SPEC CPU®2017 Floating Point Rate Result

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Fujitsu

PRIMERGY RX2540 M7, Intel Xeon Max 9462, 2.70GHz

$SPECrate®2017\_fp\_base =$ **852**

$SPECrate®2017\_fp\_peak =$ Not Run

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

Copies

Benchmark	Copies	Value
503.bwaves_r	128	3810
507.cactuBSSN_r	128	984
508.namd_r	128	447
510.parest_r	128	443
511.povray_r	128	718
519.lbm_r	128	576
521.wrf_r	128	804
526.blender_r	128	667
527.cam4_r	128	749
538.imagick_r	128	1920
544.nab_r	128	1370
549.fotonik3d_r	128	856
554.roms_r	128	450

SPECrate®2017_fp_base (852)

Hardware

CPU Name: Intel Xeon Max 9462
 Max MHz: 3500
 Nominal: 2700
Enabled: 64 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 75 MB I+D on chip per chip
 Other: None
Memory: 1152 GB (16 x 64 GB 2Rx4 PC5-4800B-R + 2 x 64 GB HBM)
Storage: 1 x SATA SSD, 1.92TB
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 D3983-A1x. Released Mar-2023
 tested as V1.0.0.0 R1.1.0 for D3983-A1x Feb-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 of additional power usage

