SPEC CPU®2017 Integer Speed Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

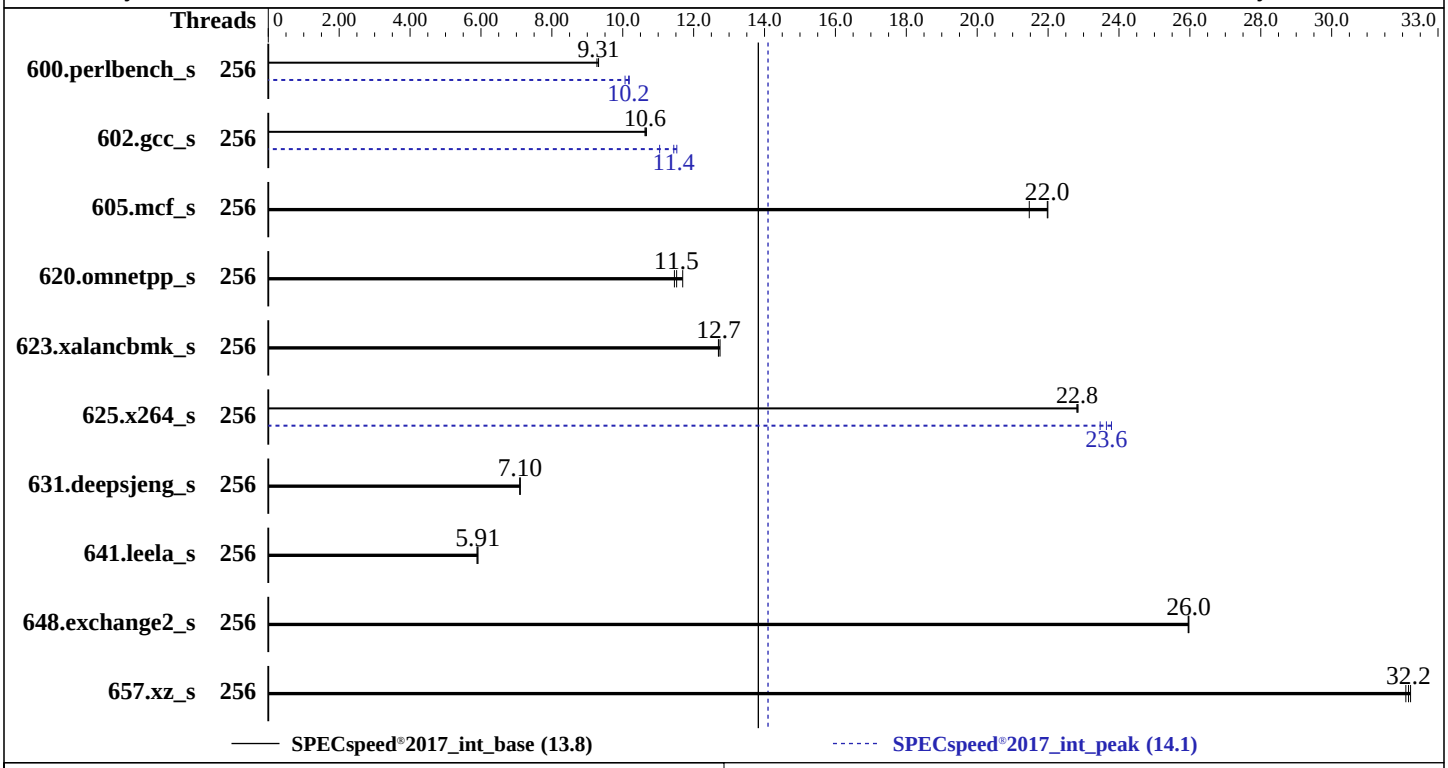
HPE Compute Scale-up Server 3250
(2.00 GHz, Intel Xeon 6788P)

