SPEC CPU®2017 Floating Point Speed Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

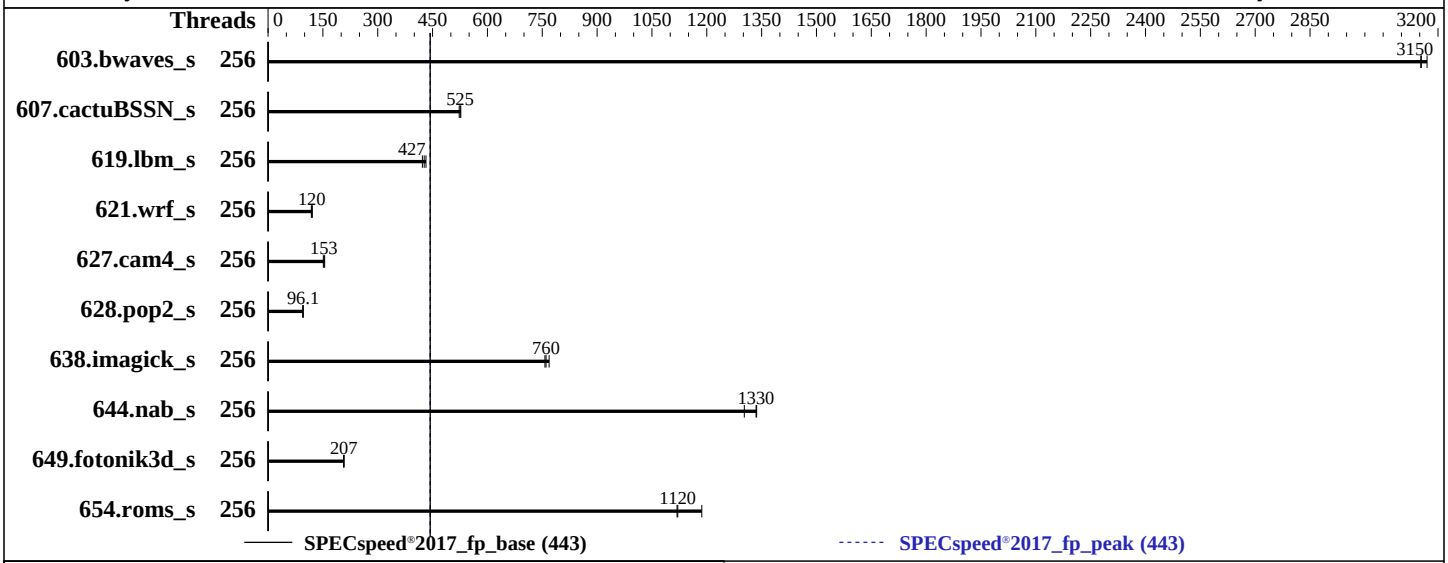
HPE Compute Scale-up Server 3250
(2.00 GHz, Intel Xeon 6788P)

SPECspeed®2017_fp_base = 443

SPECspeed®2017_fp_peak = 443

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

Test Date: Mar-2026
Hardware Availability: Apr-2026
Software Availability: Feb-2026



Hardware

CPU Name:	Intel Xeon 6788P
Max MHz:	3800
Nominal:	2000
Enabled:	688 cores, 8 chips
Orderable:	4, 8, 12, 16 chip(s)
Cache L1:	64 KB I + 48 KB D on chip per core
L2:	2 MB I+D on chip per core
L3:	336 MB I+D on chip per chip
Other:	None
Memory:	4 TB (64 x 64 GB 2Rx4 PC5-6400B-R)
Storage:	1 x 1.5 TB NVMe SSD
Other:	CPU Cooling: Air

