SPEC® CFP2006 Result

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Acer Incorporated

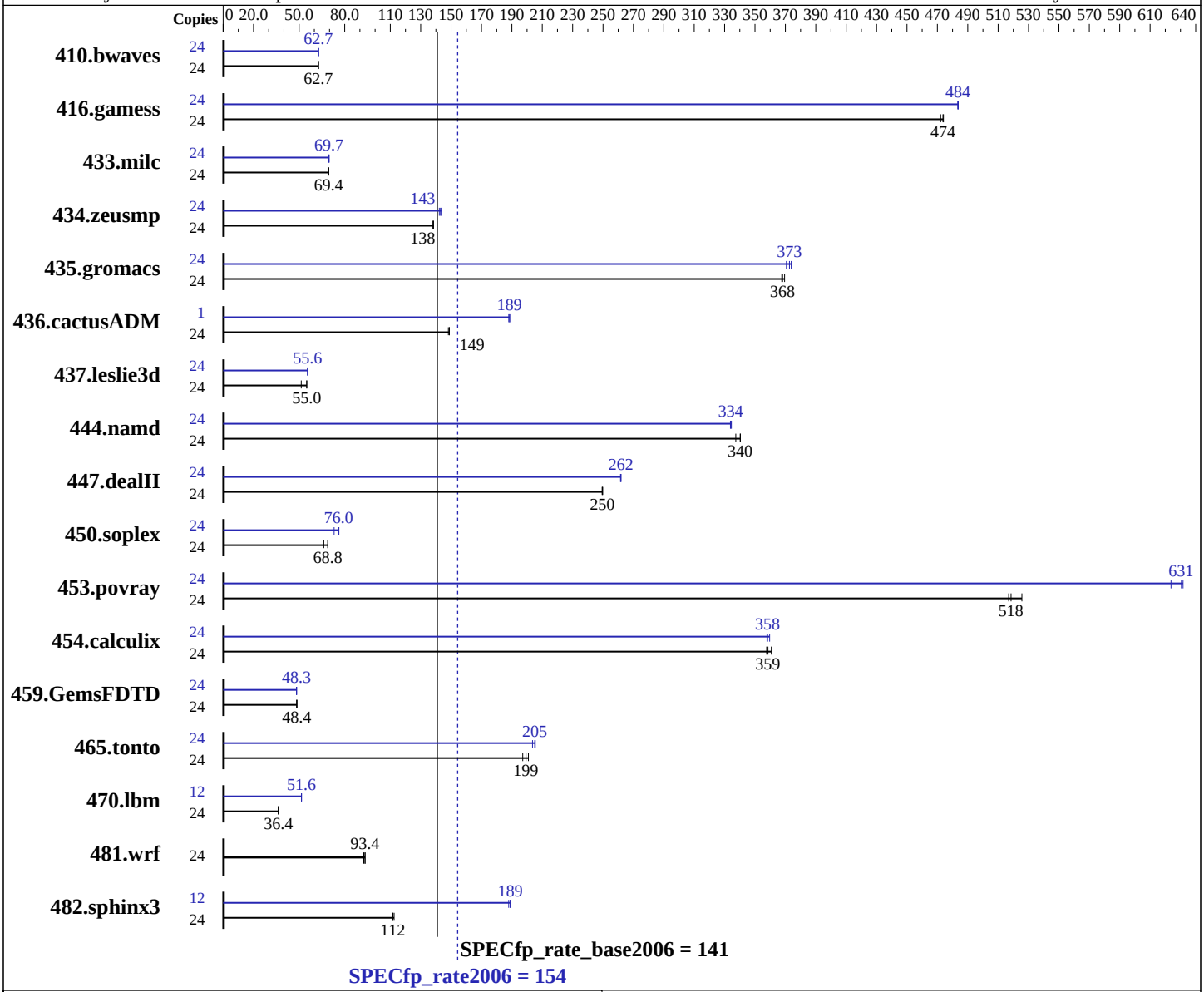
Acer Altos R920 (Intel Xeon X7460)

SPECfp®_rate2006 = 154

SPECfp_rate_base2006 = 141

CPU2006 license: 97
Test sponsor: Acer Incorporated
Tested by: Acer Incorporated

Test date: Sep-2008
Hardware Availability: Sep-2008
Software Availability: Nov-2008



Hardware

CPU Name:	Intel Xeon X7460
CPU Characteristics:	1066MHz system bus
CPU MHz:	2667
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
CPU(s) orderable:	1, 2, 4 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	9 MB I+D on chip per chip, 3 MB shared / 2 cores

