# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

## PowerEdge R670 (Intel Xeon 6740E)

$SPECrate^{®}2017\_int\_base = 910$

$SPECrate^{®}2017\_int\_peak = 947$
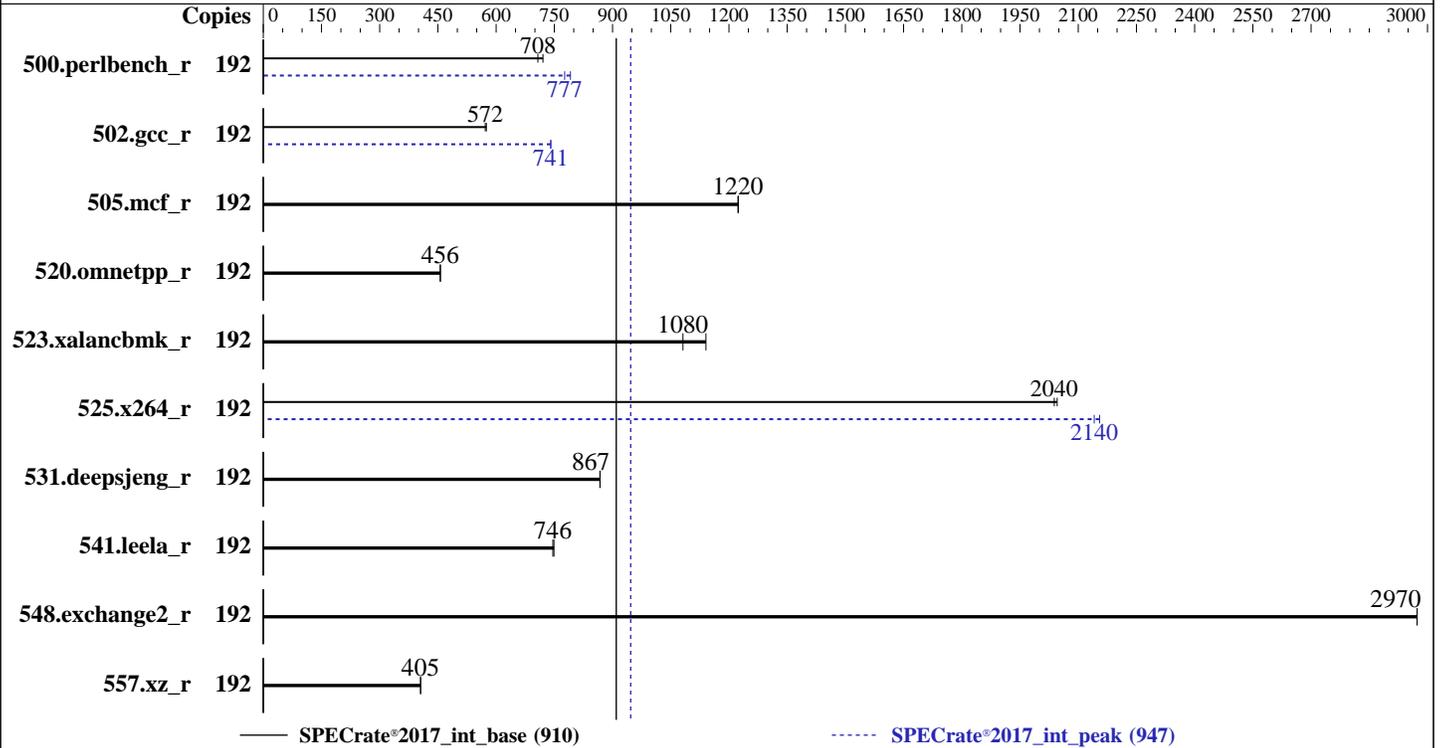
**CPU2017 License:** 6573
**Test Sponsor:** Dell Inc.
**Tested by:** Dell Inc.

