



# SPEC CPU®2017 Integer Rate Result

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Dell Inc.

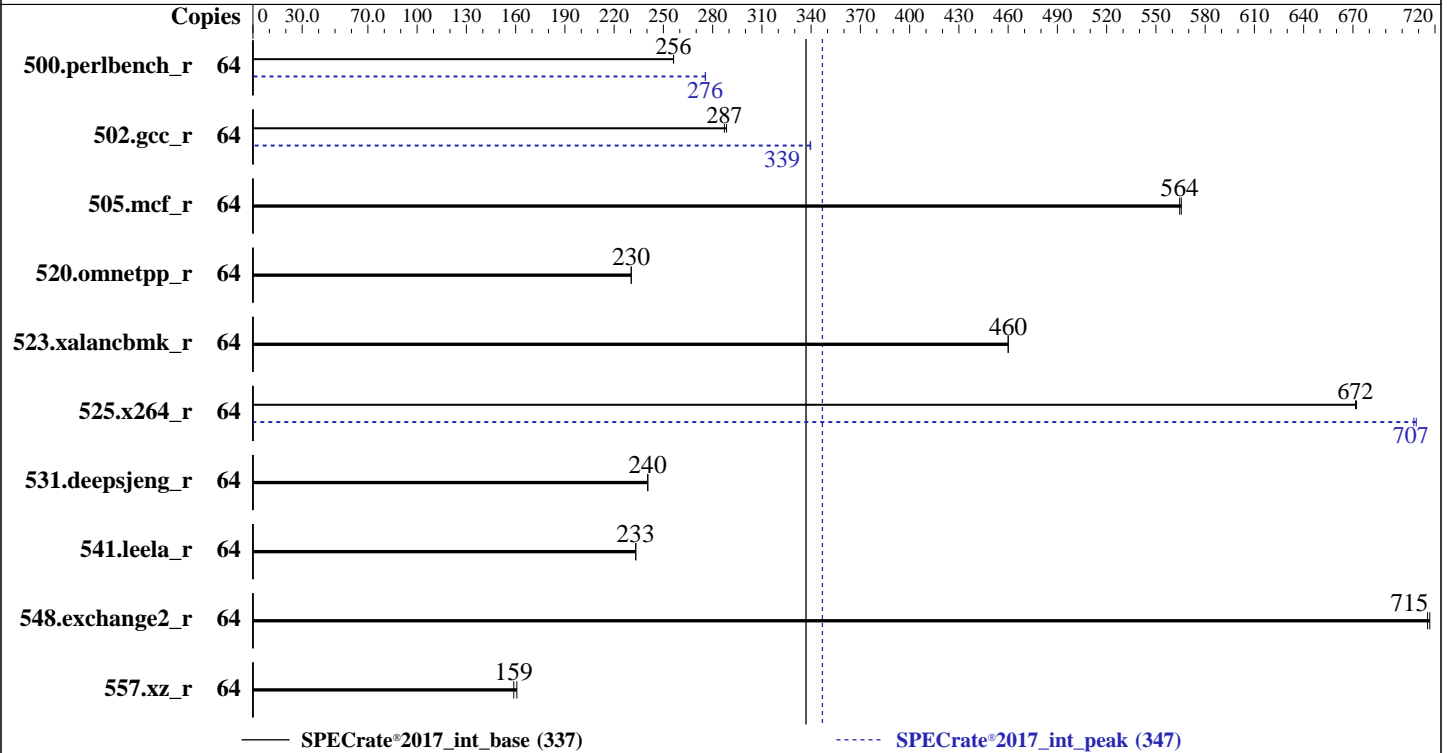
SPECrate®2017\_int\_base = 337

PowerEdge R660 (Intel Xeon Gold 6526Y)

SPECrate®2017\_int\_peak = 347

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

Test Date: Jan-2024  
Hardware Availability: Feb-2024  
Software Availability: Dec-2023



### Hardware

CPU Name: Intel Xeon Gold 6526Y  
Max MHz: 3900  
Nominal: 2800  
Enabled: 32 cores, 2 chips, 2 threads/core  
Orderable: 1,2 chips  
Cache L1: 32 KB I + 48 KB D on chip per core  
L2: 2 MB I+D on chip per core  
L3: 37.5 MB I+D on chip per chip  
Other: None  
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-5600B-R, running at 5200)  
Storage: 60 GB on tmpfs  
Other: Cooling: DLC

