Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Bronze 3204,
1.90 GHz

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

Test Date: May-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

SPECrate2017_fp_base = 55.0
SPECrate2017_fp_peak = Not Run

Hardware
CPU Name: Intel Xeon Bronze 3204
Max MHz.: 1900
Nominal: 1900
Enabled: 12 cores, 2 chips
Orderable: 1,2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 8.25 MB I+D on chip per chip
Other: None
Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R, running at 2133)
Storage: 1 x SATA M.2 SSD, 240GB
Other: None

Software
Compiler: C/C++: Version 19.0.0.117 of Intel C/C++
Compiler for Linux;
Fortran: Version 19.0.0.117 of Intel Fortran
Compiler for Linux
Parallel: No
Firmware: Fujitsu BIOS Version V5.0.0.14 R1.8.0 for D3384-B1x. Released Jun-2019 tested as V5.0.0.14 R1.2.0 for D3384-B1x Feb-2019
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>12</td>
<td>533</td>
<td>226</td>
<td>534</td>
<td>225</td>
<td>534</td>
<td>226</td>
<td></td>
<td></td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>12</td>
<td>411</td>
<td>36.9</td>
<td>413</td>
<td>36.8</td>
<td>410</td>
<td>37.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>508.namd_r</td>
<td>12</td>
<td>377</td>
<td>30.2</td>
<td>378</td>
<td>30.2</td>
<td>377</td>
<td>30.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>510.parest_r</td>
<td>12</td>
<td>857</td>
<td>36.6</td>
<td>856</td>
<td>36.7</td>
<td>863</td>
<td>36.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>511.povray_r</td>
<td>12</td>
<td>591</td>
<td>47.4</td>
<td>590</td>
<td>47.5</td>
<td>590</td>
<td>47.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>12</td>
<td>206</td>
<td>61.3</td>
<td>223</td>
<td>56.6</td>
<td>207</td>
<td>61.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>12</td>
<td>473</td>
<td>56.8</td>
<td>475</td>
<td>56.6</td>
<td>475</td>
<td>56.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>526.blender_r</td>
<td>12</td>
<td>438</td>
<td>41.7</td>
<td>439</td>
<td>41.6</td>
<td>439</td>
<td>41.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>12</td>
<td>507</td>
<td>41.4</td>
<td>507</td>
<td>41.4</td>
<td>508</td>
<td>41.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>12</td>
<td>301</td>
<td>99.0</td>
<td>305</td>
<td>97.7</td>
<td>314</td>
<td>94.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>544.nab_r</td>
<td>12</td>
<td>347</td>
<td>58.2</td>
<td>347</td>
<td>58.2</td>
<td>347</td>
<td>58.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>12</td>
<td>612</td>
<td>76.4</td>
<td>611</td>
<td>76.5</td>
<td>612</td>
<td>76.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>554.roms_r</td>
<td>12</td>
<td>513</td>
<td>37.2</td>
<td>514</td>
<td>37.1</td>
<td>515</td>
<td>37.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</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"
Kernel Boot Parameter set with : nohz_full=1-11
Process tuning settings:
echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns

**General Notes**

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-1.0.5/icc19-lib/intel64"

Binaries compiled on a system with 2x Intel Xeon E5-2667 v2 CPU + 64GB RAM memory using SUSE Linux Enterprise Server 12 SP2
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.:
SPEC CPU2017 Floating Point Rate Result

Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Bronze 3204, 1.90 GHz

SPECRate2017_fp_base = 55.0
SPECRate2017_fp_peak = Not Run

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

Test Date: May-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

General Notes (Continued)

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.
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:
Patrol Scrub = Disabled
WR CRC feature Control = Disabled
Fan Control = Full
Sysinfo program /home/Benchmark/speccpu2017-1.0.5/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on RX2540M5 Mon May 20 16:01:49 2019

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see
https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) Bronze 3204 CPU @ 1.90GHz
    2 "physical id"s (chips)
    12 "processors"
    cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
    cpu cores : 6
    siblings : 6
    physical 0: cores 0 1 2 3 4 5
    physical 1: cores 0 1 2 3 4 5

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 12
On-line CPU(s) list: 0-11
Thread(s) per core: 1
Core(s) per socket: 6
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85

(Continued on next page)
SPEC CPU2017 Floating Point Rate Result

Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Bronze 3204, 1.90 GHz

SPECrate2017_fp_base = 55.0
SPECrate2017_fp_peak = Not Run

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

Test Date: May-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

Platform Notes (Continued)

