



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Kaytus Systems Pte. Ltd.
KR2280V3 (Intel Xeon 6980P)

SPECrate®2017_fp_base = 2760

SPECrate®2017_fp_peak = 2850

CPU2017 License: 6865

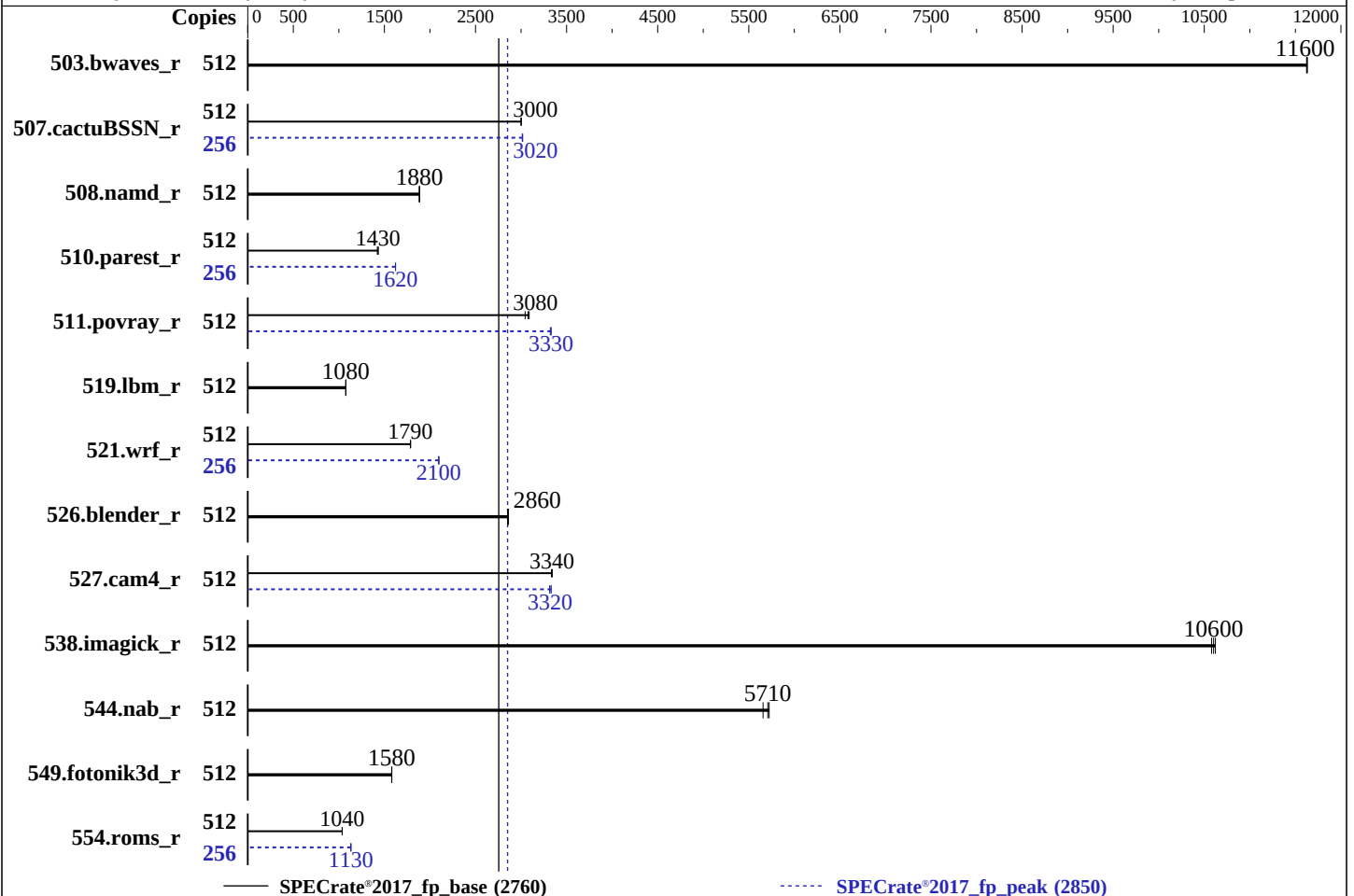
Test Sponsor: Kaytus Systems Pte. Ltd.

Tested by: Kaytus Systems Pte. Ltd.

Test Date: Oct-2025

Hardware Availability: Sep-2025

Software Availability: Apr-2025



Hardware

CPU Name: Intel Xeon 6980P
Max MHz: 3900
Nominal: 2000
Enabled: 256 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
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 4Rx8 PC5-88/64B-H)
Storage: 1 x 960 GB NVME SSD
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP7
6.4.0-150700.51-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 04.00.00 released Oct-2025
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 set to prefer performance at the cost
of additional power usage.



