# SPEC® CPU2017 Integer Rate Result



## Fujitsu

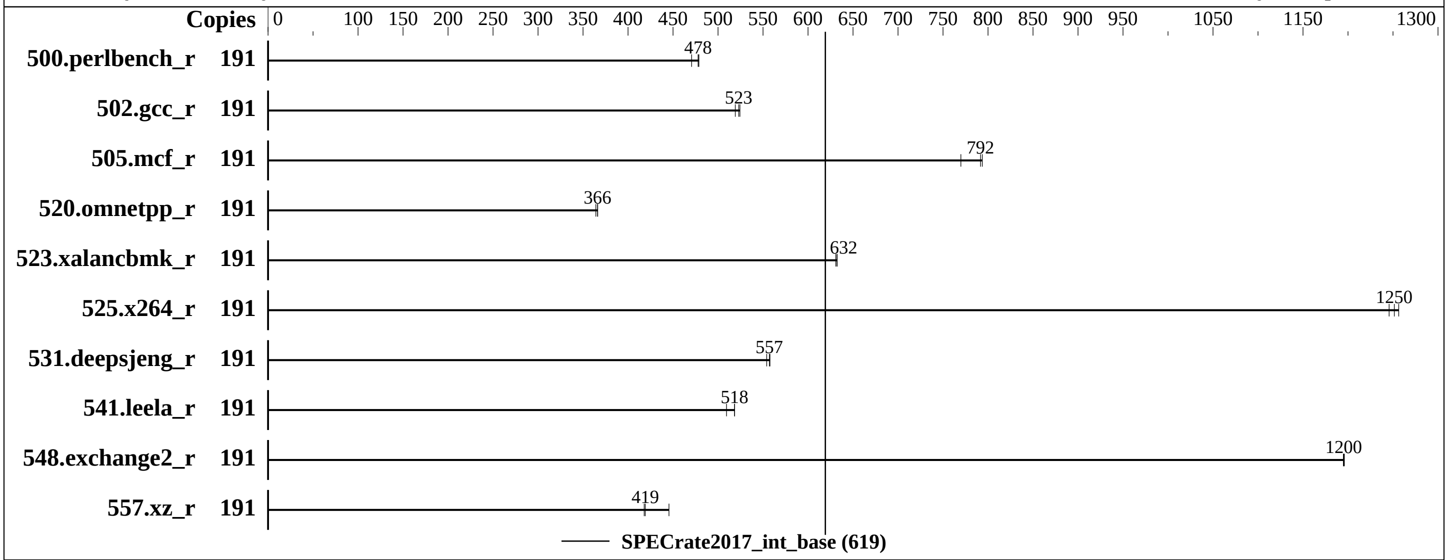
PRIMEQUEST 3800B, Intel Xeon Platinum 8158, 3.00GHz

SPECrate2017_int_base = 619

SPECrate2017_int_peak = Not Run

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

**Test Date:** Oct-2017
**Hardware Availability:** Jul-2017
**Software Availability:** Sep-2017




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon Platinum 8158 |
| Max MHz.: | 3700 |
| Nominal: | 3000 |
| Enabled: | 96 cores, 8 chips, 2 threads/core |
| Orderable: | 2,4,6,8 chips |
| Cache L1: | 32 KB I + 32 KB D on chip per core |
| L2: | 1 MB I+D on chip per core |
| L3: | 24.75 MB I+D on chip per chip |
| Other: | None |
| Memory: | 1536 GB (96 x 16 GB 2Rx4 PC4-2666V-R) |
| Storage: | 768 GB tmpfs |
| Other: | 1 x SAS HDD, 600 GB, 10.5K RPM, used for swap |

### 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 V1.0.0.0 R1.21.0 for D3858-A1x. Released Dec-2017 |
| File System: | tmpfs |
| 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 from jemalloc.net or releases |

**Fujitsu**

PRIMEQUEST 3800B, Intel Xeon Platinum 8158, 3.00GHz

SPECrate2017_int_base = 619

SPECrate2017_int_peak = Not Run

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

**Test Date:** Oct-2017
**Hardware Availability:** Jul-2017
**Software Availability:** Sep-2017

## Results Table

| | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benchmark | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 500.perlbench_r | 191 | 635 | 479 | **636** | **478** | 646 | 471 | | | | | | | |
| 502.gcc_r | 191 | 516 | 524 | 521 | 519 | **517** | **523** | | | | | | | |
| 505.mcf_r | 191 | 389 | 794 | **390** | **792** | 401 | 770 | | | | | | | |
| 520.omnetpp_r | 191 | 684 | 366 | **684** | **366** | 688 | 364 | | | | | | | |
| 523.xalancbmk_r | 191 | **319** | **632** | 320 | 631 | 319 | 632 | | | | | | | |
| 525.x264_r | 191 | **267** | **1250** | 268 | 1250 | 266 | 1260 | | | | | | | |
| 531.deepsjeng_r | 191 | 395 | 554 | 392 | 558 | **393** | **557** | | | | | | | |
| 541.leela_r | 191 | 621 | 509 | **610** | **518** | 610 | 518 | | | | | | | |
| 548.exchange2_r | 191 | 418 | 1200 | 419 | 1190 | **419** | **1200** | | | | | | | |
| 557.xz_r | 191 | 463 | 445 | **492** | **419** | 494 | 418 | | | | | | | |

