



# SPEC® CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

**Huawei**

**SPECrate2017\_fp\_base = 1080**

**SPECrate2017\_fp\_peak = Not Run**

**CPU2017 License:** 3175

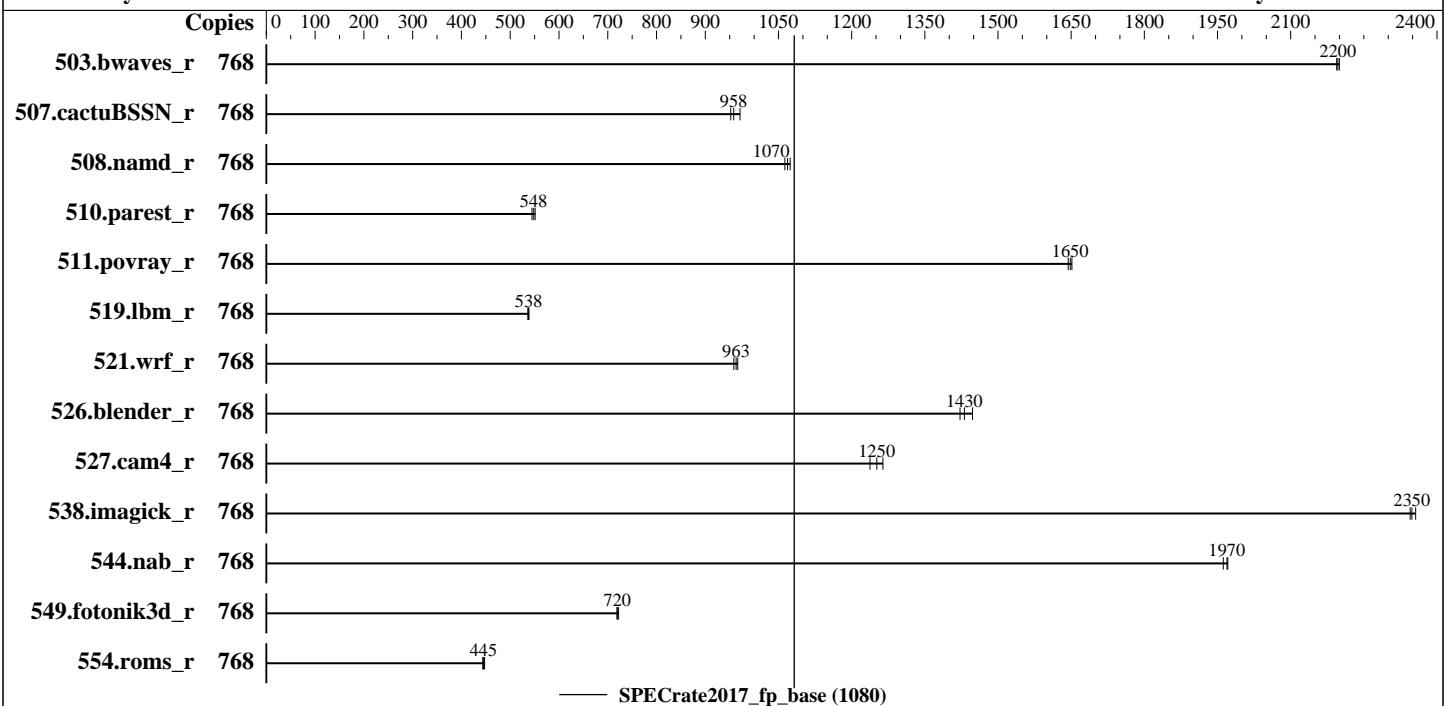
**Test Date:** May-2018

**Test Sponsor:** Huawei

**Hardware Availability:** Mar-2018

**Tested by:** Huawei

**Software Availability:** Mar-2018



## Hardware

CPU Name: Intel Xeon E7-8890 v4  
 Max MHz.: 3400  
 Nominal: 2200  
 Enabled: 384 cores, 16 chips, 2 threads/core  
 Orderable: 4,8 chips  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 256 KB I+D on chip per core  
 L3: 60 MB I+D on chip per chip  
 Other: None  
 Memory: 4 TB (128 x 32 GB 2Rx4 PC4-2400T-R, running at 1333)  
 Storage: 3 x 900 GB SAS HDD 10K RPM, RAID 0  
 Other: None