Software

OS:	SUSE Linux Enterprise Server 15 SP7 Kernel 6.4.0-150700.53.31-default
Compiler:	C/C++: Version 2025.2 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2025.2 of Intel Fortran Compiler for Linux;
Parallel:	Yes
Firmware:	HPE Firmware Bundle Version 1.0.340 02/13/2026 released Feb-2026
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	jemalloc memory allocator V5.0.1
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						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	256	18.6	3170	**18.7**	**3150**	18.7	3150	256	18.6	3170	**18.7**	**3150**	18.7	3150
607.cactuBSSN_s	256	31.6	527	31.9	523	**31.7**	**525**	256	31.6	527	31.9	523	**31.7**	**525**
619.lbm_s	256	12.1	432	12.4	422	**12.3**	**427**	256	12.1	432	12.4	422	**12.3**	**427**
621.wrf_s	256	109	121	112	118	**110**	**120**	256	109	121	112	118	**110**	**120**
627.cam4_s	256	58.6	151	**57.9**	**153**	57.2	155	256	58.6	151	**57.9**	**153**	57.2	155
628.pop2_s	256	**124**	**96.1**	125	94.8	124	96.1	256	**124**	**96.1**	125	94.8	124	96.1
638.imagick_s	256	18.8	769	**19.0**	**760**	19.0	757	256	18.8	769	**19.0**	**760**	19.0	757
644.nab_s	256	**13.1**	**1330**	13.4	1300	13.1	1340	256	**13.1**	**1330**	13.4	1300	13.1	1340
649.fotonik3d_s	256	44.1	207	**44.0**	**207**	43.8	208	256	44.1	207	**44.0**	**207**	43.8	208
654.roms_s	256	13.3	1190	**14.0**	**1120**	14.1	1120	256	13.3	1190	**14.0**	**1120**	14.1	1120

SPECspeed®2017_fp_base = 443

SPECspeed®2017_fp_peak = 443

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"
```

General Notes

```
Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Redhat Enterprise Linux 8.0
NA: 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.
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

Platform Notes

```
BIOS Configurations : Parameters are selected in the order shown below
 Workload Profile set to HPC
 Workload Profile set to Custom
 Power Regulator set to Static High Performance Mode
 Energy/Performance Bias set to Maximum Performance
 Energy Efficient Turbo set to Disabled
 Adjacent Sector Prefetch set to Disabled
```

(Continued on next page)

Platform Notes (Continued)

```
LLC Prefetch set to Enabled
Last Level Cache (LLC) Dead Line Allocation set to Disabled
Enhanced Processor Performance Profile set to Aggressive
Memory Patrol Scrubbing set to Disabled
Advanced Memory Protection set to Advanced ECC Support
SR-IOV set to Disabled
Intel Virtualization Technology (Intel VT, VT-x) set to Disabled
Dynamic Prefetch Throttling set to Disabled
Enabled Cores per Processor set to 64
Page Policy set to Open Adaptive
Intel Hyper-Threading set to Disabled
Sub-NUMA Clustering set to Auto

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on gnh-159 Sun Mar 15 08:45:59 2026

SUT (System Under Test) info as seen by some common utilities.

------------------------------------------------------------
Table of contents
------------------------------------------------------------
 1. uname -a
 2. w
 3. Username
 4. ulimit -a
 5. sysinfo process ancestry
 6. /proc/cpuinfo
 7. lscpu
 8. numactl --hardware
 9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 254 (254.27+suse.179.g75eab961ea)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
------------------------------------------------------------

------------------------------------------------------------
1. uname -a
  Linux gnh-159 6.4.0-150700.53.31-default #1 SMP PREEMPT_DYNAMIC Tue Feb  3 14:18:17 UTC 2026 (73f3a11)
  x86_64 x86_64 x86_64 GNU/Linux

------------------------------------------------------------
2. w
   08:45:59 up  2:23,  1 user,  load average: 0.18, 0.13, 0.21
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  test     ttyS0    -                06:24   12.00s  0.22s  0.04s login -- test
  test     pts/0    -                06:24   12.00s  1.02s  0.19s sudo su

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

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Platform Notes (Continued)

