SPEC CPU®2017 Integer Speed Result

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Dell Inc.

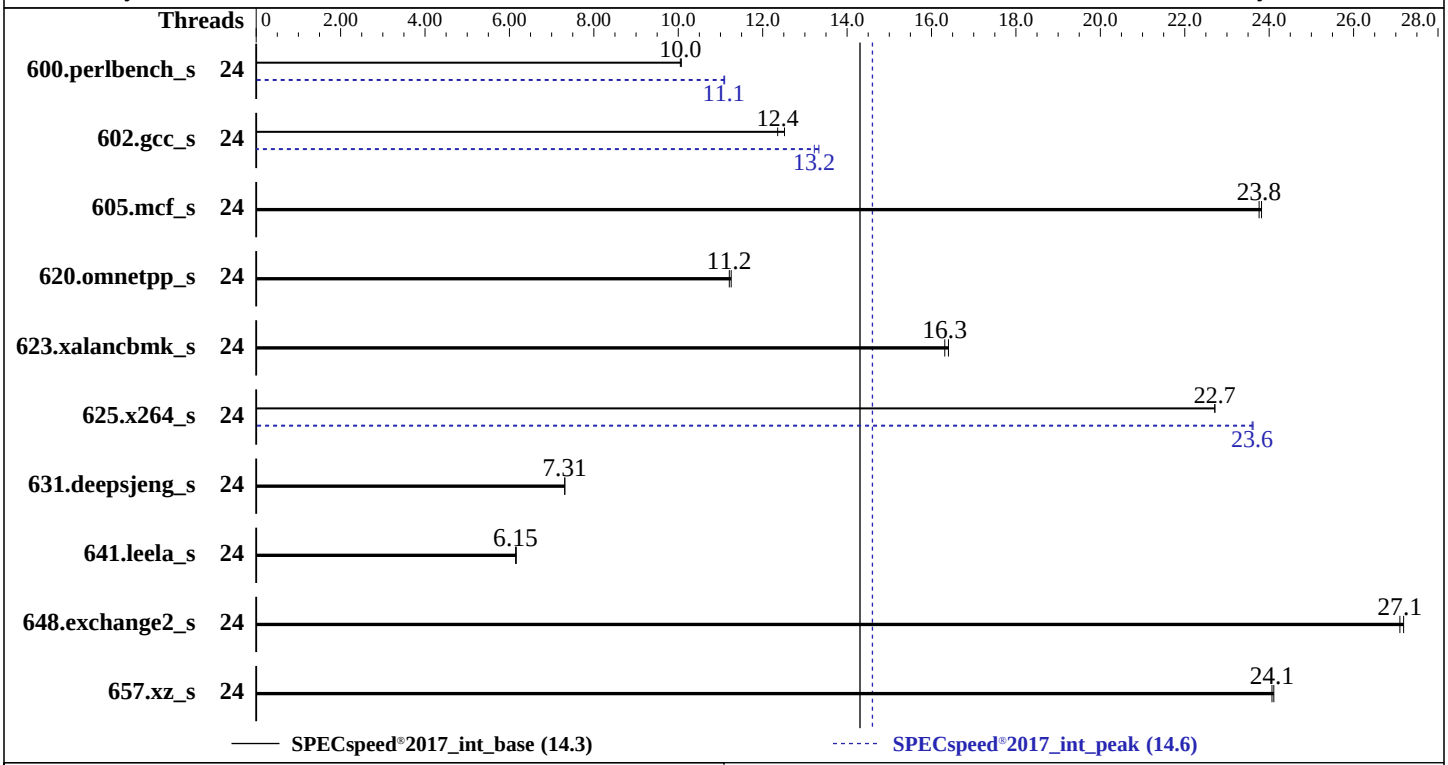
PowerEdge XR7620 (Intel Xeon Silver 4510)

SPECspeed®2017_int_base = 14.3

SPECspeed®2017_int_peak = 14.6

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

Test Date: Apr-2024
Hardware Availability: Jun-2024
Software Availability: Dec-2023



Hardware

CPU Name:	Intel Xeon Silver 4510
Max MHz:	4100
Nominal:	2400
Enabled:	24 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:	30 MB I+D on chip per chip
Other:	None
Memory:	1 TB (16 x 64 GB 2Rx4 PC5-5600B-R, running at 4400)
Storage:	40 GB on tmpfs
Other:	CPU Cooling: Air

