SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Dell Inc.

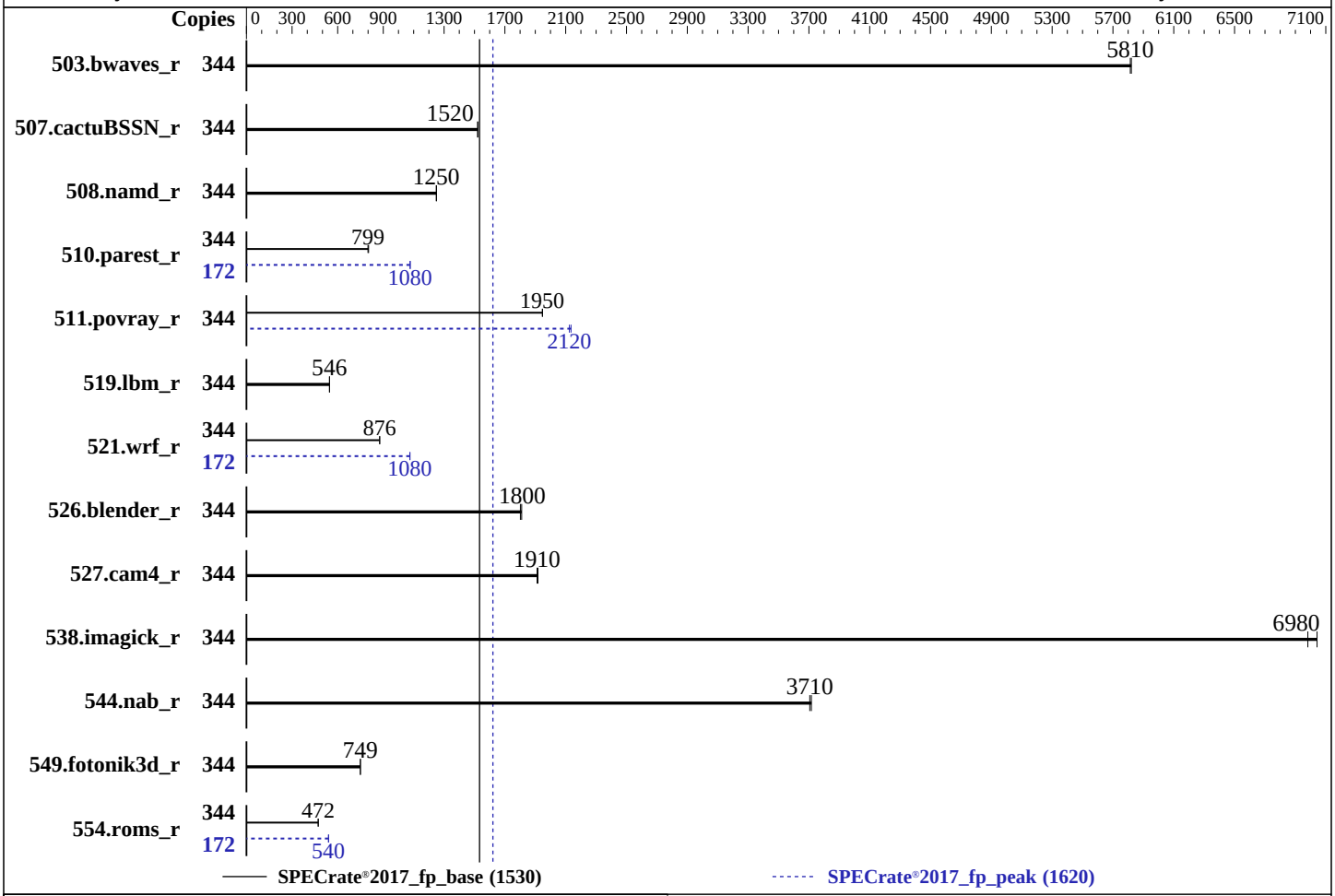
PowerEdge XE7740 (Intel Xeon 6787P)

SPECrate®2017_fp_base = 1530

SPECrate®2017_fp_peak = 1620

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Mar-2025
Hardware Availability: Apr-2025
Software Availability: Jun-2024



Hardware

CPU Name:	Intel Xeon 6787P
Max MHz:	3800
Nominal:	2000
Enabled:	172 cores, 2 chips, 2 threads/core
Orderable:	1,2 chips
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:	512 GB (16 x 32 GB 2Rx8 PC5-6400B-R)
Storage:	170 GB on tmpfs
Other:	CPU Cooling: Air

Software

OS:	SUSE Linux Enterprise Server 15 SP6 6.4.0-150600.21-default
Compiler:	C/C++: Version 2024.1 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2024.1 of Intel Fortran Compiler for Linux;
Parallel:	No
Firmware:	Version 1.0.2 released Mar-2025
File System:	tmpfs
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 set to prefer performance at the cost of additional power usage.

SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge XE7740 (Intel Xeon 6787P)

SPECrate®2017_fp_base = 1530

SPECrate®2017_fp_peak = 1620

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Mar-2025
Hardware Availability: Apr-2025
Software Availability: Jun-2024

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	344	**593**	**5810**	593	5820			344	**593**	**5810**	593	5820		
507.cactuBSSN_r	344	**286**	**1520**	286	1520			344	**286**	**1520**	286	1520		
508.namd_r	344	**262**	**1250**	261	1250			344	**262**	**1250**	261	1250		
510.parest_r	344	**1126**	**799**	1120	803			172	418	1080	**418**	**1080**		
511.povray_r	344	412	1950	**413**	**1950**			344	376	2140	**378**	**2120**		
519.lbm_r	344	664	546	**664**	**546**			344	664	546	**664**	**546**		
521.wrf_r	344	879	877	**880**	**876**			172	358	1080	**358**	**1080**		
526.blender_r	344	289	1810	**291**	**1800**			344	289	1810	**291**	**1800**		
527.cam4_r	344	**315**	**1910**	314	1920			344	**315**	**1910**	314	1920		
538.imagick_r	344	121	7040	**123**	**6980**			344	121	7040	**123**	**6980**		
544.nab_r	344	156	3720	**156**	**3710**			344	156	3720	**156**	**3710**		
549.fotonik3d_r	344	**1789**	**749**	1788	750			344	**1789**	**749**	1788	750		
554.roms_r	344	**1158**	**472**	1158	472			172	506	540	**507**	**540**		

SPECrate®2017_fp_base = 1530

SPECrate®2017_fp_peak = 1620

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 =
      "/mnt/ramdisk/cpu2017-1.1.9-ic2024.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2024.1/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
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3>       /proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
jemalloc, a general purpose malloc implementation
```

(Continued on next page)

General Notes (Continued)

```
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

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.

Benchmark run from a 170 GB ramdisk created with the cmd: "mount -t tmpfs -o size=170G tmpfs /mnt/ramdisk"
```

Platform Notes

```
BIOS Settings:
           DCU Streamer Prefetcher : Disabled
                  Sub NUMA Cluster : Enabled
              Dead Line LLC Alloc : Disabled
                   Optimizer Mode : Enabled

                   System Profile : Custom
              CPU Power Management : Maximum Performance
                               C1E : Disabled
                          C-States : Autonomous
           Latency Optimized Mode : Enabled
          Energy Efficient Policy : Performance
           CPU Interconnect Bus -
            Link Power Management : Disabled
 PCI ASPM L1 Link Power Management : Disabled
        Correctable Memory ECC SMI : Disabled
               DIMM Self Healing -
     on Uncorrectable Memory Error : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-ic2024.1/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on 1234567-XE7740 Fri Mar 21 01:39:50 2025

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 (254.10+suse.84.ge8d77af424)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent_hugepage
```

(Continued on next page)

Platform Notes (Continued)

```
17. /sys/kernel/mm/transparent_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
21. dmidecode
22. BIOS
------------------------------------------------------------

------------------------------------------------------------
1. uname -a
  Linux 1234567-XE7740 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
  x86_64 x86_64 x86_64 GNU/Linux

------------------------------------------------------------
2. w
   01:39:50 up 4 min,  1 user,  load average: 0.43, 1.14, 0.59
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                01:38   36.00s  0.94s  0.01s /bin/bash
  /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.1 --output_format html,pdf,txt

------------------------------------------------------------
3. Username
  From environment variable $USER:  root

------------------------------------------------------------
4. ulimit -a
  core file size          (blocks, -c) unlimited
  data seg size           (kbytes, -d) unlimited
  scheduling priority             (-e) 0
  file size               (blocks, -f) unlimited
  pending signals                 (-i) 2059842
  max locked memory       (kbytes, -l) 8192
  max memory size         (kbytes, -m) unlimited
  open files                      (-n) 1024
  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) 2059842
  virtual memory          (kbytes, -v) unlimited
  file locks                      (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize=42
 login -- root
 -bash
 /bin/bash /home/DellFiles/bin/DELL_rate.sh
 /bin/bash /home/DellFiles/bin/dell-run-main.sh rate
 /bin/bash /home/DellFiles/bin/dell-run-main.sh rate
 /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.1 --output_format
   html,pdf,txt
 /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.1 --output_format
   html,pdf,txt
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=344 -c
   ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=172 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak -o all --iterations 2 --define
   DL-VERS=6.1 --output_format html,pdf,txt fprate
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=344 --configfile
```

(Continued on next page)

Platform Notes (Continued)

