



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

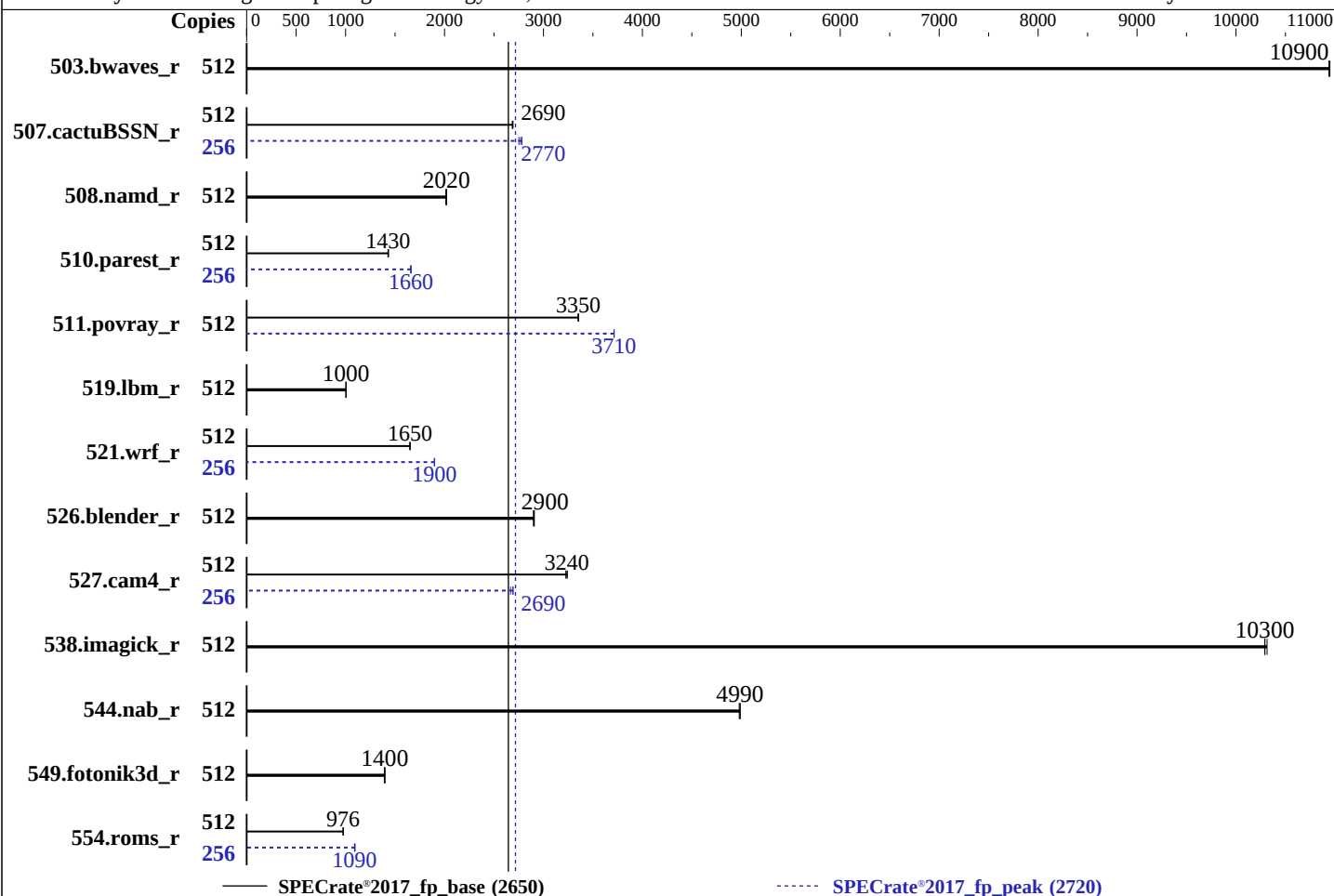
Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024



Hardware

CPU Name: Intel Xeon 6980P
Max MHz: 3900
Nominal: 2000
Enabled: 256 cores, 2 chips, 2 threads/core
Orderable: 1,2 chip(s)
Cache L1: 64 KB I + 48 KB D on chip per core
L2: 2 MB I+D on chip per core
L3: 504 MB I+D on chip per chip
Other: None
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-88/56B-M, running at 8800)
Storage: 1 x 3.84TB SSD
Other: CPU Cooling: DLC

