SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Supermicro
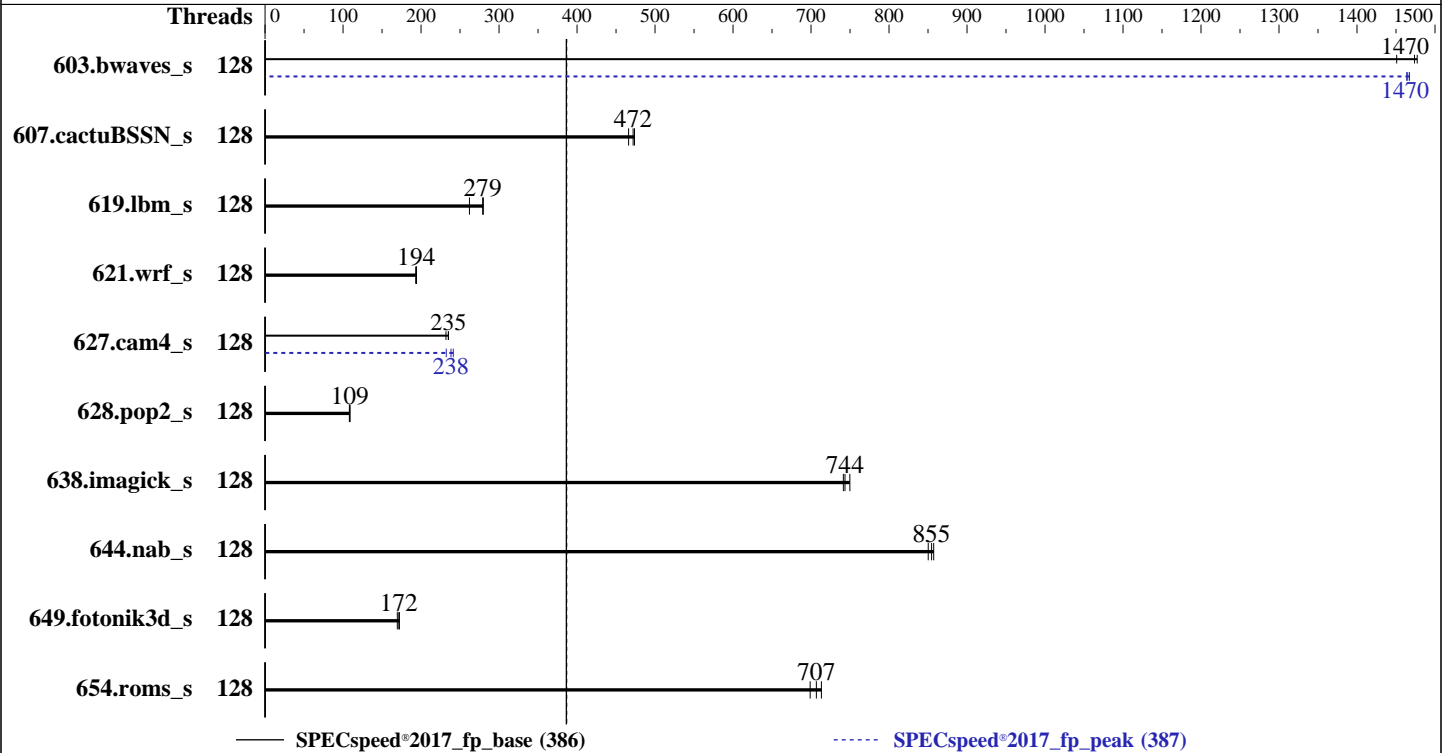
GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

$SPECspeed^{®}2017\_fp\_base = 386$

$SPECspeed^{®}2017\_fp\_peak = 387$

CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Nov-2023

Hardware Availability: Dec-2023

Software Availability: Jun-2023

Threads

Benchmark	Threads	Result
603.bwaves_s	128	1470 / 1470
607.cactuBSSN_s	128	472
619.lbm_s	128	279
621.wrf_s	128	194
627.cam4_s	128	235 / 238
628.pop2_s	128	109
638.imagick_s	128	744
644.nab_s	128	855
649.fotonik3d_s	128	172
654.roms_s	128	707

SPECspeed®2017_fp_base (386)   SPECspeed®2017_fp_peak (387)

Hardware

CPU Name: Intel Xeon Platinum 8592+
Max MHz: 3900
Nominal: 1900
Enabled: 128 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 320 MB I+D on chip per chip
 Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-5600B-R)
Storage: 1 x 512 GB M.2 NVMe SSD
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP5
Kernel 5.14.21-150500.53-default
Compiler: C/C++: Version 2023.2 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2023.2 of Intel Fortran Compiler for Linux;
Parallel: Yes
Firmware: Version 2.0 released Nov-2023
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS set to prefer performance at the cost of additional power usage.

SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

SPECspeed®2017_fp_base = 386

SPECspeed®2017_fp_peak = 387

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

Test Date: Nov-2023
Hardware Availability: Dec-2023
Software Availability: Jun-2023

Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	128	40.7	1450	**40.0**	**1470**	39.9	1480	128	**40.3**	**1470**	40.3	1460	40.2	1470
607.cactuBSSN_s	128	**35.3**	**472**	35.8	466	35.2	474	128	**35.3**	**472**	35.8	466	35.2	474
619.lbm_s	128	**18.8**	**279**	18.7	280	20.0	262	128	**18.8**	**279**	18.7	280	20.0	262
621.wrf_s	128	68.1	194	**68.2**	**194**	68.5	193	128	68.1	194	**68.2**	**194**	68.5	193
627.cam4_s	128	**37.7**	**235**	37.7	235	38.2	232	128	**37.2**	**238**	36.7	241	38.1	232
628.pop2_s	128	**109**	**109**	110	108	109	109	128	**109**	**109**	110	108	109	109
638.imagick_s	128	19.5	741	**19.4**	**744**	19.2	750	128	19.5	741	**19.4**	**744**	19.2	750
644.nab_s	128	20.4	857	**20.4**	**855**	20.5	850	128	20.4	857	**20.4**	**855**	20.5	850
649.fotonik3d_s	128	52.9	172	**53.2**	**172**	53.8	170	128	52.9	172	**53.2**	**172**	53.8	170
654.roms_s	128	**22.3**	**707**	22.5	699	22.1	713	128	**22.3**	**707**	22.5	699	22.1	713
SPECspeed®2017_fp_base =	**386**													
SPECspeed®2017_fp_peak =	**387**													

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

SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

$SPECspeed^{®}2017\_fp\_base = 386$

$SPECspeed^{®}2017\_fp\_peak = 387$

CPU2017 License: 001176　　　　　　　　　　　　　　**Test Date:**　Nov-2023
Test Sponsor:　Supermicro　　　　　　　　　　　　**Hardware Availability:** Dec-2023
Tested by:　　Supermicro　　　　　　　　　　　　**Software Availability:**　Jun-2023

Platform Notes

```
BIOS Settings:
Power Technology = Custom
Power Performance Tuning = BIOS Controls EPB
ENERGY_PERF_BIAS_CFG mode = Performance
DCU Streamer Prefetcher = Disable
Patrol Scrub = Disable
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 135-174-176 Sat Nov 18 11:49:06 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 (249.16+suse.171.gdad0071f15)
 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 135-174-176 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)
   x86_64 x86_64 x86_64 GNU/Linux

 ------------------------------------------------------------
 2. w
   11:49:06 up 1 day, 21:00,  2 users,  load average: 5.11, 5.56, 3.40
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                Thu14   21:31m  1.07s  0.00s -bash
   root     tty2     -                Fri09   20:23m  0.13s  0.13s -bash

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

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

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

SPECspeed®2017_fp_base = 386

SPECspeed®2017_fp_peak = 387

CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Nov-2023

Hardware Availability: Dec-2023

Software Availability: Jun-2023

Platform Notes (Continued)

```
  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) 4126494
    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) 4126494
    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
     ic2023.2-lin-core-avx512-speed-20230622.cfg --define cores=128 --tune base,peak -o all --define smt-on
     --define drop_caches fpspeed
   runcpu --nobuild --action validate --define default-platform-flags --configfile
     ic2023.2-lin-core-avx512-speed-20230622.cfg --define cores=128 --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/CPU2017.004/templogs/preenv.fpspeed.004.0.log --lognum 004.0
     --from_runcpu 2
   specperl $SPEC/bin/sysinfo
  $SPEC = /home/cpu2017

