



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_int_base = 263

Precision 7960 Rack (Intel Xeon Gold 6430)

SPECrate®2017_int_peak = 271

CPU2017 License: 6573

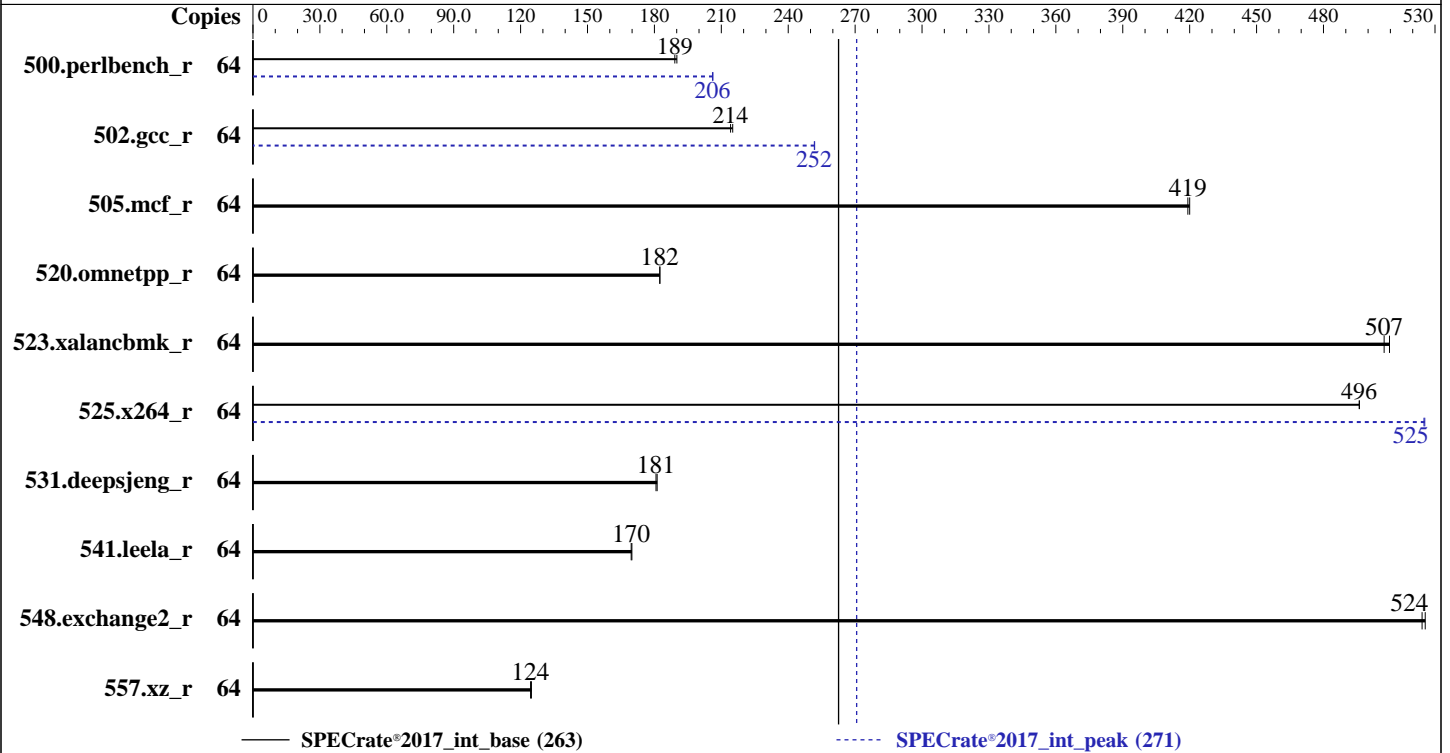
Test Date: Oct-2023

Test Sponsor: Dell Inc.

Hardware Availability: Jul-2023

Tested by: Dell Inc.

Software Availability: Dec-2022



Hardware

CPU Name: Intel Xeon Gold 6430
 Max MHz: 3400
 Nominal: 2100
 Enabled: 32 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: 60 MB I+D on chip per chip
 Other: None
 Memory: 512 GB (8 x 64 GB 2Rx4 PC5-4800B-R, running at 4400)
 Storage: 60 GB on tmpfs
 Other: None

Software

OS: Ubuntu 22.04.2 LTS
 6.2.0-34-generic
 Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux;
 Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;
 Parallel: No
 Firmware: Version 1.5.6 released Jul-2023
 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	64	539	189	536	190			64	494	206	494	206		
502.gcc_r	64	423	214	421	215			64	360	252	360	252		
505.mcf_r	64	247	419	246	420			64	247	419	246	420		
520.omnetpp_r	64	460	182	460	182			64	460	182	460	182		
523.xalancbmk_r	64	133	507	133	510			64	133	507	133	510		
525.x264_r	64	226	496	226	496			64	213	525	213	525		
531.deepsjeng_r	64	406	181	405	181			64	406	181	405	181		
541.leela_r	64	625	170	624	170			64	625	170	624	170		
548.exchange2_r	64	319	526	320	524			64	319	526	320	524		
557.xz_r	64	554	125	555	124			64	554	125	555	124		