SPECspeed®2017_int_base = 13.8

SPECspeed®2017_int_peak = 14.1

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:	1376 cores, 16 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:	8 TB (128 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 1.0.308 01/21/2026 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						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	256	191	9.27	190	9.32	**191**	**9.31**	256	176	10.1	**175**	**10.2**	174	10.2
602.gcc_s	256	374	10.6	373	10.7	**374**	**10.6**	256	361	11.0	**348**	**11.4**	345	11.5
605.mcf_s	256	220	21.5	**215**	**22.0**	215	22.0	256	220	21.5	**215**	**22.0**	215	22.0
620.omnetpp_s	256	**142**	**11.5**	142	11.5	139	11.7	256	**142**	**11.5**	142	11.5	139	11.7
623.xalancbmk_s	256	**112**	**12.7**	112	12.7	111	12.7	256	**112**	**12.7**	112	12.7	111	12.7
625.x264_s	256	77.3	22.8	**77.3**	**22.8**	77.2	22.8	256	74.2	23.8	**74.6**	**23.6**	75.2	23.5
631.deepsjeng_s	256	**202**	**7.10**	202	7.10	202	7.11	256	**202**	**7.10**	202	7.10	202	7.11
641.leela_s	256	289	5.91	**289**	**5.91**	290	5.89	256	289	5.91	**289**	**5.91**	290	5.89
648.exchange2_s	256	**113**	**26.0**	113	26.0	113	26.0	256	**113**	**26.0**	113	26.0	113	26.0
657.xz_s	256	192	32.2	**192**	**32.2**	193	32.1	256	192	32.2	**192**	**32.2**	193	32.1

SPECspeed®2017_int_base = 13.8

SPECspeed®2017_int_peak = 14.1

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"
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3>       /proc/sys/vm/drop_caches
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
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 Configuration:
Workload Profile set to Custom
 Intel Hyper-Threading set to Disabled
 Enabled Cores per Processor set to 64
 Dynamic Prefetch Throttling 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-108 Fri Mar 20 00:53:20 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-108 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
    00:53:20 up 50 min,  3 users,  load average: 0.07, 0.05, 0.27
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   test     ttyS0    -                00:07    2.00s  0.15s  0.04s login -- test
   test     pts/0    -                00:07    2.00s  1.34s  0.09s sudo -i
   test     pts/1    10.30.195.94     00:12   40:42   0.02s  0.02s -bash

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

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

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Platform Notes (Continued)

```
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) 32508066
  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) 32508066
  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 -i
 sudo -i
 -bash
 -bash
 runcpu --nobuild --action validate --define default-platform-flags -c
   ic2025.2-lin-sapphirerapids-speed-20250605.cfg --define cores=256 --tune base,peak -o all --define
   intspeedaffinity --define drop_caches intspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2025.2-lin-sapphirerapids-speed-20250605.cfg --define cores=256 --tune base,peak --output_format all
   --define intspeedaffinity --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed
   intspeed --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.001/templogs/preenv.intspeed.001.0.log
   --lognum 001.0 --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
    16 physical ids (chips)
    1024 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
    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 8: core ids 0-31,64-95
```

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Platform Notes (Continued)

```
physical id 9: core ids 0-31,64-95
physical id 10: core ids 0-31,64-95
physical id 11: core ids 0-31,64-95
physical id 12: core ids 0-31,64-95
physical id 13: core ids 0-31,64-95
physical id 14: core ids 0-31,64-95
physical id 15: 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
physical id 8: apicids
2048,2050,2052,2054,2056,2058,2060,2062,2064,2066,2068,2070,2072,2074,2076,2078,2080,2082,2084,2086,2088,
2090,2092,2094,2096,2098,2100,2102,2104,2106,2108,2110,2176,2178,2180,2182,2184,2186,2188,2190,2192,2194,
2196,2198,2200,2202,2204,2206,2208,2210,2212,2214,2216,2218,2220,2222,2224,2226,2228,2230,2232,2234,2236,
2238
physical id 9: apicids
2304,2306,2308,2310,2312,2314,2316,2318,2320,2322,2324,2326,2328,2330,2332,2334,2336,2338,2340,2342,2344,
2346,2348,2350,2352,2354,2356,2358,2360,2362,2364,2366,2432,2434,2436,2438,2440,2442,2444,2446,2448,2450,
2452,2454,2456,2458,2460,2462,2464,2466,2468,2470,2472,2474,2476,2478,2480,2482,2484,2486,2488,2490,2492,
2494
physical id 10: apicids
2560,2562,2564,2566,2568,2570,2572,2574,2576,2578,2580,2582,2584,2586,2588,2590,2592,2594,2596,2598,2600,
2602,2604,2606,2608,2610,2612,2614,2616,2618,2620,2622,2688,2690,2692,2694,2696,2698,2700,2702,2704,2706,
2708,2710,2712,2714,2716,2718,2720,2722,2724,2726,2728,2730,2732,2734,2736,2738,2740,2742,2744,2746,2748,
2750
physical id 11: apicids
2816,2818,2820,2822,2824,2826,2828,2830,2832,2834,2836,2838,2840,2842,2844,2846,2848,2850,2852,2854,2856,
```

