## SPEC® CFP2006 Result

**Dell Inc.**

PowerEdge M915 (AMD Opteron 6134, 2.30 GHz)

| SPECfp_rate2006 | 500 |
| SPECfp_rate_base2006 | 451 |

**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test date:** May-2011  
**Hardware Availability:** Jul-2010  
**Software Availability:** Jul-2010

### Software

**Operating System:** SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default  
**Compiler:** x86 Open64 4.2.4 Compiler Suite (from AMD)  
**Auto Parallel:** Yes  
**File System:** ext3  
**System State:** Run level 3 (Full multiuser with network)  
**Base Pointers:** 64-bit  
**Peak Pointers:** 32/64-bit  
**Other Software:** None

### Hardware

**CPU Name:** AMD Opteron 6134  
**CPU Characteristics:**  
**CPU MHz:** 2300  
**FPU:** Integrated  
**CPU(s) enabled:** 32 cores, 4 chips, 8 cores/chip  
**CPU(s) orderable:** 1.2 chips  
**Primary Cache:** 64 KB I + 64 KB D on chip per core  
**Secondary Cache:** 512 KB I+D on chip per core

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### Benchmarks

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>32</td>
<td>490</td>
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<tr>
<td>416.gamess</td>
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<td>436.cactusADM</td>
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**SPECfp_rate2006 = 451**

**SPECfp_rate2006 = 500**
### Dell Inc.

**PowerEdge M915 (AMD Opteron 6134, 2.30 GHz)**

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
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<tr>
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<td>Dell Inc.</td>
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<tr>
<td>Tested by:</td>
<td>Dell Inc.</td>
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<tr>
<td>L3 Cache:</td>
<td>12 MB I+D on chip per chip, 6 MB shared / 4 cores</td>
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<td>Other Cache:</td>
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<tr>
<td>Memory:</td>
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<td>Disk Subsystem:</td>
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<td>Other Hardware:</td>
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### SPEC CFP2006 Result

**SPECfp_rate2006 =** 500

**SPECfp_rate_base2006 =** 451

### Results Table

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</tbody>
</table>

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.

'numactl' was used to bind copies to the cores.

See the configuration file for details.

### Operating System Notes

'ulimit -s unlimited' was used to set environment stack size

'ulimit -l 2097152' was used to set environment locked pages in memory limit

Set vm/nr_hugepages=28672 in /etc/sysctl.conf

mount -t hugetlbfs nodev /mnt/hugepages
Dell Inc.

PowerEdge M915 (AMD Opteron 6134, 2.30 GHz)

SPEC CFP2006 Result

SPECfp_rate2006 = 500
SPECfp_rate_base2006 = 451

CPU2006 license: 55
Test date: May-2011
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Hardware Availability: Jul-2010
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Software Availability: Jul-2010

General Notes

environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "896"
LD_LIBRARY_PATH = "/root/cpu2006-1.1./amd1002-rate-libs-revC/64:/root/cpu2006-1.1./amd1002-rate-libs-revC/32"
OMP_NUM_THREADS = "4"
The x86 Open64 Compiler Suite is only available from (and supported by) AMD at http://developer.amd.com/cpu/open64
Binaries were compiled on SLES10 SP2 with binutils 2.18

Base Compiler Invocation

C benchmarks:
opencc

C++ benchmarks:
openCC

Fortran benchmarks:
openf95

Benchmarks using both Fortran and C:
opencc openf95

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.games: -DSPEC_CPU_LP64
333.milc: -DSPEC_CPU_LP64
344.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
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
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -DSPEC_CPU_CASE_FLAG -fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64
## SPEC CFP2006 Result

**Dell Inc.**

PowerEdge M915 (AMD Opteron 6134, 2.30 GHz)

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<tr>
<th>SPECfp_rate2006</th>
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**CPU2006 license:** 55  
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### Base Optimization Flags

- **C benchmarks:**
  -march=barcelona -msr -Ofast -OPT:malloc_alg=1 -HP:bdt=2m

- **C++ benchmarks:**
  -march=barcelona -msr -Ofast -static -INLINE:aggressive=on
  -OPT:malloc_alg=1 -HP:bdt=2m

- **Fortran benchmarks:**
  -march=barcelona -msr -Ofast -HP

- **Benchmarks using both Fortran and C:**
  -march=barcelona -msr -Ofast -OPT:malloc_alg=1 -HP:bdt=2m -HP

### Peak Compiler Invocation

- **C benchmarks:**
  opencc

- **C++ benchmarks:**
  openCC

- **Fortran benchmarks:**
  openf95

- **Benchmarks using both Fortran and C:**
  opencc openf95

### 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
- 436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
- 437.leslie3d: -DSPEC_CPU_LP64
- 444.namd: -DSPEC_CPU_LP64
- 453.povray: -DSPEC_CPU_LP64
- 454.calculix: -DSPEC_CPU_LP64
- 459.GemsFDTD: -DSPEC_CPU_LP64
- 465.tonto: -DSPEC_CPU_LP64
- 470.lbm: -DSPEC_CPU_LP64
- 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -DSPEC_CPU_CASE_FLAG
  -fno-second-underscore
- 482.sphinx3: -DSPEC_CPU_LP64
Dell Inc.  
PowerEdge M915 (AMD Opteron 6134, 2.30 GHz)  
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CPU2006 license: 55  
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Peak Optimization Flags

