



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H, 2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 19

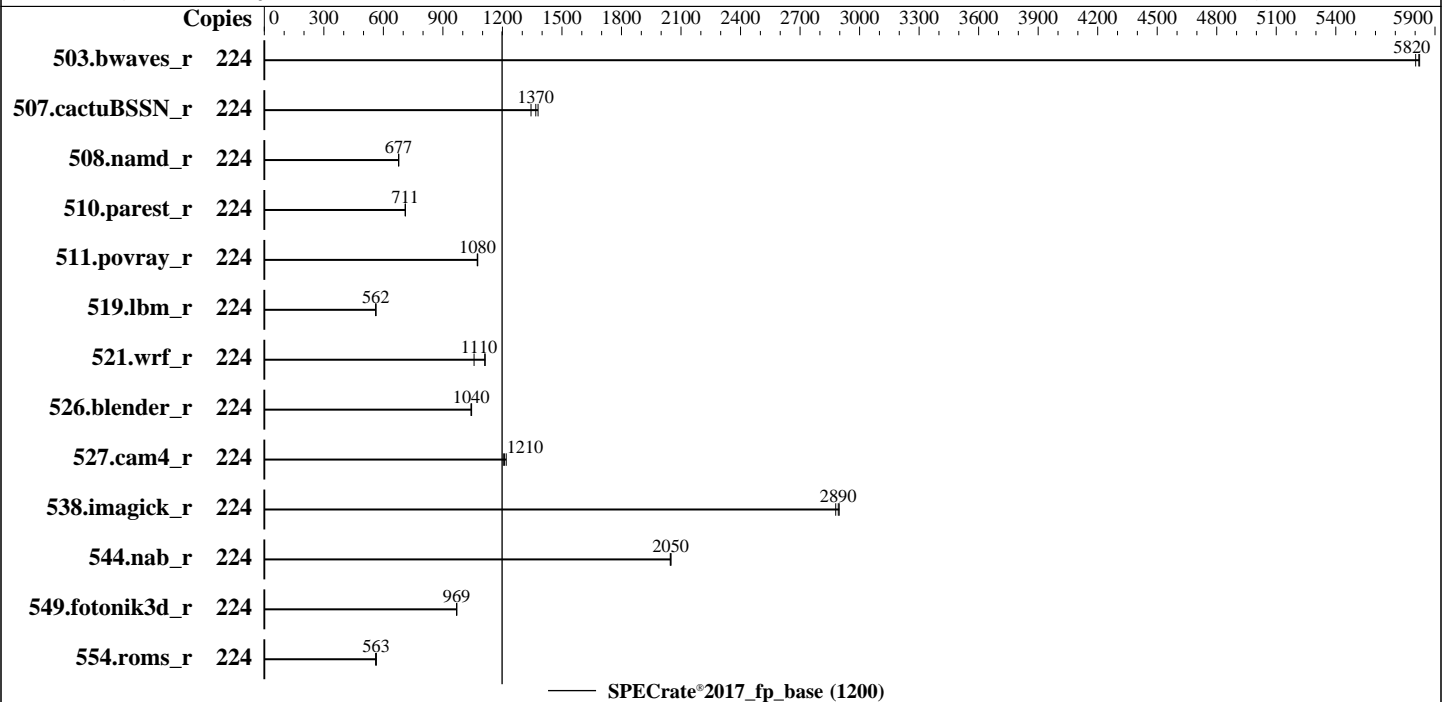
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Jun-2023