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

| Benchmark | Copies | Base | Peak |
|---|---|---|---|
| 500.perlbench_r | 192 | 708 | 777 |
| 502.gcc_r | 192 | 572 | 741 |
| 505.mcf_r | 192 | 1220 | |
| 520.omnetpp_r | 192 | 456 | |
| 523.xalancbmk_r | 192 | 1080 | |
| 525.x264_r | 192 | 2040 | 2140 |
| 531.deepsjeng_r | 192 | 867 | |
| 541.leela_r | 192 | 746 | |
| 548.exchange2_r | 192 | 2970 | |
| 557.xz_r | 192 | 405 | |

SPECrate®2017_int_base (910)        SPECrate®2017_int_peak (947)

## Hardware

CPU Name: Intel Xeon 6740E
 Max MHz: 3200
 Nominal: 2400
Enabled: 192 cores, 2 chips
Orderable: 1,2 chips
Cache L1: 64 KB I + 32 KB D on chip per core
 L2: 4 MB I+D on chip per core
 L3: 96 MB I+D on chip per chip
 Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-6400B-R)
Storage: 110 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: No
Firmware: Version 1.0.3 released Sep-2024
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 set to prefer performance at the cost of
 additional power usage.

# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

## PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_base = 910

SPECrate®2017_int_peak = 947

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

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

## Results Table

| Benchmark | Base Copies | Base Seconds | Base Ratio | Base Seconds | Base Ratio | Base Seconds | Base Ratio | Peak Copies | Peak Seconds | Peak Ratio | Peak Seconds | Peak Ratio | Peak Seconds | Peak Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 500.perlbench_r | 192 | 424 | 721 | **432** | **708** | | | 192 | **394** | **777** | 386 | 791 | | |
| 502.gcc_r | 192 | **475** | **572** | 473 | 575 | | | 192 | **367** | **741** | 367 | 741 | | |
| 505.mcf_r | 192 | 253 | 1220 | **254** | **1220** | | | 192 | 253 | 1220 | **254** | **1220** | | |
| 520.omnetpp_r | 192 | **553** | **456** | 552 | 457 | | | 192 | **553** | **456** | 552 | 457 | | |
| 523.xalancbmk_r | 192 | **187** | **1080** | 178 | 1140 | | | 192 | **187** | **1080** | 178 | 1140 | | |
| 525.x264_r | 192 | **165** | **2040** | 164 | 2050 | | | 192 | **157** | **2140** | 156 | 2160 | | |
| 531.deepsjeng_r | 192 | 254 | 868 | **254** | **867** | | | 192 | 254 | 868 | **254** | **867** | | |
| 541.leela_r | 192 | **426** | **746** | 424 | 749 | | | 192 | **426** | **746** | 424 | 749 | | |
| 548.exchange2_r | 192 | 169 | 2970 | **169** | **2970** | | | 192 | 169 | 2970 | **169** | **2970** | | |
| 557.xz_r | 192 | 511 | 406 | **512** | **405** | | | 192 | 511 | 406 | **512** | **405** | | |

| | |
|---|---|
| SPECrate®2017_int_base = | **910** |
| SPECrate®2017_int_peak = | **947** |

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-ic2024.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2024.1/lib/ia32:/mnt/ram
    disk/cpu2017-1.1.9-ic2024.1/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
```

**(Continued on next page)**

# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

## PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_base = 910

SPECrate®2017_int_peak = 947

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

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

## 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 110 GB ramdisk created with the cmd: "mount -t tmpfs -o size=110G tmpfs /mnt/ramdisk"
```

## Platform Notes

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


               System Profile : Custom
         CPU Power Management : Maximum Performance
        Energy Efficient Turbo : Disabled
                          C1E : Disabled
                     C States : Autonomous
       Energy Efficiency Policy : Performance
         CPU Interconnect Bus
         Link Power Management : Disabled
        PCI ASPM L1 Link
             Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-ic2024.1/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on DN01116-R670 Thu Oct 17 09:18:10 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. 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
```

*(Continued on next page)*

## Dell Inc.

SPECrate®2017_int_base = 910

## PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_peak = 947

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

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

## Platform Notes (Continued)

