SPEC® CPU2017 Floating Point Rate Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

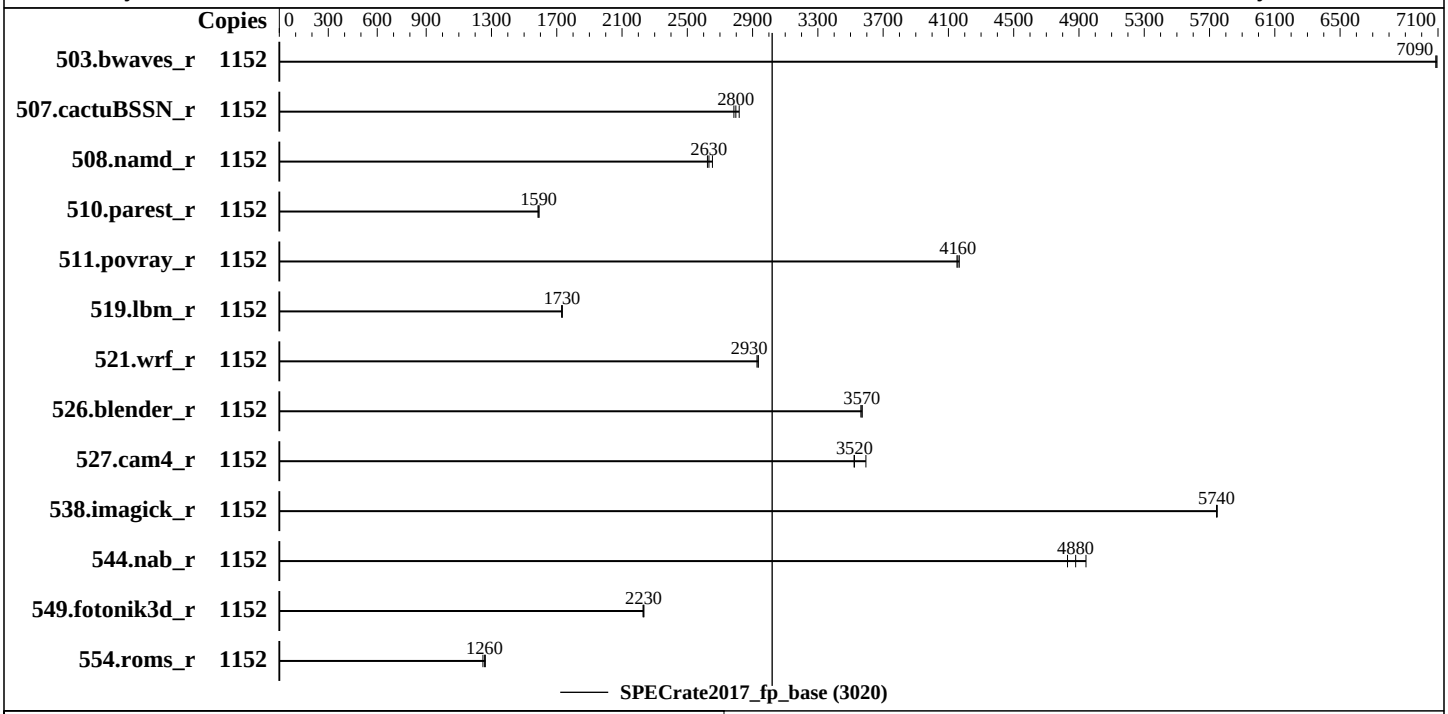
Superdome Flex
(3.00 GHz, Intel Xeon Gold 6154)

SPECrate2017_fp_base = 3020

SPECrate2017_fp_peak = Not Run

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: Dec-2017
Hardware Availability: Mar-2018
Software Availability: Mar-2018



Hardware

CPU Name:	Intel Xeon Gold 6154
Max MHz.:	3700
Nominal:	3000
Enabled:	576 cores, 32 chips, 2 threads/core
Orderable:	4 to 32 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:	12 TB (384 x 32 GB 2Rx4 PC4-2666V-R)
Storage:	12 TB tmpfs
Other:	None

Software

OS:	SUSE Linux Enterprise Server 12 (x86_64) SP2, Kernel 4.4.74-92.38-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:	HPE Firmware Bundle Version 2.3.110 released Dec-2017 (tested with 2.3.92 11/17/2017)
File System:	tmpfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other:	HPE Foundation Software 1.0, Build 717a270.sles12sp2-1709012000

