SPEC® CFP2006 Result

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ACTION S.A.

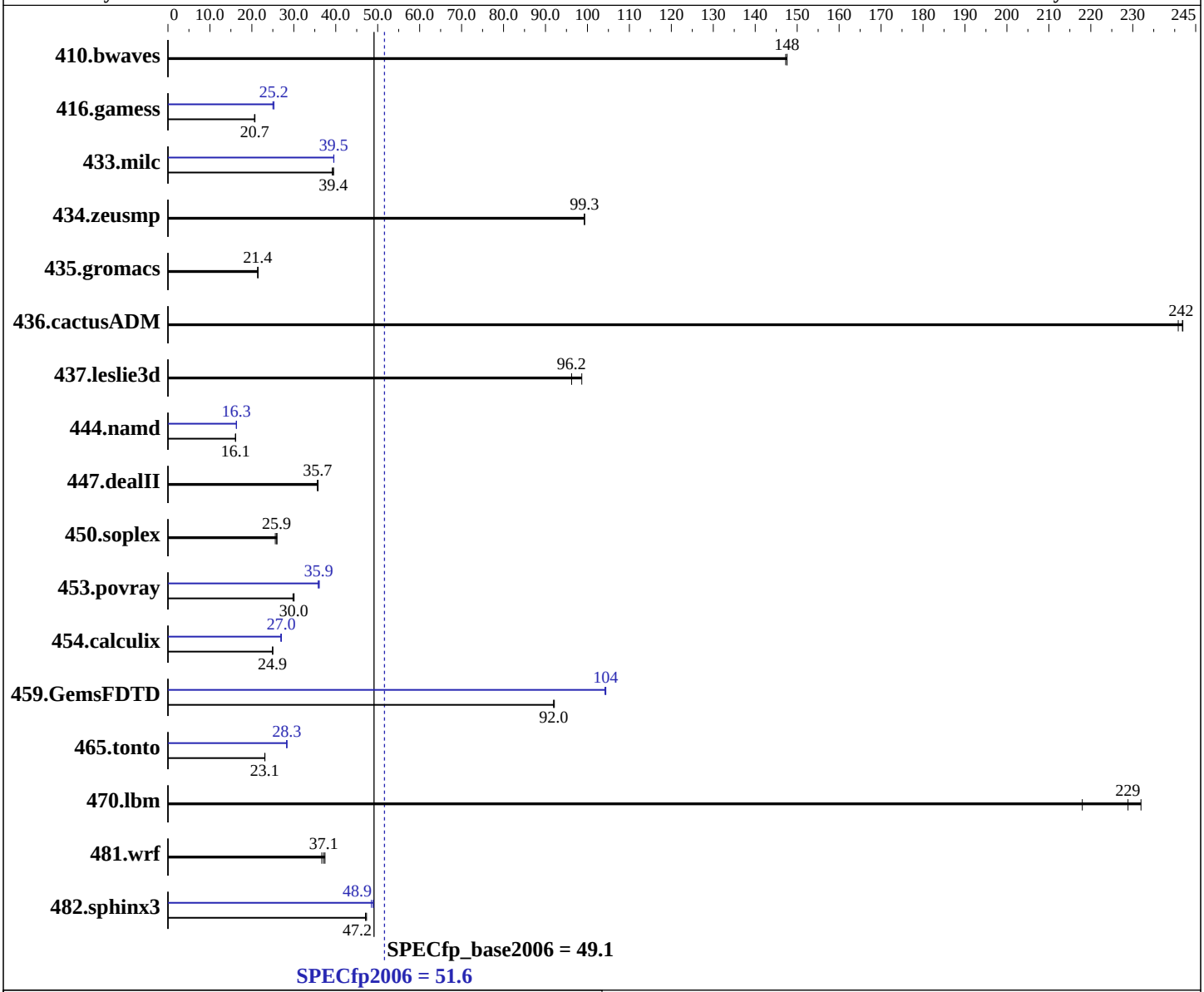
ACTINA SOLAR 205 S5 (Intel Xeon E5-2420)

SPECfp®2006 = 51.6

SPECfp_base2006 = 49.1

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

Test date: Oct-2012
Hardware Availability: May-2012
Software Availability: Feb-2012



