SPEC CPU®2017 Floating Point Rate Result

Inspur Electronic Information Industry Co., Ltd. (IEI)

NF5280M7 (Intel Xeon Bronze 3408U)

$SPECrate®2017\_fp\_base = 74.9$

$SPECrate®2017\_fp\_peak = 75.4$

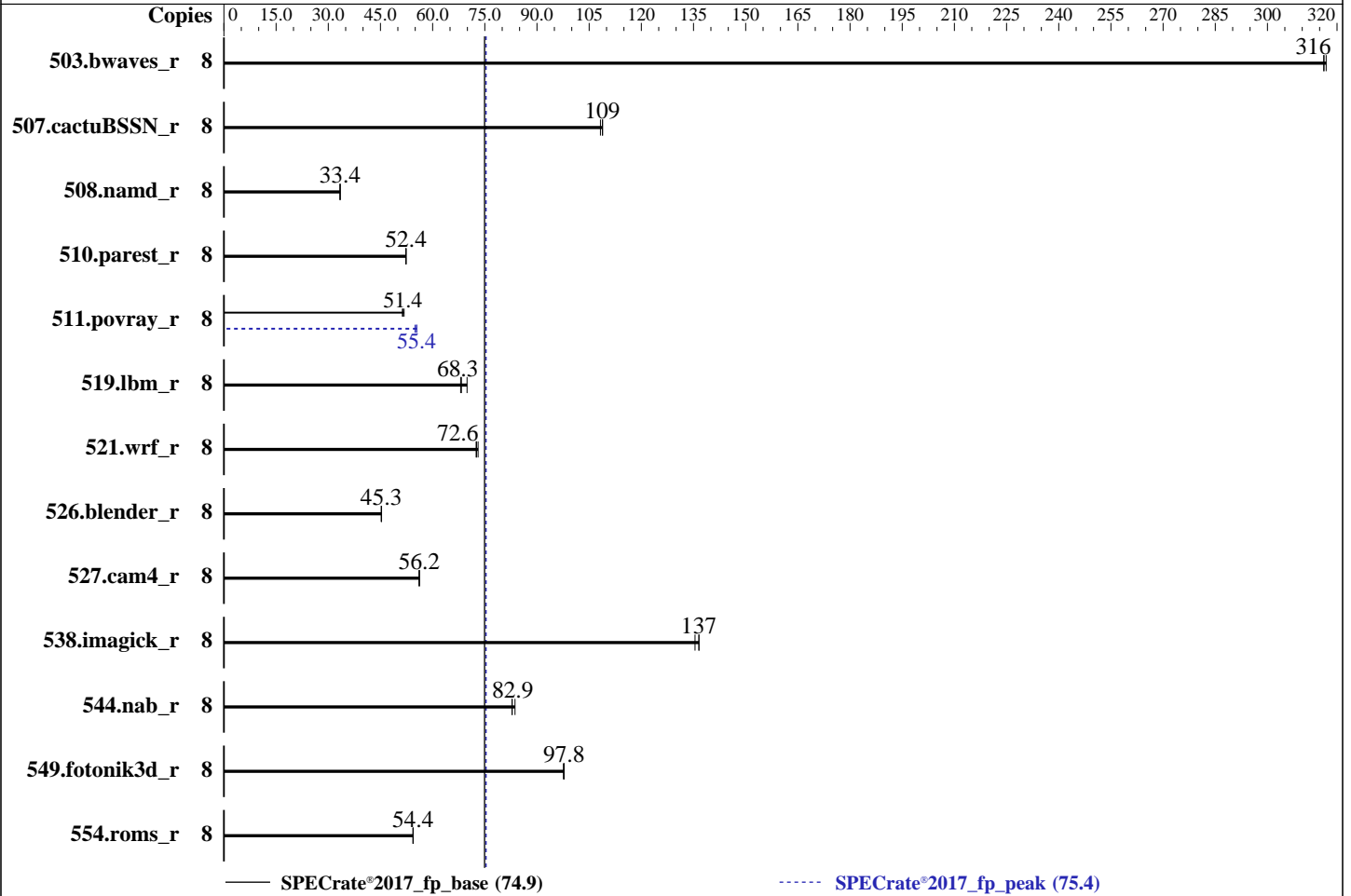|	
CPU2017 License: 3358	**Test Date:** May-2023
Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)	**Hardware Availability:** Apr-2023
Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)	**Software Availability:** Dec-2022

