



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

CPU2017 License: 6573

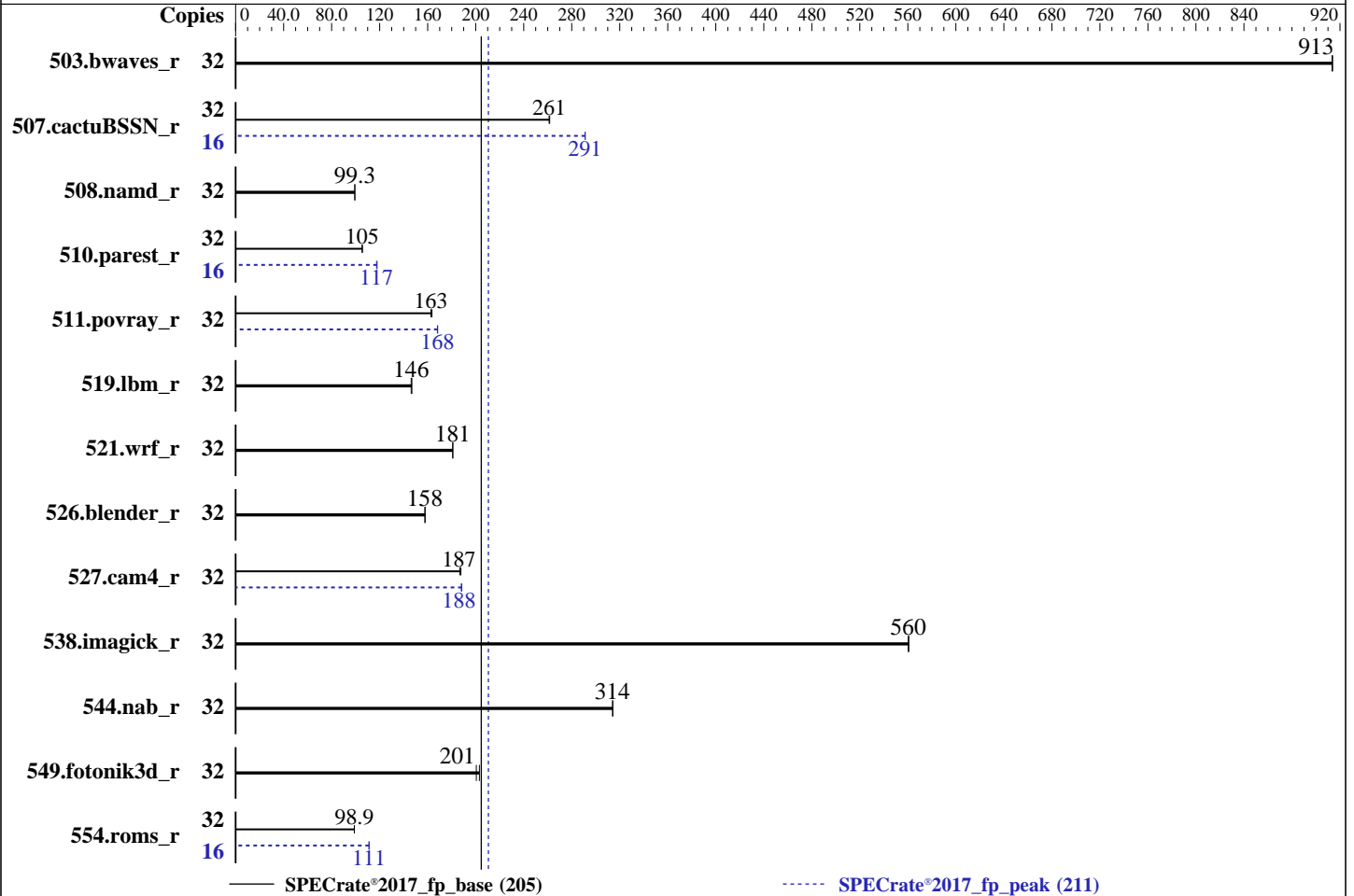
Test Date: Mar-2024

Test Sponsor: Dell Inc.

Hardware Availability: Jun-2024

Tested by: Dell Inc.

Software Availability: Dec-2023



Hardware

CPU Name: Intel Xeon Silver 4514Y
 Max MHz: 3400
 Nominal: 2000
 Enabled: 16 cores, 1 chip, 2 threads/core
 Orderable: 1 chip
 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: 512 GB (8 x 64 GB 2Rx4 PC5-5600B-R, running at 4400)
 Storage: 50 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: No
 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.



