



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## GIGA-BYTE TECHNOLOGY CO., LTD.

(Test Sponsor: Giga Computing Technology Co., Ltd.)

### R283-S91

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

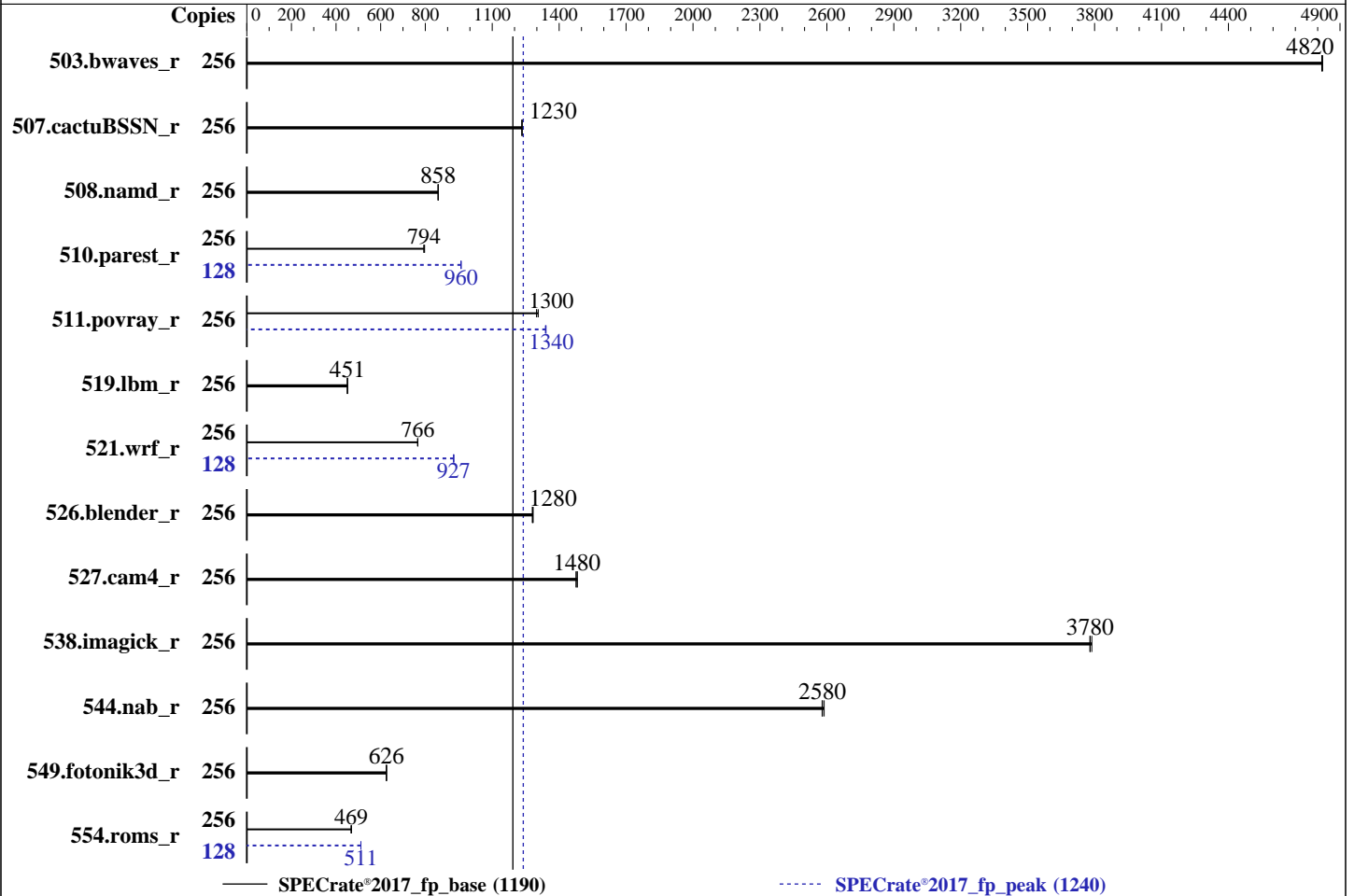
**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**Software Availability:** Dec-2023



