



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 535

Inspur NF8260M6 (Intel Xeon Gold 6348H)

SPECrate®2017_fp_peak = 566

CPU2017 License: 3358

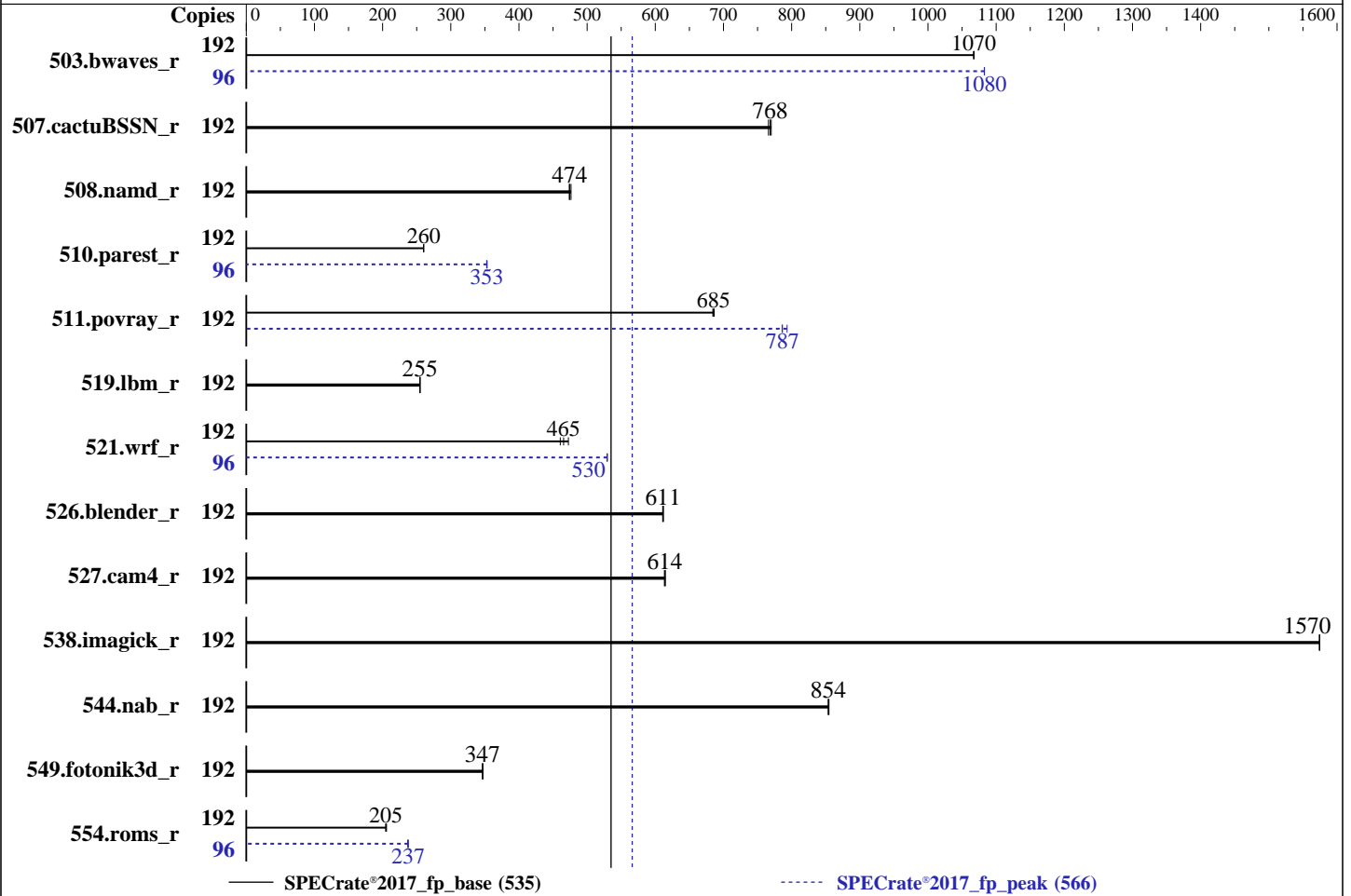
Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Jan-2021

