SPEC CPU®2017 Floating Point Rate Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

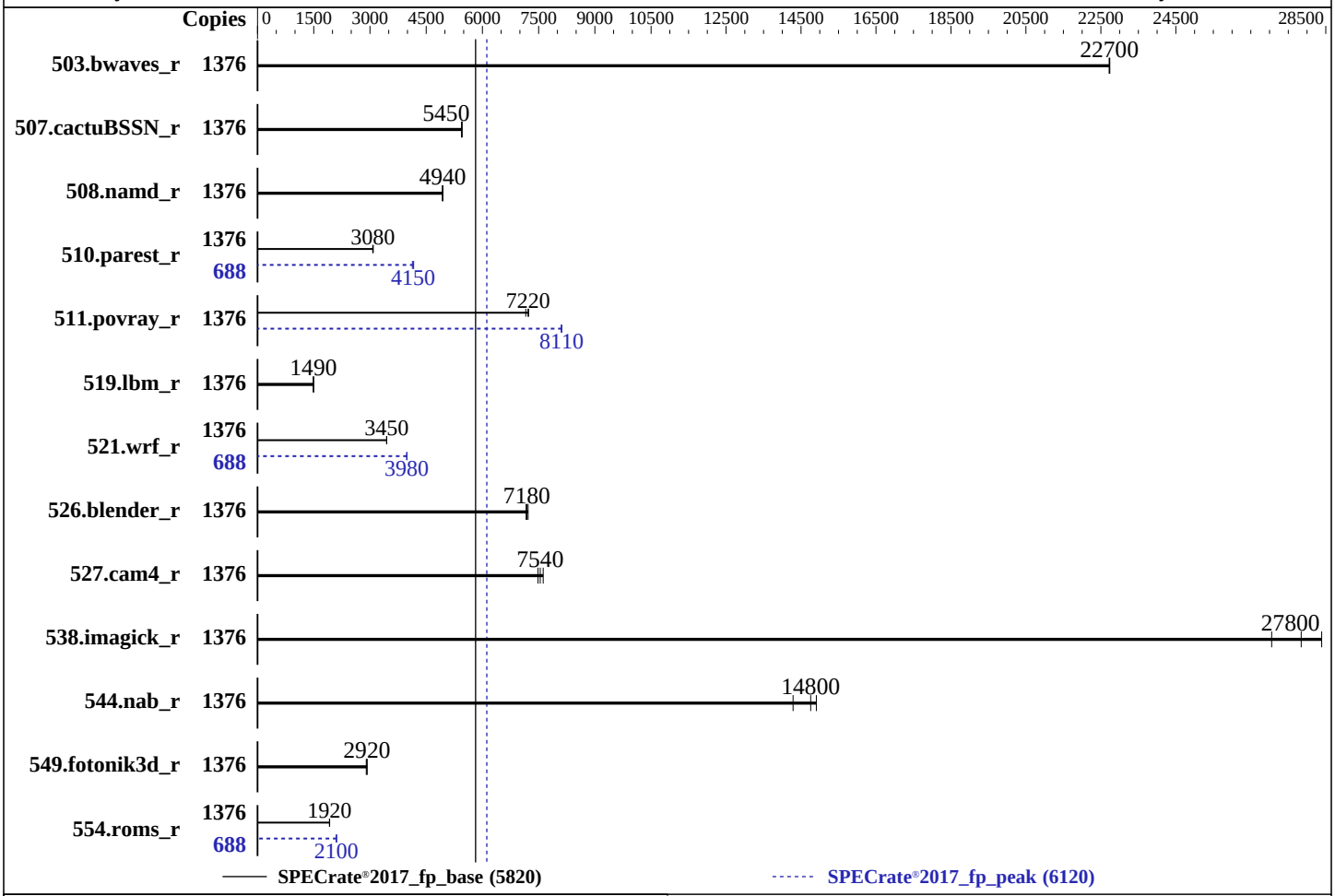
HPE Compute Scale-up Server 3250
(2.00 GHz, Intel Xeon 6788P)

SPECrate®2017_fp_base = 5820

SPECrate®2017_fp_peak = 6120

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

Test Date: Feb-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, 2 threads/core
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:	No
Firmware:	HPE Firmware Bundle Version 1.0.306 01/10/2026 released Jan-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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	1376	**607**	**22700**	607	22700	607	22700	1376	**607**	**22700**	607	22700	607	22700
507.cactuBSSN_r	1376	319	5460	**319**	**5450**	320	5440	1376	319	5460	**319**	**5450**	320	5440
508.namd_r	1376	**265**	**4940**	264	4940	265	4930	1376	**265**	**4940**	264	4940	265	4930
510.parest_r	1376	**1168**	**3080**	1166	3090	1171	3070	688	436	4130	**433**	**4150**	432	4170
511.povray_r	1376	449	7160	444	7230	**445**	**7220**	1376	396	8110	**396**	**8110**	396	8120
519.lbm_r	1376	972	1490	971	1490	**971**	**1490**	1376	972	1490	971	1490	**971**	**1490**
521.wrf_r	1376	894	3450	**895**	**3450**	895	3440	688	387	3980	387	3990	**387**	**3980**
526.blender_r	1376	290	7220	**292**	**7180**	292	7170	1376	290	7220	**292**	**7180**	292	7170
527.cam4_r	1376	316	7620	322	7480	**319**	**7540**	1376	316	7620	322	7480	**319**	**7540**
538.imagick_r	1376	121	28400	**123**	**27800**	126	27100	1376	121	28400	**123**	**27800**	126	27100
544.nab_r	1376	**157**	**14800**	162	14300	155	14900	1376	**157**	**14800**	162	14300	155	14900
549.fotonik3d_r	1376	**1836**	**2920**	1849	2900	1835	2920	1376	**1836**	**2920**	1849	2900	1835	2920
554.roms_r	1376	1136	1920	1139	1920	**1138**	**1920**	688	**520**	**2100**	518	2110	521	2100

