SPEC CPU®2017 Floating Point Rate Result

Fujitsu

PRIMERGY RX4770 M7, Intel Xeon Gold 6434H, 3.70GHz

$SPECrate®2017_fp_base = $ **570**

$SPECrate®2017_fp_peak = $ Not Run

CPU2017 License: 19	**Test Date:**	Jun-2023
Test Sponsor: Fujitsu	**Hardware Availability:**	Jun-2023
Tested by: Fujitsu	**Software Availability:**	Dec-2022

Copies

Benchmark	Copies	Result
503.bwaves_r	64	2730
507.cactuBSSN_r	64	643
508.namd_r	64	299
510.parest_r	64	314
511.povray_r	64	481
519.lbm_r	64	368
521.wrf_r	64	501
526.blender_r	64	445
527.cam4_r	64	522
538.imagick_r	64	1290
544.nab_r	64	924
549.fotonik3d_r	64	583
554.roms_r	64	286

SPECrate®2017_fp_base (570)

Hardware

CPU Name: Intel Xeon Gold 6434H
 Max MHz: 4100
 Nominal: 3700
Enabled: 32 cores, 4 chips, 2 threads/core
Orderable: 2,4 chips
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: 2 TB (32 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 1.92 TB SATA SSD
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP4
 5.14.21-150400.22-default
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: Fujitsu BIOS Version V1.0.0.0 R1.10.0 for
 D3984-A1x. Released Jun-2023
 tested as V1.0.0.0 R1.2.0 for D3984-A1x May-2023
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 ofadditional power usage

https://www.spec.org/

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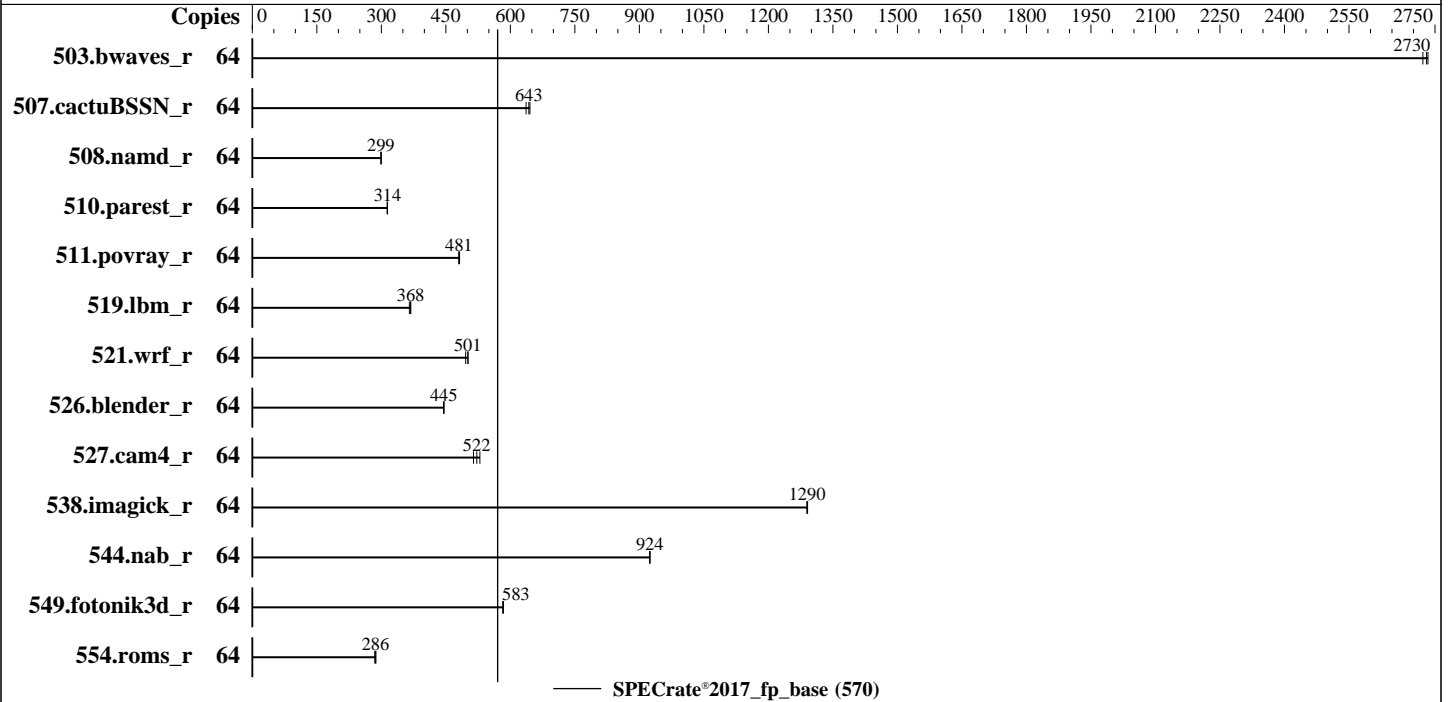
SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Jun-2023
Hardware Availability: Jun-2023
Software Availability: Dec-2022