  -------------------------------------------------------------
  6. /proc/cpuinfo
    model name      : INTEL(R) XEON(R) PLATINUM 8592+
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 207
    stepping        : 2
    microcode       : 0x210001a0
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
    cpu cores       : 64
    siblings        : 128
    2 physical ids (chips)
    256 processors (hardware threads)
    physical id 0: core ids 0-63
    physical id 1: core ids 0-63
    physical id 0: apicids 0-127
    physical id 1: apicids 128-255
  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 2.37.4:
    Architecture:                    x86_64
```

(Continued on next page)

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

$SPECspeed®2017\_fp\_base = 386$

$SPECspeed®2017\_fp\_peak = 387$

CPU2017 License: 001176　　　　　　　　　　　　　**Test Date:** Nov-2023
Test Sponsor: Supermicro　　　　　　　　　　　　**Hardware Availability:** Dec-2023
Tested by: Supermicro　　　　　　　　　　　　　**Software Availability:** Jun-2023

Platform Notes (Continued)

```
      CPU op-mode(s):             32-bit, 64-bit
      Address sizes:             46 bits physical, 57 bits virtual
      Byte Order:                Little Endian
      CPU(s):                    256
      On-line CPU(s) list:       0-255
      Vendor ID:                 GenuineIntel
      Model name:                INTEL(R) XEON(R) PLATINUM 8592+
      CPU family:                6
      Model:                     207
      Thread(s) per core:        2
      Core(s) per socket:        64
      Socket(s):                 2
      Stepping:                  2
      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 avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts
                                 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 avx512_fp16 amx_tile flush_l1d arch_capabilities
      Virtualization:            VT-x
      L1d cache:                 6 MiB (128 instances)
      L1i cache:                 4 MiB (128 instances)
      L2 cache:                  256 MiB (128 instances)
      L3 cache:                  640 MiB (2 instances)
      NUMA node(s):              4
      NUMA node0 CPU(s):         0-31,128-159
      NUMA node1 CPU(s):         32-63,160-191
      NUMA node2 CPU(s):         64-95,192-223
      NUMA node3 CPU(s):         96-127,224-255
      Vulnerability Itlb multihit:    Not affected
      Vulnerability L1tf:             Not affected
      Vulnerability Mds:              Not affected
      Vulnerability Meltdown:         Not affected
      Vulnerability Mmio stale data:  Not affected
      Vulnerability Retbleed:         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, PBRSB-eIBRS SW
                                      sequence
      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       6M   12 Data              1      64       1             64
       L1i       32K       4M    8 Instruction       1      64       1             64
       L2         2M     256M   16 Unified           2    2048       1             64
       L3       320M     640M   20 Unified           3  262144       1             64
```

(Continued on next page)

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

SPECspeed®2017_fp_base = 386

SPECspeed®2017_fp_peak = 387

CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Nov-2023

Hardware Availability: Dec-2023

Software Availability: Jun-2023

Platform Notes (Continued)

```
          --------------------------------------------------------------
          8. numactl --hardware
          NOTE: a numactl 'node' might or might not correspond to a physical chip.
            available: 4 nodes (0-3)
            node 0 cpus: 0-31,128-159
            node 0 size: 257633 MB
            node 0 free: 215129 MB
            node 1 cpus: 32-63,160-191
            node 1 size: 258031 MB
            node 1 free: 222526 MB
            node 2 cpus: 64-95,192-223
            node 2 size: 258031 MB
            node 2 free: 225056 MB
            node 3 cpus: 96-127,224-255
            node 3 size: 257957 MB
            node 3 free: 224973 MB
            node distances:
            node   0   1   2   3
              0:  10  12  21  21
              1:  12  10  21  21
              2:  21  21  10  12
              3:  21  21  12  10


          --------------------------------------------------------------
          9. /proc/meminfo
             MemTotal:       1056414172 kB


          --------------------------------------------------------------
          10. who -r
            run-level 3 Nov 16 14:49


