



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Supermicro

Hyper SuperServer SYS-212H-TN  
(X14SBH , Intel Xeon 6780E)

SPECspeed®2017\_fp\_base = 260

SPECspeed®2017\_fp\_peak = 260

CPU2017 License: 001176

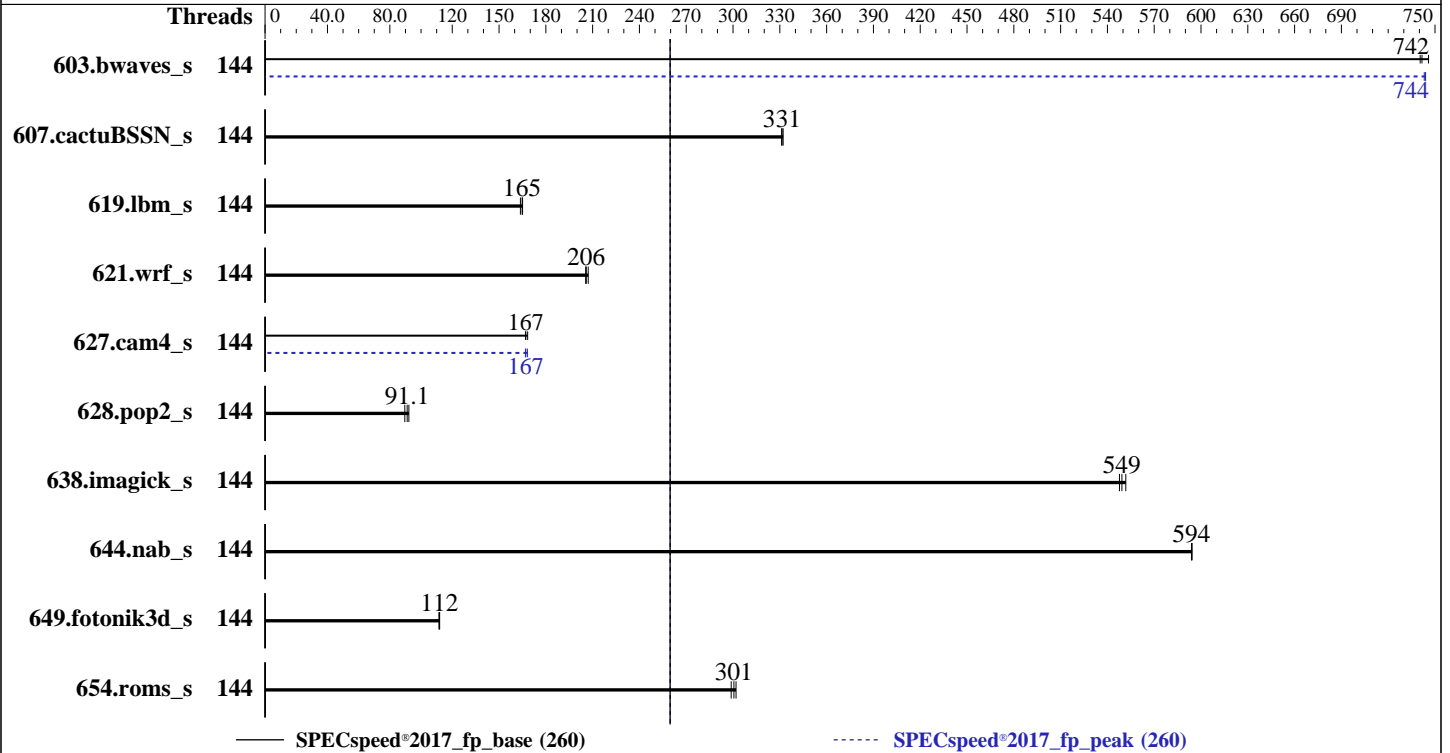
Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Jul-2024

Hardware Availability: Sep-2024

Software Availability: Jun-2024



### Hardware

CPU Name: Intel Xeon 6780E  
 Max MHz: 3000  
 Nominal: 2200  
 Enabled: 144 cores, 1 chip  
 Orderable: 1 chip  
 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: 512 GB (8 x 64 GB 2Rx4 PC5-6400B-R)  
 Storage: 1 x 900 GB M.2 NVMe SSD  
 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: Yes  
 Firmware: Version 1.0a released Jul-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.



