SPEC® CFP2006 Result

Huawei
Huawei 5288 V3(Intel Xeon E5-2620 v4)

SPECfp®_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Copies

410.bwaves
416.gamess
433.milc
434.zeusmp
435.gromacs
436.cactusADM
437.leslie3d
444.namd
447.dealII
450.soplex
453.povray
454.calculix
459.GemsFDTD
465.tonto
4.nlbm
481.wrf
482.sphinx3
Huawei

Huawei 5288 V3(Intel Xeon E5-2620 v4)

<table>
<thead>
<tr>
<th>SPECfp_rate2006 =</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006 =</td>
<td>NC</td>
</tr>
</tbody>
</table>

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

CPU Name: Intel Xeon E5-2620 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz: 2100
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64
Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
Auto Parallel: No
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.
Huawei

Huawei 5288 V3 (Intel Xeon E5-2620 v4)

SPEC CFP2006 Result

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>416.gamess</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>433.milc</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>444.namd</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>447.dealII</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>450.soplex</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>453.povray</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>454.calculix</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>465.tonto</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>470.lbm</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>481.wrf</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
<td>32</td>
<td>NC</td>
</tr>
</tbody>
</table>

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

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

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Snoop Mode to ES mode
Set Patrol Scrub to Disable

Continued on next page
Huawei

Huawei 5288 V3 (Intel Xeon E5-2620 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

CPU2006 license: 3175
Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by <a href="http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2">SPEC CPU rule 1.3.2</a> and the SPEC Open Systems Group policy on <a href="https://www.spec.org/osg/policy.html#AppendixC">general availability</a>.

Platform Notes (Continued)

Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $ e3fbb8667b5e2859c9eab862219e1
running on localhost.localdomain Wed Mar 2 04:30:17 2016

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) CPU E5-2620 v4 @ 2.10GHz
  2 "physical id"s (chips)
  32 "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 : 8
  siblings : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
  cache size : 20480 KB

From /proc/meminfo
MemTotal: 263569320 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
NAME="Red Hat Enterprise Linux Server"
VERSION=7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0" PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
Linux localhost.localdomain 3.10.0-123.e17.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

Continued on next page
SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU run-up policy on a SPEC CPU result with the following properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test date</td>
<td>Mar-2016</td>
</tr>
<tr>
<td>Hardware Availability</td>
<td>Mar-2016</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Mar-2016</td>
</tr>
</tbody>
</table>

**General Notes**

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

```
LD_LIBRARY_PATH = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"
```

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using Red Hat EL 7.1

Transparency Huge Pages enabled with:

```
echo always >> /sys/kernel/mm/transparent_hugepage/enabled
```

Filesystem page cache cleared with:

```
echo 1 >       /proc/sys/vm/drop_caches
```

And invoked through numactl i.e.:

```
numactl --interleave=all runspec <etc>
```

**Base Compiler Invocation**

- C benchmarks:
  - `icc`  `-m64`

- C++ benchmarks:
  - `icpc`  `-m64`
Huawei
Huawei 5288 V3 (Intel Xeon E5-2620 v4)

| SPECfp_rate2006 = | NC |
| SPECfp_rate_base2006 = | NC |

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Base Compiler Invocation (Continued)

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 -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
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

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

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

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

Continued on next page
SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ipo-psh
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:
icc  -m64

C++ benchmarks (except as noted below):
icc  -m64

Fortran benchmarks:
ifort  -m64

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

Peak Portability Flags

430.bwaves: -DSPEC_CPU_LP64
410.tutex: -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: -D_FILE_OFFSET_BITS=64
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

Continued on next page
Huawei
Huawei 5288 V3(Intel Xeon E5-2620 v4)

**SPECfp_rate2006 = NC**
**SPECfp_rate_base2006 = NC**

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by [SPEC CPU rule 1.3.2](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2) and the SPEC Open Systems Group policy on [general availability](https://www.spec.org/osg/policy.html#AppendixC).

### Peak Portability Flags (Continued)

482.sphinx3: -DSPEC_CPU_LP64

### Peak Optimization Flags

#### C benchmarks:

- 433.milc: basepeak = yes
- 470.lbm: basepeak = yes
- 482.sphinx3: basepeak = yes

#### C++ benchmarks:

- 444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32
- 447.dealII: basepeak = yes
- 450.soplex: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -opt-malloc-options=3
- 453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

#### Fortran benchmarks:

- 410.bwaves: basepeak = yes
- 416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-

Continued on next page
Huawei

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Spec has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: basepeak = yes
465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4 -auto
-inline-calloc -ipo -call -options=3

Benchmarks using both Fortran and C:
435.gromacs: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-mem -fetch -auto-ilp32
436.cactusADM: basepeak = yes
454.calculix: basepeak = yes
481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.xml
Huawei

Huawei 5288 V3(Intel Xeon E5-2620 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by <a href="http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2">SPEC CPU rule 1.3.2</a> and the SPEC Open Systems Group policy on <a href="https://www.spec.org/osg/policy.html#AppendixC">general availability</a>.

SPEC and SPECfp are registered trademarks 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 webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Originally published on 7 April 2016.