



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

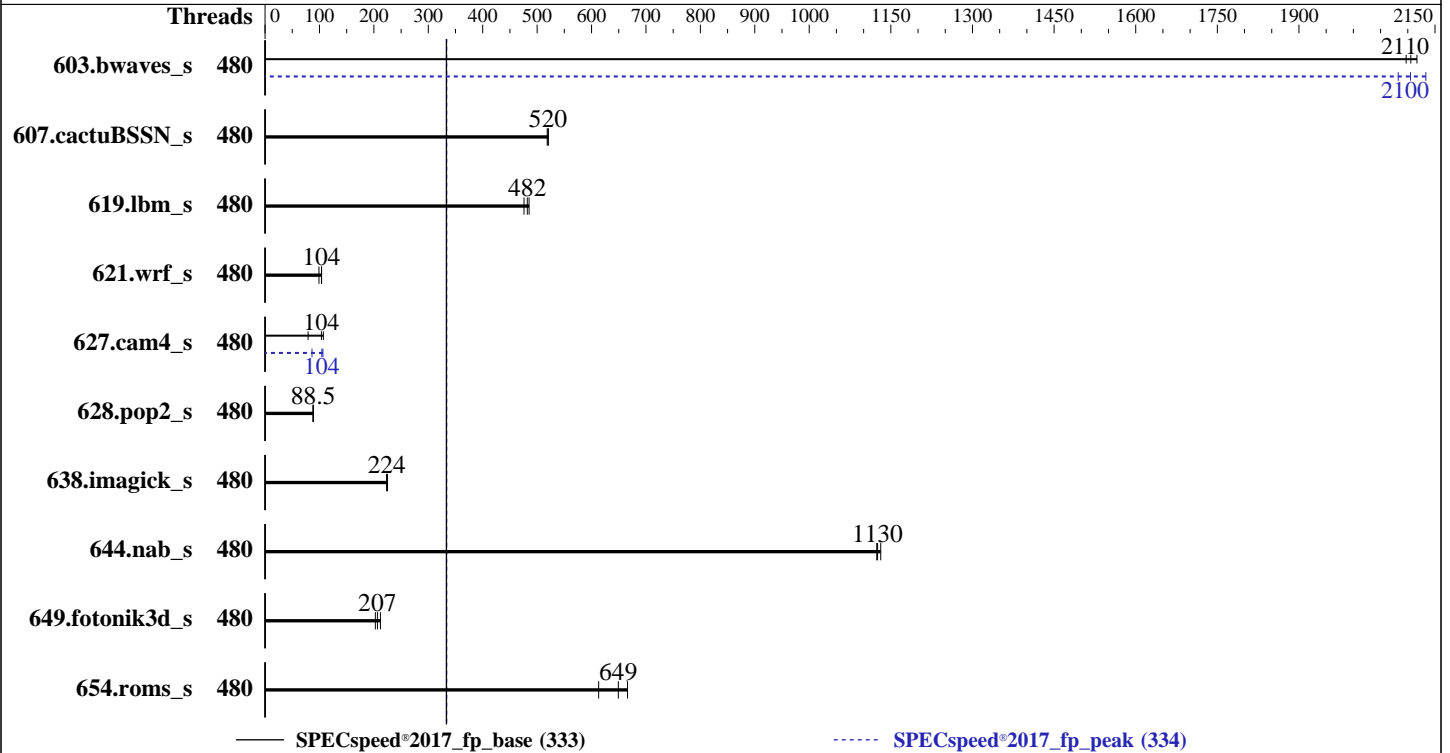
SuperServer SYS-681E-TR  
(X13OEI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

Test Date: Apr-2023  
Hardware Availability: May-2023  
Software Availability: Dec-2022



