



SPEC CPU®2017 Floating Point Rate Result

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Supermicro

CloudDC SuperServer SYS-222C-TN
(X14DBHM, Intel Xeon 6766E)

SPECrate®2017_fp_base = 1010

SPECrate®2017_fp_peak = 1010

CPU2017 License: 001176

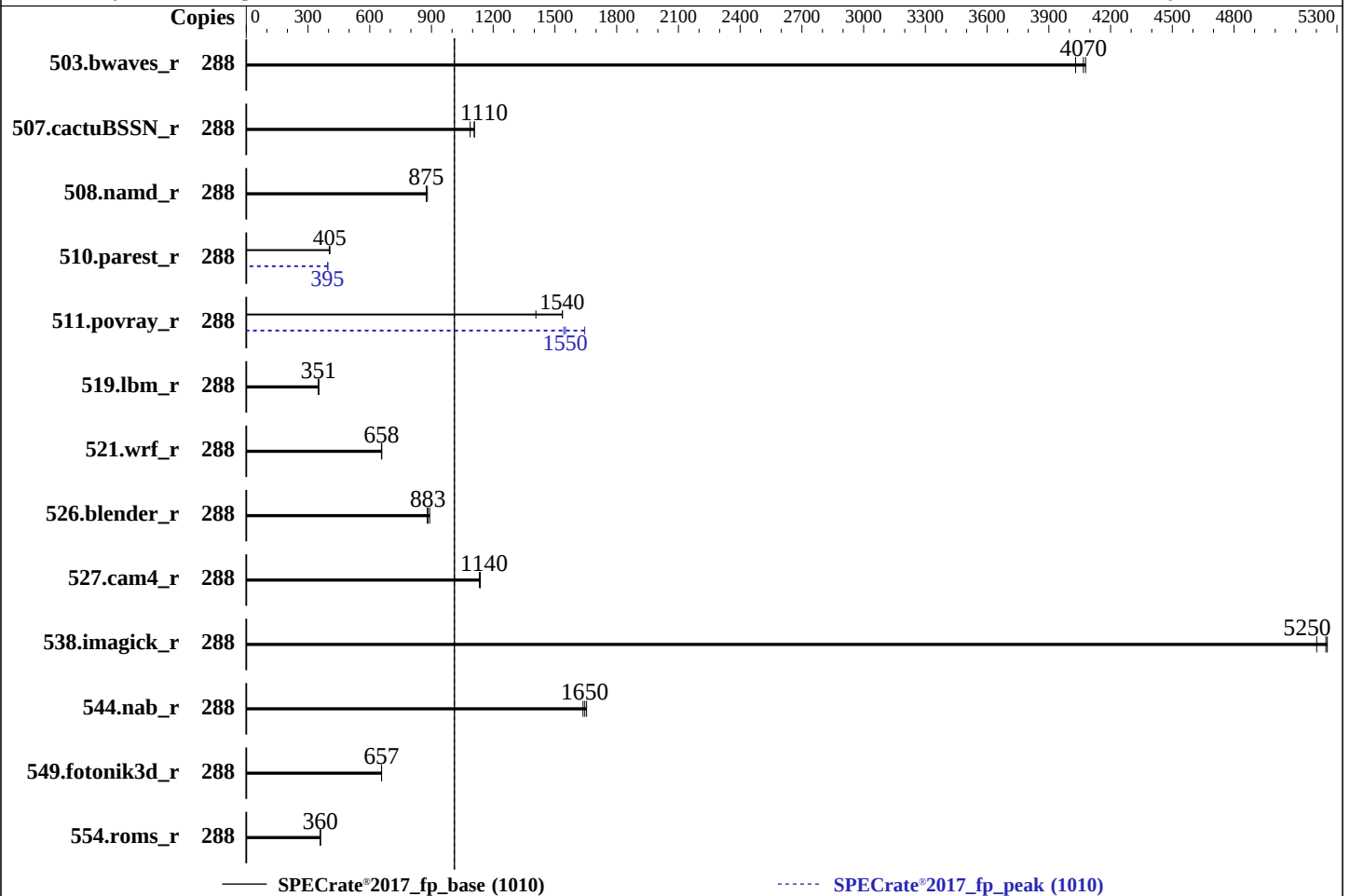
Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Apr-2025

