SPEC CPU®2017 Integer Rate Result

Dell Inc.

$SPECrate^{®}2017\_int\_base = 783$

PowerEdge R570 (Intel Xeon 6787P)

$SPECrate^{®}2017\_int\_peak = 809$
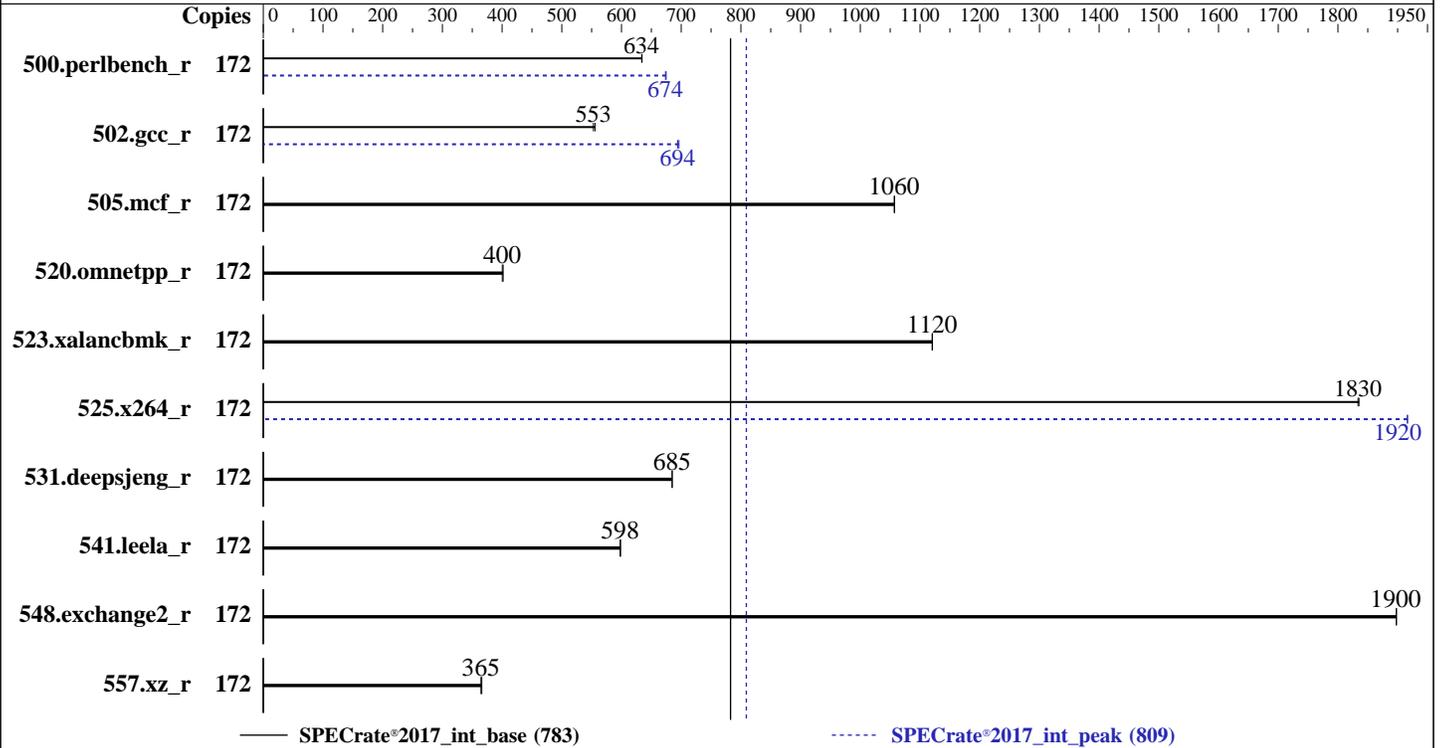
CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Copies

Benchmark	Copies	base	peak
500.perlbench_r	172	634	674
502.gcc_r	172	553	694
505.mcf_r	172	1060	
520.omnetpp_r	172	400	
523.xalancbmk_r	172	1120	
525.x264_r	172	1830	1920
531.deepsjeng_r	172	685	
541.leela_r	172	598	
548.exchange2_r	172	1900	
557.xz_r	172	365	

SPECrate®2017_int_base (783)   SPECrate®2017_int_peak (809)

Hardware

CPU Name: Intel Xeon 6787P
 Max MHz: 3800
 Nominal: 2000
Enabled: 86 cores, 1 chip, 2 threads/core
Orderable: 1 chip
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 (8 x 64 GB 2Rx4 PC5-6400B-R)
Storage: 100 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 1.2.6 released Feb-2025
File System: tmpfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS set to prefer performance at the cost of additional power usage.

