SPEC CPU®2017 Floating Point Rate Result

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Inspur Corporation

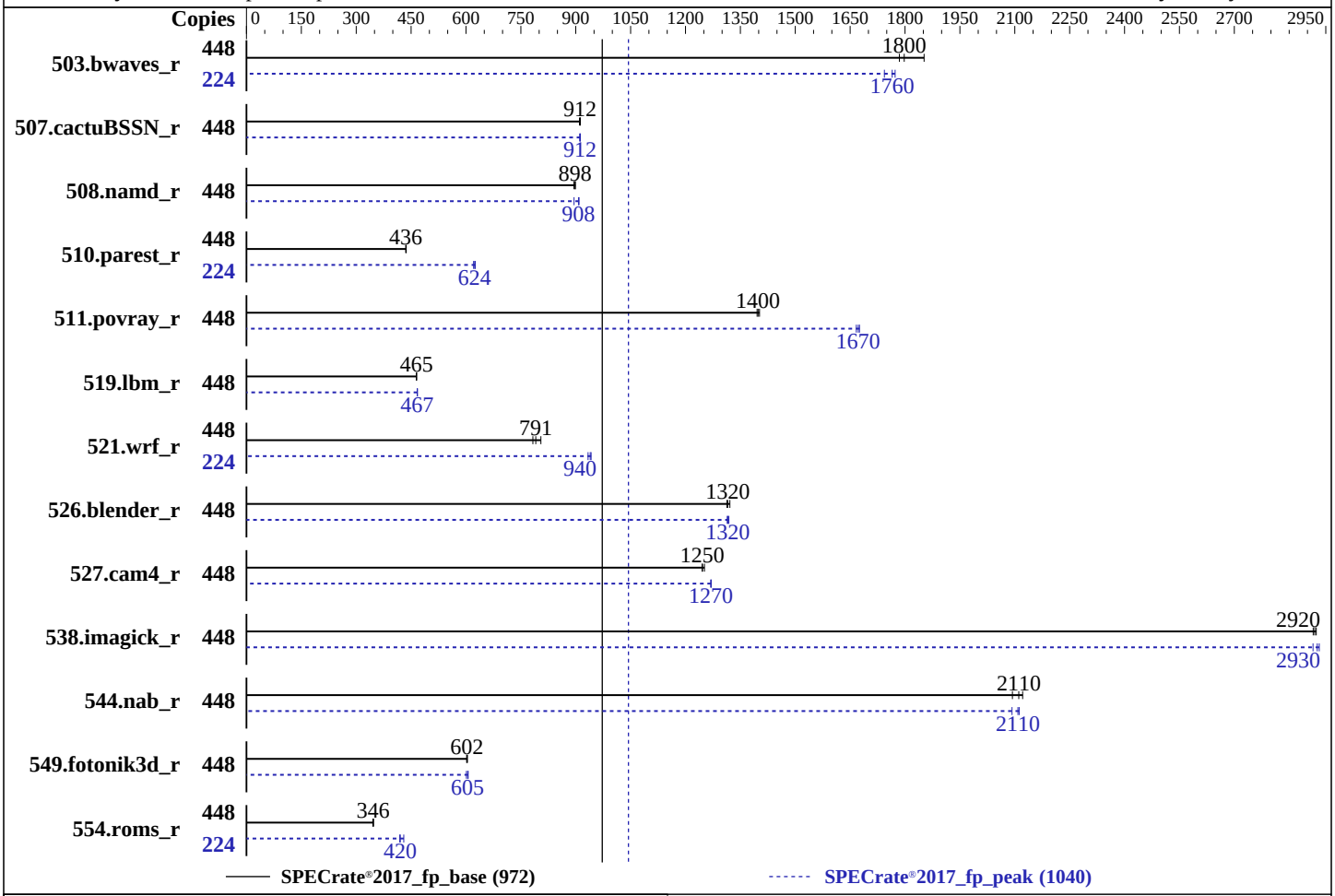
Inspur TS860M5 (Intel Xeon Platinum 8180)

SPECrate®2017_fp_base = 972

SPECrate®2017_fp_peak = 1040

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

Test Date: Jan-2020
Hardware Availability: Jul-2017
Software Availability: May-2019



Hardware

CPU Name:	Intel Xeon Platinum 8180
Max MHz:	3800
Nominal:	2500
Enabled:	224 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:	38.5 MB I+D on chip per chip
Other:	None
Memory:	1536 GB (96 x 16 GB 2Rx4 PC4-2666V-R)
Storage:	1 x 1.9 TB SATA SSD
Other:	None

