



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Inspur Corporation

SPECrate®2017\_fp\_base = 588

### Inspur NF8260M6 (Intel Xeon Gold 6348H)

SPECrate®2017\_fp\_peak = 618

CPU2017 License: 3358

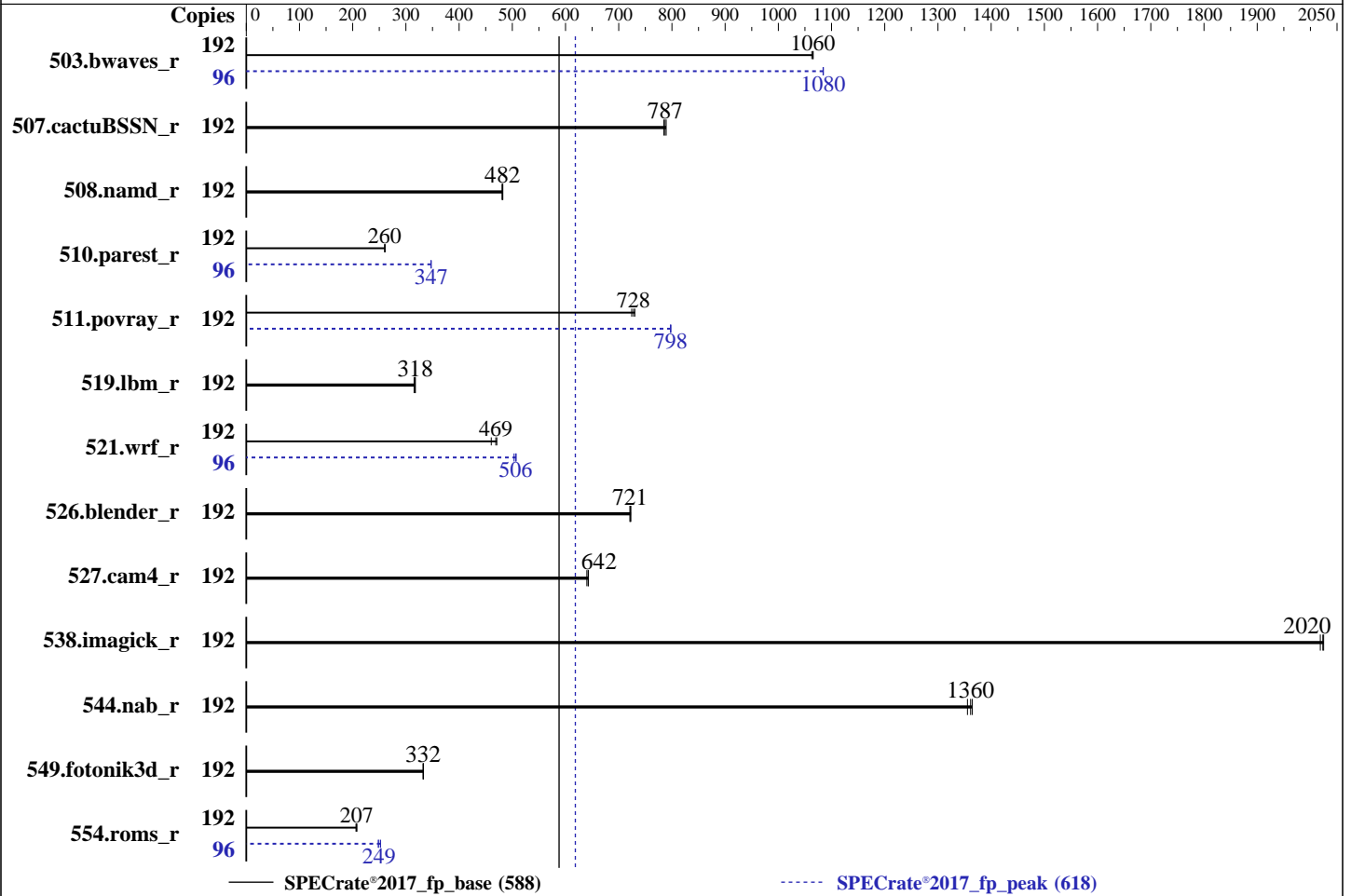
Test Date: Jun-2022

Test Sponsor: Inspur Corporation

Hardware Availability: Sep-2020

Tested by: Inspur Corporation

Software Availability: Sep-2021



### 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 2Rx8 PC4-3200AA-R, running at 2933)  
 Storage: 1 x 2 TB NVME SSD  
 Other: None