Hardware Availability: Jun-2023

Software Availability: Dec-2022



### Hardware

CPU Name: Intel Xeon Platinum 8450H  
 Max MHz: 3500  
 Nominal: 2000  
 Enabled: 112 cores, 4 chips, 2 threads/core  
 Orderable: 2,4 chips  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 75 MB I+D on chip per chip  
 Other: None  
 Memory: 2 TB (32 x 64 GB 2Rx4 PC5-4800B-R)  
 Storage: 1 x 1.92 TB SATA SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP4 5.14.21-150400.22-default  
 Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux;  
 Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;  
 Parallel: No  
 Firmware: Fujitsu BIOS Version V1.0.0.0 R1.10.0 for D3984-A1x. Released Jun-2023  
 tested as V1.0.0.0 R1.2.0 for D3984-A1x May-2023  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: jemalloc memory allocator V5.0.1  
 Power Management: BIOS set to prefer performance at the cost of additional power usage



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H, 2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 19  
Test Sponsor: Fujitsu  
Tested by: Fujitsu

Test Date: Jun-2023  
Hardware Availability: Jun-2023  
Software Availability: Dec-2022

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	224	<b>386</b>	<b>5820</b>	387	5800	386	5820							
507.cactuBSSN_r	224	206	1380	211	1340	<b>207</b>	<b>1370</b>							
508.namd_r	224	314	677	<b>314</b>	<b>677</b>	314	677							
510.parest_r	224	824	711	825	710	<b>825</b>	<b>711</b>							
511.povray_r	224	487	1080	<b>487</b>	<b>1080</b>	487	1070							
519.lbm_r	224	<b>420</b>	<b>562</b>	421	561	420	562							
521.wrf_r	224	451	1110	<b>452</b>	<b>1110</b>	475	1060							
526.blender_r	224	327	1040	327	1040	<b>327</b>	<b>1040</b>							
527.cam4_r	224	325	1200	321	1220	<b>324</b>	<b>1210</b>							
538.imagick_r	224	<b>193</b>	<b>2890</b>	192	2900	193	2880							
544.nab_r	224	184	2050	184	2050	<b>184</b>	<b>2050</b>							
549.fotonik3d_r	224	<b>901</b>	<b>969</b>	901	969	900	970							
554.roms_r	224	631	564	<b>632</b>	<b>563</b>	635	561							

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

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 = "/home/Benchmark/speccpu/lib/intel64:/home/Benchmark/speccpu/je5.0.1-64"  
MALLOCONF = "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>  
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H,  
2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Jun-2023

Hardware Availability: Jun-2023

Software Availability: Dec-2022

## 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.

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>

## Platform Notes

BIOS configuration:

Package C State limit = C0

CPU Performance Boost = Aggressive

SNC (Sub NUMA) = Enable SNC4

FAN Control = Full

System date was wrongly set. The actual date is Jun-2023

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost Fri Apr 29 21:01:07 2022

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 (249.11+suse.124.g2bc0b2c447)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. sysctl
17. /sys/kernel/mm/transparent\_hugepage
18. /sys/kernel/mm/transparent\_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS

-----

```
1. uname -a
Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)
x86_64 x86_64 x86_64 GNU/Linux
```

-----

```
2. w
21:01:07 up 1 min, 1 user, load average: 7.36, 3.06, 1.12
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H, 2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu

**Test Date:** Jun-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

```

USER      TTY      FROM          LOGIN@  IDLE   JCPU   PCPU WHAT
root      tty1    -             21:00  11.00s 1.62s  0.25s /home/Benchmark/ptu-unified/ptat -i 5000000
-filter 0x3f -ts -csv -log -logdir . -logname ptu_fprate_SPR_2017_withptu_202204292101

```

#### 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) 8253901
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) 8253901
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
-bash
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=224 -c
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=112 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base -o all fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=224 --configfile
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=112 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode
rate --tune base --size refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.003/templogs/preenv.fprate.003.0.log --lognum 003.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/Benchmark/speccpu

```

#### 6. /proc/cpuinfo

```

model name      : Intel(R) Xeon(R) Platinum 8450H
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 6
microcode      : 0x2b0001b0
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores      : 28
siblings       : 56
4 physical ids (chips)
224 processors (hardware threads)
physical id 0: core ids 0-27
physical id 1: core ids 0-27
physical id 2: core ids 0-27

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H, 2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu

**Test Date:** Jun-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

physical id 3: core ids 0-27  
physical id 0: apicids 0-55  
physical id 1: apicids 128-183  
physical id 2: apicids 256-311  
physical id 3: apicids 384-439

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 2.37.2:

```

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):                      224
On-line CPU(s) list:        0-223
Vendor ID:                   GenuineIntel
Model name:                  Intel(R) Xeon(R) Platinum 8450H
CPU family:                  6
Model:                      143
Thread(s) per core:         2
Core(s) per socket:         28
Socket(s):                   4
Stepping:                   6
CPU max MHz:                 3500.0000
CPU min MHz:                 800.0000
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 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
                             invpcid_single intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced
                             tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle
                             avx2 smep bmi2 erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap
                             avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                             xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                             cqm_mbm_local split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida
                             arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req avx512vbmi umip pku
                             ospke waitpkg avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                             tme avx512_vpopcntdq la57 rdpid bus_lock_detect cldemote movdiri movdir64b
                             enqcmd fsrm md_clear serialize tsxldtrk pconfig arch_lbr avx512_fp16
                             amx_tile flush_l1d arch_capabilities

Virtualization:              VT-x
L1d cache:                   5.3 MiB (112 instances)
L1i cache:                   3.5 MiB (112 instances)
L2 cache:                    224 MiB (112 instances)
L3 cache:                    300 MiB (4 instances)
NUMA node(s):                16
NUMA node0 CPU(s):          0-6,112-118
NUMA node1 CPU(s):          7-13,119-125
NUMA node2 CPU(s):          14-20,126-132
NUMA node3 CPU(s):          21-27,133-139
NUMA node4 CPU(s):          28-34,140-146
NUMA node5 CPU(s):          35-41,147-153
NUMA node6 CPU(s):          42-48,154-160

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H, 2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu

**Test Date:** Jun-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

```

NUMA node7 CPU(s):          49-55,161-167
NUMA node8 CPU(s):          56-62,168-174
NUMA node9 CPU(s):          63-69,175-181
NUMA node10 CPU(s):         70-76,182-188
NUMA node11 CPU(s):         77-83,189-195
NUMA node12 CPU(s):         84-90,196-202
NUMA node13 CPU(s):         91-97,203-209
NUMA node14 CPU(s):         98-104,210-216
NUMA node15 CPU(s):         105-111,217-223
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:         Not affected
Vulnerability Mds:         Not affected
Vulnerability Meltdown:    Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1:   Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2:   Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
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	5.3M	12	Data	1	64	1	64
L1i	32K	3.5M	8	Instruction	1	64	1	64
L2	2M	224M	16	Unified	2	2048	1	64
L3	75M	300M	15	Unified	3	81920	1	64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

```

available: 16 nodes (0-15)
node 0 cpus: 0-6,112-118
node 0 size: 128600 MB
node 0 free: 127264 MB
node 1 cpus: 7-13,119-125
node 1 size: 129020 MB
node 1 free: 128431 MB
node 2 cpus: 14-20,126-132
node 2 size: 129020 MB
node 2 free: 128288 MB
node 3 cpus: 21-27,133-139
node 3 size: 129020 MB
node 3 free: 128381 MB
node 4 cpus: 28-34,140-146
node 4 size: 129020 MB
node 4 free: 128627 MB
node 5 cpus: 35-41,147-153
node 5 size: 129020 MB
node 5 free: 128618 MB
node 6 cpus: 42-48,154-160
node 6 size: 128985 MB
node 6 free: 128596 MB
node 7 cpus: 49-55,161-167
node 7 size: 129020 MB
node 7 free: 128641 MB
node 8 cpus: 56-62,168-174
node 8 size: 129020 MB
node 8 free: 128641 MB
node 9 cpus: 63-69,175-181
node 9 size: 129020 MB
node 9 free: 128579 MB

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H, 2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Jun-2023