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 F11 released Dec-2024
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 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	512	469	10900	469	10900	<u>469</u>	<u>10900</u>	512	469	10900	469	10900	<u>469</u>	<u>10900</u>
507.cactuBSSN_r	512	241	2690	<u>241</u>	<u>2690</u>	241	2690	256	118	2750	116	2780	<u>117</u>	<u>2770</u>
508.namd_r	512	<u>241</u>	<u>2020</u>	241	2020	242	2010	512	<u>241</u>	<u>2020</u>	241	2020	242	2010
510.parest_r	512	<u>937</u>	<u>1430</u>	938	1430	934	1430	256	403	1660	<u>403</u>	<u>1660</u>	403	1660
511.povray_r	512	356	3350	357	3350	<u>357</u>	<u>3350</u>	512	322	3710	<u>322</u>	<u>3710</u>	322	3710
519.lbm_r	512	537	1000	<u>537</u>	<u>1000</u>	537	1000	512	537	1000	<u>537</u>	<u>1000</u>	537	1000
521.wrf_r	512	695	1650	<u>694</u>	<u>1650</u>	694	1650	256	302	1900	302	1900	<u>302</u>	<u>1900</u>
526.blender_r	512	<u>268</u>	<u>2900</u>	269	2900	268	2910	512	<u>268</u>	<u>2900</u>	269	2900	268	2910
527.cam4_r	512	276	3240	278	3230	<u>277</u>	<u>3240</u>	256	<u>166</u>	<u>2690</u>	166	2690	168	2670
538.imagick_r	512	123	10300	<u>124</u>	<u>10300</u>	124	10300	512	123	10300	<u>124</u>	<u>10300</u>	124	10300
544.nab_r	512	173	4990	<u>173</u>	<u>4990</u>	173	4980	512	173	4990	<u>173</u>	<u>4990</u>	173	4980
549.fotonik3d_r	512	1434	1390	1427	1400	<u>1429</u>	<u>1400</u>	512	1434	1390	1427	1400	<u>1429</u>	<u>1400</u>
554.roms_r	512	834	976	<u>834</u>	<u>976</u>	834	976	256	373	1090	<u>373</u>	<u>1090</u>	371	1100

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

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/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
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3> /proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

Platform Notes

BIOS configuration:

Power Policy Quick Setting set to Best Performance

Hyper-Performance set to Maximum

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost Sat Dec 28 03:57:25 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

1. uname -a
Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09/1p)
x86_64 x86_64 x86_64 GNU/Linux

2. w
03:57:25 up 5:58, 1 user, load average: 305.47, 458.06, 486.46
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - 22:01 5:54m 1.25s 0.08s -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) 6189880
max locked memory (kbytes, -l) 8192

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

Platform Notes (Continued)

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) 6189880
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

-bash

runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 -c

ic2024.1-lin-core-avx512-rate-20240308.cfg --define smt-on --define cores=256 --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=512 --configfile

ic2024.1-lin-core-avx512-rate-20240308.cfg --define smt-on --define cores=256 --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/CPU2017.014/templots/preenv.fprate.014.0.log --lognum 014.0 --from_runcpu 2

specperl \$SPEC/bin/sysinfo

\$SPEC = /home/cpu2017

6. /proc/cpuinfo

model name : Intel(R) Xeon(R) 6980P
vendor_id : GenuineIntel
cpu family : 6
model : 173
stepping : 1
microcode : 0x1000360
bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores : 128
siblings : 256
2 physical ids (chips)
512 processors (hardware threads)
physical id 0: core ids 0-42,64-106,128-169
physical id 1: core ids 0-42,64-106,128-169
physical id 0: apicids 0-85,128-213,256-339
physical id 1: apicids 512-597,640-725,768-851

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, 57 bits virtual
Byte Order: Little Endian
CPU(s): 512
On-line CPU(s) list: 0-511
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

Platform Notes (Continued)

Model name: Intel(R) Xeon(R) 6980P
BIOS Model name: Intel(R) Xeon(R) 6980P CPU @ 2.0GHz
BIOS CPU family: 179
CPU family: 6
Model: 173
Thread(s) per core: 2
Core(s) per socket: 128
Socket(s): 2
Stepping: 1
CPU(s) scaling MHz: 23%
CPU max MHz: 3900.0000
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 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow 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 user_shstk avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req vnmi 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 ibt amx_bf16 avx512_fp16 amx_tile amx_int8 flush_l1d arch_capabilities
Virtualization: VT-x
L1d cache: 12 MiB (256 instances)
L1i cache: 16 MiB (256 instances)
L2 cache: 512 MiB (256 instances)
L3 cache: 1008 MiB (2 instances)
NUMA node(s): 6
NUMA node0 CPU(s): 0-42, 256-298
NUMA node1 CPU(s): 43-85, 299-341
NUMA node2 CPU(s): 86-127, 342-383
NUMA node3 CPU(s): 128-170, 384-426
NUMA node4 CPU(s): 171-213, 427-469
NUMA node5 CPU(s): 214-255, 470-511
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Reg file data sampling: Not affected
Vulnerability Retbleed: Not affected
Vulnerability Spec rstack overflow: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling; PBRSB-eIBRS Not affected; BHI BHI_DIS_S
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

Platform Notes (Continued)

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	12M	12	Data	1	64	1	64
L1i	64K	16M	16	Instruction	1	64	1	64
L2	2M	512M	16	Unified	2	2048	1	64
L3	504M	1008M	16	Unified	3	516096	1	64

