SPEC® CFP2006 Result

ACTION S.A.
ACTINA SOLAR 222 S6 (Intel Xeon E5-2660 v3, 2.60 GHz)

**SPECfp®2006 = 111**
**SPECfp_base2006 = 107**

**CPU2006 license:** 9008
**Test date:** Oct-2015
**Test sponsor:** ACTION S.A.
**Hardware Availability:** Sep-2014
**Tested by:** ACTION S.A.
**Software Availability:** Aug-2015

**Hardware**

- **CPU Name:** Intel Xeon E5-2660 v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.30 GHz
- **CPU MHz:** 2600
- **FPU:** Integrated
- **CPU(s) enabled:** 20 cores, 2 chips, 10 cores/chip
- **CPU(s) orderable:** 1,2 chips
- **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 7.1 (Maipo) 3.10.0-229.11.1.el7.x86_64
- **Compiler:** C/C++: Version 16.0.0.047 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.0.047 of Intel Fortran Studio XE for Linux
- **Auto Parallel:** Yes
- **File System:** ext4

- **410.bwaves** 40.1
- **416.gamess** 35.0
- **433.milc** 67.1
- **434.zeusmp** 206
- **435.gromacs** 45.4
- **436.cactusADM**
- **437.leslie3d** 363
- **444.namd** 28.7
- **447.dealII** 57.8
- **450.soplex** 43.8
- **453.povray** 61.2
- **454.calculix** 51.2
- **459.GemsFDTD** 261
- **465.tonto** 49.9
- **470.lbm** 42.0
- **481.wrf** 106
- **482.sphinx3** 74.4

**SPECfp_base2006 = 107**

**SPECfp2006 = 111**
**SPEC CFP2006 Result**

**ACTION S.A.**

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</tr>
</tbody>
</table>

- **L3 Cache:** 25 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2400P-R, running at 2133 MHz)
- **Disk Subsystem:** 1 x 240 GB SATA II SSD
- **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>
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<td>363</td>
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<td>366</td>
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<td>453.povray</td>
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<td>454.calculix</td>
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<td>51.1</td>
<td>149</td>
<td>55.3</td>
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<tr>
<td>459.GemsFDTD</td>
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<td>48.1</td>
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<td>465.tonto</td>
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<td>684</td>
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<td>646</td>
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<tr>
<td>481.wrf</td>
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<td>482.sphinx3</td>
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<td>255</td>
<td>76.4</td>
<td>256</td>
<td>76.2</td>
<td>262</td>
<td>74.4</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 Settings
- Hyper-Threading (All) = Disable
- Power Technology = Energy Efficient
- Enforce POR = Disabled
- Memory Frequency = 2133
- COD Enable = Disable

BMC Setting

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Platform Notes (Continued)

Fan Mode = Full Speed

Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 $$ e86d102572650a6e4d596a3cee98f191
running on SUT Mon Oct 26 17:29:33 2015

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

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Name</td>
<td>Intel(R) Xeon(R) CPU E5-2660 v3 @ 2.60GHz</td>
</tr>
<tr>
<td>Cores</td>
<td>2</td>
</tr>
<tr>
<td>Siblings</td>
<td>10</td>
</tr>
<tr>
<td>Physical 0</td>
<td>cores 0 1 2 3 4 8 9 10 11 12</td>
</tr>
<tr>
<td>Physical 1</td>
<td>cores 0 1 2 3 4 8 9 10 11 12</td>
</tr>
<tr>
<td>Cache Size</td>
<td>25600 KB</td>
</tr>
</tbody>
</table>

From /proc/meminfo

<table>
<thead>
<tr>
<th>Memory Usage</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Mem</td>
<td>263868484 kB</td>
</tr>
<tr>
<td>Huge Page</td>
<td>1</td>
</tr>
<tr>
<td>Huge Page Size</td>
<td>2048 kB</td>
</tr>
</tbody>
</table>

From /etc/*release* /etc/*version*

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
<td>Red Hat Enterprise Linux Server</td>
</tr>
<tr>
<td>VERSION</td>
<td>7.0 (Maipo)</td>
</tr>
<tr>
<td>ID</td>
<td>rhel</td>
</tr>
<tr>
<td>ID_LIKE</td>
<td>fedora</td>
</tr>
<tr>
<td>VERSION_ID</td>
<td>7.0</td>
</tr>
<tr>
<td>PRETTY_NAME</td>
<td>Red Hat Enterprise Linux</td>
</tr>
<tr>
<td>ANSI_COLOR</td>
<td>0;31</td>
</tr>
<tr>
<td>CPE_NAME</td>
<td>cpe:/o:redhat:enterprise_linux:7.0:GA:server</td>
</tr>
</tbody>
</table>

os-release.rpmnew:

<table>
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uname -a:  
Continued on next page
### SPEC CFP2006 Result

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**Platform Notes (Continued)**

- Linux SUT 3.10.0-229.11.1.el7.x86_64 #5 SMP Mon Sep 14 17:11:19 CEST 2015
- x86_64 x86_64 x86_64 GNU/Linux
- run-level 3 Oct 26 12:08
- SPEC is set to: /cpu2006.1.2
- Filesystem | Type | Size | Used | Avail | Use% Mounted on
- /dev/sda1 | ext4 | 212G | 38G | 163G | 19% | /
- BIOS American Megatrends Inc. 1.0c 01/07/2015
- Memory:
- 16x 16 GB
- 16x Hynix Semiconductor (date:15/28) HMA42GR7AFR4N-UH 16 GB 2133 MHz 2 rank

Additional information from dmidecode:
- BIOS American Megatrends Inc. 1.0c 01/07/2015
- Memory:
- 16x 16 GB
- 16x Hynix Semiconductor (date:15/28) HMA42GR7AFR4N-UH 16 GB 2133 MHz 2 rank

(End of data from sysinfo program)
- dmidecode does not properly detect memory modules
- 16 modules of 16 GB were used to run the test (256 GB total)

**General Notes**

- Environment variables set by runspec before the start of the run:
  - LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64:/cpu2006.1.2/sh"
  - OMP_NUM_THREADS = "20"
- 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>
- Binaries compiled on a system with 2x Xeon E5-2650 v3 chips + 256 GB memory using RedHat EL 7.1

**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
SPEC CFP2006 Result

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Software Availability: Aug-2015

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.game5: -DSPEC_CPU_LP64
433.mlfc: -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
443.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:
-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

Continued on next page
Peak Compiler Invocation (Continued)

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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32 -ansi-alias
```

```
470.lbm: basepeak = yes
```

```
482.sphinx3: -xCORE-AVX2 -ipo -03 -no-prec-div -unroll2 -ansi-alias
-parallel
```

C++ benchmarks:

```
444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(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)
-03(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)
-03(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
```
## ACTION S.A.

**ACTINA SOLAR 222 S6 (Intel Xeon E5-2660 v3, 2.60 GHz)**

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### Peak Optimization Flags (Continued)

- **459.GemsFDTD:**
  -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
  -03(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)
  -03(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 -03 -no-prec-div -auto-ilp32 -ansi-alias

- **481.wrf:**
  basepeak = yes

The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:


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

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