### Hardware

CPU Name: Intel Xeon Platinum 8592+  
 Max MHz: 3900  
 Nominal: 1900  
 Enabled: 128 cores, 2 chips, 2 threads/core  
 Orderable: 1,2 chip(s)  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 320 MB I+D on chip per chip  
 Other: None  
 Memory: 512 GB (16 x 32 GB 2Rx8 PC5-5600B-R)

Storage: 1 x 3.84 TB NVMe  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP5  
 5.14.21-150500.53-default

Compiler: C/C++: Version 2023.2.3 of Intel oneAPI DPC++/C++  
 Compiler for Linux;  
 Fortran: Version 2023.2.3 of Intel Fortran  
 Compiler for Linux;

Parallel: No

Firmware: Version R02 released Dec-2023

File System: xfs

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

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**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	256	533	4820	<b>533</b>	<b>4820</b>	532	4820	256	533	4820	<b>533</b>	<b>4820</b>	532	4820
507.cactuBSSN_r	256	<b>263</b>	<b>1230</b>	263	1230	263	1230	256	<b>263</b>	<b>1230</b>	263	1230	263	1230
508.namd_r	256	284	857	<b>284</b>	<b>858</b>	283	858	256	284	857	<b>284</b>	<b>858</b>	283	858
510.parest_r	256	844	794	<b>843</b>	<b>794</b>	840	797	128	349	960	349	960	<b>349</b>	<b>960</b>
511.povray_r	256	<b>460</b>	<b>1300</b>	458	1310	460	1300	256	<b>446</b>	<b>1340</b>	446	1340	447	1340
519.lbm_r	256	<b>598</b>	<b>451</b>	598	451	598	451	256	<b>598</b>	<b>451</b>	598	451	598	451
521.wrf_r	256	749	765	748	767	<b>748</b>	<b>766</b>	128	309	927	<b>309</b>	<b>927</b>	309	928
526.blender_r	256	304	1280	<b>304</b>	<b>1280</b>	305	1280	256	304	1280	<b>304</b>	<b>1280</b>	305	1280
527.cam4_r	256	304	1480	302	1480	<b>303</b>	<b>1480</b>	256	304	1480	302	1480	<b>303</b>	<b>1480</b>
538.imagick_r	256	<b>168</b>	<b>3780</b>	168	3780	168	3790	256	<b>168</b>	<b>3780</b>	168	3780	168	3790
544.nab_r	256	<b>167</b>	<b>2580</b>	167	2580	166	2590	256	<b>167</b>	<b>2580</b>	167	2580	166	2590
549.fotonik3d_r	256	1592	627	1597	625	<b>1593</b>	<b>626</b>	256	1592	627	1597	625	<b>1593</b>	<b>626</b>
554.roms_r	256	868	469	870	468	<b>868</b>	<b>469</b>	128	398	511	398	511	<b>398</b>	<b>511</b>

