SPEC CPU®2017 Floating Point Speed Result

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Supermicro
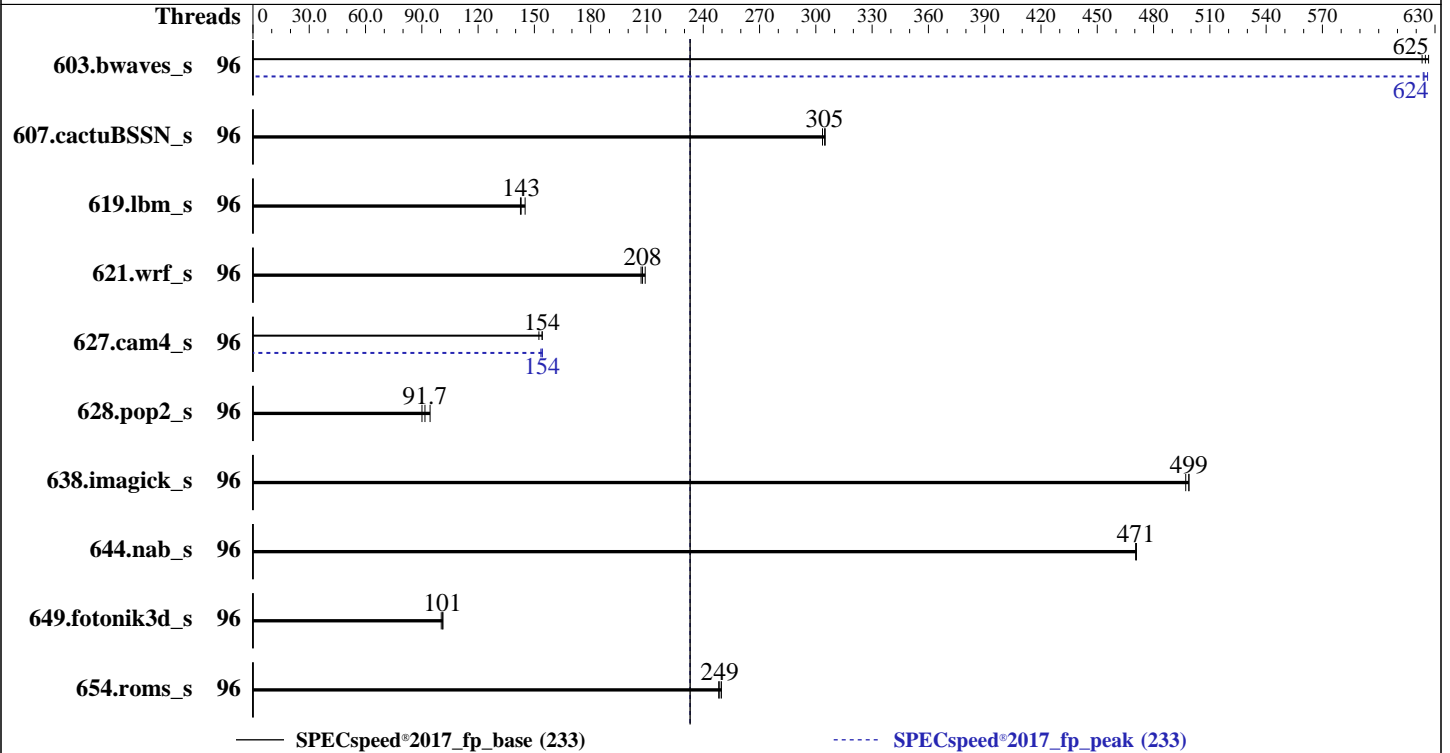
Hyper SuperServer SYS-212H-TN
(X14SBH , Intel Xeon 6731E)

$SPECspeed^{®}2017\_fp\_base = 233$

$SPECspeed^{®}2017\_fp\_peak = 233$

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

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

Threads

Benchmark	Threads	Result
603.bwaves_s	96	625 / 624
607.cactuBSSN_s	96	305
619.lbm_s	96	143
621.wrf_s	96	208
627.cam4_s	96	154 / 154
628.pop2_s	96	91.7
638.imagick_s	96	499
644.nab_s	96	471
649.fotonik3d_s	96	101
654.roms_s	96	249

—— SPECspeed®2017_fp_base (233)   ····· SPECspeed®2017_fp_peak (233)

Hardware

CPU Name: Intel Xeon 6731E
 Max MHz: 3100
 Nominal: 2200
Enabled: 96 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: 96 MB I+D on chip per chip
 Other: None
Memory: 512 GB (8 x 64 GB 2Rx4 PC5-6400B-R, running at 5600)
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.