```
   22. BIOS
  ----------------------------------------------------------


  ----------------------------------------------------------
  1. uname -a
    Linux DN01116-R670 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
     09:18:10 up 1 min,  2 users,  load average: 0.56, 0.26, 0.10
    USER     TTY       FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
    root     tty1      -                09:17   34.00s  2.08s  0.04s /bin/bash
    /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-7.inc --define
    DL-BIOS-adddcD=1 --define DL-VERS=5.3.6 --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) 4124957
    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) 4124957
    virtual memory          (kbytes, -v) unlimited
    file locks                      (-x) unlimited


  ----------------------------------------------------------
  5. sysinfo process ancestry
   /usr/lib/systemd/systemd --switched-root --system --deserialize=42
   login -- root
   -bash
   /bin/bash /home/DellFiles/bin/DELL_rate.sh
   /bin/bash /home/DellFiles/bin/dell-run-main.sh rate
   /bin/bash /home/DellFiles/bin/dell-run-main.sh rate
   /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-7.inc
     --define DL-BIOS-adddcD=1 --define DL-VERS=5.3.6 --output_format html,pdf,txt
   /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-7.inc
     --define DL-BIOS-adddcD=1 --define DL-VERS=5.3.6 --output_format html,pdf,txt
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=192 -c
     ic2024.1-lin-sierraforest-rate-20240308.cfg --define smt-on --define cores=192 --define physicalfirst
     --define invoke_with_interleave --define drop_caches --reportable --tune base,peak -o all --iterations 2
     --define DL-BIOSinc=Dell-BIOS_Xeon-7.inc --define DL-BIOS-adddcD=1 --define DL-VERS=5.3.6 --output_format
     html,pdf,txt intrate
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=192 --configfile
     ic2024.1-lin-sierraforest-rate-20240308.cfg --define smt-on --define cores=192 --define physicalfirst
     --define invoke_with_interleave --define drop_caches --reportable --tune base,peak --output_format all
     --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-7.inc --define DL-BIOS-adddcD=1 --define DL-VERS=5.3.6
```

**(Continued on next page)**

## Dell Inc.

PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_base = 910

SPECrate®2017_int_peak = 947

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

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

## Platform Notes (Continued)

```
    --output_format html,pdf,txt --nopower --runmode rate --tune base:peak --size refrate intrate --nopreenv
    --note-preenv --logfile $SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0
    --from_runcpu 2
  specperl $SPEC/bin/sysinfo
 $SPEC = /mnt/ramdisk/cpu2017-1.1.9-ic2024.1


    -----------------------------------------------------------
 6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) 6740E
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 175
    stepping        : 3
    microcode       : 0x3000211
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
    cpu cores       : 96
    siblings        : 96
    2 physical ids (chips)
    192 processors (hardware threads)
    physical id 0: core ids 0-95
    physical id 1: core ids 0-95
    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
    physical id 1: apicids
    512,514,516,518,520,522,524,526,528,530,532,534,536,538,540,542,544,546,548,550,552,554,556,558,560,562,5
    64,566,568,570,572,574,576,578,580,582,584,586,588,590,592,594,596,598,600,602,604,606,608,610,612,614,61
    6,618,620,622,624,626,628,630,632,634,636,638,640,642,644,646,648,650,652,654,656,658,660,662,664,666,668
    ,670,672,674,676,678,680,682,684,686,688,690,692,694,696,698,700,702
  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):                    192
  On-line CPU(s) list:       0-191
  Vendor ID:                 GenuineIntel
  BIOS Vendor ID:            Intel
  Model name:                Intel(R) Xeon(R) 6740E
  BIOS Model name:           Intel(R) Xeon(R) 6740E  CPU @ 2.4GHz
  BIOS CPU family:           179
  CPU family:                6
  Model:                     175
  Thread(s) per core:        1
  Core(s) per socket:        96
  Socket(s):                 2
  Stepping:                  3
  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
```

**(Continued on next page)**

## Dell Inc.

SPECrate®2017_int_base = 910

## PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_peak = 947

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

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

## Platform Notes (Continued)