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

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"
echo performance | tee /sys/devices/system/cpu/cpu*/cpufreq/scaling_governor
setterm -powersave off -blank 0
cpupower frequency-set -g performance
service irqbalance stop
echo 0 > /proc/sys/kernel/numa_balancing
echo 40 > /proc/sys/vm/dirty_ratio
```

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/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  
runcpu command invoked through numactl i.e.:  
numactl --interleave=all runcpu <etc>

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**Software Availability:** Dec-2023

## 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.

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>

## Platform Notes

BIOS Configuration:

Power Policy Quick Settings = Best Performance

SR-IOV Support = Disabled

SNC = Enable SNC2 (2-clusters)

Intel VT for Directed I/O = Enabled

Enable LP [Global] = ALL LPs

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Mon Dec 25 22:17:17 2023

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
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

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**Software Availability:** Dec-2023

## Platform Notes (Continued)

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  
22:17:17 up 7:32, 1 user, load average: 180.79, 236.51, 246.67  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root tty1 - 15:53 6:23m 1.23s 0.05s -bash

-----  
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) 2061980  
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) 2061980  
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=256 -c  
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=128 --define physicalfirst  
--define invoke\_with\_interleave --define drop\_caches --tune base,peak -o all fprate  
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=256 --configfile  
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=128 --define physicalfirst  
--define invoke\_with\_interleave --define drop\_caches --tune base,peak --output\_format all --nopower  
--runmode rate --tune base:peak --size refrate fprate --nopreenv --note-preenv --logfile  
\$SPEC/tmp/CPU2017.002/temlogs/preenv.fprate.002.0.log --lognum 002.0 --from\_runcpu 2  
specperl \$SPEC/bin/sysinfo  
\$SPEC = /home/cpu2017

-----  
6. /proc/cpuinfo  
model name : INTEL(R) XEON(R) PLATINUM 8592+  
vendor\_id : GenuineIntel  
cpu family : 6  
model : 207  
stepping : 2  
microcode : 0x210001b0  
bugs : spectre\_v1 spectre\_v2 spec\_store\_bypass swapgs eibrs\_pbrsb  
cpu cores : 64  
siblings : 128

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**Software Availability:** Dec-2023

## Platform Notes (Continued)

2 physical ids (chips)  
256 processors (hardware threads)  
physical id 0: core ids 0-63  
physical id 1: core ids 0-63  
physical id 0: apicids 0-127  
physical id 1: apicids 128-255

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:         52 bits physical, 57 bits virtual
Byte Order:            Little Endian
CPU(s):                256
On-line CPU(s) list:   0-255
Vendor ID:             GenuineIntel
Model name:            INTEL(R) XEON(R) PLATINUM 8592+
CPU family:            6
Model:                 207
Thread(s) per core:    2
Core(s) per socket:    64
Socket(s):             2
Stepping:              2
CPU max MHz:           3900.0000
CPU min MHz:           800.0000
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 aperfperf 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 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 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_lld arch_capabilities

Virtualization:        VT-x
L1d cache:             6 MiB (128 instances)
L1i cache:             4 MiB (128 instances)
L2 cache:              256 MiB (128 instances)
L3 cache:              640 MiB (2 instances)
NUMA node(s):         4
NUMA node0 CPU(s):    0-31,128-159
NUMA node1 CPU(s):    32-63,160-191
NUMA node2 CPU(s):    64-95,192-223
NUMA node3 CPU(s):    96-127,224-255
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:   Not affected

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**Software Availability:** Dec-2023

## Platform Notes (Continued)

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	6M	12	Data	1	64	1	64
L1i	32K	4M	8	Instruction	1	64	1	64
L2	2M	256M	16	Unified	2	2048	1	64
L3	320M	640M	20	Unified	3	262144	1	64

8. numactl --hardware

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

```
available: 4 nodes (0-3)
node 0 cpus: 0-31,128-159
node 0 size: 128612 MB
node 0 free: 99657 MB
node 1 cpus: 32-63,160-191
node 1 size: 129008 MB
node 1 free: 104713 MB
node 2 cpus: 64-95,192-223
node 2 size: 129008 MB
node 2 free: 104655 MB
node 3 cpus: 96-127,224-255
node 3 size: 128898 MB
node 3 free: 104156 MB
node distances:
node  0  1  2  3
 0:  10  12  21  21
 1:  12  10  21  21
 2:  21  21  10  12
 3:  21  21  12  10
```

9. /proc/meminfo

MemTotal: 527899692 kB

10. who -r

run-level 3 Dec 25 14:46

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

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

12. Services, from systemctl list-unit-files

```
STATE UNIT FILES
enabled apparmor auditd cron getty@ irqbalance issue-generator kbdsettings klog lvm2-monitor nscd
nvmeefc-boot-connections postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore
wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**Software Availability:** Dec-2023

