SPEC® CPU2017 Floating Point Rate Result

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Huawei

Huawei 9008 V5 (Intel Xeon Platinum 8158)

SPECrate2017_fp_base = 645
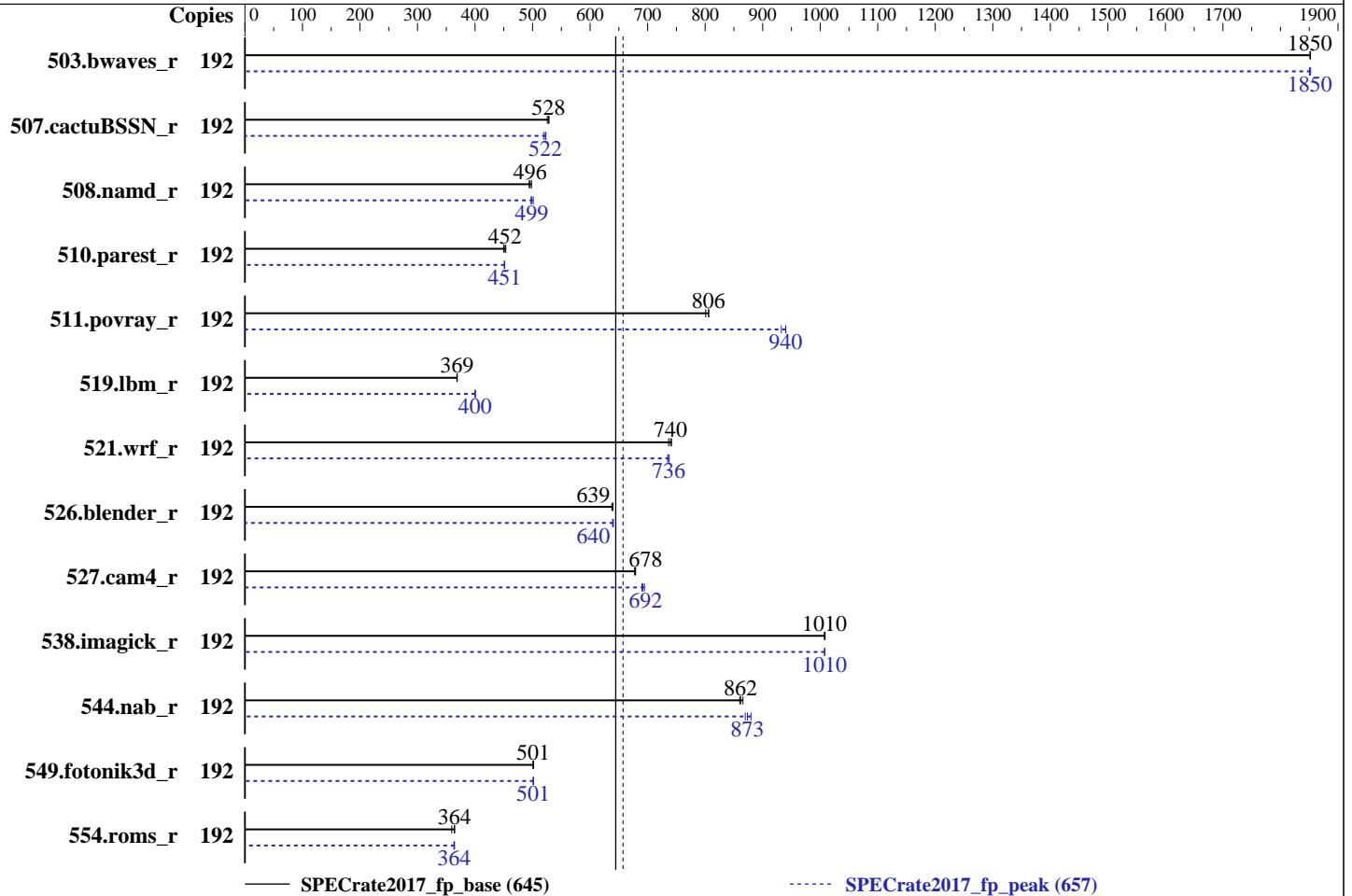
SPECrate2017_fp_peak = 657

