



SPEC[®] CFP2006 Result

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ACTION S.A.

ACTINA SOLAR 220 S5+ (Intel Xeon E5-2650 v2, 2.60 GHz)

SPECfp[®]_rate2006 = 554

SPECfp_rate_base2006 = 544

CPU2006 license: 9008

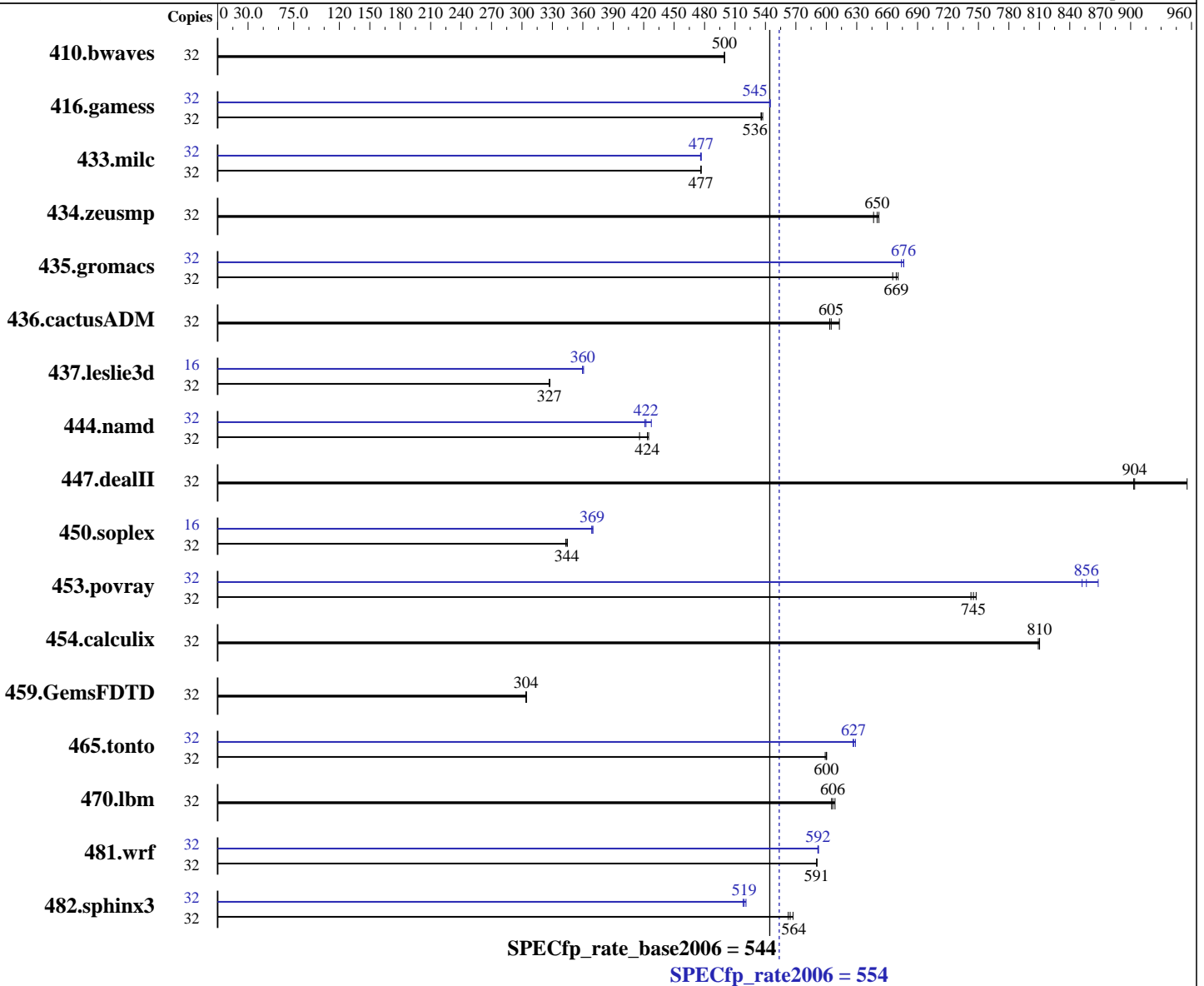
Test sponsor: ACTION S.A.

