Huawei
Huawei RH2288 V3 (Intel Xeon E5-2623 v3)

<table>
<thead>
<tr>
<th>SPECfp®2006 = 94.6</th>
<th>SPECfp_base2006 = 91.3</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>Test date: Nov-2014</th>
<th>Hardware Availability: Sep-2014</th>
</tr>
</thead>
</table>

CPU Name: Intel Xeon E5-2623 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz: 3000
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 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

Hardware

<table>
<thead>
<tr>
<th>Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64</th>
</tr>
</thead>
</table>

Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux

Auto Parallel: Yes
File System: xfs

Software

Continued on next page

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SPECfp2006 = 94.6

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SPEC CFP2006 Result

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L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>41.7</td>
<td>326</td>
<td>41.0</td>
<td>332</td>
<td>40.1</td>
<td>339</td>
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<tr>
<td>416.gamess</td>
<td>498</td>
<td>39.3</td>
<td>501</td>
<td>39.1</td>
<td>501</td>
<td>39.1</td>
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<tr>
<td>433.milc</td>
<td>133</td>
<td>69.1</td>
<td>133</td>
<td>69.1</td>
<td>133</td>
<td>69.1</td>
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<tr>
<td>434.zeuemp</td>
<td>56.9</td>
<td>160</td>
<td>56.4</td>
<td>161</td>
<td>55.7</td>
<td>163</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>150</td>
<td>47.5</td>
<td>149</td>
<td>47.9</td>
<td>149</td>
<td>47.8</td>
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<tr>
<td>436.cactusADM</td>
<td>25.8</td>
<td>463</td>
<td>25.2</td>
<td>475</td>
<td>25.8</td>
<td>464</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>42.5</td>
<td>221</td>
<td>44.1</td>
<td>213</td>
<td>44.9</td>
<td>209</td>
</tr>
<tr>
<td>444.namd</td>
<td>294</td>
<td>27.3</td>
<td>293</td>
<td>27.3</td>
<td>293</td>
<td>27.3</td>
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<tr>
<td>447.dealII</td>
<td>195</td>
<td>58.8</td>
<td>195</td>
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<td>195</td>
<td>58.8</td>
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<tr>
<td>450.soplex</td>
<td>248</td>
<td>33.6</td>
<td>252</td>
<td>33.1</td>
<td>251</td>
<td>33.2</td>
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<tr>
<td>453.povray</td>
<td>89.3</td>
<td>59.6</td>
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<td>59.8</td>
<td>89.5</td>
<td>59.5</td>
</tr>
<tr>
<td>454.calculix</td>
<td>168</td>
<td>49.0</td>
<td>168</td>
<td>49.0</td>
<td>169</td>
<td>48.9</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>67.7</td>
<td>157</td>
<td>69.3</td>
<td>153</td>
<td>67.0</td>
<td>158</td>
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<td>465.tonto</td>
<td>213</td>
<td>46.1</td>
<td>213</td>
<td>46.2</td>
<td>213</td>
<td>46.3</td>
</tr>
<tr>
<td>470.lbm</td>
<td>31.2</td>
<td>441</td>
<td>33.6</td>
<td>409</td>
<td>33.5</td>
<td>411</td>
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<tr>
<td>481.wrf</td>
<td>126</td>
<td>88.8</td>
<td>133</td>
<td>83.9</td>
<td>134</td>
<td>83.6</td>
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<tr>
<td>482.sphinx3</td>
<td>241</td>
<td>80.8</td>
<td>244</td>
<td>79.7</td>
<td>252</td>
<td>77.4</td>
</tr>
</tbody>
</table>

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

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
Set Hyper-Threading to Disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec14/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 $$ e86d102572650a6e4ad596a3cee98f191
running on localhost.localdomain Thu Nov 27 16:07:02 2014

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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 E5-2623 v3 @ 3.00GHz
 2 "physical id"s (chips)
 8 "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 : 4
siblings : 4
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3
cache size : 10240 KB

From /proc/meminfo
MemTotal: 263722424 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 Nov 27 11:12

SPEC is set to: /spec14

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 xfs 98G 17G 81G 18% /

Additional information from dmidecode:
BIOS Insyde Corp. 1.16 09/02/2014
Memory:
  8x Samsung M393A2G40DB0-CPB 16 GB 1867 MHz 1 rank
  8x Samsung M393A2G40DB0-CPB 16 GB 1867 MHz 2 rank

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Platform Notes (Continued)
(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec14/libs/32:/spec14/libs/64:/spec14/sh"
OMP_NUM_THREADS = "8"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
    echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
    runspec 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.game5: -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
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64

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Base Portability Flags (Continued)

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

Peak Optimization Flags

C benchmarks:

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Peak Optimization Flags (Continued)

433.milc: basepeak = yes
470.blas: 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

452.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4
-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) -unroll2
-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) -unroll2
-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 -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

481.wrf: basepeak = yes
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The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.1.20141216.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.1.20141216.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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