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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	1152	**1630**	**7090**	1628	7090	1630	7090							
507.cactuBSSN_r	1152	518	2820	**521**	**2800**	524	2790							
508.namd_r	1152	**416**	**2630**	417	2620	412	2650							
510.parest_r	1152	1894	1590	**1896**	**1590**	1901	1580							
511.povray_r	1152	646	4170	**647**	**4160**	648	4150							
519.lbm_r	1152	**701**	**1730**	702	1730	700	1730							
521.wrf_r	1152	**879**	**2930**	882	2930	879	2930							
526.blender_r	1152	492	3560	491	3570	**491**	**3570**							
527.cam4_r	1152	**572**	**3520**	572	3520	561	3590							
538.imagick_r	1152	499	5740	499	5750	**499**	**5740**							
544.nab_r	1152	401	4830	**397**	**4880**	392	4940							
549.fotonik3d_r	1152	2010	2230	2014	2230	**2011**	**2230**							
554.roms_r	1152	1467	1250	**1455**	**1260**	1450	1260							

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SPECrate2017_fp_peak = Not Run

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"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3>       /proc/sys/vm/drop_caches
The tmpfs filesystem was set up with:
   mkdir -p /dev/shm/cpu2017-32S
   mount -t tmpfs -o size=12288G,rw tmpfs /dev/shm/cpu2017-32S
```

General Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/dev/shm/cpu2017-32S/lib/ia32:/dev/shm/cpu2017-32S/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/dev/shm/cpu2017-32S/je5.0.1-32:/dev/shm/cpu2017-32S/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
```

Platform Notes

```
Rack Management Controller setting:
   modify npar pnum=0 ras=hpc

Sysinfo program /dev/shm/cpu2017-32S/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on uv4test35-sys Sun Dec 10 23:16:59 2017

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see
   https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) Gold 6154 CPU @ 3.00GHz
      32  "physical id"s (chips)
      1152 "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 : 18
      siblings  : 36
      physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 4: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 5: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 6: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 7: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 8: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 9: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 10: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 11: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 12: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 13: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 14: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 15: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 16: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 17: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 18: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 19: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 20: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 21: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 22: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 23: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 24: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 25: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 26: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 27: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
```

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Platform Notes (Continued)

```
      physical 28: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 29: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 30: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 31: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

 From lscpu:
      Architecture:          x86_64
      CPU op-mode(s):        32-bit, 64-bit
      Byte Order:            Little Endian
      CPU(s):                1152
      On-line CPU(s) list:   0-1151
      Thread(s) per core:    2
      Core(s) per socket:    18
      Socket(s):             32
      NUMA node(s):          32
      Vendor ID:             GenuineIntel
      CPU family:            6
      Model:                 85
      Model name:            Intel(R) Xeon(R) Gold 6154 CPU @ 3.00GHz
      Stepping:              4
      CPU MHz:               3700.000
      CPU max MHz:           3700.0000
      CPU min MHz:           1200.0000
      BogoMIPS:              6000.54
      Virtualization:        VT-x
      L1d cache:             32K
      L1i cache:             32K
      L2 cache:              1024K
      L3 cache:              25344K
      NUMA node0 CPU(s):     0-17,576-593
      NUMA node1 CPU(s):     18-35,594-611
      NUMA node2 CPU(s):     36-53,612-629
      NUMA node3 CPU(s):     54-71,630-647
      NUMA node4 CPU(s):     72-89,648-665
      NUMA node5 CPU(s):     90-107,666-683
      NUMA node6 CPU(s):     108-125,684-701
      NUMA node7 CPU(s):     126-143,702-719
      NUMA node8 CPU(s):     144-161,720-737
      NUMA node9 CPU(s):     162-179,738-755
      NUMA node10 CPU(s):    180-197,756-773
      NUMA node11 CPU(s):    198-215,774-791
      NUMA node12 CPU(s):    216-233,792-809
      NUMA node13 CPU(s):    234-251,810-827
      NUMA node14 CPU(s):    252-269,828-845
      NUMA node15 CPU(s):    270-287,846-863
      NUMA node16 CPU(s):    288-305,864-881
      NUMA node17 CPU(s):    306-323,882-899
```