## Software

OS: SUSE Linux Enterprise Server 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 BLXSV320 released Feb-2018  
 File System: ext4  
 System State: Run level 5 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: None



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KunLun 9016 (Intel Xeon E7-8890 v4)

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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     | 768    | 3510        | 2190        | <b>3506</b> | <b>2200</b> | 3501        | 2200        |        |         |       |         |       |         |       |
| 507.cactusBSSN_r | 768    | <b>1015</b> | <b>958</b>  | 1001        | 971         | 1021        | 952         |        |         |       |         |       |         |       |
| 508.namd_r       | 768    | <b>683</b>  | <b>1070</b> | 679         | 1070        | 686         | 1060        |        |         |       |         |       |         |       |
| 510.parest_r     | 768    | 3688        | 545         | <b>3665</b> | <b>548</b>  | 3645        | 551         |        |         |       |         |       |         |       |
| 511.povray_r     | 768    | 1086        | 1650        | 1091        | 1640        | <b>1088</b> | <b>1650</b> |        |         |       |         |       |         |       |
| 519.lbm_r        | 768    | 1504        | 538         | 1510        | 536         | <b>1505</b> | <b>538</b>  |        |         |       |         |       |         |       |
| 521.wrf_r        | 768    | 1780        | 966         | 1795        | 958         | <b>1786</b> | <b>963</b>  |        |         |       |         |       |         |       |
| 526.blender_r    | 768    | 822         | 1420        | <b>817</b>  | <b>1430</b> | 808         | 1450        |        |         |       |         |       |         |       |
| 527.cam4_r       | 768    | 1063        | 1260        | 1085        | 1240        | <b>1073</b> | <b>1250</b> |        |         |       |         |       |         |       |
| 538.imagick_r    | 768    | 811         | 2360        | <b>813</b>  | <b>2350</b> | 815         | 2340        |        |         |       |         |       |         |       |
| 544.nab_r        | 768    | 656         | 1970        | <b>656</b>  | <b>1970</b> | 659         | 1960        |        |         |       |         |       |         |       |
| 549.fotonik3d_r  | 768    | <b>4160</b> | <b>720</b>  | 4144        | 722         | 4163        | 719         |        |         |       |         |       |         |       |
| 554.roms_r       | 768    | 2727        | 447         | 2751        | 444         | <b>2740</b> | <b>445</b>  |        |         |       |         |       |         |       |

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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:

Set Power Efficiency Mode to Performance

Memory Patrol Scrub set to Disable

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f  
running on linux-i5c0 Fri Jun 29 05:36:56 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) CPU E7-8890 v4 @ 2.20GHz
        16 "physical id"s (chips)
        768 "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
physical 4: 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 5: 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 6: 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 7: 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 8: 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 9: 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 10: 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 11: 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 12: 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 13: 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 14: 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 15: 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:

(Continued on next page)



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## Platform Notes (Continued)

