Acer Incorporated
Gateway GT115 F1 (AMD Opteron 4122, 2.20 GHz)

**SPECfp<sup>®</sup>_rate2006 = 64.4**

**SPECfp_rate_base2006 = 57.6**

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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp&lt;sup&gt;®&lt;/sup&gt;_rate2006</th>
<th>SPECfp_rate_base2006</th>
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<tbody>
<tr>
<td>410.bwaves</td>
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<tr>
<td>416.gamess</td>
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<td>433.milc</td>
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<td>434.zeusmp</td>
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<tr>
<td>436.cactusADM</td>
<td>61.1</td>
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<tr>
<td>437.leslie3d</td>
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<td>444.namd</td>
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<td>450.soplex</td>
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<td>454.calculix</td>
<td>73.0</td>
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<td>465.tonto</td>
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<td>481.wrf</td>
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<tr>
<td>482.sphinx3</td>
<td>69.9</td>
<td>69.9</td>
</tr>
</tbody>
</table>

Hardware:
- CPU Name: AMD Opteron 4122
- CPU Characteristics: Integrated
- CPU MHz: 2200
- FPU: 4 cores, 1 chip, 4 cores/chip
- FPU(s) enabled: 1 chip
- Primary Cache: 64 KB I + 64 KB D on chip per core
- Secondary Cache: 512 KB I+D on chip per core

Software:
- Operating System: SUSE Linux Enterprise Server 11 (x86_64)
- Compiler: x86 Open64 4.2.4 Compiler Suite (from AMD)
- Auto Parallel: Yes
- File System: ReiserFS
- System State: Run level 3 (multi-user)
- Base Pointers: 64-bit
- Peak Pointers: 32/64-bit
- Other Software: binutils 2.18

Continued on next page
### Acer Incorporated

**Gateway GT115 F1 (AMD Opteron 4122, 2.20 GHz)**

**SPECfp_rate2006 =** 64.4

**SPECfp_rate_base2006 =** 57.6

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<th>Hardware Availability:</th>
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<tr>
<td>97</td>
<td>Oct-2010</td>
<td>Oct-2010</td>
</tr>
</tbody>
</table>

**Test sponsor:** Acer Incorporated  
**Tested by:** Acer Incorporated

- **L3 Cache:** 6 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 16 GB (2 x 8 GB 2Rx4 PC3-10600R-9, ECC)
- **Disk Subsystem:** 1 x 640 GB SATA, 7200 RPM
- **Other Hardware:** None

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>85.3</td>
</tr>
</tbody>
</table>

**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=3584 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages
Acer Incorporated

Gateway GT115 F1 (AMD Opteron 4122, 2.20 GHz)

SPECfp_rate2006 = 64.4
SPECfp_rate_base2006 = 57.6

CPU2006 license: 97
Test sponsor: Acer Incorporated
Test date: Oct-2010
Tested by: Acer Incorporated
Software Availability: Aug-2010
Hardware Availability: Oct-2010

General Notes

Environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "896"
LD_LIBRARY_PATH = "/usr/cpu2006/amd1002-rate-libs-revC/64:/usr/cpu2006/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
The Acer AT115 F1, and Gateway GT115 F1 are electronically equivalent.
This result was measured on Gateway GT115 F1.

Base Compiler Invocation

C benchmarks:
opencc

C++ benchmarks:
openCC

Fortran benchmarks:
openf95

Benchmarks using both Fortran and C:
openc openf95

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
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
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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
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Base Optimization Flags

C benchmarks:
- march=barcelona -ms-o -Ofast -OPT:malloc_alg=1 -HP:bdt=2m

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

Fortran benchmarks:
- march=barcelona -ms-o -Ofast -HP

Benchmarks using both Fortran and C:
- march=barcelona -ms-o -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
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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
Acer Incorporated
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Test date: Oct-2010
Hardware Availability: Oct-2010
Software Availability: Aug-2010

Peak Optimization Flags

C benchmarks:
433.milc: -march=barcelona -ms -Ofast -CG:movnti=1
-CG:local_sched_alg=1 -CG:locs_shallow_depth=1
-HP:bdt=2m:heap=2m -LNO:pfetch=3

470.lbm: basepeak = yes

482.sphinx3: -march=barcelona -ms -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -OPT:malloc alg=2
-CG:sse_cse_regs=0 -CG:loc_shallow_depth=1 -CG:cmp_peep=on
-CG:local_sched_alg=1 -INLINE:aggressive=on

C++ benchmarks:
444.namd: -march=barcelona -ms -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 -ms -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
-CG:cmp_peep=on -TENV:frame pointer=off

450.soplex: -march=barcelona -ms -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
-CG:load_exe=0 -fno-exceptions -m32 -HP:bdt=2m

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

Fortran benchmarks:
410.bwaves: -march=barcelona -ms -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
-CG:cmp_peep=on

416.gamess: -march=barcelona -ms -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 -ms -Ofast -LNO:blocking=off
-LNO:interchange=off -OPT:treeheight=on -OPT:unroll_size=256
-CG:cmp_peep=on -GRA:priority_by_density=on -HP
Acer Incorporated
Gateway GT115 F1 (AMD Opteron 4122, 2.20 GHz)

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**CPU2006 license:** 97  
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**Test sponsor:** Acer Incorporated  
**Hardware Availability:** Oct-2010  
**Tested by:** Acer Incorporated  
**Software Availability:** Aug-2010

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### Peak Optimization Flags (Continued)

437.leslie3d:  
- march=barcelona -ms o -Ofast -HP:bdt=2m:heap=2m

459.GemsFDTD:  
- march=barcelona -ms o -Ofast -LNO:fission=2
  - LNO:prefetchAhead=1 -CG:load_exe=0 -CG:local_sched_alg=1
  - HP

465.tonto:  
- march=barcelona -ms o -Ofast
  - OPT:alias=no_f90_pointer_alias -LNO:blocking=off
  - CG:load_exe=1 -1PA:plimit=525 -HP

---

**Benchmarks using both Fortran and C:**

435.gromacs:  
- march=barcelona -ms o -Ofast -OPT:rsqrt=2
  - HP:bdt=2m:heap=2m

436.cactusADM:  
- march=barcelona -ms o -fb_create fbdata(pass 1)
  - fb_opt fbdata(pass 2) -Ofast -apo -LNO:prefetchAhead=1
  - HP:bdt=2m:heap=2m -LANG:heap_allocation_threshold=100

454.calculix:  
- march=barcelona -ms o -Ofast -CG:load_exe=0
  - CG:ptr_load_use=0 -CG:local_sched_alg=2 -CG:compute_to=on
  - LNO:prefetchAhead=30 -WOPT:unroll=2
  - GRA:optimize_boundary=on -HP:bdt=2m:heap=2m

481.wrf:  
- march=barcelona -ms o -Ofast -LNO:blocking=off
  - LNO:prefetchAhead=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 other inquiries, please contact webmaster@spec.org.

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