



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 12.5

PowerEdge XE9640 (Intel Xeon Platinum 8452Y)

SPECspeed®2017_int_peak = 12.7

CPU2017 License: 6573

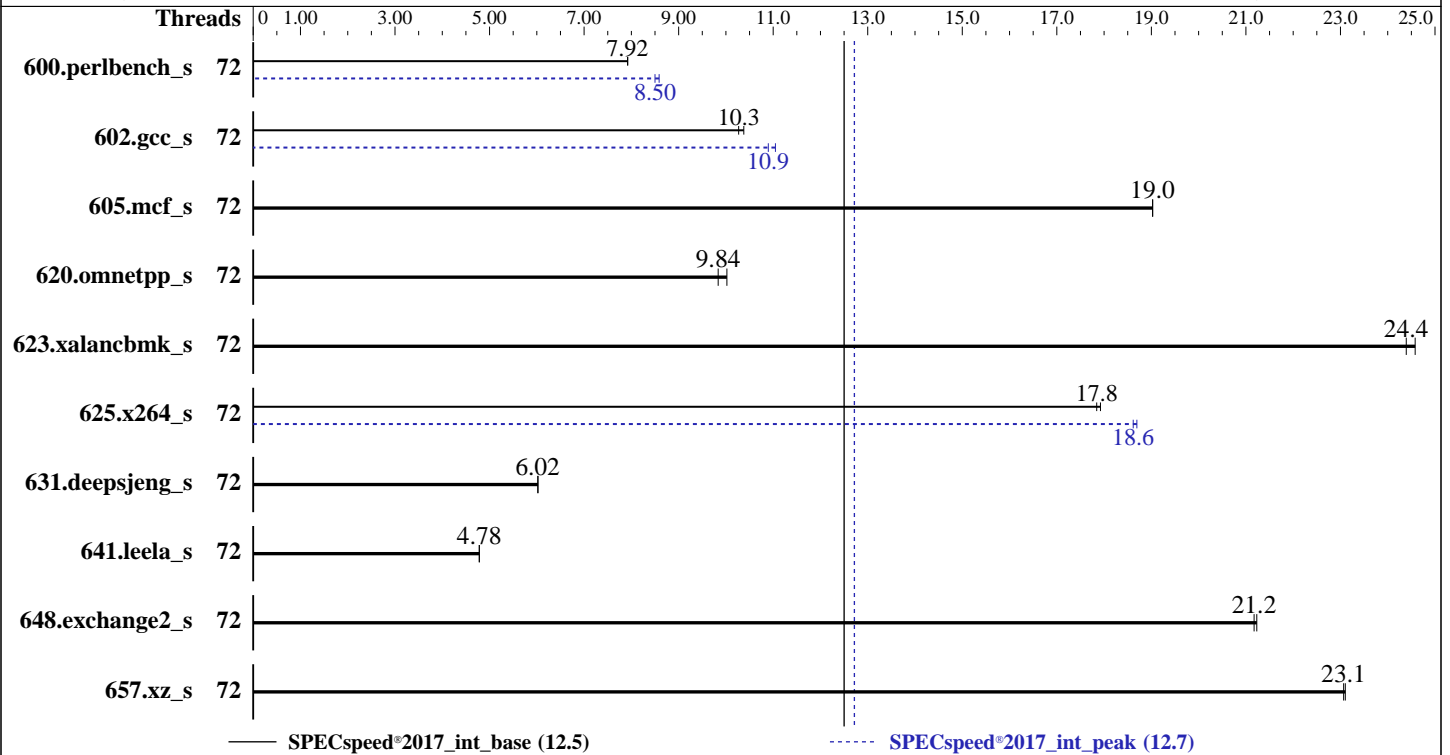
Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jun-2023

Hardware Availability: Sep-2023

Software Availability: Dec-2022



Hardware

CPU Name: Intel Xeon Platinum 8452Y
 Max MHz: 3200
 Nominal: 2000
 Enabled: 72 cores, 2 chips
 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: 67.5 MB I+D on chip per chip
 Other: None
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
 Storage: 60 GB on tmpfs
 Other: None

Software

OS: Red Hat Enterprise Linux 9.0 (Plow)
 5.14.0-70.13.1.el9_0.x86_64
 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: Yes
 Firmware: Version 0.5.35 released Jun-2023
 File System: tmpfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: jemalloc memory allocator V5.0.1
 Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.