### Software

OS: Red Hat Enterprise Linux release 8.3 (Ootpa) 4.18.0-240.el8.x86\_64  
 Compiler: C/C++: Version 2021.4.0 of Intel oneAPI DPC++/C++ Compiler Build 20210924 for Linux;  
 Fortran: Version 2021.4.0 of Intel Fortran Compiler Classic Build 20210910 for Linux;  
 C/C++: Version 2021.4.0 of Intel C/C++ Compiler Classic Build 20210910 for Linux;  
 Parallel: No  
 Firmware: Version 04.10.06 released Apr-2021  
 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	1807	1070	<b><u>1808</u></b>	<b><u>1060</u></b>	1812	1060	96	888	1080	<b><u>888</u></b>	<b><u>1080</u></b>	888	1080
507.cactuBSSN_r	192	310	785	308	789	<b><u>309</u></b>	<b><u>787</u></b>	192	310	785	308	789	<b><u>309</u></b>	<b><u>787</u></b>
508.namd_r	192	<b><u>379</u></b>	<b><u>482</u></b>	379	481	378	482	192	<b><u>379</u></b>	<b><u>482</u></b>	379	481	378	482
510.parest_r	192	<b><u>1930</u></b>	<b><u>260</u></b>	1931	260	1926	261	96	723	347	723	347	<b><u>723</u></b>	<b><u>347</u></b>
511.povray_r	192	614	730	<b><u>616</u></b>	<b><u>728</u></b>	619	724	192	562	797	<b><u>562</u></b>	<b><u>798</u></b>	562	798
519.lbm_r	192	<b><u>637</u></b>	<b><u>318</u></b>	642	315	637	318	192	<b><u>637</u></b>	<b><u>318</u></b>	642	315	637	318
521.wrf_r	192	<b><u>917</u></b>	<b><u>469</u></b>	934	460	913	471	96	424	507	427	503	<b><u>425</u></b>	<b><u>506</u></b>
526.blender_r	192	<b><u>405</u></b>	<b><u>721</u></b>	405	721	405	723	192	<b><u>405</u></b>	<b><u>721</u></b>	405	721	405	723
527.cam4_r	192	<b><u>523</u></b>	<b><u>642</u></b>	522	643	525	640	192	<b><u>523</u></b>	<b><u>642</u></b>	522	643	525	640
538.imagick_r	192	<b><u>236</u></b>	<b><u>2020</u></b>	237	2020	236	2020	192	<b><u>236</u></b>	<b><u>2020</u></b>	237	2020	236	2020
544.nab_r	192	237	1360	238	1360	<b><u>237</u></b>	<b><u>1360</u></b>	192	237	1360	238	1360	<b><u>237</u></b>	<b><u>1360</u></b>
549.fotonik3d_r	192	2251	332	2247	333	<b><u>2250</u></b>	<b><u>332</u></b>	192	2251	332	2247	333	<b><u>2250</u></b>	<b><u>332</u></b>
554.roms_r	192	<b><u>1472</u></b>	<b><u>207</u></b>	1480	206	1468	208	96	604	252	<b><u>612</u></b>	<b><u>249</u></b>	615	248

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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"

## 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 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Red Hat Enterprise Linux 8.4  
Transparent Huge Pages enabled by default  
Prior to runcpu invocation  
Filesystem page cache synced and cleared with:

(Continued on next page)



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### General Notes (Continued)

```
sync; echo 3> /proc/sys/vm/drop_caches
```

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 and OS configuration:

ENERGY\_PERF\_BIAS\_CFG mode set to Performance

Hardware Prefetch set to Disable

VT Support set to Disable

Sub NUMA Cluster (SNC) set to Enable

Scaling\_Governor set to Performance

Sysinfo program /home/CPU2017/bin/sysinfo

Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d

running on localhost.localdomain Mon Jun 27 18:46:55 2022

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

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 from util-linux 2.32.1:

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### Platform Notes (Continued)

```

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:               3100.062
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 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 fsgsbase tsc_adjust bmi1 hle avx2
smep bmi2 erms invpcid 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

```

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

```
From numactl --hardware
```

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### Platform Notes (Continued)

```

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: 185523 MB
node 0 free: 180341 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: 187486 MB
node 1 free: 184098 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: 186452 MB
node 2 free: 184102 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: 187402 MB
node 3 free: 184198 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: 187846 MB
node 4 free: 184187 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: 187548 MB
node 5 free: 184186 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: 188390 MB
node 6 free: 184100 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: 188245 MB
node 7 free: 184105 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
7:  20 20 20 20 20 20 11 10

```

From /proc/meminfo  
MemTotal: 1583858300 kB  
HugePages\_Total: 0

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### Platform Notes (Continued)

Hugepagesize: 2048 kB

/sbin/tuned-adm active  
Current active 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="8.3 (Ootpa)"
  ID="rhel"
  ID_LIKE="fedora"
  VERSION_ID="8.3"
  PLATFORM_ID="platform:el8"
  PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
  ANSI_COLOR="0;31"
```

```
redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga
```

```
uname -a:
Linux localhost.localdomain 4.18.0-240.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 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):	Not affected
CVE-2019-11135 (TSX Asynchronous Abort):	Not affected

run-level 3 Jun 27 10:18

SPEC is set to: /home/CPU2017  
Filesystem Type Size Used Avail Use% Mounted on

(Continued on next page)