CPU2017 License: 3175
Test Sponsor: Huawei
Tested by: Huawei

Test Date: Jun-2018
Hardware Availability: Jul-2018
Software Availability: Mar-2018

Copies

Benchmark	Copies	base	peak
503.bwaves_r	192	1850	1850
507.cactuBSSN_r	192	528	522
508.namd_r	192	496	499
510.parest_r	192	452	451
511.povray_r	192	806	940
519.lbm_r	192	369	400
521.wrf_r	192	740	736
526.blender_r	192	639	640
527.cam4_r	192	678	692
538.imagick_r	192	1010	1010
544.nab_r	192	862	873
549.fotonik3d_r	192	501	501
554.roms_r	192	364	364

—— SPECrate2017_fp_base (645)   ······ SPECrate2017_fp_peak (657)

Hardware

CPU Name: Intel Xeon Platinum 8158
 Max MHz.: 3700
 Nominal: 3000
Enabled: 96 cores, 8 chips, 2 threads/core
Orderable: 2,4,6,8 chips
Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 24.75 MB I+D on chip per chip
 Other: None
Memory: 1536 GB (48 x 32 GB 2Rx4 PC4-2666V-R)
Storage: 2 x 900 GB SAS HDD 10K RPM, RAID 0
Other: None

Software

OS: SUSE Linux Enterprise Server for SAP Applications 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 8.92 released May-2018
File System: btrfs
System State: Run level 5 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: None

Standard Performance Evaluation Corporation (info@spec.org)

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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	**1040**	**1850**	1039	1850	1040	1850	192	1041	1850	1039	1850	**1040**	**1850**
507.cactuBSSN_r	192	460	528	463	526	**460**	**528**	192	**466**	**522**	465	523	468	519
508.namd_r	192	369	494	**368**	**496**	366	498	192	367	497	364	501	**366**	**499**
510.parest_r	192	**1111**	**452**	1108	453	1117	450	192	1112	452	**1113**	**451**	1114	451
511.povray_r	192	**556**	**806**	556	806	560	801	192	**477**	**940**	477	940	481	932
519.lbm_r	192	**549**	**369**	548	369	549	369	192	506	400	**506**	**400**	506	400
521.wrf_r	192	580	742	584	736	**581**	**740**	192	**584**	**736**	583	737	585	735
526.blender_r	192	457	640	**457**	**639**	458	638	192	**457**	**640**	458	639	457	640
527.cam4_r	192	494	679	**495**	**678**	496	677	192	487	690	484	694	**486**	**692**
538.imagick_r	192	473	1010	**474**	**1010**	474	1010	192	**474**	**1010**	474	1010	474	1010
544.nab_r	192	373	866	**375**	**862**	376	860	192	367	880	372	870	**370**	**873**
549.fotonik3d_r	192	**1492**	**501**	1494	501	1492	501	192	1493	501	1492	502	**1493**	**501**
554.roms_r	192	**838**	**364**	848	360	837	364	192	840	363	837	364	**839**	**364**

SPECrate2017_fp_base = 645

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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"
Numa balancing was disabled using "echo 0 > /proc/sys/kernel/numa_balancing"

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>

(Continued on next page)

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General Notes (Continued)

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.

Platform Notes

```
 BIOS configuration:
 Sub NUMA Cluster (SNC) set to enabled
 IMC (Integrated memory controller) Interleaving set to 1 way interleave
 Xtended Prediction Table (XPT) Prefetch set to Enable
 Memory Patrol Scrub set to Disable
 Last Level Cache (LLC) Prefetch set to Disable
 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
 running on linux-0mnb Sun Jul 29 07:06:56 2018

 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) Platinum 8158 CPU @ 3.00GHz
       8  "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 : 12
       siblings  : 24
       physical 0: cores 0 1 2 3 4 9 10 16 18 19 25 26
       physical 1: cores 0 1 2 3 4 9 10 16 18 19 25 26
       physical 2: cores 0 1 2 3 4 8 9 11 17 18 19 20
       physical 3: cores 0 1 2 3 4 9 10 16 18 19 25 26
       physical 4: cores 0 1 2 3 4 9 10 16 18 19 25 26
       physical 5: cores 0 3 4 5 6 7 16 18 19 20 21 22
       physical 6: cores 0 1 2 3 4 9 10 16 18 19 25 26
       physical 7: cores 0 1 2 3 4 9 10 16 18 19 25 26

 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
```

