



# SPEC® CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Fujitsu

PRIMERGY TX1330 M4, Intel Xeon E-2144G, 3.60GHz

SPECspeed2017\_int\_base = 10.1

SPECspeed2017\_int\_peak = Not Run

CPU2017 License: 19

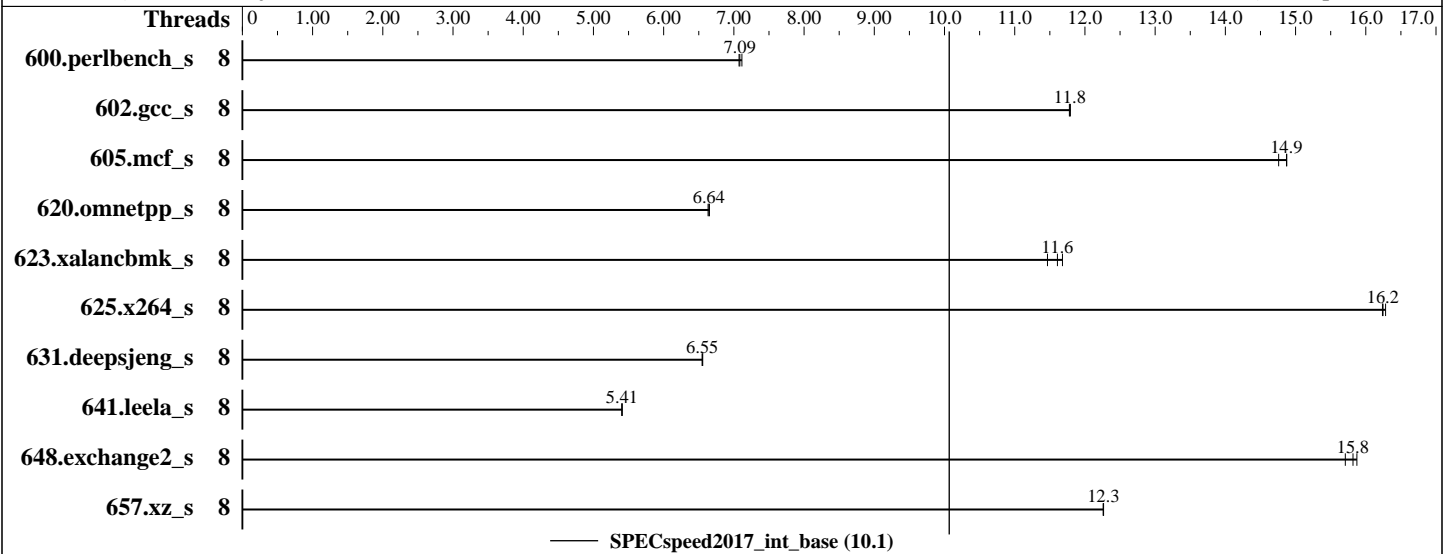
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Oct-2018

Hardware Availability: Nov-2018

Software Availability: Sep-2018



### Hardware

CPU Name: Intel Xeon E-2144G  
 Max MHz.: 4500  
 Nominal: 3600  
 Enabled: 4 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: 8 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 D3673-A1x. Released Nov-2018 tested as V5.0.0.13 R1.0.0 for D3673-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	8	251	7.07	249	7.11	<b>251</b>	<b>7.09</b>							
602.gcc_s	8	338	11.8	<b>338</b>	<b>11.8</b>	338	11.8							
605.mcf_s	8	320	14.8	<b>317</b>	<b>14.9</b>	317	14.9							
620.omnetpp_s	8	246	6.63	<b>245</b>	<b>6.64</b>	245	6.65							
623.xalancbmk_s	8	124	11.5	121	11.7	<b>122</b>	<b>11.6</b>							
625.x264_s	8	109	16.2	<b>109</b>	<b>16.2</b>	108	16.3							
631.deepsjeng_s	8	219	6.56	219	6.55	<b>219</b>	<b>6.55</b>							
641.leela_s	8	316	5.40	<b>316</b>	<b>5.41</b>	315	5.41							
648.exchange2_s	8	187	15.7	<b>186</b>	<b>15.8</b>	185	15.9							
657.xz_s	8	<b>504</b>	<b>12.3</b>	504	12.3	504	12.3							

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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/ic19.0-lib/ia32"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19/ic19.0-lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19/je5.0.1-32"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017-ic19/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/bin/sysinfo

Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f

running on localhost.localdomain Wed Oct 31 14:57:43 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-2144G CPU @ 3.60GHz

1 "physical id"s (chips)

8 "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 : 8

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): 8

On-line CPU(s) list: 0-7

Thread(s) per core: 2

Core(s) per socket: 4

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-2144G CPU @ 3.60GHz
Stepping: 10
CPU MHz: 4322.241
CPU max MHz: 4500.0000
CPU min MHz: 800.0000
BogoMIPS: 7200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 8192K
NUMA node0 CPU(s): 0-7
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 : 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 4 5 6 7
node 0 size: 65278 MB
node 0 free: 63195 MB
node distances:
node 0
0: 10

```

```

From /proc/meminfo
MemTotal: 65545552 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"

```

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### Platform Notes (Continued)

```
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
```

```
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 Oct 31 14:55
```

```
SPEC is set to: /home/Benchmark/speccpu2017-ic19
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   150G   33G  118G  22% /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 D3673-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.xalancbmk_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.
```

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## Compiler Version Notes (Continued)

=====  
FC 648.exchange2\_s(base)  
=====

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

## 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

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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
```

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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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

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