Copies

Benchmark	Copies	Result
503.bwaves_r	8	316
507.cactuBSSN_r	8	109
508.namd_r	8	33.4
510.parest_r	8	52.4
511.povray_r	8	51.4 / 55.4
519.lbm_r	8	68.3
521.wrf_r	8	72.6
526.blender_r	8	45.3
527.cam4_r	8	56.2
538.imagick_r	8	137
544.nab_r	8	82.9
549.fotonik3d_r	8	97.8
554.roms_r	8	54.4

SPECrate®2017_fp_base (74.9) SPECrate®2017_fp_peak (75.4)

Hardware

CPU Name: Intel Xeon Bronze 3408U
 Max MHz: 1900
 Nominal: 1800
Enabled: 8 cores, 1 chip
Orderable: 1 chip
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 22.5 MB I+D on chip per chip
 Other: None
Memory: 256 GB (8 x 32 GB 2Rx4 PC5-4800B-R, running at 4000)
Storage: 1 x 1 TB NVME SSD
Other: None

Software

OS: Red Hat Enterprise Linux 9.0 (Plow)
 5.14.0-70.22.1.el9_0.x86_64
Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux;
 Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;
Parallel: No
Firmware: Version 03.01.00 released Dec-2022
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.

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Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	8	253	317	254	316	**254**	**316**	8	253	317	254	316	**254**	**316**
507.cactuBSSN_r	8	**93.1**	**109**	93.6	108	93.0	109	8	**93.1**	**109**	93.6	108	93.0	109
508.namd_r	8	227	33.4	228	33.4	**227**	**33.4**	8	227	33.4	228	33.4	**227**	**33.4**
510.parest_r	8	**400**	**52.4**	400	52.3	400	52.4	8	**400**	**52.4**	400	52.3	400	52.4
511.povray_r	8	364	51.3	361	51.8	**363**	**51.4**	8	337	55.4	**337**	**55.4**	340	54.9
519.lbm_r	8	**123**	**68.3**	124	68.1	121	69.9	8	**123**	**68.3**	124	68.1	121	69.9
521.wrf_r	8	247	72.5	**247**	**72.6**	245	73.1	8	247	72.5	**247**	**72.6**	245	73.1
526.blender_r	8	**269**	**45.3**	269	45.3	269	45.2	8	**269**	**45.3**	269	45.3	269	45.2
527.cam4_r	8	**249**	**56.2**	249	56.1	249	56.2	8	**249**	**56.2**	249	56.1	249	56.2
538.imagick_r	8	**146**	**137**	147	135	146	137	8	**146**	**137**	147	135	146	137
544.nab_r	8	163	82.8	161	83.7	**162**	**82.9**	8	163	82.8	161	83.7	**162**	**82.9**
549.fotonik3d_r	8	319	97.8	**319**	**97.8**	319	97.6	8	319	97.8	**319**	**97.8**	319	97.6
554.roms_r	8	234	54.4	**234**	**54.4**	234	54.4	8	234	54.4	**234**	**54.4**	234	54.4
SPECrate®2017_fp_base =		**74.9**												
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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
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.

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General Notes (Continued)

```
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
```

Platform Notes

```
BIOS configuration:
ENERGY_PERF_BIAS_CFG mode set to Performance
Hardware Prefetch set to Disable
VT Support set to Disable
Sub NUMA Cluster (SNC) set to SNC4

Sysinfo program /home/CPU2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Thu May  4 16:39:23 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 250 (250-6.el9_0)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
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 localhost.localdomain 5.14.0-70.22.1.el9_0.x86_64 #1 SMP PREEMPT Tue Aug 2 10:02:12 EDT 2022 x86_64
  x86_64 x86_64 GNU/Linux


-----------------------------------------------------------
2. w
   16:39:23 up  5:30,  1 user,  load average: 5.72, 7.45, 7.82
```