```
                          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:              6 MiB (192 instances)
  L1i cache:              12 MiB (192 instances)
  L2 cache:               192 MiB (48 instances)
  L3 cache:               192 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
                          ,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78,80,82,84,86,88,90,92,94
                          ,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,13
                          0,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164
                          ,166,168,170,172,174,176,178,180,182,184,186,188,190
  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
                          ,51,53,55,57,59,61,63,65,67,69,71,73,75,77,79,81,83,85,87,89,91,93,95
                          ,97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127,129,13
                          1,133,135,137,139,141,143,145,147,149,151,153,155,157,159,161,163,165
                          ,167,169,171,173,175,177,179,181,183,185,187,189,191
  Vulnerability Gather data sampling:  Not affected
  Vulnerability Itlb multihit:         Not affected
  Vulnerability L1tf:                  Not affected
  Vulnerability Mds:                   Not affected
  Vulnerability Meltdown:              Not affected
  Vulnerability Mmio stale data:       Not affected
  Vulnerability 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       6M    8 Data             1     64        1             64
      L1i       64K      12M    8 Instruction      1    128        1             64
      L2         4M     192M   16 Unified          2   4096        1             64
      L3        96M     192M   12 Unified          3 131072        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:
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,7
4,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,130,132,1
34,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,184,186,
188,190
```

**(Continued on next page)**

## Dell Inc.

## PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_base = 910

SPECrate®2017_int_peak = 947

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

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

# Platform Notes (Continued)

```
   node 0 size: 515601 MB
   node 0 free: 513831 MB
   node 1 cpus:
   1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59,61,63,65,67,69,71,73,7
   5,77,79,81,83,85,87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127,129,131,133,1
   35,137,139,141,143,145,147,149,151,153,155,157,159,161,163,165,167,169,171,173,175,177,179,181,183,185,187,
   189,191
   node 1 size: 515663 MB
   node 1 free: 504229 MB
   node distances:
   node   0   1
     0:  10  21
     1:  21  10


   ------------------------------------------------------------
   9. /proc/meminfo
     MemTotal:       1056016000 kB


   ------------------------------------------------------------
   10. who -r
     run-level 3 Oct 17 09:16


   ------------------------------------------------------------
   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         YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ irqbalance
                     issue-generator kbdsettings kdump kdump-early kdump-notify klog lvm2-monitor nscd
                     nvmefc-boot-connections nvmf-autoconnect 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
                     firewalld fsidd gpm grub2-once haveged ipmi ipmievd issue-add-ssh-keys kexec-load lunmask
                     man-db-create multipathd nfs nfs-blkmap rpcbind rpmconfigcheck rsyncd serial-getty@
                     smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures systemd-confext
                     systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2
                     vncserver@
     indirect        systemd-userdbd wickedd


   ------------------------------------------------------------
   13. Linux kernel boot-time arguments, from /proc/cmdline
     BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
     root=UUID=d5e01118-04f6-46ca-a26d-63885732cf6e
     splash=silent
     mitigations=auto
     quiet
     security=apparmor
     crashkernel=330M,high
     crashkernel=72M,low