Hardware Availability: Sep-2024

Software Availability: Jun-2024



Hardware

CPU Name: Intel Xeon 6766E
Max MHz: 2700
Nominal: 1900
Enabled: 288 cores, 2 chips
Orderable: 2 chips
Cache L1: 64 KB I + 32 KB D on chip per core
L2: 4 MB I+D on chip per core
L3: 108 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-6400B-R)
Storage: 1 x 300 GB SAS3 HDD, 10000 RPM
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP6
Kernel 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 1.2 released Feb-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 and OS 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	288	708	4080	<u>710</u>	<u>4070</u>	717	4030	288	708	4080	<u>710</u>	<u>4070</u>	717	4030
507.cactuBSSN_r	288	<u>329</u>	<u>1110</u>	329	1110	335	1090	288	<u>329</u>	<u>1110</u>	329	1110	335	1090
508.namd_r	288	311	880	313	875	<u>313</u>	<u>875</u>	288	311	880	313	875	<u>313</u>	<u>875</u>
510.parest_r	288	1857	406	<u>1858</u>	<u>405</u>	1867	403	288	<u>1906</u>	<u>395</u>	1906	395	1901	396
511.povray_r	288	438	1540	<u>438</u>	<u>1540</u>	478	1410	288	<u>434</u>	<u>1550</u>	436	1540	409	1640
519.lbm_r	288	862	352	<u>864</u>	<u>351</u>	867	350	288	862	352	<u>864</u>	<u>351</u>	867	350
521.wrf_r	288	980	658	<u>981</u>	<u>658</u>	982	657	288	980	658	<u>981</u>	<u>658</u>	982	657
526.blender_r	288	<u>497</u>	<u>883</u>	499	880	492	891	288	<u>497</u>	<u>883</u>	499	880	492	891
527.cam4_r	288	443	1140	<u>443</u>	<u>1140</u>	445	1130	288	443	1140	<u>443</u>	<u>1140</u>	445	1130
538.imagick_r	288	136	5250	<u>137</u>	<u>5250</u>	138	5200	288	136	5250	<u>137</u>	<u>5250</u>	138	5200
544.nab_r	288	293	1650	<u>295</u>	<u>1650</u>	296	1640	288	293	1650	<u>295</u>	<u>1650</u>	296	1640
549.fotonik3d_r	288	1707	658	1707	657	<u>1707</u>	<u>657</u>	288	1707	658	1707	657	<u>1707</u>	<u>657</u>
554.roms_r	288	<u>1271</u>	<u>360</u>	1273	360	1270	360	288	<u>1271</u>	<u>360</u>	1273	360	1270	360

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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
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)

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General Notes (Continued)

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.

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:
Workload Profile = HPC
LLC Dead Line Alloc = Disable
KTI Prefetch = Enable
Stale AtoS = Disable

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Tue Apr 15 18:38:54 2025

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. tuned-adm active
 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 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
x86_64 x86_64 x86_64 GNU/Linux

2. w

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Platform Notes (Continued)

18:38:54 up 19:41, 1 user, load average: 0.00, 0.00, 0.00
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - Mon22 6.00s 1.93s 0.09s -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) 4125984
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) 4125984
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=288 -c
ic2024.1-lin-sierraforest-rate-20240308.cfg --define smt-on --define peakfpcopies=288 --define
physicalfirst --define invoke_with_interleave --define drop_caches --reportable --tune base,peak -o all
fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=288 --configfile
ic2024.1-lin-sierraforest-rate-20240308.cfg --define smt-on --define peakfpcopies=288 --define
physicalfirst --define invoke_with_interleave --define drop_caches --reportable --tune base,peak
--output_format all --nopower --runmode rate --tune base:peak --size refrate fprate --nopreenv
--note-preenv --logfile \$SPEC/tmp/CPU2017.005/temlogs/preenv.fprate.005.0.log --lognum 005.0
--from_runcpu 2
specperl \$SPEC/bin/sysinfo
\$SPEC = /home/cpu2017

6. /proc/cpuinfo
model name : Intel(R) Xeon(R) 6766E
vendor_id : GenuineIntel
cpu family : 6
model : 175
stepping : 3
microcode : 0x3000330
bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores : 144
siblings : 144
2 physical ids (chips)
288 processors (hardware threads)
physical id 0: core ids 0-143