(Continued on next page)

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SPECrate2017_fp_peak = 657

CPU2017 License:	3175	**Test Date:**	Jun-2018
Test Sponsor:	Huawei	**Hardware Availability:**	Jul-2018
Tested by:	Huawei	**Software Availability:**	Mar-2018

Platform Notes (Continued)

```
       Thread(s) per core:    2
       Core(s) per socket:    12
       Socket(s):             8
       NUMA node(s):          16
       Vendor ID:             GenuineIntel
       CPU family:            6
       Model:                 85
       Model name:            Intel(R) Xeon(R) Platinum 8158 CPU @ 3.00GHz
       Stepping:              4
       CPU MHz:               1700.000
       CPU max MHz:           3001.0000
       CPU min MHz:           1200.0000
       BogoMIPS:              5999.93
       Virtualization:        VT-x
       L1d cache:             32K
       L1i cache:             32K
       L2 cache:              1024K
       L3 cache:              25344K
       NUMA node0 CPU(s):     0-2,5,7,10,96-98,101,103,106
       NUMA node1 CPU(s):     3,4,6,8,9,11,99,100,102,104,105,107
       NUMA node2 CPU(s):     12-14,17,19,22,108-110,113,115,118
       NUMA node3 CPU(s):     15,16,18,20,21,23,111,112,114,116,117,119
       NUMA node4 CPU(s):     24-26,29,30,32,120-122,125,126,128
       NUMA node5 CPU(s):     27,28,31,33-35,123,124,127,129-131
       NUMA node6 CPU(s):     36-38,41,43,46,132-134,137,139,142
       NUMA node7 CPU(s):     39,40,42,44,45,47,135,136,138,140,141,143
       NUMA node8 CPU(s):     48-50,53,55,58,144-146,149,151,154
       NUMA node9 CPU(s):     51,52,54,56,57,59,147,148,150,152,153,155
       NUMA node10 CPU(s):    60-62,66-68,156-158,162-164
       NUMA node11 CPU(s):    63-65,69-71,159-161,165-167
       NUMA node12 CPU(s):    72-74,77,79,82,168-170,173,175,178
       NUMA node13 CPU(s):    75,76,78,80,81,83,171,172,174,176,177,179
       NUMA node14 CPU(s):    84-86,89,91,94,180-182,185,187,190
       NUMA node15 CPU(s):    87,88,90,92,93,95,183,184,186,188,189,191
       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
     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
     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 : 25344 KB
```

