# SPEC® CFP2006 Result

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## Dell Inc.

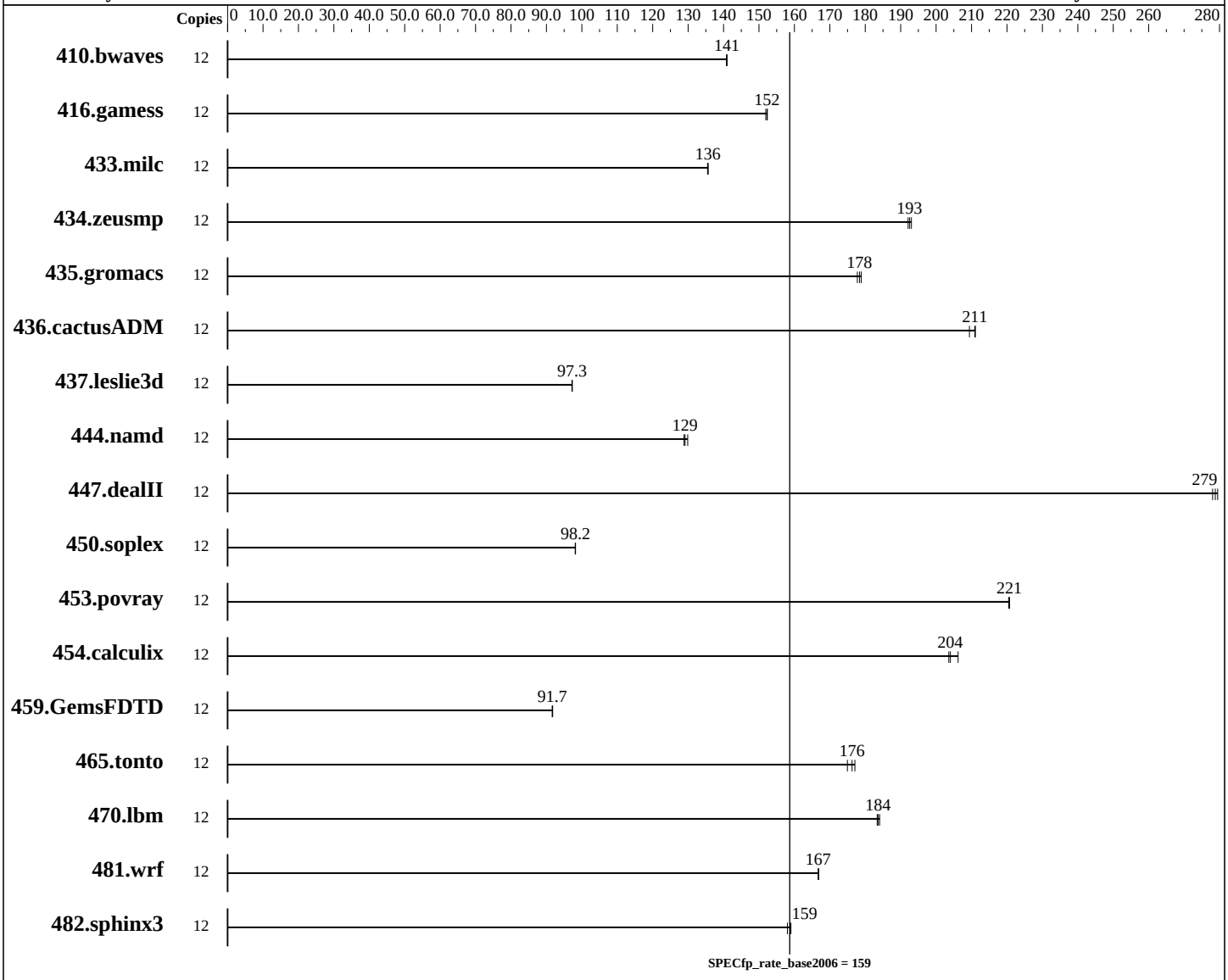
PowerEdge T320 (Intel Xeon E5-2430, 2.20 GHz)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 159

**CPU2006 license:** 55
**Test sponsor:** Dell Inc.
**Tested by:** Dell Inc.

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




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2430 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.70 GHz |
| CPU MHz: | 2200 |
| FPU: | Integrated |
| CPU(s) enabled: | 6 cores, 1 chip, 6 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |

Continued on next page

## Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.4 (Santiago)<br>2.6.32-358.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: 48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)
Disk Subsystem: 2 x 300 GB 15000 RPM SAS, RAID 0
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 | 1157 | 141 | 1158 | 141 | **1157** | **141** | | | | | | | |
| 416.gamess | 12 | **1543** | **152** | 1547 | 152 | 1542 | 152 | | | | | | | |
| 433.milc | 12 | **813** | **136** | 812 | 136 | 813 | 135 | | | | | | | |
| 434.zeusmp | 12 | 566 | 193 | 568 | 192 | **567** | **193** | | | | | | | |
| 435.gromacs | 12 | **480** | **178** | 479 | 179 | 482 | 178 | | | | | | | |
| 436.cactusADM | 12 | **680** | **211** | 679 | 211 | 685 | 209 | | | | | | | |
| 437.leslie3d | 12 | 1159 | 97.3 | 1160 | 97.2 | **1160** | **97.3** | | | | | | | |
| 444.namd | 12 | **745** | **129** | 747 | 129 | 741 | 130 | | | | | | | |
| 447.dealII | 12 | 491 | 279 | **492** | **279** | 494 | 278 | | | | | | | |
| 450.soplex | 12 | **1019** | **98.2** | 1019 | 98.2 | 1020 | 98.1 | | | | | | | |
| 453.povray | 12 | 289 | 221 | 290 | 220 | **289** | **221** | | | | | | | |
| 454.calculix | 12 | **485** | **204** | 480 | 206 | 486 | 204 | | | | | | | |
| 459.GemsFDTD | 12 | 1387 | 91.8 | **1389** | **91.7** | 1389 | 91.6 | | | | | | | |
| 465.tonto | 12 | 675 | 175 | **670** | **176** | 667 | 177 | | | | | | | |
| 470.lbm | 12 | 896 | 184 | **898** | **184** | 899 | 183 | | | | | | | |
| 481.wrf | 12 | 803 | 167 | **804** | **167** | 804 | 167 | | | | | | | |
| 482.sphinx3 | 12 | 1471 | 159 | **1473** | **159** | 1480 | 158 | | | | | | | |

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

## Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl 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 /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on T320 Tue Mar 26 18:13:00 2013

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 : Intel(R) Xeon(R) CPU E5-2430 0 @ 2.20GHz
      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:       49380616 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux T320 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013 x86_64
   x86_64 x86_64 GNU/Linux

run-level 3 Mar 26 11:23

SPEC is set to: /root/cpu2006-1.2
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/sda2      ext4    546G   17G  501G   4% /

Additional information from dmidecode:
  BIOS Dell Inc. 1.5.1 03/08/2013
  Memory:
   2x 00AD00B300AD HMT31GR7BFR4C-PB 8 GB 1333 MHz 2 rank
   2x 00AD04B300AD HMT31GR7BFR4C-PB 8 GB 1333 MHz 2 rank
   2x 00CE00B300CE M393B1K70DH0-CK0 8 GB 1333 MHz 2 rank

(End of data from sysinfo program)
```

## General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/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
 Filesystem page cache cleared with:
 echo 1>       /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

## 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
```

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
```

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/Dell-Platform-Settings-V1.2-revA.20120410.00.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/Dell-Platform-Settings-V1.2-revA.20120410.00.xml


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For other inquiries, please contact webmaster@spec.org.

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