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Platform Notes (Continued)

physical id 1: core ids 0-143

physical id 0: apicids

0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286

physical id 1: apicids

512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798

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, 48 bits virtual
Byte Order:	Little Endian
CPU(s):	288
On-line CPU(s) list:	0-287
Vendor ID:	GenuineIntel
BIOS Vendor ID:	Intel(R) Corporation
Model name:	Intel(R) Xeon(R) 6766E
BIOS Model name:	Intel(R) Xeon(R) 6766E CPU @ 1.9GHz
BIOS CPU family:	179
CPU family:	6
Model:	175
Thread(s) per core:	1
Core(s) per socket:	144
Socket(s):	2
Stepping:	3
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 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 avx2 smep bmi2 erms invpcid cqm rdt_a rdseed adx smap clflushopt clwb intel_pt sha_ni xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local split_lock_detect user_shstk avx_vnni l3m_wb noinvld dtherm ida arat pln pts vnni umip pku ospke waitpkg gfni vaes vpclmulqdq tme rdpid bus_lock_detect cldemote movdiri movdir64b enqcmd fsrm md_clear serialize pconfig arch_lbr ibt flush_l1d arch_capabilities
Virtualization:	VT-x
L1d cache:	9 MiB (288 instances)
L1i cache:	18 MiB (288 instances)
L2 cache:	288 MiB (72 instances)
L3 cache:	216 MiB (2 instances)

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Platform Notes (Continued)

NUMA node(s): 2
NUMA node0 CPU(s): 0-143
NUMA node1 CPU(s): 144-287
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; 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	32K	9M	8	Data	1	64	1	64
L1i	64K	18M	8	Instruction	1	128	1	64
L2	4M	288M	16	Unified	2	4096	1	64
L3	108M	216M	12	Unified	3	147456	1	64

8. numactl --hardware

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

available: 2 nodes (0-1)
node 0 cpus: 0-143
node 0 size: 515541 MB
node 0 free: 448164 MB
node 1 cpus: 144-287
node 1 size: 515981 MB
node 1 free: 454651 MB
node distances:
node 0 1
0: 10 21
1: 21 10

9. /proc/meminfo

MemTotal: 1056278968 kB

10. who -r

run-level 3 Apr 14 22:58

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	YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ irqbalance issue-generator kbdsettings klogd lvm2-monitor nsd postfix purge-kernel rollback rsyslog smartd sshd systemd-pstore tuned wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6

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Platform Notes (Continued)

```
enabled-runtime    wickedd-nanny
disabled           systemd-remount-fs
                   autofsd autostart-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                   chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info
                   firewallld fsidd gpm grub2-once haveged hwloc-dump-hwdata ipmi ipmievdt issue-add-ssh-keys
                   kexec-load lunmask man-db-create multipathd nfs nfs-blkmap rpcbind rpmconfigcheck rsyncd
                   serial-getty@ smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures
                   systemd-confext systemd-network-generator systemd-sysext systemd-time-wait-sync
                   systemd-timesyncd udisks2 vncserver@
indirect           systemd-userdbd wickedd
```

```
-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=80e782d0-aedd-4e72-9732-1f74ade0ad3b
splash=silent
mitigations=auto
quiet
security=apparmor
nomodeset
-----
```

```
-----
14. cpupower frequency-info
analyzing CPU 99:
  Unable to determine current policy
  boost state support:
    Supported: yes
    Active: yes
-----
```

```
-----
15. tuned-adm active
  Current active profile: throughput-performance
-----
```

```
-----
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                   10
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+madvise [madvise] never
enabled     [always] madvise never
hpage_pmd_size 2097152
-----
```

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Platform Notes (Continued)

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 SP6

20. Disk information
SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 277G 135G 142G 49% /

21. /sys/devices/virtual/dmi/id
Vendor: Supermicro
Product: Super Server
Product Family: Family
Serial: 0123456789

22. 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:
9x Micron Technology MTC40F2046S1RC64BD2 MWFF 64 GB 2 rank 6400
7x Micron Technology MTC40F2046S1RC64BDY MWCC 64 GB 2 rank 6400

23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 1.2
BIOS Date: 02/20/2025
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
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Compiler Version Notes (Continued)

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

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

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

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Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

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SPEC CPU®2017 Floating Point Rate Result

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Supermicro

CloudDC SuperServer SYS-222C-TN
(X14DBHM , Intel Xeon 6766E)

SPECrate®2017_fp_base = 1010

SPECrate®2017_fp_peak = 1010

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Apr-2025
Hardware Availability: Sep-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 -xsierraforest -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 -xsierraforest -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 -xsierraforest -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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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xsierraforest -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 -xsierraforest -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 -xsierraforest -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



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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 -xsierraforest -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: basepeak = yes

Benchmarks using both Fortran and C:

521.wrf_r: basepeak = yes

527.cam4_r: basepeak = yes

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 -flto
-Ofast -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

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: basepeak = yes



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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/Supermicro-Platform-Settings-V1.2-GNR-revB.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/Supermicro-Platform-Settings-V1.2-GNR-revB.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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