```
3. Username
  From environment variable $USER:  root
  From the command 'logname':       test

------------------------------------------------------------
4. ulimit -a
  core file size          (blocks, -c) 0
  data seg size           (kbytes, -d) unlimited
  scheduling priority             (-e) 0
  file size               (blocks, -f) unlimited
  pending signals                 (-i) 16250147
  max locked memory       (kbytes, -l) 8192
  max memory size         (kbytes, -m) unlimited
  open files                      (-n) 40000
  pipe size            (512 bytes, -p) 8
  POSIX message queues     (bytes, -q) 819200
  real-time priority              (-r) 0
  stack size              (kbytes, -s) unlimited
  cpu time               (seconds, -t) unlimited
  max user processes              (-u) 16250147
  virtual memory          (kbytes, -v) unlimited
  file locks                      (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize=39
 login -- test
 -bash
 sudo su
 sudo su
 su
 bash
 bash
 runcpu --nobuild --action validate --define default-platform-flags -c
   ic2025.2-lin-graniterapids-speed-20250605.cfg --define cores=256 --tune base,peak -o all --define
   drop_caches fpspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2025.2-lin-graniterapids-speed-20250605.cfg --define cores=256 --tune base,peak --output_format all
   --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed --nopreenv
   --note-preenv --logfile $SPEC/tmp/CPU2017.006/templogs/preenv.fpspeed.006.0.log --lognum 006.0
   --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) 6788P
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 173
    stepping        : 1
    microcode       : 0x1000405
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi vmscape
    cpu cores       : 64
    siblings        : 64
    8 physical ids (chips)
    512 processors (hardware threads)
    physical id 0: core ids 0-31,64-95
    physical id 1: core ids 0-31,64-95
    physical id 2: core ids 0-31,64-95
```

(Continued on next page)

Platform Notes (Continued)

```
     physical id 3: core ids 0-31,64-95
     physical id 4: core ids 0-31,64-95
     physical id 5: core ids 0-31,64-95
     physical id 6: core ids 0-31,64-95
     physical id 7: core ids 0-31,64-95
     physical id 0: apicids
     0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,128,130,132,13
     4,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,184,186
     ,188,190
     physical id 1: apicids
     256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,3
     08,310,312,314,316,318,384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414,416,418,420,422,42
     4,426,428,430,432,434,436,438,440,442,444,446
     physical id 2: apicids
     512,514,516,518,520,522,524,526,528,530,532,534,536,538,540,542,544,546,548,550,552,554,556,558,560,562,5
     64,566,568,570,572,574,640,642,644,646,648,650,652,654,656,658,660,662,664,666,668,670,672,674,676,678,68
     0,682,684,686,688,690,692,694,696,698,700,702
     physical id 3: apicids
     768,770,772,774,776,778,780,782,784,786,788,790,792,794,796,798,800,802,804,806,808,810,812,814,816,818,8
     20,822,824,826,828,830,896,898,900,902,904,906,908,910,912,914,916,918,920,922,924,926,928,930,932,934,93
     6,938,940,942,944,946,948,950,952,954,956,958
     physical id 4: apicids
     1024,1026,1028,1030,1032,1034,1036,1038,1040,1042,1044,1046,1048,1050,1052,1054,1056,1058,1060,1062,1064,
     1066,1068,1070,1072,1074,1076,1078,1080,1082,1084,1086,1152,1154,1156,1158,1160,1162,1164,1166,1168,1170,
     1172,1174,1176,1178,1180,1182,1184,1186,1188,1190,1192,1194,1196,1198,1200,1202,1204,1206,1208,1210,1212,
     1214
     physical id 5: apicids
     1280,1282,1284,1286,1288,1290,1292,1294,1296,1298,1300,1302,1304,1306,1308,1310,1312,1314,1316,1318,1320,
     1322,1324,1326,1328,1330,1332,1334,1336,1338,1340,1342,1408,1410,1412,1414,1416,1418,1420,1422,1424,1426,
     1428,1430,1432,1434,1436,1438,1440,1442,1444,1446,1448,1450,1452,1454,1456,1458,1460,1462,1464,1466,1468,
     1470
     physical id 6: apicids
     1536,1538,1540,1542,1544,1546,1548,1550,1552,1554,1556,1558,1560,1562,1564,1566,1568,1570,1572,1574,1576,
     1578,1580,1582,1584,1586,1588,1590,1592,1594,1596,1598,1664,1666,1668,1670,1672,1674,1676,1678,1680,1682,
     1684,1686,1688,1690,1692,1694,1696,1698,1700,1702,1704,1706,1708,1710,1712,1714,1716,1718,1720,1722,1724,
     1726
     physical id 7: apicids
     1792,1794,1796,1798,1800,1802,1804,1806,1808,1810,1812,1814,1816,1818,1820,1822,1824,1826,1828,1830,1832,
     1834,1836,1838,1840,1842,1844,1846,1848,1850,1852,1854,1920,1922,1924,1926,1928,1930,1932,1934,1936,1938,
     1940,1942,1944,1946,1948,1950,1952,1954,1956,1958,1960,1962,1964,1966,1968,1970,1972,1974,1976,1978,1980,
     1982
   Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
   virtualized systems.  Use the above data carefully.

