## SPEC® CFP2006 Result

**Huawei**

**Huawei XH622 V3 (Intel Xeon E5-2630 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  
**Test date:** Feb-2016  
**Hardware Availability:** Mar-2016  
**Software Availability:** Mar-2016

### 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 |
| 481.wrf |
| 482.sphinx3 |

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 XH622 V3(Intel Xeon E5-2630 v4)

**SPEC CFP2006 Result**

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name: Intel Xeon E5-2630 v4</td>
<td>Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64</td>
</tr>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz</td>
<td>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</td>
</tr>
<tr>
<td>CPU MHz: 2200</td>
<td>Auto Parallel: No</td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td>File System: xfs</td>
</tr>
<tr>
<td>CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 2 threads/core</td>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>CPU(s) orderable: 1.2 chip</td>
<td>Base Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Primary Cache: 32 KB L1 + 32 KB D on chip per core</td>
<td>PageSize: 32/64-bit</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB L1+D on chip per core</td>
<td>Other Software: None</td>
</tr>
<tr>
<td>L3 Cache: 25 MB L1+D on chip per chip</td>
<td></td>
</tr>
<tr>
<td>Other Cache: None</td>
<td></td>
</tr>
<tr>
<td>Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)</td>
<td></td>
</tr>
<tr>
<td>Disk Subsystem: 1 x 500 GB SATA, 7200 RPM</td>
<td></td>
</tr>
<tr>
<td>Other Hardware: None</td>
<td></td>
</tr>
</tbody>
</table>

**CPU2006 license:** 3175  
**Test date:** Feb-2016  
**Test sponsor:** Huawei  
**Tested by:** Huawei  

**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.

**Non-Compliant**
Huawei XH622 V3 (Intel Xeon E5-2630 v4)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>416.gamess</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>433.milc</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>444.namd</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>447.dealII</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>450.soplex</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>20</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>453.povray</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>454.calculix</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>465.tonto</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>470.lbm</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>481.wrf</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>NC</td>
<td>40</td>
<td>NC</td>
<td>40</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.

Submit Notes

A 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

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 the SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

Non-Compliant
SPEC CFP2006 Result

Huawei

Huawei XH622 V3(Intel Xeon E5-2630 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei
Test date: Feb-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 $ $Date:: 2014-06-25 #$ e3fbb8667b5e28592aeab8a08219e1
running on localhost.localdomain Sun Feb 21 16:52:46 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 E5-2630 v4 @ 2.20GHz
2 "physical id"s (chips)
40 "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 : 10
siblings : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB

From /proc/meminfo
MemTotal: 263568392 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

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

Continued on next page
Huawei

Huawei XH622 V3 (Intel Xeon E5-2630 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei
Test date: Feb-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 policy on HuaweixH622 V3(Intel Xeon E5-2630 v4)

**Platform Notes (Continued)**

run-level 3 Feb 17 06:23

SPEC is set to: /spec16
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 443G 80G 363G 19% /

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. 7.11 02/14/2016
Memory:
8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz, configured at 2133 MHz
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 2133 MHz

(End of data from sysinfo program)

**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 + 32 GB memory using 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`
Invoked through numactl i.e.:
nnumactl --interleave=all runspec <etc>
The Huawei XH622 V3 and Huawei XH628 V3 and Huawei XH620 V3 are electronically equivalent.
The results have been measured on a Huawei XH620 V3 model

**Base Compiler Invocation**

C benchmarks:
`icc -m64`

Continued on next page
Huawei

Huawei XH622 V3(Intel Xeon E5-2630 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
Test date: Feb-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)

C++ benchmarks:
  icpc -m64

Fortran benchmarks:
  ifort -m64

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

Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>416.gamess</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>433.mlci</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>-DSPEC_CPU_LP64 -nofor_main</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>-DSPEC_CPU_LP64 -nofor_main</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>444.namd</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>447.dealII</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>450.soplex</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>453.povray</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>454.calculix</td>
<td>-DSPEC_CPU_LP64 -nofor_main</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>465.tonto</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>470.lbm</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>481.wrf</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
</tbody>
</table>

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

Continued on next page
SPEC CFP2006 Result

Huawei

Huawei XH622 V3(Intel Xeon E5-2630 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

CPU2006 license: 3175
Test date: Feb-2016
Test sponsor: Huawei
Hardware Availability: Mar-2016
Tested by: Huawei
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>.

Base Optimization Flags (Continued)

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 (except as noted below):
icpc -m64

450.soplex: icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Fortran benchmarks:
ifort -m64

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

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.cactuss: -DSPEC_CPU_LP64
418.cactusf: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64 -nofor_main
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.ca3d: -DSPEC_CPU_LP64
437.lbm: -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

Continued on next page
Huawei

Huawei XH622 V3(Intel Xeon E5-2630 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

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

Test date: Feb-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.

Peak Portability Flags (Continued)

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

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) -03(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) -03(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) -03(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) -03(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

Huawei XH622 V3(Intel Xeon E5-2630 v4)

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 -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) -prof-use(pass 2) -opt-mem-layout-trans=3(pass 2)
            -prof-use(pass 2) -opt-prefetch -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

Non-Compliant
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.