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Platform Notes (Continued)

```
 From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
 physical chip.
   available: 16 nodes (0-15)
   node 0 cpus: 0 1 2 5 7 10 96 97 98 101 103 106
   node 0 size: 95025 MB
   node 0 free: 94169 MB
   node 1 cpus: 3 4 6 8 9 11 99 100 102 104 105 107
   node 1 size: 96762 MB
   node 1 free: 96332 MB
   node 2 cpus: 12 13 14 17 19 22 108 109 110 113 115 118
   node 2 size: 96762 MB
   node 2 free: 96268 MB
   node 3 cpus: 15 16 18 20 21 23 111 112 114 116 117 119
   node 3 size: 96762 MB
   node 3 free: 96459 MB
   node 4 cpus: 24 25 26 29 30 32 120 121 122 125 126 128
   node 4 size: 96762 MB
   node 4 free: 96439 MB
   node 5 cpus: 27 28 31 33 34 35 123 124 127 129 130 131
   node 5 size: 96762 MB
   node 5 free: 96465 MB
   node 6 cpus: 36 37 38 41 43 46 132 133 134 137 139 142
   node 6 size: 96762 MB
   node 6 free: 96252 MB
   node 7 cpus: 39 40 42 44 45 47 135 136 138 140 141 143
   node 7 size: 96762 MB
   node 7 free: 96480 MB
   node 8 cpus: 48 49 50 53 55 58 144 145 146 149 151 154
   node 8 size: 96762 MB
   node 8 free: 96428 MB
   node 9 cpus: 51 52 54 56 57 59 147 148 150 152 153 155
   node 9 size: 96762 MB
   node 9 free: 96343 MB
   node 10 cpus: 60 61 62 66 67 68 156 157 158 162 163 164
   node 10 size: 96762 MB
   node 10 free: 96470 MB
   node 11 cpus: 63 64 65 69 70 71 159 160 161 165 166 167
   node 11 size: 96762 MB
   node 11 free: 96460 MB
   node 12 cpus: 72 73 74 77 79 82 168 169 170 173 175 178
   node 12 size: 96762 MB
   node 12 free: 96445 MB
   node 13 cpus: 75 76 78 80 81 83 171 172 174 176 177 179
   node 13 size: 96762 MB
   node 13 free: 96419 MB
   node 14 cpus: 84 85 86 89 91 94 180 181 182 185 187 190
```

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Platform Notes (Continued)

```
   node 14 size: 96762 MB
   node 14 free: 96475 MB
   node 15 cpus: 87 88 90 92 93 95 183 184 186 188 189 191
   node 15 size: 96605 MB
   node 15 free: 96296 MB
   node distances:
   node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
     0:  10  20  20  20  20  20  20  20  20  20  20  20  20  20  20  20
     1:  20  10  20  20  20  20  20  20  20  20  20  20  20  20  20  20
     2:  20  20  10  20  20  20  20  20  20  20  20  20  20  20  20  20
     3:  20  20  20  10  20  20  20  20  20  20  20  20  20  20  20  20
     4:  20  20  20  20  10  20  20  20  20  20  20  20  20  20  20  20
     5:  20  20  20  20  20  10  20  20  20  20  20  20  20  20  20  20
     6:  20  20  20  20  20  20  10  20  20  20  20  20  20  20  20  20
     7:  20  20  20  20  20  20  20  10  20  20  20  20  20  20  20  20
     8:  20  20  20  20  20  20  20  20  10  20  20  20  20  20  20  20
     9:  20  20  20  20  20  20  20  20  20  10  20  20  20  20  20  20
    10:  20  20  20  20  20  20  20  20  20  20  10  20  20  20  20  20
    11:  20  20  20  20  20  20  20  20  20  20  20  10  20  20  20  20
    12:  20  20  20  20  20  20  20  20  20  20  20  20  10  20  20  20
    13:  20  20  20  20  20  20  20  20  20  20  20  20  20  10  20  20
    14:  20  20  20  20  20  20  20  20  20  20  20  20  20  20  10  20
    15:  20  20  20  20  20  20  20  20  20  20  20  20  20  20  20  10

 From /proc/meminfo
    MemTotal:       1583410940 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"
```

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SPECrate2017_fp_base = 645

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Platform Notes (Continued)

```
uname -a:
   Linux linux-0mnb 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 5 Jul 28 22:51

SPEC is set to: /home/cpu2017
   Filesystem      Type   Size   Used Avail Use% Mounted on
   /dev/sda4       btrfs  1.5T   23G  1.5T   2% /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 INSYDE Corp. 8.92 05/02/2018
  Memory:
   48x NO DIMM NO DIMM
   48x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666

(End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
 CC  519.lbm_r(base) 538.imagick_r(base, peak) 544.nab_r(base)
------------------------------------------------------------------------------
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
 CC   519.lbm_r(peak) 544.nab_r(peak)
------------------------------------------------------------------------------
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
 CXXC 508.namd_r(base) 510.parest_r(base)
------------------------------------------------------------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
```