Model name: Intel(R) Xeon(R) Bronze 3204 CPU @ 1.90GHz
Stepping: 6
CPU MHz: 1900.000
CPU max MHz: 1900.0000
CPU min MHz: 800.0000
BogoMIPS: 3800.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 8448K
NUMA node0 CPU(s): 0-5
NUMA node1 CPU(s): 6-11
Flags: fpu vme de pse tsc msr pae 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 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 cdp_l3 invpcid_single ssbd mba ibrs ibpb ibrs_enhanced tpr_shadow vni fxfp128mx fxsrprec mmxext edxremap sped xsaveopt xsave cld xsaveopt xsave xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local dtherm arat pni pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni flush_l1d arch_capabilities

/proc/cpuinfo cache data
cache size : 8448 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5
node 0 size: 385476 MB
node 0 free: 385000 MB
node 1 cpus: 6 7 8 9 10 11
node 1 size: 386859 MB
node 1 free: 386413 MB
node distances:

From /proc/meminfo
MemTotal: 790871992 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

(Continued on next page)
SPEC CPU2017 Floating Point Rate Result

Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Bronze 3204, 1.90 GHz

SPECrate2017_fp_base = 55.0
SPECrate2017_fp_peak = Not Run

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

Test Date: May-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

Platform Notes (Continued)

From /etc/*release* /etc/*version*
        os-release:
               NAME="SLES"
               VERSION="15"
               VERSION_ID="15"
               PRETTY_NAME="SUSE Linux Enterprise Server 15"
               ID="sles"
               ID_LIKE="suse"
               ANSI_COLOR="0;32"
               CPE_NAME="cpe:/o:suse:sles:15"

uname -a:
        Linux RX2540M5 4.12.14-25.28-default #1 SMP Wed Jan 16 20:00:47 UTC 2019 (dd6077c)
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2017-5754 (Meltdown): Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

run-level 3 May 20 16:01

SPEC is set to: /home/Benchmark/speccpu2017-1.0.5
     Filesystem     Type       Size  Used  Avail Use% Mounted on
     /dev/sda5      xfs      191G   57G   135G  30% /home

Additional information from dmidecode 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.
    BIOS FUJITSU // American Megatrends Inc. V5.0.0.14 R1.2.0 for D3384-B1x
    02/28/2019
    Memory:
    24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2133

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
   CC  519.lbm_r(base)  538.imagick_r(base)  544.nab_r(base)
==============================================================================
   icc (ICC) 19.0.0.117 20180804

(Continued on next page)
## Fujitsu

**PRIMERGY RX2540 M5, Intel Xeon Bronze 3204, 1.90 GHz**

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Test Date</th>
<th>Hardware Availability</th>
<th>Test Sponsor</th>
<th>Tested by</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>May-2019</td>
<td>May-2019</td>
<td>Fujitsu</td>
<td>Fujitsu</td>
</tr>
</tbody>
</table>

**SPECrater2017_fp_base** = 55.0

**SPECrater2017_fp_peak** = Not Run

### Compiler Version Notes (Continued)

Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

CXXC 508.namd_r(base) 510.parest_r(base)

---

icpc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

CC 511.povray_r(base) 526.blender_r(base)

---

icpc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

FC 507.cactuBSSN_r(base)

---

icpc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

FC 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)

---

ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

CC 521.wrf_r(base) 527.cam4_r(base)

---

ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Bronze 3204, 1.90 GHz

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base</th>
<th>55.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_fp_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

Test Date: May-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

Base Compiler Invocation

C benchmarks:
```bash
icc -m64 -std=c11
```

C++ benchmarks:
```bash
icpc -m64
```

Fortran benchmarks:
```bash
ifort -m64
```

Benchmarks using both Fortran and C:
```bash
ifort -m64 icc -m64 -std=c11
```

Benchmarks using both C and C++:
```bash
icpc -m64 icc -m64 -std=c11
```

Benchmarks using Fortran, C, and C++:
```bash
icpc -m64 icc -m64 -std=c11 ifort -m64
```

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:
```bash
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3
```

C++ benchmarks:
```bash
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
```

(Continued on next page)
**Base Optimization Flags (Continued)**

C++ benchmarks (continued):
-qopt-mem-layout-trans=3

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

Benchmarks using both C and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

The flags files that were used to format this result can be browsed at

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-CSL-RevA.xml

SPEC is a registered trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2017 v1.0.5 on 2019-05-20 03:01:48-0400.
Report generated on 2019-06-11 17:27:00 by CPU2017 PDF formatter v6067.
Originally published on 2019-06-11.