```
   ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=172 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --iterations 2
   --define DL-VERS=6.1 --output_format html,pdf,txt --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 = /mnt/ramdisk/cpu2017-1.1.9-ic2024.1

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) 6787P
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 173
    stepping        : 1
    microcode       : 0x1000380
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
    cpu cores       : 86
    siblings        : 172
    2 physical ids (chips)
    344 processors (hardware threads)
    physical id 0: core ids 0-42,64-106
    physical id 1: core ids 0-42,64-106
    physical id 0: apicids 0-85,128-213
    physical id 1: apicids 256-341,384-469
  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 2.39.3:
  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):                               344
  On-line CPU(s) list:                  0-343
  Vendor ID:                            GenuineIntel
  BIOS Vendor ID:                       Intel
  Model name:                           Intel(R) Xeon(R) 6787P
  BIOS Model name:                      Intel(R) Xeon(R) 6787P  CPU @ 2.0GHz
  BIOS CPU family:                      179
  CPU family:                           6
  Model:                                173
  Thread(s) per core:                   2
  Core(s) per socket:                   86
  Socket(s):                            2
  Stepping:                             1
  BogoMIPS:                             4000.00
  Flags:                                fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat
                                        pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx
                                        pdpe1gb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good
                                        nopl xtopology nonstop_tsc cpuid aperfmperf tsc_known_freq 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
```

(Continued on next page)

Platform Notes (Continued)

```
                                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 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
  Virtualization:               VT-x
  L1d cache:                    8.1 MiB (172 instances)
  L1i cache:                    10.8 MiB (172 instances)
  L2 cache:                     344 MiB (172 instances)
  L3 cache:                     672 MiB (2 instances)
  NUMA node(s):                 4
  NUMA node0 CPU(s):            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
                                ,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78,80,82,84,172,174,176,17
                                8,180,182,184,186,188,190,192,194,196,198,200,202,204,206,208,210,212
                                ,214,216,218,220,222,224,226,228,230,232,234,236,238,240,242,244,246,
                                248,250,252,254,256
  NUMA node1 CPU(s):            86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,
                                124,126,128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,1
                                58,160,162,164,166,168,170,258,260,262,264,266,268,270,272,274,276,27
                                8,280,282,284,286,288,290,292,294,296,298,300,302,304,306,308,310,312
                                ,314,316,318,320,322,324,326,328,330,332,334,336,338,340,342
  NUMA node2 CPU(s):            1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49
                                ,51,53,55,57,59,61,63,65,67,69,71,73,75,77,79,81,83,85,173,175,177,17
                                9,181,183,185,187,189,191,193,195,197,199,201,203,205,207,209,211,213
                                ,215,217,219,221,223,225,227,229,231,233,235,237,239,241,243,245,247,
                                249,251,253,255,257
  NUMA node3 CPU(s):            87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,123,
                                125,127,129,131,133,135,137,139,141,143,145,147,149,151,153,155,157,1
                                59,161,163,165,167,169,171,259,261,263,265,267,269,271,273,275,277,27
                                9,281,283,285,287,289,291,293,295,297,299,301,303,305,307,309,311,313
                                ,315,317,319,321,323,325,327,329,331,333,335,337,339,341,343
  Vulnerability Gather data sampling: 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; RSB filling;
                                PBRSB-eIBRS Not affected; BHI BHI_DIS_S
  Vulnerability Srbds:          Not affected
  Vulnerability Tsx async abort: Not affected

From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL   SETS PHY-LINE COHERENCY-SIZE
     L1d       48K     8.1M   12 Data            1     64        1             64
     L1i       64K    10.8M   16 Instruction     1     64        1             64
     L2         2M     344M   16 Unified         2   2048        1             64
     L3       336M     672M   16 Unified         3 344064        1             64

------------------------------------------------------------
8. numactl --hardware
```

(Continued on next page)

Platform Notes (Continued)

