**SPEC® CFP2006 Result**

**Fujitsu**

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

<table>
<thead>
<tr>
<th>SPECfp_rate2006 = Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006 = 1660</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 19

**Test sponsor:** Fujitsu

**Tested by:** Fujitsu

<table>
<thead>
<tr>
<th>SPECfp_rate_base2006 = 1660</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<tr>
<td>112</td>
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<table>
<thead>
<tr>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong> Intel Xeon Platinum 8176M</td>
</tr>
<tr>
<td><strong>CPU Characteristics:</strong> Intel Turbo Boost Technology up to 3.80 GHz</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong> 2100</td>
</tr>
<tr>
<td><strong>FPU:</strong> Integrated</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong> 56 cores, 2 chips, 28 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td><strong>CPU(s) orderable:</strong> 1,2 chips</td>
</tr>
<tr>
<td><strong>Primary Cache:</strong> 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td><strong>Secondary Cache:</strong> 1 MB I+D on chip per core</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating System:</strong> SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default</td>
</tr>
<tr>
<td><strong>Compiler:</strong> C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux</td>
</tr>
<tr>
<td><strong>Auto Parallel:</strong> No</td>
</tr>
<tr>
<td><strong>File System:</strong> tmpfs</td>
</tr>
<tr>
<td><strong>System State:</strong> Run level 3 (multi-user)</td>
</tr>
</tbody>
</table>

Test date: Nov-2017

Hardware Availability: Dec-2017

Software Availability: Apr-2017
## Fujitsu

**PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz**

**SPECfp_rate2006 = Not Run**  
**SPECfp_rate_base2006 = 1660**

### Results Table

<table>
<thead>
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<th>Benchmark</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=1-111
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=192g,rw tmpfs /home/memory
Process tuning settings:

Continued on next page
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PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPEC CFP2006 Result

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SPEC CFP2006 Result

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 1660

Operating System Notes (Continued)

- 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 never > /sys/kernel/mm/transparent_hugepage/enabled
- cpu idle state set with:
  cpupower idle-set -d 1
  cpupower idle-set -d 2

Platform Notes

BIOS configuration:
- DCU Streamer Prefetcher = Disabled
- Intel Virtualization Technology = Disabled
- Power Technology = Custom
- HWPM Support = Disabled
- UPI Link Frequency Select = 10.4GT/s
- Sub NUMA Clustering = Enabled
- Stale AtoS = Enabled
- LLC dead line alloc = Disabled
- Sysinfo program /home/memory/speccpu/config/sysinfo.rev6993
- Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
- running on linux-CX2560M4 Fri Nov 10 22:52:55 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
- model name : Intel(R) Xeon(R) Platinum 8176M CPU @ 2.10GHz
- 2 "physical id"s (chips)
  112 "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 : 56
  - physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
    25 26 27 28 29 30
  - physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
    25 26 27 28 29 30
- cache size : 39424 KB

From /proc/meminfo
- MemTotal: 196468548 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
- SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*
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CPU2006 license: 19
Test sponsor: Fujitsu
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Platform Notes (Continued)

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 10 21:39

SPEC is set to: /home/memory/speccpu
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 192G 9.7G 183G 6% /home/memory

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 R1.9.6 for D3854-A1x 10/06/2017
Memory:
12x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666 MHz
4x Not Specified Not Specified

(End of data from sysinfo program)

General Notes

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

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.2
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.:
Continued on next page
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**CPU2006 license:** 19  
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**Test date:** Nov-2017  
**Hardware Availability:** Dec-2017  
**Software Availability:** Apr-2017

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**General Notes (Continued)**

numactl --interleave=all runspec <etc>

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

No: 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.

No: 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.

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**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
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
458.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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**Base Optimization Flags**

**C benchmarks**:
- -xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch -auto-p32
- -qopt-mem-layout-trans=3

**Continued on next page**
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Base Optimization Flags (Continued)

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -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/Intel-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-SKL-RevD.html

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

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

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