



# SPEC® CFP2006 Result

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Dell Inc.

SPECfp®2006 = 55.1

PowerEdge R320 (Intel Xeon E5-2430L, 2.00 GHz)

SPECfp\_base2006 = 53.3

CPU2006 license: 55

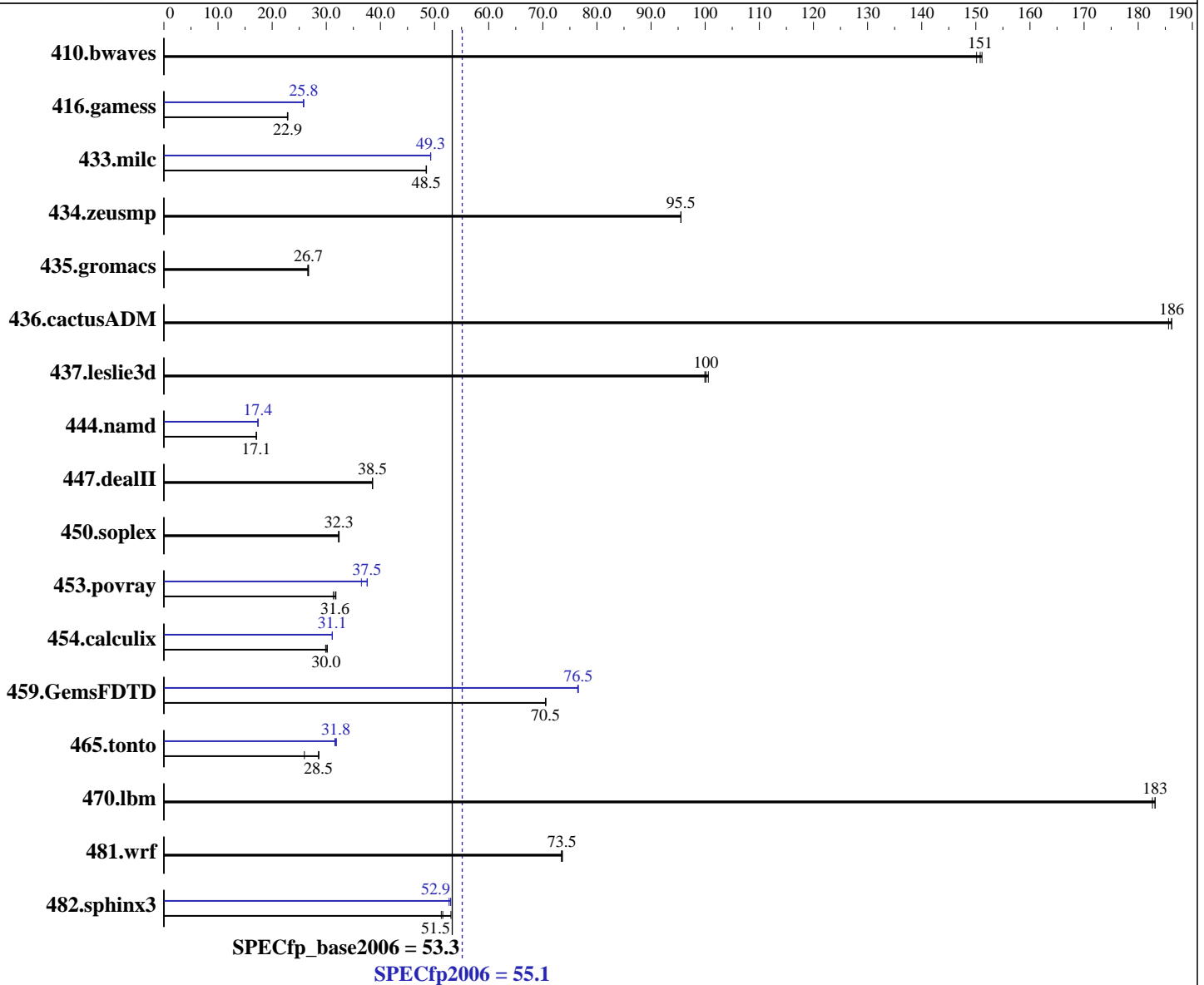
Test date: Mar-2012

Test sponsor: Dell Inc.

Hardware Availability: May-2012

Tested by: Dell Inc.