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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-ic2023.0/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2023.0/lib/ia32:/mnt/ramdisk/cpu2017-1.1.9-ic2023.0/je5.0.1-32"
MALLOC_CONF = "retain:true"
```



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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 60 GB ramdisk created with the cmd: "mount -t tmpfs -o size=60G tmpfs /mnt/ramdisk"

Platform Notes

BIOS settings:

ADDC Setting : Disabled
 DIMM Self Healing on
 Uncorrectable Memory Error : Disabled

Virtualization Technology : Disabled
 DCU Streamer Prefetcher : Disabled
 Sub NUMA Cluster : 4-way Clustering
 LLC Prefetch : Disabled
 Dead Line LLC Alloc : Disabled
 Optimizer Mode : Enabled

System Profile : Custom
 CPU Power Management : Maximum Performance
 CLE : 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-ic2023.0/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on dell-Precision-7960-Rack Wed Oct 11 10:21:34 2023

SUT (System Under Test) info as seen by some common utilities.

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1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry

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Platform Notes (Continued)

- 6. /proc/cpuinfo
- 7. lscpu
- 8. numactl --hardware
- 9. /proc/meminfo
- 10. who -r
- 11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.7)
- 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 dell-Precision-7960-Rack 6.2.0-34-generic #34~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Thu Sep  7 13:12:03
UTC 2 x86_64 x86_64 x86_64 GNU/Linux
```

```
2. w
10:21:34 up 6 min,  3 users,  load average: 0.18, 0.09, 0.04
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
dell      tty1    -             10:16   33.00s 0.34s  0.02s  -bash
dell      pts/0   -             10:21   23.00s 0.98s  0.16s  sudo ./DELL_rate.sh
```

```
3. Username
From environment variable $USER:  root
From the command 'logname':      dell
```

```
4. ulimit -a
time(seconds)      unlimited
file(blocks)       unlimited
data(kbytes)       unlimited
stack(kbytes)      unlimited
coredump(blocks)   0
memory(kbytes)     unlimited
locked memory(kbytes) 66004516
process            2062343
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
rtprio             0
```

```
5. sysinfo process ancestry
/sbin/init splash
/bin/login -p --
-bash
sudo ./DELL_rate.sh
sudo ./DELL_rate.sh
/bin/bash ./DELL_rate.sh
/bin/bash ./dell-run-main.sh rate
/bin/bash ./dell-run-main.sh rate
```

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Platform Notes (Continued)

```

/bin/bash ./dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define DL-BIOS-LogProc=1
--define DL-BIOS-adddcD=1 --define DL-VERS=v4.8 --output_format html,pdf,txt
/bin/bash ./dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define DL-BIOS-LogProc=1
--define DL-BIOS-adddcD=1 --define DL-VERS=v4.8 --output_format html,pdf,txt
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 -c
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=32 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak -o all --define DL-BIOS-SNC=4
--define DL-LQC=1 --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define DL-BIOS-LogProc=1
--define DL-BIOS-adddcD=1 --define DL-VERS=v4.8 --output_format html,pdf,txt intrate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 --configfile
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=32 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --define
DL-BIOS-SNC=4 --define DL-LQC=1 --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define
DL-BIOS-LogProc=1 --define DL-BIOS-adddcD=1 --define DL-VERS=v4.8 --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-ic2023.0

```

```

6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Gold 6430
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 8
microcode      : 0x2b0004b1
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
cpu cores      : 32
siblings       : 64
1 physical ids (chips)
64 processors (hardware threads)
physical id 0: core ids 0-31
physical id 0: apicids 0-63

```

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):            64
On-line CPU(s) list: 0-63
Vendor ID:         GenuineIntel
Model name:        Intel(R) Xeon(R) Gold 6430
CPU family:        6
Model:             143
Thread(s) per core: 2
Core(s) per socket: 32
Socket(s):         1
Stepping:          8
BogoMIPS:          4200.00
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

```

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Platform Notes (Continued)

dtes64 monitor ds_cpl smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid
dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx
f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2
cdp_l3 invpcid_single cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced
fsgsbase tsc_adjust bml avx2 smep bmi2 erms invpcid cqm rdt_a avx512f
avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd
sha_ni avx512bw avx512vl xsaveopt xsavec xgetbv1 xsavec 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 ibt amx_bf16
avx512_fp16 amx_tile amx_int8 flush_lld arch_capabilities

L1d cache: 1.5 MiB (32 instances)
L1i cache: 1 MiB (32 instances)
L2 cache: 64 MiB (32 instances)
L3 cache: 60 MiB (1 instance)
NUMA node(s): 4
NUMA node0 CPU(s): 0,3,6,16,21,23,25,29,32,35,38,48,53,55,57,61
NUMA node1 CPU(s): 1,4,10,14,20,24,27,31,33,36,42,46,52,56,59,63
NUMA node2 CPU(s): 7,9,13,17,19,22,26,30,39,41,45,49,51,54,58,62
NUMA node3 CPU(s): 2,5,8,11,12,15,18,28,34,37,40,43,44,47,50,60
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 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/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBRBSB-eIBRS
SW sequence
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	1.5M	12	Data	1	64	1	64
L1i	32K	1M	8	Instruction	1	64	1	64
L2	2M	64M	16	Unified	2	2048	1	64
L3	60M	60M	15	Unified	3	65536	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: 0,3,6,16,21,23,25,29,32,35,38,48,53,55,57,61
node 0 size: 128656 MB
node 0 free: 128054 MB
node 1 cpus: 1,4,10,14,20,24,27,31,33,36,42,46,52,56,59,63
node 1 size: 129019 MB
node 1 free: 128461 MB
node 2 cpus: 7,9,13,17,19,22,26,30,39,41,45,49,51,54,58,62
node 2 size: 129019 MB
node 2 free: 128281 MB
node 3 cpus: 2,5,8,11-12,15,18,28,34,37,40,43-44,47,50,60
node 3 size: 128963 MB
node 3 free: 119839 MB

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Platform Notes (Continued)

