SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

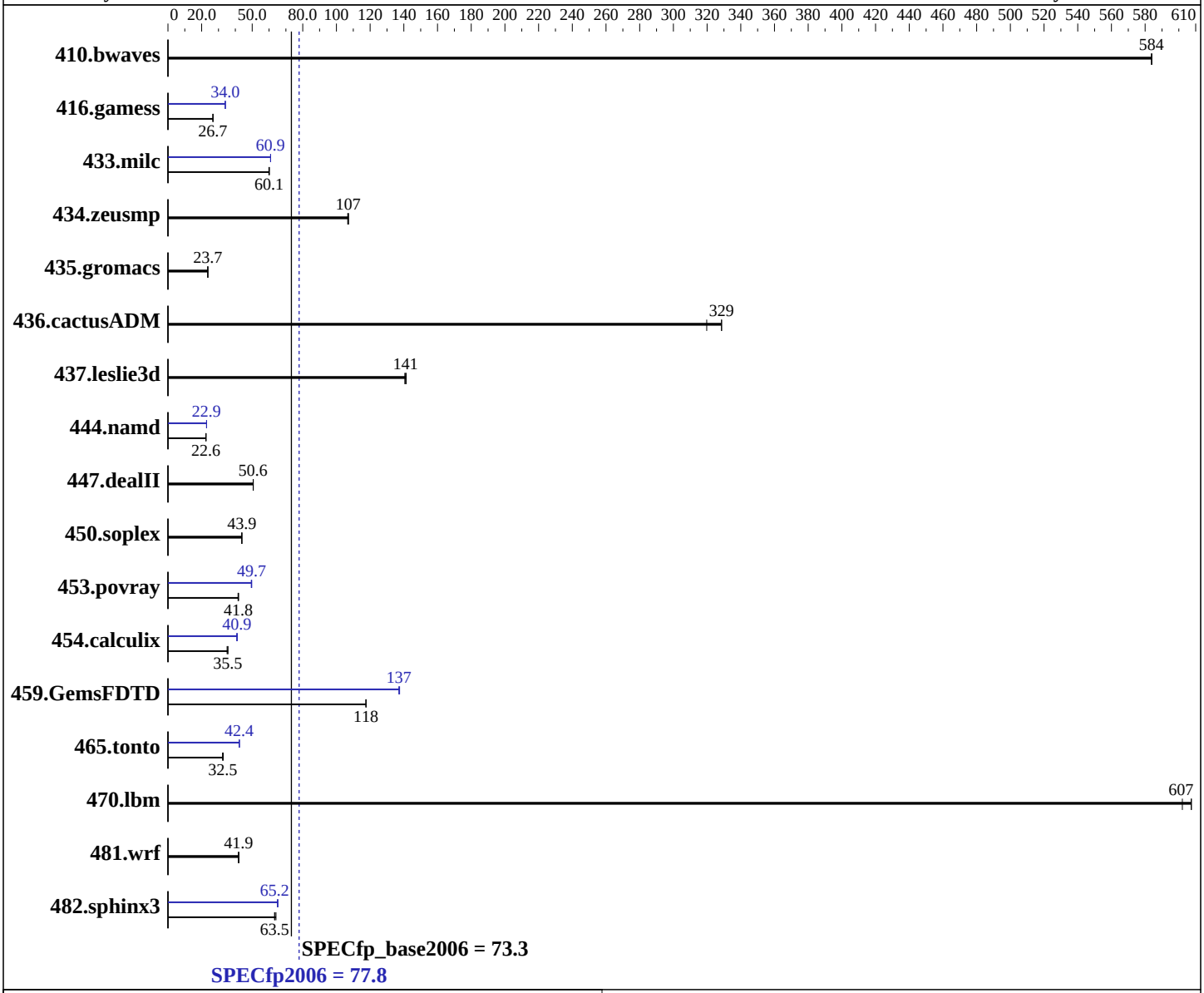
PowerEdge R820 (Intel Xeon E5-4650, 2.70 GHz)

SPECfp®2006 = 77.8

SPECfp_base2006 = 73.3

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

Test date: Aug-2012
Hardware Availability: Jul-2012
Software Availability: Jun-2012