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

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

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	32	351	914	<u>351</u>	<u>913</u>			32	351	914	<u>351</u>	<u>913</u>		
507.cactuBSSN_r	32	<u>155</u>	<u>261</u>	155	262			16	69.5	291	<u>69.6</u>	<u>291</u>		
508.namd_r	32	<u>306</u>	<u>99.3</u>	306	99.3			32	<u>306</u>	<u>99.3</u>	306	99.3		
510.parest_r	32	792	106	<u>795</u>	<u>105</u>			16	355	118	<u>356</u>	<u>117</u>		
511.povray_r	32	457	164	<u>459</u>	<u>163</u>			32	444	168	<u>445</u>	<u>168</u>		
519.lbm_r	32	230	147	<u>231</u>	<u>146</u>			32	230	147	<u>231</u>	<u>146</u>		
521.wrf_r	32	396	181	<u>396</u>	<u>181</u>			32	396	181	<u>396</u>	<u>181</u>		
526.blender_r	32	309	158	<u>309</u>	<u>158</u>			32	309	158	<u>309</u>	<u>158</u>		
527.cam4_r	32	<u>300</u>	<u>187</u>	298	188			32	<u>298</u>	<u>188</u>	297	188		
538.imagick_r	32	<u>142</u>	<u>560</u>	142	561			32	<u>142</u>	<u>560</u>	142	561		
544.nab_r	32	<u>172</u>	<u>314</u>	171	314			32	<u>172</u>	<u>314</u>	171	314		
549.fotonik3d_r	32	614	203	<u>622</u>	<u>201</u>			32	614	203	<u>622</u>	<u>201</u>		
554.roms_r	32	<u>514</u>	<u>98.9</u>	514	99.0			16	<u>229</u>	<u>111</u>	229	111		

SPECrate®2017_fp_base = 205

SPECrate®2017_fp_peak = 211

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-ic2024.0.2/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2024.0.2/je5.0.1-64"
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

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2024

Hardware Availability: Jun-2024

Software Availability: Dec-2023

General Notes (Continued)

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 50 GB ramdisk created with the cmd: "mount -t tmpfs -o size=50G tmpfs /mnt/ramdisk"

Platform Notes

BIOS settings:

DIMM Self Healing on
Uncorrectable Memory Error : Disabled

Virtualization Technology : Disabled
DCU Streamer Prefetcher : Disabled
Sub NUMA Cluster : 2-way Clustering
LLC Prefetch : Disabled
Dead Line LLC Alloc : Disabled

System Profile : Custom
CPU Power Management : Maximum Performance
CIE : 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 Mar 27 16:58:58 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 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

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2024

Hardware Availability: Jun-2024

Software Availability: Dec-2023

Platform Notes (Continued)

```

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
 16:58:58 up  4:33,  1 user,  load average: 24.12, 30.17, 31.34
USER      TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
root      tty1    -                12:25   4:22m  1.18s  0.00s /bin/bash
/home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define
DL-BIOS-LogProc=1 --define DL-VERS=5.0 --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) 2061849
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) 2061849
virtual memory           (kbytes, -v) unlimited
file locks               (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
login -- root
-bash
/bin/bash ./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-5.inc
--define DL-BIOS-LogProc=1 --define DL-VERS=5.0 --output_format html,pdf,txt
/bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc
--define DL-BIOS-LogProc=1 --define DL-VERS=5.0 --output_format html,pdf,txt
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 -c
ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=16 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak -o all --define DL-BIOS-SNC=2
--iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-LogProc=1 --define DL-VERS=5.0

```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

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

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

Platform Notes (Continued)

```
--output_format html,pdf,txt fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 --configfile
ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=16 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --define
DL-BIOS-SNC=2 --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-LogProc=1 --define
DL-VERS=5.0 --output_format html,pdf,txt --nopower --runmode rate --tune base:peak --size refrate fprate
--nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.002/templots/preenv.fprate.002.0.log --lognum 002.0
--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 4514Y
vendor_id      : GenuineIntel
cpu family     : 6
model          : 207
stepping       : 2
microcode      : 0x21000230
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
cpu cores      : 16
siblings       : 32
1 physical ids (chips)
32 processors (hardware threads)
physical id 0: core ids 0-15
physical id 0: apicids 0-31
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):                 32
On-line CPU(s) list:   0-31
Vendor ID:              GenuineIntel
Model name:             INTEL(R) XEON(R) SILVER 4514Y
CPU family:             6
Model:                  207
Thread(s) per core:    2
Core(s) per socket:    16
Socket(s):              1
Stepping:               2
BogoMIPS:               4000.00
Flags:                  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                        clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
                        lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
                        nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor
                        ds_cpl smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2
                        x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm
                        abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3 invpcid_single
                        cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bmi1 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 avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts hfi
```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

