SPEC CPU®2017 Floating Point Speed Result

Supermicro

Hyper SuperServer SYS-212H-TN
(X14SBH , Intel Xeon 6787P)

$SPECspeed®2017\_fp\_base = 338$

$SPECspeed®2017\_fp\_peak = 338$

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

Test Date: Jan-2025
Hardware Availability: Feb-2025
Software Availability: Jun-2024

Threads		Result
603.bwaves_s	86	1060 / 1060 (peak)
607.cactuBSSN_s	86	461
619.lbm_s	86	224
621.wrf_s	86	225
627.cam4_s	86	231 / 230 (peak)
628.pop2_s	86	113
638.imagick_s	86	708
644.nab_s	86	740
649.fotonik3d_s	86	144
654.roms_s	86	402

Scale: 0 50.0 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1100

—— SPECspeed®2017_fp_base (338)   ----- SPECspeed®2017_fp_peak (338)

Hardware

CPU Name: Intel Xeon 6787P
 Max MHz: 3800
 Nominal: 2000
Enabled: 86 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 64 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 336 MB I+D on chip per chip
 Other: None
Memory: 768 GB (8 x 96 GB 2Rx4 PC5-8800B-R, running at 8000)
Storage: 1 x 900 GB 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 1.2 released Jan-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

Standard Performance Evaluation Corporation (info@spec.org)
https://www.spec.org/

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Copyright 2017-2025 Standard Performance Evaluation Corporation
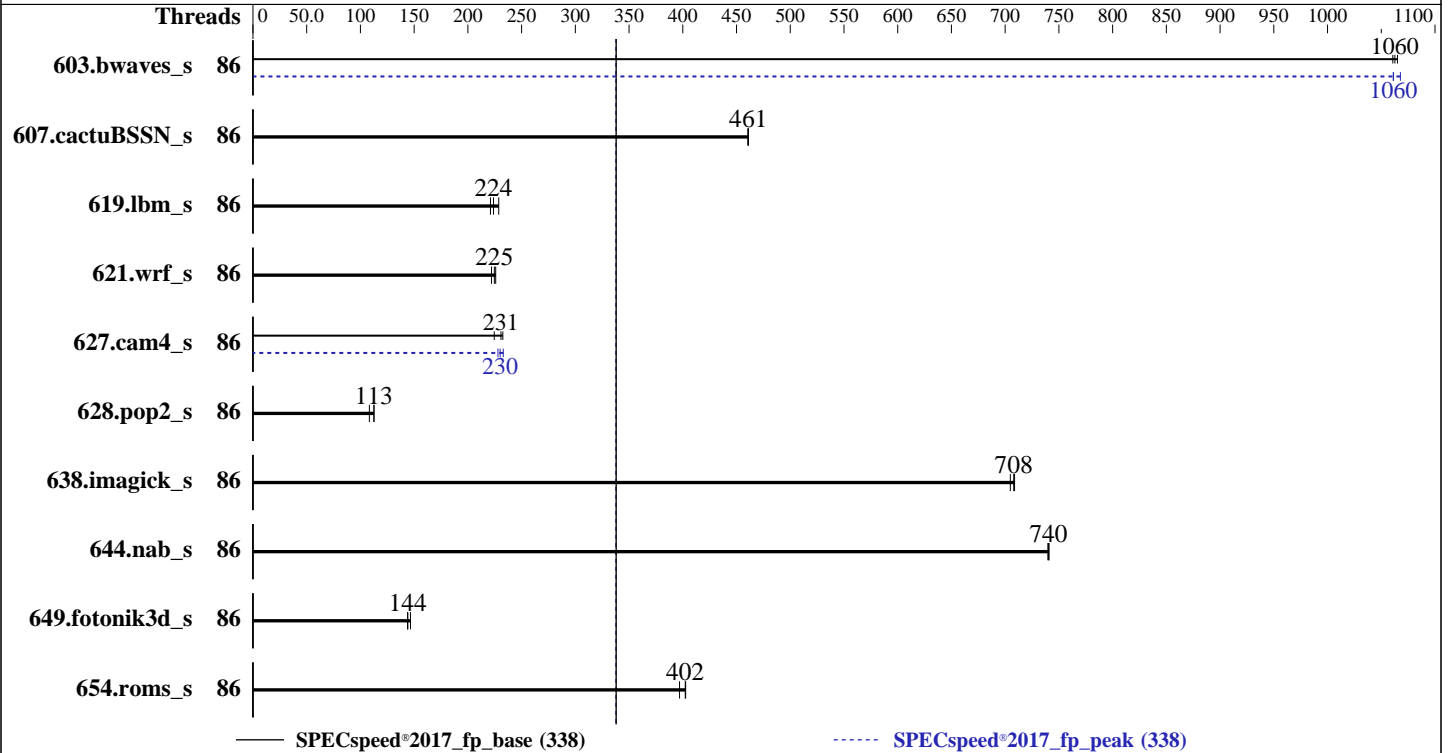
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Results Table