8. numactl --hardware

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

available: 6 nodes (0-5)

node 0 cpus: 0-42,256-298

node 0 size: 257566 MB

node 0 free: 221249 MB

node 1 cpus: 43-85,299-341

node 1 size: 258025 MB

node 1 free: 224883 MB

node 2 cpus: 86-127,342-383

node 2 size: 258026 MB

node 2 free: 224749 MB

node 3 cpus: 128-170,384-426

node 3 size: 257986 MB

node 3 free: 224572 MB

node 4 cpus: 171-213,427-469

node 4 size: 258025 MB

node 4 free: 224762 MB

node 5 cpus: 214-255,470-511

node 5 size: 257870 MB

node 5 free: 225496 MB

node distances:

node	0	1	2	3	4	5
0:	10	12	12	21	21	21
1:	12	10	12	21	21	21
2:	12	12	10	21	21	21
3:	21	21	21	10	12	12
4:	21	21	21	12	10	12
5:	21	21	21	12	12	10

9. /proc/meminfo

MemTotal: 1584641604 kB

10. who -r

run-level 3 Dec 27 22:00

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 ModemManager YaST2-Firstboot YaST2-Second-Stage apparmor appstream-sync-cache auditd
bluetooth cron display-manager firewalld getty@ irqbalance issue-generator kbdsettings
klog lvm2-monitor nsd nvme-fc-boot-connections nvme-autoconnect postfix purge-kernels
rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4
wickedd-dhcp6 wickedd-nanny wpa_supplicant

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

Platform Notes (Continued)

enabled-runtime systemd-remount-fs
disabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online accounts-daemon autofs
autoyast-initscripts blk-availability bluetooth-mesh boot-sysctl ca-certificates
chrony-wait chronyd console-getty cups cups-browsed debug-shell dmraid-activation dnsmasq
ebtables exchange-bmc-os-info fsidd gpm grub2-once haveged ipmi ipmievdt issue-add-ssh-keys
kexec-load ksm kvm_stat lunmask man-db-create multipathd munge nfs nfs-blkmap nmb ntp-wait
ntpd openvpn@ ostree-remount rpcbind rpmconfigcheck rsyncd rtkit-daemon salt-minion
serial-getty@ slurmd smartd_generate_opts smb snmpd snmptrapd speech-dispatcherd svnserv
systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysext
systemd-time-wait-sync systemd-timesyncd udisks2 update-system-flatpaks upower vncserver@
wpa_supplicant@ ypbind
indirect pcsd saned@ systemd-userdbd wickedd

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

BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=205c50d5-8622-4656-b281-2c13270d7dbe
splash=silent
resume=/dev/disk/by-uuid/66e6d88c-6f5e-41e0-a414-a0794a222fa2
mitigations=auto
quiet
security=apparmor

14. cpupower frequency-info

analyzing CPU 400:
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+madvise [madvise] never
enabled	[always] madvise never
hpage_pmd_size	2097152

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

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 SP6
```

19. Disk information

SPEC is set to: /home/cpu2017

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0n1p3 xfs 2.5T 301G 2.2T 12% /home
```

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

```
Vendor: Giga Computing
Product: R184-A92-LAJ1-000
Product Family: Server
Serial: G0G5D1712A0003
```

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:

24x Samsung M327R8GA0EB0-CLVXB 64 GB 2 rank 11200, configured at 8800

22. BIOS

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

```
BIOS Vendor: GIGABYTE
BIOS Version: F11
BIOS Date: 12/26/2024
BIOS Revision: 5.35
```

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

```
====
C++ | 508.namd_r(base, peak) 510.parest_r(base, peak)
=====
```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

Compiler Version Notes (Continued)

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

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++, C, Fortran | 507.cactuBSSN_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.

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.

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

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

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.

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 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

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 -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

C++ benchmarks:

-w -std=c++14 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -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 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math  
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-Wno-implicit-int -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 -xCORE-AVX512 -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -Wno-implicit-int -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using Fortran, C, and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -Wno-implicit-int -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

Peak Portability Flags

Same as Base Portability Flags



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

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 -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -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 -xCORE-AVX512 -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:

-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -nostandard-realloc-lhs -align array32byte -auto
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

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

526.blender_r: basepeak = yes

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.

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

R184-A92-LAJ1

(2.0 GHz, Intel Xeon 6980P)

SPECrate®2017_fp_base = 2650

SPECrate®2017_fp_peak = 2720

CPU2017 License: 9082

Test Sponsor: Giga Computing Technology Co., Ltd.

Tested by: Giga Computing Technology Co., Ltd.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Jun-2024

Peak Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++:

```
-w -std=c++14 -m64 -std=c11 -wl, -z, muldefs -xCORE-AVX512 -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -Wno-implicit-int -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/GIGABYTE-Platform-Flags-Intel-GNR-rev1.0.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/GIGABYTE-Platform-Flags-Intel-GNR-rev1.0.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 2024-12-27 14:57:25-0500.

Report generated on 2025-04-28 18:13:06 by CPU2017 PDF formatter v6716.

Originally published on 2025-01-14.