# SPEC® CFP2006 Result

## Fujitsu

PRIMEQUEST 3800B, Intel Xeon Platinum 8164, 2.00GHz

<table>
<thead>
<tr>
<th>SPECfp°_rate2006 = Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006 = 6410</td>
</tr>
</tbody>
</table>

### CPU2006 license: 19

Test sponsor: Fujitsu  
Tested by: Fujitsu

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
</table>
| CPU Name: Intel Xeon Platinum 8164  
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
CPU MHz: 2000  
FPU: Integrated  
CPU(s) enabled: 208 cores, 8 chips, 26 cores/chip, 2 threads/core  
CPU(s) orderable: 2,4,6,8 chips  
Primary Cache: 32 KB I + 32 KB D on chip per core  
Secondary Cache: 1 MB I+D on chip per core  
| Operating System: SUSE Linux Enterprise Server 12 SP2  
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  
Auto Parallel: No  
File System: tmpfs  
System State: Run level 3 (multi-user) |

### SPECfp_result

| Test date: Nov-2017 | Hardware Availability: Jul-2017  
Software Availability: Sep-2017 |
|---------------------|---------------------------------|

<table>
<thead>
<tr>
<th>benchmark</th>
<th>copies</th>
<th>rate</th>
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<tr>
<td>416.gamess</td>
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<tr>
<td>435.gromacs</td>
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SPECfp_rate_base2006 = 6410

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Standard Performance Evaluation Corporation  
info@spec.org  
http://www.spec.org/
SPEC CFP2006 Result
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SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 6410

CPU2006 license: 19
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L3 Cache: 35.75 MB I+D on chip per chip
Other Cache: None
Memory: 1536 GB (96 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem: 768 GB tmpfs
Other Hardware: 1 x SAS HDD, 600 GB, 10.5K RPM, used for swap
Base Pointers: 32/64-bit
Peak Pointers: Not Applicable
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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</tbody>
</table>

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=1-415 isolcpus=1-415
Set CPU frequency governor to maximum performance with:
cpupower -c all frequency-set -g performance
Set tmpfs filesystem with:
mkdir /home/memory
mount -t tmpfs -o size=768g,rw tmpfs /home/memory
Process tuning settings:

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SPEC CFP2006 Result

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 6410

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu
Test date: Nov-2017
Hardware Availability: Jul-2017
Software Availability: Sep-2017

Operating System Notes (Continued)

```bash
echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns
echo 15000000 > /proc/sys/kernel/sched_wakeup_granularity_ns
echo 0 > /proc/sys/kernel/numa_balancing
echo always > /sys/kernel/mm/transparent_hugepage/enabled

cpu idle state set with:
   cpupower idle-set -d 2
   cpupower idle-set -d 3
set affinity of rcu threads to the cpu0:
   for i in `pgrep rcu` ; do taskset -pc 0 $i ; done
```

Platform Notes

BIOS configuration:
Intel Virtualization Technology = Disabled
HWPM Support = Disabled
DCU Streamer Prefetcher = Disabled
Stale AtoS = Enabled
LLC dead line alloc = Disabled
Sub NUMA Clustering = Enabled
Fan Control = Full
Sysinfo program /home/memory/speccpu/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-k55j Sat Nov 18 12:59:42 2017

This section contains SUT (System Under Test) info as seen by
some common utilities. To remove or add to this section, see:
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
```plaintext
model name : Intel(R) Xeon(R) Platinum 8164 CPU @ 2.00GHz
  8 "physical id"s (chips)
  416 "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 : 26
siblings : 52
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 24 25
26 27 28 29
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 24 25
26 27 28 29
physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 24 25
26 27 28 29
physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 24 25
26 27 28 29
physical 4: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 24 25
26 27 28 29
physical 5: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 24 25
26 27 28 29
physical 6: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 24 25
26 27 28 29
```

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Platform Notes (Continued)

physical 7: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25
26 27 28 29

cache size : 36608 KB

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:
(9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 18 03:26

SPEC is set to: /home/memory/speccpu

Additional information from dmidecode:

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:
46x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666 MHz
50x Samsung M393A2G40EB2-CTD 16 GB 2 rank 2666 MHz

(End of data from sysinfo program)
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General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/memory/speccpu/icc2018lib/ia32:/home/memory/speccpu/icc2018lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/memory/speccpu/sh10.2"

Binaries compiled on a system with 2x Intel Xeon Platinum 8180 CPU + 384GB RAM
memory using SUSE Linux Enterprise Server 12 SP2
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled

Filesystem page cache cleared with:
shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
  icc -m64

C++ benchmarks:
  icpc -m64

Fortran benchmarks:
  ifort -m64

Benchmarks using both Fortran and C:
  icc -m64 ifort -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64 -nofor_main
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64
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C benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

Fortran benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-SKL-RevC.html
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-SKL-RevC.xml
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Originally published on 26 December 2017.