SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

$SPECspeed®2017\_int\_base = 8.75$

PowerEdge R470 (Intel Xeon 6766E)
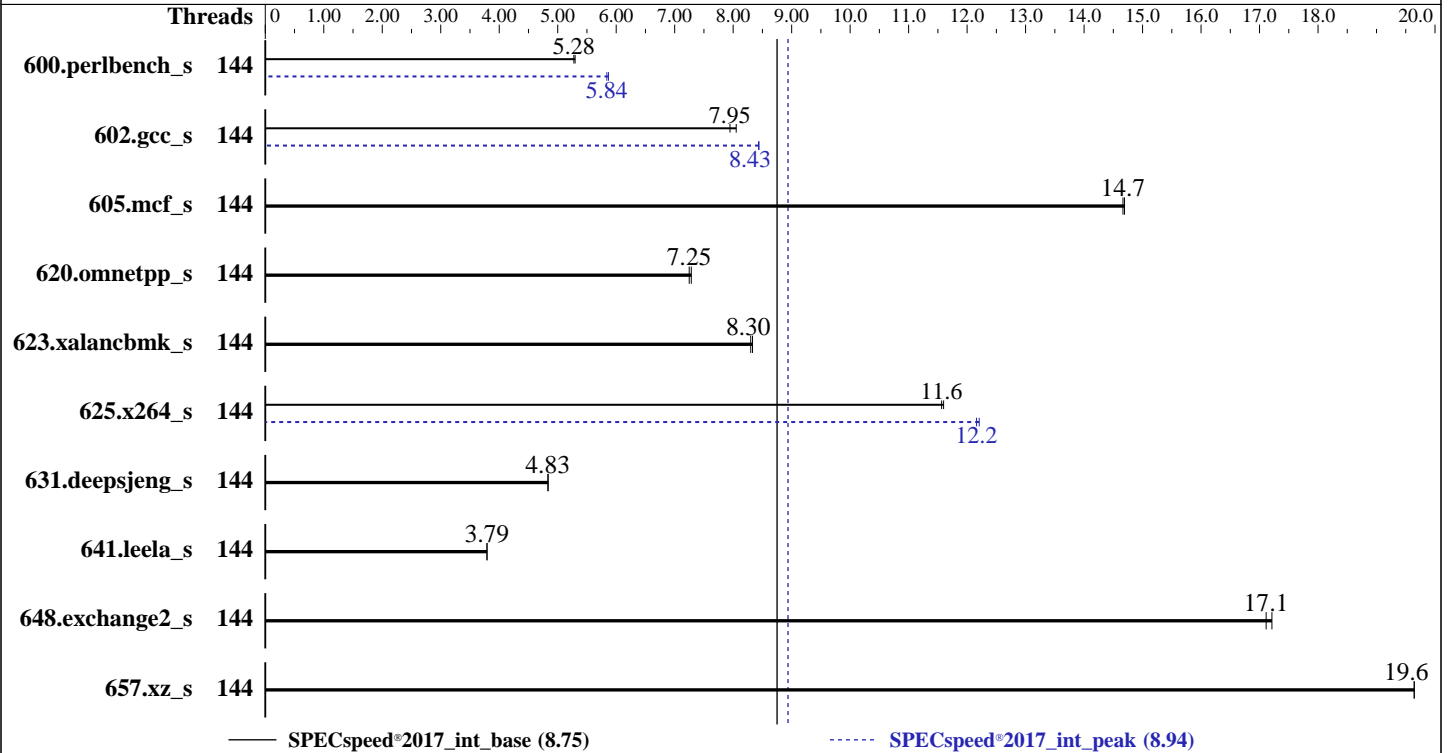
$SPECspeed®2017\_int\_peak = 8.94$

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

Test Date: Oct-2024
Hardware Availability: Dec-2024
Software Availability: Jun-2024