 ------------------------------------------------------------
 7. lscpu

 From lscpu from util-linux 2.40.4:
   Architecture:                            x86_64
   CPU op-mode(s):                          32-bit, 64-bit
   Address sizes:                           52 bits physical, 57 bits virtual
   Byte Order:                              Little Endian
   CPU(s):                                  512
   On-line CPU(s) list:                     0-511
   Vendor ID:                               GenuineIntel
   Model name:                              Intel(R) Xeon(R) 6788P
   CPU family:                              6
   Model:                                   173
   Thread(s) per core:                      1
   Core(s) per socket:                      64
```

(Continued on next page)

Platform Notes (Continued)

```
Socket(s):                           8
Stepping:                            1
CPU(s) scaling MHz:                  21%
CPU max MHz:                         3800.0000
CPU min MHz:                         800.0000
BogoMIPS:                            3999.48
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 cpuid aperfmperf pni pclmulqdq dtes64
                                     monitor ds_cpl 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
                                     cat_l2 cdp_l3 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp
                                     ibrs_enhanced fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms
                                     invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma
                                     clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                                     xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                                     cqm_mbm_local split_lock_detect user_shstk avx_vnni avx512_bf16
                                     wbnoinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp
                                     hwp_pkg_req avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni
                                     vaes vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq
                                     la57 rdpid bus_lock_detect cldemote movdiri movdir64b enqcmd fsrm
                                     md_clear serialize tsxldtrk pconfig arch_lbr ibt amx_bf16
                                     avx512_fp16 amx_tile amx_int8 flush_l1d arch_capabilities
                                     ibpb_exit_to_user
L1d cache:                           24 MiB (512 instances)
L1i cache:                           32 MiB (512 instances)
L2 cache:                            1 GiB (512 instances)
L3 cache:                            2.6 GiB (8 instances)
NUMA node(s):                        16
NUMA node0 CPU(s):                   0-31
NUMA node1 CPU(s):                   32-63
NUMA node2 CPU(s):                   64-95
NUMA node3 CPU(s):                   96-127
NUMA node4 CPU(s):                   128-159
NUMA node5 CPU(s):                   160-191
NUMA node6 CPU(s):                   192-223
NUMA node7 CPU(s):                   224-255
NUMA node8 CPU(s):                   256-287
NUMA node9 CPU(s):                   288-319
NUMA node10 CPU(s):                  320-351
NUMA node11 CPU(s):                  352-383
NUMA node12 CPU(s):                  384-415
NUMA node13 CPU(s):                  416-447
NUMA node14 CPU(s):                  448-479
NUMA node15 CPU(s):                  480-511
Vulnerability Gather data sampling:  Not affected
Vulnerability Indirect target selection: Not affected
Vulnerability Itlb multihit:         Not affected
Vulnerability L1tf:                  Not affected
Vulnerability Mds:                   Not affected
Vulnerability Meltdown:              Not affected
Vulnerability Mmio stale data:       Not affected
Vulnerability Reg file data sampling: Not affected
Vulnerability Retbleed:              Not affected
Vulnerability Spec rstack overflow:  Not affected
Vulnerability Spec store bypass:     Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1:            Mitigation; usercopy/swapgs barriers and __user pointer
                                     sanitization
```

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Platform Notes (Continued)