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Platform Notes (Continued)

```
     2858,2860,2862,2864,2866,2868,2870,2872,2874,2876,2878,2944,2946,2948,2950,2952,2954,2956,2958,2960,2962,
     2964,2966,2968,2970,2972,2974,2976,2978,2980,2982,2984,2986,2988,2990,2992,2994,2996,2998,3000,3002,3004,
     3006
     physical id 12: apicids
     3072,3074,3076,3078,3080,3082,3084,3086,3088,3090,3092,3094,3096,3098,3100,3102,3104,3106,3108,3110,3112,
     3114,3116,3118,3120,3122,3124,3126,3128,3130,3132,3134,3200,3202,3204,3206,3208,3210,3212,3214,3216,3218,
     3220,3222,3224,3226,3228,3230,3232,3234,3236,3238,3240,3242,3244,3246,3248,3250,3252,3254,3256,3258,3260,
     3262
     physical id 13: apicids
     3328,3330,3332,3334,3336,3338,3340,3342,3344,3346,3348,3350,3352,3354,3356,3358,3360,3362,3364,3366,3368,
     3370,3372,3374,3376,3378,3380,3382,3384,3386,3388,3390,3456,3458,3460,3462,3464,3466,3468,3470,3472,3474,
     3476,3478,3480,3482,3484,3486,3488,3490,3492,3494,3496,3498,3500,3502,3504,3506,3508,3510,3512,3514,3516,
     3518
     physical id 14: apicids
     3584,3586,3588,3590,3592,3594,3596,3598,3600,3602,3604,3606,3608,3610,3612,3614,3616,3618,3620,3622,3624,
     3626,3628,3630,3632,3634,3636,3638,3640,3642,3644,3646,3712,3714,3716,3718,3720,3722,3724,3726,3728,3730,
     3732,3734,3736,3738,3740,3742,3744,3746,3748,3750,3752,3754,3756,3758,3760,3762,3764,3766,3768,3770,3772,
     3774
     physical id 15: apicids
     3840,3842,3844,3846,3848,3850,3852,3854,3856,3858,3860,3862,3864,3866,3868,3870,3872,3874,3876,3878,3880,
     3882,3884,3886,3888,3890,3892,3894,3896,3898,3900,3902,3968,3970,3972,3974,3976,3978,3980,3982,3984,3986,
     3988,3990,3992,3994,3996,3998,4000,4002,4004,4006,4008,4010,4012,4014,4016,4018,4020,4022,4024,4026,4028,
     4030
   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):                               1024
   On-line CPU(s) list:                  0-1023
   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
   Socket(s):                            16
   Stepping:                             1
   CPU(s) scaling MHz:                   21%
   CPU max MHz:                          3800.0000
   CPU min MHz:                          800.0000
   BogoMIPS:                             3999.46
   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 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 cpuid_fault epb cat_l3
                                         cat_l2 cdp_l3 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp
                                         ibrs_enhanced tpr_shadow flexpriority ept vpid ept_ad 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
```

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Platform Notes (Continued)

```
                                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 vnmi
                                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
  Virtualization:               VT-x
  L1d cache:                    48 MiB (1024 instances)
  L1i cache:                    64 MiB (1024 instances)
  L2 cache:                     2 GiB (1024 instances)
  L3 cache:                     5.3 GiB (16 instances)
  NUMA node(s):                 32
  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
  NUMA node16 CPU(s):           512-543
  NUMA node17 CPU(s):           544-575
  NUMA node18 CPU(s):           576-607
  NUMA node19 CPU(s):           608-639
  NUMA node20 CPU(s):           640-671
  NUMA node21 CPU(s):           672-703
  NUMA node22 CPU(s):           704-735
  NUMA node23 CPU(s):           736-767
  NUMA node24 CPU(s):           768-799
  NUMA node25 CPU(s):           800-831
  NUMA node26 CPU(s):           832-863
  NUMA node27 CPU(s):           864-895
  NUMA node28 CPU(s):           896-927
  NUMA node29 CPU(s):           928-959
  NUMA node30 CPU(s):           960-991
  NUMA node31 CPU(s):           992-1023
  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
```

(Continued on next page)

