



SPEC[®] CFP2006 Result

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ACTION S.A.

SPECfp[®]_rate2006 = 121

ACTINA SOLAR 100 S5 (Intel Xeon E3-1220 v2)

SPECfp_rate_base2006 = 120

CPU2006 license: 9008

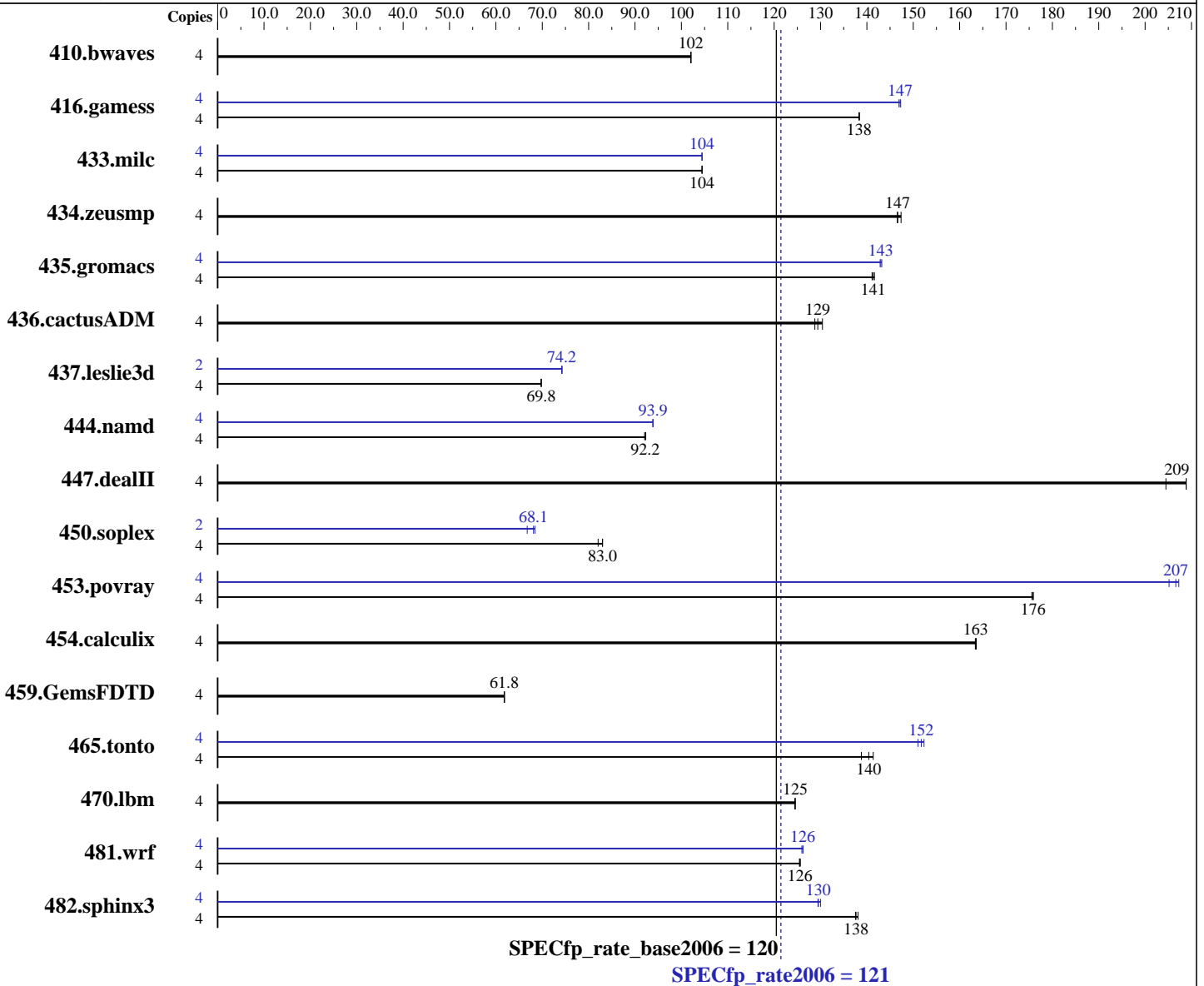
Test date: Jul-2013

Test sponsor: ACTION S.A.

Hardware Availability: May-2012

Tested by: ACTION S.A.