Benchmark	Base						Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	86	55.4	1070	**55.5**	**1060**	55.6	1060	86	**55.6**	**1060**	55.3	1070	55.6	1060
607.cactuBSSN_s	86	36.2	461	36.2	461	**36.2**	**461**	86	36.2	461	36.2	461	**36.2**	**461**
619.lbm_s	86	22.9	229	**23.4**	**224**	23.7	221	86	22.9	229	**23.4**	**224**	23.7	221
621.wrf_s	86	59.6	222	**58.9**	**225**	58.5	226	86	59.6	222	**58.9**	**225**	58.5	226
627.cam4_s	86	**38.4**	**231**	38.1	233	39.5	225	86	**38.5**	**230**	38.9	228	38.0	233
628.pop2_s	86	**105**	**113**	110	108	105	113	86	**105**	**113**	110	108	105	113
638.imagick_s	86	20.5	705	20.4	709	**20.4**	**708**	86	20.5	705	20.4	709	**20.4**	**708**
644.nab_s	86	23.6	741	23.6	740	**23.6**	**740**	86	23.6	741	23.6	740	**23.6**	**740**
649.fotonik3d_s	86	63.4	144	62.2	147	**63.3**	**144**	86	63.4	144	62.2	147	**63.3**	**144**
654.roms_s	86	**39.1**	**402**	39.7	397	39.1	403	86	**39.1**	**402**	39.7	397	39.1	403
SPECspeed®2017_fp_base =		**338**											
SPECspeed®2017_fp_peak =		**338**											

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 Configuration:
Workload Profile = HPC
SNC = Enable
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 135-178-111 Sat Jan 25 06:52:36 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 135-178-111 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
  06:52:36 up 21:55,  1 user,  load average: 5.97, 6.79, 4.03
  USER     TTY       FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1      -                Fri09   21:10m  0.93s  0.00s -bash

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

------------------------------------------------------------
4. ulimit -a
  core file size          (blocks, -c) unlimited
```

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Platform Notes (Continued)

```
   data seg size          (kbytes, -d) unlimited
   scheduling priority        (-e) 0
   file size             (blocks, -f) unlimited
   pending signals            (-i) 3094264
   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) 3094264
   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-core-avx512-speed-20240308.cfg --define cores=86 --tune base,peak -o all --define smt-on
   --define drop_caches fpspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2024.1-lin-core-avx512-speed-20240308.cfg --define cores=86 --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/CPU2017.008/templogs/preenv.fpspeed.008.0.log --lognum 008.0
   --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/cpu2017


   ------------------------------------------------------------
6. /proc/cpuinfo
   model name        : Intel(R) Xeon(R) 6787P
   vendor_id         : GenuineIntel
   cpu family        : 6
   model             : 173
   stepping          : 1
   microcode         : 0x1000380
   bugs              : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
   cpu cores         : 86
   siblings          : 172
   1 physical ids (chips)
   172 processors (hardware threads)
   physical id 0: core ids 0-42,64-106
   physical id 0: apicids 0-85,128-213
  Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
  virtualized systems.  Use the above data carefully.


   ------------------------------------------------------------
7. lscpu

 From lscpu from util-linux 2.39.3:
   Architecture:             x86_64
   CPU op-mode(s):           32-bit, 64-bit
   Address sizes:            52 bits physical, 57 bits virtual
   Byte Order:               Little Endian
   CPU(s):                   172
```

(Continued on next page)

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Platform Notes (Continued)

