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).

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<tr>
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<td>481.wrf</td>
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<td>482.sphinx3</td>
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</table>
**SPEC CFP2006 Result**

**Huawei**

Huawei CH222 V3 (Intel Xeon E5-2603 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).

### Hardware

- **CPU Name**: Intel Xeon E5-2603 v4
- **CPU Characteristics**:  
  - CPU MHz: 1700  
  - FPU: Integrated  
  - CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip  
  - 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: 15 MB I+D on chip per chip  
  - Other Cache: None  
- **Memory**: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 1866 MHz)  
- **Disk Subsystem**: 1 x 2 T SATA, 7200 RPM  
- **Other Hardware**: None

### Software

- **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**: ext4  
- **System State**: Run level 3 (multi-user)  
- **Base Pointers**: 32/64-bit  
- **Peak Pointers**: 32/64-bit  
- **Other Software**: None

---

Non-Compliant
Huawei CH222 V3 (Intel Xeon E5-2603 v4)

SPEC CFP2006 Result

Huawei

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.

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</tr>
</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"
Huawei

Huawei CH222 V3 (Intel Xeon E5-2603 v4)

SPEC fp_rate2006 = NC
SPEC fp_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 run and reporting rules. To remove or add to this section, see:
http://www.spec.org/cpu2006/Docs/runrules.html#rule_1.3.2
SPEC CPU run rule policy on
http://www.spec.org/osg/policy.html#AppendixC

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Snoop Mode to ES mode
Set Patrol Scrub to Disable
Sysinfo program /speccpu/spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb866 5a285d02eab81e28219el
running on localhost.localdomain Thu Mar 3 13:12:19 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 E5-2603 v4 @ 1.70GHz
  2 "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 : 6
physical 0: cores 1 2 3 4 5
  physical 1: cores 1 2 3 4 5
  cache size : 15360 KB

From /proc/meminfo
MemTotal:       263571640 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 Server 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

Continued on next page
**SPEC CFP2006 Result**

**Huawei**

**Huawei CH222 V3 (Intel Xeon E5-2603 v4)**

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

**Platform Notes (Continued)**

```plaintext
uname -a:
   Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Wed May 5 11:16:57 EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 2 06:58

SPEC is set to: /speccpu/spec16
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      ext4  1.6T   32G  1.5T   3% /

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 Insyde Corp. 3.09 02/22/2016
   Memory:
   8x NO DIMM NO DIMM 3 rank
   8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz, configured at 1867 MHz
   8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 1867 MHz
```

(End of data from sysinfo program)

**General Notes**

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

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

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

Transparent Huge Pages enabled with:
```
    echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

Filesystem page cache cleared with:
```
    echo 1 > /proc/sys/vm/drop_caches
```

runspec command invoked through numactl i.e.:
```
    numactl --interleave=all runspec <etc>
```

The Huawei CH121 V3 and Huawei CH222 V3 are electronically equivalent.

The results have been measured on a Huawei CH121 V3 model.
Huawei CH222 V3 (Intel Xeon E5-2603 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175  
Test date: Mar-2016  
Test sponsor: Huawei  
Tested by: Huawei  
Hardware Availability: Mar-2016  
Software Availability: Mar-2016

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### Base Compiler Invocation

<table>
<thead>
<tr>
<th>C benchmarks:</th>
<th>icc</th>
<th>-m64</th>
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<tbody>
<tr>
<td>C++ benchmarks:</td>
<td>icpc</td>
<td>-m64</td>
</tr>
<tr>
<td>Fortran benchmarks:</td>
<td>ifort</td>
<td>-m64</td>
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<tr>
<td>Benchmarks using both Fortran and C:</td>
<td>icc</td>
<td>-m64 ifort -m64</td>
</tr>
</tbody>
</table>

### 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

### Base Optimization Flags


Continued on next page
SPEC CFP2006 Result

Huawei

Huawei CH222 V3 (Intel Xeon E5-2603 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Mar-2016
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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 Optimization Flags (Continued)

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:
icc   -m64

C++ benchmarks:
icpc  -m64

Fortran benchmarks:
ifort -m64

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
433.milc: basepeak = yes
470.lbm: basepeak = yes

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Peak Optimization Flags (Continued)

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) -prof-use(pass 2) -no-mem-layout-trans=3(pass 2)
   -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

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) -prof-use(pass 2) -opt-mem-layout-trans=3(pass 2)
   -prof-use(pass 2) -fno-alias -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 -ansi-alias

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 -opt-malloc-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-prefetch -auto-ilp32

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 CH222 V3 (Intel Xeon E5-2603 v4)

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**Peak Optimization Flags (Continued)**

- 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/Huawei-Platform-Settings-BDW-V1.0.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/Huawei-Platform-Settings-BDW-V1.0.xml](http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.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.
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