### Software

OS: SUSE Linux Enterprise Server 15 SP5  
5.14.21-150500.53-default  
Compiler: C/C++: Version 2023.2.3 of Intel oneAPI DPC++/C++ Compiler for Linux;  
Fortran: Version 2023.2.3 of Intel Fortran Compiler for Linux;  
Parallel: No  
Firmware: Version 1.9.12 released Nov-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	398	256	<b><u>398</u></b>	<b><u>256</u></b>			64	370	276	<b><u>370</u></b>	<b><u>276</u></b>		
502.gcc_r	64	314	288	<b><u>316</u></b>	<b><u>287</u></b>			64	<b><u>267</u></b>	<b><u>339</u></b>	267	340		
505.mcf_r	64	183	565	<b><u>183</u></b>	<b><u>564</u></b>			64	183	565	<b><u>183</u></b>	<b><u>564</u></b>		
520.omnetpp_r	64	364	230	<b><u>364</u></b>	<b><u>230</u></b>			64	364	230	<b><u>364</u></b>	<b><u>230</u></b>		
523.xalancbmk_r	64	147	460	<b><u>147</u></b>	<b><u>460</u></b>			64	147	460	<b><u>147</u></b>	<b><u>460</u></b>		
525.x264_r	64	167	672	<b><u>167</u></b>	<b><u>672</u></b>			64	<b><u>158</u></b>	<b><u>707</u></b>	158	709		
531.deepsjeng_r	64	305	241	<b><u>305</u></b>	<b><u>240</u></b>			64	305	241	<b><u>305</u></b>	<b><u>240</u></b>		
541.leela_r	64	454	233	<b><u>455</u></b>	<b><u>233</u></b>			64	454	233	<b><u>455</u></b>	<b><u>233</u></b>		
548.exchange2_r	64	<b><u>234</u></b>	<b><u>715</u></b>	234	717			64	<b><u>234</u></b>	<b><u>715</u></b>	234	717		
557.xz_r	64	430	161	<b><u>435</u></b>	<b><u>159</u></b>			64	430	161	<b><u>435</u></b>	<b><u>159</u></b>		

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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-ic2023.2.3/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2023.2.3/lib/ia32:/mnt/ramdisk/cpu2017-1.1.9-ic2023.2.3/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>

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

## Platform Notes

BIOS settings:

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

Virtualization Technology : Disabled  
 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-ic2023.2.3/bin/sysinfo  
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
 running on localhost Thu Jan 4 16:41:36 2024

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 249 (249.16+suse.171.gdad0071f15)
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
18. OS release

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## Platform Notes (Continued)

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

```
-----
1. uname -a
Linux localhost 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)
x86_64 x86_64 x86_64 GNU/Linux
-----
```

```
-----
2. w
16:41:36 up 2:03, 1 user, load average: 0.11, 0.04, 0.01
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
root      tty1    -             16:40   55.00s 0.88s  0.00s /bin/bash ./dell-run-speccpu.sh rate
--define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-LogProc=1 --define DL-BIOS-adddcD=1 --define
DL-VERS=v4.8.6 --output_format html,pdf,txt --define DL-LQC=1
-----
```

```
-----
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) 4126170
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) 4126170
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
-----
```

```
-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
login -- root
-bash
/bin/bash ./DELL_rate.sh
/bin/bash ./dell-run-main.sh rate
/bin/bash ./dell-run-main.sh rate
/bin/bash ./dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-LogProc=1
--define DL-BIOS-adddcD=1 --define DL-VERS=v4.8.6 --output_format html,pdf,txt --define DL-LQC=1
/bin/bash ./dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-LogProc=1
--define DL-BIOS-adddcD=1 --define DL-VERS=v4.8.6 --output_format html,pdf,txt --define DL-LQC=1
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 -c
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=32 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak -o all --iterations 2 --define
DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-LogProc=1 --define DL-BIOS-adddcD=1 --define
DL-VERS=v4.8.6 --output_format html,pdf,txt --define DL-LQC=1 intrate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 --configfile
-----
```

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## Platform Notes (Continued)

```
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=32 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --iterations 2
--define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-LogProc=1 --define DL-BIOS-addcd=1 --define
DL-VERS=v4.8.6 --output_format html,pdf,txt --define DL-LQC=1 --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-ic2023.2.3
```

```
-----
6. /proc/cpuinfo
model name      : INTEL(R) XEON(R) GOLD 6526Y
vendor_id      : GenuineIntel
cpu family      : 6
model           : 207
stepping        : 2
microcode       : 0x210001b0
bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
cpu cores       : 16
siblings        : 32
2 physical ids (chips)
64 processors (hardware threads)
physical id 0:  core ids 0-15
physical id 1:  core ids 0-15
physical id 0:  apicids 0-31
physical id 1:  apicids 128-159
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 2.37.4:
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 6526Y
CPU family:            6
Model:                 207
Thread(s) per core:    2
Core(s) per socket:    16
Socket(s):             2
Stepping:              2
BogoMIPS:              5600.00
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
                        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 avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts hfi
```

