# SPEC® CFP2006 Result

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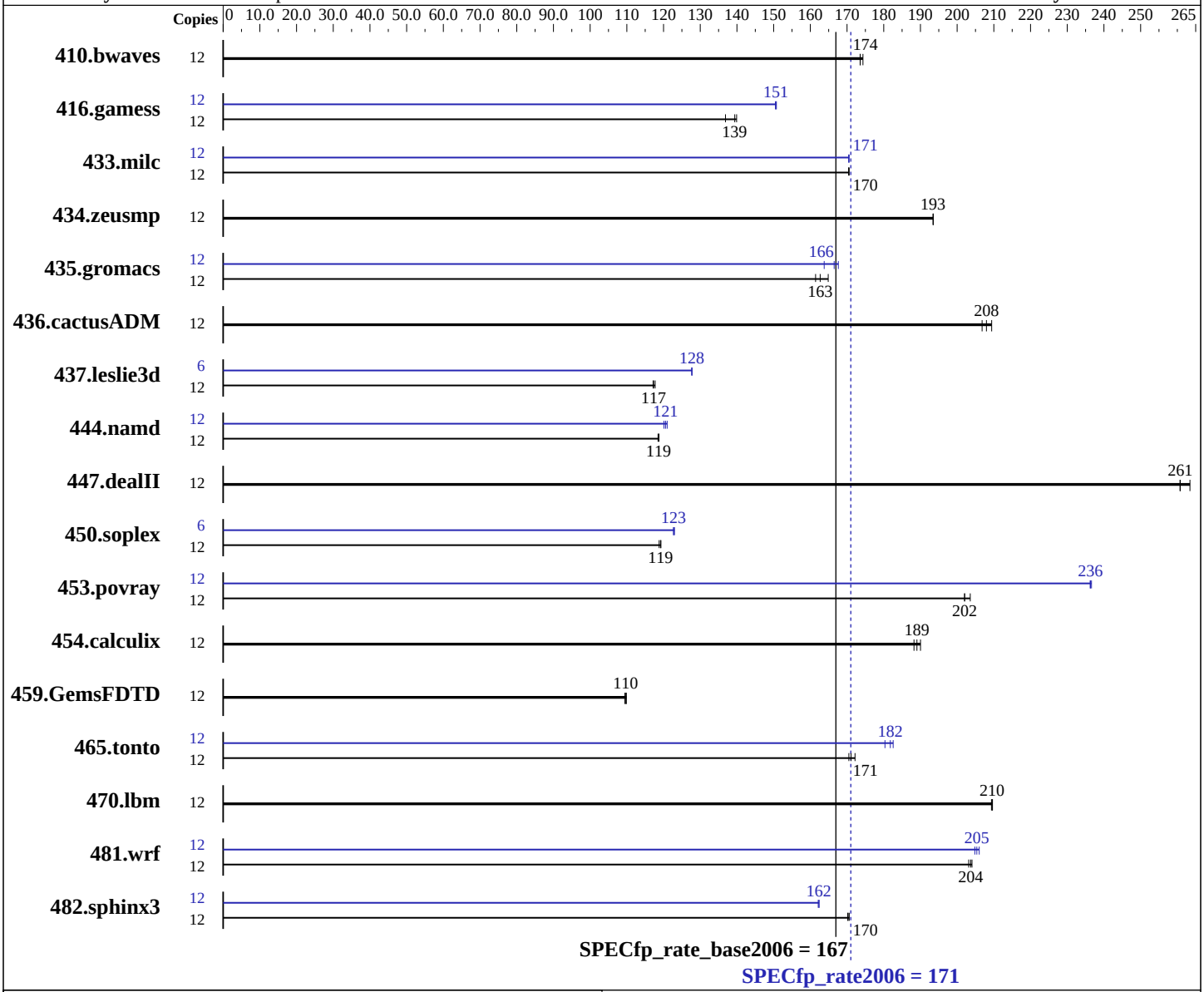
## Acer Incorporated
## Altos T350 F2 (Xeon E5-2620)

**SPECfp®_rate2006 = 171**

**SPECfp_rate_base2006 = 167**

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

**Test date:** May-2013
**Hardware Availability:** May-2013
**Software Availability:** Feb-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2620 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.50 GHz |
| CPU MHz: | 2000 |
| FPU: | Integrated |
| CPU(s) enabled: | 6 cores, 1 chip, 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 |

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### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.3 (Santiago)<br>2.6.32-279.el6.x86_64 |
| Compiler: | C/C++: Version 13.0.0.133 of Intel C++ Studio XE for Linux;<br>Fortran: Version 13.0.0.133 of Intel Fortran Studio XE for Linux |
| Auto Parallel: | No |
| File System: | ext4 |