Threads

Benchmark	Threads	base	peak
600.perlbench_s	144	5.28	5.84
602.gcc_s	144	7.95	8.43
605.mcf_s	144	14.7	
620.omnetpp_s	144	7.25	
623.xalancbmk_s	144	8.30	
625.x264_s	144	11.6	12.2
631.deepsjeng_s	144	4.83	
641.leela_s	144	3.79	
648.exchange2_s	144	17.1	
657.xz_s	144	19.6	

SPECspeed®2017_int_base (8.75)   SPECspeed®2017_int_peak (8.94)

Hardware

CPU Name: Intel Xeon 6766E
 Max MHz: 2700
 Nominal: 1900
Enabled: 144 cores, 1 chip
Orderable: 1 chip
Cache L1: 64 KB I + 32 KB D on chip per core
 L2: 4 MB I+D on chip per core
 L3: 108 MB I+D on chip per chip
 Other: None
Memory: 512 GB (8 x 64 GB 2Rx4 PC5-6400B-R)
Storage: 90 GB on tmpfs
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP6
 6.4.0-150600.21-default
Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++
 Compiler for Linux;
 Fortran: Version 2024.1 of Intel Fortran Compiler
 for Linux;
Parallel: Yes
Firmware: Version 1.1.1 released Oct-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 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	144	**336**	**5.28**	335	5.30			144	**304**	**5.84**	302	5.87		
602.gcc_s	144	**501**	**7.95**	495	8.05			144	**472**	**8.43**	472	8.44		
605.mcf_s	144	**322**	**14.7**	321	14.7			144	**322**	**14.7**	321	14.7		
620.omnetpp_s	144	**225**	**7.25**	224	7.28			144	**225**	**7.25**	224	7.28		
623.xalancbmk_s	144	**171**	**8.30**	170	8.33			144	**171**	**8.30**	170	8.33		
625.x264_s	144	**153**	**11.6**	152	11.6			144	**145**	**12.2**	145	12.2		
631.deepsjeng_s	144	**297**	**4.83**	296	4.84			144	**297**	**4.83**	296	4.84		
641.leela_s	144	450	3.79	**450**	**3.79**			144	450	3.79	**450**	**3.79**		
648.exchange2_s	144	171	17.2	**172**	**17.1**			144	171	17.2	**172**	**17.1**		
657.xz_s	144	315	19.6	**315**	**19.6**			144	315	19.6	**315**	**19.6**		

SPECspeed®2017_int_base =	**8.75**
SPECspeed®2017_int_peak =	**8.94**

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-ic2024.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2024.1/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 90 GB ramdisk created with the cmd: "mount -t tmpfs -o size=90G tmpfs /mnt/ramdisk"
```

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Platform Notes

```
BIOS Settings:
                    Optimizer Mode : Enabled

                    System Profile : Custom
             CPU Power Management : Maximum Performance
            Energy Efficient Turbo : Disabled
                               C1E : Disabled
                          C-States : Autonomous
             Energy Efficient Policy : Performance
              CPU Interconnect Bus -
               Link Power Management : Disabled
   PCI ASPM L1 Link Power Management : Disabled
                      ADDDC Setting : Disabled
                 DIMM Self Healing -
      on Uncorrectable Memory Error : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-ic2024.1/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on L401006-R470 Mon Oct 21 13:39:00 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 254 (254.10+suse.84.ge8d77af424)
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 L401006-R470 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
  x86_64 x86_64 x86_64 GNU/Linux

------------------------------------------------------------
2. w
   13:39:00 up 2 min,  1 user,  load average: 0.29, 0.13, 0.04
   USER     TTY       FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1      -                13:37   36.00s  1.44s  0.00s /bin/bash
   /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-VERS=6.0 --output_format html,pdf,txt
```

(Continued on next page)

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Platform Notes (Continued)

```
    ----------------------------------------------------------
    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) 2059728
      max locked memory       (kbytes, -l) 8192
      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) 2059728
      virtual memory          (kbytes, -v) unlimited
      file locks                      (-x) unlimited