C benchmarks:

433.milc: -march=barcelona -ms0 -Ofast -CG:movnti=1  
-CG:local_sched_alg=1 -CG:locs_shallow_depth=1  
-HP:bdt=2m:heap=2m -LNO:prefetch=3  

470.lbm: basepeak = yes  

482.sphinx3: -march=barcelona -ms0 -fb_create fbdata(pass 1)  
-fb_opt fbdata(pass 2) -Ofast -OPT:malloc_alg=2  
-CG:sse_cse_regs=0 -CG:locs_shallow_depth=1 -CG:cmp_peep=on  
-CG:local_sched_alg=1 -INLINE:aggressive=on

C++ benchmarks:

444.namd: -march=barcelona -ms0 -fb_create fbdata(pass 1)  
-fb_opt fbdata(pass 2) -Ofast -LNO:ignore_feedback=off  
-CG:local_sched_alg=2 -CG:load_exe=0 -CG:compute_to=on  
-OPT:unroll_size=256 -fno-exceptions -HP:bdt=2m:heap=2m  

447.dealII: -march=barcelona -ms0 -Ofast -static -INLINE:aggressive=on  
-LNO:opt=0 -fno-emit-exceptions -m32  
-OPT:unroll_times_max=8 -OPT:unroll_size=256  
-OPT:unroll_level=2 -HP:bdt=2m:heap=2m -GRA:unspill=on  
-CP:cmp_peep=on -TENV:frame_pointer=off  

450.soplex: -march=barcelona -ms0 -fb_create fbdata(pass 1)  
-fb_opt fbdata(pass 2) -O3 -INLINE:aggressive=on  
-OPT:IEEE_arith=3 -OPT:IEEE_NaN_Inf=off  
-OPT:fold_unsigned_relops=on -OPT:malloc_alg=1  
-CP:load_exe=0 -fno-exceptions -m32 -HP:bdt=2m  

453.povray: -march=barcelona -ms0 -fb_create fbdata(pass 1)  
-fb_opt fbdata(pass 2) -Ofast -INLINE:aggressive=on  

Fortran benchmarks:

410.bwaves: -march=barcelona -ms0 -O3 -OPT:Ofast -OPT:treeheight=on  
-LNO:blocking=off -LNO:prefetch_ahead=5  
-LNO:ignore_feedback=off -WOPT:aggstr=0 -HP:bdt=2m:heap=2m  
-CP:cmp_peep=on  

416.gamess: -march=barcelona -ms0 -fb_create fbdata(pass 1)  
-fb_opt fbdata(pass 2) -O3 -LNO:fu=6 -LNO:blocking=0  
-LNO:prefetch=0 -OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256  
-HP:bdt=2m:heap=2m  

434.zeusmp: -march=barcelona -ms0 -Ofast -LNO:blocking=off  
-LNO:interchange=off -OPT:treeheight=on -OPT:unroll_size=256  
-CP:cmp_peep=on -GRA:prioritize_by_density=on -HP

Continued on next page
Dell Inc.

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Dell Inc.
PowerEdge M915 (AMD Opteron 6134, 2.30 GHz) SPECfp_rate2006 = 500
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Peak Optimization Flags (Continued)

437.leslie3d: -march=barcelona -ms -Ofast -HP:bdt=2m:heap=2m
459.GemsFDTD: -march=barcelona -ms -Ofast -LNO:fission=2
        -LNO:prefetch_ahead=1 -CG:load_exe=0 -CG:local_sched_alg=1
        -HP
465.tonto: -march=barcelona -ms -Ofast
        -OPT:alias=no_f90_pointer_alias -LNO:blocking=off
        -CG:load_exe=1 -IPA:plimit=525 -HP

Benchmarks using both Fortran and C:

435.gromacs: -march=barcelona -ms -Ofast -OPT:rsqrt=2
        -HP:bdt=2m:heap=2m
436.cactusADM: -march=barcelona -ms -fb_create fbdata(pass 1)
        -fb_opt fbdata(pass 2) -Ofast -apo -LNO:prefetch_ahead=1
        -HP:bdt=2m:heap=2m -LANG:heap_allocation_threshold=100
454.calculix: -march=barcelona -ms -Ofast -CG:load_exe=0
        -CG:ptr_load_use=0 -CG:local_sched_alg=2 -CG:compute_to=on
        -LNO:prefetch_ahead=30 -WOPT:unroll=2
        -GRA:optimize_boundary=on -HP:bdt=2m:heap=2m
481.wrf: -march=barcelona -ms -Ofast -LNO:blocking=off
        -LNO:prefetch_ahead=10 -LANG:copyinout=off
        -IPA:callee_limit=5000 -GRA:prioritize_by_density=on -m3dnow
        -HP

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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/amd-platform-rate-revC.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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