Huawei

Huawei RH1288 V3 (Intel Xeon E5-2695 v4)

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

SPECfp<sup>®</sup> _rate2006 = NC
SPECfp_rate_base2006 = NC

Test date: Apr-2016
Hardware Availability: Mar-2016
Software Availability: Aug-2015

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.

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
- 470.lbm
- 481.wrf
- 482.sphinx3
Huawei RH1288 V3 (Intel Xeon E5-2695 v4)  

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
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<tbody>
<tr>
<td>CPU Name: Intel Xeon E5-2695 v4</td>
<td></td>
</tr>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz</td>
<td></td>
</tr>
<tr>
<td>CPU MHZ: 2100</td>
<td></td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td></td>
</tr>
<tr>
<td>CPU(s) enabled: 36 cores, 2 chips, 18 cores/chip, 2 threads/core</td>
<td></td>
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<tr>
<td>CPU(s) orderable: 1.2 chip</td>
<td></td>
</tr>
<tr>
<td>Secondary Cache: 32 KB I + 32 KB D on chip per core</td>
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<tr>
<td>L3 Cache: 256 KB I+D on chip per core</td>
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<tr>
<td>Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)</td>
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<tr>
<td>Disk Subsystem: 1 x 500GB SATA, 7200 RPM</td>
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<tr>
<td>Other Hardware: None</td>
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</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: 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 RH1288 V3 (Intel Xeon E5-2695 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

Results Table

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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"

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.
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 SPEC CPU run-up policy on SPEC CPU rule 1.3.2. 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 SPEC CPU run-up policy on SPEC CPU rule 1.3.2.
Huawei

Huawei RH1288 V3 (Intel Xeon E5-2695 v4)

<table>
<thead>
<tr>
<th>SPECfp_rate2006</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006</td>
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CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

CPU2006 license: 3175
Test date: Apr-2016
Hardware Availability: Mar-2016
Software Availability: Aug-2015

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.

Platform Notes (Continued)

```
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 Apr 14 05:48

SPEC is set to: /spec16

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda2      xfs   449G  137G  313G  31% /

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. 3.12 03/03/2016
Memory:
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:
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 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
runcspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
icc -m64
Huawei RH1288 V3 (Intel Xeon E5-2695 v4)

| SPECfp_rate2006 | NC |
| SPECfp_rate_base2006 | NC |

CPU2006 license: 3175  
Test sponsor: Huawei  
Tested by: Huawei  
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**Base Compiler Invocation (Continued)**

C++ benchmarks:  
```bash  
icpc -m64  
```

Fortran benchmarks:  
```bash  
ifort -m64  
```

Benchmarks using both Fortran and C:  
```bash  
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`
- 459.GemsFDTD: `-DSPEC_CPU_LP64` `-DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`
- 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:**  
```bash  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3  
```

**C++ benchmarks:**  
```bash  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3  
```
Huawei RH1288 V3 (Intel Xeon E5-2695 v4)

| SPECfp_rate2006 | NC |
| SPECfp_rate_base2006 | NC |

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## 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 -I/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.amlad: -DSPEC_CPU_LP64
- 417.atsbench: -DSPEC_CPU_LP64
- 434.zeusmp: -DSPEC_CPU_LP64
- 435.gromacs: -DSPEC_CPU_LP64 -nofor_main
- 436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
- 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.GemsFDFTD: -DSPEC_CPU_LP64

Continued on next page
## Huawei RH1288 V3 (Intel Xeon E5-2695 v4)

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

---

**SPEC fp_rate2006 = NC**  
**SPEC fp_rate_base2006 = NC**  

**Test date:** Apr-2016  
**Hardware Availability:** Mar-2016  
**Software Availability:** Aug-2015  

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**Peak Portability Flags (Continued)**

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<tr>
<td>470.lbm</td>
<td>-$DSPEC_CPU_LP64</td>
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<td>481.wrf</td>
<td>-$DSPEC_CPU_LP64 -$DSPEC_CPU_CASE_FLAG -$DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>-$DSPEC_CPU_LP64</td>
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</table>

---

## 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) -0prec-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

- 490.soplex: -$xCORE-AVX2(pass 2) -$prof-gen:threadsafe(pass 1) -$ipo(pass 2) -03(pass 2) -0prec-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) -0prec-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) -0prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-

---

**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).**
SPEC CFP2006 Result

Huawei RH1288 V3 (Intel Xeon E5-2695 v4)

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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) -unroll4 -auto
            -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
Huawei RH1288 V3 (Intel Xeon E5-2695 v4)

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

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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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