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## Results Table

| Benchmark       | Base    |             |            |             |             |             | Peak       |         |             |            |             |             |             |            |
|-----------------|---------|-------------|------------|-------------|-------------|-------------|------------|---------|-------------|------------|-------------|-------------|-------------|------------|
|                 | Threads | Seconds     | Ratio      | Seconds     | Ratio       | Seconds     | Ratio      | Threads | Seconds     | Ratio      | Seconds     | Ratio       | Seconds     | Ratio      |
| 603.bwaves_s    | 144     | 79.1        | 746        | <b>79.5</b> | <b>742</b>  | 79.7        | 741        | 144     | 79.3        | 744        | <b>79.3</b> | <b>744</b>  | 79.4        | 743        |
| 607.cactuBSSN_s | 144     | 50.2        | 332        | 50.3        | 331         | <b>50.3</b> | <b>331</b> | 144     | 50.2        | 332        | 50.3        | 331         | <b>50.3</b> | <b>331</b> |
| 619.lbm_s       | 144     | 31.7        | 165        | 32.0        | 164         | <b>31.8</b> | <b>165</b> | 144     | 31.7        | 165        | 32.0        | 164         | <b>31.8</b> | <b>165</b> |
| 621.wrf_s       | 144     | 63.8        | 207        | <b>64.2</b> | <b>206</b>  | 64.4        | 206        | 144     | 63.8        | 207        | <b>64.2</b> | <b>206</b>  | 64.4        | 206        |
| 627.cam4_s      | 144     | <b>53.0</b> | <b>167</b> | 52.6        | 168         | 53.1        | 167        | 144     | <b>53.0</b> | <b>167</b> | 52.7        | 168         | 53.1        | 167        |
| 628.pop2_s      | 144     | 133         | 89.6       | <b>130</b>  | <b>91.1</b> | 129         | 92.2       | 144     | 133         | 89.6       | <b>130</b>  | <b>91.1</b> | 129         | 92.2       |
| 638.imagick_s   | 144     | 26.1        | 552        | 26.3        | 548         | <b>26.3</b> | <b>549</b> | 144     | 26.1        | 552        | 26.3        | 548         | <b>26.3</b> | <b>549</b> |
| 644.nab_s       | 144     | 29.4        | 594        | <b>29.4</b> | <b>594</b>  | 29.4        | 594        | 144     | 29.4        | 594        | <b>29.4</b> | <b>594</b>  | 29.4        | 594        |
| 649.fotonik3d_s | 144     | <b>81.5</b> | <b>112</b> | 81.5        | 112         | 81.8        | 111        | 144     | <b>81.5</b> | <b>112</b> | 81.5        | 112         | 81.8        | 111        |
| 654.roms_s      | 144     | 52.1        | 302        | <b>52.4</b> | <b>301</b>  | 52.7        | 299        | 144     | 52.1        | 302        | <b>52.4</b> | <b>301</b>  | 52.7        | 299        |

SPECspeed®2017\_fp\_base = 260

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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,1,0"  
LD\_LIBRARY\_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/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

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.  
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.  
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.  
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>



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### Platform Notes

**BIOS Settings:**

Power Performance Tuning = BIOS Controls EPB  
ENERGY\_PERF\_BIAS\_CFG mode = Performance  
DCU Streamer Prefetcher = Disable  
LLC Dead Line Alloc = Disable  
KTI Prefetch = Enable  
Stale AtoS = Disable  
Patrol Scrub = Disable

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on 135-173-19 Fri Jul 26 14:19:47 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. 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 135-173-19 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  
14:19:47 up 4:51, 1 user, load average: 5.14, 6.59, 3.90  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root tty1 - 09:29 4:49m 1.31s 0.00s -bash  
-----

3. Username  
From environment variable \$USER: root  
-----

4. ulimit -a  
-----

(Continued on next page)



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### Platform Notes (Continued)

```

core file size      (blocks, -c) unlimited
data seg size      (kbytes, -d) unlimited
scheduling priority (-e) 0
file size          (blocks, -f) unlimited
pending signals    (-i) 2061352
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) 2061352
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 -c
  ic2024.1-lin-sierraforest-speed-20240308.cfg --define cores=144 --tune base,peak -o all --define smt-on
  --define drop_caches fpspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
  ic2024.1-lin-sierraforest-speed-20240308.cfg --define cores=144 --tune base,peak --output_format all
  --define smt-on --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed
  --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.002/templogs/preenv.fpspeed.002.0.log --lognum 002.0
  --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

```

```

-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) 6780E
vendor_id      : GenuineIntel
cpu family     : 6
model          : 175
stepping       : 3
microcode      : 0x30001b3
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores      : 144
siblings       : 144
1 physical ids (chips)
144 processors (hardware threads)
physical id 0: 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
,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,130,1
32,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,18
4,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214,216,218,220,222,224,226,228,230,232,234,236
,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
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.