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      48M   12 Data            1     64        1             64
     L1i       64K      64M   16 Instruction     1     64        1             64
     L2         2M       2G   16 Unified         2   2048        1             64
     L3       336M     5.3G   16 Unified         3 344064        1             64

------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 32 nodes (0-31)
  node 0 cpus: 0-31
  node 0 size: 256990 MB
  node 0 free: 256298 MB
  node 1 cpus: 32-63
  node 1 size: 250021 MB
  node 1 free: 249715 MB
  node 2 cpus: 64-95
  node 2 size: 258039 MB
  node 2 free: 257539 MB
  node 3 cpus: 96-127
  node 3 size: 250037 MB
  node 3 free: 249793 MB
  node 4 cpus: 128-159
  node 4 size: 258039 MB
  node 4 free: 257795 MB
  node 5 cpus: 160-191
  node 5 size: 250037 MB
  node 5 free: 249764 MB
  node 6 cpus: 192-223
  node 6 size: 258039 MB
  node 6 free: 257799 MB
  node 7 cpus: 224-255
  node 7 size: 250037 MB
  node 7 free: 249707 MB
  node 8 cpus: 256-287
  node 8 size: 258039 MB
  node 8 free: 257199 MB
  node 9 cpus: 288-319
  node 9 size: 250037 MB
  node 9 free: 249706 MB
  node 10 cpus: 320-351
  node 10 size: 258039 MB
  node 10 free: 257742 MB
  node 11 cpus: 352-383
  node 11 size: 250037 MB
  node 11 free: 249757 MB
  node 12 cpus: 384-415
  node 12 size: 258039 MB
  node 12 free: 257745 MB
  node 13 cpus: 416-447
  node 13 size: 249998 MB
  node 13 free: 249724 MB
```

(Continued on next page)

Platform Notes (Continued)

```
node 14 cpus: 448-479
node 14 size: 258039 MB
node 14 free: 257708 MB
node 15 cpus: 480-511
node 15 size: 250037 MB
node 15 free: 249782 MB
node 16 cpus: 512-543
node 16 size: 258039 MB
node 16 free: 257858 MB
node 17 cpus: 544-575
node 17 size: 250037 MB
node 17 free: 249888 MB
node 18 cpus: 576-607
node 18 size: 258039 MB
node 18 free: 257883 MB
node 19 cpus: 608-639
node 19 size: 250037 MB
node 19 free: 249882 MB
node 20 cpus: 640-671
node 20 size: 258039 MB
node 20 free: 257882 MB
node 21 cpus: 672-703
node 21 size: 250037 MB
node 21 free: 249867 MB
node 22 cpus: 704-735
node 22 size: 258039 MB
node 22 free: 257865 MB
node 23 cpus: 736-767
node 23 size: 250037 MB
node 23 free: 249863 MB
node 24 cpus: 768-799
node 24 size: 258039 MB
node 24 free: 257723 MB
node 25 cpus: 800-831
node 25 size: 250037 MB
node 25 free: 249788 MB
node 26 cpus: 832-863
node 26 size: 258039 MB
node 26 free: 257746 MB
node 27 cpus: 864-895
node 27 size: 250037 MB
node 27 free: 249790 MB
node 28 cpus: 896-927
node 28 size: 258039 MB
node 28 free: 257679 MB
node 29 cpus: 928-959
node 29 size: 250037 MB
node 29 free: 249780 MB
node 30 cpus: 960-991
node 30 size: 258039 MB
node 30 free: 257742 MB
node 31 cpus: 992-1023
node 31 size: 248965 MB
node 31 free: 248698 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  12  16  16  16  16  18  18  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  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  40  40  40  40  40  40  40  40  40
```

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Platform Notes (Continued)