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Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	72	224	7.92	224	7.92			72	207	8.59	209	8.50		
602.gcc_s	72	388	10.3	384	10.4			72	360	11.0	365	10.9		
605.mcf_s	72	248	19.0	248	19.0			72	248	19.0	248	19.0		
620.omnetpp_s	72	166	9.84	163	10.0			72	166	9.84	163	10.0		
623.xalancbmk_s	72	58.1	24.4	57.6	24.6			72	58.1	24.4	57.6	24.6		
625.x264_s	72	98.9	17.8	98.4	17.9			72	94.8	18.6	94.4	18.7		
631.deepsjeng_s	72	238	6.03	238	6.02			72	238	6.03	238	6.02		
641.leela_s	72	357	4.78	357	4.78			72	357	4.78	357	4.78		
648.exchange2_s	72	138	21.2	139	21.2			72	138	21.2	139	21.2		
657.xz_s	72	268	23.1	268	23.1			72	268	23.1	268	23.1		

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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.

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:

KMP_AFFINITY = "granularity=fine,scatter"

LD_LIBRARY_PATH =

"/mnt/ramdisk/cpu2017-1.1.9-ic2023.0/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2023.0/je5.0.1-64"

MALLOC_CONF = "retain:true"

OMP_STACKSIZE = "192M"

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Redhat Enterprise Linux 8.0
Transparent Huge Pages enabled by default

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General Notes (Continued)

Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3> /proc/sys/vm/drop_caches
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
Logical Processor : Disabled
Virtualization Technology : Disabled
Sub NUMA Cluster : 2-way Clustering
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-ic2023.0/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Tue Jun 13 16:31:49 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
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 250 (250-6.el9_0)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline

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Platform Notes (Continued)

```

14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent_hugepage
17. /sys/kernel/mm/transparent_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
21. dmidecode
22. BIOS

```

```

-----
1. uname -a
Linux localhost.localdomain 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
x86_64 x86_64 GNU/Linux

```

```

-----
2. w
16:31:49 up 15 min, 1 user, load average: 0.61, 21.19, 22.24
USER      TTY      LOGIN@  IDLE   JCPU   PCPU   WHAT
root      ttyl    16:17   29.00s  1.11s  0.00s  /bin/bash ./dell-run-speccpu.sh speed --define
DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define DL-BIOS-LogProcD=1 --define DL-BIOS-adddcD=1 --define
DL-BIOS-VirtD=1 --define DL-BIOS-SNC=2 --define DL-VERS=v4.6 --define DL-LQC=1 --output_format html,pdf,txt

```

```

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

```

```

-----
4. ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size (blocks, -c) 0
data seg size (kbytes, -d) unlimited
scheduling priority (-e) 0
file size (blocks, -f) unlimited
pending signals (-i) 4124034
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) 4124034
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
login -- root
-bash
/bin/bash ./DELL_speed.sh
/bin/bash ./dell-run-main.sh speed
/bin/bash ./dell-run-main.sh speed
/bin/bash ./dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define DL-BIOS-LogProcD=1
--define DL-BIOS-adddcD=1 --define DL-BIOS-VirtD=1 --define DL-BIOS-SNC=2 --define DL-VERS=v4.6 --define
DL-LQC=1 --output_format html,pdf,txt
/bin/bash ./dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define DL-BIOS-LogProcD=1