```
  Vulnerability Spectre v2:                Mitigation; Enhanced / Automatic IBRS; IBPB conditional;
                                           PBRSB-eIBRS Not affected; BHI BHI_DIS_S
  Vulnerability Srbds:                     Not affected
  Vulnerability Tsa:                       Not affected
  Vulnerability Tsx async abort:           Not affected
  Vulnerability Vmscape:                   Mitigation; IBPB before exit to userspace

From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL   SETS PHY-LINE COHERENCY-SIZE
     L1d       48K      24M   12 Data            1     64        1             64
     L1i       64K      32M   16 Instruction     1     64        1             64
     L2         2M       1G   16 Unified         2   2048        1             64
     L3       336M     2.6G   16 Unified         3 344064        1             64

------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 16 nodes (0-15)
  node 0 cpus: 0-31
  node 0 size: 257122 MB
  node 0 free: 256294 MB
  node 1 cpus: 32-63
  node 1 size: 250021 MB
  node 1 free: 249606 MB
  node 2 cpus: 64-95
  node 2 size: 258000 MB
  node 2 free: 257475 MB
  node 3 cpus: 96-127
  node 3 size: 250037 MB
  node 3 free: 249645 MB
  node 4 cpus: 128-159
  node 4 size: 258039 MB
  node 4 free: 257617 MB
  node 5 cpus: 160-191
  node 5 size: 250037 MB
  node 5 free: 249614 MB
  node 6 cpus: 192-223
  node 6 size: 258039 MB
  node 6 free: 257611 MB
  node 7 cpus: 224-255
  node 7 size: 250037 MB
  node 7 free: 249618 MB
  node 8 cpus: 256-287
  node 8 size: 258039 MB
  node 8 free: 256507 MB
  node 9 cpus: 288-319
  node 9 size: 250037 MB
  node 9 free: 249643 MB
  node 10 cpus: 320-351
  node 10 size: 258039 MB
  node 10 free: 257464 MB
  node 11 cpus: 352-383
  node 11 size: 250037 MB
  node 11 free: 249577 MB
  node 12 cpus: 384-415
  node 12 size: 258039 MB
  node 12 free: 257632 MB
  node 13 cpus: 416-447
  node 13 size: 250037 MB
  node 13 free: 249710 MB
```

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Platform Notes (Continued)