Software

OS:	SUSE Linux Enterprise Server 12 SP4 4.12.14-94.41-default
Compiler:	C/C++: Version 19.0.4.227 of Intel C/C++ Compiler Build 20190416 for Linux; Fortran: Version 19.0.4.227 of Intel Fortran Compiler Build 20190416 for Linux
Parallel:	No
Firmware:	Version 4.1.09 released Jun-2019
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	None
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	448	2517	1780	**2499**	**1800**	2426	1850	224	1267	1770	**1273**	**1760**	1288	1740
507.cactuBSSN_r	448	622	912	623	910	**622**	**912**	448	621	913	**622**	**912**	623	911
508.namd_r	448	475	895	**474**	**898**	473	899	448	468	909	**469**	**908**	475	895
510.parest_r	448	2684	437	2690	436	**2689**	**436**	224	944	621	937	625	**940**	**624**
511.povray_r	448	750	1400	746	1400	**748**	**1400**	448	628	1670	624	1680	**626**	**1670**
519.lbm_r	448	1016	465	**1016**	**465**	1016	465	448	1011	467	**1011**	**467**	1011	467
521.wrf_r	448	1282	783	**1269**	**791**	1247	805	224	537	934	**534**	**940**	533	942
526.blender_r	448	516	1320	520	1310	**519**	**1320**	448	519	1310	517	1320	**518**	**1320**
527.cam4_r	448	629	1250	**629**	**1250**	626	1250	448	617	1270	617	1270	**617**	**1270**
538.imagick_r	448	**382**	**2920**	382	2920	381	2920	448	382	2920	380	2930	**381**	**2930**
544.nab_r	448	360	2090	355	2120	**357**	**2110**	448	**358**	**2110**	357	2110	360	2090
549.fotonik3d_r	448	2890	604	2900	602	**2898**	**602**	448	2881	606	2904	601	**2887**	**605**
554.roms_r	448	**2056**	**346**	2061	345	2049	347	224	850	419	**847**	**420**	828	430

SPECrate®2017_fp_base = 972

SPECrate®2017_fp_peak = 1040

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"
```

General Notes

```
Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.5
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)

General Notes (Continued)

```
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.
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 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: r6365 of 2019-08-21 295195f888a3d7edb1e6e46a485a0011
running on linux-atnv Tue Jan 21 03:50:21 2020

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 8180 CPU @ 2.50GHz
      8  "physical id"s (chips)
      448 "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 : 28
      siblings  : 56
      physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 4: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
```

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Platform Notes (Continued)

```
       28 29 30
      physical 5: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
       28 29 30
      physical 6: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
       28 29 30
      physical 7: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
       28 29 30

 From lscpu:
      Architecture:          x86_64
      CPU op-mode(s):        32-bit, 64-bit
      Byte Order:            Little Endian
      CPU(s):                448
      On-line CPU(s) list:   0-447
      Thread(s) per core:    2
      Core(s) per socket:    28
      Socket(s):             8
      NUMA node(s):          16
      Vendor ID:             GenuineIntel
      CPU family:            6
      Model:                 85
      Model name:            Intel(R) Xeon(R) Platinum 8180 CPU @ 2.50GHz
      Stepping:              4
      CPU MHz:               2500.000
      CPU max MHz:           3800.0000
      CPU min MHz:           1000.0000
      BogoMIPS:              5000.00
      Virtualization:        VT-x
      L1d cache:             32K
      L1i cache:             32K
      L2 cache:              1024K
      L3 cache:              39424K
      NUMA node0 CPU(s):     0-3,7-9,14-17,21-23,224-227,231-233,238-241,245-247
      NUMA node1 CPU(s):     4-6,10-13,18-20,24-27,228-230,234-237,242-244,248-251
      NUMA node2 CPU(s):     28-31,35-37,42-45,49-51,252-255,259-261,266-269,273-275
      NUMA node3 CPU(s):     32-34,38-41,46-48,52-55,256-258,262-265,270-272,276-279
      NUMA node4 CPU(s):     56-59,63-65,70-73,77-79,280-283,287-289,294-297,301-303
      NUMA node5 CPU(s):     60-62,66-69,74-76,80-83,284-286,290-293,298-300,304-307
      NUMA node6 CPU(s):     84-87,91-93,98-101,105-107,308-311,315-317,322-325,329-331
      NUMA node7 CPU(s):     88-90,94-97,102-104,108-111,312-314,318-321,326-328,332-335
      NUMA node8 CPU(s):
      112-115,119-121,126-129,133-135,336-339,343-345,350-353,357-359
      NUMA node9 CPU(s):
      116-118,122-125,130-132,136-139,340-342,346-349,354-356,360-363
      NUMA node10 CPU(s):
      140-143,147-149,154-157,161-163,364-367,371-373,378-381,385-387
      NUMA node11 CPU(s):
```