```

7. lscpu

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### Platform Notes (Continued)

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):                 144
On-line CPU(s) list:   0-143
Vendor ID:              GenuineIntel
BIOS Vendor ID:        Intel(R) Corporation
Model name:             Intel(R) Xeon(R) 6780E
BIOS Model name:       Intel(R) Xeon(R) 6780E  CPU @ 2.2GHz
BIOS CPU family:       179
CPU family:             6
Model:                  175
Thread(s) per core:    1
Core(s) per socket:    144
Socket(s):              1
Stepping:               3
CPU(s) scaling MHz:    36%
CPU max MHz:            3000.0000
CPU min MHz:            800.0000
BogoMIPS:               4400.00
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 sse3 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 bmil 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 lam wbnoinvd dtherm ida arat
                        pln pts hwp hwp_act_window hwp_epp hwp_pkg_req vmi 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_lld arch_capabilities

Virtualization:         VT-x
L1d cache:              4.5 MiB (144 instances)
L1i cache:              9 MiB (144 instances)
L2 cache:               144 MiB (36 instances)
L3 cache:               108 MiB (1 instance)
NUMA node(s):          1
NUMA node0 CPU(s):     0-143
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

```

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### Platform Notes (Continued)

Vulnerability Tsx async abort: Not affected

From lscpu --cache:

| NAME | ONE-SIZE | ALL-SIZE | WAYS | TYPE        | LEVEL | SETS   | PHY-LINE | COHERENCY-SIZE |
|------|----------|----------|------|-------------|-------|--------|----------|----------------|
| L1d  | 32K      | 4.5M     | 8    | Data        | 1     | 64     | 1        | 64             |
| L1i  | 64K      | 9M       | 8    | Instruction | 1     | 128    | 1        | 64             |
| L2   | 4M       | 144M     | 16   | Unified     | 2     | 4096   | 1        | 64             |
| L3   | 108M     | 108M     | 12   | Unified     | 3     | 147456 | 1        | 64             |

8. numactl --hardware

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

available: 1 nodes (0)  
node 0 cpus: 0-143  
node 0 size: 515364 MB  
node 0 free: 507171 MB  
node distances:  
node 0  
0: 10

9. /proc/meminfo

MemTotal: 527733220 kB

10. who -r

run-level 3 Jul 26 09:29

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 klog lvm2-monitor nscd nvme-fc-boot-connections nvmmf-autoconnect postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore tuned wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny   |
| enabled-runtime | systemd-remount-fs   |
| disabled        | autofs autoyast-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 ipmi ipmievd 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-sysextd 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=db0a9820-2adc-425f-b19e-e87fb952ebcf  
splash=silent  
mitigations=auto  
quiet  
security=apparmor

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### Platform Notes (Continued)

```

14. cpupower frequency-info
   analyzing CPU 123:
     current policy: frequency should be within 800 MHz and 3.00 GHz.
                       The governor "performance" may decide which speed to use
                       within this range.
     boost state support:
       Supported: yes
       Active: yes

```

```

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

```

```

-----
16. 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                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+madvice [madvice] never
   enabled         [always] madvice never
   hpage_pmd_size  2097152
   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

```

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### Platform Notes (Continued)

| Filesystem     | Type | Size | Used | Avail | Use% | Mounted on |
|----------------|------|------|------|-------|------|------------|
| /dev/nvme0n1p2 | xfs  | 892G | 33G  | 859G  | 4%   | /          |

```

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:
8x 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: 1.0a
BIOS Date: 07/09/2024
BIOS Revision: 5.35

```

### 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 2024.1.0 Build 20240308
Copyright (C) 1985-2024 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 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 | 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 2024.1.0 Build 20240308
Copyright (C) 1985-2024 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 2024.1.0 Build 20240308
=====

```

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# SPEC CPU®2017 Floating Point Speed Result

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## Supermicro

Hyper SuperServer SYS-212H-TN  
(X14SBH , Intel Xeon 6780E)

SPECspeed®2017\_fp\_base = 260

SPECspeed®2017\_fp\_peak = 260

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

**Test Date:** Jul-2024  
**Hardware Availability:** Sep-2024  
**Software Availability:** Jun-2024

## Compiler Version Notes (Continued)

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

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.lbm\_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:

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

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## Base Optimization Flags (Continued)

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsierraforest -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:

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

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 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-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



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## Supermicro

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SPECspeed®2017\_fp\_peak = 260

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

**Test Date:** Jul-2024  
**Hardware Availability:** Sep-2024  
**Software Availability:** Jun-2024

## Peak Optimization Flags

C benchmarks:

619.lbm\_s: basepeak = yes

638.imagick\_s: basepeak = yes

644.nab\_s: basepeak = yes

Fortran benchmarks:

603.bwaves\_s: -w -m64 -Wl,-z,muldefs -DSPEC\_OPENMP -xsierraforest -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: -w -m64 -std=c11 -Wl,-z,muldefs -xsierraforest -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC\_OPENMP -Wno-implicit-int -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-ic2024-official-linux64.html>

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



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