



# SPEC<sup>®</sup> CFP2006 Result

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## Acer Incorporated

## SPECfp<sup>®</sup>\_rate2006 = 81.5

## Acer Altos R920 (Intel Xeon E7210)

## SPECfp\_rate\_base2006 = 74.8

CPU2006 license: 97

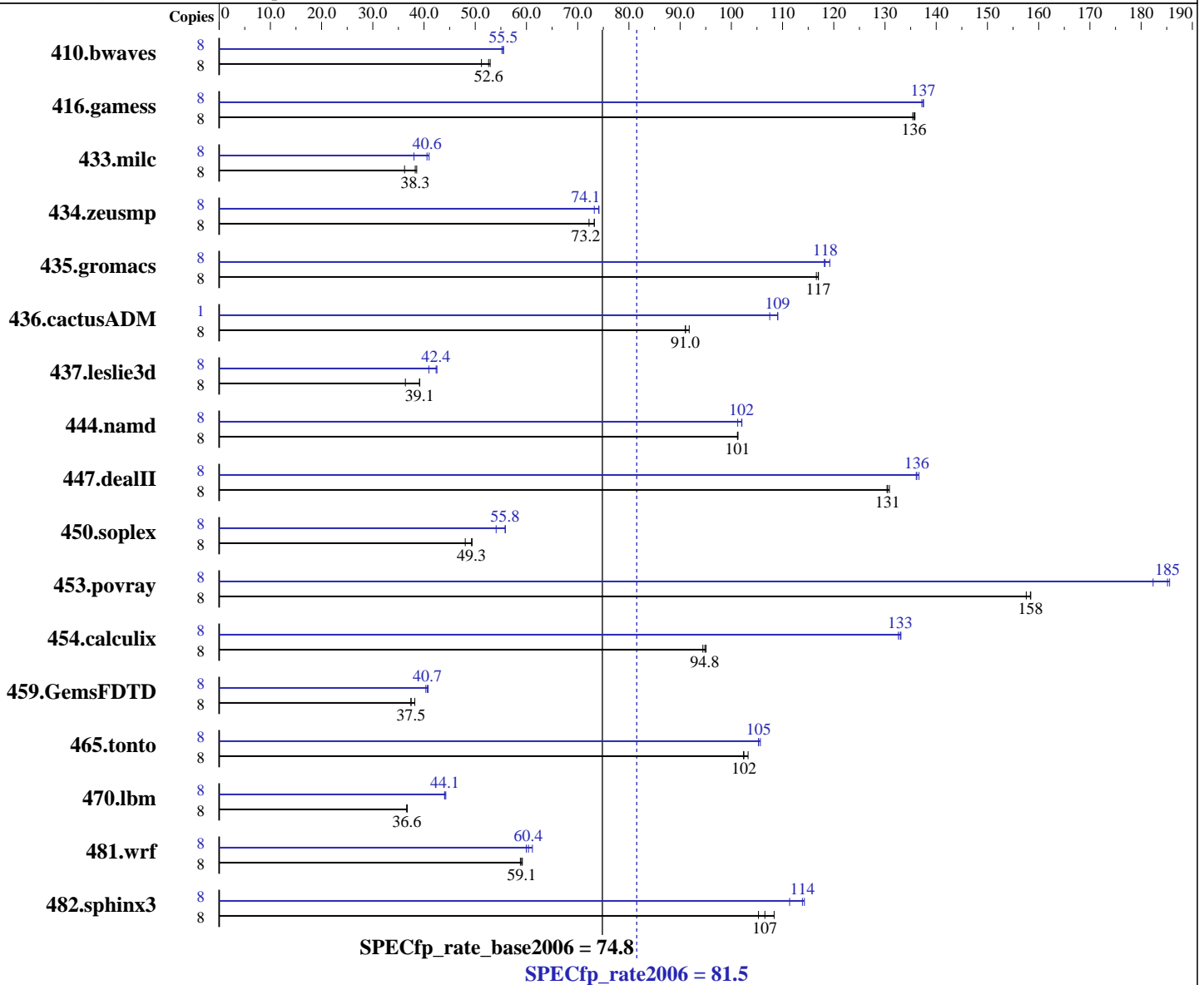
Test sponsor: Acer Incorporated

Tested by: Acer Incorporated

Test date: Dec-2007

Hardware Availability: Nov-2007

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E7210  
 CPU Characteristics: 1066MHz system bus  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip  
 CPU(s) orderable: 1, 2, 4 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 4 MB I+D on chip per core

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### Software

Operating System: SuSE Linux Enterprise Server 10 SP1 EM64T (kernel 2.6.16.46-0.12-smp)  
 Compiler: Intel C++ and Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l\_cc\_p\_10.1.008, l\_fc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Multi-user, level 3  
 Base Pointers: 64-bit