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SPECrate®2017_fp_base = 852

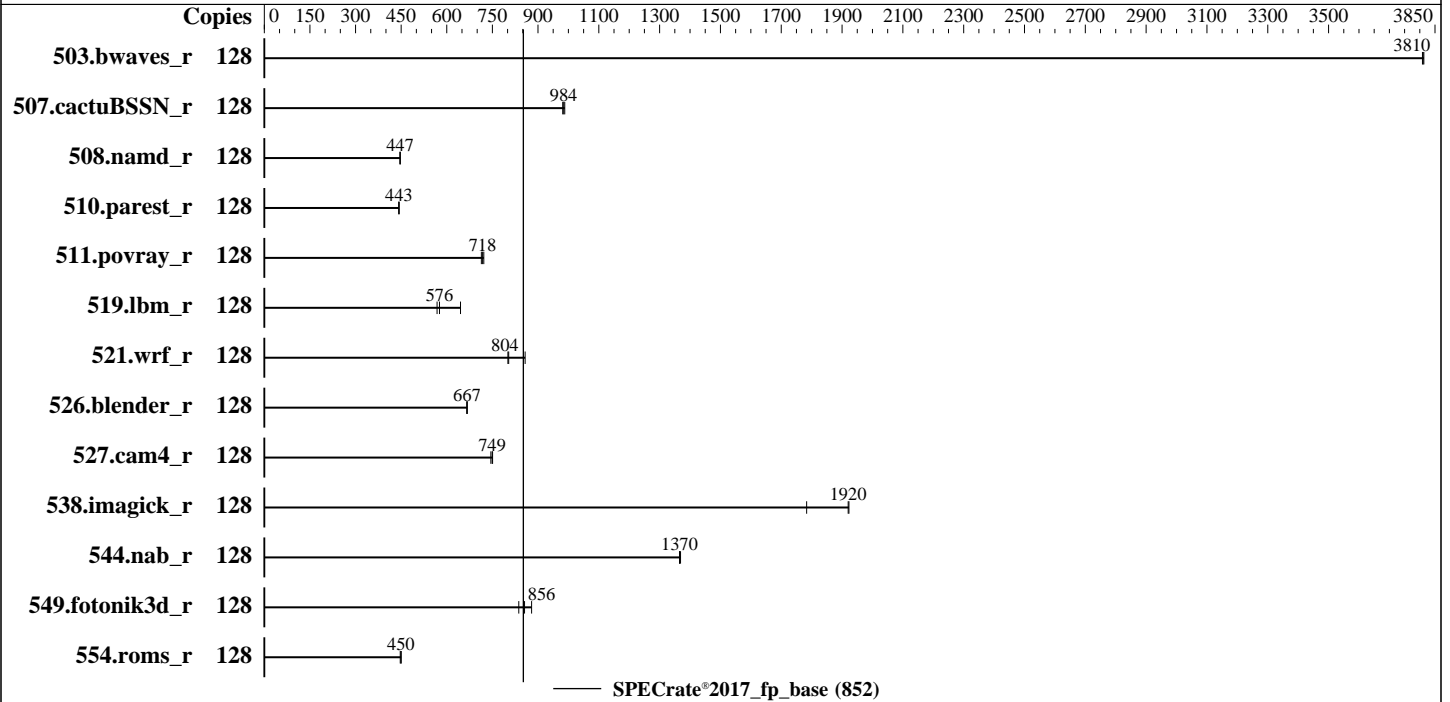SPECrate®2017_fp_peak = Not Run

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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	128	337	3810	337	3810	**337**	**3810**							
507.cactuBSSN_r	128	**165**	**984**	164	988	165	981							
508.namd_r	128	**272**	**447**	272	446	272	447							
510.parest_r	128	756	443	**756**	**443**	757	442							
511.povray_r	128	414	722	419	714	**416**	**718**							
519.lbm_r	128	209	645	237	568	**234**	**576**							
521.wrf_r	128	334	858	358	801	**357**	**804**							
526.blender_r	128	292	667	293	666	**292**	**667**							
527.cam4_r	128	298	751	**299**	**749**	301	745							
538.imagick_r	128	178	1780	**166**	**1920**	166	1920							
544.nab_r	128	157	1370	**158**	**1370**	158	1370							
549.fotonik3d_r	128	567	879	**583**	**856**	596	837							
554.roms_r	128	452	450	**452**	**450**	455	447							

SPECrate®2017_fp_base = 852

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"
Kernel Boot Parameter set with : nohz_full=1-127
cpupower -c all frequency-set -g performance
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/benchmark/speccpu-1.1.9/lib/intel64:/home/benchmark/speccpu-1.1.9/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>
```

(Continued on next page)

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General Notes (Continued)

```
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
```

Platform Notes

```
BIOS configuration:
SNC (Sub NUMA) = Enable SNC4
Package C State Limit = C0
Volatile Memory Mode = 2LM
CPU Performance Boost = Aggressive
FAN Control = Full

Sysinfo program /home/benchmark/speccpu-1.1.9/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Sat Jul 15 07:57:00 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/lp)
  x86_64 x86_64 x86_64 GNU/Linux

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

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Platform Notes (Continued)

```
  2. w
     07:57:00 up 2 min,  2 users,  load average: 1.13, 1.49, 0.66
     USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
     root     tty1     -                07:55    8.00s  2.52s  0.16s
     /home/benchmark/ptu_v4.0/UNIFIED_SERVER_PTAT_V4.0.0_20230110/ptat -mon -i 5000000 -filter 0x3f -y -ts -csv
     -log
     root     pts/0    10.118.163.62    07:55   11.00s  0.20s  0.20s -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) 4125245
     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) 4125245
     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=128 -c
     ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=64 --define physicalfirst
     --define invoke_with_interleave --define drop_caches --tune base -o all fprate
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=128 --configfile
     ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=64 --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-1.1.9


  ----------------------------------------------------------
  6. /proc/cpuinfo
     model name      : Intel (R) Xeon (R) CPU Max 9462
     vendor_id       : GenuineIntel
     cpu family      : 6
     model           : 143
     stepping        : 8
     microcode       : 0x2c000120
     bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
     cpu cores       : 32
     siblings        : 64
     2 physical ids (chips)
```

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Platform Notes (Continued)

```
    128 processors (hardware threads)
    physical id 0: core ids 0-31
    physical id 1: core ids 0-31
    physical id 0: apicids 0-63
    physical id 1: apicids 128-191
  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):                     128
    On-line CPU(s) list:        0-127
    Vendor ID:                  GenuineIntel
    Model name:                 Intel (R) Xeon (R) CPU Max 9462
    CPU family:                 6
    Model:                      143
    Thread(s) per core:         2
    Core(s) per socket:         32
    Socket(s):                  2
    Stepping:                   8
    CPU max MHz:                3500.0000
    CPU min MHz:                800.0000
    BogoMIPS:                   5400.00
    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:                  3 MiB (64 instances)
    L1i cache:                  2 MiB (64 instances)
    L2 cache:                   128 MiB (64 instances)
    L3 cache:                   150 MiB (2 instances)
    NUMA node(s):               8
    NUMA node0 CPU(s):          0-7,64-71
    NUMA node1 CPU(s):          8-15,72-79
    NUMA node2 CPU(s):          16-23,80-87
    NUMA node3 CPU(s):          24-31,88-95
    NUMA node4 CPU(s):          32-39,96-103
    NUMA node5 CPU(s):          40-47,104-111
    NUMA node6 CPU(s):          48-55,112-119
```