Software

OS:	SUSE Linux Enterprise Server 15 SP5 5.14.21-150500.53-default
Compiler:	C/C++: Version 2024.0.2 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2024.0.2 of Intel Fortran Compiler for Linux;
Parallel:	Yes
Firmware:	Version 1.9.3 released Mar-2024
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	24	**177**	**10.0**	176	10.1			24	**160**	**11.1**	160	11.1		
602.gcc_s	24	318	12.5	**322**	**12.4**			24	**301**	**13.2**	299	13.3		
605.mcf_s	24	**199**	**23.8**	198	23.8			24	**199**	**23.8**	198	23.8		
620.omnetpp_s	24	145	11.3	**146**	**11.2**			24	145	11.3	**146**	**11.2**		
623.xalancbmk_s	24	**86.9**	**16.3**	86.4	16.4			24	**86.9**	**16.3**	86.4	16.4		
625.x264_s	24	**77.7**	**22.7**	77.7	22.7			24	**74.8**	**23.6**	74.7	23.6		
631.deepsjeng_s	24	196	7.31	**196**	**7.31**			24	196	7.31	**196**	**7.31**		
641.leela_s	24	277	6.16	**278**	**6.15**			24	277	6.16	**278**	**6.15**		
648.exchange2_s	24	**108**	**27.1**	108	27.2			24	**108**	**27.1**	108	27.2		
657.xz_s	24	256	24.1	**257**	**24.1**			24	256	24.1	**257**	**24.1**		

SPECspeed®2017_int_base = 14.3

SPECspeed®2017_int_peak = 14.6

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

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-ic2024.0.2/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2024.0.2/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
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 40 GB ramdisk created with the cmd: "mount -t tmpfs -o size=40G tmpfs /mnt/ramdisk"
```

Platform Notes

```
BIOS settings:
                  ADDDC Setting : Disabled
         DIMM Self Healing on
     Uncorrectable Memory Error : Disabled

              Logical Processor : Disabled
      Virtualization Technology : Disabled
        DCU Streamer Prefetcher : Disabled

                 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-ic2024.0.2/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Wed Apr 17 05:58:30 2024

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
 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
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
   05:58:30 up 0 min,  1 user,  load average: 0.19, 0.06, 0.02
```

(Continued on next page)

Platform Notes (Continued)

```
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                05:58   22.00s  1.20s  0.00s /bin/bash
  /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define
  DL-BIOS-adddcD=1 --define DL-VERS=5.1 --output_format html,pdf,txt

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

------------------------------------------------------------
4. ulimit -a
  core file size          (blocks, -c) unlimited
  data seg size           (kbytes, -d) unlimited
  scheduling priority             (-e) 0
  file size               (blocks, -f) unlimited
  pending signals                 (-i) 4126261
  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) 4126261
  virtual memory          (kbytes, -v) unlimited
  file locks                      (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd linux --switched-root --system --deserialize 30
 login -- root
 -bash
 /bin/bash ./DELL_speed.sh
 /bin/bash /home/DellFiles/bin/dell-run-main.sh speed
 /bin/bash /home/DellFiles/bin/dell-run-main.sh speed
 /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc
   --define DL-BIOS-adddcD=1 --define DL-VERS=5.1 --output_format html,pdf,txt
 /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc
   --define DL-BIOS-adddcD=1 --define DL-VERS=5.1 --output_format html,pdf,txt
 runcpu --nobuild --action validate --define default-platform-flags -c
   ic2024.0.2-lin-sapphirerapids-speed-20231213.cfg --define cores=24 --tune base,peak -o all --define
   intspeedaffinity --define drop_caches --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define
   DL-BIOS-adddcD=1 --define DL-VERS=5.1 --output_format html,pdf,txt intspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2024.0.2-lin-sapphirerapids-speed-20231213.cfg --define cores=24 --tune base,peak --output_format all
   --define intspeedaffinity --define drop_caches --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc
   --define DL-BIOS-adddcD=1 --define DL-VERS=5.1 --output_format html,pdf,txt --nopower --runmode speed
   --tune base:peak --size refspeed intspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.001/templogs/preenv.intspeed.001.0.log --lognum 001.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu2017-1.1.9-ic2024.0.2

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : INTEL(R) XEON(R) SILVER 4510
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 143
    stepping        : 8
```

(Continued on next page)

Platform Notes (Continued)