```
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
```

```
-----
9. /proc/meminfo
   MemTotal:          528036128 kB
```

```
-----
10. who -r
    run-level 3 Oct 11 10:16 last=5
```

```
-----
11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.7)
    Default Target  Status
    graphical      running
```

```
-----
12. Services, from systemctl list-unit-files
    STATE          UNIT FILES
    enabled        ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
                  accounts-daemon anacron apparmor avahi-daemon bluetooth console-setup cron cups
                  cups-browsed dmesg e2scrub_reap getty@ gpu-manager grub-common grub-initrd-fallback
                  irqbalance kerneloops keyboard-setup networkd-dispatcher openvpn power-profiles-daemon
                  rsyslog secureboot-db setvtrgb snapd ssh switcheroo-control systemd-oom systemd-pstore
                  systemd-resolved systemd-timesyncd thermald ua-reboot-cmds ubuntu-advantage udisks2 ufw
                  unattended-upgrades wpa_supplicant
    enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
    disabled        acpid brltty console-getty debug-shell nftables openvpn-client@ openvpn-server@ openvpn@
                  rsync rtkit-daemon serial-getty@ speech-dispatcherd systemd-boot-check-no-failures
                  systemd-network-generator systemd-networkd systemd-networkd-wait-online systemd-sysext
                  systemd-time-wait-sync upower wpa_supplicant-nl80211@ wpa_supplicant-wired@
                  wpa_supplicant@
    generated       apport speech-dispatcher
    indirect        saned@ spice-vdagentd uuidd
    masked          alsa-utils cryptdisks cryptdisks-early hwclock pulseaudio-enable-autospawn rc rcS saned
                  sudo x11-common
```

```
-----
13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-6.2.0-34-generic
    root=UUID=b08addc0-894d-435d-a619-c0fec2d4a2ec
    ro
    quiet
    splash
    vt.handoff=7
```

```
-----
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
```

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Platform Notes (Continued)

```

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
defrag          always defer defer+madvice [madvice] never
enabled        always [madvice] 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 Ubuntu 22.04.2 LTS

```

```

-----
18. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2023.0
Filesystem      Type  Size  Used Avail Use% Mounted on
tmpfs           tmpfs 60G  4.2G  56G   7% /mnt/ramdisk

```

```

-----
19. /sys/devices/virtual/dmi/id
Vendor:         Dell Inc.
Product:        Precision 7960 Rack
Product Family: Precision
Serial:         31LXFZ3

```

```

-----
20. dmidecode
Additional information from dmidecode 3.3 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:
 8x 00AD00B300AD HMC94AEBRA123N 64 GB 2 rank 4800, configured at 4400
24x Not Specified Not Specified

```

21. BIOS

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Platform Notes (Continued)

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: Dell Inc.
BIOS Version: 1.5.6
BIOS Date: 07/29/2023
BIOS Revision: 1.5

Compiler Version Notes

C | 502.gcc_r(peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

C | 502.gcc_r(peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

C++ | 520.omnetpp_r(base, peak) 523.xalancbnk_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 2023.0.0 Build 20221201
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Fortran | 548.exchange2_r(base, peak)

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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SPEC CPU®2017 Integer Rate Result

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Dell Inc.

SPECrate®2017_int_base = 263

Precision 7960 Rack (Intel Xeon Gold 6430)

SPECrate®2017_int_peak = 271

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Oct-2023

Hardware Availability: Jul-2023

Software Availability: Dec-2022

Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```



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Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

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.profddata(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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmallocc

502.gcc_r: -m32
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/ia32_lin
-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(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

```

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Peak Optimization Flags (Continued)

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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmallocc
```

557.xz_r: basepeak = yes

C++ benchmarks:

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-ic2023-official-linux64_revB.2023-10-11.html

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.6.html>

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64_revB.2023-10-11.xml

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.6.xml>

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