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Platform Notes (Continued)

```
   NUMA node7 CPU(s):           56-63,120-127
  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       3M  12 Data           1    64       1            64
     L1i      32K       2M   8 Instruction    1    64       1            64
     L2        2M     128M  16 Unified        2  2048       1            64
     L3       75M     150M  15 Unified        3 81920       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: 0-7,64-71
   node 0 size: 128600 MB
   node 0 free: 127658 MB
   node 1 cpus: 8-15,72-79
   node 1 size: 129019 MB
   node 1 free: 128734 MB
   node 2 cpus: 16-23,80-87
   node 2 size: 129019 MB
   node 2 free: 128732 MB
   node 3 cpus: 24-31,88-95
   node 3 size: 129019 MB
   node 3 free: 128734 MB
   node 4 cpus: 32-39,96-103
   node 4 size: 129019 MB
   node 4 free: 128707 MB
   node 5 cpus: 40-47,104-111
   node 5 size: 128985 MB
   node 5 free: 128687 MB
   node 6 cpus: 48-55,112-119
   node 6 size: 129019 MB
   node 6 free: 128744 MB
   node 7 cpus: 56-63,120-127
   node 7 size: 128650 MB
   node 7 free: 128367 MB
   node distances:
   node   0   1   2   3   4   5   6   7
     0:  10  17  17  17  26  26  26  26
     1:  17  10  17  17  26  26  26  26
     2:  17  17  10  17  26  26  26  26
     3:  17  17  17  10  26  26  26  26
     4:  26  26  26  26  10  17  17  17
     5:  26  26  26  26  17  10  17  17
     6:  26  26  26  26  17  17  10  17
     7:  26  26  26  26  17  17  17  10

 -----------------------------------------------------------
 9. /proc/meminfo
   MemTotal:      1056087708 kB
```

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Platform Notes (Continued)

```
     ----------------------------------------------------------
     10. who -r
       run-level 3 Jul 15 07:54


     ----------------------------------------------------------
     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 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=0e5beafe-73ba-4cb4-b738-5343b4292867
       splash=silent
       quiet
       security=apparmor
       crashkernel=322M,high
       crashkernel=72M,low
       nohz_full=1-127
       mitigations=auto


     ----------------------------------------------------------
     15. cpupower frequency-info
       analyzing CPU 0:
         current policy: frequency should be within 800 MHz and 3.50 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
```

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Platform Notes (Continued)

```
    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 SUSE Linux Enterprise Server 15 SP4


  ---------------------------------------------------------------
  20. Disk information
  SPEC is set to: /home/benchmark/speccpu-1.1.9
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda2      xfs   1.8T  117G  1.7T   7% /


  ---------------------------------------------------------------
  21. /sys/devices/virtual/dmi/id
      Vendor:        FUJITSU
      Product:       PRIMERGY RX2540 M7
      Product Family: SERVER
      Serial:        EWCExxxxxx


  ---------------------------------------------------------------
  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:
      8x Intel  16 GB 1 rank 3200
```

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Platform Notes (Continued)

```
     2x Samsung M321R8GA0BB0-CQKDG 64 GB 2 rank 4800
     8x Samsung M321R8GA0BB0-CQKEG 64 GB 2 rank 4800
     6x 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 R1.1.0 for D3983-A1x
    BIOS Date:         02/03/2023
    BIOS Revision:     1.1
    Firmware Revision: 2.0
Each Intel Xeon CPU Max processor is configured with 64 GB of High Bandwidth Memory (HBM)
in-package. dmidecode is additionally reporting the capacity of the CPU in-package
HBM stack as: '8x Intel 16 GB 1 rank 3200'
```

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


==============================================================================
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) 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
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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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------------------------------------------------------------------------------
```

(Continued on next page)

SPEC CPU®2017 Floating Point Rate Result

Fujitsu

PRIMERGY RX2540 M7, Intel Xeon Max 9462, 2.70GHz

SPECrate®2017_fp_base =   852

SPECrate®2017_fp_peak = Not Run

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

Compiler Version Notes (Continued)

```
==================================================================================================
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
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`

SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2023 Standard Performance Evaluation Corporation

Fujitsu
PRIMERGY RX2540 M7, Intel Xeon Max 9462, 2.70GHz

SPECrate®2017_fp_base = 852

SPECrate®2017_fp_peak = Not Run

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

Test Date: Jul-2023
Hardware Availability: Mar-2023
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/Fujitsu-Platform-Settings-V1.0-SPR-RevC.html
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-SPR-RevC.xml
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml

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SPEC CPU®2017 Floating Point Rate Result

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Fujitsu

PRIMERGY RX2540 M7, Intel Xeon Max 9462, 2.70GHz

SPECrate®2017_fp_base = 852

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19		**Test Date:**	Jul-2023
Test Sponsor:	Fujitsu	**Hardware Availability:**	Mar-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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