```

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Platform Notes (Continued)

```
--define DL-BIOS-addcd=1 --define DL-BIOS-VirtD=1 --define DL-BIOS-SNC=2 --define DL-VERS=v4.6 --define
DL-LQC=1 --output_format html,pdf,txt
runcpu --nobuild --action validate --define default-platform-flags -c
ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=72 --tune base,peak -o all --define
intspeedaffinity --define drop_caches --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define
DL-BIOS-LogProcD=1 --define DL-BIOS-addcd=1 --define DL-BIOS-VirtD=1 --define DL-BIOS-SNC=2 --define
DL-VERS=v4.6 --define DL-LQC=1 --output_format html,pdf,txt intspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=72 --tune base,peak --output_format all
--define intspeedaffinity --define drop_caches --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc
--define DL-BIOS-LogProcD=1 --define DL-BIOS-addcd=1 --define DL-BIOS-VirtD=1 --define DL-BIOS-SNC=2
--define DL-VERS=v4.6 --define DL-LQC=1 --output_format html,pdf,txt --nopower --runmode speed --tune
base:peak --size refspeed intspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/temlogs/preenv.intspeed.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) Platinum 8452Y
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 8
microcode      : 0x2b0004b1
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores      : 36
siblings       : 36
2 physical ids (chips)
72 processors (hardware threads)
physical id 0: core ids 0-35
physical id 1: core ids 0-35
physical id 0: apicids
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70
physical id 1: apicids
128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,1
80,182,184,186,188,190,192,194,196,198
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:     52 bits physical, 57 bits virtual
Byte Order:       Little Endian
CPU(s):           72
On-line CPU(s) list: 0-71
Vendor ID:        GenuineIntel
BIOS Vendor ID:   Intel
Model name:       Intel(R) Xeon(R) Platinum 8452Y
BIOS Model name:  Intel(R) Xeon(R) Platinum 8452Y
CPU family:       6
Model:            143
Thread(s) per core: 1
Core(s) per socket: 36
Socket(s):        2
Stepping:         8
```

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Platform Notes (Continued)

```

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 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
                  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 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_lld arch_capabilities

L1d cache:        3.4 MiB (72 instances)
L1i cache:        2.3 MiB (72 instances)
L2 cache:         144 MiB (72 instances)
L3 cache:         135 MiB (2 instances)
NUMA node(s):     4
NUMA node0 CPU(s): 0,2,6,10,14,16,20,22,26,32,38,44,46,48,52,56,64,68
NUMA node1 CPU(s): 4,8,12,18,24,28,30,34,36,40,42,50,54,58,60,62,66,70
NUMA node2 CPU(s): 1,5,11,15,19,23,27,29,31,37,41,43,47,51,55,57,67,69
NUMA node3 CPU(s): 3,7,9,13,17,21,25,33,35,39,45,49,53,59,61,63,65,71
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
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      3.4M   12 Data              1    64      1             64
L1i   32K      2.3M    8 Instruction         1    64      1             64
L2    2M      144M   16 Unified            2  2048     1             64
L3   67.5M   135M   15 Unified            3  73728     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: 0,2,6,10,14,16,20,22,26,32,38,44,46,48,52,56,64,68
node 0 size: 256984 MB
node 0 free: 247424 MB
node 1 cpus: 4,8,12,18,24,28,30,34,36,40,42,50,54,58,60,62,66,70
node 1 size: 258007 MB
node 1 free: 257699 MB
node 2 cpus: 1,5,11,15,19,23,27,29,31,37,41,43,47,51,55,57,67,69
node 2 size: 258043 MB
node 2 free: 257723 MB
node 3 cpus: 3,7,9,13,17,21,25,33,35,39,45,49,53,59,61,63,65,71
node 3 size: 258033 MB
node 3 free: 257738 MB
node distances:

```

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Platform Notes (Continued)

node	0	1	2	3
0:	10	12	21	21
1:	12	10	21	21
2:	21	21	10	12
3:	21	21	12	10

```
-----
9. /proc/meminfo
   MemTotal:      1055814788 kB
-----
```

```
-----
10. who -r
    run-level 3 Jun 13 16:16
-----
```

```
-----
11. Systemd service manager version: systemd 250 (250-6.el9_0)
    Default Target Status
    multi-user      running
-----
```

```
-----
12. Services, from systemctl list-unit-files
STATE                               UNIT FILES
enabled                             ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
accounts-daemon atd auditd avahi-daemon bluetooth chronyd crond cups dbus-broker firewalld
gdm getty@ insights-client-boot irqbalance iscsi iscsi-onboot kdump libstoragemgmt
low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd nis-domainname
nvme-fc-boot-connections ostree-remount power-profiles-daemon qemu-guest-agent rhsmcertd
rsyslog rtkit-daemon selinux-autorelabel-mark smartd sshd sssd switcheroo-control
systemd-network-generator udisks2 upower vgauthd vmtoolsd

enabled-runtime                     systemd-remount-fs
disabled                             arp-ethers blk-availability brltty canberra-system-bootup canberra-system-shutdown
canberra-system-shutdown-reboot chrony-wait cni-dhcp console-getty cpupower cups-browsed
dbus-daemon debug-shell dnsmasq iprump iprprint iprupdate iscsid iscsiui kpatch kvm_stat
ledmon man-db-restart-cache-update nftables nvme-autoconnect podman podman-auto-update
podman-restart psacct ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts rpmbd-rebuild
serial-getty@ speech-dispatcherd sshd-keygen@ systemd-boot-check-no-failures
systemd-pstore systemd-sysextr wpa_supplicant

indirect                             spice-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo
-----
```

```
-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.el9_0.x86_64
root=/dev/mapper/rhel-root
ro
crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap
rhgb
quiet
-----
```

```
-----
14. cpupower frequency-info
    analyzing CPU 0:
    Unable to determine current policy
    boost state support:
    Supported: yes
    Active: yes
-----
```

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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
enabled     [always] madvice 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      Red Hat Enterprise Linux 9.0 (Plow)
redhat-release Red Hat Enterprise Linux release 9.0 (Plow)
system-release Red Hat Enterprise Linux release 9.0 (Plow)

```

19. 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

```

20. /sys/devices/virtual/dmi/id

```

Vendor:      Dell Inc.
Product:     PowerEdge XE9640
Product Family: PowerEdge
Serial:      MS01513

```

21. dmidecode

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Software Availability: Dec-2022

Platform Notes (Continued)

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:
14x 00AD063200AD HMC94MEBRA109N 64 GB 2 rank 4800
2x 00CE00B300CE M321R8GA0BB0-CQKEG 64 GB 2 rank 4800

22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: Dell Inc.
BIOS Version: 0.5.35
BIOS Date: 06/12/2023
BIOS Revision: 0.5

Compiler Version Notes

=====
C | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak)
657.xz_s(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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=====
C++ | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)
641.leela_s(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 | 648.exchange2_s(base, peak)

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 12.5

PowerEdge XE9640 (Intel Xeon Platinum 8452Y)

SPECspeed®2017_int_peak = 12.7

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

Test Date: Jun-2023
Hardware Availability: Sep-2023
Software Availability: Dec-2022

Base Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:

-m64 -std=c++14 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:

-m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx



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PowerEdge XE9640 (Intel Xeon Platinum 8452Y)

SPECspeed®2017_int_peak = 12.7

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jun-2023

Hardware Availability: Sep-2023

Software Availability: Dec-2022

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fiopenmp -DSPEC_OPENMP -fno-strict-overflow
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

```
602.gcc_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fiopenmp -DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

605.mcf_s: basepeak = yes

```
625.x264_s: -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

657.xz_s: basepeak = yes

C++ benchmarks:

620.omnetpp_s: basepeak = yes

623.xalancbmk_s: basepeak = yes

631.deepsjeng_s: basepeak = yes

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes



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Test Date: Jun-2023

Hardware Availability: Sep-2023

Software Availability: Dec-2022

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.5.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.5.xml>

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