Hardware

CPU Name:	Intel Xeon E5-4650
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2700
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip
CPU(s) orderable:	2,4 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 6.3 (Santiago) 2.6.32-279.el6.x86_64
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:	ext4

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R820 (Intel Xeon E5-4650, 2.70 GHz)

SPECfp2006 = 77.8

SPECfp_base2006 = 73.3

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

Test date: Aug-2012
Hardware Availability: Jul-2012
Software Availability: Jun-2012

L3 Cache:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	1 x 300 GB 15000 RPM SAS
Other Hardware:	None

System State:	Run level 3 (multi-user)
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	23.3	584	**23.3**	**584**	23.3	584	23.3	584	**23.3**	**584**	23.3	584
416.gamess	**733**	**26.7**	733	26.7	734	26.7	**575**	**34.0**	575	34.1	577	34.0
433.milc	153	59.9	153	60.2	**153**	**60.1**	151	60.9	**151**	**60.9**	151	60.9
434.zeusmp	84.9	107	**85.1**	**107**	85.3	107	84.9	107	**85.1**	**107**	85.3	107
435.gromacs	303	23.6	**301**	**23.7**	301	23.7	303	23.6	**301**	**23.7**	301	23.7
436.cactusADM	37.4	320	36.4	329	**36.4**	**329**	37.4	320	36.4	329	**36.4**	**329**
437.leslie3d	**66.7**	**141**	66.5	141	66.9	141	**66.7**	**141**	66.5	141	66.9	141
444.namd	**356**	**22.6**	355	22.6	356	22.6	350	22.9	**350**	**22.9**	350	22.9
447.dealII	226	50.7	226	50.6	**226**	**50.6**	226	50.7	226	50.6	**226**	**50.6**
450.soplex	190	43.9	**190**	**43.9**	190	43.8	190	43.9	**190**	**43.9**	190	43.8
453.povray	127	41.9	128	41.6	**127**	**41.8**	108	49.4	107	49.7	**107**	**49.7**
454.calculix	**232**	**35.5**	235	35.1	232	35.6	200	41.2	**202**	**40.9**	202	40.9
459.GemsFDTD	**90.3**	**118**	90.3	118	90.3	118	77.2	138	**77.4**	**137**	77.4	137
465.tonto	303	32.5	**303**	**32.5**	300	32.8	**232**	**42.4**	232	42.4	232	42.3
470.lbm	22.8	602	22.6	607	**22.6**	**607**	22.8	602	22.6	607	**22.6**	**607**
481.wrf	**267**	**41.9**	265	42.1	267	41.8	**267**	**41.9**	265	42.1	267	41.8
482.sphinx3	**307**	**63.5**	308	63.3	304	64.1	300	65.0	299	65.2	**299**	**65.2**

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

```
System Profile set to Custom
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost set to Enabled
C States/C1E set to Enabled
Logical processor set to Disabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Mon Aug  6 17:01:09 2012
```

Continued on next page

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 : Intel(R) Xeon(R) CPU E5-4650 0 @ 2.70GHz
      4 "physical id"s (chips)
      32 "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 : 8
      siblings  : 8
      physical 0: cores 0 1 2 3 4 5 6 7
      physical 1: cores 0 1 2 3 4 5 6 7
      physical 2: cores 0 1 2 3 4 5 6 7
      physical 3: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       264482264 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 localhost.localdomain 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 Aug 6 10:54 last=5

SPEC is set to: /root/cpu2006-1.2
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/sda1      ext4    250G  9.9G  228G   5% /

Additional information from dmidecode:
  Memory:
   15x 00AD00B300AD HMT31GR7BFR4C-PB 8 GB 1600 MHz 2 rank
   7x 00AD04B300AD HMT31GR7BFR4C-PB 8 GB 1600 MHz 2 rank
   10x 00CE00B300CE M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank

(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 = "16"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
 Transparent Huge Pages disabled with:
 echo never  > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1>       /proc/sys/vm/drop_caches
 The Dell PowerEdge R820 and
 the Bull NovaScale R470 F3 models are electronically equivalent.
 The results have been measured on a Dell PowerEdge R820 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
```

Continued on next page

Base Portability Flags (Continued)

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

Continued on next page

Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

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

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: 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

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 11:10:55 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 August 2012.