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## Platform Notes (Continued)

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\_llid arch\_capabilities

L1d cache: 1.5 MiB (32 instances)  
L1i cache: 1 MiB (32 instances)  
L2 cache: 64 MiB (32 instances)  
L3 cache: 75 MiB (2 instances)  
NUMA node(s): 2  
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  
NUMA node1 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  
Vulnerability Itlb multihit: Not affected  
Vulnerability Lltf: Not affected  
Vulnerability MDS: Not affected  
Vulnerability Meltdown: Not affected  
Vulnerability Mmio stale data: Not affected  
Vulnerability Retbleed: Not affected  
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp  
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and \_\_user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBRSE-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	37.5M	75M	15	Unified	3	40960	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: 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62  
node 0 size: 515505 MB  
node 0 free: 514769 MB  
node 1 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  
node 1 size: 516066 MB  
node 1 free: 506791 MB  
node distances:  
node 0 1  
0: 10 21  
1: 21 10

9. /proc/meminfo

MemTotal: 1056330388 kB

10. who -r

run-level 3 Jan 4 14:38

11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)

Default Target Status  
multi-user running

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## Platform Notes (Continued)

-----  
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 nvme-fc-boot-connections 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 chrynyd console-getty cups cups-browsed debug-shell ebtables exchange-bmc-os-info gpm grub2-once haveged haveged-switch-root ipmi ipmievd issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap nvme-fc-autoconnect rpcbind rpmconfigcheck rsyncd serial-getty@ smartd-generate_opts snmpd snmptrapd systemd-boot-check-no-failures systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd vncserver@
indirect	wickedd

-----  
13. Linux kernel boot-time arguments, from `/proc/cmdline`

```

BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
root=UUID=2256bbe7-6a43-48d2-b3c7-349b7f589270
splash=silent
mitigations=auto
quiet
security=apparmor

```

-----  
14. `cpupower frequency-info`

```

analyzing CPU 0:
  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+madvice [madvice] never

```

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## Platform Notes (Continued)

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 SP5

-----  
19. Disk information  
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2023.2.3  
Filesystem Type Size Used Avail Use% Mounted on  
tmpfs tmpfs 60G 4.1G 56G 7% /mnt/ramdisk

-----  
20. /sys/devices/virtual/dmi/id  
Vendor: Dell Inc.  
Product: PowerEdge R660  
Product Family: PowerEdge  
Serial: SLR6602

-----  
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 002C0632002C MTC40F2046S1RC56BG1 64 GB 2 rank 5600, configured at 5200  
14x 00AD063200AD HMC94AGBRA181N 64 GB 2 rank 5600, configured at 5200

-----  
22. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: Dell Inc.  
BIOS Version: 1.9.12  
BIOS Date: 11/10/2023  
BIOS Revision: 1.9

## Compiler Version Notes

=====  
C | 502.gcc\_r(peak)

-----  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.2.3 Build x  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.  
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## Compiler Version Notes (Continued)

=====  
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 2023.2.3 Build x  
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=====  
C | 502.gcc\_r(peak)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.2.3 Build x  
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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 2023.2.3 Build x  
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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 2023.2.3 Build x  
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=====  
Fortran | 548.exchange2\_r(base, peak)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x  
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## Base Compiler Invocation

C benchmarks:  
icx

C++ benchmarks:  
icpx

Fortran benchmarks:  
ifx



# SPEC CPU®2017 Integer Rate Result

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Dell Inc.

SPECrate®2017\_int\_base = 337

PowerEdge R660 (Intel Xeon Gold 6526Y)

SPECrate®2017\_int\_peak = 347

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023

## 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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmallo
```

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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmallo
```

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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmallo
```

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx



# SPEC CPU®2017 Integer Rate Result

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Dell Inc.

SPECrate®2017\_int\_base = 337

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SPECrate®2017\_int\_peak = 347

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023

## 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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc

502.gcc_r: -m32
-L/home/specdev/new_compilers/ic2023.2.3/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

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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc

557.xz_r: basepeak = yes

```

C++ benchmarks:

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

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Tested by: Dell Inc.

Test Date: Jan-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023

## 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-ic2023p2-official-linux64.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-ic2023p2-official-linux64.xml>

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

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