## Platform Notes (Continued)

```

enabled-runtime  systemd-remount-fs
disabled         autofs blk-availability boot-sysctl ca-certificates chrony-wait chronyd console-getty cups
                 cups-browsed debug-shell dmraid-activation ebttables exchange-bmc-os-info firewallld gpm
                 grub2-once haveged haveged-switch-root ipmi ipmievd issue-add-ssh-keys kexec-load lunmask
                 man-db-create multipathd munge nfs nfs-blkmap ntp-wait ntpd nvme-autoconnect rpcbind
                 rpmconfigcheck rsyncd salt-minion serial-getty@ slurmd smartd_generate_opts snmpd
                 snmptrapd svnservice systemd-boot-check-no-failures systemd-network-generator systemd-sysext
                 systemd-time-wait-sync systemd-timesyncd udisks2 ypbind
indirect         wickedd

```

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

```

BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
root=UUID=1323381b-35ca-4a77-9220-44b501f924b6
splash=silent
resume=/dev/disk/by-uuid/4d6cfa32-be0b-46c8-a7f7-6bf928e0bb10
mitigations=auto
quiet
security=apparmor

```

### 14. cpupower frequency-info

```

analyzing CPU 0:
  current policy: frequency should be within 800 MHz and 3.90 GHz.
                  The governor "performance" may decide which speed to use
                  within this range.

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                  40
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

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**Software Availability:** Dec-2023

## Platform Notes (Continued)

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: /home/cpu2017

```

Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0n1p2 xfs 1.0T 109G 916G 11% /

```

20. /sys/devices/virtual/dmi/id

```

Vendor: Giga Computing
Product: R283-S91-AAE1-000
Product Family: Server
Serial: GMGEPNA12A0001

```

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 Samsung M321R4GA3PB0-CWMKH 32 GB 2 rank 5600

```

22. BIOS

(This section combines info from /sys/devices and dmidecode.)

```

BIOS Vendor: GIGABYTE
BIOS Version: R02
BIOS Date: 12/18/2023
BIOS Revision: 5.32

```

## 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 2023.2.3 Build x  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

```

=====
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 2023.2.3 Build x  
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

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**Software Availability:** Dec-2023

## Compiler Version Notes (Continued)

=====  
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 2023.2.3 Build x  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x  
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 2023.2.3 Build x  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.  
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x  
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 2023.2.3 Build x  
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 2023.2.3 Build x  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x  
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

Benchmarks using both C and C++:

icpx icx

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**Software Availability:** Dec-2023

## Base Compiler Invocation (Continued)

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
-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

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**Software Availability:** Dec-2023

## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

```
-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
```

Benchmarks using both C and C++:

```
-w -std=c++14 -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
-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 -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
```

## 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

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**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: -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

527.cam4\_r: basepeak = yes

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**GIGA-BYTE TECHNOLOGY CO., LTD.**

(Test Sponsor: Giga Computing Technology Co., Ltd.)

**R283-S91**

(1.90 GHz, Intel Xeon Platinum 8592+)

**SPECrate®2017\_fp\_base = 1190**

**SPECrate®2017\_fp\_peak = 1240**

**CPU2017 License:** 9082

**Test Sponsor:** Giga Computing Technology Co., Ltd.

**Tested by:** Giga Computing Technology Co., Ltd.

**Test Date:** Dec-2023

**Hardware Availability:** Dec-2023

**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++:

507.cactuBSSN\_r: basepeak = yes

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.html>

<http://www.spec.org/cpu2017/flags/GIGABYTE-Platform-Flags-Intel-EMR-rev1.2.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/GIGABYTE-Platform-Flags-Intel-EMR-rev1.2.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 2023-12-25 09:17:17-0500.

Report generated on 2024-01-16 17:17:23 by CPU2017 PDF formatter v6716.

Originally published on 2024-01-16.