Hardware Availability: Sep-2020

Software Availability: Aug-2020



Hardware

CPU Name: Intel Xeon Gold 6348H
 Max MHz: 4200
 Nominal: 2300
 Enabled: 96 cores, 4 chips, 2 threads/core
 Orderable: 2,4 chips
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 33 MB I+D on chip per chip
 Other: None
 Memory: 1536 GB (48 x 32 GB 2Rx4 PC4-3200V-R, running at 2933)
 Storage: 1 x 480 GB SATA SSD
 Other: None

Software

OS: Red Hat Enterprise Linux release 8.2 (Ootpa) 4.18.0-193.el8.x86_64
 Compiler: C/C++: Version 19.1.2.275 of Intel C/C++ Compiler for Linux;
 Fortran: Version 19.1.2.275 of Intel Fortran Compiler for Linux
 Parallel: No
 Firmware: Version 4.09.08 released Sep-2020
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 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.



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	192	1805	1070	1803	1070	<u>1804</u>	<u>1070</u>	96	889	1080	<u>889</u>	<u>1080</u>	889	1080
507.cactuBSSN_r	192	<u>316</u>	<u>768</u>	317	766	316	770	192	<u>316</u>	<u>768</u>	317	766	316	770
508.namd_r	192	<u>384</u>	<u>474</u>	385	474	383	476	192	<u>384</u>	<u>474</u>	385	474	383	476
510.parest_r	192	1930	260	1932	260	<u>1930</u>	<u>260</u>	96	<u>712</u>	<u>353</u>	712	353	711	353
511.povray_r	192	653	686	<u>654</u>	<u>685</u>	655	684	192	565	793	<u>570</u>	<u>787</u>	570	786
519.lbm_r	192	794	255	<u>794</u>	<u>255</u>	794	255	192	794	255	<u>794</u>	<u>255</u>	794	255
521.wrf_r	192	<u>924</u>	<u>465</u>	934	461	910	473	96	<u>406</u>	<u>530</u>	406	530	406	529
526.blender_r	192	<u>478</u>	<u>611</u>	478	612	479	611	192	<u>478</u>	<u>611</u>	478	612	479	611
527.cam4_r	192	546	615	547	613	<u>547</u>	<u>614</u>	192	546	615	547	613	<u>547</u>	<u>614</u>
538.imagick_r	192	<u>303</u>	<u>1570</u>	303	1570	303	1570	192	<u>303</u>	<u>1570</u>	303	1570	303	1570
544.nab_r	192	379	854	<u>378</u>	<u>854</u>	378	855	192	379	854	<u>378</u>	<u>854</u>	378	855
549.fotonik3d_r	192	<u>2159</u>	<u>347</u>	2156	347	2160	346	192	<u>2159</u>	<u>347</u>	2156	347	2160	346
554.roms_r	192	1483	206	1491	205	<u>1490</u>	<u>205</u>	96	<u>642</u>	<u>237</u>	642	238	644	237

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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/je5.0.1-64"
MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM
memory using Redhat Enterprise Linux 8.0
Transparent Huge Pages enabled by default
Prior to runcpu invocation

(Continued on next page)



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General Notes (Continued)

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>

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.

jemalloc, a general purpose malloc implementation built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5; sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

Platform Notes

BIOS configuration:

ENERGY_PERF_BIAS_CFG mode set to Performance

Hardware Prefetch set to Disable

VT Support set to Disable

CLE 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: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c

running on localhost.localdomain Sat Jan 30 14:33:39 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 6348H CPU @ 2.30GHz

4 "physical id"s (chips)

192 "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 : 24

siblings : 48

physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

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Platform Notes (Continued)

physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

From lscpu:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                192
On-line CPU(s) list:  0-191
Thread(s) per core:    2
Core(s) per socket:    24
Socket(s):             4
NUMA node(s):         8
Vendor ID:             GenuineIntel
CPU family:            6
Model:                85
Model name:            Intel(R) Xeon(R) Gold 6348H CPU @ 2.30GHz
Stepping:              11
CPU MHz:               3307.270
CPU max MHz:          4200.0000
CPU min MHz:          1000.0000
BogoMIPS:              4600.00
Virtualization:       VT-x
L1d cache:             32K
L1i cache:             32K
L2 cache:              1024K
L3 cache:              33792K
NUMA node0 CPU(s):    0-2,6-8,12-14,18-20,96-98,102-104,108-110,114-116
NUMA node1 CPU(s):    3-5,9-11,15-17,21-23,99-101,105-107,111-113,117-119
NUMA node2 CPU(s):    24-26,30-32,36-38,42-44,120-122,126-128,132-134,138-140
NUMA node3 CPU(s):    27-29,33-35,39-41,45-47,123-125,129-131,135-137,141-143
NUMA node4 CPU(s):    48-50,54-56,60-62,66-68,144-146,150-152,156-158,162-164
NUMA node5 CPU(s):    51-53,57-59,63-65,69-71,147-149,153-155,159-161,165-167
NUMA node6 CPU(s):    72-74,78-80,84-86,90-92,168-170,174-176,180-182,186-188
NUMA node7 CPU(s):    75-77,81-83,87-89,93-95,171-173,177-179,183-185,189-191
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 cpuid
aperfmpperf pni pclmulqdq dtes64 monitor 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 cpuid_fault epb cat_l3 cdp_l3
invpcid_single intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi
flexpriority ept vpid fsgsbase tsc_adjust bmil hle avx2 smep bmi2 erms invpcid rtm
cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
cqm_mbm_local avx512_bf16 dtherm ida arat pln pts pku ospke avx512_vnni md_clear
flush_lld arch_capabilities

```

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Platform Notes (Continued)

```
/proc/cpuinfo cache data
cache size : 33792 KB
```

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

```
available: 8 nodes (0-7)
node 0 cpus: 0 1 2 6 7 8 12 13 14 18 19 20 96 97 98 102 103 104 108 109 110 114 115 116
node 0 size: 192068 MB
node 0 free: 178527 MB
node 1 cpus: 3 4 5 9 10 11 15 16 17 21 22 23 99 100 101 105 106 107 111 112 113 117 118
119
node 1 size: 193530 MB
node 1 free: 184382 MB
node 2 cpus: 24 25 26 30 31 32 36 37 38 42 43 44 120 121 122 126 127 128 132 133 134
138 139 140
node 2 size: 193530 MB
node 2 free: 184355 MB
node 3 cpus: 27 28 29 33 34 35 39 40 41 45 46 47 123 124 125 129 130 131 135 136 137
141 142 143
node 3 size: 193503 MB
node 3 free: 184340 MB
node 4 cpus: 48 49 50 54 55 56 60 61 62 66 67 68 144 145 146 150 151 152 156 157 158
162 163 164
node 4 size: 193530 MB
node 4 free: 184380 MB
node 5 cpus: 51 52 53 57 58 59 63 64 65 69 70 71 147 148 149 153 154 155 159 160 161
165 166 167
node 5 size: 193530 MB
node 5 free: 184144 MB
node 6 cpus: 72 73 74 78 79 80 84 85 86 90 91 92 168 169 170 174 175 176 180 181 182
186 187 188
node 6 size: 193530 MB
node 6 free: 184379 MB
node 7 cpus: 75 76 77 81 82 83 87 88 89 93 94 95 171 172 173 177 178 179 183 184 185
189 190 191
node 7 size: 193528 MB
node 7 free: 184379 MB
node distances:
node  0  1  2  3  4  5  6  7
  0:  10  11  20  20  20  20  20  20
  1:  11  10  20  20  20  20  20  20
  2:  20  20  10  11  20  20  20  20
  3:  20  20  11  10  20  20  20  20
  4:  20  20  20  20  10  11  20  20
  5:  20  20  20  20  11  10  20  20
  6:  20  20  20  20  20  20  10  11
```

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Platform Notes (Continued)

7: 20 20 20 20 20 20 11 10

From /proc/meminfo

MemTotal: 1583874464 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 seccomp
CVE-2017-5753 (Spectre variant 1): 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

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Platform Notes (Continued)

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

run-level 3 Jan 30 06:09

SPEC is set to: /home/CPU2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel-home	xfs	392G	88G	304G	23%	/home

From /sys/devices/virtual/dmi/id

Vendor: Inspur
Product: NF8260M6
Product Family: Family
Serial: 380152314

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.

Memory:

48x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200, configured at 2933

BIOS:

BIOS Vendor: American Megatrends Inc.
BIOS Version: 4.09.08
BIOS Date: 09/12/2020
BIOS Revision: 5.19

(End of data from sysinfo program)

Compiler Version Notes