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	64	**235**	**2730**	236	2720	235	2730							
507.cactuBSSN_r	64	126	646	**126**	**643**	127	637							
508.namd_r	64	**203**	**299**	203	299	203	299							
510.parest_r	64	533	314	**533**	**314**	534	313							
511.povray_r	64	**311**	**481**	310	482	311	480							
519.lbm_r	64	183	368	**183**	**368**	185	365							
521.wrf_r	64	289	496	286	502	**286**	**501**							
526.blender_r	64	**219**	**445**	219	445	219	446							
527.cam4_r	64	**214**	**522**	212	529	218	514							
538.imagick_r	64	123	1290	123	1290	**123**	**1290**							
544.nab_r	64	**117**	**924**	117	924	116	925							
549.fotonik3d_r	64	427	584	**428**	**583**	428	583							
554.roms_r	64	354	287	**355**	**286**	357	285							

SPECrate®2017_fp_base = 570

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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/Benchmark/speccpu/lib/intel64:/home/Benchmark/speccpu/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.

(Continued on next page)

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

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Software Availability: Dec-2022

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:
Package C State limit = C0
CPU Performance Boost = Aggressive
SNC (Sub NUMA) = Enable SNC2
FAN Control = Full

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Tue Jun  6 09:57:31 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 (249.11+suse.124.g2bc0b2c447)
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 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)
  x86_64 x86_64 x86_64 GNU/Linux


------------------------------------------------------------
2. w
   09:57:31 up 5 min,  2 users,  load average: 0.22, 0.07, 0.02
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
```

(Continued on next page)

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Platform Notes (Continued)

```
   root     tty1      -                09:57  11.00s  1.90s  0.16s /home/Benchmark/ptu-unified/ptu -i 5000000
   -filter 0x3f -ts -csv -log -logdir . -logname ptu_fprate_SPR__2017_withptu_202306060957
   root     pts/0   10.118.160.8     09:56  27.00s  0.09s  0.09s -bash


   -----------------------------------------------------------
   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) 8254132
     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) 8254132
     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 --define numcopies=64 -c
      ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define cores=32 --define physicalfirst --define
      invoke_with_interleave --define drop_caches --tune base -o all fprate
    runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 --configfile
      ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define cores=32 --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/CPU2017.001/templogs/preenv.fprate.001.0.log --lognum 001.0 --from_runcpu 2
    specperl $SPEC/bin/sysinfo
   $SPEC = /home/Benchmark/speccpu


   -----------------------------------------------------------
   6. /proc/cpuinfo
     model name      : Intel(R) Xeon(R) Gold 6434H
     vendor_id       : GenuineIntel
     cpu family      : 6
     model           : 143
     stepping        : 8
     microcode       : 0x2b0001b0
     bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
     cpu cores       : 8
     siblings        : 16
     4 physical ids (chips)
     64 processors (hardware threads)
     physical id 0: core ids 0-7
     physical id 1: core ids 0-7
     physical id 2: core ids 0-7
```

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Platform Notes (Continued)

