SPEC® CFP2006 Result

Huawei

Huawei CH121 V3 (Intel Xeon E5-2695 v4)

SPECfp®2006 = NC
SPECfp_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Feb-2016
CPU2006 license: 3175
Test sponsor: Huawei
Test date: Feb-2016

Tested by: Huawei
Tested by: Huawei
Software Availability: Mar-2016

Test date: Feb-2016
Hardware 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>.

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.GemsFD1D
465.tonto
467.lbm
481.wrf
482.sphinx3

Non-Compliant
---

**SPEC CFP2006 Result**

**Huawei**

Huawei CH121 V3 (Intel Xeon E5-2695 v4)

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**SPECFp2006** = **NC**  
**SPECFp_base2006** = **NC**

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>3175</th>
<th>Test date:</th>
<th>Feb-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
<td>Huawei</td>
<td>Hardware Availability:</td>
<td>Mar-2016</td>
</tr>
<tr>
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<td>Huawei</td>
<td>Software Availability:</td>
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---

**Hardware**

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2695 v4</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.30 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2100</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>36 cores, 2 chips, 18 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1.2 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>45 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 600GB SAS, 10000 RPM</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

**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:** Yes

**File System:** xfs

**System State:** Run level 3 (multi-user)

**Base Pointers:** 64-bit

**Peak Pointers:** 32/64-bit

**Other Software:** None
Huawei

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**Results Table**

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

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

**Operating System Notes**

Set stack size to unlimited using "ulimit -s unlimited"

**Platform Notes**

BIOS configuration:
Set Power Efficiency Mode to Custom
Set Snoop Mode to HS mode
Set Patrol Scrub to Disable
Set Hyper-Threading to Disable
Sysinfo program /spec/spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Thu Nov 13 07:13:18 2014
Continued on next page
Huawei

Huawei CH121 V3 (Intel Xeon E5-2695 v4)

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Platform Notes (Continued)

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 E5-2695 @ 2.10GHz
- 2 "physical id:s (chips)
- 36 "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: 18
- siblings: 18
- physical 0: cores 0 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
- physical 1: cores 0 1 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
- cache size: 46080 KB

From /proc/meminfo

- MemTotal: 263568856 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /etc/*release*/etc/*version*

- os-release:
  - 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)"
  - 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

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

run-level 3 Nov 13 02:14

SPEC is set to: /spec/spec16

Continued on next page
Huawei

Huawei CH121 V3 (Intel Xeon E5-2695 v4) SPECfp2006 = NC
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Platform Notes (Continued)

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda2</td>
<td>xfs</td>
<td>549G</td>
<td>12G</td>
<td>537G</td>
<td>3%</td>
<td>/</td>
</tr>
</tbody>
</table>

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 because 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
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/spec/spec16/libs/32:/spec/spec16/libs/64:/spec/spec16/sh"
OMP_NUM_THREADS = "36"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1
Transparent Huge Pages enabled with:
echo always >/sys/kernel/mm/transparent_hugepage/enabled
runspec command invoked through numacl1 i.e.:
numactl --interleave=all runspec <etc>
Huawei CH121 V3 and Huawei CH222 V3 are electronically equivalent.
The results have been measured on a Huawei CH121 V3 model

Base Compiler Invocation

C benchmarks:
  icc  -m64

C++ benchmarks:
  icpc -m64

Continued on next page
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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 -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 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
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 -parallel -opt-prefetch -ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias

Peak Compile Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
433.milc: basepeak = yes
701.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) -prof-use(pass 2) -fno-alias
-auto-ilp32

Non-compliant
Peak Optimization Flags (Continued)

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) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 1) -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=3 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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) -inline-calloc
-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
Huawei CH121 V3 (Intel Xeon E5-2695 v4)

| SPECfp2006 = | NC |
| SPECfp_base2006 = | NC |

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

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**Peak Optimization Flags (Continued)**

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.

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