```
     microcode       : 0x2b0005c0
     bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
     cpu cores       : 12
     siblings        : 12
     2 physical ids (chips)
     24 processors (hardware threads)
     physical id 0: core ids 0-11
     physical id 1: core ids 0-11
     physical id 0: apicids 0,2,4,6,8,10,12,14,16,18,20,22
     physical id 1: apicids 64,66,68,70,72,74,76,78,80,82,84,86
   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):                          24
   On-line CPU(s) list:             0-23
   Vendor ID:                       GenuineIntel
   Model name:                      INTEL(R) XEON(R) SILVER 4510
   CPU family:                      6
   Model:                           143
   Thread(s) per core:              1
   Core(s) per socket:              12
   Socket(s):                       2
   Stepping:                        8
   CPU max MHz:                     4100.0000
   CPU min MHz:                     800.0000
   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
                                    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:                       1.1 MiB (24 instances)
   L1i cache:                       768 KiB (24 instances)
   L2 cache:                        48 MiB (24 instances)
   L3 cache:                        60 MiB (2 instances)
   NUMA node(s):                    2
   NUMA node0 CPU(s):               0,2,4,6,8,10,12,14,16,18,20,22
   NUMA node1 CPU(s):               1,3,5,7,9,11,13,15,17,19,21,23
   Vulnerability Itlb multihit:     Not affected
   Vulnerability L1tf:              Not affected
   Vulnerability Mds:               Not affected
```

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Platform Notes (Continued)

```
  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/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:        Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBRSB-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     1.1M   12 Data            1    64        1             64
     L1i       32K     768K    8 Instruction     1    64        1             64
     L2         2M      48M   16 Unified         2  2048        1             64
     L3        30M      60M   15 Unified         3 32768        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
  node 0 size: 515510 MB
  node 0 free: 514603 MB
  node 1 cpus: 1,3,5,7,9,11,13,15,17,19,21,23
  node 1 size: 516085 MB
  node 1 free: 503722 MB
  node distances:
  node   0   1
    0:  10  21
    1:  21  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1056354316 kB

------------------------------------------------------------
10. who -r
  run-level 3 Apr 17 05:57

------------------------------------------------------------
11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)
  Default Target  Status
  multi-user      running

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager firewalld getty@
                   irqbalance issue-generator kbdsettings klog lvm2-monitor nscd nvmefc-boot-connections
                   postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4
                   wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
  enabled-runtime  systemd-remount-fs
  disabled         autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                   chronyd console-getty cups cups-browsed debug-shell ebtables exchange-bmc-os-info gpm
                   grub2-once haveged haveged-switch-root ipmi ipmievd issue-add-ssh-keys kexec-load lunmask
                   man-db-create multipathd nfs nfs-blkmap nvmf-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 udisks2
                   vncserver@
```

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Platform Notes (Continued)

```
  indirect         wickedd

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
  root=UUID=176e8034-8790-43fc-9b0e-729c67404a06
  linux
  splash=silent
  mitigations=auto
  quiet
  security=apparmor

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 0:
    current policy: frequency should be within 800 MHz and 4.10 GHz.
                    The governor "powersave" may decide which speed to use
                    within this range.
    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+madvise [madvise] never
  enabled         [always] madvise never
  hpage_pmd_size  2097152
  shmem_enabled   always within_size advise [never] deny force

------------------------------------------------------------
17. /sys/kernel/mm/transparent_hugepage/khugepaged
  alloc_sleep_millisecs   60000
  defrag                      1
  max_ptes_none             511
  max_ptes_shared           256
  max_ptes_swap              64
  pages_to_scan            4096
  scan_sleep_millisecs    10000
```

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Platform Notes (Continued)

```
 ------------------------------------------------------------
 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-ic2024.0.2
   Filesystem     Type   Size  Used Avail Use% Mounted on
   tmpfs          tmpfs   40G  5.7G   35G  15% /mnt/ramdisk

 ------------------------------------------------------------
 20. /sys/devices/virtual/dmi/id
     Vendor:         Dell Inc.
     Product:        PowerEdge XR7620
     Product Family: PowerEdge
     Serial:         SXR7602

 ------------------------------------------------------------
 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:
     1x 00AD063200AD HMCG94AGBRA181N 64 GB 2 rank 5600, configured at 4400
     15x 00CE063200CE M321R8GA0PB0-CWMKH 64 GB 2 rank 5600, configured at 4400


 ------------------------------------------------------------
 22. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       Dell Inc.
    BIOS Version:      1.9.3
    BIOS Date:         03/20/2024
    BIOS Revision:     1.9
```

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 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
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 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran | 648.exchange2_s(base, peak)
--------------------------------------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

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:
-w -std=c11 -m64 -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:
-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/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto

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Base Optimization Flags (Continued)

Fortran benchmarks (continued):
-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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

600.perlbench_s: -w -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(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: -w -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(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

(Continued on next page)

Peak Optimization Flags (Continued)

605.mcf_s: `basepeak = yes`

625.x264_s: `-w -std=c11 -m64 -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`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.6.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.6.xml

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

Tested with SPEC CPU®2017 v1.1.9 on 2024-04-17 05:58:30-0400.
Report generated on 2024-07-01 10:33:53 by CPU2017 PS formatter v6716.
Originally published on 2024-06-29.