# SPEC® CFP2006 Result

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## ACTION S.A.

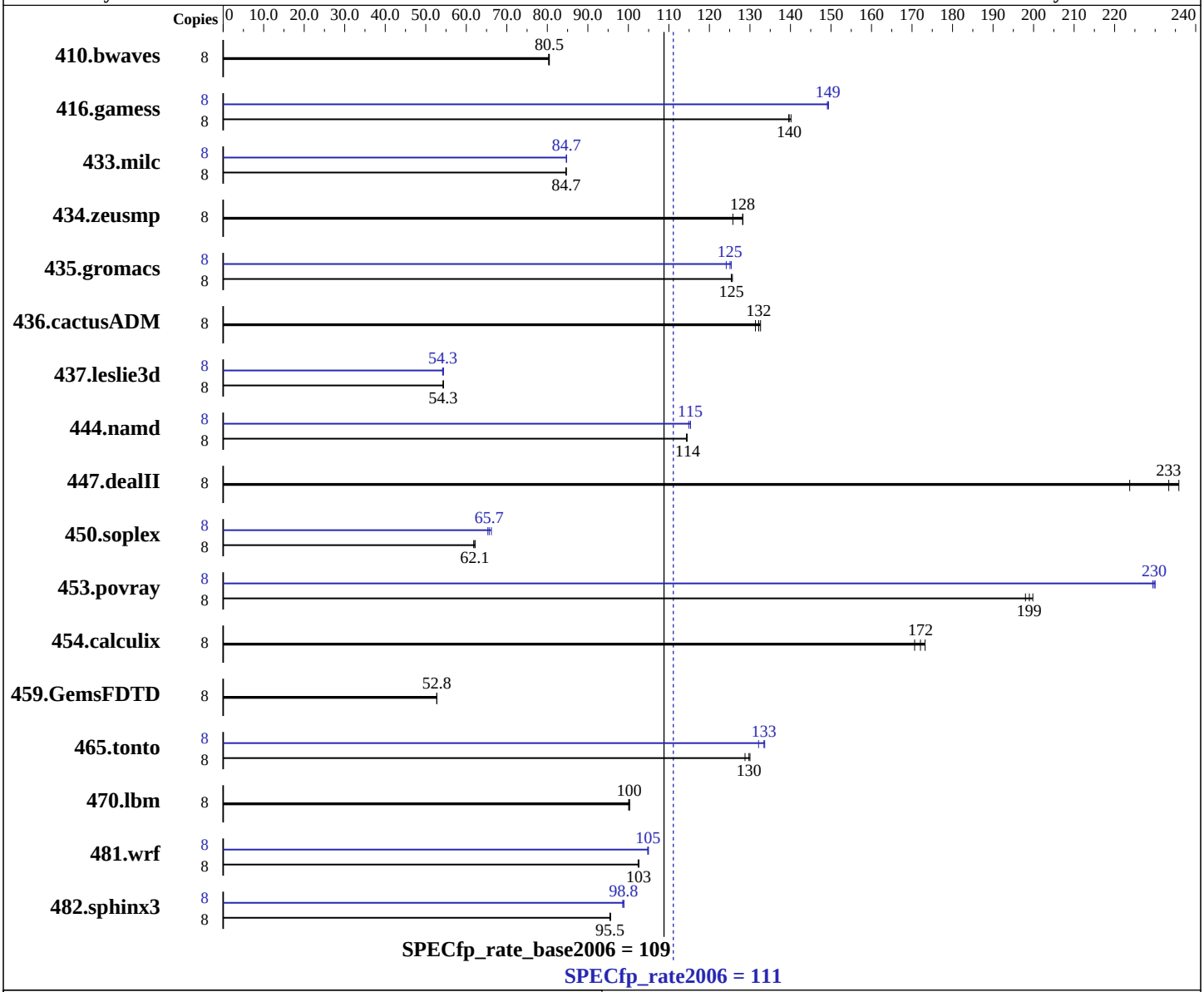
ACTINA SOLAR 110 S5 (Intel Xeon E3-1240)

SPECfp®_rate2006 = 111

SPECfp_rate_base2006 = 109

**CPU2006 license:** 9008
**Test sponsor:** ACTION S.A.
**Tested by:** ACTION S.A.

**Test date:** Jan-2012
**Hardware Availability:** Apr-2011
**Software Availability:** Oct-2011




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E3-1240 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.70 GHz |
| CPU MHz: | 3300 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 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 |

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## Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.1 (Santiago)<br>2.6.32-131.0.15.el6.x86_64 |
| Compiler: | C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux |
| Auto Parallel: | No |
| File System: | ext4 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (4 x 4 GB 2Rx8 PC3-10600E-9, ECC)
Disk Subsystem: 1 x 320 GB SATA II, 7200 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V9.01

