SPEC CPU®2017 Floating Point Rate Result

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Supermicro

GPU SuperServer SYS-522GA-NRT
(X14DBG-AP , Intel Xeon 6980P)

$SPECrate®2017\_fp\_base = \quad 2620$

$SPECrate®2017\_fp\_peak = Not\ Run$

CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Dec-2024

Benchmark	Copies	Result
503.bwaves_r	512	10800
507.cactuBSSN_r	512	2630
508.namd_r	512	2010
510.parest_r	512	1420
511.povray_r	512	3360
519.lbm_r	512	993
521.wrf_r	512	1630
526.blender_r	512	2880
527.cam4_r	512	3200
538.imagick_r	512	10300
544.nab_r	512	4970
549.fotonik3d_r	512	1370
554.roms_r	512	967

SPECrate®2017_fp_base (2620)

Hardware

CPU Name: Intel Xeon 6980P
 Max MHz: 3900
 Nominal: 2000
Enabled: 256 cores, 2 chips, 2 threads/core
Orderable: 2 chips
Cache L1: 64 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 504 MB I+D on chip per chip
 Other: None
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-11200B-R, running at 8800)
Storage: 1 x 512 GB PCIE M.2 SSD
Other: CPU Cooling: DLC

Software

OS: SUSE Linux Enterprise Server 15 SP6
 Kernel 6.4.0-150600.21-default
Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++ Compiler for Linux;
 Fortran: Version 2024.1 of Intel Fortran Compiler for Linux;
Parallel: No
Firmware: Version 1.0 released Dec-2024
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS 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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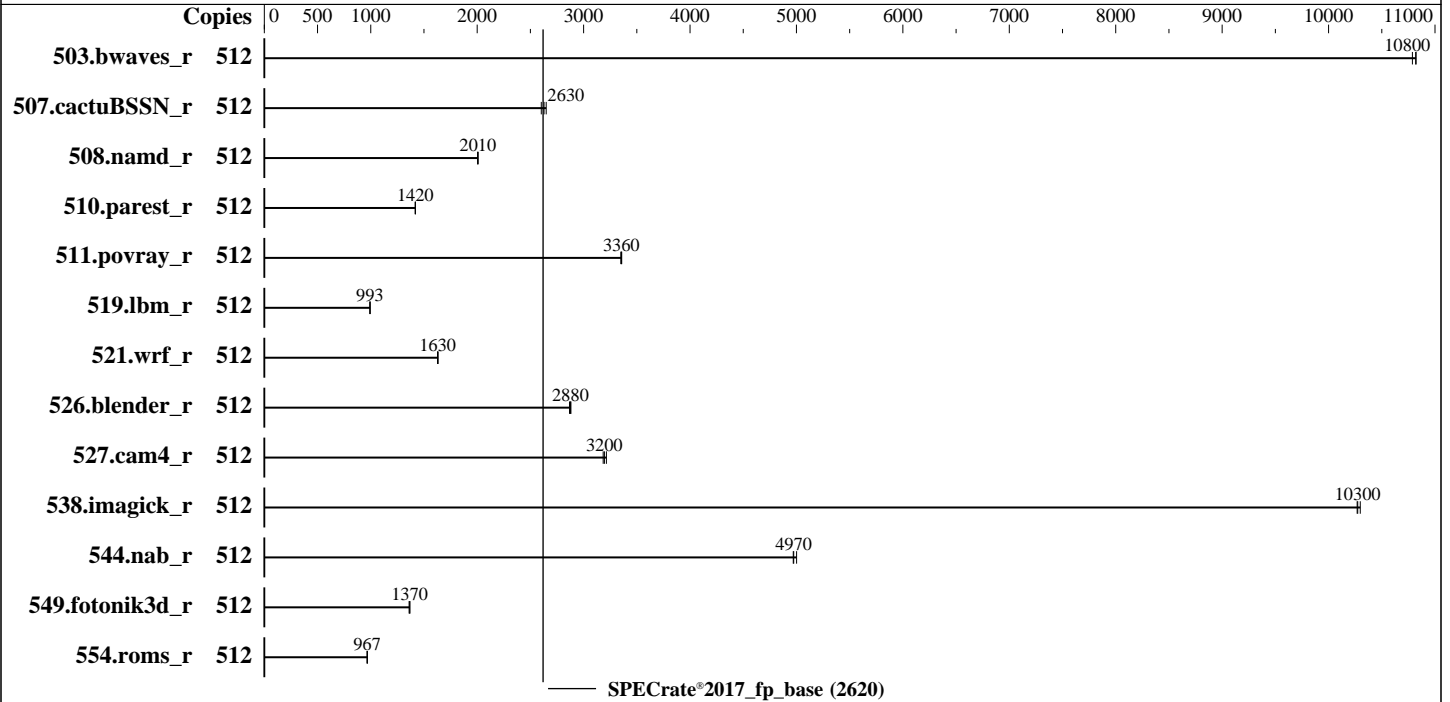SPECrate®2017_fp_peak = Not Run

