



# SPEC® CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Fujitsu

PRIMERGY RX1330 M4, Intel Xeon E-2186G, 3.80GHz

SPECspeed2017\_int\_base = 10.7

SPECspeed2017\_int\_peak = Not Run

CPU2017 License: 19

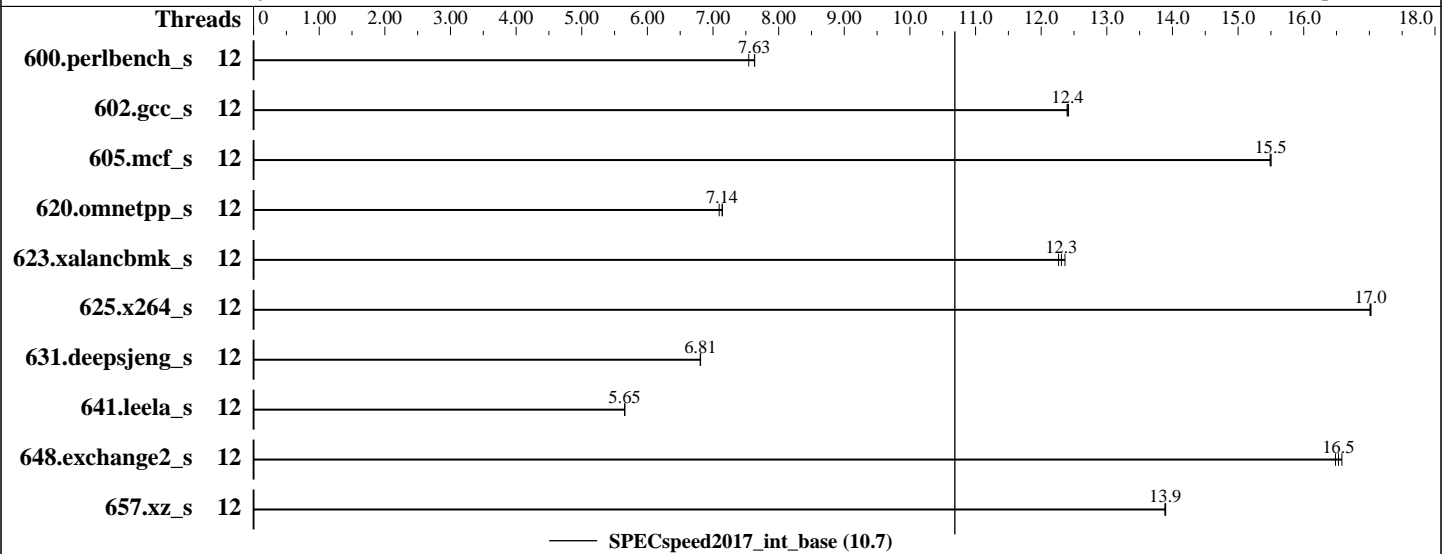
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Nov-2018

Hardware Availability: Nov-2018

Software Availability: Sep-2018



### Hardware

CPU Name: Intel Xeon E-2186G  
 Max MHz.: 4700  
 Nominal: 3800  
 Enabled: 6 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: 12 MB I+D on chip per chip  
 Other: None  
 Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)  
 Storage: 1 x SATA M.2 SSD, 240 GB  
 Other: None

### Software

OS: Red Hat Enterprise Linux Server release 7.5 (Maipo)  
 3.10.0-862.el7.x86\_64  
 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: Yes  
 Firmware: Fujitsu BIOS Version V5.0.0.13 R1.4.0 for D3675-A1x. Released Nov-2018 tested as V5.0.0.13 R1.0.0 for D3675-A1x Sep-2018  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: jemalloc memory allocator library V5.0.1