**SPECrate2017_int_base = 619**

**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 Kernel Boot Parameter:  nohz_full=1-191 isolcpus=1-191
Set tmpfs filesystem with:
mkdir /home/memory
mount -t tmpfs -o size=768g,rw tmpfs /home/memory
Process tuning setting:
echo 0 > /proc/sys/kernel/numa_balancing
cpu idle state set with:
cpupower idle-set -d 1
cpupower idle-set -d 2
Set affinity of rcu threads to the cpu0:
for i in `pgrep rcu` ; do taskset -pc 0 $i ; done
```

## General Notes

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

 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
```

**(Continued on next page)**

## General Notes (Continued)

```
memory using Redhat Enterprise Linux 7.4
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>
```

## Platform Notes

```
BIOS configuration:
DCU Streamer Prefetcher = Disabled
Sub NUMA Clustering = Enabled
Stale AtoS = Enabled
LLC Dead Line Alloc = Disabled
Fan Control = Full
Sysinfo program /home/memory/speccpu/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on linux-k55j Fri Oct 20 19:01:46 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) Platinum 8158 CPU @ 3.00GHz
      8  "physical id"s (chips)
      192 "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 : 12
      siblings  : 24
      physical 0: cores 0 1 2 3 4 9 10 16 18 19 25 26
      physical 1: cores 0 1 2 3 9 10 11 17 19 25 26 27
      physical 2: cores 1 2 3 4 8 9 10 11 19 24 25 27
      physical 3: cores 0 1 2 3 4 8 9 11 17 18 19 20
      physical 4: cores 0 1 2 3 4 9 10 16 18 19 25 26
      physical 5: cores 0 1 2 3 4 9 10 16 18 19 25 26
      physical 6: cores 0 1 2 3 4 8 10 11 18 24 25 27
      physical 7: cores 0 3 4 5 6 7 16 18 19 20 21 22

From lscpu:
     Architecture:          x86_64
     CPU op-mode(s):        32-bit, 64-bit
     Byte Order:            Little Endian
     CPU(s):                192
```

**(Continued on next page)**

Fujitsu

PRIMEQUEST 3800B, Intel Xeon Platinum 8158, 3.00GHz

SPECrate2017_int_base = 619

SPECrate2017_int_peak = Not Run

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

## Platform Notes (Continued)

```
    On-line CPU(s) list:   0-191
    Thread(s) per core:    2
    Core(s) per socket:    12
    Socket(s):             8
    NUMA node(s):          16
    Vendor ID:             GenuineIntel
    CPU family:            6
    Model:                 85
    Model name:            Intel(R) Xeon(R) Platinum 8158 CPU @ 3.00GHz
    Stepping:              4
    CPU MHz:               3600.000
    CPU max MHz:           3700.0000
    CPU min MHz:           1200.0000
    BogoMIPS:              6000.34
    Virtualization:        VT-x
    L1d cache:             32K
    L1i cache:             32K
    L2 cache:              1024K
    L3 cache:              25344K
    NUMA node0 CPU(s):     0-2,5,7,10,96-98,101,103,106
    NUMA node1 CPU(s):     3,4,6,8,9,11,99,100,102,104,105,107
    NUMA node2 CPU(s):     12-14,16,19,21,108-110,112,115,117
    NUMA node3 CPU(s):     15,17,18,20,22,23,111,113,114,116,118,119
    NUMA node4 CPU(s):     24,25,28,29,33,34,120,121,124,125,129,130
    NUMA node5 CPU(s):     26,27,30-32,35,122,123,126-128,131
    NUMA node6 CPU(s):     36-38,41,42,44,132-134,137,138,140
    NUMA node7 CPU(s):     39,40,43,45-47,135,136,139,141-143
    NUMA node8 CPU(s):     48-50,53,55,58,144-146,149,151,154
    NUMA node9 CPU(s):     51,52,54,56,57,59,147,148,150,152,153,155
    NUMA node10 CPU(s):    60-62,65,67,70,156-158,161,163,166
    NUMA node11 CPU(s):    63,64,66,68,69,71,159,160,162,164,165,167
    NUMA node12 CPU(s):    72-74,77,81,82,168-170,173,177,178
    NUMA node13 CPU(s):    75,76,78-80,83,171,172,174-176,179
    NUMA node14 CPU(s):    84-86,90-92,180-182,186-188
    NUMA node15 CPU(s):    87-89,93-95,183-185,189-191
    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
    aperfmperf eagerfpu 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 ida arat epb pln pts dtherm hwp
    hwp_act_window hwp_epp hwp_pkg_req intel_pt tpr_shadow vnmi flexpriority ept vpid
    fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx avx512f
    avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsavec
    xgetbv1 cqm_llc cqm_occup_llc

 /proc/cpuinfo cache data
```

(Continued on next page)