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Compiler Version Notes (Continued)

```
CXXC 508.namd_r(peak) 510.parest_r(peak)
------------------------------------------------------------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
 CC  511.povray_r(base) 526.blender_r(base)
------------------------------------------------------------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
CC   511.povray_r(peak) 526.blender_r(peak)
------------------------------------------------------------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
 FC  507.cactuBSSN_r(base)
------------------------------------------------------------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
FC   507.cactuBSSN_r(peak)
------------------------------------------------------------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
```

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Compiler Version Notes (Continued)

```
 FC  503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base)
------------------------------------------------------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------


========================================================================
FC   554.roms_r(peak)
------------------------------------------------------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------


========================================================================
 CC  521.wrf_r(base) 527.cam4_r(base)
------------------------------------------------------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------


========================================================================
CC   521.wrf_r(peak) 527.cam4_r(peak)
------------------------------------------------------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
icc (ICC) 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`

Benchmarks using both Fortran and C:
`ifort icc`

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Test Date: Jun-2018
Hardware Availability: Jul-2018
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Base Compiler Invocation (Continued)

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`
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:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3`

C++ benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3`

Fortran benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte`

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte`

Benchmarks using both C and C++:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only`

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Huawei

Huawei 9008 V5 (Intel Xeon Platinum 8158)

SPECrate2017_fp_base =   645

SPECrate2017_fp_peak =   657

CPU2017 License: 3175

Test Sponsor: Huawei

Tested by: Huawei

Test Date: Jun-2018

Hardware Availability: Jul-2018

Software Availability: Mar-2018

Base Optimization Flags (Continued)

Benchmarks using both C and C++ (continued):
```
-qopt-mem-layout-trans=3
```

Benchmarks using Fortran, C, and C++:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

Base Other Flags

C benchmarks:
```
-m64 -std=c11
```

C++ benchmarks:
```
-m64
```

Fortran benchmarks:
```
-m64
```

Benchmarks using both Fortran and C:
```
-m64 -std=c11
```

Benchmarks using both C and C++:
```
-m64 -std=c11
```

Benchmarks using Fortran, C, and C++:
```
-m64 -std=c11
```

Peak Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
ifort icc
```

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SPEC CPU2017 Floating Point Rate Result

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Software Availability: Mar-2018

Peak Compiler Invocation (Continued)

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
```

Peak Optimization Flags

C benchmarks:

519.lbm_r: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3`

538.imagick_r: `-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3`

544.nab_r: `Same as 519.lbm_r`

C++ benchmarks:
`-prof-gen`(pass 1) `-prof-use`(pass 2) `-ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3`

Fortran benchmarks:

503.bwaves_r: `-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte`

549.fotonik3d_r: `Same as 503.bwaves_r`

554.roms_r: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte`

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SPECrate2017_fp_base =   645

SPECrate2017_fp_peak =   657

Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:
```
-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

Benchmarks using both C and C++:
```
-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3
```

Benchmarks using Fortran, C, and C++:
```
-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

Peak Other Flags

C benchmarks:
```
-m64 -std=c11
```

C++ benchmarks:
```
-m64
```

Fortran benchmarks:
```
-m64
```

Benchmarks using both Fortran and C:
```
-m64 -std=c11
```

Benchmarks using both C and C++:
```
-m64 -std=c11
```

Benchmarks using Fortran, C, and C++:
```
-m64 -std=c11
```

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/Huawei-Platform-Settings-SKL-V1.7.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/Huawei-Platform-Settings-SKL-V1.7.xml

SPEC CPU2017 Floating Point Rate Result

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Huawei 9008 V5 (Intel Xeon Platinum 8158)

SPECrate2017_fp_base = 645

SPECrate2017_fp_peak = 657

CPU2017 License: 3175

Test Sponsor: Huawei

Tested by: Huawei

Test Date: Jun-2018

Hardware Availability: Jul-2018

Software Availability: Mar-2018

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

Tested with SPEC CPU2017 v1.0.2 on 2018-07-28 19:06:54-0400.
Report generated on 2018-10-31 18:16:32 by CPU2017 PDF formatter v6067.
Originally published on 2018-09-04.