```

=====
C          | 519.lbm_r(base, peak) 538.imagick_r(base, peak)
          | 544.nab_r(base, peak)
=====

```

Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```

=====
C++       | 508.namd_r(base, peak) 510.parest_r(base, peak)
=====

```

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Compiler Version Notes (Continued)

=====
C++, C | 511.povray_r(base) 526.blender_r(base, peak)
=====

Intel(R) C++ Compiler for applications running on Intel(R) 64, Version
19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C Compiler for applications running on Intel(R) 64, Version
19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

=====
C++, C | 511.povray_r(peak)
=====

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.1.2.275 Build 20200623
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.1.2.275 Build 20200623
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=====
C++, C | 511.povray_r(base) 526.blender_r(base, peak)
=====

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Intel(R) C Compiler for applications running on Intel(R) 64, Version
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=====
C++, C | 511.povray_r(peak)
=====

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(Continued on next page)



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Compiler Version Notes (Continued)

C++, C, Fortran | 507.cactuBSSN_r(base, peak)

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19.1.2.275 Build 20200604

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Intel(R) C Compiler for applications running on Intel(R) 64, Version

19.1.2.275 Build 20200604

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Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)

64, Version 19.1.2.275 Build 20200623

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Fortran | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak)
| 554.roms_r(base, peak)

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)

64, Version 19.1.2.275 Build 20200623

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Fortran, C | 521.wrf_r(base) 527.cam4_r(base, peak)

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)

64, Version 19.1.2.275 Build 20200623

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Intel(R) C Compiler for applications running on Intel(R) 64, Version

19.1.2.275 Build 20200604

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Fortran, C | 521.wrf_r(peak)

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)

64, Version 19.1.2.275 Build 20200623

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,

Version 19.1.2.275 Build 20200623

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Fortran, C | 521.wrf_r(base) 527.cam4_r(base, peak)

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Compiler Version Notes (Continued)

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Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200604

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Fortran, C | 521.wrf_r(peak)

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200623

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Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200623

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Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icc

Benchmarks using both C and C++:

icpc icc

Benchmarks using Fortran, C, and C++:

icpc icc ifort

Base Portability Flags

503.bwaves_r: -DSPEC_LP64

507.cactuBSSN_r: -DSPEC_LP64

(Continued on next page)



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Base Portability Flags (Continued)

```

508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

```

Base Optimization Flags

C benchmarks:

```

-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX2 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

```

C++ benchmarks:

```

-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

```

Fortran benchmarks:

```

-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX2 -O3 -ipo -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc

```

Benchmarks using both Fortran and C:

```

-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX2 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -O3 -ipo -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-multiple-gather-scatter-by-shuffles
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc

```

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SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 535

Inspur NF8260M6 (Intel Xeon Gold 6348H)

SPECrate®2017_fp_peak = 566

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Jan-2021

Hardware Availability: Sep-2020

Software Availability: Aug-2020

Base Optimization Flags (Continued)

Benchmarks using both C and C++:

```
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX2 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:

```
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX2 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -O3 -ipo -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-multiple-gather-scatter-by-shuffles
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

Peak Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icc

Benchmarks using both C and C++:

icpc icc

Benchmarks using Fortran, C, and C++:

icpc icc ifort

Peak Portability Flags

Same as Base Portability Flags



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Peak Optimization Flags

C benchmarks:

519.lbm_r: basepeak = yes

538.imagick_r: basepeak = yes

544.nab_r: basepeak = yes

C++ benchmarks:

508.namd_r: basepeak = yes

510.parest_r: -m64 -qnextgen
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:

503.bwaves_r: -m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX2 -O3 -ipo -no-prec-div
-qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-align array32byte -auto -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

549.fotonik3d_r: basepeak = yes

554.roms_r: Same as 503.bwaves_r

Benchmarks using both Fortran and C:

521.wrf_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

527.cam4_r: basepeak = yes

Benchmarks using both C and C++:

(Continued on next page)



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Hardware Availability: Sep-2020

Software Availability: Aug-2020

Peak Optimization Flags (Continued)

```
511.povray_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: basepeak = yes

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

http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.html

<http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V1.9.html>

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

http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.xml

<http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V1.9.xml>

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