Huawei
Huawei RH1288 V3 (Intel Xeon E5-2643 v3)

<table>
<thead>
<tr>
<th>Software</th>
<th>SPECfp®2006 = 113</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006 = 109</td>
<td></td>
</tr>
</tbody>
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<tbody>
<tr>
<td>113</td>
<td>109</td>
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</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2643 v3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.70 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>3400</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>12 cores, 2 chips, 6 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>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>Red Hat Enterprise Linux Server release 7.0 (Maipo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>Yes</td>
</tr>
<tr>
<td>File System:</td>
<td>ext4</td>
</tr>
</tbody>
</table>

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# SPEC CFP2006 Result

## Huawei

**Huawei RH1288 V3 (Intel Xeon E5-2643 v3)**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>CPU2006</th>
<th>SPECfp2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>license: 3175</td>
<td>= 113</td>
<td>= 109</td>
</tr>
</tbody>
</table>

### Hardware Details
- **CPU2006 license:** 3175
- **Test date:** Apr-2015
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit
- **L3 Cache:** 20 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
- **Disk Subsystem:** 1 x 500 GB SATA, 7200 RPM
- **Other Hardware:** None
- **Operating System Notes:** Stack size set to unlimited using "ulimit -s unlimited"

### Platform Notes

- BIOS configuration:
  - Set Power Efficiency Mode to Custom
  - Set Snoop Mode to HS mode
  - Set HT to Disable
- Sysinfo program /spec15/config/sysinfo.rev6914

### 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>28.4</td>
<td>478</td>
</tr>
<tr>
<td>416.gamess</td>
<td>469</td>
<td>41.7</td>
</tr>
<tr>
<td>433.milc</td>
<td>124</td>
<td>73.9</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>43.1</td>
<td>211</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>138</td>
<td>51.8</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>17.9</td>
<td>666</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>36.4</td>
<td>259</td>
</tr>
<tr>
<td>444.namd</td>
<td>257</td>
<td>31.3</td>
</tr>
<tr>
<td>447.dealII</td>
<td>190</td>
<td>60.1</td>
</tr>
<tr>
<td>450.soplex</td>
<td>182</td>
<td>45.7</td>
</tr>
<tr>
<td>453.povray</td>
<td>87.5</td>
<td>60.8</td>
</tr>
<tr>
<td>454.calculix</td>
<td>138</td>
<td>59.6</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>48.4</td>
<td>219</td>
</tr>
<tr>
<td>465.tonto</td>
<td>207</td>
<td>47.6</td>
</tr>
<tr>
<td>470.lbm</td>
<td>24.6</td>
<td>557</td>
</tr>
<tr>
<td>481.wrf</td>
<td>113</td>
<td>98.7</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>219</td>
<td>88.9</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.
Huawei RH1288 V3 (Intel Xeon E5-2643 v3)

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

CPU2006 license: 3175
Test date: Apr-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Huawei

Huawei RH1288 V3 (Intel Xeon E5-2643 v3)

SPECfp2006 = 113
SPECfp_base2006 = 109

Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo

model name: Intel(R) Xeon(R) CPU E5-2643 v3 @ 3.40GHz
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 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5

cache size: 20480 KB

From /proc/meminfo

MemTotal: 263721952 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

run-level 3 Apr 8 10:09

SPEC is set to: /spec15

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 458G 39G 397G 9% /

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. 1.17 09/03/2014
Memory:
SPEC CFP2006 Result

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Platform Notes (Continued)

8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz
8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 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 = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"
OMP_NUM_THREADS = "12"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
runcspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
  icc   -m64

C++ benchmarks:
  icpc  -m64

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
  435.gromacs: -DSPEC_CPU_LP64 -nofor_main
  436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
  437.leslie3d: -DSPEC_CPU_LP64 -nofor_main
  444.namd: -DSPEC_CPU_LP64 -nofor_main
  447.dealII: -DSPEC_CPU_LP64
  450.soplex: -DSPEC_CPU_LP64
  453.povray: -DSPEC_CPU_LP64

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CPU2006 license: 3175
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Test sponsor: Huawei
Hardware Availability: Sep-2014
Tested by: Huawei
Software Availability: Sep-2014

Base Portability Flags (Continued)

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 -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

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

Peak Compiler 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
Huawei RH1288 V3 (Intel Xeon E5-2643 v3)

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**Peak Optimization Flags**

**C benchmarks:**

433.milc: `-xCORE-AVX2` (pass 2) `-prof-gen` (pass 1) `-ipo` (pass 2)
-`-O3` (pass 2) `-no-prec-div` (pass 2) `-prof-use` (pass 2)
-`-auto-ilp32` `-ansi-alias`

470.lbm: `basepeak = yes`

482.sphinx3: `basepeak = yes`

**C++ benchmarks:**

444.namd: `-xCORE-AVX2` (pass 2) `-prof-gen` (pass 1) `-ipo` (pass 2)
-`-O3` (pass 2) `-no-prec-div` (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` (pass 1) `-ipo` (pass 2)
-`-O3` (pass 2) `-no-prec-div` (pass 2) `-prof-use` (pass 2) `-unroll14`
-`-ansi-alias`

**Fortran benchmarks:**

410.bwaves: `basepeak = yes`

416.gamess: `-xCORE-AVX2` (pass 2) `-prof-gen` (pass 1) `-ipo` (pass 2)
-`-O3` (pass 2) `-no-prec-div` (pass 2) `-prof-use` (pass 2) `-unroll12`
-`-inline-level=0` `-scalar-rep-`

434.zeusmp: `basepeak = yes`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `-xCORE-AVX2` (pass 2) `-prof-gen` (pass 1) `-ipo` (pass 2)
-`-O3` (pass 2) `-no-prec-div` (pass 2) `-prof-use` (pass 2) `-unroll12`
-`-inline-level=0` `-opt-prefetch` `-parallel`

465.tonto: `-xCORE-AVX2` (pass 2) `-prof-gen` (pass 1) `-ipo` (pass 2)
-`-O3` (pass 2) `-no-prec-div` (pass 2) `-prof-use` (pass 2)
-`-inline-calloc` `-opt-malloc-options=3` `-auto` `-unroll14`

**Benchmarks using both Fortran and C:**

435.gromacs: `basepeak = yes`

436.cactusADM: `basepeak = yes`
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Peak Optimization Flags (Continued)

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-1p32 -ansi-alias

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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.xml

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Tested with SPEC CPU2006 v1.2.
Report generated on Tue May 19 18:17:11 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 19 May 2015.