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (16 x 1024MB ECC FB-DIMM DDR2-667 CL5-5-5)  
Disk Subsystem: 1 x 73GB 10000PRM SAS HDD  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: Microquill SmartHeap V8.1  
Binutils 2.17.50.0.15

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	2123	51.2	<b><u>2067</u></b>	<b><u>52.6</u></b>	2054	52.9	8	1969	55.2	<b><u>1960</u></b>	<b><u>55.5</u></b>	1958	55.5
416.gamess	8	1157	135	1153	136	<b><u>1155</u></b>	<b><u>136</u></b>	8	<b><u>1139</u></b>	<b><u>137</u></b>	1139	138	1142	137
433.milc	8	2029	36.2	1904	38.6	<b><u>1918</u></b>	<b><u>38.3</u></b>	8	1931	38.0	1791	41.0	<b><u>1810</u></b>	<b><u>40.6</u></b>
434.zeusmp	8	1008	72.2	<b><u>994</u></b>	<b><u>73.2</u></b>	994	73.2	8	994	73.2	982	74.2	<b><u>982</u></b>	<b><u>74.1</u></b>
435.gromacs	8	<b><u>488</u></b>	<b><u>117</u></b>	490	117	488	117	8	479	119	483	118	<b><u>483</u></b>	<b><u>118</u></b>
436.cactusADM	8	1050	91.0	<b><u>1050</u></b>	<b><u>91.0</u></b>	1042	91.8	1	111	107	<b><u>110</u></b>	<b><u>109</u></b>	110	109
437.leslie3d	8	2068	36.4	<b><u>1922</u></b>	<b><u>39.1</u></b>	1921	39.1	8	1837	40.9	1768	42.5	<b><u>1775</u></b>	<b><u>42.4</u></b>
444.namd	8	633	101	<b><u>634</u></b>	<b><u>101</u></b>	634	101	8	<b><u>629</u></b>	<b><u>102</u></b>	634	101	629	102
447.dealII	8	699	131	702	130	<b><u>701</u></b>	<b><u>131</u></b>	8	672	136	<b><u>672</u></b>	<b><u>136</u></b>	670	137
450.soplex	8	1389	48.1	<b><u>1354</u></b>	<b><u>49.3</u></b>	1351	49.4	8	1234	54.1	<b><u>1195</u></b>	<b><u>55.8</u></b>	1194	55.9
453.povray	8	270	158	<b><u>269</u></b>	<b><u>158</u></b>	269	158	8	229	186	<b><u>230</u></b>	<b><u>185</u></b>	233	182
454.calculix	8	699	94.4	694	95.1	<b><u>696</u></b>	<b><u>94.8</u></b>	8	496	133	498	133	<b><u>496</u></b>	<b><u>133</u></b>
459.GemsFDTD	8	2222	38.2	<b><u>2265</u></b>	<b><u>37.5</u></b>	2267	37.4	8	2103	40.4	2080	40.8	<b><u>2088</u></b>	<b><u>40.7</u></b>
465.tonto	8	762	103	769	102	<b><u>768</u></b>	<b><u>102</u></b>	8	745	106	<b><u>747</u></b>	<b><u>105</u></b>	748	105
470.lbm	8	2993	36.7	3000	36.6	<b><u>2999</u></b>	<b><u>36.6</u></b>	8	2484	44.3	2498	44.0	<b><u>2494</u></b>	<b><u>44.1</u></b>
481.wrf	8	1520	58.8	1509	59.2	<b><u>1513</u></b>	<b><u>59.1</u></b>	8	1490	60.0	<b><u>1480</u></b>	<b><u>60.4</u></b>	1461	61.2
482.sphinx3	8	1439	108	1481	105	<b><u>1463</u></b>	<b><u>107</u></b>	8	1400	111	<b><u>1369</u></b>	<b><u>114</u></b>	1365	114

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

## 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

### BIOS Settings

Hardware Prefetcher set to OFF

Adjacent Cache Line Prefetch set to OFF

All results used taskset to bind processes to cores.  
"ulimit -s unlimited" was set for stacksize unlimited  
OMP\_NUM\_THREADS set to number of cores



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Test date: Dec-2007

Hardware Availability: Nov-2007

Software Availability: Nov-2007

## 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:

-fast

C++ benchmarks:

-fast

Fortran benchmarks:

-fast

Benchmarks using both Fortran and C:

-fast



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## Peak Compiler Invocation

C benchmarks (except as noted below):

```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

Fortran benchmarks (except as noted below):

ifort

```
437.leslie3d: /opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib
-I/opt/intel/fc/10.1.008/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.deall: -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
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) -fast -fno-alias
-auto-ilp32
```

```
470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-scalar-rep- -prefetch -opt-malloc-options=3
```

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## Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

### C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32

447.dealIII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast  
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
-ansi-alias

### Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

### Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.08.html>



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