SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

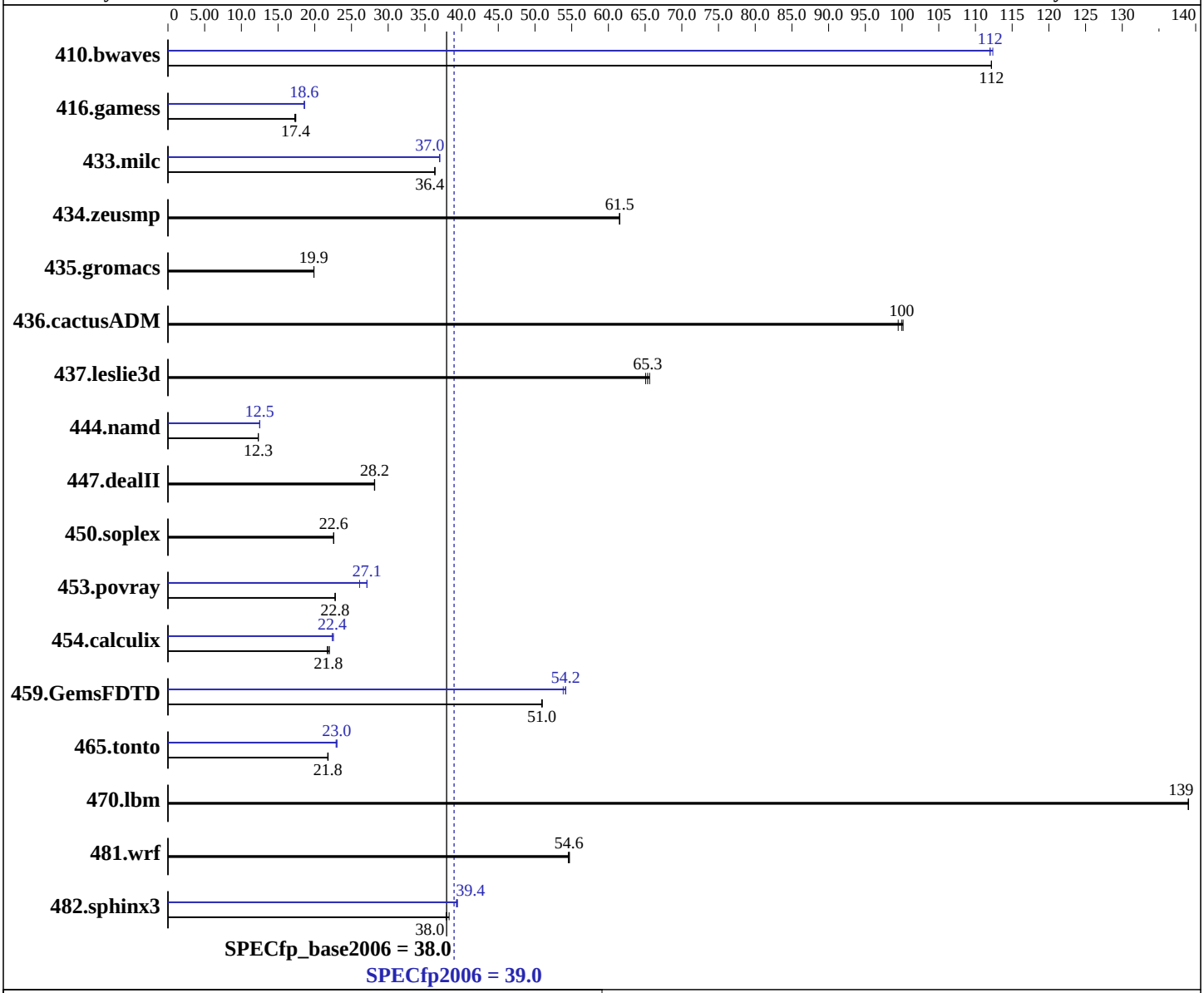
PowerEdge T320 (Intel Xeon E5-2403, 1.80 GHz)

SPECfp®2006 = 39.0

SPECfp_base2006 = 38.0

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

Test date: Jun-2012
Hardware Availability: Jun-2012
Software Availability: Feb-2012



Hardware

CPU Name:	Intel Xeon E5-2403
CPU Characteristics:	
CPU MHz:	1800
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
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:	SUSE Linux Enterprise Server 11 SP2(x86_64) 3.0.13-0.27-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 (multi-user)

Continued on next page

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**121**	**112**	121	112	121	112	121	112	**121**	**112**	121	112
416.gamess	1133	17.3	**1126**	**17.4**	1124	17.4	1055	18.6	**1053**	**18.6**	1053	18.6
433.milc	**252**	**36.4**	252	36.4	252	36.4	248	37.0	**248**	**37.0**	248	37.0
434.zeusmp	148	61.5	**148**	**61.5**	148	61.5	148	61.5	**148**	**61.5**	148	61.5
435.gromacs	**359**	**19.9**	359	19.9	359	19.9	**359**	**19.9**	359	19.9	359	19.9
436.cactusADM	**120**	**100**	120	99.5	119	100	**120**	**100**	120	99.5	119	100
437.leslie3d	144	65.1	143	65.6	**144**	**65.3**	144	65.1	143	65.6	**144**	**65.3**
444.namd	**652**	**12.3**	652	12.3	652	12.3	641	12.5	642	12.5	**641**	**12.5**
447.dealII	406	28.2	407	28.1	**406**	**28.2**	406	28.2	407	28.1	**406**	**28.2**
450.soplex	370	22.6	**369**	**22.6**	369	22.6	370	22.6	**369**	**22.6**	369	22.6
453.povray	234	22.8	**234**	**22.8**	233	22.8	196	27.1	**196**	**27.1**	204	26.1
454.calculix	**378**	**21.8**	375	22.0	380	21.7	366	22.5	368	22.4	**368**	**22.4**
459.GemsFDTD	208	51.0	**208**	**51.0**	208	50.9	196	54.2	197	53.8	**196**	**54.2**
465.tonto	451	21.8	**451**	**21.8**	452	21.8	**428**	**23.0**	430	22.9	428	23.0
470.lbm	98.8	139	98.8	139	**98.8**	**139**	98.8	139	98.8	139	**98.8**	**139**
481.wrf	204	54.7	**204**	**54.6**	205	54.5	204	54.7	**204**	**54.6**	205	54.5
482.sphinx3	509	38.3	**513**	**38.0**	514	37.9	494	39.4	**495**	**39.4**	496	39.3

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 linux-sxkz Sat Jun 23 00:39:52 2012

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

Continued on next page

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 E5-2403 0 @ 1.80GHz
      1 "physical id"s (chips)
      4 "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 : 4
      siblings  : 4
      physical 0: cores 0 1 2 3
   cache size : 10240 KB

From /proc/meminfo
   MemTotal:       49348896 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 linux-sxkz 3.0.13-0.27-default #1 SMP Wed Feb 15 13:33:49 UTC 2012
   (d73692b) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 21 09:41 last=S

SPEC is set to: /root/CPU2006-1.2
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      ext3  271G   40G  218G  16% /

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 = "4"

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

Continued on next page

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
The Dell PowerEdge T320 and
the Bull NovaScale T820 F3 models are electronically equivalent.
The results have been measured on a Dell PowerEdge T320 model
```

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 -parallel -opt-prefetch -ansi-alias`

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`

Continued on next page

Peak Optimization Flags (Continued)

C++ benchmarks:

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.dealII: 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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel -static

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

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 12:38:50 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 17 July 2012.