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

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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	96	94.2	627	94.7	623	**94.4**	**625**	96	**94.5**	**624**	94.2	626	94.6	624
607.cactuBSSN_s	96	54.7	305	54.9	304	**54.7**	**305**	96	54.7	305	54.9	304	**54.7**	**305**
619.lbm_s	96	**36.6**	**143**	36.1	145	36.7	143	96	**36.6**	**143**	36.1	145	36.7	143
621.wrf_s	96	**63.7**	**208**	63.9	207	63.3	209	96	**63.7**	**208**	63.9	207	63.3	209
627.cam4_s	96	57.5	154	**57.5**	**154**	58.2	152	96	**57.5**	**154**	57.8	153	57.5	154
628.pop2_s	96	**130**	**91.7**	126	94.4	132	90.1	96	**130**	**91.7**	126	94.4	132	90.1
638.imagick_s	96	29.0	497	**28.9**	**499**	28.9	499	96	29.0	497	**28.9**	**499**	28.9	499
644.nab_s	96	37.1	471	**37.1**	**471**	37.1	470	96	37.1	471	**37.1**	**471**	37.1	470
649.fotonik3d_s	96	90.8	100	90.0	101	**90.2**	**101**	96	90.8	100	90.0	101	**90.2**	**101**
654.roms_s	96	63.1	250	63.4	248	**63.3**	**249**	96	63.1	250	63.4	248	**63.3**	**249**
SPECspeed®2017_fp_base =						**233**								
SPECspeed®2017_fp_peak =						**233**								

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 19 20:06:24 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
    20:06:24 up 10:38,  1 user,  load average: 5.44, 6.28, 3.68
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                09:42   10:22m  1.28s  0.00s -bash

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


 -------------------------------------------------------------
 4. ulimit -a
```

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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) 2061475
    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) 2061475
    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=96 --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=96 --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) 6731E
    vendor_id         : GenuineIntel
    cpu family        : 6
    model             : 175
    stepping          : 3
    microcode         : 0x30001b3
    bugs              : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
    cpu cores         : 96
    siblings          : 96
    1 physical ids (chips)
    96 processors (hardware threads)
    physical id 0: core ids 0-95
    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
  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:
```

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Platform Notes (Continued)

```
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):                              96
On-line CPU(s) list:                 0-95
Vendor ID:                           GenuineIntel
BIOS Vendor ID:                      Intel(R) Corporation
Model name:                          Intel(R) Xeon(R) 6731E
BIOS Model name:                     Intel(R) Xeon(R) 6731E  CPU @ 2.2GHz
BIOS CPU family:                     179
CPU family:                          6
Model:                               175
Thread(s) per core:                  1
Core(s) per socket:                  96
Socket(s):                           1
Stepping:                            3
CPU(s) scaling MHz:                  44%
CPU max MHz:                         3100.0000
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 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 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 vnmi 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_l1d arch_capabilities
Virtualization:                      VT-x
L1d cache:                           3 MiB (96 instances)
L1i cache:                           6 MiB (96 instances)
L2 cache:                            96 MiB (24 instances)
L3 cache:                            96 MiB (1 instance)
NUMA node(s):                        1
NUMA node0 CPU(s):                   0-95
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      32K       3M     8 Data            1     64        1             64
       L1i      64K       6M     8 Instruction     1    128        1             64
       L2        4M      96M    16 Unified         2   4096        1             64
       L3       96M      96M    12 Unified         3 131072        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: 0-95
     node 0 size: 515395 MB
     node 0 free: 465300 MB
     node distances:
     node   0
       0:  10


   -------------------------------------------------------------
   9. /proc/meminfo
     MemTotal:       527764688 kB


   -------------------------------------------------------------
   10. who -r
     run-level 3 Jul 19 09:28


   -------------------------------------------------------------
   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

   -------------------------------------------------------------
   14. cpupower frequency-info
```

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Platform Notes (Continued)

```
    analyzing CPU 87:
      current policy: frequency should be within 800 MHz and 3.10 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+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


  ----------------------------------------------------------------
  20. Disk information
  SPEC is set to: /home/cpu2017
    Filesystem      Type  Size  Used Avail Use% Mounted on
```

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Platform Notes (Continued)

```
  /dev/nvme0n1p2 xfs   892G   73G  819G   9% /


     ----------------------------------------------------------
  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, configured at 5600


     ----------------------------------------------------------
  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)
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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`

Fortran benchmarks:
`-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsierraforest -Ofast`

(Continued on next page)

Supermicro

Hyper SuperServer SYS-212H-TN
(X14SBH , Intel Xeon 6731E)

SPECspeed®2017_fp_base = 233

SPECspeed®2017_fp_peak = 233

CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Jul-2024

Hardware Availability: Sep-2024

Software Availability: Jun-2024

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
```
-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
```

Peak Optimization Flags

C benchmarks:

(Continued on next page)

Supermicro

Hyper SuperServer SYS-212H-TN
(X14SBH , Intel Xeon 6731E)

SPECspeed®2017_fp_base = 233

SPECspeed®2017_fp_peak = 233

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

Peak Optimization Flags (Continued)

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

SPEC CPU®2017 Floating Point Speed Result

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Hyper SuperServer SYS-212H-TN
(X14SBH , Intel Xeon 6731E)

$$SPECspeed®2017\_fp\_base = 233$$

$$SPECspeed®2017\_fp\_peak = 233$$

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

Test Date: Jul-2024
Hardware Availability: Sep-2024
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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