



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 636

PowerEdge R470 (Intel Xeon 6766E)

SPECrate®2017\_int\_peak = 654

CPU2017 License: 6573

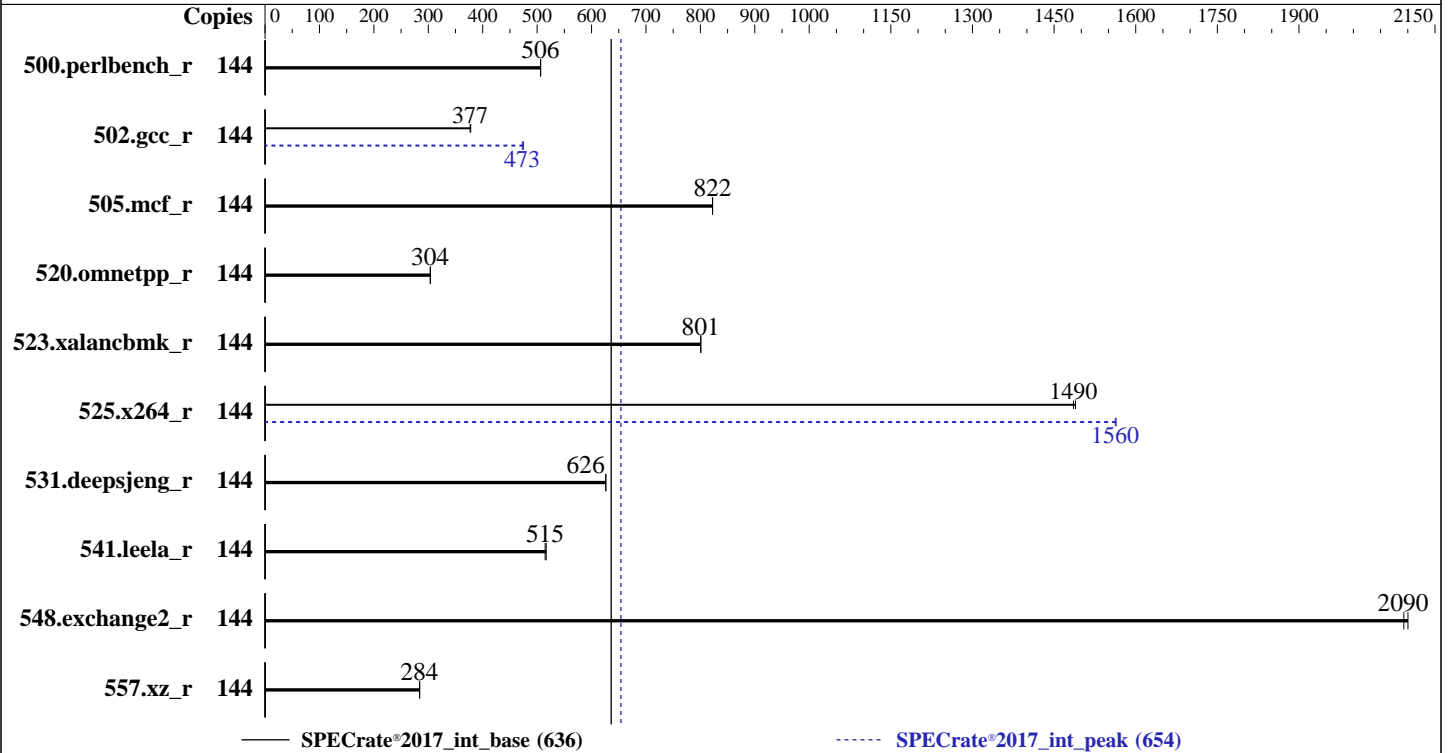
Test Date: Oct-2024

Test Sponsor: Dell Inc.

Hardware Availability: Dec-2024

Tested by: Dell Inc.

Software Availability: Jun-2024



## 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: 256 GB (8 x 32 GB 2Rx8 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: No  
 Firmware: Version 1.1.0 released Oct-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.



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	144	<b>453</b>	<b>506</b>	453	506			144	<b>453</b>	<b>506</b>	453	506		
502.gcc_r	144	539	378	<b>541</b>	<b>377</b>			144	<b>431</b>	<b>473</b>	429	475		
505.mcf_r	144	<b>283</b>	<b>822</b>	283	822			144	<b>283</b>	<b>822</b>	283	822		
520.omnetpp_r	144	<b>622</b>	<b>304</b>	622	304			144	<b>622</b>	<b>304</b>	622	304		
523.xalancbmk_r	144	190	801	<b>190</b>	<b>801</b>			144	190	801	<b>190</b>	<b>801</b>		
525.x264_r	144	169	1490	<b>170</b>	<b>1490</b>			144	161	1560	<b>161</b>	<b>1560</b>		
531.deepsjeng_r	144	<b>264</b>	<b>626</b>	263	626			144	<b>264</b>	<b>626</b>	263	626		
541.leela_r	144	462	517	<b>463</b>	<b>515</b>			144	462	517	<b>463</b>	<b>515</b>		
548.exchange2_r	144	<b>180</b>	<b>2090</b>	180	2100			144	<b>180</b>	<b>2090</b>	180	2100		
557.xz_r	144	<b>548</b>	<b>284</b>	547	284			144	<b>548</b>	<b>284</b>	547	284		

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

## Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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/ramdisk/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  
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.