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Platform Notes (Continued)

```
      NUMA node18 CPU(s):    324-341,900-917
      NUMA node19 CPU(s):    342-359,918-935
      NUMA node20 CPU(s):    360-377,936-953
      NUMA node21 CPU(s):    378-395,954-971
      NUMA node22 CPU(s):    396-413,972-989
      NUMA node23 CPU(s):    414-431,990-1007
      NUMA node24 CPU(s):    432-449,1008-1025
      NUMA node25 CPU(s):    450-467,1026-1043
      NUMA node26 CPU(s):    468-485,1044-1061
      NUMA node27 CPU(s):    486-503,1062-1079
      NUMA node28 CPU(s):    504-521,1080-1097
      NUMA node29 CPU(s):    522-539,1098-1115
      NUMA node30 CPU(s):    540-557,1116-1133
      NUMA node31 CPU(s):    558-575,1134-1151
      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 pln pts dtherm intel_pt
      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

 From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
 physical chip.
   available: 32 nodes (0-31)
   node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 576 577 578 579 580 581 582
   583 584 585 586 587 588 589 590 591 592 593
   node 0 size: 372920 MB
   node 0 free: 363584 MB
   node 1 cpus: 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 594 595 596 597 598
   599 600 601 602 603 604 605 606 607 608 609 610 611
   node 1 size: 375252 MB
   node 1 free: 367504 MB
   node 2 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 612 613 614 615 616
   617 618 619 620 621 622 623 624 625 626 627 628 629
   node 2 size: 375252 MB
   node 2 free: 367834 MB
   node 3 cpus: 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 630 631 632 633 634
   635 636 637 638 639 640 641 642 643 644 645 646 647
   node 3 size: 375252 MB
   node 3 free: 367837 MB
   node 4 cpus: 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 648 649 650 651 652
```

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Platform Notes (Continued)

```
653 654 655 656 657 658 659 660 661 662 663 664 665
node 4 size: 375252 MB
node 4 free: 367824 MB
node 5 cpus: 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 666 667 668
669 670 671 672 673 674 675 676 677 678 679 680 681 682 683
node 5 size: 375252 MB
node 5 free: 367834 MB
node 6 cpus: 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125
684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701
node 6 size: 375252 MB
node 6 free: 367813 MB
node 7 cpus: 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143
702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719
node 7 size: 375252 MB
node 7 free: 367828 MB
node 8 cpus: 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161
720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737
node 8 size: 375252 MB
node 8 free: 367804 MB
node 9 cpus: 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179
738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755
node 9 size: 375252 MB
node 9 free: 367783 MB
node 10 cpus: 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197
756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773
node 10 size: 375252 MB
node 10 free: 367837 MB
node 11 cpus: 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215
774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791
node 11 size: 375252 MB
node 11 free: 367819 MB
node 12 cpus: 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233
792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809
node 12 size: 375252 MB
node 12 free: 367845 MB
node 13 cpus: 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251
810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827
node 13 size: 375252 MB
node 13 free: 367821 MB
node 14 cpus: 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269
828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845
node 14 size: 375252 MB
node 14 free: 367855 MB
node 15 cpus: 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287
846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863
node 15 size: 375252 MB
node 15 free: 367853 MB
```

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Platform Notes (Continued)

```
node 16 cpus: 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305
864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881
node 16 size: 375252 MB
node 16 free: 367853 MB
node 17 cpus: 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323
882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899
node 17 size: 375252 MB
node 17 free: 367850 MB
node 18 cpus: 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341
900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917
node 18 size: 375252 MB
node 18 free: 367841 MB
node 19 cpus: 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359
918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935
node 19 size: 375252 MB
node 19 free: 367831 MB
node 20 cpus: 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377
936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953
node 20 size: 375252 MB
node 20 free: 367830 MB
node 21 cpus: 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395
954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971
node 21 size: 375252 MB
node 21 free: 367838 MB
node 22 cpus: 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413
972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989
node 22 size: 375252 MB
node 22 free: 367859 MB
node 23 cpus: 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431
990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007
node 23 size: 375252 MB
node 23 free: 367859 MB
node 24 cpus: 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449
1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024
1025
node 24 size: 375252 MB
node 24 free: 367855 MB
node 25 cpus: 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467
1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042
1043
node 25 size: 375252 MB
node 25 free: 367851 MB
node 26 cpus: 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485
1044 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054 1055 1056 1057 1058 1059 1060
1061
node 26 size: 375252 MB
node 26 free: 367800 MB
```

