### SPEC® CPU2017 Integer Rate Result

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Test Date:** Oct-2017  
**Hardware Availability:** May-2017  
**Software Availability:** Sep-2017

<table>
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<tr>
<th>Test</th>
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<th>Specrate2017_int_base</th>
<th>Specrate2017_int_peak</th>
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<td>500.perlbench_r</td>
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<td>17.8</td>
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<tr>
<td>502.gcc_r</td>
<td>4</td>
<td>20.8</td>
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<tr>
<td>505.mcf_r</td>
<td>4</td>
<td>23.7</td>
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<tr>
<td>520.omnetpp_r</td>
<td>4</td>
<td>12.5</td>
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<tr>
<td>523.xalancbmk_r</td>
<td>4</td>
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<td>525.x264_r</td>
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<td>531.deepsjeng_r</td>
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</table>

#### SPECrate2017_int_base = 20.7

#### SPECrate2017_int_peak = Not Run

---

#### Hardware

- **CPU Name:** Intel Xeon E3-1220 v6  
- **Max MHz.:** 3500  
- **Nominal:** 3000  
- **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;
## SPEC CPU2017 Integer Rate Result

**Fujitsu**

PRIMERGY TX1330 M3, Intel Xeon E3-1220 v6, 3.0 GHz

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### Results Table

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**SPECrate2017_int_base = 20.7**

**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:

cputower -c all frequency-set -g performance

cpu idle state set with:

cputower idle-set -d 2

cputower idle-set -d 3

Process tuning settings:

echo always > /sys/kernel/mm/transparent_hugepage/enabled

echo 1 > /proc/sys/vm/drop_caches

echo 1000000000 > /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-bin0901/lib/ia32:/home/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

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SPECrate2017_int_base = 20.7
SPECrate2017_int_peak = Not Run

General Notes (Continued)

Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesysterm 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 96c45e4568ad54c135fd618b091c0f
running on linux-n511 Thu Oct 19 10:52:26 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 E3-1220 v6 @ 3.00GHz
    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 E3-1220 v6 @ 3.00GHz
  Stepping:              9
  CPU MHz:               3139.092
  CPU max MHz:           3500.000
  CPU min MHz:           800.0000
  BogoMIPS:              6000.15

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SPEC CPU2017 Integer Rate Result

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PRIMERGY TX1330 M3, Intel Xeon E3-1220 v6, 3.0 GHz

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Hardware Availability: May-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 mca cmov pat pse36 clflush dtsc 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 aperfmperf 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 3dnowprefetch ida arat epb pln pts dtherm hwp hwnotifty hwp_act_window hwp_epp intel_pt tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bni hle avx2 smep bmi2 erms invpcid rtm mpx rdseed adx smap clflushopt xsaveopt xsavec xsetbv

/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: 63611 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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Fujitsu
PRIMERGY TX1330 M3, Intel Xeon E3-1220 v6, 3.0 GHz

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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 19 08:03
```

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

```
Filesystem  Type  Size  Used Avail Use% Mounted on
/dev/sda7     xfs   424G   16G  408G   4% /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**

```
CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base)
     557.xz_r(base)
```

```
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

```
CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
     541.leela_r(base)
```

```
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

(Continued on next page)
Fujitsu
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Fujitsu
GHz
PRIMERGY TX1330 M3, Intel Xeon E3-1220 v6, 3.0

SPECrate2017_int_peak = Not Run
SPECrate2017_int_base = 20.7

Compiler Version Notes (Continued)

FC 548.exchange2_r(base)
------------------------------------------------------------------------------------------------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------------------------------------------

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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
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:
-W1,-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:
-W1,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

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| SPECrate2017_int_base = 20.7 | SPECrate2017_int_peak = Not Run |

**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`

**Base Other Flags**

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

C++ benchmarks:
- `-m64`

Fortran benchmarks:
- `-m64`

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:

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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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