Hardware Availability: Jun-2023

Software Availability: Dec-2022

## Platform Notes (Continued)

```

node 10 cpus: 70-76,182-188
node 10 size: 129020 MB
node 10 free: 128607 MB
node 11 cpus: 77-83,189-195
node 11 size: 129020 MB
node 11 free: 128574 MB
node 12 cpus: 84-90,196-202
node 12 size: 129020 MB
node 12 free: 128734 MB
node 13 cpus: 91-97,203-209
node 13 size: 129020 MB
node 13 free: 128739 MB
node 14 cpus: 98-104,210-216
node 14 size: 129020 MB
node 14 free: 128685 MB
node 15 cpus: 105-111,217-223
node 15 size: 128649 MB
node 15 free: 128374 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
 0: 10 12 12 12 21 21 21 21 21 21 21 21 31 31 31 31
 1: 12 10 12 12 21 21 21 21 21 21 21 21 31 31 31 31
 2: 12 12 10 12 21 21 21 21 21 21 21 21 31 31 31 31
 3: 12 12 12 10 21 21 21 21 21 21 21 21 31 31 31 31
 4: 21 21 21 21 10 12 12 12 31 31 31 31 21 21 21 21
 5: 21 21 21 21 12 10 12 12 31 31 31 31 21 21 21 21
 6: 21 21 21 21 12 12 10 12 31 31 31 31 21 21 21 21
 7: 21 21 21 21 12 12 12 10 31 31 31 31 21 21 21 21
 8: 21 21 21 21 31 31 31 31 10 12 12 12 21 21 21 21
 9: 21 21 21 21 31 31 31 31 12 10 12 12 21 21 21 21
10: 21 21 21 21 31 31 31 31 12 12 10 12 21 21 21 21
11: 21 21 21 21 31 31 31 31 12 12 12 10 21 21 21 21
12: 31 31 31 31 21 21 21 21 21 21 21 21 10 12 12 12
13: 31 31 31 31 21 21 21 21 21 21 21 21 12 10 12 12
14: 31 31 31 31 21 21 21 21 21 21 21 21 12 12 10 12
15: 31 31 31 31 21 21 21 21 21 21 21 21 12 12 12 10

```

```

-----
9. /proc/meminfo
MemTotal:      2113023720 kB

```

```

-----
10. who -r
run-level 3 Apr 29 21:00

```

```

-----
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
Default Target Status
multi-user      degraded

```

```

-----
12. Failed units, from systemctl list-units --state=failed
UNIT          LOAD    ACTIVE SUB    DESCRIPTION
* sep5.service loaded failed failed systemd script to load sep5 driver at boot time

```

```

-----
13. Services, from systemctl list-unit-files
STATE          UNIT FILES
enabled        YaST2-Firstboot YaST2-Second-Stage apparmor auditd bluetooth cron display-manager getty@
                haveged irqbalance iscsi issue-generator kbdsettings kdump kdump-early klog lvm2-monitor

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H, 2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu

**Test Date:** Jun-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

```

nscd postfix purge-kernels rollback rsyslog sep5 smartd sshd wickd wickedd-auto4
wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime      systemd-remount-fs
disabled            accounts-daemon appstream-sync-cache autofs autoyast-initscripts blk-availability
                    bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd console-getty cups
                    cups-browsed debug-shell ebttables exchange-bmc-os-info firewallld gpm grub2-once
                    haveged-switch-root ipmi ipmievd iscsi-init iscsid iscsiui issue-add-ssh-keys kexec-load
                    lunmask man-db-create multipathd nfs nfs-blkmap nmb numad ostree-remount rdisc rpcbind
                    rpmconfigcheck rsyncd rtkit-daemon serial-getty@ smartd_generate_opts smb snmpd snmptrapd
                    speech-dispatcherd systemd-boot-check-no-failures systemd-network-generator systemd-sysext
                    systemd-time-wait-sync systemd-timesyncd udisks2 upower
indirect            wickedd

```