Standard Performance Evaluation Corporation (info@spec.org) https://www.spec.org/

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	172	432	634	**432**	**634**			172	**406**	**674**	406	675		
502.gcc_r	172	**440**	**553**	438	556			172	**351**	**694**	350	696		
505.mcf_r	172	**263**	**1060**	263	1060			172	**263**	**1060**	263	1060		
520.omnetpp_r	172	562	402	**564**	**400**			172	562	402	**564**	**400**		
523.xalancbmk_r	172	**162**	**1120**	162	1120			172	**162**	**1120**	162	1120		
525.x264_r	172	164	1840	**164**	**1830**			172	157	1920	**157**	**1920**		
531.deepsjeng_r	172	**288**	**685**	288	685			172	**288**	**685**	288	685		
541.leela_r	172	**477**	**598**	476	598			172	**477**	**598**	476	598		
548.exchange2_r	172	**237**	**1900**	237	1900			172	**237**	**1900**	237	1900		
557.xz_r	172	508	366	**510**	**365**			172	508	366	**510**	**365**		

SPECrate®2017_int_base =   **783**

SPECrate®2017_int_peak =   **809**

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/lib/ia32:/mnt/ram
     disk/cpu2017-1.1.9-ic2024.1/je5.0.1-32"
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
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
```

(Continued on next page)

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General Notes (Continued)

```
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 100 GB ramdisk created with the cmd: "mount -t tmpfs -o size=100G tmpfs /mnt/ramdisk"
```

Platform Notes

```
BIOS Settings:
        Adjacent Cache Line Prefetch : Disabled
            DCU Streamer Prefetcher : Disabled
                  Sub NUMA Cluster : Enabled
                       XPT Prefetch : Disabled
             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 2M5NW54-R570 Thu Mar  6 13:59:13 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
17. /sys/kernel/mm/transparent_hugepage/khugepaged
```

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Platform Notes (Continued)

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


    ------------------------------------------------------------
1. uname -a
   Linux 2M5NW54-R570 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
   13:59:13 up 4 min,  1 user,  load average: 0.27, 0.34, 0.18
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                13:56   25.00s  0.88s  0.00s /bin/bash
   /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.1a --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) 2062192
   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) 2062192
   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=6.1a --output_format
     html,pdf,txt
   /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.1a --output_format
     html,pdf,txt
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=172 -c
     ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=86 --define physicalfirst
     --define invoke_with_interleave --define drop_caches --tune base,peak -o all --iterations 2 --define
     DL-VERS=6.1a --output_format html,pdf,txt intrate
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=172 --configfile
     ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=86 --define physicalfirst
```

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Dell Inc.

PowerEdge R570 (Intel Xeon 6787P)

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Platform Notes (Continued)

```
    --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --iterations 2
    --define DL-VERS=6.1a --output_format html,pdf,txt --nopower --runmode rate --tune base:peak --size
    refrate intrate --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.001/templogs/preenv.intrate.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
    1 physical ids (chips)
    172 processors (hardware threads)
    physical id 0: core ids 0-42,64-106
    physical id 0: apicids 0-85,128-213
  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):                             172
  On-line CPU(s) list:                0-171
  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):                          1
  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
                                      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
```

(Continued on next page)