Software Availability: Jun-2013



Hardware

CPU Name: Intel Xeon E3-1220 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 3100
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 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 6.4 (Santiago)
 2.6.32-358.el6.x86_64
 Compiler: C/C++/Fortran: Version 13.1.1.163 of Intel Compiler XE
 Auto Parallel: No
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-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 2Rx4 PC3-12800E-11, ECC)
Disk Subsystem: 240 GB OCZ Deneva2 SSD
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	<u>533</u>	<u>102</u>	533	102	533	102	4	<u>533</u>	<u>102</u>	533	102	533	102
416.gamess	4	<u>566</u>	<u>138</u>	566	138	566	138	4	<u>532</u>	<u>147</u>	533	147	532	147
433.milc	4	351	104	<u>352</u>	<u>104</u>	352	104	4	352	104	<u>352</u>	<u>104</u>	352	104
434.zeusmp	4	<u>248</u>	<u>147</u>	248	147	247	147	4	<u>248</u>	<u>147</u>	248	147	247	147
435.gromacs	4	202	141	202	142	<u>202</u>	<u>141</u>	4	199	143	<u>200</u>	<u>143</u>	200	143
436.cactusADM	4	371	129	<u>369</u>	<u>129</u>	367	130	4	371	129	<u>369</u>	<u>129</u>	367	130
437.leslie3d	4	<u>539</u>	<u>69.8</u>	539	69.8	539	69.8	2	253	74.3	<u>253</u>	<u>74.2</u>	253	74.2
444.namd	4	348	92.1	<u>348</u>	<u>92.2</u>	347	92.3	4	342	93.8	342	93.9	<u>342</u>	<u>93.9</u>
447.dealII	4	<u>219</u>	<u>209</u>	224	204	219	209	4	<u>219</u>	<u>209</u>	224	204	219	209
450.soplex	4	<u>402</u>	<u>83.0</u>	402	83.0	407	82.0	2	250	66.8	<u>245</u>	<u>68.1</u>	244	68.4
453.povray	4	121	176	<u>121</u>	<u>176</u>	121	176	4	103	207	104	205	<u>103</u>	<u>207</u>
454.calculix	4	202	163	202	164	<u>202</u>	<u>163</u>	4	202	163	202	164	<u>202</u>	<u>163</u>
459.GemsFDTD	4	686	61.8	<u>686</u>	<u>61.8</u>	687	61.8	4	686	61.8	<u>686</u>	<u>61.8</u>	687	61.8
465.tonto	4	<u>280</u>	<u>140</u>	278	141	284	139	4	258	152	261	151	<u>259</u>	<u>152</u>
470.lbm	4	<u>441</u>	<u>125</u>	441	125	441	125	4	<u>441</u>	<u>125</u>	441	125	441	125
481.wrf	4	<u>356</u>	<u>126</u>	356	125	356	126	4	354	126	355	126	<u>354</u>	<u>126</u>
482.sphinx3	4	565	138	567	138	<u>566</u>	<u>138</u>	4	602	129	<u>602</u>	<u>130</u>	600	130

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.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Wed Jul 10 04:54:11 2013

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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 E3-1220 V2 @ 3.10GHz
 1 "physical id"s (chips)
 4 "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
cache size    : 8192 KB
```

From /proc/meminfo

```
MemTotal:      16304836 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

/usr/bin/lsb_release -d

```
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

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

```
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

uname -a:

```
Linux localhost.localdomain 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Jul 7 23:43

SPEC is set to: /cpu2006.1.2

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/VolGroup-lv_root
  ext4          197G    36G  152G  20% /
```

Additional information from dmidecode:

```
BIOS American Megatrends Inc. 2.0b 10/04/2012
```

Memory:

```
4x 4 GB
4x 075D MEM1600E34G 4 GB 1600 MHz 1 rank
1x Winbond 25X/Q Series 8 MB
```

(End of data from sysinfo program)



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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"

Binaries compiled on a system with 1x E3-1220 V2 CPU + 16GB memory using RHEL6.4

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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

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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
459.GemsFDTD: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -static -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
-unroll2

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -fno-alias -auto-ilp32

447.dealIII: basepeak = yes

450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-malloc-options=3

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

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

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

459.GemsFDTD: basepeak = yes

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Peak Optimization Flags (Continued)

```
465.tonto: -xAVX(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:

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

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

```
481.wrf: -xAVX -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/ActionSA-ic13.1-official-linux64_1.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/ActionSA-ic13.1-official-linux64_1.xml

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