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### Platform Notes (Continued)

```
/dev/mapper/rhel00-home xfs 1.7T 270G 1.5T 16% /home
```

```
From /sys/devices/virtual/dmi/id
Vendor: Inspur
Product: NF8260M6
Product Family: Family
Serial: 380152314
```

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

BIOS:  
BIOS Vendor: American Megatrends Inc.  
BIOS Version: 04.10.06  
BIOS Date: 04/22/2021  
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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.4.0 Build 20210924  
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

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

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.4.0 Build 20210924  
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```
=====
C++, C | 511.povray_r(peak)
=====
```

Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on

(Continued on next page)



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### Compiler Version Notes (Continued)

Intel(R) 64, Version 2021.4.0 Build 20210910\_000000  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.  
 Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)  
 64, Version 2021.4.0 Build 20210910\_000000  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

=====  
 C++, C | 511.povray\_r(base) 526.blender\_r(base, peak)  
 =====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
 Version 2021.4.0 Build 20210924  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.  
 Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
 Version 2021.4.0 Build 20210924  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

=====  
 C++, C | 511.povray\_r(peak)  
 =====

Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on  
 Intel(R) 64, Version 2021.4.0 Build 20210910\_000000  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.  
 Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)  
 64, Version 2021.4.0 Build 20210910\_000000  
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=====  
 C++, C | 511.povray\_r(base) 526.blender\_r(base, peak)  
 =====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
 Version 2021.4.0 Build 20210924  
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 Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
 Version 2021.4.0 Build 20210924  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

=====  
 C++, C, Fortran | 507.cactuBSSN\_r(base, peak)  
 =====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
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Version 2021.4.0 Build 20210924  
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 Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
 Intel(R) 64, Version 2021.4.0 Build 20210910\_000000  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

=====  
 Fortran | 503.bwaves\_r(base, peak) 549.fotonik3d\_r(base, peak)  
 | 554.roms\_r(base, peak)  
 =====

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
 Intel(R) 64, Version 2021.4.0 Build 20210910\_000000  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

=====  
 Fortran, C | 521.wrf\_r(peak)  
 =====

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
 Intel(R) 64, Version 2021.4.0 Build 20210910\_000000  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.  
 Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)  
 64, Version 2021.4.0 Build 20210910\_000000  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

=====  
 Fortran, C | 521.wrf\_r(base) 527.cam4\_r(base, peak)  
 =====

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
 Intel(R) 64, Version 2021.4.0 Build 20210910\_000000  
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 Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
 Version 2021.4.0 Build 20210924  
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=====  
 Fortran, C | 521.wrf\_r(peak)  
 =====

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
 Intel(R) 64, Version 2021.4.0 Build 20210910\_000000  
 Copyright (C) 1985-2021 Intel Corporation. All rights reserved.  
 Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)  
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## Compiler Version Notes (Continued)

-----  
=====  
Fortran, C | 521.wrf\_r(base) 527.cam4\_r(base, peak)  
-----

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.4.0 Build 20210910\_000000  
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.4.0 Build 20210924  
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.  
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## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifort

## Base Portability Flags

503.bwaves\_r: -DSPEC\_LP64  
507.cactuBSSN\_r: -DSPEC\_LP64  
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

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# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017\_fp\_base = 588

Inspur NF8260M6 (Intel Xeon Gold 6348H)

SPECrate®2017\_fp\_peak = 618

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Jun-2022

Hardware Availability: Sep-2020

Software Availability: Sep-2021

## Base Portability Flags (Continued)

```
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:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

### C++ benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

### Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -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 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

### Benchmarks using both Fortran and C:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -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
-mbranches-within-32B-boundaries -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

### Benchmarks using both C and C++:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

### Benchmarks using Fortran, C, and C++:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
```

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CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Jun-2022

Hardware Availability: Sep-2020

Software Availability: Sep-2021

## Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

```
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -O3  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-multiple-gather-scatter-by-shuffles  
-mbranches-within-32B-boundaries -nostandard-realloc-lhs  
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

521.wrf\_r: ifort icc

527.cam4\_r: ifort icx

Benchmarks using both C and C++:

511.povray\_r: icpc icc

526.blender\_r: icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifort

## Peak Portability Flags

Same as Base Portability Flags



# SPEC CPU®2017 Floating Point Rate Result

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SPECrate®2017\_fp\_peak = 618

CPU2017 License: 3358

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Tested by: Inspur Corporation

Test Date: Jun-2022

Hardware Availability: Sep-2020

Software Availability: Sep-2021

## 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: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math  
-flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries  
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503.bwaves\_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -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  
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

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-AVX512 -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++:

511.povray\_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512 -O3  
-ipo -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-multiple-gather-scatter-by-shuffles

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# SPEC CPU®2017 Floating Point Rate Result

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## Peak Optimization Flags (Continued)

511.povray\_r (continued):

```
-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-ic2021-official-linux64\\_revA.html](http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.html)

<http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V2.5.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/Intel-ic2021-official-linux64_revA.xml)

<http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V2.5.xml>

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