Hardware

CPU Name:	Intel Xeon E5-2420
CPU Characteristics:	Intel Turbo Boost Technology up to 2.40 GHz
CPU MHz:	1900
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 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

Continued on next page

Software

Operating System:	SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.27-default
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:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)

Continued on next page

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L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (6 x 16 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)
Disk Subsystem: 1 x SSD OCZ DENEVA II, 240 GB SATA III, MLC
Other Hardware: None

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

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**92.1**	**148**	92.3	147	92.1	148	**92.1**	**148**	92.3	147	92.1	148
416.gamess	944	20.7	948	20.6	**947**	**20.7**	**776**	**25.2**	775	25.3	783	25.0
433.milc	**233**	**39.4**	233	39.5	234	39.2	232	39.6	232	39.5	**232**	**39.5**
434.zeusmp	91.7	99.3	**91.7**	**99.3**	91.7	99.3	91.7	99.3	**91.7**	**99.3**	91.7	99.3
435.gromacs	334	21.4	**334**	**21.4**	332	21.5	334	21.4	**334**	**21.4**	332	21.5
436.cactusADM	49.6	241	**49.4**	**242**	49.4	242	49.6	241	**49.4**	**242**	49.4	242
437.leslie3d	95.3	98.7	97.7	96.2	**97.7**	**96.2**	95.3	98.7	97.7	96.2	**97.7**	**96.2**
444.namd	497	16.1	**498**	**16.1**	498	16.1	491	16.3	492	16.3	**491**	**16.3**
447.dealII	320	35.8	321	35.6	**320**	**35.7**	320	35.8	321	35.6	**320**	**35.7**
450.soplex	321	26.0	**322**	**25.9**	326	25.6	321	26.0	**322**	**25.9**	326	25.6
453.povray	177	30.1	**177**	**30.0**	179	29.8	**148**	**35.9**	149	35.8	147	36.1
454.calculix	**331**	**24.9**	330	25.0	331	24.9	307	26.9	**306**	**27.0**	305	27.1
459.GemsFDTD	115	92.0	**115**	**92.0**	115	92.1	102	104	102	104	**102**	**104**
465.tonto	425	23.1	**426**	**23.1**	426	23.1	**347**	**28.3**	347	28.4	348	28.3
470.lbm	59.2	232	63.0	218	**60.0**	**229**	59.2	232	63.0	218	**60.0**	**229**
481.wrf	298	37.4	**301**	**37.1**	305	36.7	298	37.4	**301**	**37.1**	305	36.7
482.sphinx3	412	47.3	**413**	**47.2**	414	47.1	398	48.9	402	48.5	**398**	**48.9**

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

```
Sysinfo program /cpu2006.1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on linux Wed Oct 31 07:33:58 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
```

Continued on next page

Platform Notes (Continued)

```
      model name : Intel(R) Xeon(R) CPU E5-2420 0 @ 1.90GHz
         2 "physical id"s (chips)
         24 "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 : 6
         siblings  : 12
         physical 0: cores 0 1 2 3 4 5
         physical 1: cores 0 1 2 3 4 5
      cache size : 15360 KB

   From /proc/meminfo
      MemTotal:       98985444 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      SUSE Linux Enterprise Server 11 (x86_64)

   From /etc/*release* /etc/*version*
      SuSE-release:
         SUSE Linux Enterprise Server 11 (x86_64)
         VERSION = 11
         PATCHLEVEL = 2

   uname -a:
      Linux linux 3.0.13-0.27-default #1 SMP Wed Feb 15 13:33:49 UTC 2012 (d73692b)
      x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Oct 31 07:27 last=S

   SPEC is set to: /cpu2006.1.2
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda2      ext3  211G   86G  115G  43% /

   Additional information from dmidecode:

   (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 KMP_AFFINITY = "granularity=fine,scatter"
 LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64"
 OMP_NUM_THREADS = "12"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RHEL5.5
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

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General Notes (Continued)

```
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

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 -parallel -opt-prefetch
-ansi-alias
```

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

Continued on next page

Base Optimization Flags (Continued)

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

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

Peak Compiler Invocation

C benchmarks:
`icc -m64`

C++ benchmarks:
`icpc -m64`

Fortran benchmarks:
`ifort -m64`

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: `-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 -ansi-alias`

470.lbm: `basepeak = yes`

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel`

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`

Continued on next page

Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

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: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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) -inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

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

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