```
     physical id 3: core ids 0-7
     physical id 0: apicids 0-15
     physical id 1: apicids 128-143
     physical id 2: apicids 256-271
     physical id 3: apicids 384-399
  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 2.37.2:
    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):                     64
    On-line CPU(s) list:        0-63
    Vendor ID:                  GenuineIntel
    Model name:                 Intel(R) Xeon(R) Gold 6434H
    CPU family:                 6
    Model:                      143
    Thread(s) per core:         2
    Core(s) per socket:         8
    Socket(s):                  4
    Stepping:                   8
    CPU max MHz:                4100.0000
    CPU min MHz:                800.0000
    BogoMIPS:                   7400.00
    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 intel_ppin 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 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
                                amx_tile flush_l1d arch_capabilities
    Virtualization:             VT-x
    L1d cache:                  1.5 MiB (32 instances)
    L1i cache:                  1 MiB (32 instances)
    L2 cache:                   64 MiB (32 instances)
    L3 cache:                   90 MiB (4 instances)
    NUMA node(s):               8
    NUMA node0 CPU(s):          0-3,32-35
    NUMA node1 CPU(s):          4-7,36-39
    NUMA node2 CPU(s):          8-11,40-43
    NUMA node3 CPU(s):          12-15,44-47
    NUMA node4 CPU(s):          16-19,48-51
    NUMA node5 CPU(s):          20-23,52-55
    NUMA node6 CPU(s):          24-27,56-59
```

(Continued on next page)

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Platform Notes (Continued)

```
   NUMA node7 CPU(s):           28-31,60-63
   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 and seccomp
   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

 From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE         LEVEL  SETS PHY-LINE COHERENCY-SIZE
     L1d      48K     1.5M  12 Data            1    64       1            64
     L1i      32K       1M   8 Instruction     1    64       1            64
     L2        2M      64M  16 Unified         2  2048       1            64
     L3     22.5M      90M  15 Unified         3 24576       1            64

 -----------------------------------------------------------
 8. numactl --hardware
 NOTE: a numactl 'node' might or might not correspond to a physical chip.
   available: 8 nodes (0-7)
   node 0 cpus: 0-3,32-35
   node 0 size: 257624 MB
   node 0 free: 256934 MB
   node 1 cpus: 4-7,36-39
   node 1 size: 258045 MB
   node 1 free: 257756 MB
   node 2 cpus: 8-11,40-43
   node 2 size: 258045 MB
   node 2 free: 257906 MB
   node 3 cpus: 12-15,44-47
   node 3 size: 258011 MB
   node 3 free: 257854 MB
   node 4 cpus: 16-19,48-51
   node 4 size: 258045 MB
   node 4 free: 257824 MB
   node 5 cpus: 20-23,52-55
   node 5 size: 258045 MB
   node 5 free: 257824 MB
   node 6 cpus: 24-27,56-59
   node 6 size: 258045 MB
   node 6 free: 257907 MB
   node 7 cpus: 28-31,60-63
   node 7 size: 257692 MB
   node 7 free: 257538 MB
   node distances:
   node   0   1   2   3   4   5   6   7
     0:  10  12  21  21  21  21  21  21
     1:  12  10  21  21  21  21  21  21
     2:  21  21  10  12  21  21  21  21
     3:  21  21  12  10  21  21  21  21
     4:  21  21  21  21  10  12  21  21
     5:  21  21  21  21  12  10  21  21
     6:  21  21  21  21  21  21  10  12
     7:  21  21  21  21  21  21  12  10

 -----------------------------------------------------------
 9. /proc/meminfo
   MemTotal:       2113082828 kB
```

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Platform Notes (Continued)

```
  ----------------------------------------------------------
  10. who -r
    run-level 3 Jun 6 09:52


  ----------------------------------------------------------
  11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
    Default Target  Status
    multi-user      degraded