### Hardware

CPU Name: Intel Xeon Platinum 8490H  
Max MHz: 3500  
Nominal: 1900  
Enabled: 480 cores, 8 chips  
Orderable: 1,2,4,8 chips  
Cache L1: 32 KB I + 48 KB D on chip per core  
L2: 2 MB I+D on chip per core  
L3: 112.5 MB I+D on chip per chip  
Other: None  
Memory: 4 TB  
(64 x 64 GB 2Rx4 PC5-4800B-R)  
Storage: 1 x 800 GB NVMe SSD  
Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP4  
5.14.21-150400.22-default  
Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++  
Compiler for Linux;  
Fortran: Version 2023.0 of Intel Fortran Compiler  
for Linux;  
C/C++: Version 2023.0 of Intel C/C++ Compiler  
for Linux  
Parallel: Yes  
Firmware: Version 1.0a released May-2023 tested as Mar-2023  
File System: ext4  
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 Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X130EI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

Test Date: Apr-2023  
Hardware Availability: May-2023  
Software Availability: Dec-2022

## Results Table

Benchmark	Base								Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
603.bwaves_s	480	27.9	2120	28.1	2100	<b><u>28.0</u></b>	<b><u>2110</u></b>	480	27.7	2130	28.3	2080	<b><u>28.0</u></b>	<b><u>2100</u></b>		
607.cactuBSSN_s	480	32.2	518	<b><u>32.1</u></b>	<b><u>520</u></b>	32.0	521	480	32.2	518	<b><u>32.1</u></b>	<b><u>520</u></b>	32.0	521		
619.lbm_s	480	<b><u>10.9</u></b>	<b><u>482</u></b>	11.0	476	10.8	485	480	<b><u>10.9</u></b>	<b><u>482</u></b>	11.0	476	10.8	485		
621.wrf_s	480	127	104	<b><u>128</u></b>	<b><u>104</u></b>	134	99.1	480	127	104	<b><u>128</u></b>	<b><u>104</u></b>	134	99.1		
627.cam4_s	480	<b><u>85.6</u></b>	<b><u>104</u></b>	82.7	107	112	79.1	480	103	86.3	83.3	106	<b><u>85.0</u></b>	<b><u>104</u></b>		
628.pop2_s	480	<b><u>134</u></b>	<b><u>88.5</u></b>	135	88.3	134	88.6	480	<b><u>134</u></b>	<b><u>88.5</u></b>	135	88.3	134	88.6		
638.imagick_s	480	<b><u>64.4</u></b>	<b><u>224</u></b>	64.5	224	64.1	225	480	<b><u>64.4</u></b>	<b><u>224</u></b>	64.5	224	64.1	225		
644.nab_s	480	15.5	1120	15.4	1130	<b><u>15.5</u></b>	<b><u>1130</u></b>	480	15.5	1120	15.4	1130	<b><u>15.5</u></b>	<b><u>1130</u></b>		
649.fotonik3d_s	480	43.0	212	45.0	203	<b><u>44.1</u></b>	<b><u>207</u></b>	480	43.0	212	45.0	203	<b><u>44.1</u></b>	<b><u>207</u></b>		
654.roms_s	480	25.7	613	<b><u>24.3</u></b>	<b><u>649</u></b>	23.6	666	480	25.7	613	<b><u>24.3</u></b>	<b><u>649</u></b>	23.6	666		

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## 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:  
KMP\_AFFINITY = "granularity=fine,compact"  
LD\_LIBRARY\_PATH = "/root/cpu2017-1.1.9/lib/intel64:/root/cpu2017-1.1.9/je5.0.1-64"  
MALLOC\_CONF = "retain:true"  
OMP\_STACKSIZE = "192M"

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM  
memory using Redhat Enterprise Linux 8.0  
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  
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.  
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.  
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) 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 Settings:  
Power Technology = Custom  
Power Performance Tuning = BIOS Controls EPB

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X13OEI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

**Test Date:** Apr-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

ENERGY\_PERF\_BIAS\_CFG mode = Max Performance  
SNC = Disable  
Hyper-Threading [ALL] = Disable  
LLC Prefetch = Enable