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Platform Notes (Continued)

```
                              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:                  4 MiB (86 instances)
  L1i cache:                  5.4 MiB (86 instances)
  L2 cache:                   172 MiB (86 instances)
  L3 cache:                   336 MiB (1 instance)
  NUMA node(s):               2
  NUMA node0 CPU(s):          0-42,86-128
  NUMA node1 CPU(s):          43-85,129-171
  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       4M  12 Data             1      64      1           64
      L1i      64K     5.4M  16 Instruction      1      64      1           64
      L2        2M     172M  16 Unified          2    2048      1           64
      L3      336M     336M  16 Unified          3  344064      1           64


--------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 2 nodes (0-1)
  node 0 cpus: 0-42,86-128
  node 0 size: 257589 MB
  node 0 free: 256630 MB
  node 1 cpus: 43-85,129-171
  node 1 size: 257985 MB
  node 1 free: 246902 MB
  node distances:
  node   0   1
    0:  10  12
    1:  12  10

--------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       527948340 kB


--------------------------------------------------------------
10. who -r
   run-level 3 Mar 6 13:55
```

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Platform Notes (Continued)

```
   ----------------------------------------------------------
   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 firewalld getty@
                       irqbalance issue-generator kbdsettings 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 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@ smartd_generate_opts
                       snmpd snmptrapd synce4l 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=4ea9682a-6e76-4428-ae6c-0ceade65844e
     splash=silent
     mitigations=auto
     quiet
     security=apparmor

   ----------------------------------------------------------
   14. cpupower frequency-info
     analyzing CPU 52:
       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
```

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Platform Notes (Continued)

```
--------------------------------------------------------------
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
  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  100G  5.0G   96G   5% /mnt/ramdisk


--------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         Dell Inc.
    Product:        PowerEdge R570
    Product Family: PowerEdge
    Serial:         2M5NW54


--------------------------------------------------------------
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:
    4x 00AD042300AD HMCG94AHBRA480N 64 GB 2 rank 6400
    4x 00AD063200AD HMCG94AHBRA277N 64 GB 2 rank 6400



--------------------------------------------------------------
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:     Dell Inc.
    BIOS Version:    1.2.6
    BIOS Date:       02/26/2025
    BIOS Revision:   1.2
```

Compiler Version Notes

```
==========================================================================================
C        | 502.gcc_r(peak)
```

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Compiler Version Notes (Continued)

```
--------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------


================================================================================
C        | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
         | 557.xz_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        | 502.gcc_r(peak)
--------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------


================================================================================
C        | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
         | 557.xz_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++      | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
         | 541.leela_r(base, peak)
--------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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--------------------------------------------------------------------------------


================================================================================
Fortran | 548.exchange2_r(base, peak)
--------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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--------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
```
icx
```

C++ benchmarks:
```
icpx
```

Fortran benchmarks:
```
ifx
```

SPEC CPU®2017 Integer Rate Result

Dell Inc.

PowerEdge R570 (Intel Xeon 6787P)

SPECrate®2017_int_base = 783

SPECrate®2017_int_peak = 809

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

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

Base Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-DSPEC_LP64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-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
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc
```

C++ benchmarks:
```
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc
```

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 -auto
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc
```

Peak Compiler Invocation

C benchmarks:
```
icx
```

C++ benchmarks:
```
icpx
```

Fortran benchmarks:
```
ifx
```

SPEC CPU®2017 Integer Rate Result

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Dell Inc.

PowerEdge R570 (Intel Xeon 6787P)

SPECrate®2017_int_base = 783

SPECrate®2017_int_peak = 809

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

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

Peak Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-D_FILE_OFFSET_BITS=64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

Peak Optimization Flags

C benchmarks:

 500.perlbench_r: `-w -std=c11 -m64 -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`
`-fno-strict-overflow`
`-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc`

 502.gcc_r: `-m32 -L/opt/intel/oneapi/compiler/2024.1/lib32 -std=gnu89`
`-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`
`-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc`

 505.mcf_r: `basepeak = yes`

 525.x264_r: `-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast`
`-ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fno-alias`
`-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc`

 557.xz_r: `basepeak = yes`

C++ benchmarks:

 520.omnetpp_r: `basepeak = yes`

(Continued on next page)

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Dell Inc.

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

Peak Optimization Flags (Continued)

523.xalancbmk_r: `basepeak = yes`

531.deepsjeng_r: `basepeak = yes`

541.leela_r: `basepeak = yes`

Fortran benchmarks:

548.exchange2_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`

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

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