# SPEC® CPU2017 Floating Point Rate Result

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## Huawei

Huawei 9008 V5 (Intel Xeon Platinum 8170)

SPECrate2017_fp_base = 866
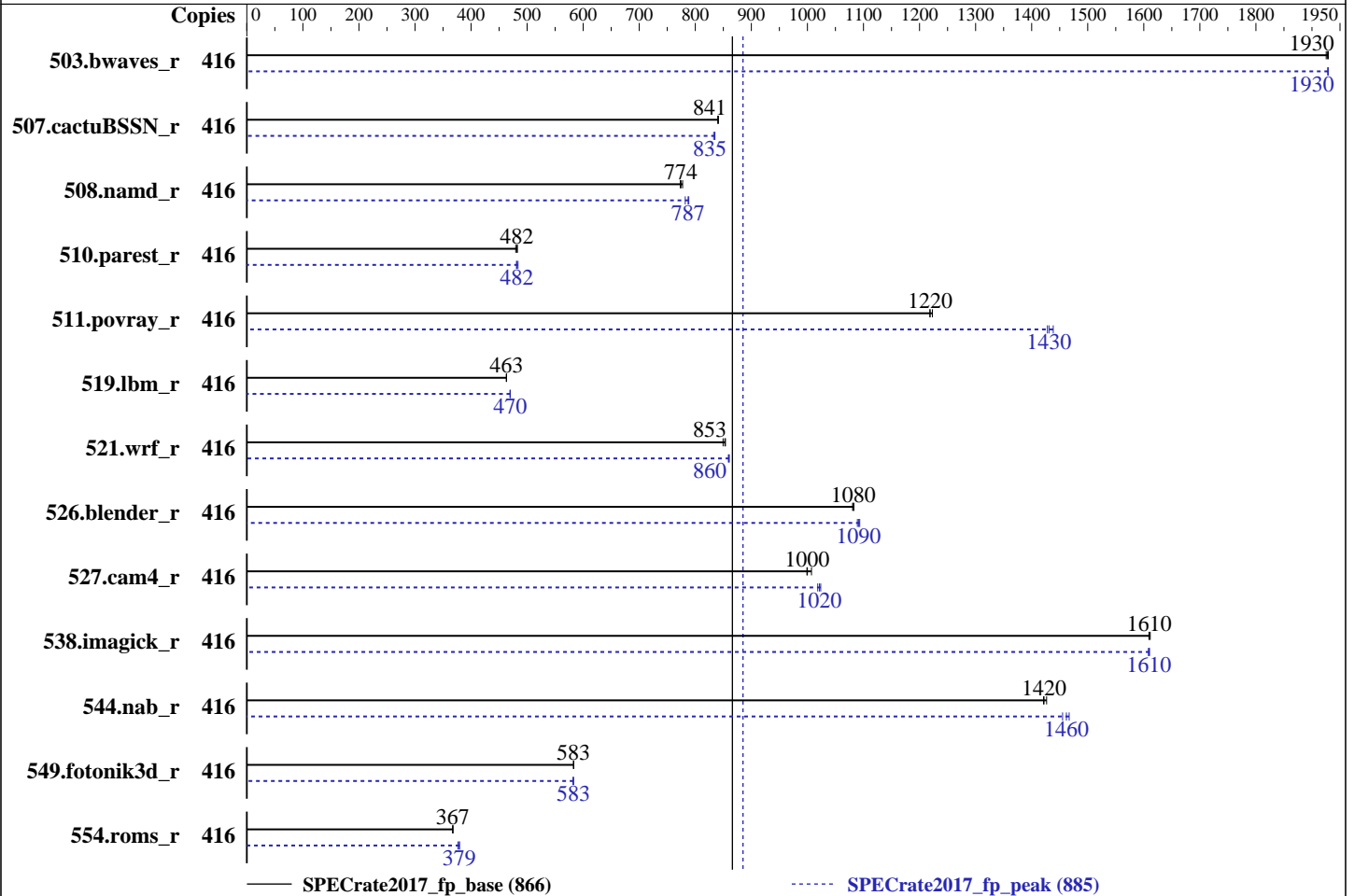
SPECrate2017_fp_peak = 885

