**Fujitsu**

**PRIMERGY TX1330 M4, Intel Xeon E-2174G, 3.80GHz**

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>Test Sponsor:</th>
<th>Tested by:</th>
<th>Test Date:</th>
<th>Hardware Availability:</th>
<th>Software Availability:</th>
</tr>
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<tbody>
<tr>
<td>19</td>
<td>Fujitsu</td>
<td>Fujitsu</td>
<td>Oct-2018</td>
<td>Nov-2018</td>
<td>Sep-2018</td>
</tr>
</tbody>
</table>

**SPECrate2017_int_base = 30.3**  
**SPECrate2017_int_peak = 32.4**

### Hardware

- **CPU Name:** Intel Xeon E-2174G  
- **Max MHz.:** 4700  
- **Nominal:** 3800  
- **Enabled:** 4 cores, 1 chip, 2 threads/core  
- **Orderable:** 1 chip  
- **Cache L1:** 32 KB I + 32 KB D on chip per core  
- **L2:** 256 KB I+D on chip per core  
- **L3:** 8 MB I+D on chip per core  
- **Other:** None  
- **Memory:** 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)  
- **Storage:** 1 x SATA HDD, 1TB, 7200RPM  
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15  
- **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:**  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 32/64-bit  
- **Other:** jemalloc memory allocator library V5.0.1
Results Table

<table>
<thead>
<tr>
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<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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</tbody>
</table>

**SPECrate2017_int_base = 30.3**

**SPECrate2017_int_peak = 32.4**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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"

Process tuning settings:

```
echo 500000 > /proc/sys/kernel/sched_cfs_bandwidth_slice_us
```

General Notes

Environment variables set by runcpu before the start of the run:

```
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-ic19-20181011/icc19-lib/ia32"
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-ic19-20181011/icc19-lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19-20181011/je5.0.1-32"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19-20181011/je5.0.1-64"
```

Binaries compiled on a system with 2x Intel Xeon Silver 4108 CPU + 384GB RAM memory using SUSE Linux Enterprise Server 12 SP2

Transparent Huge Pages enabled by default

Prior to runcpu invocation

```
sync; echo 3 > /proc/sys/vm/drop_caches
```

jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets;

jemalloc: built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5;

(Continued on next page)
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PRIMERGY TX1330 M4, Intel Xeon E-2174G, 3.80GHz

SPECrate2017_int_base = 30.3
SPECrate2017_int_peak = 32.4

General Notes (Continued)

jemalloc: sources available via jemalloc.net;

Yes: 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:
Hardware Prefetcher = Disabled
Adjacent Cache Line Prefetch = Disabled
VT-d = Disabled
Fan Control = Full
Race To Halt (RTH) = Disabled
DMI Link ASPM Control = L0s
REFRESH_2X_MODE = 2- Enabled HOT only
Sysinfo program /home/Benchmark/speccpu2017-ic19-20181011/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on TX1330M4 Wed Oct 17 12:38:21 2018

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) E-2174G CPU @ 3.80GHz
  1 "physical id"s (chips)
  8 "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 : 4
  siblings : 8
  physical 0: cores 0 1 2 3

From lscpu:

Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 8
On-line CPU(s) list: 0-7
Thread(s) per core: 2
Core(s) per socket: 4
Socket(s): 1

(Continued on next page)
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PRIMERGY TX1330 M4, Intel Xeon E-2174G, 3.80GHz

SPECrate2017_int_base = 30.3
SPECrate2017_int_peak = 32.4

Platform Notes (Continued)

NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Xeon(R) E-2174G CPU @ 3.80GHz
Stepping: 10
CPU MHz: 3800.000
CPU max MHz: 4700.0000
CPU min MHz: 800.0000
BogoMIPS: 7584.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 8192K
NUMA node0 CPU(s): 0-7
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
aperf perf tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3
sdbe fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer
aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single
pti tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep
bm2 erms invvpgid rtm mpx rdseed adx smap clflushopt intel_pt xsaveopt xsaves
xgetbv1 xsave ibpb ibrs stibp dtherm ida arat pln pts hwp hwp_notify hwp_act_window
hwp_epp ssbd

/proc/cpuinfo cache data
 cache size : 8192 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.
 available: 1 nodes (0)
 node 0 cpus: 0 1 2 3 4 5 6 7
 node 0 size: 63916 MB
 node 0 free: 63429 MB
 node distances:
 node 0
 0: 10

From /proc/meminfo
 MemTotal: 65450232 kB
 HugePages_Total: 0
 Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
 os-release:

(Continued on next page)
Fujitsu

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<td>32.4</td>
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</table>

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

Platform Notes (Continued)

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 TX1330M4 4.12.14-23-default #1 SMP Tue May 29 21:04:44 UTC 2018 (cd0437b) x86_64
x86_64 x86_64 GNU/Linux

run-level 3 Oct 17 12:36

SPEC is set to: /home/Benchmark/speccpu2017-ic19-20181011

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 828G 102G 726G 13% /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. V5.0.0.13 R1.0.0 for D3673-A1x
09/14/2018
Memory:
4x Samsung M391A2K43BB1-CTD 16 GB 2 rank 2667

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
     525.x264_r(base, peak) 557.xz_r(base, peak)
==============================================================================
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

==============================================================================
CC  500.perlbench_r(peak) 502.gcc_r(peak)
==============================================================================
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

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Fujitsu
PRIMERGY TX1330 M4, Intel Xeon E-2174G, 3.80GHz

SPECrate2017_int_base = 30.3
SPECrate2017_int_peak = 32.4

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

Base Compiler Invocation

C benchmarks:
  icc -m64 -std=c11

C++ benchmarks:
  icpc -m64

Fortran benchmarks:
  ifort -m64

Base Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64

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SPEC CPU2017 Integer Rate Result

Fujitsu
PRIMERGY TX1330 M4, Intel Xeon E-2174G, 3.80GHz

SPECratenet2017_int_base = 30.3
SPECratenet2017_int_peak = 32.4

CPU2017 License: 19
Test Sponsor: Fujitsu
Test Date: Oct-2018

Tested by: Fujitsu
Hardware Availability: Nov-2018
Software Availability: Sep-2018

Base Portability Flags (Continued)

531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
-L/usr/local/je5.0.1-64/lib -ljemalloc

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64 -std=c11

502.gcc_r: icc -m32 -std=c11 -L/opt/intel/compilers_and_libraries_2019/linux/lib/ia32

C++ benchmarks (except as noted below):
icpc -m64

523.xalancbmk_r: icpc -m32 -L/opt/intel/compilers_and_libraries_2019/linux/lib/ia32

Fortran benchmarks:
ifort -m64

Peak Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -D_FILE_OFFSET_BITS=64

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<tbody>
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**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Test Date:** Oct-2018  
**Hardware Availability:** Nov-2018  
**Software Availability:** Sep-2018

### Peak Portability Flags (Continued)

- 505.mcf_r: -DSPEC_LP64
- 520.omnetpp_r: -DSPEC_LP64
- 523.xalancbmk_r: -D_FILE_OFFSET_BITS=64 -DSPEC_LINUX
- 525.x264_r: -DSPEC_LP64
- 531.deepsjeng_r: -DSPEC_LP64
- 541.leela_r: -DSPEC_LP64
- 548.exchange2_r: -DSPEC_LP64
- 557.xz_r: -DSPEC_LP64

### Peak Optimization Flags

**C benchmarks:**

- 500.perlbench_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
  -xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
  -fno-strict-overflow -L/usr/local/je5.0.1-64/lib
  -ljemalloc

- 502.gcc_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
  -xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
  -L/usr/local/je5.0.1-32/lib -ljemalloc

- 505.mcf_r: -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
  -qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib
  -ljemalloc

- 525.x264_r: -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
  -qopt-mem-layout-trans=3 -fno-alias
  -L/usr/local/je5.0.1-64/lib -ljemalloc

- 557.xz_r: Same as 505.mcf_r

**C++ benchmarks:**

- 520.omnetpp_r: basepeak = yes

- 523.xalancbmk_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
  -xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
  -L/usr/local/je5.0.1-32/lib -ljemalloc

- 531.deepsjeng_r: basepeak = yes

- 541.leela_r: basepeak = yes

(Continued on next page)
SPEC CPU2017 Integer Rate Result

Fujitsu
PRIMERGY TX1330 M4, Intel Xeon E-2174G, 3.80GHz

SPECrate2017_int_base = 30.3
SPECrate2017_int_peak = 32.4

CPU2017 License: 19
Test Sponsor: Fujitsu
Test Date: Oct-2018
Tested by: Fujitsu
Hardware Availability: Nov-2018
Software Availability: Sep-2018

Peak Optimization Flags (Continued)

Fortran benchmarks:

548.exchange2_r: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0.2-CFL-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.xml
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0.2-CFL-RevA.xml

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

Tested with SPEC CPU2017 v1.0.2 on 2018-10-16 23:38:20-0400.