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	512	<u>442</u>	<u>11600</u>	441	11600	442	11600	512	<u>442</u>	<u>11600</u>	441	11600	442	11600
507.cactuBSSN_r	512	216	3000	<u>216</u>	<u>3000</u>	216	3000	256	<u>107</u>	<u>3020</u>	108	3010	107	3020
508.namd_r	512	258	1890	<u>258</u>	<u>1880</u>	258	1880	512	258	1890	<u>258</u>	<u>1880</u>	258	1880
510.parest_r	512	942	1420	936	1430	<u>936</u>	<u>1430</u>	256	413	1620	<u>413</u>	<u>1620</u>	413	1620
511.povray_r	512	<u>389</u>	<u>3080</u>	387	3090	393	3040	512	<u>359</u>	<u>3330</u>	359	3330	360	3320
519.lbm_r	512	<u>501</u>	<u>1080</u>	501	1080	501	1080	512	<u>501</u>	<u>1080</u>	501	1080	501	1080
521.wrf_r	512	<u>642</u>	<u>1790</u>	641	1790	642	1790	256	274	2100	<u>273</u>	<u>2100</u>	273	2100
526.blender_r	512	<u>273</u>	<u>2860</u>	272	2860	273	2850	512	<u>273</u>	<u>2860</u>	272	2860	273	2850
527.cam4_r	512	269	3330	<u>268</u>	<u>3340</u>	268	3340	512	<u>270</u>	<u>3320</u>	270	3310	269	3330
538.imagick_r	512	120	10600	<u>120</u>	<u>10600</u>	120	10600	512	120	10600	<u>120</u>	<u>10600</u>	120	10600
544.nab_r	512	151	5720	152	5660	<u>151</u>	<u>5710</u>	512	151	5720	152	5660	<u>151</u>	<u>5710</u>
549.fotonik3d_r	512	1263	1580	1261	1580	<u>1262</u>	<u>1580</u>	512	1263	1580	1261	1580	<u>1262</u>	<u>1580</u>
554.roms_r	512	<u>785</u>	<u>1040</u>	784	1040	785	1040	256	360	1130	<u>359</u>	<u>1130</u>	359	1130

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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"
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

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.

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Software Availability: Apr-2025

General Notes (Continued)

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:
ENERGY_PERF_BIAS_CFG mode set to Performance
Hardware Prefetch set to Disable
VT Support set to Disable
SNC set to Enable

Sysinfo program /home/CPU2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Wed Mar 19 13:50:06 2025

SUT (System Under Test) info as seen by some common utilities.

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1. uname -a
2. w
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5. sysinfo process ancestry
6. /proc/cpuinfo
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9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 254 (254.24+suse.148.g83b9060b6e)
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
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16. tuned-adm active
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19. /sys/kernel/mm/transparent_hugepage/khugepaged
20. OS release
21. Disk information
22. /sys/devices/virtual/dmi/id
23. dmidecode
24. BIOS

1. uname -a
Linux localhost 6.4.0-150700.51-default #1 SMP PREEMPT_DYNAMIC Wed Apr 30 21:35:43 UTC 2025 (6930611)
x86_64 x86_64 x86_64 GNU/Linux

2. w
13:50:06 up 5:51, 1 user, load average: 309.25, 457.83, 484.96
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT

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Platform Notes (Continued)

```
root      tty1      -                08:00    5:47m  1.18s  0.04s  sh
reportable-ic2024.1-lin-sapphirerapids-rate-smt-on-20240308.sh
```

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) 6189547
max locked memory       (kbytes, -l) 8192
max memory size         (kbytes, -m) unlimited
open files              (-n) 1024
pipe size               (512 bytes, -p) 8
POSIX message queues    (bytes, -q) 819200
real-time priority      (-r) 0
stack size              (kbytes, -s) unlimited
cpu time                (seconds, -t) unlimited
max user processes      (-u) 6189547
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
```

5. sysinfo process ancestry