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 8 | 1354 | 80.3 | 1351 | 80.5 | **1351** | **80.5** | 8 | 1354 | 80.3 | 1351 | 80.5 | **1351** | **80.5** |
| 416.gamess | 8 | 1118 | 140 | **1121** | **140** | 1122 | 140 | 8 | **1049** | **149** | 1049 | 149 | 1051 | 149 |
| 433.milc | 8 | **867** | **84.7** | 868 | 84.6 | 867 | 84.7 | 8 | 867 | 84.7 | **867** | **84.7** | 867 | 84.7 |
| 434.zeusmp | 8 | 568 | 128 | 579 | 126 | **568** | **128** | 8 | 568 | 128 | 579 | 126 | **568** | **128** |
| 435.gromacs | 8 | 454 | 126 | **455** | **125** | 456 | 125 | 8 | 460 | 124 | **457** | **125** | 456 | 125 |
| 436.cactusADM | 8 | 721 | 133 | **723** | **132** | 728 | 131 | 8 | 721 | 133 | **723** | **132** | 728 | 131 |
| 437.leslie3d | 8 | **1384** | **54.3** | 1385 | 54.3 | 1384 | 54.4 | 8 | 1383 | 54.4 | 1389 | 54.2 | **1386** | **54.3** |
| 444.namd | 8 | 560 | 114 | 561 | 114 | **561** | **114** | 8 | 556 | 115 | 558 | 115 | **556** | **115** |
| 447.dealII | 8 | 388 | 236 | **392** | **233** | 409 | 224 | 8 | 388 | 236 | **392** | **233** | 409 | 224 |
| 450.soplex | 8 | 1073 | 62.2 | 1079 | 61.8 | **1074** | **62.1** | 8 | 1021 | 65.3 | **1016** | **65.7** | 1008 | 66.2 |
| 453.povray | 8 | 213 | 200 | 215 | 198 | **214** | **199** | 8 | 185 | 230 | **185** | **230** | 186 | 229 |
| 454.calculix | 8 | 381 | 173 | 387 | 171 | **384** | **172** | 8 | 381 | 173 | 387 | 171 | **384** | **172** |
| 459.GemsFDTD | 8 | 1611 | 52.7 | **1609** | **52.8** | 1609 | 52.8 | 8 | 1611 | 52.7 | **1609** | **52.8** | 1609 | 52.8 |
| 465.tonto | 8 | **607** | **130** | 606 | 130 | 611 | 129 | 8 | **590** | **133** | 589 | 134 | 596 | 132 |
| 470.lbm | 8 | 1098 | 100 | 1096 | 100 | **1097** | **100** | 8 | 1098 | 100 | 1096 | 100 | **1097** | **100** |
| 481.wrf | 8 | 873 | 102 | **871** | **103** | 871 | 103 | 8 | 853 | 105 | 851 | 105 | **852** | **105** |
| 482.sphinx3 | 8 | 1634 | 95.4 | **1633** | **95.5** | 1631 | 95.6 | 8 | 1581 | 98.6 | **1578** | **98.8** | 1576 | 98.9 |

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

## Submit Notes

```
The taskset mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate taskset commands to bind each copy to a specific processor.
For details, please see the config file.
```

## Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

## Platform Notes

```
Sysinfo program /cpu2006.1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Thu Jan 26 14:59:42 2012
```

Continued on next page

## 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 E31240 @ 3.30GHz
      1 "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  : 8
      physical 0: cores 0 1 2 3
   cache size : 8192 KB

From /proc/meminfo
   MemTotal:       16314884 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.1 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux localhost.localdomain 2.6.32-131.0.15.el6.x86_64 #1 SMP Tue May 10
   15:42:40 EDT 2011 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 26 14:56

SPEC is set to: /cpu2006.1.2
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/mapper/VolGroup-lv_root
                  ext4     50G   35G   12G  75% /

Additional information from dmidecode:
  Memory:
   4x Undefined WILK 4 GB 1333 MHz 2 rank

(End of data from sysinfo program)
```

## 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"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
```

## 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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias
```

Continued on next page

## Base Optimization Flags (Continued)

C++ benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32 -ansi-alias`

Fortran benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32 -ansi-alias`

## 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`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`
470.lbm: `-DSPEC_CPU_LP64`

Continued on next page

## Peak Portability Flags (Continued)

481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

## Peak Optimization Flags

C benchmarks:

433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

470.lbm: basepeak = yes

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

C++ benchmarks:

444.namd: -xSSE4.2(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: -xSSE4.2(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

453.povray: -xSSE4.2(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: -xSSE4.2(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

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

Continued on next page

## Peak Optimization Flags (Continued)

435.gromacs: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-opt-prefetch` `-static -auto-ilp32`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

481.wrf: `-xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml`


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