    ----------------------------------------------------------
    5. sysinfo process ancestry
     /usr/lib/systemd/systemd --switched-root --system --deserialize=31 linux
     login -- root
     -bash
     /bin/bash /home/DellFiles/bin/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-VERS=6.0 --output_format
       html,pdf,txt
     /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-VERS=6.0 --output_format
       html,pdf,txt
     runcpu --nobuild --action validate --define default-platform-flags -c
       ic2024.1-lin-sierraforest-speed-20240308.cfg --define cores=144 --tune base,peak -o all --define
       intspeedaffinity --define smt-on --define drop_caches --iterations 2 --define DL-VERS=6.0 --output_format
       html,pdf,txt intspeed
     runcpu --nobuild --action validate --define default-platform-flags --configfile
       ic2024.1-lin-sierraforest-speed-20240308.cfg --define cores=144 --tune base,peak --output_format all
       --define intspeedaffinity --define smt-on --define drop_caches --iterations 2 --define DL-VERS=6.0
       --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-ic2024.1

    ----------------------------------------------------------
    6. /proc/cpuinfo
       model name      : Intel(R) Xeon(R) 6766E
       vendor_id       : GenuineIntel
       cpu family      : 6
       model           : 175
       stepping        : 3
       microcode       : 0x30002c0
       bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
       cpu cores       : 144
       siblings        : 144
```

(Continued on next page)

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Platform Notes (Continued)

```
   1 physical ids (chips)
   144 processors (hardware threads)
   physical id 0: core ids 0-143
   physical id 0: apicids
   0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72
   ,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,130,1
   32,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,18
   4,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214,216,218,220,222,224,226,228,230,232,234,236
   ,238,240,242,244,246,248,250,252,254,256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286
 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 2.39.3:
   Architecture:                       x86_64
   CPU op-mode(s):                     32-bit, 64-bit
   Address sizes:                      52 bits physical, 48 bits virtual
   Byte Order:                         Little Endian
   CPU(s):                             144
   On-line CPU(s) list:                0-143
   Vendor ID:                          GenuineIntel
   BIOS Vendor ID:                     Intel
   Model name:                         Intel(R) Xeon(R) 6766E
   BIOS Model name:                    Intel(R) Xeon(R) 6766E  CPU @ 1.9GHz
   BIOS CPU family:                    179
   CPU family:                         6
   Model:                              175
   Thread(s) per core:                 1
   Core(s) per socket:                 144
   Socket(s):                          1
   Stepping:                           3
   BogoMIPS:                           3800.00
   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 vmx 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 intel_ppin cdp_l2
                                       ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority ept
                                       vpid ept_ad fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid cqm
                                       rdt_a rdseed adx smap clflushopt clwb intel_pt sha_ni xsaveopt xsavec
                                       xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                                       split_lock_detect user_shstk avx_vnni lam wbnoinvd dtherm ida arat
                                       pln pts vnmi umip pku ospke waitpkg gfni vaes vpclmulqdq tme rdpid
                                       bus_lock_detect cldemote movdiri movdir64b enqcmd fsrm md_clear
                                       serialize pconfig arch_lbr ibt flush_l1d arch_capabilities
   Virtualization:                     VT-x
   L1d cache:                          4.5 MiB (144 instances)
   L1i cache:                          9 MiB (144 instances)
   L2 cache:                           144 MiB (36 instances)
   L3 cache:                           108 MiB (1 instance)
   NUMA node(s):                       1
   NUMA node0 CPU(s):                  0-143
   Vulnerability Gather data sampling:  Not affected
   Vulnerability Itlb multihit:        Not affected
   Vulnerability L1tf:                 Not affected
```

(Continued on next page)

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Platform Notes (Continued)

```
  Vulnerability Mds:                    Not affected
  Vulnerability Meltdown:               Not affected
  Vulnerability Mmio stale data:        Not affected
  Vulnerability Reg file data sampling: 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/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:             Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling;
                                        PBRSB-eIBRS Not affected; BHI BHI_DIS_S
  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       32K     4.5M   8 Data           1     64      1              64
     L1i       64K       9M   8 Instruction    1    128      1              64
     L2         4M     144M  16 Unified        2   4096      1              64
     L3       108M     108M  12 Unified        3 147456      1              64