          --------------------------------------------------------------
          11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)
             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 postfix
                               purge-kernels rollback rsyslog smartd sshd systemd-pstore 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 gpm grub2-once haveged haveged-switch-root ipmi ipmievd issue-add-ssh-keys
                               kexec-load lunmask man-db-create multipathd nfs nfs-blkmap nvmf-autoconnect rpcbind
                               rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd
                               systemd-boot-check-no-failures systemd-network-generator systemd-sysext
                               systemd-time-wait-sync systemd-timesyncd udisks2 vncserver@
             indirect          wickedd


          --------------------------------------------------------------
          13. Linux kernel boot-time arguments, from /proc/cmdline
             BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
             root=UUID=9de9855c-b179-4e5b-8330-3742dedc18b2
             splash=silent
             mitigations=auto
```

(Continued on next page)

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

SPECspeed®2017_fp_base = 386

SPECspeed®2017_fp_peak = 387

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

Test Date: Nov-2023
Hardware Availability: Dec-2023
Software Availability: Jun-2023

Platform Notes (Continued)

```
  quiet
  security=apparmor


  ------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 0:
    Unable to determine current policy
    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 defer+madvise [madvise] never
  enabled        [always] madvise 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 SP5


  ------------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2017
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p2 xfs   475G  145G  330G  31% /
```

(Continued on next page)

SPEC CPU®2017 Floating Point Speed Result

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

SPECspeed®2017_fp_base = 386

SPECspeed®2017_fp_peak = 387

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

Test Date: Nov-2023
Hardware Availability: Dec-2023
Software Availability: Jun-2023

Platform Notes (Continued)

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


    ----------------------------------------------------------
 21. 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:
     14x SK Hynix HMCG94AGBRA181N 64 GB 2 rank 5600
     2x SK Hynix HMCG94AGBRA184N 64 GB 2 rank 5600


    ----------------------------------------------------------
 22. BIOS
  (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:      American Megatrends International, LLC.
    BIOS Version:     2.0
    BIOS Date:        11/13/2023
    BIOS Revision:    5.32
```

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 2023.2.0 Build 20230622
Copyright (C) 1985-2023 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 2023.2.0 Build 20230622
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.0 Build 20230622
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.0 Build 20230622
Copyright (C) 1985-2023 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 2023.2.0 Build 20230622
Copyright (C) 1985-2023 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 2023.2.0 Build 20230622
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
```

(Continued on next page)

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

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

SPECspeed®2017_fp_base = 386

SPECspeed®2017_fp_peak = 387

CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Nov-2023

Hardware Availability: Dec-2023

Software Availability: Jun-2023

Compiler Version Notes (Continued)

```
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.0 Build 20230622
Copyright (C) 1985-2023 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:
`-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 -L/usr/local/jemalloc64-5.0.1/lib`
`-ljemalloc`

Fortran benchmarks:
`-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -Ofast -ffast-math`

(Continued on next page)

SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

SPECspeed®2017_fp_base = 386

SPECspeed®2017_fp_peak = 387

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

Test Date: Nov-2023
Hardware Availability: Dec-2023
Software Availability: Jun-2023

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
```
-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 -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++:
```
-m64 -std=c++14 -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
```

Peak Optimization Flags

C benchmarks:

(Continued on next page)

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

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

SPECspeed®2017_fp_base = 386

SPECspeed®2017_fp_peak = 387

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

Test Date: Nov-2023
Hardware Availability: Dec-2023
Software Availability: Jun-2023

Peak Optimization Flags (Continued)

619.lbm_s: basepeak = yes

638.imagick_s: basepeak = yes

644.nab_s: basepeak = yes

Fortran benchmarks:

603.bwaves_s: -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: -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-ic2023p2-official-linux64.html
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-EMR-revA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-EMR-revA.xml

SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Supermicro

GPU SuperServer SYS-741GE-TNRT
(X13DEG-QT , Intel Xeon Platinum 8592+)

$SPECspeed®2017\_fp\_base = 386$

$SPECspeed®2017\_fp\_peak = 387$

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

Test Date: Nov-2023
Hardware Availability: Dec-2023
Software Availability: Jun-2023

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

Tested with SPEC CPU®2017 v1.1.9 on 2023-11-17 22:49:06-0500.
Report generated on 2023-12-14 16:04:27 by CPU2017 PDF formatter v6716.
Originally published on 2023-12-14.