```
On-line CPU(s) list:           0-171
Vendor ID:                     GenuineIntel
BIOS Vendor ID:                Intel(R) Corporation
Model name:                    Intel(R) Xeon(R) 6787P
BIOS Model name:               Intel(R) Xeon(R) 6787P  CPU @ 2.0GHz
BIOS CPU family:               179
CPU family:                    6
Model:                         173
Thread(s) per core:            2
Core(s) per socket:            86
Socket(s):                     1
Stepping:                      1
CPU(s) scaling MHz:            25%
CPU max MHz:                   3800.0000
CPU min MHz:                   800.0000
BogoMIPS:                      4000.00
Flags:                         fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat
                               pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx
                               pdpe1gb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good
                               nopl xtopology nonstop_tsc cpuid aperfmperf tsc_known_freq pni
                               pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
                               xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt
                               tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm
                               3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3 intel_ppin cdp_l2
                               ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority ept
                               vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid
                               rtm cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt
                               clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec
                               xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                               split_lock_detect user_shstk avx_vnni avx512_bf16 wbnoinvd dtherm ida
                               arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req vnmi avx512vbmi
                               umip pku ospke waitpkg avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni
                               avx512_bitalg tme avx512_vpopcntdq la57 rdpid bus_lock_detect
                               cldemote movdiri movdir64b enqcmd fsrm md_clear serialize tsxldtrk
                               pconfig arch_lbr ibt amx_bf16 avx512_fp16 amx_tile amx_int8 flush_l1d
                               arch_capabilities
Virtualization:                VT-x
L1d cache:                     4 MiB (86 instances)
L1i cache:                     5.4 MiB (86 instances)
L2 cache:                      172 MiB (86 instances)
L3 cache:                      336 MiB (1 instance)
NUMA node(s):                  2
NUMA node0 CPU(s):             0-42,86-128
NUMA node1 CPU(s):             43-85,129-171
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit:   Not affected
Vulnerability L1tf:            Not affected
Vulnerability Mds:             Not affected
Vulnerability Meltdown:        Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Reg file data sampling: Not affected
Vulnerability Retbleed:        Not affected
Vulnerability Spec rstack overflow: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1:      Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2:      Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling;
                               PBRSB-eIBRS Not affected; BHI BHI_DIS_S
Vulnerability Srbds:           Not affected
Vulnerability Tsx async abort: Not affected
```

(Continued on next page)

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Platform Notes (Continued)

```
  From lscpu --cache:
      NAME ONE-SIZE ALL-SIZE WAYS TYPE         LEVEL   SETS PHY-LINE COHERENCY-SIZE
      L1d      48K       4M  12 Data             1     64     1            64
      L1i      64K     5.4M  16 Instruction      1     64     1            64
      L2        2M     172M  16 Unified          2   2048     1            64
      L3      336M     336M  16 Unified          3 344064     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: 0-42,86-128
    node 0 size: 386623 MB
    node 0 free: 329564 MB
    node 1 cpus: 43-85,129-171
    node 1 size: 386968 MB
    node 1 free: 341638 MB
    node distances:
    node   0   1
      0:  10  12
      1:  12  10

  ----------------------------------------------------------------
  9. /proc/meminfo
     MemTotal:       792158696 kB

  ----------------------------------------------------------------
  10. who -r
    run-level 3 Jan 24 08:58

  ----------------------------------------------------------------
  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 klog lvm2-monitor nscd nvmefc-boot-connections
                    nvmf-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 ebtables exchange-bmc-os-info
                    firewalld 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-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=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 45:
      current policy: frequency should be within 800 MHz and 3.80 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            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
    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

    ----------------------------------------------------------
```

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Platform Notes (Continued)

```
 20. Disk information
SPEC is set to: /home/cpu2017
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p2 xfs   892G  128G  764G  15% /


   --------------------------------------------------------------
 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 MTC40F204WS1HC88XC1 XFFFG 96 GB 2 rank 8800, configured at 8000



   --------------------------------------------------------------
 23. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:     American Megatrends International, LLC.
   BIOS Version:    1.2
   BIOS Date:       01/24/2025
   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)
```

(Continued on next page)

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Compiler Version Notes (Continued)

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

Base Compiler Invocation

C benchmarks:
`icx`

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 -xCORE-AVX512 -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`

(Continued on next page)

SPEC CPU®2017 Floating Point Speed Result

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Supermicro

Hyper SuperServer SYS-212H-TN
(X14SBH , Intel Xeon 6787P)

SPECspeed®2017_fp_base = 338

SPECspeed®2017_fp_peak = 338

CPU2017 License:	001176	**Test Date:**	Jan-2025
Test Sponsor:	Supermicro	**Hardware Availability:**	Feb-2025
Tested by:	Supermicro	**Software Availability:**	Jun-2024

Base Optimization Flags (Continued)

Fortran benchmarks:
```
-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -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 -xCORE-AVX512 -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 -xCORE-AVX512 -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
```

SPEC CPU®2017 Floating Point Speed Result

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Supermicro

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SPECspeed®2017_fp_peak = 338

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

Test Date: Jan-2025
Hardware Availability: Feb-2025
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 -xCORE-AVX512`
`-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 -xCORE-AVX512 -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-GNR-revB.html

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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

Standard Performance Evaluation Corporation (info@spec.org)

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Hyper SuperServer SYS-212H-TN
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$SPECspeed®2017\_fp\_base = 338$

$SPECspeed®2017\_fp\_peak = 338$

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

Test Date: Jan-2025
Hardware Availability: Feb-2025
Software Availability: Jun-2024

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

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