# SPEC® CPU2017 Integer Speed Result

## Fujitsu

PRIMEQUEST 3800B2, Intel Xeon Platinum 8280L, 2.70GHz

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base =</th>
<th>10.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak =</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 19  
**Test Date:** Mar-2019  
**Test Sponsor:** Fujitsu  
**Hardware Availability:** Apr-2019  
**Tested by:** Fujitsu  
**Software Availability:** Feb-2019  

### Threads

<table>
<thead>
<tr>
<th>Application</th>
<th>Cores</th>
<th>SPECspeed2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>168</td>
<td>7.03</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>168</td>
<td>9.64</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>168</td>
<td>12.7</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>168</td>
<td>9.63</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>168</td>
<td>12.4</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>168</td>
<td>14.7</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>168</td>
<td>5.35</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>168</td>
<td>4.85</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>168</td>
<td>14.4</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>168</td>
<td>26.1</td>
</tr>
</tbody>
</table>

---

### Hardware

- **CPU Name:** Intel Xeon Platinum 8280L  
- **Max MHz.:** 4000  
- **Nominal:** 2700  
- **Enabled:** 168 cores, 6 chips  
- **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:** 38.5 MB I+D on chip per chip  
- **Memory:** 2304 GB (72 x 32 GB 2Rx4 PC4-2933Y-R)  
- **Storage:** 1 x SAS HDD, 600GB, 10.5K RPM, SAS HDD  
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15 4.12.14-25.28-default  
- **Compiler:** C/C++: Version 19.0.1.144 of Intel C/C++ Compiler for Linux; Fortran: Version 19.0.1.144 of Intel Fortran Compiler for Linux  
- **Parallel:** Yes  
- **Firmware:** Fujitsu BIOS Version V1.0.0.0 R1.21.0 for D3858-B1x. Released Jan-2019 tested as V1.0.0.0 R91.11.0 for D3858-B1x Mar-2019  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** Not Applicable  
- **Other:** jemalloc memory allocator V5.0.1

---

Page 1  
Standard Performance Evaluation Corporation (info@spec.org)  
https://www.spec.org/
### SPEC CPU2017 Integer Speed Result

**Fujitsu**  
PRIMEQUEST 3800B2, Intel Xeon Platinum 8280L, 2.70GHz

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>19</th>
<th>Test Date:</th>
<th>Mar-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Fujitsu</td>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Fujitsu</td>
<td>Software Availability:</td>
<td>Feb-2019</td>
</tr>
</tbody>
</table>

---

#### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>168</td>
<td>251</td>
<td>7.06</td>
<td>252</td>
<td>7.03</td>
<td>255</td>
<td>6.96</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>168</td>
<td>413</td>
<td>9.64</td>
<td>411</td>
<td>9.70</td>
<td>416</td>
<td>9.57</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>168</td>
<td>371</td>
<td>12.7</td>
<td>370</td>
<td>12.8</td>
<td>371</td>
<td>12.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>168</td>
<td>168</td>
<td>9.73</td>
<td>174</td>
<td>9.38</td>
<td>169</td>
<td>9.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>168</td>
<td>114</td>
<td>12.5</td>
<td>114</td>
<td>12.4</td>
<td>114</td>
<td>12.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>168</td>
<td>120</td>
<td>14.6</td>
<td>120</td>
<td>14.7</td>
<td>120</td>
<td>14.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjseng_s</td>
<td>168</td>
<td>268</td>
<td>5.35</td>
<td>267</td>
<td>5.36</td>
<td>274</td>
<td>5.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>168</td>
<td>352</td>
<td>4.85</td>
<td>352</td>
<td>4.85</td>
<td>352</td>
<td>4.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>168</td>
<td>205</td>
<td>14.4</td>
<td>206</td>
<td>14.3</td>
<td>203</td>
<td>14.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>168</td>
<td>237</td>
<td>26.1</td>
<td>237</td>
<td>26.1</td>
<td>238</td>
<td>26.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**SPECspeed2017_int_base = 10.4**  
**SPECspeed2017_int_peak = Not Run**

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

---

### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Kernel Boot Parameter set with: nohz_full=1-167

---

### General Notes

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

KMP_AFFINITY = "granularity=fine,scatter"

LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017/lib/intel64"

LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017/je5.0.1-64"

OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5

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
```

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

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:
Fan Control = Full
Hyper-Threading = Disabled
LLC Deadline Alloc = Disabled
LLC Prefetcher = Enabled
Sub NUMA Clustering = Disabled
UPI Link L0p = Disabled
UPI Link L1 = Disabled
Sysinfo program /home/Benchmark/speccpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcd0f2999c33d61f64985e45859ea9
running on linux-8r5c Sun Mar 31 18:58:46 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) Platinum 8280L CPU @ 2.70GHz
  6 "physical id"s (chips)
    168 "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 : 28
  siblings : 28
physical 0: cores 0 1 2 3 4 5 6 8910111213141617181920212224252627
     28 29 30
physical 1: cores 0 1 2 3 4 5 6 8910111213141617181920212224252627
     28 29 30
physical 2: cores 0 1 2 3 4 5 6 8910111213141617181920212224252627
     28 29 30
physical 3: cores 0 1 2 3 4 5 6 8910111213141617181920212224252627
     28 29 30
physical 4: cores 0 1 2 3 4 5 6 8910111213141617181920212224252627
     28 29 30
physical 5: cores 0 1 2 3 4 5 6 8910111213141617181920212224252627
     28 29 30

From lscpu:
Architecture:     x86_64
CPU op-mode(s):    32-bit, 64-bit
Byte Order:        Little Endian
CPU(s):            168
On-line CPU(s) list: 0-167
Thread(s) per core: 1
Core(s) per socket: 28
Socket(s):         6
NUMA node(s):      6

(Continued on next page)
spec

SPEC CPU2017 Integer Speed Result
Copyright 2017-2019 Standard Performance Evaluation Corporation

**Fujitsu**
PRIMEQUEST 3800B2, Intel Xeon Platinum 8280L, 2.70GHz

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>10.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Test Date:** Mar-2019  
**Hardware Availability:** Apr-2019  
**Software Availability:** Feb-2019

---

**Platform Notes (Continued)**

Vendor ID:       GenuineIntel
CPU family:      6
Model:           85
Model name:      Intel(R) Xeon(R) Platinum 8280L CPU @ 2.70GHz
Stepping:        6
CPU MHz:         2700.000
CPU max MHz:     4000.000
CPU min MHz:     1000.000
BogoMIPS:        5400.00
Virtualization:  VT-x
L1d cache:       32K
L1i cache:       32K
L2 cache:        1024K
L3 cache:        39424K
NUMA node0 CPU(s): 0-27
NUMA node1 CPU(s): 28-55
NUMA node2 CPU(s): 56-83
NUMA node3 CPU(s): 84-113
NUMA node4 CPU(s): 112-139
NUMA node5 CPU(s): 140-167

Flags:          fpu vme de pse sse m32 m64 mxr mke 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 ablp mcm 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 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 ablp mcm 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 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 ablp mcm 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 aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma

From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a physical chip.

available: 6 nodes (0-5)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
node 0 size: 385677 MB
node 0 free: 385135 MB
node 1 cpus: 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55
node 1 size: 387055 MB
node 1 free: 386398 MB
node 2 cpus: 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

(Continued on next page)
SPEC CPU2017 Integer Speed Result

Fujitsu
PRIMEQUEST 3800B2, Intel Xeon Platinum 8280L, 2.70GHz

SPECspeed2017_int_base = 10.4
SPECspeed2017_int_peak = Not Run

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

81 82 83
node 2 size: 387026 MB
node 2 free: 386594 MB
node 3 cpus: 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111
node 3 size: 387056 MB
node 3 free: 386697 MB
node 4 cpus: 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139
node 4 size: 387056 MB
node 4 free: 386610 MB
node 5 cpus: 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167
node 5 size: 386852 MB
node 5 free: 386542 MB
node distances:
node 0 1 2 3 4 5
0: 10 20 20 28 28 28
1: 20 10 28 20 28 20
2: 20 28 10 20 28 20
3: 28 20 20 10 28 28
4: 28 28 20 28 10 20
5: 28 20 28 28 20 10

From /proc/meminfo
MemTotal: 2376421488 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

uname -a:
Linux linux-8r5c 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

(Continued on next page)
### Fujitsu
PRIMEQUEST 3800B2, Intel Xeon Platinum 8280L, 2.70GHz

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>10.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

| CPU2017 License: | 19 |
| Test Sponsor: | Fujitsu |
| Tested by: | Fujitsu |
| Test Date: | Mar-2019 |
| Hardware Availability: | Apr-2019 |
| Software Availability: | Feb-2019 |

### Platform Notes (Continued)

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 Mar 31 18:57

SPEC is set to: /home/Benchmark/speccpu2017

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda3</td>
<td>xfs</td>
<td>142G</td>
<td>35G</td>
<td>108G</td>
<td>25%</td>
<td>/home</td>
</tr>
</tbody>
</table>

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 R91.11.0 for D3858-B1x 03/15/2019

Memory:
- 56x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933
- 16x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

(End of data from sysinfo program)

### Compiler Version Notes

--------------------------------------------
CC  600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base) 657.xz_s(base)
--------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

--------------------------------------------
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.lee_leea_s(base)
--------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

--------------------------------------------
FC 648.exchange2_s(base)
--------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.1.144 Build 20181018

(Continued on next page)
Fujitsu
PRIMEQUEST 3800B2, Intel Xeon Platinum 8280L, 2.70GHz

| SPECspeed2017_int_base | 10.4 |
| SPECspeed2017_int_peak | Not Run |

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

Compiler Version Notes (Continued)

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Base Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-W1,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-pref-div
-qopt-mem-layout-transform=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:
-W1,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-pref-div
-qopt-mem-layout-transform=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkmalloc

(Continued on next page)
SPEC CPU2017 Integer Speed Result
Copyright 2017-2019 Standard Performance Evaluation Corporation

Fujitsu
PRIMEQUEST 3800B2, Intel Xeon Platinum 8280L, 2.70GHz

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base = 10.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

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

Test Date: Mar-2019
Hardware Availability: Apr-2019
Software Availability: Feb-2019

Base Optimization Flags (Continued)

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
-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:

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 2019-03-31 05:58:46-0400.
Originally published on 2019-04-16.