(Continued on next page)

Platform Notes (Continued)

```
      144-146,150-153,158-160,164-167,368-370,374-377,382-384,388-391
      NUMA node12 CPU(s):
      168-171,175-177,182-185,189-191,392-395,399-401,406-409,413-415
      NUMA node13 CPU(s):
      172-174,178-181,186-188,192-195,396-398,402-405,410-412,416-419
      NUMA node14 CPU(s):
      196-199,203-205,210-213,217-219,420-423,427-429,434-437,441-443
      NUMA node15 CPU(s):
      200-202,206-209,214-216,220-223,424-426,430-433,438-440,444-447
      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
      aperfmperf 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 pti intel_ppin ssbd mba ibrs ibpb stibp tpr_shadow vnmi flexpriority
      ept vpid fsgsbase tsc_adjust bmi1 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
      dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke flush_l1d

  /proc/cpuinfo cache data
     cache size : 39424 KB

  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 3 7 8 9 14 15 16 17 21 22 23 224 225 226 227 231 232 233 238 239 240
    241 245 246 247
    node 0 size: 95297 MB
    node 0 free: 94995 MB
    node 1 cpus: 4 5 6 10 11 12 13 18 19 20 24 25 26 27 228 229 230 234 235 236 237 242 243
    244 248 249 250 251
    node 1 size: 96760 MB
    node 1 free: 96573 MB
    node 2 cpus: 28 29 30 31 35 36 37 42 43 44 45 49 50 51 252 253 254 255 259 260 261 266
    267 268 269 273 274 275
    node 2 size: 96760 MB
    node 2 free: 96603 MB
    node 3 cpus: 32 33 34 38 39 40 41 46 47 48 52 53 54 55 256 257 258 262 263 264 265 270
    271 272 276 277 278 279
    node 3 size: 96760 MB
    node 3 free: 96611 MB
    node 4 cpus: 56 57 58 59 63 64 65 70 71 72 73 77 78 79 280 281 282 283 287 288 289 294
    295 296 297 301 302 303
    node 4 size: 96760 MB
    node 4 free: 96499 MB
```

(Continued on next page)

Platform Notes (Continued)

```
node 5 cpus: 60 61 62 66 67 68 69 74 75 76 80 81 82 83 284 285 286 290 291 292 293 298
299 300 304 305 306 307
node 5 size: 96760 MB
node 5 free: 96551 MB
node 6 cpus: 84 85 86 87 91 92 93 98 99 100 101 105 106 107 308 309 310 311 315 316 317
322 323 324 325 329 330 331
node 6 size: 96760 MB
node 6 free: 96377 MB
node 7 cpus: 88 89 90 94 95 96 97 102 103 104 108 109 110 111 312 313 314 318 319 320
321 326 327 328 332 333 334 335
node 7 size: 96731 MB
node 7 free: 96201 MB
node 8 cpus: 112 113 114 115 119 120 121 126 127 128 129 133 134 135 336 337 338 339
343 344 345 350 351 352 353 357 358 359
node 8 size: 96760 MB
node 8 free: 96601 MB
node 9 cpus: 116 117 118 122 123 124 125 130 131 132 136 137 138 139 340 341 342 346
347 348 349 354 355 356 360 361 362 363
node 9 size: 96760 MB
node 9 free: 96615 MB
node 10 cpus: 140 141 142 143 147 148 149 154 155 156 157 161 162 163 364 365 366 367
371 372 373 378 379 380 381 385 386 387
node 10 size: 96760 MB
node 10 free: 96599 MB
node 11 cpus: 144 145 146 150 151 152 153 158 159 160 164 165 166 167 368 369 370 374
375 376 377 382 383 384 388 389 390 391
node 11 size: 96760 MB
node 11 free: 96598 MB
node 12 cpus: 168 169 170 171 175 176 177 182 183 184 185 189 190 191 392 393 394 395
399 400 401 406 407 408 409 413 414 415
node 12 size: 96760 MB
node 12 free: 96492 MB
node 13 cpus: 172 173 174 178 179 180 181 186 187 188 192 193 194 195 396 397 398 402
403 404 405 410 411 412 416 417 418 419
node 13 size: 96760 MB
node 13 free: 96568 MB
node 14 cpus: 196 197 198 199 203 204 205 210 211 212 213 217 218 219 420 421 422 423
427 428 429 434 435 436 437 441 442 443
node 14 size: 96760 MB
node 14 free: 96590 MB
node 15 cpus: 200 201 202 206 207 208 209 214 215 216 220 221 222 223 424 425 426 430
431 432 433 438 439 440 444 445 446 447
node 15 size: 96537 MB
node 15 free: 96266 MB
node distances:
node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
  0:  10  11  21  21  31  31  21  21  31  31  21  21  31  31  31  31
```