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

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



| Benchmark | Copies | base | peak |
|---|---|---|---|
| 503.bwaves_r | 416 | 1930 | 1930 |
| 507.cactuBSSN_r | 416 | 841 | 835 |
| 508.namd_r | 416 | 774 | 787 |
| 510.parest_r | 416 | 482 | 482 |
| 511.povray_r | 416 | 1220 | 1430 |
| 519.lbm_r | 416 | 463 | 470 |
| 521.wrf_r | 416 | 853 | 860 |
| 526.blender_r | 416 | 1080 | 1090 |
| 527.cam4_r | 416 | 1000 | 1020 |
| 538.imagick_r | 416 | 1610 | 1610 |
| 544.nab_r | 416 | 1420 | 1460 |
| 549.fotonik3d_r | 416 | 583 | 583 |
| 554.roms_r | 416 | 367 | 379 |

SPECrate2017_fp_base (866)     SPECrate2017_fp_peak (885)

## Hardware

CPU Name: Intel Xeon Platinum 8170
  Max MHz.: 3700
  Nominal: 2100
Enabled: 208 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: 35.75 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 0.80 released Feb-2018
File System: ext4
System State: Run level 5 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: None

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SPECrate2017_fp_base =   866

SPECrate2017_fp_peak =   885

**CPU2017 License:** 3175

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**Tested by:** Huawei

**Test Date:** Jun-2018

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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 | 416 | 2167 | 1930 | 2162 | 1930 | **2165** | **1930** | 416 | **2163** | **1930** | 2163 | 1930 | 2163 | 1930 |
| 507.cactuBSSN_r | 416 | 626 | 841 | 627 | 840 | **626** | **841** | 416 | 632 | 833 | 631 | 835 | **631** | **835** |
| 508.namd_r | 416 | 511 | 773 | **510** | **774** | 508 | 777 | 416 | 501 | 788 | **502** | **787** | 505 | 782 |
| 510.parest_r | 416 | 2268 | 480 | 2255 | 483 | **2258** | **482** | 416 | 2250 | 484 | **2258** | **482** | 2263 | 481 |
| 511.povray_r | 416 | 797 | 1220 | **797** | **1220** | 794 | 1220 | 416 | **679** | **1430** | 680 | 1430 | 675 | 1440 |
| 519.lbm_r | 416 | 947 | 463 | **947** | **463** | 946 | 463 | 416 | 934 | 469 | **933** | **470** | 933 | 470 |
| 521.wrf_r | 416 | **1093** | **853** | 1097 | 849 | 1091 | 854 | 416 | 1085 | 859 | 1083 | 861 | **1084** | **860** |
| 526.blender_r | 416 | 585 | 1080 | 586 | 1080 | **586** | **1080** | 416 | **580** | **1090** | 579 | 1090 | 582 | 1090 |
| 527.cam4_r | 416 | **728** | **1000** | 728 | 999 | 722 | 1010 | 416 | 711 | 1020 | **712** | **1020** | 714 | 1020 |
| 538.imagick_r | 416 | **643** | **1610** | 643 | 1610 | 642 | 1610 | 416 | 643 | 1610 | **643** | **1610** | 642 | 1610 |
| 544.nab_r | 416 | 491 | 1430 | **492** | **1420** | 493 | 1420 | 416 | 477 | 1470 | 481 | 1460 | **479** | **1460** |
| 549.fotonik3d_r | 416 | 2780 | 583 | 2782 | 583 | **2781** | **583** | 416 | 2786 | 582 | 2782 | 583 | **2783** | **583** |
| 554.roms_r | 416 | **1799** | **367** | 1798 | 368 | 1800 | 367 | 416 | 1743 | 379 | **1743** | **379** | 1756 | 377 |
| **SPECrate2017_fp_base =** | | **866** | | | | | | | | | | | | |
| **SPECrate2017_fp_peak =** | | **885** | | | | | | | | | | | | |

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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**Test Date:** Jun-2018
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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-6n7q Tue Jun 19 14:26:17 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 8170 CPU @ 2.10GHz
       8  "physical id"s (chips)
       416 "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 : 26
       siblings  : 52
       physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28
       29
       physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28
       29
       physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28
       29
       physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28
       29
       physical 4: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28
       29
       physical 5: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28
       29
       physical 6: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28
       29
       physical 7: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28
```

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## Platform Notes (Continued)

