SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge MX760c (Intel Xeon Platinum 8468V)

$SPECrate^{®}2017\_int\_base = 400$

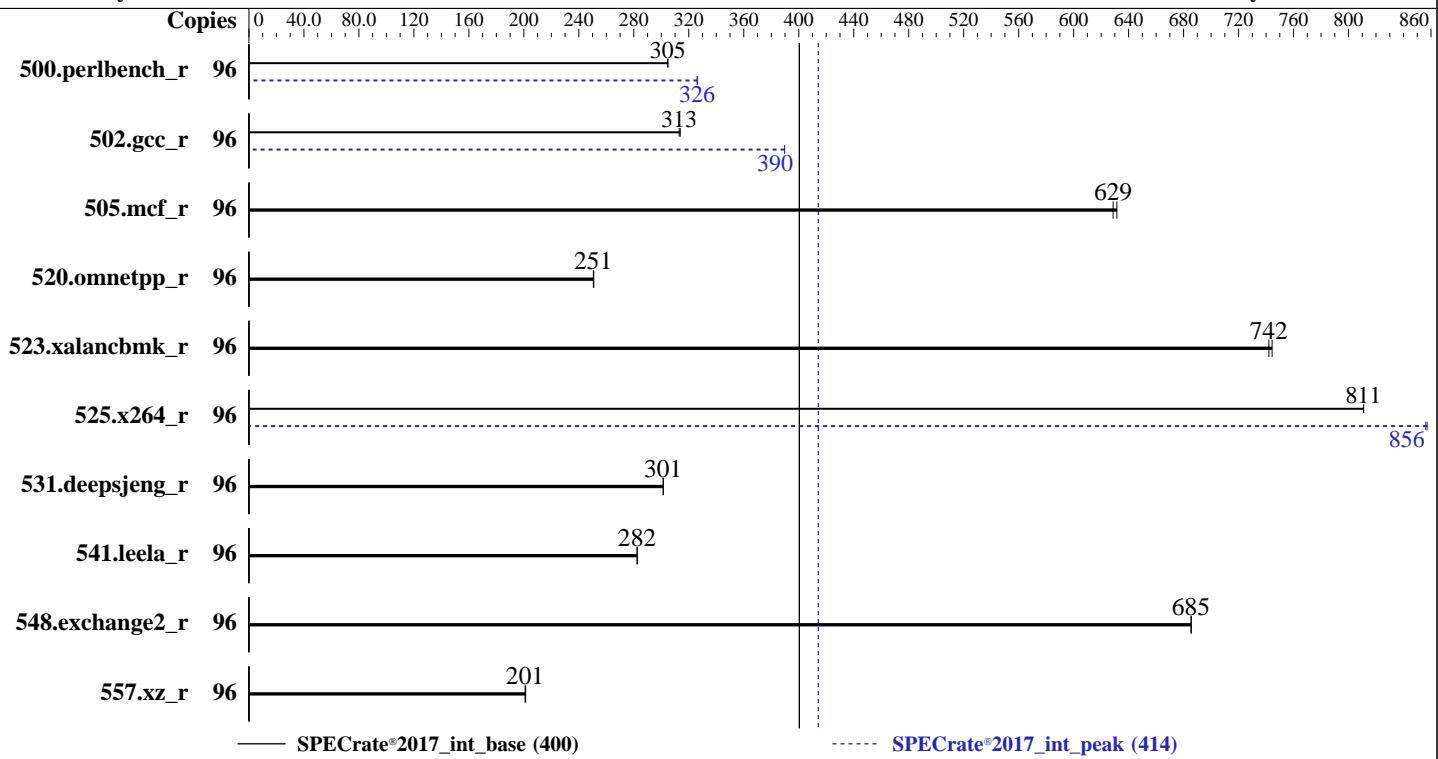$SPECrate^{®}2017\_int\_peak = 414$

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

Test Date: Jan-2023
Hardware Availability: Feb-2023
Software Availability: Jun-2022

Benchmark	Copies	base	peak
500.perlbench_r	96	305	326
502.gcc_r	96	313	390
505.mcf_r	96	629	
520.omnetpp_r	96	251	
523.xalancbmk_r	96	742	
525.x264_r	96	811	856
531.deepsjeng_r	96	301	
541.leela_r	96	282	
548.exchange2_r	96	685	
557.xz_r	96	201	

SPECrate®2017_int_base (400)   SPECrate®2017_int_peak (414)

Hardware

CPU Name: Intel Xeon Platinum 8468V
 Max MHz: 3800
 Nominal: 2400
Enabled: 48 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 97.5 MB I+D on chip per chip
 Other: None
Memory: 512 GB (8 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 125 GB on tmpfs
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP4
 5.14.21-150400.22-default
Compiler: C/C++: Version 2022.1 of Intel oneAPI DPC++/C++
 Compiler for Linux;
 Fortran: Version 2022.1 of Intel Fortran Compiler
 for Linux;
Parallel: No
Firmware: Version 1.0.1 released Dec-2022
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 and OS set to prefer performance
 at the cost of additional power usage.

