.20GHz
 2 "physical id"s (chips)
32 "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 : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
```

From lscpu from util-linux 2.32.1:

(Continued on next page)
Inspur Corporation

Inspur NF5180M6 (Intel Xeon Gold 5315Y)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

SPECrate®2017_int_base = 140
SPECrate®2017_int_peak = 144

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

Test Date: Jun-2021
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Platform Notes (Continued)

Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Gold 5315Y CPU @ 3.20GHz
Stepping: 6
CPU MHz: 3500.000
CPU max MHz: 3600.0000
CPU min MHz: 800.0000
BogoMIPS: 6400.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 12288K
NUMA node0 CPU(s): 0-7,16-23
NUMA node1 CPU(s): 8-15,24-31
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 rdxtsc
lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid
aperfperf pni pclmulqdq dtst64 ds_cpl vmx smx est tm2 ssse3 sdde fma cx16 xtpr pdcm
pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c
rdand lahf_lm abm 3nowprefetch cpuid_fault epb cat_l3 invpcid_single ssbd mba ibrs
ibpb stibp ibrs_enhanced tpr_shadow vmmi flexpriority ept vpid fsgsbase tsc_adjust
bm1 hle avx2 smep bmi2 erms invpcid rtm cmqm rdt_a avx512f avx512dq rdseed adx smap
avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt
xsaves xgetbv1 xsaves cmqm_llc cmqm_occu llc cmqm_mb_total cmqm_mb_local wbnoinvd
dtspmm idat pti pbds avx512vmbi umip pku ospe avx512vbd avx512vfn fga ni vpcmulq
q avx512_vnmi avx512◙ bitalg tme avx512_vpopcntdq 1a57 rdpid md_clear pconfig flush_l1d
arch_capabilities

/proc/cpuinfo cache data
    cache size : 12288 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 16 17 18 19 20 21 22 23
    node 0 size: 257611 MB

(Continued on next page)
Platform Notes (Continued)

node 0 free: 252355 MB
node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
node 1 size: 258041 MB
node 1 free: 254573 MB
node distances:
node  0  1
  0:  10  20
  1:  20  10

From /proc/meminfo
  MemTotal:       528029112 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

/sbin/tuned-adm active
  It seems that tuned daemon is not running, preset profile is not activated.
  Preset profile: throughput-performance

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has
  performance

From /etc/*release*/etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux"
    VERSION="8.2 (Ootpa)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="8.2"
    PLATFORM_ID="platform:el8"
    PRETTY_NAME="Red Hat Enterprise Linux 8.2 (Ootpa)"
    ANSI_COLOR="0;31"
  redhat-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
  system-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:8.2:ga

uname -a:
  Linux localhost.localdomain 4.18.0-193.el8.x86_64 #1 SMP Fri Mar 27 14:35:58 UTC 2020
  x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store
  Bypass disabled via prctl and

(Continued on next page)
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Platform Notes (Continued)

CVE-2017-5753 (Spectre variant 1): seccomp
Mitigation: usercopy/swapgs
barriers and __user pointer
sanitization

CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB:
conditional, RSB filling

CVE-2020-0543 (Special Register Buffer Data Sampling): No status reported

CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 Jun 12 10:16

SPEC is set to: /home/CPU2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 3.6T 59G 3.6T 2% /home

From /sys/devices/virtual/dmi/id
Vendor: MFR
Product: NF5180M6
Product Family: Family
Serial: 380827124

Additional information from dmidecode 3.2 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.

Memory:
16x NO DIMM NO DIMM
16x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200, configured at 2933

BIOS:
BIOS Vendor: American Megatrends Inc.
BIOS Version: 05.00.00
BIOS Date: 04/25/2021
BIOS Revision: 5.22

(End of data from sysinfo program)

Compiler Version Notes

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<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113</td>
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<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
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```
64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

<table>
<thead>
<tr>
<th>Fortran</th>
<th>548.exchange2_r(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000</td>
<td></td>
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<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
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</tr>
</tbody>
</table>

### Base Compiler Invocation

**C benchmarks:**
- icx

**C++ benchmarks:**
- icpx

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(Continued on next page)
Inspecr Corporation

Inspur NF5180M6 (Intel Xeon Gold 5315Y)

SPECrate®2017_int_base = 140
SPECrate®2017_int_peak = 144

CPU2017 License: 3358
Test Sponsor: Inspur Corporation
Tested by: Inspur Corporation
Test Date: Jun-2021
Hardware Availability: May-2021
Software Availability: Jan-2021

Base Compiler Invocation (Continued)

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:
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-auto -mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc
**SPEC CPU®2017 Integer Rate Result**

**Inspur Corporation**

Inspur NF5180M6 (Intel Xeon Gold 5315Y)

**SPECrate®2017_int_base = 140**

**SPECrate®2017_int_peak = 144**

- **CPU2017 License:** 3358
- **Test Sponsor:** Inspur Corporation
- **Tested by:** Inspur Corporation
- **Test Date:** Jun-2021
- **Hardware Availability:** May-2021
- **Software Availability:** Jan-2021

### Peak Compiler Invocation

C benchmarks (except as noted below):

- icx
- 500.perlbench_r: icc
- 557.xz_r: icc

C++ benchmarks:

- icpx

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: -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

### Peak Optimization Flags

C benchmarks:

- 500.perlbench_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)
- -xCORE-AVX512 -ipo -O3 -no-prec-div
- -qopt-mem-layout-trans=4 -fnos-strict-overflow
- -mbranches-within-32B-boundaries
- -L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
- -lqkmalloc

- 502.gcc_r: -m32
- -L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/ia32_lin
- -std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)
- -fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -flto
- -Ofast(pass 1) -O3 -ffast-math -qopt-mem-layout-trans=4

(Continued on next page)
### SPEC CPU®2017 Integer Rate Result

**Inspur Corporation**  
Inspur NF5180M6 (Intel Xeon Gold 5315Y)

| SPECrate®2017_int_base | 140 | SPECrate®2017_int_peak | 144 |

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

**Test Date:** Jun-2021  
**Hardware Availability:** May-2021  
**Software Availability:** Jan-2021

### Peak Optimization Flags (Continued)

502.gcc_r (continued):
- mbranches-within-32B-boundaries  
- L/usr/local/jemalloc32-5.0.1/lib -ljemalloc

505.mcf_r: basepeak = yes

525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -flto
- O3 -ffast-math -qopt-mem-layout-trans=4 -fno-alias
- mbranches-within-32B-boundaries
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
  -lqkmalloc

557.xz_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
- qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
  -lqkmalloc

**C++ benchmarks:**

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: basepeak = yes

531.deepsjeng_r: basepeak = yes

541.leela_r: basepeak = yes

**Fortran benchmarks:**

548.exchange2_r: basepeak = yes

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The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V2.0.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml  
http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V2.0.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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