Fujitsu
PRIMERGY RX4770 M7, Intel Xeon Platinum 8460H, 2.20GHz

SPECrate®2017_fp_base = 1610
SPECrate®2017_fp_peak = Not Run

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

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1610</td>
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<table>
<thead>
<tr>
<th>SPECrate2017_fp_base (1610)</th>
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<tbody>
<tr>
<td>0</td>
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<tr>
<td>---</td>
</tr>
<tr>
<td>503.bwaves_r 160</td>
</tr>
<tr>
<td>507.cactuBSSN_r 160</td>
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<tr>
<td>508.namd_r 160</td>
</tr>
<tr>
<td>510.parest_r 160</td>
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<tr>
<td>511.povray_r 160</td>
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<tr>
<td>519.lbm_r 160</td>
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<tr>
<td>521.wrf_r 160</td>
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<tr>
<td>526.blender_r 160</td>
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<tr>
<td>527.cam4_r 160</td>
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<tr>
<td>538.imagick_r 160</td>
</tr>
<tr>
<td>544.nab_r 160</td>
</tr>
<tr>
<td>549.fotonik3d_r 160</td>
</tr>
<tr>
<td>554.roms_r 160</td>
</tr>
</tbody>
</table>

Hardware
CPU Name: Intel Xeon Platinum 8460H
Max MHz: 3800
Nominal: 2200
Enabled: 160 cores, 4 chips
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: 105 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
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 R0.26.0 for D3984-A1x Jan-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
**SPEC CPU®2017 Floating Point Rate Result**

**Fujitsu**

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**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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<tbody>
<tr>
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<td>7400</td>
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<td>7440</td>
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<td>507.cactuBSSN_r</td>
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<td>526.blender_r</td>
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<td>689</td>
<td>369</td>
<td>689</td>
<td>369</td>
<td>690</td>
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</table>

**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)
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.


Platform Notes

BIOS configuration:
Hyper Threading = Disabled
Package C State limit = C0
CPU Performance Boost = Aggressive
SNC (Sub NUMA) = Enable SNC4
FAN Control = Full

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92c097bec197
running on localhost Thu Apr 27 18:10:31 2023

SUT (System Under Test) info as seen by some common utilities.

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3. Username
4. ulimit -a
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7. lscpu
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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
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17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/klhugepaged
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
18:10:31 up 3 min, 1 user, load average: 0.71, 2.31, 1.21

(Continued on next page)
Platform Notes (Continued)

3. Username
From environment variable $USER: root

4. ulimit -a
   core file size   (blocks, -c) unlimited
   data seg size   (kbytes, -d) unlimited
   scheduling priority  (-e) 0
   file size       (blocks, -f) unlimited
   pending signals (-l) 8253966
   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) 8253966
   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=160 -c
ic2023.0-lin-sapphirerapids-rate-20221221.cfg --define cores=80 --define physicalfirst --define
invoke_with_interleave --define drop_caches --tune base --o all --fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=160 --configfile
ic2023.0-lin-sapphirerapids-rate-20221221.cfg --define cores=80 --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) Platinum 8460H
   vendor_id       : GenuineIntel
   cpu family      : 6
   model           : 143
   stepping        : 6
   microcode       : 0xab000160
   bugs            : spectre_v1 spectre_v2 spec_store_bypass swapps
   cpu cores       : 40
   siblings        : 40
   4 physical ids (chips)
   160 processors (hardware threads)
   physical id 0: core ids 0-39
   physical id 1: core ids 0-39
   physical id 2: core ids 0-39

(Continued on next page)
Fujitsu
PRIMERGY RX4770 M7, Intel Xeon Platinum 8460H, 2.20GHz

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu
CPU max MHz: 3800.0000
CPU min MHz: 800.0000
BogoMIPS: 4400.00