```
  node 14 cpus: 448-479
  node 14 size: 258039 MB
  node 14 free: 255732 MB
  node 15 cpus: 480-511
  node 15 size: 248970 MB
  node 15 free: 248610 MB
  node distances:
  node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
    0:  10  12  16  16  16  16  18  18  40  40  40  40  40  40  40  40
    1:  12  10  16  16  16  16  18  18  40  40  40  40  40  40  40  40
    2:  16  16  10  12  18  18  16  16  40  40  40  40  40  40  40  40
    3:  16  16  12  10  18  18  16  16  40  40  40  40  40  40  40  40
    4:  16  16  18  18  10  12  16  16  40  40  40  40  40  40  40  40
    5:  16  16  18  18  12  10  16  16  40  40  40  40  40  40  40  40
    6:  18  18  16  16  16  16  10  12  40  40  40  40  40  40  40  40
    7:  18  18  16  16  16  16  12  10  40  40  40  40  40  40  40  40
    8:  40  40  40  40  40  40  40  40  10  12  16  16  16  16  18  18
    9:  40  40  40  40  40  40  40  40  12  10  16  16  16  16  18  18
   10:  40  40  40  40  40  40  40  40  16  16  10  12  18  18  16  16
   11:  40  40  40  40  40  40  40  40  16  16  12  10  18  18  16  16
   12:  40  40  40  40  40  40  40  40  16  16  18  18  10  12  16  16
   13:  40  40  40  40  40  40  40  40  16  16  18  18  12  10  16  16
   14:  40  40  40  40  40  40  40  40  18  18  16  16  16  16  10  12
   15:  40  40  40  40  40  40  40  40  18  18  16  16  16  16  12  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       4160075548 kB

------------------------------------------------------------
10. who -r
  run-level 3 Mar 15 06:25

------------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.27+suse.179.g75eab961ea)
  Default Target  Status
  multi-user      running

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          YaST2-Firstboot YaST2-Second-Stage apparmor appstream-sync-cache auditd bluetooth chronyd
                   cpuset_cpunodemap cpuset_memory_spread cron dcd dcdchkgracefulshutdown dcdshutdown
                   display-manager getty@ hpe-auto-config hpe_irqbalance iscsi issue-generator kbdsettings
                   kdump kdump-early kdump-notify klog lvm2-monitor nscd postfix purge-kernels rollback
                   rsyslog smartd sshd systemd-pstore vgauthd vmblock-fuse vmtoolsd vsftpd wicked
                   wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
  enabled-runtime  systemd-fsck-root systemd-remount-fs
  disabled         accounts-daemon amavis apache2 apache2@ autofs autoyast-initscripts blk-availability
                   bluetooth-mesh boot-sysctl ca-certificates certmonger chrony-wait clamd clamonacc
                   console-getty cups cups-browsed cxl-monitor debug-shell ebtables exchange-bmc-os-info
                   firewalld fsidd gpm grub2-once haveged ipmi ipmievd irqbalance iscsi-init iscsid
                   issue-add-ssh-keys kexec-load lunmask man-db-create mariadb mariadb@ multipathd named
                   ndctl-monitor nfs nfs-blkmap nfs-server nfsserver nmb ostree-remount ostree-state-overlay@
                   rpcbind rpmconfigcheck rsyncd rtkit-daemon samba-bgqd smartd_generate_opts smb snmpd
                   snmptrapd spamd spampd speech-dispatcherd srp_daemon srp_daemon_port@ sysstat
                   sysstat_collect sysstat_summary systemd-boot-check-no-failures systemd-confext
                   systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd tuned
                   udisks2 update-system-flatpaks upower vncserver@ winbind wsdd ypbind
  indirect         serial-getty@ systemd-userdbd tftp wickedd
```

(Continued on next page)

Platform Notes (Continued)

```
------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.4.0-150700.53.31-default
  root=UUID=3ce88dfc-10b5-4b60-8fd3-dd57db4a46f6
  rd.auto=1
  console=ttyS0,115200n8
  selinux=0
  security=
  splash=silent
  mitigations=auto
  console=ttyS0,115200
  udev.children-max=512
  nmi_watchdog=0
  uv_nmi.action=kdump
  add_efi_memmap
  tsc=nowatchdog
  earlyprintk=ttyS0,115200
  log_buf_len=8M
  numa_balancing=disable
  crashkernel=1G,high
  watchdog_thresh=60
  workqueue.watchdog_thresh=120

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 325:
    current policy: frequency should be within 800 MHz and 3.80 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes

------------------------------------------------------------
15. tuned-adm active
  No current active profile.