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	512	476	10800	474	10800	**475**	**10800**							
507.cactuBSSN_r	512	**247**	**2630**	249	2600	245	2650							
508.namd_r	512	243	2000	**242**	**2010**	242	2010							
510.parest_r	512	945	1420	**943**	**1420**	943	1420							
511.povray_r	512	357	3350	**356**	**3360**	356	3360							
519.lbm_r	512	544	993	**543**	**993**	543	993							
521.wrf_r	512	705	1630	702	1630	**704**	**1630**							
526.blender_r	512	272	2870	**271**	**2880**	271	2880							
527.cam4_r	512	281	3180	**280**	**3200**	279	3210							
538.imagick_r	512	**124**	**10300**	124	10300	124	10300							
544.nab_r	512	172	5000	173	4970	**173**	**4970**							
549.fotonik3d_r	512	**1460**	**1370**	1460	1370	1467	1360							
554.roms_r	512	840	968	842	966	**842**	**967**							

SPECrate®2017_fp_base =	**2620**
SPECrate®2017_fp_peak =	Not Run

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

Submit Notes

```
 The numactl mechanism was used to bind copies to processors. The config file option 'submit'
 was used to generate numactl commands to bind each copy to a specific processor.
 For details, please see the config file.
```

Operating System Notes

```
 Stack size set to unlimited using "ulimit -s unlimited"
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_CONF = "retain:true"
```

General Notes

```
 Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
 memory using Red Hat Enterprise Linux 8.4
 Transparent Huge Pages enabled by default
 Prior to runcpu invocation
 Filesystem page cache synced and cleared with:
 sync; echo 3>          /proc/sys/vm/drop_caches
 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.
```

(Continued on next page)

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General Notes (Continued)

```
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

Platform Notes

```
BIOS Settings:
Power Technology = Custom
Power Performance Tuning = BIOS Controls EPB
ENERGY_PERF_BIAS_CFG mode = Extreme Performance
SNC = Enable
LLC dead line alloc = Disable

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Fri Dec 13 06:33:25 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. 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 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
  06:33:25 up  3:06,  1 user,  load average: 356.84, 469.53, 487.84
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                03:30    3:02m  1.22s  0.02s -bash
```

(Continued on next page)

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Platform Notes (Continued)

```
        ----------------------------------------------------------
        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) 6188382
          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) 6188382
          virtual memory          (kbytes, -v) unlimited
          file locks                      (-x) unlimited


        ----------------------------------------------------------
        5. sysinfo process ancestry
         /usr/lib/systemd/systemd --switched-root --system --deserialize=42
         login -- root
         -bash
         -bash
         runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 -c
           ic2024.1-lin-core-avx512-rate-20240308.cfg --define smt-on --define cores=256 --define physicalfirst
           --define invoke_with_interleave --define drop_caches --tune base -o all fprate
         runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 --configfile
           ic2024.1-lin-core-avx512-rate-20240308.cfg --define smt-on --define cores=256 --define physicalfirst
           --define invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode
           rate --tune base --size refrate fprate --nopreenv --note-preenv --logfile
           $SPEC/tmp/CPU2017.173/templogs/preenv.fprate.173.0.log --lognum 173.0 --from_runcpu 2
         specperl $SPEC/bin/sysinfo
        $SPEC = /home/cpu2017