Architecture: x86\_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian  
CPU(s): 768  
On-line CPU(s) list: 0-767  
Thread(s) per core: 2  
Core(s) per socket: 24  
Socket(s): 16  
NUMA node(s): 16  
Vendor ID: GenuineIntel  
CPU family: 6  
Model: 79  
Model name: Intel(R) Xeon(R) CPU E7-8890 v4 @ 2.20GHz  
Stepping: 1  
CPU MHz: 2200.151  
CPU max MHz: 3400.0000  
CPU min MHz: 1200.0000  
BogoMIPS: 4399.79  
Virtualization: VT-x  
L1d cache: 32K  
L1i cache: 32K  
L2 cache: 256K  
L3 cache: 61440K  
NUMA node0 CPU(s): 0-23,384-407  
NUMA node1 CPU(s): 24-47,408-431  
NUMA node2 CPU(s): 48-71,432-455  
NUMA node3 CPU(s): 72-95,456-479  
NUMA node4 CPU(s): 96-119,480-503  
NUMA node5 CPU(s): 120-143,504-527  
NUMA node6 CPU(s): 144-167,528-551  
NUMA node7 CPU(s): 168-191,552-575  
NUMA node8 CPU(s): 192-215,576-599  
NUMA node9 CPU(s): 216-239,600-623  
NUMA node10 CPU(s): 240-263,624-647  
NUMA node11 CPU(s): 264-287,648-671  
NUMA node12 CPU(s): 288-311,672-695  
NUMA node13 CPU(s): 312-335,696-719  
NUMA node14 CPU(s): 336-359,720-743  
NUMA node15 CPU(s): 360-383,744-767  
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 arch\_perfmon pebs bts rep\_good nopl xtopology nonstop\_tsc aperfmpfperf eagerfpu mce\_recovery 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 arat epb invpcid\_single pln pts dtherm intel\_pt spec\_ctrl stibp retpoline kaiser tpr\_shadow vnmi flexpriority ept vpid fsgsbase tsc\_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm rdseed adx

(Continued on next page)



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## Platform Notes (Continued)

```
smap xsaveopt cqm_llc cqm_occup_llc
```

```
/proc/cpuinfo cache data
cache size : 61440 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 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 384 385 386
387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407
node 0 size: 257423 MB
node 0 free: 245425 MB
node 1 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429
430 431
node 1 size: 258024 MB
node 1 free: 248542 MB
node 2 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71
432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
454 455
node 2 size: 258024 MB
node 2 free: 248532 MB
node 3 cpus: 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477
478 479
node 3 size: 258024 MB
node 3 free: 248540 MB
node 4 cpus: 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114
115 116 117 118 119 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496
497 498 499 500 501 502 503
node 4 size: 258024 MB
node 4 free: 248412 MB
node 5 cpus: 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137
138 139 140 141 142 143 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519
520 521 522 523 524 525 526 527
node 5 size: 258024 MB
node 5 free: 248373 MB
node 6 cpus: 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161
162 163 164 165 166 167 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543
544 545 546 547 548 549 550 551
node 6 size: 258024 MB
node 6 free: 248440 MB
node 7 cpus: 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185
186 187 188 189 190 191 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567
568 569 570 571 572 573 574 575
node 7 size: 258024 MB
node 7 free: 248403 MB
```

(Continued on next page)



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## Platform Notes (Continued)

```
node 8 cpus: 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209  
210 211 212 213 214 215 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591  
592 593 594 595 596 597 598 599  
node 8 size: 258024 MB  
node 8 free: 248564 MB  
node 9 cpus: 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233  
234 235 236 237 238 239 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615  
616 617 618 619 620 621 622 623  
node 9 size: 258024 MB  
node 9 free: 248579 MB  
node 10 cpus: 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257  
258 259 260 261 262 263 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639  
640 641 642 643 644 645 646 647  
node 10 size: 258024 MB  
node 10 free: 248575 MB  
node 11 cpus: 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281  
282 283 284 285 286 287 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663  
664 665 666 667 668 669 670 671  
node 11 size: 258024 MB  
node 11 free: 248571 MB  
node 12 cpus: 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305  
306 307 308 309 310 311 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687  
688 689 690 691 692 693 694 695  
node 12 size: 258024 MB  
node 12 free: 248562 MB  
node 13 cpus: 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329  
330 331 332 333 334 335 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711  
712 713 714 715 716 717 718 719  
node 13 size: 258024 MB  
node 13 free: 248571 MB  
node 14 cpus: 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353  
354 355 356 357 358 359 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735  
736 737 738 739 740 741 742 743  
node 14 size: 258024 MB  
node 14 free: 248553 MB  
node 15 cpus: 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377  
378 379 380 381 382 383 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759  
760 761 762 763 764 765 766 767  
node 15 size: 257856 MB  
node 15 free: 248372 MB  
node distances:  
node 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15  
0: 10 21 31 21 41 41 51 51 61 61 71 71 61 61 71 71  
1: 21 10 21 31 41 41 51 51 61 61 71 71 61 61 71 71  
2: 31 21 10 21 51 51 41 41 71 71 61 61 71 71 61 61  
3: 21 31 21 10 51 51 41 41 71 71 61 61 71 71 61 61  
4: 41 41 51 51 10 21 31 21 61 61 71 71 61 61 71 71
```