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Platform Notes (Continued)

```
   USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1       11:09    5:26m  1.62s  0.02s sh
   reportable-ic2023.0-lin-sapphirerapids-rate-smt-on-20221201.sh


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


  -----------------------------------------------------------
4. ulimit -a
  real-time non-blocking time  (microseconds, -R) unlimited
  core file size              (blocks, -c) 0
  data seg size               (kbytes, -d) unlimited
  scheduling priority               (-e) 0
  file size                   (blocks, -f) unlimited
  pending signals                   (-i) 1030111
  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) 1030111
  virtual memory              (kbytes, -v) unlimited
  file locks                        (-x) unlimited


  -----------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize 28
 login -- root
 -bash
 sh reportable-ic2023.0-lin-sapphirerapids-rate-smt-on-20221201.sh
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=8 -c
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=4 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak -o all fprate
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=8 --configfile
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=4 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --nopower
   --runmode rate --tune base:peak --size refrate fprate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.019/templogs/preenv.fprate.019.0.log --lognum 019.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/CPU2017


  -----------------------------------------------------------
6. /proc/cpuinfo
   model name       : Intel(R) Xeon(R) Bronze 3408U
   vendor_id        : GenuineIntel
   cpu family       : 6
   model            : 143
   stepping         : 7
   microcode        : 0x2b000130
   bugs             : spectre_v1 spectre_v2 spec_store_bypass swapgs
   cpu cores        : 8
   siblings         : 8
   1 physical ids (chips)
   8 processors (hardware threads)
   physical id 0: core ids 0-7
   physical id 0: apicids 0,2,4,6,8,10,12,14
```

(Continued on next page)

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Platform Notes (Continued)

```
    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
      CPU op-mode(s):            32-bit, 64-bit
      Address sizes:             46 bits physical, 57 bits virtual
      Byte Order:                Little Endian
      CPU(s):                    8
      On-line CPU(s) list:       0-7
      Vendor ID:                 GenuineIntel
      BIOS Vendor ID:            Intel(R) Corporation
      Model name:                Intel(R) Xeon(R) Bronze 3408U
      BIOS Model name:           Intel(R) Xeon(R) Bronze 3408U
      CPU family:                6
      Model:                     143
      Thread(s) per core:        1
      Core(s) per socket:        8
      Socket(s):                 1
      Stepping:                  7
      CPU max MHz:               1900.0000
      CPU min MHz:               800.0000
      BogoMIPS:                  3600.00
      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 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
                                 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase
                                 tsc_adjust bmi1 avx2 smep bmi2 erms invpcid 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 avx_vnni avx512_bf16
                                 wbnoinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req
                                 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 flush_l1d arch_capabilities
      L1d cache:                 384 KiB (8 instances)
      L1i cache:                 256 KiB (8 instances)
      L2 cache:                  16 MiB (8 instances)
      L3 cache:                  22.5 MiB (1 instance)
      NUMA node(s):              2
      NUMA node0 CPU(s):         0-3
      NUMA node1 CPU(s):         4-7
      Vulnerability Itlb multihit:   Not affected
      Vulnerability L1tf:            Not affected
      Vulnerability Mds:             Not affected
      Vulnerability Meltdown:        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 IBRS, IBPB conditional, RSB filling
      Vulnerability Srbds:           Not affected
      Vulnerability Tsx async abort: Not affected
```

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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     384K   12 Data             1    64        1            64
    L1i      32K     256K    8 Instruction      1    64        1            64
    L2        2M      16M   16 Unified          2  2048        1            64
    L3     22.5M    22.5M   15 Unified          3 24576        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: 0-3
  node 0 size: 128592 MB
  node 0 free: 121567 MB
  node 1 cpus: 4-7
  node 1 size: 128975 MB
  node 1 free: 124315 MB
  node distances:
  node   0   1
    0:  10  12
    1:  12  10

    ------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       263749372 kB

    ------------------------------------------------------------
10. who -r
  run-level 3 May 4 11:09

    ------------------------------------------------------------
11. Systemd service manager version: systemd 250 (250-6.el9_0)
  Default Target  Status
  multi-user      degraded

    ------------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
    UNIT                 LOAD   ACTIVE SUB    DESCRIPTION
  * dnf-makecache.service loaded failed failed dnf makecache
  * sep5.service          loaded failed failed systemd script to load sep5 driver at boot time

    ------------------------------------------------------------
13. Services, from systemctl list-unit-files
  STATE           UNIT FILES
  enabled         NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
                  dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor mdmonitor microcode
                  nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sep5 sshd sssd
                  systemd-network-generator udisks2 upower
  enabled-runtime systemd-remount-fs
  disabled        blk-availability canberra-system-bootup canberra-system-shutdown
                  canberra-system-shutdown-reboot chrony-wait console-getty cpupower debug-shell kvm_stat
                  man-db-restart-cache-update nftables rdisc rhsm rhsm-facts rpmdb-rebuild serial-getty@
                  sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext
  indirect        sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo

    ------------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.22.1.el9_0.x86_64
  root=/dev/mapper/rhel-root
  ro
```

(Continued on next page)

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Platform Notes (Continued)

```
  resume=/dev/mapper/rhel-swap
  rd.lvm.lv=rhel/root
  rd.lvm.lv=rhel/swap


  ------------------------------------------------------------
15. cpupower frequency-info
  analyzing CPU 0:
    current policy: frequency should be within 800 MHz and 1.90 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes


  ------------------------------------------------------------
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                    60
  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     Red Hat Enterprise Linux 9.0 (Plow)
  redhat-release Red Hat Enterprise Linux release 9.0 (Plow)
  system-release Red Hat Enterprise Linux release 9.0 (Plow)
```

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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/mapper/rhel-home xfs   819G  131G  689G  16% /home

----------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:        IEI
    Product:       NF5280M7
    Product Family: Not specified
    Serial:        000000000

----------------------------------------------------------
22. dmidecode
  Additional information from dmidecode 3.3 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 Samsung M321R4GA3BB6-CQKVG 32 GB 2 rank 4800, configured at 4000


----------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
  BIOS Vendor:     American Megatrends International, LLC.
  BIOS Version:    03.01.00
  BIOS Date:       12/29/2022
```

Compiler Version Notes

```
==============================================================================
C               | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C++             | 508.namd_r(base, peak) 510.parest_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C++, C          | 511.povray_r(base, peak) 526.blender_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
```

(Continued on next page)

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Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)
Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Test Date: May-2023
Hardware Availability: Apr-2023
Software Availability: Dec-2022

Compiler Version Notes (Continued)

```
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
-----------------------------------------------------------------------------------------------

==============================================================================================
Fortran        | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)
-----------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
-----------------------------------------------------------------------------------------------

==============================================================================================
Fortran, C     | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
-----------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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-----------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

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`

(Continued on next page)

Inspur Electronic Information Industry Co., Ltd. (IEI)

NF5280M7 (Intel Xeon Bronze 3408U)

SPECrate®2017_fp_base = 74.9

SPECrate®2017_fp_peak = 75.4

CPU2017 License: 3358
Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)
Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Test Date: May-2023
Hardware Availability: Apr-2023
Software Availability: Dec-2022

Base Portability Flags (Continued)

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 -xsapphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512 -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib`

C++ benchmarks:
`-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -mprefer-vector-width=512 -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib`

Fortran benchmarks:
`-w -m64 -Wl,-z,muldefs -xsapphirerapids -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`

Benchmarks using both Fortran and C:
`-w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512 -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 -xsapphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512 -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib`

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Inspur Electronic Information Industry Co., Ltd. (IEI)

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Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++:
```
-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Peak Compiler Invocation

C benchmarks:
```
icx
```

C++ benchmarks:
```
icpx
```

Fortran benchmarks:
```
ifx
```

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
```

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

519.lbm_r: `basepeak = yes`

538.imagick_r: `basepeak = yes`

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Inspur Electronic Information Industry Co., Ltd. (IEI)

NF5280M7 (Intel Xeon Bronze 3408U)

SPECrate®2017_fp_base = 74.9

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Peak Optimization Flags (Continued)

544.nab_r: `basepeak = yes`

C++ benchmarks:

508.namd_r: `basepeak = yes`

510.parest_r: `basepeak = yes`

Fortran benchmarks:

503.bwaves_r: `basepeak = yes`

549.fotonik3d_r: `basepeak = yes`

554.roms_r: `basepeak = yes`

Benchmarks using both Fortran and C:

521.wrf_r: `basepeak = yes`

527.cam4_r: `basepeak = yes`

Benchmarks using both C and C++:

511.povray_r: `-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1) -fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1) -flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512 -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib`

526.blender_r: `basepeak = yes`

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: `basepeak = yes`

The flags files that were used to format this result can be browsed at
  http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html
  http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-intel-V3.html

You can also download the XML flags sources by saving the following links:
  http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml
  http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-intel-V3.xml

SPEC CPU®2017 Floating Point Rate Result

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Inspur Electronic Information Industry Co., Ltd. (IEI)

NF5280M7 (Intel Xeon Bronze 3408U)

SPECrate®2017_fp_base = 74.9

SPECrate®2017_fp_peak = 75.4

CPU2017 License: 3358	**Test Date:**	May-2023
Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)	**Hardware Availability:**	Apr-2023
Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)	**Software Availability:**	Dec-2022

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

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