## Platform Notes (Continued)

```
    cache size : 25344 KB

 From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
 physical chip.
   available: 16 nodes (0-15)
   node 0 cpus: 0 1 2 5 7 10 96 97 98 101 103 106
   node 0 size: 95377 MB
   node 0 free: 85738 MB
   node 1 cpus: 3 4 6 8 9 11 99 100 102 104 105 107
   node 1 size: 96763 MB
   node 1 free: 96494 MB
   node 2 cpus: 12 13 14 16 19 21 108 109 110 112 115 117
   node 2 size: 96763 MB
   node 2 free: 96495 MB
   node 3 cpus: 15 17 18 20 22 23 111 113 114 116 118 119
   node 3 size: 96763 MB
   node 3 free: 96495 MB
   node 4 cpus: 24 25 28 29 33 34 120 121 124 125 129 130
   node 4 size: 96763 MB
   node 4 free: 96493 MB
   node 5 cpus: 26 27 30 31 32 35 122 123 126 127 128 131
   node 5 size: 96763 MB
   node 5 free: 96488 MB
   node 6 cpus: 36 37 38 41 42 44 132 133 134 137 138 140
   node 6 size: 96763 MB
   node 6 free: 96496 MB
   node 7 cpus: 39 40 43 45 46 47 135 136 139 141 142 143
   node 7 size: 96763 MB
   node 7 free: 96503 MB
   node 8 cpus: 48 49 50 53 55 58 144 145 146 149 151 154
   node 8 size: 96763 MB
   node 8 free: 96493 MB
   node 9 cpus: 51 52 54 56 57 59 147 148 150 152 153 155
   node 9 size: 96763 MB
   node 9 free: 96497 MB
   node 10 cpus: 60 61 62 65 67 70 156 157 158 161 163 166
   node 10 size: 96763 MB
   node 10 free: 96487 MB
   node 11 cpus: 63 64 66 68 69 71 159 160 162 164 165 167
   node 11 size: 96763 MB
   node 11 free: 96489 MB
   node 12 cpus: 72 73 74 77 81 82 168 169 170 173 177 178
   node 12 size: 96763 MB
   node 12 free: 96492 MB
   node 13 cpus: 75 76 78 79 80 83 171 172 174 175 176 179
   node 13 size: 96763 MB
   node 13 free: 96492 MB
```

**(Continued on next page)**

## Platform Notes (Continued)

```
    node 14 cpus: 84 85 86 90 91 92 180 181 182 186 187 188
    node 14 size: 96763 MB
    node 14 free: 96481 MB
    node 15 cpus: 87 88 89 93 94 95 183 184 185 189 190 191
    node 15 size: 96613 MB
    node 15 free: 96345 MB
    node distances:
    node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
      0:  10  11  35  35  35  35  40  40  40  40  40  40  35  35  40  40
      1:  11  10  35  35  35  35  40  40  40  40  40  40  35  35  40  40
      2:  35  35  10  11  40  40  35  35  40  40  35  35  40  40  40  40
      3:  35  35  11  10  40  40  35  35  40  40  35  35  40  40  40  40
      4:  35  35  40  40  10  11  35  35  35  35  40  40  40  40  40  40
      5:  35  35  40  40  11  10  35  35  35  35  40  40  40  40  40  40
      6:  40  40  35  35  35  35  10  11  40  40  40  40  40  40  35  35
      7:  40  40  35  35  35  35  11  10  40  40  40  40  40  40  35  35
      8:  40  40  40  40  35  35  40  40  10  11  35  35  35  35  40  40
      9:  40  40  40  40  35  35  40  40  11  10  35  35  35  35  40  40
     10:  40  40  35  35  40  40  40  40  35  35  10  11  40  40  35  35
     11:  40  40  35  35  40  40  40  40  35  35  11  10  40  40  35  35
     12:  35  35  40  40  40  40  40  40  35  35  40  40  10  11  35  35
     13:  35  35  40  40  40  40  40  40  35  35  40  40  11  10  35  35
     14:  40  40  40  40  40  40  35  35  40  40  35  35  35  35  10  11
     15:  40  40  40  40  40  40  35  35  40  40  35  35  35  35  11  10

  From /proc/meminfo
     MemTotal:       1583801256 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  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"
        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:
```

(Continued on next page)

## Platform Notes (Continued)

```
    Linux linux-k55j 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 20 00:46

 SPEC is set to: /home/memory/speccpu
    Filesystem     Type   Size  Used Avail Use% Mounted on
    tmpfs          tmpfs  768G  8.8G  760G   2% /home/memory

 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 V1.0.0.0 R1.21.0 for D3858-A1x            09/15/2017
   Memory:
    48x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666
    48x Samsung M393A2G40EB2-CTD 16 GB 2 rank 2666

 (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.
------------------------------------------------------------------------------

==============================================================================
 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:
-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

## 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
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-10-19.html
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.2-SKL-RevC.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-10-19.xml
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.2-SKL-RevC.xml



Tested with SPEC CPU2017 v1.0.2 on 2017-10-20 06:01:45-0400.
Report generated on 2018-10-31 13:05:17 by CPU2017 PS formatter v6067.
Originally published on 2017-12-26.