```
     29

 From lscpu:
     Architecture:          x86_64
     CPU op-mode(s):        32-bit, 64-bit
     Byte Order:            Little Endian
     CPU(s):                416
     On-line CPU(s) list:   0-415
     Thread(s) per core:    2
     Core(s) per socket:    26
     Socket(s):             8
     NUMA node(s):          16
     Vendor ID:             GenuineIntel
     CPU family:            6
     Model:                 85
     Model name:            Intel(R) Xeon(R) Platinum 8170 CPU @ 2.10GHz
     Stepping:              4
     CPU MHz:               2101.000
     CPU max MHz:           2101.0000
     CPU min MHz:           1000.0000
     BogoMIPS:              4200.07
     Virtualization:        VT-x
     L1d cache:             32K
     L1i cache:             32K
     L2 cache:              1024K
     L3 cache:              36608K
     NUMA node0 CPU(s):     0-3,7-9,13-15,20-22,208-211,215-217,221-223,228-230
     NUMA node1 CPU(s):     4-6,10-12,16-19,23-25,212-214,218-220,224-227,231-233
     NUMA node2 CPU(s):     26-29,33-35,39-41,46-48,234-237,241-243,247-249,254-256
     NUMA node3 CPU(s):     30-32,36-38,42-45,49-51,238-240,244-246,250-253,257-259
     NUMA node4 CPU(s):     52-55,59-61,65-67,72-74,260-263,267-269,273-275,280-282
     NUMA node5 CPU(s):     56-58,62-64,68-71,75-77,264-266,270-272,276-279,283-285
     NUMA node6 CPU(s):     78-81,85-87,91-93,98-100,286-289,293-295,299-301,306-308
     NUMA node7 CPU(s):     82-84,88-90,94-97,101-103,290-292,296-298,302-305,309-311
     NUMA node8 CPU(s):
     104-107,111-113,117-119,124-126,312-315,319-321,325-327,332-334
     NUMA node9 CPU(s):
     108-110,114-116,120-123,127-129,316-318,322-324,328-331,335-337
     NUMA node10 CPU(s):
     130-133,137-139,143-145,150-152,338-341,345-347,351-353,358-360
     NUMA node11 CPU(s):
     134-136,140-142,146-149,153-155,342-344,348-350,354-357,361-363
     NUMA node12 CPU(s):
     156-159,163-165,169-171,176-178,364-367,371-373,377-379,384-386
     NUMA node13 CPU(s):
     160-162,166-168,172-175,179-181,368-370,374-376,380-383,387-389
     NUMA node14 CPU(s):
```

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**Test Date:** Jun-2018  
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**Software Availability:** Mar-2018

## Platform Notes (Continued)

```
    182-185,189-191,195-197,202-204,390-393,397-399,403-405,410-412
    NUMA node15 CPU(s):
    186-188,192-194,198-201,205-207,394-396,400-402,406-409,413-415
    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 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 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 : 36608 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 13 14 15 20 21 22 208 209 210 211 215 216 217 221 222 223
    228 229 230
    node 0 size: 94994 MB
    node 0 free: 93937 MB
    node 1 cpus: 4 5 6 10 11 12 16 17 18 19 23 24 25 212 213 214 218 219 220 224 225 226
    227 231 232 233
    node 1 size: 96762 MB
    node 1 free: 96292 MB
    node 2 cpus: 26 27 28 29 33 34 35 39 40 41 46 47 48 234 235 236 237 241 242 243 247 248
    249 254 255 256
    node 2 size: 96762 MB
    node 2 free: 96294 MB
    node 3 cpus: 30 31 32 36 37 38 42 43 44 45 49 50 51 238 239 240 244 245 246 250 251 252
    253 257 258 259
    node 3 size: 96762 MB
    node 3 free: 96267 MB
    node 4 cpus: 52 53 54 55 59 60 61 65 66 67 72 73 74 260 261 262 263 267 268 269 273 274
    275 280 281 282
    node 4 size: 96762 MB
    node 4 free: 96301 MB
    node 5 cpus: 56 57 58 62 63 64 68 69 70 71 75 76 77 264 265 266 270 271 272 276 277 278
    279 283 284 285
    node 5 size: 96762 MB
    node 5 free: 96305 MB
    node 6 cpus: 78 79 80 81 85 86 87 91 92 93 98 99 100 286 287 288 289 293 294 295 299
    300 301 306 307 308
    node 6 size: 96762 MB
```

**(Continued on next page)**

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## Platform Notes (Continued)