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	96	501	305	**502**	**305**			96	**469**	**326**	468	326		
502.gcc_r	96	**434**	**313**	433	314			96	349	390	**349**	**390**		
505.mcf_r	96	**247**	**629**	246	631			96	**247**	**629**	246	631		
520.omnetpp_r	96	**503**	**251**	502	251			96	**503**	**251**	502	251		
523.xalancbmk_r	96	**137**	**742**	136	744			96	**137**	**742**	136	744		
525.x264_r	96	**207**	**811**	207	811			96	196	857	**196**	**856**		
531.deepsjeng_r	96	**365**	**301**	365	301			96	**365**	**301**	365	301		
541.leela_r	96	563	282	**563**	**282**			96	563	282	**563**	**282**		
548.exchange2_r	96	**367**	**685**	367	686			96	**367**	**685**	367	686		
557.xz_r	96	**516**	**201**	515	201			96	**516**	**201**	515	201		
SPECrate®2017_int_base =	**400**													
SPECrate®2017_int_peak =	**414**													

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

Compiler Notes

```
SPEC has ruled that the compiler used for this result was performing a compilation
that specifically improves the performance of the 523.xalancbmk_r / 623.xalancbmk_s
benchmarks using a priori knowledge of the SPEC code and dataset to perform a
transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4
https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4), SPEC will no longer
publish results using this optimization.

This result is left in the SPEC results database for historical reference.
```

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-ic2022.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2022.1/lib/ia32:/mnt/ram
     disk/cpu2017-1.1.9-ic2022.1/je5.0.1-32"
MALLOC_CONF = "retain:true"
```

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

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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

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 125 GB ramdisk created with the cmd: "mount -t tmpfs -o size=125G tmpfs /mnt/ramdisk"
```

Platform Notes

```
BIOS settings:
                 ADDDC Setting : Disabled
       DIMM Self Healing on
  Uncorrectable Memory Error : Disabled
  Virtualization Technology : Disabled
             Sub NUMA Cluster : 4-way Clustering
   DCU Streamer Prefetcher : Disabled
                LLC Prefetch : Disabled
        Dead Line LLC Alloc : Disabled
              Optimizer Mode : Enabled

              System Profile : Custom
       CPU Power Management : Maximum Performance
                         C1E : Disabled
                    C States : Autonomous
         Memory Patrol Scrub : Disabled
     Energy Efficiency Policy : Performance
          PCI ASPM L1 Link
            Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-ic2022.1/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Sun Jan 15 23:59:45 2023

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
```

<div align="center">(Continued on next page)</div>

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Platform Notes (Continued)

```
  7. lscpu
  8. numactl --hardware
  9. /proc/meminfo
 10. who -r
 11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
 12. Services, from systemctl list-unit-files
 13. Linux kernel boot-time arguments, from /proc/cmdline
 14. sysctl
 15. /sys/kernel/mm/transparent_hugepage
 16. /sys/kernel/mm/transparent_hugepage/khugepaged
 17. OS release
 18. Disk information
 19. /sys/devices/virtual/dmi/id
 20. dmidecode
 21. BIOS
  ------------------------------------------------------------

  ------------------------------------------------------------
 1. uname -a
   Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)
   x86_64 x86_64 x86_64 GNU/Linux

  ------------------------------------------------------------
 2. w
    23:59:45 up 2 min,  1 user,  load average: 0.53, 0.24, 0.09
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                23:58    1:04   1.01s  0.00s /bin/bash ./dell-norun-specrate.sh
   --iterations 2 --output_format csv,html,pdf,txt --define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc

  ------------------------------------------------------------
 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) 2060208
   max locked memory       (kbytes, -l) 64
   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) 2060208
   virtual memory          (kbytes, -v) unlimited
   file locks                      (-x) unlimited

  ------------------------------------------------------------
 5. sysinfo process ancestry
   /usr/lib/systemd/systemd --switched-root --system --deserialize 29
   login -- root
   -bash
   /bin/bash ./DELL_rate.sh
   /bin/bash ./dell-norun-main.sh rate
   /bin/bash ./dell-norun-main.sh rate
```

(Continued on next page)