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## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	12	232	7.64	<b><u>233</u></b>	<b><u>7.63</u></b>	235	7.54							
602.gcc_s	12	321	12.4	<b><u>321</u></b>	<b><u>12.4</u></b>	321	12.4							
605.mcf_s	12	305	15.5	<b><u>305</u></b>	<b><u>15.5</u></b>	305	15.5							
620.omnetpp_s	12	228	7.14	230	7.09	<b><u>228</u></b>	<b><u>7.14</u></b>							
623.xalancbmk_s	12	115	12.4	116	12.3	<b><u>115</u></b>	<b><u>12.3</u></b>							
625.x264_s	12	104	17.0	<b><u>104</u></b>	<b><u>17.0</u></b>	104	17.0							
631.deepsjeng_s	12	<b><u>210</u></b>	<b><u>6.81</u></b>	210	6.81	211	6.81							
641.leela_s	12	302	5.65	302	5.66	<b><u>302</u></b>	<b><u>5.65</u></b>							
648.exchange2_s	12	178	16.5	177	16.6	<b><u>178</u></b>	<b><u>16.5</u></b>							
657.xz_s	12	<b><u>445</u></b>	<b><u>13.9</u></b>	445	13.9	445	13.9							

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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"

## General Notes

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

```

KMP_AFFINITY = "granularity=fine,scatter"
OMP_STACKSIZE = "192M"
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-ic19_SOKUTEI/ic19.0-lib/ia32"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19_SOKUTEI/ic19.0-lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19_SOKUTEI/je5.0.1-32"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19_SOKUTEI/je5.0.1-64"

```

Binaries compiled on a system with 1x Intel Xeon E-2186G CPU + 64GB RAM  
memory using Red Hat Enterprise Linux Server release 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

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### General Notes (Continued)

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:

```
DCU Streamer Prefetcher = Disabled
DDR PowerDown and idle counter = PCODE
CState Pre-Wake = Disabled
Package C-State Un-demotion = Enabled
REFRESH_2X_MODE = 1- Enabled for WARM or HOT
Sysinfo program /home/Benchmark/speccpu2017-ic19_SOKUTEI/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on localhost.localdomain Wed Nov 7 11:29:51 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-2186G CPU @ 3.80GHz
 1 "physical id"s (chips)
 12 "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 : 6
siblings : 12
physical 0: cores 0 1 2 3 4 5
```

From lscpu:

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 12
On-line CPU(s) list: 0-11
Thread(s) per core: 2
Core(s) per socket: 6
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
```

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### Platform Notes (Continued)

```

Model name: Intel(R) Xeon(R) E-2186G CPU @ 3.80GHz
Stepping: 10
CPU MHz: 4602.722
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: 12288K
NUMA node0 CPU(s): 0-11
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
aperfperf 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 epb intel_pt tpr_shadow vnmi
flexpriority ept vpid fsgsbase tsc_adjust bmil hle avx2 smep bmi2 erms invpcid rtm
mpx rdseed adx smap clflushopt xsaveopt xsavec xgetbv1 ibpb ibrs stibp dtherm ida
arat pln pts hwp hwp_notify hwp_act_window hwp_epp spec_ctrl intel_stibp

```

```

/proc/cpuinfo cache data
cache size : 12288 KB

```

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

```

From /proc/meminfo
MemTotal: 65543968 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.5 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VARIANT="Server"
VARIANT_ID="server"
VERSION_ID="7.5"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.5 (Maipo)"
redhat-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.5:ga:server

```

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### Platform Notes (Continued)

```

uname -a:
  Linux localhost.localdomain 3.10.0-862.el7.x86_64 #1 SMP Wed Mar 21 18:14:51 EDT 2018
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 7 11:25 last=5

SPEC is set to: /home/Benchmark/speccpu2017-ic19_SOKUTEI
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   365G   27G  338G   8% /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 D3675-A1x
    09/14/2018
  Memory:
    4x SK Hynix HMA82GU7CJR8N-VK 16 GB 2 rank 2667

(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)
-----

icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----

=====
CXXC 620.omnetpp_s(base) 623.xalanbmk_s(base) 631.deepsjeng_s(base)
     641.leela_s(base)
-----

icpc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----

=====
FC  648.exchange2_s(base)
-----

ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----

```



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## 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:

```
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP  
-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
```



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The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.html>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0.2-CFL-RevB.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-RevB.xml>

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