```
node 6 free: 96288 MB
node 7 cpus: 82 83 84 88 89 90 94 95 96 97 101 102 103 290 291 292 296 297 298 302 303
304 305 309 310 311
node 7 size: 96762 MB
node 7 free: 96121 MB
node 8 cpus: 104 105 106 107 111 112 113 117 118 119 124 125 126 312 313 314 315 319
320 321 325 326 327 332 333 334
node 8 size: 96762 MB
node 8 free: 96275 MB
node 9 cpus: 108 109 110 114 115 116 120 121 122 123 127 128 129 316 317 318 322 323
324 328 329 330 331 335 336 337
node 9 size: 96762 MB
node 9 free: 96282 MB
node 10 cpus: 130 131 132 133 137 138 139 143 144 145 150 151 152 338 339 340 341 345
346 347 351 352 353 358 359 360
node 10 size: 96762 MB
node 10 free: 96274 MB
node 11 cpus: 134 135 136 140 141 142 146 147 148 149 153 154 155 342 343 344 348 349
350 354 355 356 357 361 362 363
node 11 size: 96762 MB
node 11 free: 96239 MB
node 12 cpus: 156 157 158 159 163 164 165 169 170 171 176 177 178 364 365 366 367 371
372 373 377 378 379 384 385 386
node 12 size: 96762 MB
node 12 free: 96302 MB
node 13 cpus: 160 161 162 166 167 168 172 173 174 175 179 180 181 368 369 370 374 375
376 380 381 382 383 387 388 389
node 13 size: 96762 MB
node 13 free: 96242 MB
node 14 cpus: 182 183 184 185 189 190 191 195 196 197 202 203 204 390 391 392 393 397
398 399 403 404 405 410 411 412
node 14 size: 96762 MB
node 14 free: 96291 MB
node 15 cpus: 186 187 188 192 193 194 198 199 200 201 205 206 207 394 395 396 400 401
402 406 407 408 409 413 414 415
node 15 size: 96605 MB
node 15 free: 96158 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
```

**(Continued on next page)**

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SPECrate2017_fp_base =   866

SPECrate2017_fp_peak =   885

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## Platform Notes (Continued)

```
    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:       1583378316 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    SUSE Linux Enterprise Server for SAP Applications 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_SAP"
       VERSION="12-SP2"
       VERSION_ID="12.2"
       PRETTY_NAME="SUSE Linux Enterprise Server for SAP Applications 12 SP2"
       ID="sles_sap"
       ANSI_COLOR="0;32"
       CPE_NAME="cpe:/o:suse:sles_sap:12:sp2"

 uname -a:
    Linux linux-6n7q 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 Jun 19 02:25

 SPEC is set to: /home/cpu2017
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda4       ext4  745G   26G  719G   4% /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.
```

**(Continued on next page)**

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## Platform Notes (Continued)

```
    BIOS INSYDE Corp. 0.80 02/24/2018
    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.
------------------------------------------------------------------------------


==============================================================================
  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.
------------------------------------------------------------------------------
```

**(Continued on next page)**

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**SPECrate2017_fp_base =  866**

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## Compiler Version Notes (Continued)

```
==============================================================================
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.
------------------------------------------------------------------------------


==============================================================================
 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)
```

**(Continued on next page)**

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**SPECrate2017_fp_peak = 885**

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

## Compiler Version Notes (Continued)

```
------------------------------------------------------------------------
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`

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
```

*(Continued on next page)*

# SPEC CPU2017 Floating Point Rate Result

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## Huawei

Huawei 9008 V5 (Intel Xeon Platinum 8170)

SPECrate2017_fp_base = 866

SPECrate2017_fp_peak = 885

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

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

## Base Portability Flags (Continued)

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 -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`

**(Continued on next page)**

Standard Performance Evaluation Corporation (info@spec.org)
https://www.spec.org/

# SPEC CPU2017 Floating Point Rate Result

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## Huawei

Huawei 9008 V5 (Intel Xeon Platinum 8170)

SPECrate2017_fp_base = 866

SPECrate2017_fp_peak = 885

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

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

## Base Other Flags (Continued)

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
```

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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# SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Huawei

Huawei 9008 V5 (Intel Xeon Platinum 8170)

SPECrate2017_fp_base = 866

SPECrate2017_fp_peak = 885

# 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

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

## Huawei

Huawei 9008 V5 (Intel Xeon Platinum 8170)

SPECrate2017_fp_base =  866

SPECrate2017_fp_peak =  885

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

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

# 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`

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

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