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Platform Notes (Continued)

```
  /bin/bash ./dell-norun-specrate.sh --iterations 2 --output_format csv,html,pdf,txt --define
   Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc
  /bin/bash ./dell-norun-specrate.sh --iterations 2 --output_format csv,html,pdf,txt --define
   Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc
  runcpu --nobuild --action validate --define default-platform-flags --define numcopies=96 -c
   ic2022.1-lin-core-avx512-rate-20220316.cfg --define smt-on --define cores=48 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak -o all --iterations 2
   --output_format csv,html,pdf,txt --define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc intrate
  runcpu --nobuild --action validate --define default-platform-flags --define numcopies=96 --configfile
   ic2022.1-lin-core-avx512-rate-20220316.cfg --define smt-on --define cores=48 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --iterations 2
   --output_format csv,html,pdf,txt --define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc --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-ic2022.1


 ------------------------------------------------------------
 6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Platinum 8468V
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 143
    stepping        : 8
    microcode       : 0x2b000161
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
    cpu cores       : 48
    siblings        : 96
    1 physical ids (chips)
    96 processors (hardware threads)
    physical id 0: core ids 0-47
    physical id 0: apicids 0-95
  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 2.37.2:
  Architecture:            x86_64
  CPU op-mode(s):          32-bit, 64-bit
  Address sizes:           46 bits physical, 57 bits virtual
  Byte Order:              Little Endian
  CPU(s):                  96
  On-line CPU(s) list:     0-95
  Vendor ID:               GenuineIntel
  Model name:              Intel(R) Xeon(R) Platinum 8468V
  CPU family:              6
  Model:                   143
  Thread(s) per core:      2
  Core(s) per socket:      48
  Socket(s):               1
  Stepping:                8
  BogoMIPS:                4800.00
  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 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
```

(Continued on next page)

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Platform Notes (Continued)

```
                          abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3 invpcid_single
                          cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bmi1 hle
                          avx2 smep bmi2 erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap
                          avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                          xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                          cqm_mbm_local split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida
                          arat pln pts 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 avx512_fp16 amx_tile flush_l1d arch_capabilities
  L1d cache:              2.3 MiB (48 instances)
  L1i cache:              1.5 MiB (48 instances)
  L2 cache:               96 MiB (48 instances)
  L3 cache:               97.5 MiB (1 instance)
  NUMA node(s):           4
  NUMA node0 CPU(s):      0,2,4,6,8,10,12,14,16,18,20,22,48,50,52,54,56,58,60,62,64,66,68,70
  NUMA node1 CPU(s):      24,26,28,30,32,34,36,38,40,42,44,46,72,74,76,78,80,82,84,86,88,90,92,94
  NUMA node2 CPU(s):      1,3,5,7,9,11,13,15,17,19,21,23,49,51,53,55,57,59,61,63,65,67,69,71
  NUMA node3 CPU(s):      25,27,29,31,33,35,37,39,41,43,45,47,73,75,77,79,81,83,85,87,89,91,93,95
  Vulnerability Itlb multihit:  Not affected
  Vulnerability L1tf:           Not affected
  Vulnerability Mds:            Not affected
  Vulnerability Meltdown:       Not affected
  Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
  Vulnerability Spectre v1:     Mitigation; usercopy/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:     Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
  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     2.3M   12 Data             1     64        1             64
    L1i      32K     1.5M    8 Instruction      1     64        1             64
    L2        2M      96M   16 Unified          2   2048        1             64
    L3     97.5M    97.5M   15 Unified          3 106496        1             64


------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 4 nodes (0-3)
  node 0 cpus: 0,2,4,6,8,10,12,14,16,18,20,22,48,50,52,54,56,58,60,62,64,66,68,70
  node 0 size: 128363 MB
  node 0 free: 120008 MB
  node 1 cpus: 24,26,28,30,32,34,36,38,40,42,44,46,72,74,76,78,80,82,84,86,88,90,92,94
  node 1 size: 129017 MB
  node 1 free: 128649 MB
  node 2 cpus: 1,3,5,7,9,11,13,15,17,19,21,23,49,51,53,55,57,59,61,63,65,67,69,71
  node 2 size: 129017 MB
  node 2 free: 128702 MB
  node 3 cpus: 25,27,29,31,33,35,37,39,41,43,45,47,73,75,77,79,81,83,85,87,89,91,93,95
  node 3 size: 128675 MB
  node 3 free: 128388 MB
  node distances:
  node   0   1   2   3
    0:  10  12  12  12
    1:  12  10  12  12
    2:  12  12  10  12
    3:  12  12  12  10


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

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Platform Notes (Continued)

```
  9. /proc/meminfo
     MemTotal:       527436044 kB


  ----------------------------------------------------------
 10. who -r
    run-level 3 Jan 15 23:57


  ----------------------------------------------------------
 11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
    Default Target  Status
    multi-user      running