        ----------------------------------------------------------
        6. /proc/cpuinfo
            model name      : Intel(R) Xeon(R) 6980P
            vendor_id       : GenuineIntel
            cpu family      : 6
            model           : 173
            stepping        : 1
            microcode       : 0x1000314
            bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
            cpu cores       : 128
            siblings        : 256
            2 physical ids (chips)
            512 processors (hardware threads)
            physical id 0: core ids 0-42,64-106,128-169
            physical id 1: core ids 0-42,64-106,128-169
            physical id 0: apicids 0-85,128-213,256-339
            physical id 1: apicids 512-597,640-725,768-851
          Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
          virtualized systems.  Use the above data carefully.
```

(Continued on next page)

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Platform Notes (Continued)

```
   ----------------------------------------------------------------
   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):                  512
     On-line CPU(s) list:     0-511
     Vendor ID:               GenuineIntel
     BIOS Vendor ID:          Intel(R) Corporation
     Model name:              Intel(R) Xeon(R) 6980P
     BIOS Model name:         Intel(R) Xeon(R) 6980P  CPU @ 2.0GHz
     BIOS CPU family:         179
     CPU family:              6
     Model:                   173
     Thread(s) per core:      2
     Core(s) per socket:      128
     Socket(s):               2
     Stepping:                1
     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 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:               12 MiB (256 instances)
     L1i cache:               16 MiB (256 instances)
     L2 cache:                512 MiB (256 instances)
     L3 cache:                1008 MiB (2 instances)
     NUMA node(s):            6
     NUMA node0 CPU(s):       0-42,256-298
     NUMA node1 CPU(s):       43-85,299-341
     NUMA node2 CPU(s):       86-127,342-383
     NUMA node3 CPU(s):       128-170,384-426
     NUMA node4 CPU(s):       171-213,427-469
     NUMA node5 CPU(s):       214-255,470-511
     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
```

(Continued on next page)

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Platform Notes (Continued)

```
  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

  From lscpu --cache:
      NAME ONE-SIZE ALL-SIZE WAYS TYPE         LEVEL    SETS PHY-LINE COHERENCY-SIZE
      L1d       48K      12M   12 Data             1      64        1             64
      L1i       64K      16M   16 Instruction      1      64        1             64
      L2         2M     512M   16 Unified          2    2048        1             64
      L3       504M    1008M   16 Unified          3  516096        1             64


  -------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 6 nodes (0-5)
  node 0 cpus: 0-42,256-298
  node 0 size: 257530 MB
  node 0 free: 237856 MB
  node 1 cpus: 43-85,299-341
  node 1 size: 258025 MB
  node 1 free: 240697 MB
  node 2 cpus: 86-127,342-383
  node 2 size: 258026 MB
  node 2 free: 240919 MB
  node 3 cpus: 128-170,384-426
  node 3 size: 258025 MB
  node 3 free: 240639 MB
  node 4 cpus: 171-213,427-469
  node 4 size: 257986 MB
  node 4 free: 240716 MB
  node 5 cpus: 214-255,470-511
  node 5 size: 257526 MB
  node 5 free: 240670 MB
  node distances:
  node   0   1   2   3   4   5
    0:  10  12  12  21  21  21
    1:  12  10  12  21  21  21
    2:  12  12  10  21  21  21
    3:  21  21  21  10  12  12
    4:  21  21  21  12  10  12
    5:  21  21  21  12  12  10

  -------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1584252588 kB


  -------------------------------------------------------------
10. who -r
   run-level 3 Dec 13 03:29


  -------------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
   Default Target  Status
   multi-user      running
```

(Continued on next page)

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Platform Notes (Continued)