```
 40  40  40  40  40  40  40
  2:  16  16  10  12  18  18  16  16  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  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  40  40  40  40  40  40  40  40  40  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  40  40  40  40  40  40  40  40  40  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  40  40  40  40  40  40  40  40  40  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  40  40  40  40  40  40  40  40  40  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  40  40  40  40  40  40  40  40  40  40
 40  40  40  40  40  40  40
  8:  40  40  40  40  40  40  40  40  40  10  12  16  16  16  16  18  18  40  40  40  40  40  40  40  40  40
 40  40  40  40  40  40  40
  9:  40  40  40  40  40  40  40  40  40  12  10  16  16  16  16  18  18  40  40  40  40  40  40  40  40  40
 40  40  40  40  40  40  40
 10:  40  40  40  40  40  40  40  40  40  16  16  10  12  18  18  16  16  40  40  40  40  40  40  40  40  40
 40  40  40  40  40  40  40
 11:  40  40  40  40  40  40  40  40  40  16  16  12  10  18  18  16  16  40  40  40  40  40  40  40  40  40
 40  40  40  40  40  40  40
 12:  40  40  40  40  40  40  40  40  40  16  16  18  18  10  12  16  16  40  40  40  40  40  40  40  40  40
 40  40  40  40  40  40  40
 13:  40  40  40  40  40  40  40  40  40  16  16  18  18  12  10  16  16  40  40  40  40  40  40  40  40  40
 40  40  40  40  40  40  40
 14:  40  40  40  40  40  40  40  40  40  18  18  16  16  16  16  10  12  40  40  40  40  40  40  40  40  40
 40  40  40  40  40  40  40
 15:  40  40  40  40  40  40  40  40  40  18  18  16  16  16  16  12  10  40  40  40  40  40  40  40  40  40
 40  40  40  40  40  40  40
 16:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  10  12  16  16  16  16  18  18  40
 40  40  40  40  40  40  40
 17:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  12  10  16  16  16  16  18  18  40
 40  40  40  40  40  40  40
 18:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  16  16  10  12  18  18  16  16  40
 40  40  40  40  40  40  40
 19:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  16  16  12  10  18  18  16  16  40
 40  40  40  40  40  40  40
 20:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  16  16  18  18  10  12  16  16  40
 40  40  40  40  40  40  40
 21:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  16  16  18  18  12  10  16  16  40
 40  40  40  40  40  40  40
 22:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  18  18  16  16  16  16  10  12  40
 40  40  40  40  40  40  40
 23:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  18  18  16  16  16  16  12  10  40
 40  40  40  40  40  40  40
 24:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  10
 12  16  16  16  16  18  18
 25:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  12
 10  16  16  16  16  18  18
 26:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  16
 16  10  12  18  18  16  16
 27:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  16
 16  12  10  18  18  16  16
 28:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  16
 16  18  18  10  12  16  16
 29:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  16
 16  18  18  12  10  16  16
 30:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  18
 18  16  16  16  16  10  12
 31:  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  40  18
```

(Continued on next page)

Platform Notes (Continued)

```
    18  16  16  16  16  12  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       8322098800 kB

------------------------------------------------------------
10. who -r
  run-level 3 Mar 20 00:07

------------------------------------------------------------
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=8f7dbb2d-77d8-40d9-b606-6b60ffd4e6ad
  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
```

(Continued on next page)

Platform Notes (Continued)

```
------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 77:
    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
```

(Continued on next page)

Platform Notes (Continued)

```
------------------------------------------------------------
20. Disk information
SPEC is set to: /home/cpu2017
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p2 xfs   1.5T   96G  1.4T   7% /

------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:         HPE
    Product:        Compute Scale-up Server 3250
    Product Family: 1590PID03030202
    Serial:         5UFD3H1626-000

------------------------------------------------------------
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:
    46x Samsung M321R8GA0EB2-CCPKC 64 GB 2 rank 6400
    82x Samsung M321R8GA0EB2-CCPWC 64 GB 2 rank 6400


------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       HPE
   BIOS Version:      Bundle:1.0.308-20260123_101935 SFW:010.001.004.000.2601210240
   BIOS Date:         01/21/2026
```

Compiler Version Notes

```
==============================================================================================================
C       | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak)
        | 657.xz_s(base, peak)
--------------------------------------------------------------------------------------------------------------
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.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++     | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)
        | 641.leela_s(base, peak)
--------------------------------------------------------------------------------------------------------------
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.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran | 648.exchange2_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.
--------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Base Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fdelayed-template-parsing -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Peak Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

600.perlbench_s: -w -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fiopenmp -DSPEC_OPENMP -fno-strict-overflow
-fno-strict-aliasing -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc

602.gcc_s: -w -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fiopenmp -DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc

605.mcf_s: basepeak = yes

625.x264_s: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

(Continued on next page)

Peak Optimization Flags (Continued)

657.xz_s: `basepeak = yes`

C++ benchmarks:

620.omnetpp_s: `basepeak = yes`

623.xalancbmk_s: `basepeak = yes`

631.deepsjeng_s: `basepeak = yes`

641.leela_s: `basepeak = yes`

Fortran benchmarks:

648.exchange2_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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