Sysinfo program /root/cpu2017-1.1.9/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Mon Apr 24 14:33:11 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 (249.11+suse.124.g2bc0b2c447)
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 5.14.21-150400.22-default #1 SMP PREEMPT\_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)  
x86\_64 x86\_64 x86\_64 GNU/Linux

-----  
2. w  
14:33:11 up 19 min, 1 user, load average: 0.02, 0.05, 0.16  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root tty1 - 14:32 7.00s 1.18s 0.00s -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) 16512532

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X130EI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

**Test Date:** Apr-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

```

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) 16512532
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 -c
  ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=480 --tune base,peak -o all --define
  drop_caches fpspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
  ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=480 --tune base,peak --output_format all
  --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed --nopreenv
  --note-preenv --logfile $SPEC/tmp/CPU2017.035/templogs/preenv.fpspeed.035.0.log --lognum 035.0
  --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /root/cpu2017-1.1.9

```

#### 6. /proc/cpuinfo

```

model name      : Intel(R) Xeon(R) Platinum 8490H
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 6
microcode      : 0x2b0001b0
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores      : 60
siblings       : 60
8 physical ids (chips)
480 processors (hardware threads)
physical id 0: core ids 0-59
physical id 1: core ids 0-59
physical id 2: core ids 0-59
physical id 3: core ids 0-59
physical id 4: core ids 0-59
physical id 5: core ids 0-59
physical id 6: core ids 0-59
physical id 7: core ids 0-59
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
physical id 1: apicids
128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,1
80,182,184,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214,216,218,220,222,224,226,228,230,23
2,234,236,238,240,242,244,246
physical id 2: apicids
256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,3
08,310,312,314,316,318,320,322,324,326,328,330,332,334,336,338,340,342,344,346,348,350,352,354,356,358,36

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X130EI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

**Test Date:** Apr-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

0,362,364,366,368,370,372,374

physical id 3: apicids

384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414,416,418,420,422,424,426,428,430,432,434,436,438,440,442,444,446,448,450,452,454,456,458,460,462,464,466,468,470,472,474,476,478,480,482,484,486,488,490,492,494,496,498,500,502

physical id 4: 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

physical id 5: apicids

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

physical id 6: apicids

768,770,772,774,776,778,780,782,784,786,788,790,792,794,796,798,800,802,804,806,808,810,812,814,816,818,820,822,824,826,828,830,832,834,836,838,840,842,844,846,848,850,852,854,856,858,860,862,864,866,868,870,872,874,876,878,880,882,884,886

physical id 7: apicids

896,898,900,902,904,906,908,910,912,914,916,918,920,922,924,926,928,930,932,934,936,938,940,942,944,946,948,950,952,954,956,958,960,962,964,966,968,970,972,974,976,978,980,982,984,986,988,990,992,994,996,998,1000,1002,1004,1006,1008,1010,1012,1014

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

-----  
7. lscpu

From lscpu from util-linux 2.37.2:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         52 bits physical, 57 bits virtual
Byte Order:            Little Endian
CPU(s):                480
On-line CPU(s) list:  0-479
Vendor ID:             GenuineIntel
Model name:            Intel(R) Xeon(R) Platinum 8490H
CPU family:            6
Model:                 143
Thread(s) per core:   1
Core(s) per socket:   60
Socket(s):             8
Stepping:              6
Frequency boost:      enabled
CPU max MHz:          1901.0000
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 aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor
                      ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1
                      sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand
                      lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3
                      invpcid_single cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
                      vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep
                      bmi2 erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap
                      avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                      xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                      cqm_mbm_local split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida
                      arat pln pts avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni vaes
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X13OEI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

**Test Date:** Apr-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

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  
VT-x