```

-----
14. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=8b4cfla0-f943-46c1-a409-c2bca0c1173e
splash=silent
mitigations=auto
quiet
security=apparmor
crashkernel=324M,high
crashkernel=72M,low

```

```

-----
15. cpupower frequency-info
analyzing CPU 0:
  current policy: frequency should be within 800 MHz and 3.50 GHz.
                   The governor "performance" may decide which speed to use
                   within this range.

  boost state support:
    Supported: yes
    Active: yes

```

```

-----
16. 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

```

```

-----
17. /sys/kernel/mm/transparent_hugepage
defrag      always defer defer+madvice [madvice] never
enabled     [always] madvice never

```

(Continued on next page)





# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H, 2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Jun-2023

Hardware Availability: Jun-2023

Software Availability: Dec-2022

## Platform Notes (Continued)

hpage\_pmd\_size 2097152  
shmem\_enabled always within\_size advise [never] deny force

-----  
18. /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  
-----

-----  
19. OS release  
From /etc/\*-release /etc/\*-version  
os-release SUSE Linux Enterprise Server 15 SP4  
-----

-----  
20. Disk information  
SPEC is set to: /home/Benchmark/specccpu  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda2 xfs 1.8T 55G 1.7T 4% /  
-----

-----  
21. /sys/devices/virtual/dmi/id  
Vendor: FUJITSU  
-----

-----  
22. dmidecode  
Additional information from dmidecode 3.2 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:  
9x Samsung M321R8GA0BB0-CQKDG 64 GB 2 rank 4800  
4x Samsung M321R8GA0BB0-CQKEG 64 GB 2 rank 4800  
1x Samsung M321R8GA0BB0-CQKMG 64 GB 2 rank 4800  
18x Samsung M321R8GA0BB0-CQKVG 64 GB 2 rank 4800  
-----

-----  
23. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: FUJITSU  
BIOS Version: V1.0.0.0 R1.0.0 for D3986-A1  
BIOS Date: 05/27/2023  
BIOS Revision: 1.0  
Firmware Revision: 1.2  
-----

## Compiler Version Notes

-----  
C | 519.lbm\_r(base) 538.imagick\_r(base) 544.nab\_r(base)  
-----

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
-----

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H, 2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu

**Test Date:** Jun-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Dec-2022

### Compiler Version Notes (Continued)

=====  
C++ | 508.namd\_r(base) 510.parest\_r(base)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
=====

=====  
C++, C | 511.povray\_r(base) 526.blender\_r(base)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
=====

=====  
C++, C, Fortran | 507.cactuBSSN\_r(base)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
=====

=====  
Fortran | 503.bwaves\_r(base) 549.fotonik3d\_r(base) 554.roms\_r(base)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
=====

=====  
Fortran, C | 521.wrf\_r(base) 527.cam4\_r(base)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
=====

### Base Compiler Invocation

C benchmarks:  
icx

C++ benchmarks:  
icpx

Fortran benchmarks:  
ifx

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Fujitsu**

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H,  
2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 19

**Test Sponsor:** Fujitsu

**Tested by:** Fujitsu

**Test Date:** Jun-2023

**Hardware Availability:** Jun-2023

**Software Availability:** Dec-2022

## Base Compiler Invocation (Continued)

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

## 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 -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
```

C++ benchmarks:

```
-w -std=c++14 -m64 -Wl,-z,muldefs -xsaphirerapids -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 -xsaphirerapids -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Fujitsu

PRIMEQUEST 4400E, Intel Xeon Platinum 8450H,  
2.00GHz

SPECrate®2017\_fp\_base = 1200

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Jun-2023

Hardware Availability: Jun-2023

Software Availability: Dec-2022

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc  
-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
```

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-SPR-RevB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-SPR-RevB.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](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.9 on 2022-04-29 08:01:06-0400.

Report generated on 2023-07-19 19:48:35 by CPU2017 PDF formatter v6716.

Originally published on 2023-07-19.