--------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 1 nodes (0)
  node 0 cpus: 0-143
  node 0 size: 514956 MB
  node 0 free: 502691 MB
  node distances:
  node   0
    0:  10


--------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       527315944 kB


--------------------------------------------------------------
10. who -r
   run-level 3 Oct 21 13:37


--------------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
   Default Target  Status
   multi-user      running


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


--------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
```

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Platform Notes (Continued)

```
  root=UUID=97b3d140-738a-4c2b-8652-bccd7231e409
  linux
  splash=silent
  resume=/dev/disk/by-uuid/82f77a2b-bbb0-4b2a-97e1-a09e3c45397d
  mitigations=auto
  quiet
  security=apparmor
  crashkernel=364M,high
  crashkernel=72M,low


  ------------------------------------------------------------
14. sysctl
  kernel.numa_balancing            0
  kernel.randomize_va_space        2
  vm.compaction_proactiveness      20
  vm.dirty_background_bytes        0
  vm.dirty_background_ratio        10
  vm.dirty_bytes                   0
  vm.dirty_expire_centisecs        3000
  vm.dirty_ratio                   20
  vm.dirty_writeback_centisecs     500
  vm.dirtytime_expire_seconds      43200
  vm.extfrag_threshold             500
  vm.min_unmapped_ratio            1
  vm.nr_hugepages                  0
  vm.nr_hugepages_mempolicy        0
  vm.nr_overcommit_hugepages       0
  vm.swappiness                    60
  vm.watermark_boost_factor        15000
  vm.watermark_scale_factor        10
  vm.zone_reclaim_mode             0


  ------------------------------------------------------------
15. /sys/kernel/mm/transparent_hugepage
  defrag          always defer defer+madvise [madvise] never
  enabled         [always] madvise never
  hpage_pmd_size  2097152
  shmem_enabled   always within_size advise [never] deny force


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


  ------------------------------------------------------------
17. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 15 SP6


  ------------------------------------------------------------
18. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2024.1
  Filesystem      Type   Size  Used Avail Use% Mounted on
  tmpfs           tmpfs  90G   5.0G   86G   6% /mnt/ramdisk
```

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Platform Notes (Continued)

```
    -------------------------------------------------------------
    19. /sys/devices/virtual/dmi/id
        Vendor:         Dell Inc.
        Product:        PowerEdge R470
        Product Family: PowerEdge
        Serial:         L401006


    -------------------------------------------------------------
    20. 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:
        8x 002C069D002C MTC40F2046S1RC64BD1 USFF 64 GB 2 rank 6400



    -------------------------------------------------------------
    21. BIOS
    (This section combines info from /sys/devices and dmidecode.)
        BIOS Vendor:       Dell Inc.
        BIOS Version:      1.1.1
        BIOS Date:         10/17/2024
        BIOS Revision:     1.1
```

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 2024.1.0 Build 20240308
Copyright (C) 1985-2024 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 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------


==============================================================================================================
Fortran | 648.exchange2_s(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:

icx

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

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Base Compiler Invocation (Continued)

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 -xsierraforest -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 -xsierraforest -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 -xsierraforest -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`

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

SPEC CPU®2017 Integer Speed Result

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Dell Inc.

PowerEdge R470 (Intel Xeon 6766E)

SPECspeed®2017_int_base = 8.75

SPECspeed®2017_int_peak = 8.94

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

Test Date: Oct-2024
Hardware Availability: Dec-2024
Software Availability: Jun-2024

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 -flto
-Ofast(pass 1) -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 -flto
-Ofast(pass 1) -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: -w -std=c11 -m64 -Wl,-z,muldefs -xsierraforest -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
```

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Dell Inc.

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Peak Optimization Flags (Continued)

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-v1.10.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-v1.10.xml`

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

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