Software Availability: Feb-2012



### Hardware

CPU Name: Intel Xeon E5-2430L  
 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 chip  
 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: SUSE Linux Enterprise Server 11 SP2 (x86\_64) 3.0.13-0.9-default  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (add definition here)

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L3 Cache: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 24 GB (3 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)  
 Disk Subsystem: 2 x 300 GB 15000 RPM SAS, RAID 1  
 Other Hardware: None

Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	90.5	150	<b>90.1</b>	<b>151</b>	89.9	151	90.5	150	<b>90.1</b>	<b>151</b>	89.9	151
416.gamess	856	22.9	<b>856</b>	<b>22.9</b>	858	22.8	758	25.8	760	25.8	<b>758</b>	<b>25.8</b>
433.milc	189	48.5	<b>189</b>	<b>48.5</b>	189	48.5	186	49.3	186	49.3	<b>186</b>	<b>49.3</b>
434.zeusmp	<b>95.3</b>	<b>95.5</b>	95.3	95.5	95.3	95.5	<b>95.3</b>	<b>95.5</b>	95.3	95.5	95.3	95.5
435.gromacs	<b>268</b>	<b>26.7</b>	269	26.6	267	26.7	<b>268</b>	<b>26.7</b>	269	26.6	267	26.7
436.cactusADM	<b>64.2</b>	<b>186</b>	64.4	186	64.2	186	<b>64.2</b>	<b>186</b>	64.4	186	64.2	186
437.leslie3d	94.1	99.9	<b>93.9</b>	<b>100</b>	93.5	101	94.1	99.9	<b>93.9</b>	<b>100</b>	93.5	101
444.namd	<b>469</b>	<b>17.1</b>	470	17.1	469	17.1	461	17.4	<b>462</b>	<b>17.4</b>	462	17.4
447.dealII	297	38.5	297	38.6	<b>297</b>	<b>38.5</b>	297	38.5	297	38.6	<b>297</b>	<b>38.5</b>
450.soplex	258	32.4	<b>258</b>	<b>32.3</b>	259	32.3	258	32.4	<b>258</b>	<b>32.3</b>	259	32.3
453.povray	167	31.8	<b>168</b>	<b>31.6</b>	170	31.3	142	37.6	<b>142</b>	<b>37.5</b>	146	36.5
454.calculix	273	30.2	<b>275</b>	<b>30.0</b>	276	29.9	265	31.1	265	31.1	<b>265</b>	<b>31.1</b>
459.GemsFDTD	150	70.6	<b>151</b>	<b>70.5</b>	151	70.5	139	76.4	<b>139</b>	<b>76.5</b>	139	76.6
465.tonto	344	28.6	379	26.0	<b>345</b>	<b>28.5</b>	311	31.6	<b>310</b>	<b>31.8</b>	309	31.9
470.lbm	75.2	183	<b>75.0</b>	<b>183</b>	75.0	183	75.2	183	<b>75.0</b>	<b>183</b>	75.0	183
481.wrf	<b>152</b>	<b>73.5</b>	152	73.4	152	73.6	<b>152</b>	<b>73.5</b>	152	73.4	152	73.6
482.sphinx3	<b>378</b>	<b>51.5</b>	368	53.0	380	51.2	368	53.0	<b>368</b>	<b>52.9</b>	370	52.7

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

## Operating System Notes

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

## Platform Notes

CPU Power Management set to Maximum Performance  
 Memory Frequency set to Maximum Performance  
 Turbo Boost set to Enabled  
 C States/C1E set to Enabled  
 Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on Defy Mon Mar 12 19:49:55 2012

This section contains SUT (System Under Test) info as seen by

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## Platform Notes (Continued)

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 E5-2430L 0 @ 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:      24559976 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 11 (x86_64)
```

```
From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 11 (x86_64)
VERSION = 11
PATCHLEVEL = 2
```

```
uname -a:
Linux Defy 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012 (54ddfaf)
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Mar 12 11:57 last=S
```

```
SPEC is set to: /root/CPU2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal       ext3  296G  9.0G  272G   4% /
```

Additional information from dmidecode:

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:  
KMP\_AFFINITY = "granularity=fine,scatter"  
LD\_LIBRARY\_PATH = "/root/CPU2006-1.2/libs/32:/root/CPU2006-1.2/libs/64"  
OMP\_NUM\_THREADS = "6"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB

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## General Notes (Continued)

```

memory using RHEL5.5
Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches

```

## 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.deallI: -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 -parallel -opt-prefetch
-ansi-alias
```

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## Base Optimization Flags (Continued)

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

## Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

Same as Base Portability Flags

## 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) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

C++ benchmarks:

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## Peak Optimization Flags (Continued)

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(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: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.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-ic12.1-official-linux64.20111122.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](mailto:webmaster@spec.org).

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