```
/usr/lib/systemd/systemd --switched-root --system --deserialize=31
login -- root
-bash
sh reportable-ic2024.1-lin-sapphirerapids-rate-smt-on-20240308.sh
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 -c
ic2024.1-lin-sapphirerapids-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-sapphirerapids-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/CPU2017.047/templots/preenv.fprate.047.0.log --lognum 047.0 --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      : 0x10003d0
bugs           : spectre_v1 spectre_v2 spec_store_bypass swaps 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
```

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Platform Notes (Continued)

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 2.40.4:

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):	512
On-line CPU(s) list:	0-511
Vendor ID:	GenuineIntel
Model name:	Intel(R) Xeon(R) 6980P
CPU family:	6
Model:	173
Thread(s) per core:	2
Core(s) per socket:	128
Socket(s):	2
Stepping:	1
CPU(s) scaling MHz:	21%
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 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 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid 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 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 fsrmd md_clear serialize tsxldtrk pconfig arch_lbr ibt amx_bf16 avx512_fp16 amx_tile amx_int8 flush_l1d arch_capabilities
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

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Platform Notes (Continued)

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; PBRSE-eIBRS Not affected; BHI BHI_DIS_S
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	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: 257440 MB
node 0 free: 221606 MB
node 1 cpus: 43-85,299-341
node 1 size: 258025 MB
node 1 free: 224891 MB
node 2 cpus: 86-127,342-383
node 2 size: 258025 MB
node 2 free: 225655 MB
node 3 cpus: 128-170,384-426
node 3 size: 258025 MB
node 3 free: 224927 MB
node 4 cpus: 171-213,427-469
node 4 size: 258025 MB
node 4 free: 224979 MB
node 5 cpus: 214-255,470-511
node 5 size: 257871 MB
node 5 free: 225447 MB
node distances:
node 0 1 2 3 4 5
0: 10 15 17 21 28 26
1: 15 10 15 23 26 23
2: 17 15 10 26 23 21
3: 21 28 26 10 15 17
4: 23 26 23 15 10 15
5: 26 23 21 17 15 10

9. /proc/meminfo

MemTotal: 1584551220 kB

10. who -r

run-level 3 Mar 19 08:00

11. Systemd service manager version: systemd 254 (254.24+suse.148.g83b9060b6e)

Default Target Status

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Platform Notes (Continued)

multi-user degraded

12. Failed units, from systemctl list-units --state=failed

UNIT	LOAD	ACTIVE	SUB	DESCRIPTION
* kdump-early.service	loaded	failed	failed	Load kdump kernel early on startup
* kdump.service	loaded	failed	failed	Load kdump kernel and initrd

13. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	apparmor auditd cron getty@ irqbalance issue-generator kbdsettings kdump kdump-early kdump-notify nvme-fc-boot-connections nvmmf-autoconnect postfix purge-kernels rollback systemd-pstore
enabled-runtime	systemd-remount-fs
disabled	boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell exchange-bmc-os-info fsidd grub2-once haveged ipmiev d issue-add-ssh-keys kexec-load lunmask nfs nfs-blkmap rpcbind rpmconfigcheck serial-getty@ systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysexit systemd-time-wait-sync systemd-timesyncd tuned wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
indirect	systemd-userdbd wickedd

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

BOOT_IMAGE=/boot/vmlinuz-6.4.0-150700.51-default
root=UUID=2c3863d0-3c41-4a81-a2ac-a2e7ac92d054
splash=silent
mitigations=auto
quiet
security=apparmor
nohz_full=1-511

15. cpupower frequency-info

analyzing CPU 0:
current policy: frequency should be within 800 MHz and 3.90 GHz.
The governor "powersave" may decide which speed to use within this range.
boost state support:
Supported: yes
Active: yes

16. tuned-adm active

It seems that tuned daemon is not running, preset profile is not activated.
Preset profile: throughput-performance

17. 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

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Platform Notes (Continued)

```
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
```

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

```
-----
19. /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
-----
```

```
-----
20. OS release
From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP7
-----
```

```
-----
21. Disk information
SPEC is set to: /home/CPU2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/nvme0n1p2 xfs   894G  465G  429G  52% /
-----
```

```
-----
22. /sys/devices/virtual/dmi/id
Vendor:      KAYTUS
Product:     KR2280-X3-A0-R0-00
Product Family: Not specified
Serial:      01234567
-----
```

```
-----
23. dmidecode
Additional information from dmidecode 3.6 follows.  WARNING: Use caution when you interpret this section.
The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
"DMTF SMBIOS" standard.
Memory:
  8x Hynix HMC698BDJHA380N 64 GB 2 rank 12800, configured at 8800
  16x Hynix HMC698BDJHA383N 64 GB 2 rank 12800, configured at 8800
-----
```

```
-----
24. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:   American Megatrends International, LLC.
BIOS Version:  04.00.00
-----
```

(Continued on next page)



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Platform Notes (Continued)

BIOS Date: 10/14/2025

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)
=====

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
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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=====

=====
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
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=====

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

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SPEC CPU®2017 Floating Point Rate Result

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Kaytus Systems Pte. Ltd.

SPECrate®2017_fp_base = 2760

KR2280V3 (Intel Xeon 6980P)

SPECrate®2017_fp_peak = 2850

CPU2017 License: 6865

Test Sponsor: Kaytus Systems Pte. Ltd.

Tested by: Kaytus Systems Pte. Ltd.

Test Date: Oct-2025

Hardware Availability: Sep-2025

Software Availability: Apr-2025

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

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

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Base Optimization Flags (Continued)

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
```

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

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Peak Compiler Invocation (Continued)

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

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

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Peak 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++:

```
511.povray_r: -w -std=c++14 -m64 -std=c11 -Wl, -z,muldefs  
-fprofile-generate(pass 1)  
-fprofile-use=default.profddata(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/Kaytus-Platform-Settings-intel-V1.0.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/Kaytus-Platform-Settings-intel-V1.0.xml>

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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