Platform Notes (Continued)

fpu vmx 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 rdscpu
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 movzx popcnt tsc_deadline_timer aes xsave avx16c rdrand
lahf_lm abm 3dnowprefetch cpuid_fault ebpx cat_l3 cat_l2 cdp_l3
cache

physical id 3: core ids 0-39
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
physical id 1: apicids
80,182,184,186,188,190,192,194,196,198,200,202,204,206
physical id 2: apicids
08,310,312,314,316,318,320,322,324,326,328,330,332,334
physical id 3: apicids
384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414,416,418,420,422,424,426,428,430,432,434,4
36,438,440,442,444,446,448,450,452,454,456,458,460,462
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): 160
On-line CPU(s) list: 0-159
Vendor ID: GenuineIntel
Model name: Intel(R) Xeon(R) Platinum 8460H
CPU family: 6
Model: 143
Thread(s) per core: 1
Core(s) per socket: 40
Socket(s): 4
Stepping: 6
CPU max MHz: 3800.0000
CPU min MHz: 800.0000
BogoMIPS: 4400.00
Flags:

Virtualization: VT-x
L1d cache: 7.5 MiB (160 instances)
L1i cache: 5 MiB (160 instances)
L2 cache: 320 MiB (160 instances)
L3 cache: 420 MiB (4 instances)

(Continued on next page)
SPEC CPU®2017 Floating Point Rate Result

Fujitsu
PRIMERGY RX4770 M7, Intel Xeon Platinum 8460H, 2.20GHz

SPECrate®2017_fp_base = 1610
SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
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Platform Notes (Continued)

NUMA node(s): 16
NUMA node0 CPU(s): 0-9
NUMA node1 CPU(s): 10-19
NUMA node2 CPU(s): 20-29
NUMA node3 CPU(s): 30-39
NUMA node4 CPU(s): 40-49
NUMA node5 CPU(s): 50-59
NUMA node6 CPU(s): 60-69
NUMA node7 CPU(s): 70-79
NUMA node8 CPU(s): 80-89
NUMA node9 CPU(s): 90-99
NUMA node10 CPU(s): 100-109
NUMA node11 CPU(s): 110-119
NUMA node12 CPU(s): 120-129
NUMA node13 CPU(s): 130-139
NUMA node14 CPU(s): 140-149
NUMA node15 CPU(s): 150-159

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 7.5M 12 Data 1 64 1 64
L1i 32K 5M 8 Instruction 1 64 1 64
L2 2M 320M 16 Unified 2 2048 1 64
L3 105M 420M 15 Unified 3 114688 1 64

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 16 nodes (0-15)
node 0 cpus: 0-9
node 0 size: 128601 MB
node 0 free: 127861 MB
node 1 cpus: 10-19
node 1 size: 129021 MB
node 1 free: 128722 MB
node 2 cpus: 20-29
node 2 size: 129021 MB
node 2 free: 128754 MB
node 3 cpus: 30-39
node 3 size: 129021 MB
node 3 free: 128813 MB
node 4 cpus: 40-49
node 4 size: 129021 MB
node 4 free: 128849 MB
node 5 cpus: 50-59
node 5 size: 129021 MB
node 5 free: 128878 MB
node 6 cpus: 60-69
node 6 size: 129021 MB
node 6 free: 128887 MB
node 7 cpus: 70-79

(Continued on next page)
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SPEC CPU®2017 Floating Point Rate Result

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Platform Notes (Continued)

node 7 size: 129021 MB
node 7 free: 128856 MB
node 8 cpus: 80-89
node 8 size: 128896 MB
node 8 free: 128794 MB
node 9 cpus: 90-99
node 9 size: 129021 MB
node 9 free: 128845 MB
node 10 cpus: 100-109
node 10 size: 129021 MB
node 10 free: 128865 MB
node 11 cpus: 110-119
node 11 size: 129021 MB
node 11 free: 128820 MB
node 12 cpus: 120-129
node 12 size: 129021 MB
node 12 free: 128862 MB
node 13 cpus: 130-139
node 13 size: 129021 MB
node 13 free: 128864 MB
node 14 cpus: 140-149
node 14 size: 129021 MB
node 14 free: 128867 MB
node 15 cpus: 150-159
node 15 size: 128650 MB
node 15 free: 128502 MB
node distances:

node 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
0: 10 12 12 12 21 21 21 21 21 21 21 21 21 21 21
1: 12 10 12 12 21 21 21 21 21 21 21 21 21 21 21
2: 12 12 10 12 21 21 21 21 21 21 21 21 21 21 21
3: 12 12 10 21 21 21 21 21 21 21 21 21 21 21 21
4: 21 21 21 21 10 12 12 12 21 21 21 21 21 21 21
5: 21 21 21 21 12 10 12 12 21 21 21 21 21 21 21
6: 21 21 21 21 12 12 10 12 21 21 21 21 21 21 21
7: 21 21 21 21 12 12 12 10 21 21 21 21 21 21 21
8: 21 21 21 21 21 21 21 21 10 12 12 12 21 21 21
9: 21 21 21 21 21 21 21 21 12 10 12 12 21 21 21
10: 21 21 21 21 21 21 21 21 12 10 12 12 21 21 21
11: 21 21 21 21 21 21 21 21 12 12 12 12 21 21 21
12: 21 21 21 21 21 21 21 21 21 10 12 12 12 21 21
13: 21 21 21 21 21 21 21 21 21 21 10 12 12 12 12
14: 21 21 21 21 21 21 21 21 21 21 21 12 12 12 10
15: 21 21 21 21 21 21 21 21 21 21 21 12 12 12 10

9. /proc/meminfo
   MemTotal: 2113040236 kB

10. who -r
    run-level 3 Apr 27 18:07

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

(Continued on next page)
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Platform Notes (Continuing)

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
ncd postfix purge-kernels rollback rsyslog sep5 smartd sshd wicked wickedd-auto4
wicked-dhcpc4 wickedd-dhcp6 wickedd-nanny
enabled-runtime systemd-remount-fs
disabled accounts-daemon appstream-sync-cache autosystems autostart init scripts blk-availability
bluetooth-mesh boot-ysyst1 ca-certificates chrony wait cron yd console-getty cups
cups-browsed debug-shell ebtables exchange-bmc-os-info firewalld gpm grub2-once
haveged-switch-root ipmi ipmiemed iscsi-init iscsi id iscsiuiio issue-add-ssh-keys kexec-load
lumask man-db-create multipathd nfs nfs-bkmap nmb ostree-remount rdipd rpcbind
rpmconfigcheck rsysncd 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 wicked

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 3.80 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.companion_proactive 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.extrfrag_threshold 500
vm.min_unmapped_ratio 1
vm.nr_hugepages 0
vm.nr_hugepages_mempolicy 0
vm.nr_overcommit_hugepages 0
vm.swappiness 60

(Continued on next page)
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**Platform Notes (Continued)**

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/kgugepaged
   - alloc_sleep_millisecs: 60000
   - defrag: 1
   - max_ptes_none: 511
   - max_ptes_shared: 256
   - max_ptes_swap: 64
   - pagen_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:
    - 2x Samsung M321R8GA0BB0-CQKDG 64 GB 2 rank 4800
    - 19x Samsung M321R8GA0BB0-CQKEG 64 GB 2 rank 4800
    - 11x 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 R0.26.0 for D3984-Alx
    - BIOS Date: 01/13/2023
    - BIOS Revision: 0.26
    - Firmware Revision: 2.20
Fujitsu PRIMERGY RX4770 M7, Intel Xeon Platinum 8460H, 2.20GHz

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

**Compiler Version Notes**

---

C  | 519.ibm_r(base) 538.imagick_r(base) 544.nab_r(base)
---

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---

C++  | 508.namd_r(base) 510.parest_r(base)
---

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---

C++, C  | 511.povray_r(base) 526.blender_r(base)
---

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---

C++, C, Fortran  | 507.cactuBSSN_r(base)
---

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---

Fortran  | 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
---

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---

Fortran, C  | 521.wrf_r(base) 527.camd_r(base)
---

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---

Base Compiler Invocation

C benchmarks:

icx

(Continued on next page)
### Base Compiler Invocation (Continued)

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

### Base Optimization Flags

C benchmarks:
```
```

C++ benchmarks:
```
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
```

(Continued on next page)
Fujitsu
PRIMERGY RX4770 M7, Intel Xeon Platinum 8460H, 2.20GHz

SPECrate®2017_fp_base = 1610
SPECrate®2017_fp_peak = Not Run

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

Base Optimization Flags (Continued)

C++ benchmarks (continued):
-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

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

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Tested with SPEC CPU®2017 v1.1.9 on 2023-04-27 05:10:30-0400.
Report generated on 2023-08-16 14:18:41 by CPU2017 PDF formatter v6716.
Originally published on 2023-08-15.