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Platform Notes (Continued)

```
node 27 cpus: 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503
1062 1063 1064 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074 1075 1076 1077 1078
1079
node 27 size: 375252 MB
node 27 free: 367780 MB
node 28 cpus: 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521
1080 1081 1082 1083 1084 1085 1086 1087 1088 1089 1090 1091 1092 1093 1094 1095 1096
1097
node 28 size: 375252 MB
node 28 free: 367849 MB
node 29 cpus: 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539
1098 1099 1100 1101 1102 1103 1104 1105 1106 1107 1108 1109 1110 1111 1112 1113 1114
1115
node 29 size: 375252 MB
node 29 free: 367846 MB
node 30 cpus: 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557
1116 1117 1118 1119 1120 1121 1122 1123 1124 1125 1126 1127 1128 1129 1130 1131 1132
1133
node 30 size: 375252 MB
node 30 free: 366810 MB
node 31 cpus: 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575
1134 1135 1136 1137 1138 1139 1140 1141 1142 1143 1144 1145 1146 1147 1148 1149 1150
1151
node 31 size: 375244 MB
node 31 free: 367026 MB
node distances:
node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19
20  21  22  23  24  25  26  27  28  29  30  31
  0:  10  16  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
  43  43  43  43  43  43  43  43  43  43  43  43
  1:  16  10  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
  43  43  43  43  43  43  43  43  43  43  43  43
  2:  43  43  10  16  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
  43  43  43  43  43  43  43  43  43  43  43  43
  3:  43  43  16  10  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
  43  43  43  43  43  43  43  43  43  43  43  43
  4:  43  43  43  43  10  16  43  43  43  43  43  43  43  43  43  43  43  43  43  43
  43  43  43  43  43  43  43  43  43  43  43  43
  5:  43  43  43  43  16  10  43  43  43  43  43  43  43  43  43  43  43  43  43  43
  43  43  43  43  43  43  43  43  43  43  43  43
  6:  43  43  43  43  43  43  10  16  43  43  43  43  43  43  43  43  43  43  43  43
  43  43  43  43  43  43  43  43  43  43  43  43
  7:  43  43  43  43  43  43  16  10  43  43  43  43  43  43  43  43  43  43  43  43
  43  43  43  43  43  43  43  43  43  43  43  43
  8:  43  43  43  43  43  43  43  43  10  16  43  43  43  43  43  43  43  43  43  43
  43  43  43  43  43  43  43  43  43  43  43  43
  9:  43  43  43  43  43  43  43  43  16  10  43  43  43  43  43  43  43  43  43  43
```

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Platform Notes (Continued)

```
 43  43  43  43  43  43  43  43  43  43  43  43
10:  43  43  43  43  43  43  43  43  43  43  10  16  43  43  43  43  43  43  43  43
43  43  43  43  43  43  43  43  43  43  43  43
11:  43  43  43  43  43  43  43  43  43  43  16  10  43  43  43  43  43  43  43  43
43  43  43  43  43  43  43  43  43  43  43  43
12:  43  43  43  43  43  43  43  43  43  43  43  43  10  16  43  43  43  43  43  43
43  43  43  43  43  43  43  43  43  43  43  43
13:  43  43  43  43  43  43  43  43  43  43  43  43  16  10  43  43  43  43  43  43
43  43  43  43  43  43  43  43  43  43  43  43
14:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  10  16  43  43  43  43
43  43  43  43  43  43  43  43  43  43  43  43
15:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  16  10  43  43  43  43
43  43  43  43  43  43  43  43  43  43  43  43
16:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  10  16  43  43
43  43  43  43  43  43  43  43  43  43  43  43
17:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  16  10  43  43
43  43  43  43  43  43  43  43  43  43  43  43
18:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  10  16
43  43  43  43  43  43  43  43  43  43  43  43
19:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  16  10
43  43  43  43  43  43  43  43  43  43  43  43
20:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
10  16  43  43  43  43  43  43  43  43  43  43
21:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
16  10  43  43  43  43  43  43  43  43  43  43
22:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
43  43  10  16  43  43  43  43  43  43  43  43
23:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
43  43  16  10  43  43  43  43  43  43  43  43
24:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
43  43  43  43  10  16  43  43  43  43  43  43
25:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
43  43  43  43  16  10  43  43  43  43  43  43
26:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
43  43  43  43  43  43  10  16  43  43  43  43
27:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
43  43  43  43  43  43  16  10  43  43  43  43
28:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
43  43  43  43  43  43  43  43  10  16  43  43
29:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
43  43  43  43  43  43  43  43  16  10  43  43
30:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
43  43  43  43  43  43  43  43  43  43  10  16
31:  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43  43
43  43  43  43  43  43  43  43  43  43  16  10

From /proc/meminfo
```

(Continued on next page)

Platform Notes (Continued)

```
    MemTotal:       12293889700 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.
     hpe-foundation-release: HPE Foundation Software 1.0, Build
     717a270.sles12sp2-1709012000
     hpe-mpi-release: HPE MPI 1.2, Build 718a13.sles12sp2-1710021900
     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"
     sgi-release: SGI Performance Suite 1.16

  uname -a:
     Linux uv4test35-sys 4.4.74-92.38-default #1 SMP Tue Sep 12 19:43:46 UTC 2017 (545c055)
     x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Dec 10 17:38

  SPEC is set to: /dev/shm/cpu2017-32S
     Filesystem     Type   Size  Used Avail Use% Mounted on
     tmpfs          tmpfs   12T  208G   12T   2% /dev/shm/cpu2017-32S

  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.

  (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.
------------------------------------------------------------------------------

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

(Continued on next page)

Compiler Version Notes (Continued)

```
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
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`

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/HPE-Superdome_Flex-RevA.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/HPE-Superdome_Flex-RevA.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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