   ------------------------------------------------------------
   14. cpupower frequency-info
     analyzing CPU 189:
       Unable to determine current policy
       boost state support:
```

**(Continued on next page)**

## Dell Inc.

### PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_base = 910

SPECrate®2017_int_peak = 947

**CPU2017 License:** 6573　　　　　　　　　　　　　　　　　　**Test Date:** Oct-2024
**Test Sponsor:** Dell Inc.　　　　　　　　　　　　　　　　**Hardware Availability:** Jun-2024
**Tested by:** Dell Inc.　　　　　　　　　　　　　　　　　　**Software Availability:** Jun-2024

## Platform Notes (Continued)

```
        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


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


      ------------------------------------------------------------
  19. Disk information
  SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2024.1
    Filesystem      Type   Size  Used Avail Use% Mounted on
    tmpfs           tmpfs  110G  5.0G  106G   5% /mnt/ramdisk


      ------------------------------------------------------------
  20. /sys/devices/virtual/dmi/id
      Vendor:         Dell Inc.
      Product:        PowerEdge R670
      Product Family: PowerEdge
      Serial:         DN01116
```

(Continued on next page)

# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

SPECrate®2017_int_base = 910

### PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_peak = 947

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

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

## Platform Notes (Continued)

```
         --------------------------------------------------------------
         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:
             16x 002C069D002C MTC40F2046S1RC64BD1 USFF 64 GB 2 rank 6400


         --------------------------------------------------------------
         22. BIOS
         (This section combines info from /sys/devices and dmidecode.)
           BIOS Vendor:      Dell Inc.
           BIOS Version:     1.0.3
           BIOS Date:        09/02/2024
           BIOS Revision:    1.0
```

## Compiler Version Notes

```
==============================================================================
C           | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C           | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
            | 557.xz_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C           | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C           | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
            | 557.xz_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


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


==============================================================================
```

*(Continued on next page)*

# SPEC CPU®2017 Integer Rate Result

## Dell Inc.

## PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_base = 910

SPECrate®2017_int_peak = 947

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

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

## Compiler Version Notes (Continued)

```
Fortran | 548.exchange2_r(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`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

## Base Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-DSPEC_LP64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

## Base Optimization Flags

C benchmarks:
`-w -std=c11 -m64 -Wl,-z,muldefs -xsierraforest -O3 -ffast-math`
`-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
`-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc`

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/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc`

**(Continued on next page)**

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

## Dell Inc.

## PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_base = 910

SPECrate®2017_int_peak = 947

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

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

# Base Optimization Flags (Continued)

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 -auto
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc
```

# Peak Compiler Invocation

C benchmarks:
```
icx
```

C++ benchmarks:
```
icpx
```

Fortran benchmarks:
```
ifx
```

# Peak Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-D_FILE_OFFSET_BITS=64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

# Peak Optimization Flags

C benchmarks:

500.perlbench_r: `-w -std=c11 -m64 -Wl,-z,muldefs`
`-fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2 -flto`
`-Ofast -ffast-math -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fno-strict-overflow`
`-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc`

**(Continued on next page)**

## Dell Inc.

## PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_base = 910

SPECrate®2017_int_peak = 947

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

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

# Peak Optimization Flags (Continued)

502.gcc_r: `-m32 -L/opt/intel/oneapi/compiler/2024.1/lib32 -std=gnu89`
`-Wl,-z,muldefs -fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2 -flto`
`-Ofast -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 -xsierraforest -Ofast`
`-ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fno-alias`
`-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc`

557.xz_r: `basepeak = yes`

C++ benchmarks:

520.omnetpp_r: `basepeak = yes`

523.xalancbmk_r: `basepeak = yes`

531.deepsjeng_r: `basepeak = yes`

541.leela_r: `basepeak = yes`

Fortran benchmarks:

548.exchange2_r: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.9.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-v1.9.xml`

# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

PowerEdge R670 (Intel Xeon 6740E)

SPECrate®2017_int_base = 910

SPECrate®2017_int_peak = 947

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

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

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 2024-10-17 09:18:09-0400.
Report generated on 2024-11-20 11:03:33 by CPU2017 PDF formatter v6716.
Originally published on 2024-11-19.