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Platform Notes (Continued)

```
     1:  11  10  21  21  31  31  21  21  31  31  21  21  31  31  31  31
     2:  21  21  10  11  21  21  31  31  21  21  31  31  31  31  31  31
     3:  21  21  11  10  21  21  31  31  21  21  31  31  31  31  31  31
     4:  31  31  21  21  10  11  21  21  31  31  31  31  21  21  31  31
     5:  31  31  21  21  11  10  21  21  31  31  31  31  21  21  31  31
     6:  21  21  31  31  21  21  10  11  31  31  31  31  31  31  21  21
     7:  21  21  31  31  21  21  11  10  31  31  31  31  31  31  21  21
     8:  31  31  21  21  31  31  31  31  10  11  21  21  31  31  21  21
     9:  31  31  21  21  31  31  31  31  11  10  21  21  31  31  21  21
    10:  21  21  31  31  31  31  31  31  21  21  10  11  21  21  31  31
    11:  21  21  31  31  31  31  31  31  21  21  11  10  21  21  31  31
    12:  31  31  31  31  21  21  31  31  31  31  21  21  10  11  21  21
    13:  31  31  31  31  21  21  31  31  31  31  21  21  11  10  21  21
    14:  31  31  31  31  31  31  21  21  21  21  31  31  21  21  10  11
    15:  31  31  31  31  31  31  21  21  21  21  31  31  21  21  11  10

From /proc/meminfo
   MemTotal:       1583561724 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 12 SP4

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 12 (x86_64)
      VERSION = 12
      PATCHLEVEL = 4
      # 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-SP4"
      VERSION_ID="12.4"
      PRETTY_NAME="SUSE Linux Enterprise Server 12 SP4"
      ID="sles"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:12:sp4"

uname -a:
   Linux linux-atnv 4.12.14-94.41-default #1 SMP Wed Oct 31 12:25:04 UTC 2018 (3090901)
   x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-3620 (L1 Terminal Fault):        Mitigation: PTE Inversion
```


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Platform Notes (Continued)

```
 Microarchitectural Data Sampling:         No status reported
 CVE-2017-5754 (Meltdown):                 Mitigation: PTI
 CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled
                                           via prctl and seccomp
 CVE-2017-5753 (Spectre variant 1):        Mitigation: __user pointer sanitization
 CVE-2017-5715 (Spectre variant 2):        Mitigation: Indirect Branch Restricted
                                           Speculation, IBPB, IBRS_FW

 run-level 3 Jan 21 03:37 last=5

 SPEC is set to: /home/CPU2017
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sdb4      xfs   1.8T   12G  1.8T   1% /home

 From /sys/devices/virtual/dmi/id
     BIOS:    Inspur 4.1.09 06/20/2019
     Vendor:  Inspur
     Product: TS860M5
     Product Family: Type1Family
     Serial:  219179468

 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:
     96x Samsung M393A2K40BB2-CTD 16 GB 1 rank 2666

 (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 Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C++             | 508.namd_r(base, peak) 510.parest_r(base, peak)
------------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
```

(Continued on next page)

Compiler Version Notes (Continued)

```
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C++, C          | 511.povray_r(base, peak) 526.blender_r(base, peak)
------------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
------------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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 for applications running on Intel(R)
  64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
Fortran, C      | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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

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

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64

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=4

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only

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Base Optimization Flags (Continued)

C++ benchmarks (continued):
-qopt-mem-layout-trans=4

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -auto -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=4 -auto -nostandard-realloc-lhs
-align array32byte

Benchmarks using both C and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs
-align array32byte

Peak Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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

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

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64

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=4

538.imagick_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4

544.nab_r: Same as 538.imagick_r

C++ benchmarks:

508.namd_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=4

510.parest_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4

Fortran benchmarks:

503.bwaves_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -auto -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=4 -auto -nostandard-realloc-lhs -align array32byte

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=4 -auto -nostandard-realloc-lhs -align array32byte

(Continued on next page)

Peak Optimization Flags (Continued)

Benchmarks using both C and C++:

511.povray_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=4`

526.blender_r: `-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4`

Benchmarks using Fortran, C, and C++:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs -align array32byte`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.html
http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V1.5-CAS.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.xml
http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V1.5-CAS.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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