SPECrate®2017_fp_base = 5820

SPECrate®2017_fp_peak = 6120

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

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017_new/lib/intel64:/home/cpu2017_new/je5.0.1-64"
MALLOC_CONF = "retain:true"
```

General Notes

```
 Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
 memory using Red Hat Enterprise Linux 8.4
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 Custom
 Power Regulator set to Static High Performance Mode
 Energy Efficient Turbo set to Disabled
 Energy/Performance Bias set to Maximum Performance
 Advanced Memory Protection set to Advanced ECC Support
 SR-IOV set to Disabled
 Intel Virtualization Technology (Intel VT, VT-x) set to Disabled
 Adjacent Sector Prefetch set to Disabled
 Last Level Cache (LLC) Dead Line Allocation set to Disabled
 Enhanced Processor Performance Profile set to Aggressive
 Memory Patrol Scrubbing set to Disabled

 Sysinfo program /home/cpu2017_new/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on gnh-159 Mon Feb 23 20:38:58 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
    20:38:58 up 4 min,  1 user,  load average: 34.81, 15.92, 5.97
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   test     ttyS0    -                20:38   10.00s  0.07s  0.05s login -- test
   test     pts/0    -                20:38   10.00s  1.87s  0.03s sudo su

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

(Continued on next page)

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) 16247672
  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) 16247672
  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
 bash
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=1376 -c
   ic2025.2-linux64-sapphirerapids-rate-20250605.cfg --define smt-on --define cores=688 --define
   physicalfirst --define invoke_with_interleave --define drop_caches --tune base,peak -o all fprate
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=1376 --configfile
   ic2025.2-linux64-sapphirerapids-rate-20250605.cfg --define smt-on --define cores=688 --define
   physicalfirst --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all
   --nopower --runmode rate --tune base:peak --size refrate fprate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.001/templogs/preenv.fprate.001.0.log --lognum 001.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017_new

------------------------------------------------------------
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       : 86
    siblings        : 172
    8 physical ids (chips)
    1376 processors (hardware threads)
    physical id 0: core ids 0-42,64-106
    physical id 1: core ids 0-42,64-106
```

(Continued on next page)

Platform Notes (Continued)

```
     physical id 2: core ids 0-42,64-106
     physical id 3: core ids 0-42,64-106
     physical id 4: core ids 0-42,64-106
     physical id 5: core ids 0-42,64-106
     physical id 6: core ids 0-42,64-106
     physical id 7: core ids 0-42,64-106
     physical id 0: apicids 0-85,128-213
     physical id 1: apicids 256-341,384-469
     physical id 2: apicids 512-597,640-725
     physical id 3: apicids 768-853,896-981
     physical id 4: apicids 1024-1109,1152-1237
     physical id 5: apicids 1280-1365,1408-1493
     physical id 6: apicids 1536-1621,1664-1749
     physical id 7: apicids 1792-1877,1920-2005
   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):                               1376
   On-line CPU(s) list:                  0-1375
   Vendor ID:                            GenuineIntel
   Model name:                           Intel(R) Xeon(R) 6788P
   CPU family:                           6
   Model:                                173
   Thread(s) per core:                   2
   Core(s) per socket:                   86
   Socket(s):                            8
   Stepping:                             1
   CPU(s) scaling MHz:                   21%
   CPU max MHz:                          3800.0000
   CPU min MHz:                          800.0000
   BogoMIPS:                             3999.52
   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:                            32.3 MiB (688 instances)
```

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Platform Notes (Continued)