  ----------------------------------------------------------
  12. Failed units, from systemctl list-units --state=failed
      UNIT          LOAD   ACTIVE SUB    DESCRIPTION
    * 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          YaST2-Firstboot YaST2-Second-Stage apparmor auditd bluetooth cron display-manager getty@
                     haveged irqbalance iscsi issue-generator kbdsettings kdump kdump-early klog lvm2-monitor
                     nscd postfix purge-kernels rollback rsyslog sep5 smartd sshd wicked wickedd-auto4
                     wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
    enabled-runtime  systemd-remount-fs
    disabled         accounts-daemon appstream-sync-cache autofs autoyast-initscripts blk-availability
                     bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd console-getty cups
                     cups-browsed debug-shell ebtables exchange-bmc-os-info firewalld gpm grub2-once
                     haveged-switch-root ipmi ipmievd iscsi-init iscsid iscsiuio issue-add-ssh-keys kexec-load
                     lunmask man-db-create multipathd nfs nfs-blkmap nmb ostree-remount rdisc rpcbind
                     rpmconfigcheck rsyncd rtkit-daemon serial-getty@ smartd_generate_opts smb snmpd snmptrapd
                     speech-dispatcherd sysstat systemd-boot-check-no-failures systemd-network-generator
                     systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2 upower
    indirect         wickedd


  ----------------------------------------------------------
  14. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
    root=UUID=9e2670af-d584-4578-97c8-36df0cfc1166
    splash=silent
    mitigations=auto
    quiet
    security=apparmor
    crashkernel=324M,high
    crashkernel=72M,low


  ----------------------------------------------------------
  15. cpupower frequency-info
    analyzing CPU 0:
      current policy: frequency should be within 800 MHz and 4.10 GHz.
                      The governor "powersave" 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
```

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Platform Notes (Continued)

```
   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 SUSE Linux Enterprise Server 15 SP4


   -----------------------------------------------------------
20. Disk information
SPEC is set to: /home/Benchmark/speccpu
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   1.8T   79G  1.7T   5% /


   -----------------------------------------------------------
21. /sys/devices/virtual/dmi/id
     Vendor:        FUJITSU
     Product:       PRIMERGY RX4770 M7
     Product Family: SERVER
     Serial:        EWCDXXXXXX


   -----------------------------------------------------------
22. dmidecode
   Additional information from dmidecode 3.2 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:
     13x Samsung M321R8GA0BB0-CQKDG 64 GB 2 rank 4800
     4x Samsung M321R8GA0BB0-CQKEG 64 GB 2 rank 4800
```

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Platform Notes (Continued)

```
     15x Samsung M321R8GA0BB0-CQKVG 64 GB 2 rank 4800


   ------------------------------------------------------------
   23. BIOS
   (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:        FUJITSU
     BIOS Version:       V1.0.0.0 R1.2.0 for D3984-A1x
     BIOS Date:          05/12/2023
     BIOS Revision:      1.2
     Firmware Revision: 2.25
```

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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C++          | 508.namd_r(base) 510.parest_r(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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------------------------------------------------------------------------------


==============================================================================
C++, C       | 511.povray_r(base) 526.blender_r(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ 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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------------------------------------------------------------------------------


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


==============================================================================
Fortran      | 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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------------------------------------------------------------------------------


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

(Continued on next page)

SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M7, Intel Xeon Gold 6434H, 3.70GHz

$SPECrate®2017\_fp\_base = 570$

$SPECrate®2017_fp_peak = $ Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Jun-2023
Hardware Availability: Jun-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.
------------------------------------------------------------------------------------------------
```

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
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

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

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CPU2017 License: 19		**Test Date:**	Jun-2023
Test Sponsor: Fujitsu		**Hardware Availability:**	Jun-2023
Tested by: Fujitsu		**Software Availability:**	Dec-2022

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
```

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
```

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/Fujitsu-Platform-Settings-V1.0-SPR-RevB.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/Fujitsu-Platform-Settings-V1.0-SPR-RevB.xml

SPEC CPU®2017 Floating Point Rate Result

Fujitsu

PRIMERGY RX4770 M7, Intel Xeon Gold 6434H, 3.70GHz

SPECrate®2017_fp_base =   570

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CPU2017 License: 19		**Test Date:**	Jun-2023
Test Sponsor:	Fujitsu	**Hardware Availability:**	Jun-2023
Tested by:	Fujitsu	**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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