Huawei
Huawei RH2288 V2 (Intel Xeon E5-2680)

**SPECfp®_rate2006 = 249**

**SPECfp_rate_base2006 = 242**

**Hardware**

- **CPU Name:** Intel Xeon E5-2680
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz
- **CPU MHz:** 2700
- **FPU:** Integrated
- **CPU(s) enabled:** 8 cores, 1 chip, 8 cores/chip, 2 threads/core
- **CPU(s) orderable:** 1 chip
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 256 KB I+D on chip per core

**Software**

- **Operating System:** Red Hat Enterprise Linux Server release 6.2 (Santiago)
- **Compiler:** C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
  Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
- **Auto Parallel:** No
- **File System:** ext4

**Test date:** Jul-2012

**Hardware Availability:** May-2012

**Software Availability:** Dec-2011

**CPU2006 license:** 3175

**Test sponsor:** Huawei

**Tested by:** Huawei

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**CPU2006 license:** 3175  
**Test date:** Jul-2012  
**Hardware Availability:** May-2012  
**Test sponsor:** Huawei  
**Tested by:** Huawei  
**Software Availability:** Dec-2011

- **L3 Cache:** 20 MB I+D on chip per chip  
- **Other Cache:** None  
- **Memory:** 64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
- **Disk Subsystem:** 1 x 300 GB SAS, 10K RPM  
- **Other Hardware:** None

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

## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>233</td>
<td>1334</td>
<td>234</td>
</tr>
</tbody>
</table>

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

### Submit Notes

The config file option 'submit' was used.  
For details, please see the config file.

### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"  
Transparent Huge Pages enabled with:  
```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```
FileSystem page cache cleared with:  
```
echo 1 > /proc/sys/vm/drop_caches
```
runcp spec command invoked through numactl i.e.:  
```
numactl --interleave=all runspec <etc>
```
Select only test related files when installing the operating system.
Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on RH62-rebuild Fri Jul 13 21:05:19 2012

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 E5-2680 0 @ 2.70GHz
 1 "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 : 16
physical 0: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal: 65937136 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

uname -a:
Linux RH62-rebuild 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jul 13 09:25

SPEC is set to: /spec
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 289G 85G 190G 31% /

Additional information from dmidecode:
Memory:
  8x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank
Huawei RH2288 V2 (Intel Xeon E5-2680)  

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CPU2006 license: 3175  
Test sponsor: Huawei  
Tested by: Huawei  
Test date: Jul-2012  
Hardware Availability: May-2012  
Software Availability: Dec-2011

### General Notes

Environment variables set by runspec before the start of the run:

```
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
```

Binaries compiled on a system with 2 x Xeon X5650 CPU + 16GB memory using RHEL 6.2

### 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
- 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
- 482.sphinx3: -DSPEC_CPU_LP64

### Base Optimization Flags

- **C benchmarks:**
  - `-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32`
  - `-ansi-alias -opt-mem-layout-trans=3`

Continued on next page
Huawei RH2288 V2 (Intel Xeon E5-2680)

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Base Optimization Flags (Continued)

C++ benchmarks:
- xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
- ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:
- xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:
- xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
- ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks (except as noted below):
  icc -m64
  482.sphinx3: icc -m32

C++ benchmarks (except as noted below):
  icpc -m64
  450.soplex: icpc -m32

Fortran benchmarks:
  ifort -m64

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

Peak 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
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
465.tonto: -DSPEC_CPU_LP64
467.lbm: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
Huawei RH2288 V2 (Intel Xeon E5-2680) SPECfp_rate2006 = 249
SPECfp_rate_base2006 = 242

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

Test date: Jul-2012
Hardware Availability: May-2012
Software Availability: Dec-2011

Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
           -opt-mem-layout-trans=3

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -static
             -unroll2

C++ benchmarks:

444.namd: -xAVX(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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

Fortran benchmarks:

410.bwaves: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xAVX(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 -static

434.zeusmp: basepeak = yes

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo -O3 -no-prec-div
             -prof-use(pass 2) -xSSE4.2 -opt-prefetch -static
             -auto-ilp32 -opt-mem-layout-trans=3

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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes
454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32 -opt-mem-layout-trans=3
481.wrf: Same as 454.calculix

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20120703.xml

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For other inquiries, please contact webmaster@spec.org.

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