```
  L1i cache:                             43 MiB (688 instances)
  L2 cache:                              1.3 GiB (688 instances)
  L3 cache:                              2.6 GiB (8 instances)
  NUMA node(s):                          16
  NUMA node0 CPU(s):                     0-42,688-730
  NUMA node1 CPU(s):                     43-85,731-773
  NUMA node2 CPU(s):                     86-128,774-816
  NUMA node3 CPU(s):                     129-171,817-859
  NUMA node4 CPU(s):                     172-214,860-902
  NUMA node5 CPU(s):                     215-257,903-945
  NUMA node6 CPU(s):                     258-300,946-988
  NUMA node7 CPU(s):                     301-343,989-1031
  NUMA node8 CPU(s):                     344-386,1032-1074
  NUMA node9 CPU(s):                     387-429,1075-1117
  NUMA node10 CPU(s):                    430-472,1118-1160
  NUMA node11 CPU(s):                    473-515,1161-1203
  NUMA node12 CPU(s):                    516-558,1204-1246
  NUMA node13 CPU(s):                    559-601,1247-1289
  NUMA node14 CPU(s):                    602-644,1290-1332
  NUMA node15 CPU(s):                    645-687,1333-1375
  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
  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    32.3M   12 Data            1     64        1             64
     L1i       64K      43M   16 Instruction     1     64        1             64
     L2         2M     1.3G   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: 0-42,688-730
  node 0 size: 256724 MB
  node 0 free: 255678 MB
  node 1 cpus: 43-85,731-773
  node 1 size: 250007 MB
  node 1 free: 249108 MB
  node 2 cpus: 86-128,774-816
  node 2 size: 257986 MB
  node 2 free: 257407 MB
```

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Platform Notes (Continued)

```
   node 3 cpus: 129-171,817-859
   node 3 size: 250023 MB
   node 3 free: 249480 MB
   node 4 cpus: 172-214,860-902
   node 4 size: 258025 MB
   node 4 free: 257481 MB
   node 5 cpus: 215-257,903-945
   node 5 size: 250023 MB
   node 5 free: 249449 MB
   node 6 cpus: 258-300,946-988
   node 6 size: 258025 MB
   node 6 free: 257496 MB
   node 7 cpus: 301-343,989-1031
   node 7 size: 250023 MB
   node 7 free: 249285 MB
   node 8 cpus: 344-386,1032-1074
   node 8 size: 258025 MB
   node 8 free: 257738 MB
   node 9 cpus: 387-429,1075-1117
   node 9 size: 250023 MB
   node 9 free: 249742 MB
   node 10 cpus: 430-472,1118-1160
   node 10 size: 258025 MB
   node 10 free: 257727 MB
   node 11 cpus: 473-515,1161-1203
   node 11 size: 250023 MB
   node 11 free: 249740 MB
   node 12 cpus: 516-558,1204-1246
   node 12 size: 258025 MB
   node 12 free: 257723 MB
   node 13 cpus: 559-601,1247-1289
   node 13 size: 250023 MB
   node 13 free: 249736 MB
   node 14 cpus: 602-644,1290-1332
   node 14 size: 258025 MB
   node 14 free: 257730 MB
   node 15 cpus: 645-687,1333-1375
   node 15 size: 248947 MB
   node 15 free: 248661 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
```

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Platform Notes (Continued)

```
    MemTotal:       4159441784 kB

------------------------------------------------------------
10. who -r
  run-level 3 Feb 23 20:38

------------------------------------------------------------
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

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.4.0-150700.53.31-default
  root=UUID=bcaa5a07-b428-4eb8-82e6-8155bbbcd9db
  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 340:
```

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Platform Notes (Continued)

```
    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

------------------------------------------------------------
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_new
  Filesystem     Type  Size  Used Avail Use% Mounted on
```

(Continued on next page)

Platform Notes (Continued)

```
  /dev/nvme1n1p2 xfs   1.5T  806G  684G  55% /

 ------------------------------------------------------------
 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:1.0.306-20260122_103756 SFW:010.000.158.000.2601100246
    BIOS Date:         01/10/2026
```

Compiler Version Notes

```
==============================================================================================================
C               | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(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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--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++             | 508.namd_r(base, peak) 510.parest_r(base, peak)
--------------------------------------------------------------------------------------------------------------
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--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++, C          | 511.povray_r(base, peak) 526.blender_r(base, peak)
--------------------------------------------------------------------------------------------------------------
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--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
--------------------------------------------------------------------------------------------------------------
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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
```

(Continued on next page)

Compiler Version Notes (Continued)

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

==============================================================================================================
Fortran         | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(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      | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
------------------------------------------------------------------------------------------------------------------------
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------------------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

Benchmarks using both C and C++:
icpx icx

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

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

(Continued on next page)

Base Portability Flags (Continued)

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

C++ benchmarks:
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

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

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

Benchmarks using both C and C++:
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using Fortran, C, and C++:
-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512

(Continued on next page)

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
`-nostandard-realloc-lhs -align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib`

Peak Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

Benchmarks using both Fortran and C:
`ifx icx`

Benchmarks using both C and C++:
`icpx icx`

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

Peak Portability Flags

`Same as Base Portability Flags`

Peak Optimization Flags

C benchmarks:

519.lbm_r: `basepeak = yes`

538.imagick_r: `basepeak = yes`

544.nab_r: `basepeak = yes`

C++ benchmarks:

(Continued on next page)

Peak Optimization Flags (Continued)

508.namd_r: basepeak = yes

510.parest_r: -w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mprefer-vector-width=512
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503.bwaves_r: basepeak = yes

549.fotonik3d_r: basepeak = yes

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

Benchmarks using both Fortran and C:

521.wrf_r: -w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int
-mprefer-vector-width=512 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

527.cam4_r: basepeak = yes

Benchmarks using both C and C++:

511.povray_r: -w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int
-mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: 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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