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## General Notes (Continued)

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"

## Platform Notes

BIOS Settings:

LLC Prefetch : Disabled  
Dell Controlled Turbo Setting : Enabled  
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  
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 AFN4705-R470 Wed Oct 16 18:42:14 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
  22. BIOS
- 

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## Platform Notes (Continued)

```

-----
1. uname -a
Linux AFN4705-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
18:42:14 up 4 min, 1 user, load average: 0.27, 0.17, 0.09
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
root      tty1    -             18:38   30.00s  1.50s  0.00s  /bin/bash
/home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.0.2 --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) 1029275
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) 1029275
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-VERS=6.0.2 --output_format
html,pdf,txt
/bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.0.2 --output_format
html,pdf,txt
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=144 -c
ic2024.1-lin-sierraforest-rate-20240308.cfg --define smt-on --define cores=144 --define physicalfirst
--define no-uma --reportable --tune base,peak -o all --define drop_caches --iterations 2 --define
DL-VERS=6.0.2 --output_format html,pdf,txt intrate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=144 --configfile
ic2024.1-lin-sierraforest-rate-20240308.cfg --define smt-on --define cores=144 --define physicalfirst
--define no-uma --reportable --tune base,peak --output_format all --define drop_caches --iterations 2
--define DL-VERS=6.0.2 --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

```

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## Platform Notes (Continued)

```

-----
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
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 sse3 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 vpcidmulqdq tme rdpid

```

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## Platform Notes (Continued)

```

Virtualization:
L1d cache:
L1i cache:
L2 cache:
L3 cache:
NUMA node(s):
NUMA node0 CPU(s):
Vulnerability Gather data sampling:
Vulnerability Itlb multihit:
Vulnerability Lltf:
Vulnerability Mds:
Vulnerability Melttdown:
Vulnerability Mmio stale data:
Vulnerability Reg file data sampling:
Vulnerability Retbleed:
Vulnerability Spec rstack overflow:
Vulnerability Spec store bypass:
Vulnerability Spectre v1:
Vulnerability Spectre v2:
Vulnerability Srbds:
Vulnerability Tsx async abort:

```

```

bus_lock_detect cldemote movdiri movdir64b enqcmd fsrm md_clear
serialize pconfig arch_lbr ibt flush_lld arch_capabilities
VT-x
4.5 MiB (144 instances)
9 MiB (144 instances)
144 MiB (36 instances)
108 MiB (1 instance)
1
0-143
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Mitigation; Speculative Store Bypass disabled via prctl
Mitigation; usercopy/swaps barriers and __user pointer sanitization
Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling;
PBRSE-eIBRS Not affected; BHI BHI_DIS_S
Not affected
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: 257345 MB
node 0 free: 244572 MB
node distances:
node 0
0: 10

```

```

9. /proc/meminfo
MemTotal: 263521424 kB

```

```

10. who -r
run-level 3 Oct 16 18:38

```

```

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 firewalld getty@

```

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## Platform Notes (Continued)

```

enabled-runtime  irqbalance issue-generator kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections
disabled         nvmf-autoconnect postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked
                 wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
                 systemd-remount-fs
indirect         autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                 chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info 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-sysexit systemd-time-wait-sync systemd-timesyncd udisks2 vncserver@
                 systemd-userdbd wickedd

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=c5450b9b-1d88-455f-bda3-3d157643f526
splash=silent
mitigations=auto
quiet
security=apparmor

```

```

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

```

```

-----
15. 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

```

```

-----
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

```

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## Platform Notes (Continued)

```
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 90G 5.0G 86G 6% /mnt/ramdisk  
-----

-----  
20. /sys/devices/virtual/dmi/id  
Vendor: Dell Inc.  
Product: PowerEdge R470  
Product Family: PowerEdge  
Serial: AFN4705  
-----

-----  
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:  
8x 002C069D002C MTC20F2085S1RC64BD1 USFF 32 GB 2 rank 6400  
-----

-----  
22. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: Dell Inc.  
BIOS Version: 1.1.0  
BIOS Date: 10/13/2024  
BIOS Revision: 1.1  
-----

## 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)

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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.

Fortran | 548.exchange2\_r(base, peak)

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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## 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

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# SPEC CPU®2017 Integer Rate Result

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Dell Inc.

SPECrate®2017\_int\_base = 636

PowerEdge R470 (Intel Xeon 6766E)

SPECrate®2017\_int\_peak = 654

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Oct-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

## Base Portability Flags (Continued)

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

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

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CPU2017 License: 6573

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Tested by: Dell Inc.

Test Date: Oct-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

## Peak Portability Flags (Continued)

```

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: basepeak = yes

```

502.gcc_r: -m32 -L/opt/intel/oneapi/compiler/2024.1/lib32 -std=gnu89
-Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(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 -lqkmallo

```

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:

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## Peak Optimization Flags (Continued)

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-v1.11.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-v1.11.xml>

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