## SPEC CPU2017 Integer Rate Result

### Fujitsu

**PRIMERGY TX1330 M3, Intel Xeon E3-1225 v6, 3.3 GHz**

<table>
<thead>
<tr>
<th>SPECrate2017_int_base</th>
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<tbody>
<tr>
<td>SPECrate2017_int_peak</td>
<td>Not Run</td>
</tr>
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</table>

### CPU2017 License:
19

### Test Sponsor:
Fujitsu

### Tested by:
Fujitsu

### Test Date:
Oct-2017

### Hardware Availability:
May-2017

### Software Availability:
Sep-2017

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#### Hardware

- **CPU Name:** Intel Xeon E3-1225 v6
- **Max MHz.:** 3700
- **Nominal:** 3300
- **Enabled:** 4 cores, 1 chip
- **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 chip
- **Other:** None
- **Memory:** 64 GB (4 x 16 GB 2Rx8 PC4-2400T-E)
- **Storage:** 1 x SATA, 500 GB, 7200RPM
- **Other:** None

#### Software

- **OS:** SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
- **Compiler:** C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux
- **Parallel:** No
- **Firmware:** Fujitsu BIOS Version V5.0.0.11 R1.0.0 for D3373-B1x. Released Feb-2017
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** jemalloc: jemalloc memory allocator library V5.0.1; 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; jemalloc: sources available via jemalloc.net.
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## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td>perlbench_r</td>
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<td>18.7</td>
<td>341</td>
<td>18.7</td>
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<td>gcc_r</td>
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<td>21.7</td>
<td>260</td>
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<tr>
<td>mcf_r</td>
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<td>260</td>
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<td>260</td>
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<tr>
<td>omnetpp_r</td>
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<td>12.8</td>
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<td>xalancbmk_r</td>
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<tr>
<td>x264_r</td>
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<td>deepsjeng_r</td>
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<tr>
<td>leela_r</td>
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<td>15.7</td>
<td>421</td>
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<tr>
<td>exchange2_r</td>
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<td>45.1</td>
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<td>xz_r</td>
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<td>12.8</td>
<td>338</td>
<td>12.8</td>
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<td></td>
</tr>
</tbody>
</table>

**SPECrate2017_int_base = 21.7**

**SPECrate2017_int_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"

Set CPU frequency governor to maximum performance with:
```
cpuset -c all

cpupower -c all frequency-set -g performance
```

Set cpu idle state with:
```
cpuset idle-set -d 2

cpuset idle-set -d 3
```

Process tuning settings:
```
echo always > /sys/kernel/mm/transparent_hugepage/enabled

eco 1 > /proc/sys/vm/drop_caches

eco 100000000 > /proc/sys/kernel/sched_min_granularity_ns
```

## General Notes

Environment variables set by runcpu before the start of the run:
```
LD_LIBRARY_PATH = "~/Benchmark/speccpu2017-bin0901/lib/ia32:
LD_LIBRARY_PATH = "~/Benchmark/speccpu2017-bin0901/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-bin0901/je5.0.1-32"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-bin0901/je5.0.1-64"
```

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.4

(Continued on next page)
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| CPU2017 License | 19 |
| Test Sponsor    | Fujitsu |
| Tested by       | Fujitsu |
| Test Date       | Oct-2017 |
| Hardware Availability | May-2017 |
| Software Availability | Sep-2017 |

#### General Notes (Continued)

- 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>`

#### Platform Notes

- Sysinfo program `/home/Benchmark/speccpu2017-bin0901/bin/sysinfo`
  - Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
  - running on `linux-n511 Sun Oct 22 08:02:54 2017`

- 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) CPU E3-1225 v6 @ 3.30GHz
    - 1 "physical id"s (chips)
    - 4 "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`: 4
    - `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)`: 4
  - `On-line CPU(s) list`: 0-3
  - `Thread(s) per core`: 1
  - `Core(s) per socket`: 4
  - `Socket(s)`: 1
  - `NUMA node(s)`: 1
  - `Vendor ID`: GenuineIntel
  - `CPU family`: 6
  - `Model`: 158
  - `Model name`: Intel(R) Xeon(R) CPU E3-1225 v6 @ 3.30GHz
  - `Stepping`: 9
  - `CPU MHz`: 3241.498
  - `CPU max MHz`: 3700.0000
  - `CPU min MHz`: 800.0000
  - `BogoMIPS`: 6624.16

(Continued on next page)
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Test Date: Oct-2017
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Platform Notes (Continued)

Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 8192K
NUMA node0 CPU(s): 0-3
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 aperfmpx perf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3nowprefetch ida arat epb pbl pbs dtherm hwp_notify hwp_act_window hwp_epp intel_pt tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm mpx rdseed adx smap clflushopt xsaveopt xsavec xgetbv1

From /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
  node 0 size: 64113 MB
  node 0 free: 63586 MB
  node distances:
    node 0
      0: 10

From /proc/meminfo
  MemTotal: 65652660 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*
  SuSE-release:
    SUSE Linux Enterprise Server 12 (x86_64)
    VERSION = 12
    PATCHLEVEL = 2
    # This file is deprecated and will be removed in a future service pack or release.
    # Please check /etc/os-release for details about this release.
    os-release:
      NAME="SLES"
      VERSION="12-SP2"

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Platform Notes (Continued)

VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
Linux linux-n511 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 22 04:28

SPEC is set to: /home/Benchmark/speccpu2017-bin0901

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda7      xfs   424G   21G  404G   5% /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. V5.0.0.11 R1.0.0 for D3373-B1x
02/20/2017
Memory: 4x Samsung M391A2K43BB1-CRC 16 GB 2 rank 2400

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
<p>| CC 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base)  |</p>
<table>
<thead>
<tr>
<th>557.xz_r(base)</th>
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<tbody>
<tr>
<td>icc (ICC) 18.0.0 20170811</td>
</tr>
<tr>
<td>Copyright (C) 1985-2017 Intel Corporation. All rights reserved.</td>
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<tr>
<th>Benchmark</th>
<th>Base Compiler Invocation</th>
<th>Base Portability Flags</th>
<th>Base Optimization Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>C benchmarks:</td>
<td>icc</td>
<td>500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64</td>
<td>-W1, -z, muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc</td>
</tr>
<tr>
<td>C++ benchmarks:</td>
<td>icpc</td>
<td>502.gcc_r: -DSPEC_LP64</td>
<td>-W1, -z, muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc</td>
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<tr>
<td>Fortran benchmarks:</td>
<td>ifort</td>
<td>505.mcf_r: -DSPEC_LP64</td>
<td>-W1, -z, muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc</td>
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<td></td>
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<td>520.omnetpp_r: -DSPEC_LP64</td>
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<td>523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX</td>
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<td>557.xz_r: -DSPEC_LP64</td>
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**Compiler Version Notes (Continued)**

```latex
FC 548.exchange2_r(base)
```

ifort (IFORT) 18.0.0 20170811

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Base Optimization Flags (Continued)

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

C benchmarks:
-m64 -std=c11

C++ benchmarks:
-m64

Fortran benchmarks:
-m64

Base Other Flags

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-V1.2-BDW-RevF.xml

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

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