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L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 900 GB SAS, 10K RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 12 | **939** | **174** | 940 | 174 | 935 | 174 | 12 | **939** | **174** | 940 | 174 | 935 | 174 |
| 416.gamess | 12 | 1717 | 137 | **1685** | **139** | 1679 | 140 | 12 | **1560** | **151** | 1561 | 150 | 1559 | 151 |
| 433.milc | 12 | 646 | 171 | **646** | **170** | 646 | 170 | 12 | **646** | **171** | 646 | 171 | 646 | 170 |
| 434.zeusmp | 12 | **564** | **193** | 564 | 193 | 564 | 193 | 12 | **564** | **193** | 564 | 193 | 564 | 193 |
| 435.gromacs | 12 | **527** | **163** | 531 | 161 | 520 | 165 | 12 | 523 | 164 | **515** | **166** | 511 | 168 |
| 436.cactusADM | 12 | 693 | 207 | 685 | 209 | **689** | **208** | 12 | 693 | 207 | 685 | 209 | **689** | **208** |
| 437.leslie3d | 12 | 958 | 118 | **962** | **117** | 963 | 117 | 6 | 442 | 128 | 441 | 128 | **442** | **128** |
| 444.namd | 12 | **811** | **119** | 812 | 118 | 810 | 119 | 12 | 801 | 120 | 795 | 121 | **798** | **121** |
| 447.dealII | 12 | 527 | 261 | 521 | 263 | **526** | **261** | 12 | 527 | 261 | 521 | 263 | **526** | **261** |
| 450.soplex | 12 | 839 | 119 | **840** | **119** | 842 | 119 | 6 | **408** | **123** | 408 | 123 | 407 | 123 |
| 453.povray | 12 | 314 | 204 | **316** | **202** | 316 | 202 | 12 | 270 | 236 | 270 | 237 | **270** | **236** |
| 454.calculix | 12 | 526 | 188 | 521 | 190 | **524** | **189** | 12 | 526 | 188 | 521 | 190 | **524** | **189** |
| 459.GemsFDTD | 12 | 1159 | 110 | 1163 | 109 | **1160** | **110** | 12 | 1159 | 110 | 1163 | 109 | **1160** | **110** |
| 465.tonto | 12 | 686 | 172 | 693 | 171 | **690** | **171** | 12 | 647 | 183 | **650** | **182** | 655 | 180 |
| 470.lbm | 12 | 788 | 209 | 787 | 210 | **787** | **210** | 12 | 788 | 209 | 787 | 210 | **787** | **210** |
| 481.wrf | 12 | **658** | **204** | 660 | 203 | 657 | 204 | 12 | 654 | 205 | 651 | 206 | **653** | **205** |
| 482.sphinx3 | 12 | 1371 | 171 | 1374 | 170 | **1373** | **170** | 12 | 1442 | 162 | 1440 | 162 | **1441** | **162** |

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

## Submit Notes

```
The taskset mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate taskset commands to bind each copy to a specific processor.
For details, please see the config file.
```

## Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

## Platform Notes

```
Sysinfo program /usr/cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on t350f2 Wed May 15 02:00:34 2013
```

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## Platform Notes (Continued)

```
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
   model name : Genuine Intel(R) CPU @ 2.00GHz
      1 "physical id"s (chips)
      12 "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
   cache size : 15360 KB

From /proc/meminfo
   MemTotal:       65887124 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.3 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux t350f2 2.6.32-279.el6.x86_64 #1 SMP Wed Jun 13 18:24:36 EDT 2012 x86_64
   x86_64 x86_64 GNU/Linux

run-level 3 May 14 11:46

SPEC is set to: /usr/cpu2006
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/sda3      ext4    700G  104G  560G  16% /

Additional information from dmidecode:
  BIOS Intel Corp. SE5C600.86B.01.06.0002.110120121539 11/01/2012
  Memory:
   8x   8 GB
   8x Hynix HMT31GR7CFR4C-PB 8 GB 1600 MHz 2 rank
   8x NO DIMM NO DIMM

(End of data from sysinfo program)
```

## General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"

 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
```

## 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:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Continued on next page

## Base Optimization Flags (Continued)

C++ benchmarks:
`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32 -ansi-alias -opt-mem-layout-trans=3`

Fortran benchmarks:
`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:
`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32 -ansi-alias -opt-mem-layout-trans=3`

## Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

## 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`
437.leslie3d: `-DSPEC_CPU_LP64`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
459.GemsFDTD: `-DSPEC_CPU_LP64`

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## Peak Portability Flags (Continued)

465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

## Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -static -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -opt-mem-layout-trans=3 -unroll2

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -opt-malloc-options=3

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: basepeak = yes

Continued on next page

# Peak Optimization Flags (Continued)

465.tonto: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll4 -auto -inline-calloc -opt-malloc-options=3`

Benchmarks using both Fortran and C:

435.gromacs: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-opt-mem-layout-trans=3`(pass 2) `-prof-use`(pass 2) `-opt-prefetch -static -auto-ilp32`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

481.wrf: `-xAVX -ipo -O3 -no-prec-div -static -auto-ilp32`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.html
http://www.spec.org/cpu2006/flags/Acer-Platform-Settings-V1.2-revA.20130423.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.xml
http://www.spec.org/cpu2006/flags/Acer-Platform-Settings-V1.2-revA.20130423.xml


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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 15:23:02 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 4 June 2013.