```
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 4 nodes (0-3)
  node 0 cpus:
  0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,7
  4,76,78,80,82,84,172,174,176,178,180,182,184,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214,21
  6,218,220,222,224,226,228,230,232,234,236,238,240,242,244,246,248,250,252,254,256
  node 0 size: 128461 MB
  node 0 free: 127745 MB
  node 1 cpus:
  86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,130,132,134,136,138,140,14
  2,144,146,148,150,152,154,156,158,160,162,164,166,168,170,258,260,262,264,266,268,270,272,274,276,278,280,2
  82,284,286,288,290,292,294,296,298,300,302,304,306,308,310,312,314,316,318,320,322,324,326,328,330,332,334,
  336,338,340,342
  node 1 size: 128963 MB
  node 1 free: 127953 MB
  node 2 cpus:
  1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59,61,63,65,67,69,71,73,7
  5,77,79,81,83,85,173,175,177,179,181,183,185,187,189,191,193,195,197,199,201,203,205,207,209,211,213,215,21
  7,219,221,223,225,227,229,231,233,235,237,239,241,243,245,247,249,251,253,255,257
  node 2 size: 129001 MB
  node 2 free: 128329 MB
  node 3 cpus:
  87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127,129,131,133,135,137,139,141,14
  3,145,147,149,151,153,155,157,159,161,163,165,167,169,171,259,261,263,265,267,269,271,273,275,277,279,281,2
  83,285,287,289,291,293,295,297,299,301,303,305,307,309,311,313,315,317,319,321,323,325,327,329,331,333,335,
  337,339,341,343
  node 3 size: 128560 MB
  node 3 free: 117642 MB
  node distances:
  node   0   1   2   3
    0:  10  12  21  21
    1:  12  10  21  21
    2:  21  21  10  12
    3:  21  21  12  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       527346788 kB

------------------------------------------------------------
10. who -r
  run-level 3 Mar 21 01:36

------------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
  Default Target  Status
  multi-user      running

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ irqbalance
                   issue-generator kbdsettings kdump kdump-early kdump-notify klog lvm2-monitor nscd
                   nvmefc-boot-connections nvmf-autoconnect postfix purge-kernels rollback rsyslog smartd
                   sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
  enabled-runtime  systemd-remount-fs
  disabled         autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                   chronyd console-getty cups cups-browsed debug-shell ebtables exchange-bmc-os-info
                   firewalld fsidd gpm grub2-once haveged ipmi ipmievd issue-add-ssh-keys kexec-load lunmask
                   man-db-create multipathd nfs nfs-blkmap rpcbind rpmconfigcheck rsyncd serial-getty@
```

(Continued on next page)

Platform Notes (Continued)

```
                  smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures systemd-confext
                  systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2
                  vncserver@
  indirect        systemd-userdbd wickedd

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
  root=UUID=4a3e821d-6b9c-4812-b236-2943a80df76d
  splash=silent
  resume=/dev/disk/by-uuid/e83077a7-9fb8-4d68-bd08-bee9447e0b0e
  mitigations=auto
  quiet
  security=apparmor
  crashkernel=363M,high
  crashkernel=72M,low

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 126:
    Unable to determine current policy
    boost state support:
      Supported: yes
      Active: yes

------------------------------------------------------------
15. sysctl
  kernel.numa_balancing              1
  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

------------------------------------------------------------
16. /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

------------------------------------------------------------
17. /sys/kernel/mm/transparent_hugepage/khugepaged
  alloc_sleep_millisecs   60000
  defrag                      1
  max_ptes_none             511
  max_ptes_shared           256
```

(Continued on next page)

Platform Notes (Continued)

```
  max_ptes_swap             64
  pages_to_scan           4096
  scan_sleep_millisecs   10000

------------------------------------------------------------
18. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 15 SP6

------------------------------------------------------------
19. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2024.1
  Filesystem     Type   Size  Used Avail Use% Mounted on
  tmpfs          tmpfs  170G  5.0G  166G   3% /mnt/ramdisk

------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         Dell Inc.
    Product:        PowerEdge XE7740
    Product Family: PowerEdge
    Serial:         1234567

------------------------------------------------------------
21. dmidecode
  Additional information from dmidecode 3.4 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:
    2x 002C0423002C MTC20F2085S1RC64BD2 UXCC 32 GB 2 rank 6400
    1x 002C0632002C MTC20F2085S1RC64BD2 MWFF 32 GB 2 rank 6400
    2x 002C069D002C MTC20F2085S1RC64BD2 QSFF 32 GB 2 rank 6400
    11x 00CE042300CE M321R4GA3PB2-CCPEC 32 GB 2 rank 6400


------------------------------------------------------------
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       Dell Inc.
   BIOS Version:      1.0.2
   BIOS Date:         03/07/2025
   BIOS Revision:     1.0
```

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 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++             | 508.namd_r(base, peak) 510.parest_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------
```

(Continued on next page)

Compiler Version Notes (Continued)

```
==============================================================================================================
C++, C          | 511.povray_r(base, peak) 526.blender_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
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 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran, C      | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------
```

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`

(Continued on next page)

Base Compiler Invocation (Continued)

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
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

(Continued on next page)

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):
-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
-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:

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`

(Continued on next page)

Peak Optimization Flags (Continued)

511.povray_r (continued):
-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/Intel-ic2024-official-linux64.html
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.13.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.13.xml

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU®2017 v1.1.9 on 2025-03-20 16:09:50-0400.
Report generated on 2025-04-22 18:11:47 by CPU2017 PS formatter v6716.
Originally published on 2025-04-22.