```
         --------------------------------------------------------
         12. Services, from systemctl list-unit-files
           STATE           UNIT FILES
           enabled         YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager firewalld getty@
                           irqbalance issue-generator kbdsettings kdump kdump-early kdump-notify klog lvm2-monitor
                           nscd nvmefc-boot-connections nvmf-autoconnect 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 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=13f7b56f-498b-4e4b-b0b8-ad6a1aa98224
           splash=silent
           resume=/dev/disk/by-uuid/f9897165-ddaa-4d2c-a750-9d4bac5bc832
           mitigations=auto
           quiet
           security=apparmor
           crashkernel=344M,high
           crashkernel=72M,low

         --------------------------------------------------------
         14. cpupower frequency-info
           analyzing CPU 3:
             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
```

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Platform Notes (Continued)

```
  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 SP6

  ----------------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2017
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p7 xfs   483G  210G  273G  44% /home

  ----------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:        Supermicro
    Product:       Super Server
    Product Family: SMC X14

  ----------------------------------------------------------------
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:
    24x Samsung M327R8GA0EB0-CLVXB 64 GB 2 rank 11200, configured at 8800


  ----------------------------------------------------------------
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:      American Megatrends International, LLC.
    BIOS Version:     1.0
    BIOS Date:        11/27/2024
    BIOS Revision:    5.35
```

Compiler Version Notes

```
==================================================================================================
C             | 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)
--------------------------------------------------------------------------------------------------
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.
--------------------------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
==============================================================================
C++            | 508.namd_r(base) 510.parest_r(base)
------------------------------------------------------------------------------
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         | 511.povray_r(base) 526.blender_r(base)
------------------------------------------------------------------------------
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.
------------------------------------------------------------------------------


==============================================================================
C++, C, Fortran | 507.cactuBSSN_r(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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------------------------------------------------------------------------------


==============================================================================
Fortran        | 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
------------------------------------------------------------------------------
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==============================================================================
Fortran, C     | 521.wrf_r(base) 527.cam4_r(base)
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

(Continued on next page)

Supermicro

GPU SuperServer SYS-522GA-NRT
(X14DBG-AP , Intel Xeon 6980P)

SPECrate®2017_fp_base = 2620

SPECrate®2017_fp_peak = Not Run

Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
`ifx icx`

Benchmarks using both C and C++:
`icpx icx`

Benchmarks using Fortran, C, and C++:
`icpx icx ifx`

Base Portability Flags

503.bwaves_r: `-DSPEC_LP64`
507.cactuBSSN_r: `-DSPEC_LP64`
508.namd_r: `-DSPEC_LP64`
510.parest_r: `-DSPEC_LP64`
511.povray_r: `-DSPEC_LP64`
519.lbm_r: `-DSPEC_LP64`
521.wrf_r: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian`
526.blender_r: `-DSPEC_LP64 -DSPEC_LINUX -funsigned-char`
527.cam4_r: `-DSPEC_LP64 -DSPEC_CASE_FLAG`
538.imagick_r: `-DSPEC_LP64`
544.nab_r: `-DSPEC_LP64`
549.fotonik3d_r: `-DSPEC_LP64`
554.roms_r: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
`-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math`
`-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
`-Wno-implicit-int -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib`

C++ benchmarks:
`-w -std=c++14 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math`
`-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -ljemalloc`
`-L/usr/local/jemalloc64-5.0.1/lib`

Fortran benchmarks:
`-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto`
`-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
`-nostandard-realloc-lhs -align array32byte -auto -ljemalloc`
`-L/usr/local/jemalloc64-5.0.1/lib`

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Supermicro

GPU SuperServer SYS-522GA-NRT
(X14DBG-AP , Intel Xeon 6980P)

SPECrate®2017_fp_base =   2620

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 001176	**Test Date:** Dec-2024
Test Sponsor: Supermicro	**Hardware Availability:** Dec-2024
Tested by: Supermicro	**Software Availability:** Dec-2024

Base Optimization Flags (Continued)

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
-Wno-implicit-int -nostandard-realloc-lhs -align array32byte -auto
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both C and C++:
```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using Fortran, C, and C++:
```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

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-revA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-GNR-revA.xml

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 2024-12-13 09:33:25-0500.
Report generated on 2025-01-15 12:33:31 by CPU2017 PDF formatter v6716.
Originally published on 2025-01-14.