  ----------------------------------------------------------
 12. Services, from systemctl list-unit-files
    STATE             UNIT FILES
    enabled           apparmor auditd cron firewalld getty@ haveged irqbalance issue-generator kbdsettings kdump
                      kdump-early lvm2-monitor postfix purge-kernels rollback sshd wicked wickedd-auto4
                      wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
    enabled-runtime   systemd-remount-fs
    disabled          blk-availability boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell
                      ebtables grub2-once haveged-switch-root issue-add-ssh-keys kexec-load lunmask nfs
                      nfs-blkmap rpcbind rpmconfigcheck rsyncd serial-getty@ systemd-boot-check-no-failures
                      systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd
    indirect          wickedd


  ----------------------------------------------------------
 13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
    root=UUID=4068cb7a-41a3-4eea-ab49-bc6f15bea24c
    splash=silent
    mitigations=auto
    quiet
    security=apparmor
    crashkernel=314M,high
    crashkernel=72M,low


  ----------------------------------------------------------
 14. 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


  ----------------------------------------------------------
 15. /sys/kernel/mm/transparent_hugepage
```

(Continued on next page)

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Platform Notes (Continued)

```
  defrag          always defer defer+madvise [madvise] never
  enabled         [always] madvise never
  hpage_pmd_size  2097152
  shmem_enabled   always within_size advise [never] deny force


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


  ----------------------------------------------------------
17. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 15 SP4


  ----------------------------------------------------------
18. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2022.1
  Filesystem      Type   Size  Used Avail Use% Mounted on
  tmpfs           tmpfs  125G  3.7G  122G   3% /mnt/ramdisk


  ----------------------------------------------------------
19. /sys/devices/virtual/dmi/id
    Vendor:         Dell Inc.
    Product:        PowerEdge MX760c
    Product Family: PowerEdge
    Serial:         SL6M701


  ----------------------------------------------------------
20. dmidecode
  Additional information from dmidecode 3.2 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:
    5x 002C00B3002C MTC40F2046S1RC48BA1 64 GB 2 rank 4800
    1x 002C0632002C MTC40F2046S1RC48BA1 64 GB 2 rank 4800
    2x 002C069D002C MTC40F2046S1RC48BA1 64 GB 2 rank 4800



  ----------------------------------------------------------
21. BIOS
(This section combines info from /sys/devices and dmidecode.)
  BIOS Vendor:    Dell Inc.
  BIOS Version:   1.0.1
  BIOS Date:      12/27/2022
  BIOS Revision:  1.0
```

Compiler Version Notes

```
==================================================================================================
C       | 502.gcc_r(peak)
--------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2022.1.0 Build 20220316
```

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Compiler Version Notes (Continued)

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


================================================================================
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 2022.1.0 Build 20220316
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--------------------------------------------------------------------------------


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


================================================================================
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 2022.1.0 Build 20220316
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--------------------------------------------------------------------------------


================================================================================
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 2022.1.0 Build 20220316
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--------------------------------------------------------------------------------


================================================================================
Fortran | 548.exchange2_r(base, peak)
--------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
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--------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge MX760c (Intel Xeon Platinum 8468V)

$SPECrate^{®}2017\_int\_base = 400$

$SPECrate^{®}2017\_int\_peak = 414$

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 -xCORE-AVX512 -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

C++ benchmarks:
```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

Fortran benchmarks:
```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

Peak Compiler Invocation

C benchmarks:
```
icx
```

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

Fortran benchmarks:
```
ifx
```

Dell Inc.

PowerEdge MX760c (Intel Xeon Platinum 8468V)

$SPECrate^{®}2017\_int\_base = 400$

$SPECrate^{®}2017\_int\_peak = 414$

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

Test Date: Jan-2023
Hardware Availability: Feb-2023
Software Availability: Jun-2022

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-AVX512`
`-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fno-strict-overflow`
`-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

502.gcc_r: `-m32`
`-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/ia32_lin`
`-std=gnu89 -Wl,-z,muldefs -fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX512`
`-Ofast -ffast-math -flto -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 -xCORE-AVX512 -Ofast`
`-ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fno-alias`
`-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

557.xz_r: basepeak = yes

C++ benchmarks:

(Continued on next page)

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

SPEC CPU®2017 Integer Rate Result

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Dell Inc.

PowerEdge MX760c (Intel Xeon Platinum 8468V)

SPECrate®2017_int_base = 400

SPECrate®2017_int_peak = 414

CPU2017 License: 6573		**Test Date:**	Jan-2023
Test Sponsor:	Dell Inc.	**Hardware Availability:**	Feb-2023
Tested by:	Dell Inc.	**Software Availability:**	Jun-2022

Peak Optimization Flags (Continued)

520.omnetpp_r: `basepeak = yes`

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-ic2022-official-linux64-revB.html`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.3.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64-revB.xml`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.3.xml`

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

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