```

Virtualization:
L1d cache:      22.5 MiB (480 instances)
L1i cache:      15 MiB (480 instances)
L2 cache:       960 MiB (480 instances)
L3 cache:       900 MiB (8 instances)
NUMA node(s):   8
NUMA node0 CPU(s): 0-59
NUMA node1 CPU(s): 60-119
NUMA node2 CPU(s): 120-179
NUMA node3 CPU(s): 180-239
NUMA node4 CPU(s): 240-299
NUMA node5 CPU(s): 300-359
NUMA node6 CPU(s): 360-419
NUMA node7 CPU(s): 420-479
Vulnerability Itlb multihit: Not affected
Vulnerability Lltf:         Not affected
Vulnerability Mds:         Not affected
Vulnerability Meltdown:    Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1:   Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2:   Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbds:        Not affected
Vulnerability Tsx async abort: Not affected

```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	22.5M	12	Data	1	64	1	64
L1i	32K	15M	8	Instruction	1	64	1	64
L2	2M	960M	16	Unified	2	2048	1	64
L3	112.5M	900M	15	Unified	3	122880	1	64

8. numactl --hardware

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

```

available: 8 nodes (0-7)
node 0 cpus: 0-59
node 0 size: 515709 MB
node 0 free: 512802 MB
node 1 cpus: 60-119
node 1 size: 516080 MB
node 1 free: 515206 MB
node 2 cpus: 120-179
node 2 size: 516046 MB
node 2 free: 515126 MB
node 3 cpus: 180-239
node 3 size: 516080 MB
node 3 free: 515184 MB
node 4 cpus: 240-299
node 4 size: 516080 MB
node 4 free: 515789 MB
node 5 cpus: 300-359
node 5 size: 516080 MB
node 5 free: 515245 MB
node 6 cpus: 360-419
node 6 size: 516080 MB
node 6 free: 515193 MB
node 7 cpus: 420-479

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X13OEI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

**Test Date:** Apr-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

```

node 7 size: 515997 MB
node 7 free: 515650 MB
node distances:
node   0   1   2   3   4   5   6   7
0:  10  21  21  31  31  21  21  31
1:  21  10  31  21  21  31  31  21
2:  21  31  10  21  21  31  31  21
3:  31  21  21  10  31  21  21  31
4:  31  21  21  31  10  21  21  31
5:  21  31  31  21  21  10  31  21
6:  21  31  31  21  21  31  10  21
7:  31  21  21  31  31  21  21  10

```

```

-----
9. /proc/meminfo
   MemTotal:      4227232736 kB

```

```

-----
10. who -r
    run-level 3 Apr 24 14:14

```

```

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

```

```

-----
12. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled YaST2-Firstboot YaST2-Second-Stage apparmor auditd bluetooth cron display-manager getty@
haveged irqbalance iscsi issue-generator kbdsettings klog lvm2-monitor nscd
nvme-fc-boot-connections postfix purge-kernels rollback rsyslog smartd sshd wick
wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime systemd-fsck-root systemd-remount-fs
disabled accounts-daemon appstream-sync-cache autofs autoyast-initscripts blk-availability
bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd console-getty cups
cups-browsed debug-shell ebttables exchange-bmc-os-info firewallld gpm grub2-once
haveged-switch-root ipmi ipmievd iscsi-init iscsid iscsiui issue-add-ssh-keys kexec-load
lunmask man-db-create multipathd nfs nfs-blkmap nmb nvme-autoconnect ostree-remount rdisc
rpcbind rpmconfigcheck rsyncd rtkit-daemon serial-getty@ smartd-generate_opts smb snmpd
snmptrapd speech-dispatcherd svnservice systemd-boot-check-no-failures
systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2
upower
indirect wickedd

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=45b5dbe6-1d05-41ac-80df-f59bb33eace7
splash=silent
mitigations=auto
quiet
security=