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

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

Platform Notes (Continued)

```
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_llid arch_capabilities
```

```
L1d cache: 768 KiB (16 instances)
L1i cache: 512 KiB (16 instances)
L2 cache: 32 MiB (16 instances)
L3 cache: 30 MiB (1 instance)
NUMA node(s): 2
NUMA node0 CPU(s): 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30
NUMA node1 CPU(s): 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
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/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBRSE-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	768K	12	Data	1	64	1	64
L1i	32K	512K	8	Instruction	1	64	1	64
L2	2M	32M	16	Unified	2	2048	1	64
L3	30M	30M	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: 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30
node 0 size: 257495 MB
node 0 free: 256667 MB
node 1 cpus: 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31
node 1 size: 257997 MB
node 1 free: 245621 MB
node distances:
node  0  1
 0:  10  12
 1:  12  10
```

9. /proc/meminfo

```
MemTotal: 527865200 kB
```

10. who -r

```
run-level 3 Mar 27 12:25
```

11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)

```
Default Target Status
multi-user running
```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

CPU2017 License: 6573

Test Date: Mar-2024

Test Sponsor: Dell Inc.

Hardware Availability: Jun-2024

Tested by: Dell Inc.

Software Availability: Dec-2023

Platform Notes (Continued)

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 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 ebttables 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 rpcbind rpmconfigcheck rsyncd serial-getty@
                smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures
                systemd-network-generator systemd-sysexit systemd-time-wait-sync systemd-timesyncd udisks2
                vncserver@
indirect       wickedd

```

13. Linux kernel boot-time arguments, from `/proc/cmdline`

```

BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
root=UUID=957e7823-cd7c-4814-81a6-88b6fa3ad500
splash=silent
mitigations=auto
quiet
security=apparmor

```

14. `cpupower frequency-info`

```

analyzing CPU 0:
  Unable to determine current policy
  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+madvice [madvice] never
enabled         [always] madvice never
hpage_pmd_size 2097152

```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2024

Hardware Availability: Jun-2024

Software Availability: Dec-2023

Platform Notes (Continued)

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 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 50G 5.7G 45G 12% /mnt/ramdisk
-----

```

```

-----
20. /sys/devices/virtual/dmi/id
Vendor: Dell Inc.
Product: PowerEdge XR5610
Product Family: PowerEdge
Serial: 1234567
-----

```

```

-----
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:
7x 002C0632002C MTC40F2046S1RC56BG1 64 GB 2 rank 5600, configured at 4400
1x 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 | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(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.
-----
=====

```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

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

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

Compiler Version Notes (Continued)

C++ | 508.namd_r(base, peak) 510.parest_r(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++, C | 511.povray_r(base, peak) 526.blender_r(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.
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++, C, Fortran | 507.cactuBSSN_r(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.
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.
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.

Fortran | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)

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.

Fortran, C | 521.wrf_r(base, peak) 527.cam4_r(base, peak)

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.
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.

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2024

Hardware Availability: Jun-2024

Software Availability: Dec-2023

Base Compiler Invocation (Continued)

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

Base Portability Flags

```
503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

C++ benchmarks:

```
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2024

Hardware Availability: Jun-2024

Software Availability: Dec-2023

Base Optimization Flags (Continued)

Fortran benchmarks (continued):

`-L/usr/local/jemalloc64-5.0.1/lib`

Benchmarks using both Fortran and C:

`-w -m64 -std=c11 -Wl,-z,muldefs -xsaphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -mprefer-vector-width=512 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib`

Benchmarks using both C and C++:

`-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsaphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib`

Benchmarks using Fortran, C, and C++:

`-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsaphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib`

Peak Compiler Invocation

C benchmarks:

`icx`

C++ benchmarks:

`icpx`

Fortran benchmarks:

`ifx`

Benchmarks using both Fortran and C:

`ifx icx`

Benchmarks using both C and C++:

`icpx icx`

Benchmarks using Fortran, C, and C++:

`icpx icx ifx`



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2024

Hardware Availability: Jun-2024

Software Availability: Dec-2023

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

519.lbm_r: basepeak = yes

538.imagick_r: basepeak = yes

544.nab_r: basepeak = yes

C++ benchmarks:

508.namd_r: basepeak = yes

510.parest_r: -w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -mprefer-vector-width=512 -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503.bwaves_r: basepeak = yes

549.fotonik3d_r: basepeak = yes

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

Benchmarks using both Fortran and C:

521.wrf_r: basepeak = yes

527.cam4_r: -w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_fp_base = 205

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_fp_peak = 211

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2024

Hardware Availability: Jun-2024

Software Availability: Dec-2023

Peak Optimization Flags (Continued)

Benchmarks using both C and C++:

```
511.povray_r: -w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int
-mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

```
-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

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>

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 2024-03-27 16:58:58-0400.

Report generated on 2024-07-01 10:33:31 by CPU2017 PDF formatter v6716.

Originally published on 2024-06-29.