------------------------------------------------------------
16. sysctl
  kernel.numa_balancing               0
  kernel.randomize_va_space           2
  vm.compaction_proactiveness        20
  vm.dirty_background_bytes           0
  vm.dirty_background_ratio          10
  vm.dirty_bytes                      0
  vm.dirty_expire_centisecs        3000
  vm.dirty_ratio                     20
  vm.dirty_writeback_centisecs      500
  vm.dirtytime_expire_seconds     43200
  vm.extfrag_threshold              500
  vm.min_unmapped_ratio               1
  vm.nr_hugepages                     0
  vm.nr_hugepages_mempolicy           0
  vm.nr_overcommit_hugepages          0
  vm.swappiness                      60
  vm.watermark_boost_factor       15000
  vm.watermark_scale_factor          10
  vm.zone_reclaim_mode                0
```

(Continued on next page)

Platform Notes (Continued)

```
------------------------------------------------------------
17. /sys/kernel/mm/transparent_hugepage
  defrag          always defer defer+madvise [madvise] never
  enabled         [always] madvise never
  hpage_pmd_size  2097152
  shmem_enabled   always within_size advise [never] deny force

------------------------------------------------------------
18. /sys/kernel/mm/transparent_hugepage/khugepaged
  alloc_sleep_millisecs   60000
  defrag                      1
  max_ptes_none             511
  max_ptes_shared           256
  max_ptes_swap              64
  pages_to_scan            4096
  scan_sleep_millisecs    10000

------------------------------------------------------------
19. OS release
  From /etc/*-release /etc/*-version
  os-release             SUSE Linux Enterprise Server 15 SP7
  hpe-foundation-release HPE Foundation Software 2.5.9, Build 757.1570.260209T0200.a.sles15sp7hpe-260209T0200

------------------------------------------------------------
20. Disk information
SPEC is set to: /home/cpu2017
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p2 xfs   1.5T   40G  1.5T   3% /

------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:         HPE
    Product:        Compute Scale-up Server 3250
    Product Family: 1590PID03030202
    Serial:         5UFD3H1634-000

------------------------------------------------------------
22. dmidecode
  Additional information from dmidecode 3.6 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:
    64x Micron MTC40F2046S1RC64BD2 MWFF 64 GB 2 rank 6400


------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       HPE
   BIOS Version:      Bundle:1.0.340-20260215_094624 SFW:010.001.014.000.2602130229
   BIOS Date:         02/13/2026
```

Compiler Version Notes

```
==============================================================================================================
C               | 619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
```

(Continued on next page)

Compiler Version Notes (Continued)

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

==============================================================================================================
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
------------------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran         | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)
------------------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
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------------------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran, C      | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)
------------------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
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------------------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

Benchmarks using Fortran, C, and C++:
icpx icx ifx

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64

(Continued on next page)

Base Portability Flags (Continued)

621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-w -std=c11 -m64 -Wl,-z,muldefs -xgraniterapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xgraniterapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using both Fortran and C:
-w -m64 -std=c11 -Wl,-z,muldefs -xgraniterapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using Fortran, C, and C++:
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xgraniterapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte
-auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Peak Compiler Invocation

C benchmarks:
icx

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Peak Compiler Invocation (Continued)

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

Benchmarks using Fortran, C, and C++:
icpx icx ifx

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

619.lbm_s: basepeak = yes

638.imagick_s: basepeak = yes

644.nab_s: basepeak = yes

Fortran benchmarks:

603.bwaves_s: basepeak = yes

649.fotonik3d_s: basepeak = yes

654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf_s: basepeak = yes

627.cam4_s: basepeak = yes

628.pop2_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

(Continued on next page)

Peak Optimization Flags (Continued)

607.cactuBSSN_s: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-CSS-GNR-rev1.3.html`
`http://www.spec.org/cpu2017/flags/Intel-ic2025-official-linux64.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-CSS-GNR-rev1.3.xml`
`http://www.spec.org/cpu2017/flags/Intel-ic2025-official-linux64.xml`

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