```

```

-----
14. cpupower frequency-info
    analyzing CPU 0:
        current policy: frequency should be within 800 MHz and 1.90 GHz.
                        The governor "ondemand" may decide which speed to use
                        within this range.

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X13OEI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

**Test Date:** Apr-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

boost state support:  
Supported: yes  
Active: yes

```
-----
15. sysctl
kernel.numa_balancing          1
kernel.randomize_va_space     2
vm.compaction_proactiveness   20
vm.dirty_background_bytes     0
vm.dirty_background_ratio     10
vm.dirty_bytes                 0
vm.dirty_expire_centisecs    3000
vm.dirty_ratio                 20
vm.dirty_writeback_centisecs  500
vm.dirtytime_expire_seconds  43200
vm.extfrag_threshold          500
vm.min_unmapped_ratio         1
vm.nr_hugepages                0
vm.nr_hugepages_mempolicy     0
vm.nr_overcommit_hugepages    0
vm.swappiness                   60
vm.watermark_boost_factor     15000
vm.watermark_scale_factor     10
vm.zone_reclaim_mode          0
-----
```

```
-----
16. /sys/kernel/mm/transparent_hugepage
defrag          always defer+madvice [madvice] never
enabled        [always] madvice never
hpage_pmd_size 2097152
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 SP4
-----
```

```
-----
19. Disk information
SPEC is set to: /root/cpu2017-1.1.9
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme1n1p2 ext4 732G 497G 199G 72% /
-----
```

```
-----
20. /sys/devices/virtual/dmi/id
Vendor: Supermicro
Product: Super Server
Product Family: Family
-----
```

(Continued on next page)





# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X130EI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

**Test Date:** Apr-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

#### 21. dmidecode

Additional information from dmidecode 3.2 follows. **WARNING:** Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

**Memory:**

64x Micron Technology MTC40F2046S1RC48BA1 64 GB 2 rank 4800

#### 22. BIOS

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

BIOS Vendor: American Megatrends International, LLC.  
BIOS Version: 1.0a  
BIOS Date: 03/16/2023  
BIOS Revision: 5.29

### Compiler Version Notes

=====  
C | 619.lbm\_s(base, peak) 638.imagick\_s(base, peak) 644.nab\_s(base, peak)  
=====

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

=====  
C++, C, Fortran | 607.cactuBSSN\_s(base, peak)  
=====

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

=====  
Fortran | 603.bwaves\_s(base, peak) 649.fotonik3d\_s(base, peak) 654.roms\_s(base, peak)  
=====

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

=====  
Fortran, C | 621.wrf\_s(base, peak) 627.cam4\_s(base, peak) 628.pop2\_s(base, peak)  
=====

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



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X130EI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

**Test Date:** Apr-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

## Base Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

## Base Portability Flags

```
603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.ibm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64
```

## Base Optimization Flags

C benchmarks:

```
-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

```
-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using both Fortran and C:

```
-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X13OEI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

**Test Date:** Apr-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):

```
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:

```
-m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte
-auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

## Peak Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

619.lbm\_s: basepeak = yes

638.imagick\_s: basepeak = yes

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-681E-TR  
(X13OEI, Intel Xeon Platinum 8490H)

SPECspeed®2017\_fp\_base = 333

SPECspeed®2017\_fp\_peak = 334

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

**Test Date:** Apr-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

## Peak Optimization Flags (Continued)

644.nab\_s: basepeak = yes

Fortran benchmarks:

```
603.bwaves_s: -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsapphirerapids
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

649.fotonik3d\_s: basepeak = yes

654.roms\_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf\_s: basepeak = yes

```
627.cam4_s: -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

628.pop2\_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN\_s: basepeak = yes

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

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

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-SPR-revC.html>

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

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

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-SPR-revC.xml>

SPEC CPU and SPECspeed 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 2023-04-24 17:33:11-0400.  
Report generated on 2023-05-09 17:20:49 by CPU2017 PDF formatter v6716.  
Originally published on 2023-05-09.