(Continued on next page)



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## Platform Notes (Continued)

```
5: 41 41 51 51 21 10 21 31 61 61 71 71 61 61 71 71 71 71  
6: 51 51 41 41 31 21 10 21 71 71 61 61 71 71 61 61 61 61  
7: 51 51 41 41 21 31 21 10 71 71 61 61 71 71 61 61 61 61  
8: 61 61 71 71 61 61 71 71 10 21 31 21 41 41 51 51 51  
9: 61 61 71 71 61 61 71 71 21 10 21 31 41 41 51 51 51  
10: 71 71 61 61 71 71 61 61 31 21 10 21 51 51 41 41 41  
11: 71 71 61 61 71 71 61 61 21 31 21 10 51 51 41 41 41  
12: 61 61 71 71 61 61 71 71 41 41 51 51 10 21 31 21  
13: 61 61 71 71 61 61 71 71 41 41 51 51 21 10 21 31  
14: 71 71 61 61 71 71 61 61 51 51 41 41 31 21 10 21  
15: 71 71 61 61 71 71 61 61 51 51 41 41 21 31 21 10
```

From /proc/meminfo

```
MemTotal: 4226684040 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"
```

uname -a:

```
Linux linux-i5c0 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 28 21:16

SPEC is set to: /home/cpu2017

```
Filesystem      Type  Size  Used Avail Use% Mounted on  
/dev/sda4        btrfs  2.4T  207G  2.2T   9%  /home
```

Additional information from dmidecode follows. WARNING: Use caution when you interpret

(Continued on next page)



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## Platform Notes (Continued)

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 American Megatrends Inc. BLXSV320 2/23/2018

Memory:

70x Hynix HMA84GR7MFR4N-UH 32 GB 2 rank 2400, configured at 1333

15x Micron 36ASF4G72PZ-2G3B1 32 GB 2 rank 2400, configured at 1333

256x NO DIMM NO DIMM

43x Samsung M393A4K40BB1-CRC 32 GB 2 rank 2400, configured at 1333

(End of data from sysinfo program)

## Compiler Version Notes

=====

CC 519.lbm\_r(base) 538.imagick\_r(base) 544.nab\_r(base)

=====

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.

=====

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.

=====

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.

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## Compiler Version Notes (Continued)

```
=====
FC 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
=====
```

```
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.
=====
```

## 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.cactusBSSN\_r: -DSPEC\_LP64

508.namd\_r: -DSPEC\_LP64

(Continued on next page)



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## Base Portability Flags (Continued)

```
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
-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
```

(Continued on next page)



# SPEC CPU2017 Floating Point Rate Result

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Huawei

SPECrate2017\_fp\_base = 1080

KunLun 9016 (Intel Xeon E7-8890 v4)

SPECrate2017\_fp\_peak = Not Run

CPU2017 License: 3175

Test Date: May-2018

Test Sponsor: Huawei

Hardware Availability: Mar-2018

Tested by: Huawei

Software Availability: Mar-2018

## Base Other Flags (Continued)

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-V1.2-BDW-RevG.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-V1.2-BDW-RevG.xml>

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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

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