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

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.
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<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Operating System:</td>
</tr>
<tr>
<td></td>
<td>Red Hat Enterprise Linux Server</td>
</tr>
<tr>
<td></td>
<td>release 7.0 (Maipo)</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Compiler:</td>
</tr>
<tr>
<td></td>
<td>C/C++ version 16.0.0.101 of Intel</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>C++ Studio XE for Linux</td>
</tr>
<tr>
<td>FPU:</td>
<td>Fortran: version 16.0.0.101 of</td>
</tr>
<tr>
<td></td>
<td>Intel Fortran Studio XE for Linux</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>Auto Parallel:</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>File System:</td>
</tr>
<tr>
<td></td>
<td>ext4</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>System State:</td>
</tr>
<tr>
<td></td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>Base Pointers:</td>
</tr>
<tr>
<td></td>
<td>64-bit</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>Peak Pointers:</td>
</tr>
<tr>
<td></td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>Other Software:</td>
</tr>
<tr>
<td>Memory:</td>
<td>None</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Hardware:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPU2006 license: 3175
Test sponsor: Huawei
Test by: Huawei
Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

CPU Name: Intel Xeon E5-2609 v4
CPU Characteristics: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 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
L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 1866 MHz)
Disk Subsystem: 1 x 2 T SATA, 7200 RPM
Other Hardware: None
Huawei
Huawei CH121 V3 (Intel Xeon E5-2609 v4)

SPECfp2006 = NC
SPECfp_base2006 = NC

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

Test date: Mar-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.

### 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>
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<tr>
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<td>NC</td>
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<td>NC</td>
<td>NC</td>
</tr>
<tr>
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<td>NC</td>
<td>NC</td>
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<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

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 Patrol Scrub to Disable

Sysinfo program /speccpu/spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1

Continued on next page
Huawei

Huawei CH121 V3 (Intel Xeon E5-2609 v4)

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.

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 E5-2609 v4 @ 1.70GHz
2 "physical id"s (chips)
16 "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 : 8
siblings : 8
physical 0: cores 0 2 3 4 5 6
physical 1: cores 0 2 3 4 5 6

From /proc/meminfo

MemTotal:       263571176 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)"
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 Mar 9 10:11

SPEC is set to: /speccpu/spec16

Filesystem Type Size Used Avail Use% Mounted on
Continued on next page
Huawei CH121 V3 (Intel Xeon E5-2609 v4)

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>NC</td>
</tr>
</tbody>
</table>

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

Platform Notes (Continued)

```
/dev/sda2       ext4  1.6T   41G  1.5T   3%  /
```

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 Insysde Corp. 3.09 02/22/2016
Memory:
8x NO DIMM NO DIMM 3 rank
8x Samsung M393A2G40EB1-CCR 16 GB 1 rank 2400 MHz, configured at 1867 MHz
8x Samsung M393A2G40EB1-CCR 16 GB 2 rank 2400 MHz, configured at 1867 MHz

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity= fine, compact, 1, 0"
LD_LIBRARY_PATH = "/speccpu/spec16/libs/32:/speccpu/spec16/libs/64:/speccpu/spec16/sh"
OMP_NUM_THREADS = "16"

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 numactl i.e.:
numactl --interleave=all runspec <etc>
The Huawei CH121 V3 and Huawei CH222 V3 models 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
```
Huawei

Huawei CH121 V3 (Intel Xeon E5-2609 v4)

SPECfp2006 = NC
SPECfp_base2006 = NC

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

Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

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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
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
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
484.sphinx: -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

---

Continued on next page
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 Optimization Flags (Continued)

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:
433.milc: basepeak = yes
370.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:
444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafepass 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

Continued on next page
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=0 -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) -unroll2 -opt-malloc-options=3 -auto -unroll4

Benchmarking 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

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>.
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 1.3.2 and the SPEC CPU run-up policy on general availability.

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/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 source 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