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Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Multi-user, level 3
Base Pointers:	64-bit

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L3 Cache: 16 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (16 x 2048MB ECC FB-DIMM DDR2-667 CL5)
Disk Subsystem: 1 x 73GB 10000PRM SAS HDD
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	5215	62.5	**5202**	**62.7**	5201	62.7	24	5200	62.7	5201	62.7	**5200**	**62.7**
416.gamess	24	995	472	991	474	**992**	**474**	24	972	483	**972**	**484**	971	484
433.milc	24	3175	69.4	3173	69.4	**3174**	**69.4**	24	3163	69.7	**3163**	**69.7**	3163	69.6
434.zeusmp	24	1584	138	1578	138	**1579**	**138**	24	**1527**	**143**	1535	142	1521	144
435.gromacs	24	**465**	**368**	466	368	464	369	24	**460**	**373**	458	374	462	371
436.cactusADM	24	1935	148	1927	149	**1927**	**149**	1	63.6	188	63.4	189	**63.4**	**189**
437.leslie3d	24	4389	51.4	**4102**	**55.0**	4099	55.0	24	**4056**	**55.6**	4056	55.6	4058	55.6
444.namd	24	565	340	**566**	**340**	571	337	24	**576**	**334**	577	334	575	334
447.dealII	24	1099	250	**1100**	**250**	1101	249	24	1049	262	1050	262	**1049**	**262**
450.soplex	24	3023	66.2	**2907**	**68.8**	2904	68.9	24	2741	73.0	**2633**	**76.0**	2627	76.2
453.povray	24	247	517	243	526	**246**	**518**	24	205	624	202	632	**202**	**631**
454.calculix	24	549	361	**552**	**359**	554	358	24	551	360	553	358	**553**	**358**
459.GemsFDTD	24	**5256**	**48.4**	5251	48.5	5257	48.4	24	5270	48.3	5275	48.3	**5272**	**48.3**
465.tonto	24	1198	197	1176	201	**1185**	**199**	24	1150	205	**1152**	**205**	1160	204
470.lbm	24	9081	36.3	9064	36.4	**9069**	**36.4**	12	**3198**	**51.6**	3197	51.6	3202	51.5
481.wrf	24	2897	92.5	**2871**	**93.4**	2870	93.4	24	2897	92.5	**2871**	**93.4**	2870	93.4
482.sphinx3	24	4187	112	4157	113	**4186**	**112**	12	**1238**	**189**	1245	188	1238	189

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

Submit Notes

```
The config file option 'submit' was used.
```

General Notes

```
All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex,
470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode
taskset was used to bind processes to cores except
for 436.cactusADM peak
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M
BIOS Settings
  Hardware Prefetch set to OFF
  Optimization for high-frequency FSB applications set to OFF
```

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General Notes (Continued)

```
'ulimit -s unlimited' was set for stacksize unlimited
OMP_NUM_THREADS set to number of cores
For peak modules using 1/2 the number of available cores, copies
were each assigned to a single L2 cache using mysubmit.pl script.
See the flags description file for mysubmit.pl details.
```

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

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:
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Continued on next page

Base Optimization Flags (Continued)

C++ benchmarks:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Fortran benchmarks:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Peak Compiler Invocation

C benchmarks (except as noted below):
`/opt/intel/Compiler/11.0/042/bin/ia32/icc`
`-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib`
`-I/opt/intel/Compiler/11.0/042/ipp/ia32/include`

433.milc: `icc`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/opt/intel/Compiler/11.0/042/bin/ia32/icpc`
`-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib`
`-I/opt/intel/Compiler/11.0/042/ipp/ia32/include`

Fortran benchmarks (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/Compiler/11.0/042/bin/ia32/ifort`
`-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib`
`-I/opt/intel/Compiler/11.0/042/ipp/ia32/include`

Benchmarks using both Fortran and C:
`icc ifort`

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`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`

Continued on next page

Peak Portability Flags (Continued)

453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

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

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -scalar-rep- -opt-prefetch
-opt-malloc-options=3

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -fno-alias -auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -Ob0 -ansi-alias
-scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-malloc-options=3 -opt-prefetch

Continued on next page

Peak Optimization Flags (Continued)

459.GemsFDTD: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -opt-prefetch`

465.tonto: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4 -auto`

Benchmarks using both Fortran and C:

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

436.cactusADM: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -opt-prefetch -parallel -auto-ilp32`

454.calculix: `-xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32`

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-ic11.0-fp-linux64-revA.20090713.12.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.12.xml`

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Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 22:06:26 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 October 2008.