Tested by: ACTION S.A.

Test date: May-2014

Hardware Availability: Oct-2013

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2650 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 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

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Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
 2.6.32-358.11.1.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 240 GB SATA II SSD
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

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	870	500	871	500	870	500	32	870	500	871	500	870	500
416.gamess	32	1170	536	1166	537	1169	536	32	1150	545	1151	544	1151	545
433.milc	32	616	477	616	477	617	476	32	617	476	616	477	616	477
434.zeusmp	32	448	650	447	652	450	647	32	448	650	447	652	450	647
435.gromacs	32	343	665	341	671	342	669	32	338	676	339	674	338	676
436.cactusADM	32	624	613	634	603	632	605	32	624	613	634	603	632	605
437.leslie3d	32	920	327	920	327	918	328	16	418	360	417	361	418	360
444.namd	32	606	424	617	416	604	425	32	600	428	608	422	610	421
447.dealII	32	405	903	405	904	383	956	32	405	903	405	904	383	956
450.soplex	32	775	344	774	345	778	343	16	361	370	362	369	362	369
453.povray	32	229	745	228	748	229	743	32	196	868	199	856	200	852
454.calculix	32	326	810	326	809	326	810	32	326	810	326	809	326	810
459.GemsFDTD	32	1115	304	1117	304	1116	304	32	1115	304	1117	304	1116	304
465.tonto	32	525	600	526	599	525	600	32	503	626	501	629	502	627
470.lbm	32	727	605	722	609	725	606	32	727	605	722	609	725	606
481.wrf	32	605	591	605	591	605	591	32	604	592	604	592	603	592
482.sphinx3	32	1105	564	1109	562	1100	567	32	1201	519	1197	521	1204	518

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl 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

Bios Settings
Power Technology = Custom

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Platform Notes (Continued)

Energy Performance = Performance
Turbo Mode = Enabled
C1E Support = Disabled
CPU C3 Report = Disabled
CPU C6 Report = Disabled
Package C State Limit = No Limit

Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Fri May 30 01:02:35 2014

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 E5-2650 v2 @ 2.60GHz
 2 "physical id"s (chips)
 32 "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
  physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB
```

```
From /proc/meminfo
MemTotal:      132124188 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 2.6.32-358.11.1.el6.x86_64 #1 SMP Tue Nov 19
17:43:04 CET 2013 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 May 29 13:59
```

```
SPEC is set to: /cpu2006.1.2
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdal        ext4      193G   84G  100G  46% /
```

Additional information from dmidecode:
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Platform Notes (Continued)

BIOS American Megatrends Inc. 3.0a 12/05/2013

Memory:

16x 8 GB

16x Hynix Semiconductor HMT31GR7EFR4C-RD 8 GB 1866 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:/cpu2006.1.2/sh"

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

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

Binaries compiled on a system with 2x Xeon E5-2650 v2 chips + 256 GB memory using RedHat EL 6.4

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

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Base Portability Flags (Continued)

```

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 -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

```

C++ benchmarks:

```

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

```

Fortran benchmarks:

```

-xAVX -ipo -O3 -no-prec-div -opt-prefetch

```

Benchmarks using both Fortran and C:

```

-xAVX -ipo -O3 -no-prec-div -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
```



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Tested by: ACTION S.A.

Software Availability: Sep-2013

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.lelie3d: -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
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) -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.dealII: 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:

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Peak Optimization Flags (Continued)

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-

434.zeusmp: basepeak = yes

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

459.GemsFDTD: basepeak = yes

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 -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevB-apr-2014-For-Supermicro-Platform.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevB-apr-2014-For-Supermicro-Platform.xml>

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