



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]2006 = 65.1

PowerEdge R710 (Intel Xeon X5690, 3.46 GHz)

SPECfp_base2006 = 62.8

CPU2006 license: 55

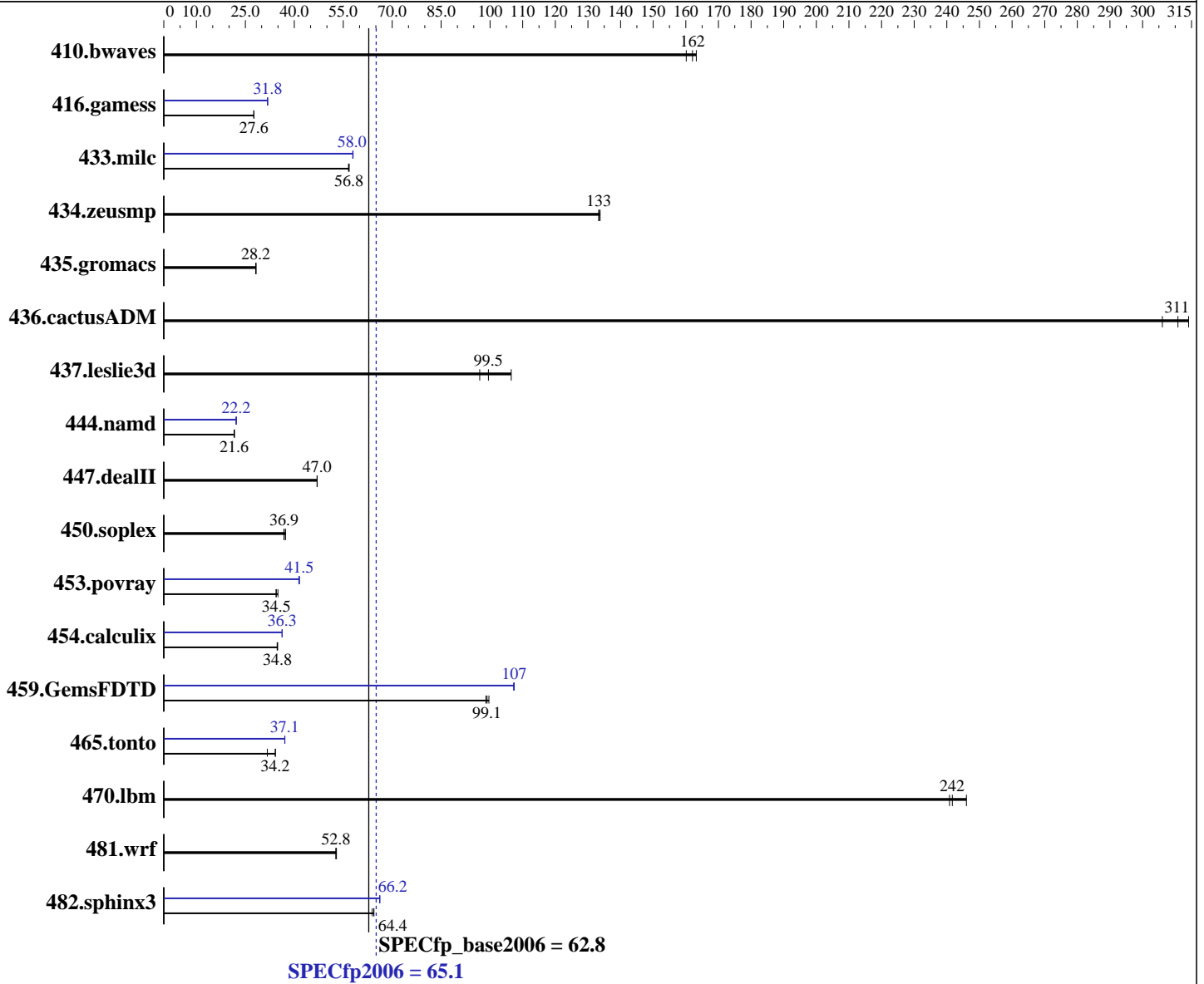
Test date: Dec-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Oct-2011



Hardware

CPU Name: Intel Xeon X5690
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz
 CPU MHz: 3467
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 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 6.1 (Santiago)
 2.6.32-131.0.15.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

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L3 Cache: 12 MB I+D on chip per chip
 Other Cache: None
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)
 Disk Subsystem: 4 x 146 GB 15000 RPM SAS, RAID 0
 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	84.9	160	83.3	163	<u>83.9</u>	<u>162</u>	84.9	160	83.3	163	<u>83.9</u>	<u>162</u>
416.gamess	<u>709</u>	<u>27.6</u>	710	27.6	708	27.6	<u>615</u>	<u>31.8</u>	615	31.8	616	31.8
433.milc	162	56.6	<u>162</u>	<u>56.8</u>	162	56.8	158	58.0	159	57.9	<u>158</u>	<u>58.0</u>
434.zeusmp	68.2	133	<u>68.2</u>	<u>133</u>	68.0	134	68.2	133	<u>68.2</u>	<u>133</u>	68.0	134
435.gromacs	253	28.2	253	28.2	<u>253</u>	<u>28.2</u>	253	28.2	253	28.2	<u>253</u>	<u>28.2</u>
436.cactusADM	39.0	306	<u>38.4</u>	<u>311</u>	38.0	314	39.0	306	<u>38.4</u>	<u>311</u>	38.0	314
437.leslie3d	<u>94.5</u>	<u>99.5</u>	97.1	96.8	88.3	106	<u>94.5</u>	<u>99.5</u>	97.1	96.8	88.3	106
444.namd	<u>371</u>	<u>21.6</u>	371	21.6	371	21.6	<u>362</u>	<u>22.2</u>	361	22.2	362	22.2
447.dealII	243	47.0	<u>243</u>	<u>47.0</u>	243	47.0	243	47.0	<u>243</u>	<u>47.0</u>	243	47.0
450.soplex	<u>226</u>	<u>36.9</u>	226	36.9	224	37.3	<u>226</u>	<u>36.9</u>	226	36.9	224	37.3
453.povray	<u>154</u>	<u>34.5</u>	155	34.4	152	35.0	129	41.4	<u>128</u>	<u>41.5</u>	128	41.6
454.calculix	238	34.7	237	34.9	<u>237</u>	<u>34.8</u>	227	36.3	<u>227</u>	<u>36.3</u>	228	36.3
459.GemsFDTD	106	99.7	<u>107</u>	<u>99.1</u>	107	98.7	<u>98.8</u>	<u>107</u>	98.8	107	99.0	107
465.tonto	288	34.2	310	31.7	<u>288</u>	<u>34.2</u>	265	37.1	<u>265</u>	<u>37.1</u>	265	37.1
470.lbm	<u>56.9</u>	<u>242</u>	55.9	246	57.1	241	<u>56.9</u>	<u>242</u>	55.9	246	57.1	241
481.wrf	211	52.9	<u>212</u>	<u>52.8</u>	212	52.8	211	52.9	<u>212</u>	<u>52.8</u>	212	52.8
482.sphinx3	<u>303</u>	<u>64.4</u>	305	63.9	303	64.4	294	66.2	<u>295</u>	<u>66.2</u>	295	66.2

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

Sysinfo program /home/CPU2006v1.2/config/sysinfo.rev6800
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on R710RHEL Mon Nov 28 13:29:42 2011

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 X5690 @ 3.47GHz
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Platform Notes (Continued)

```

2 "physical id"s (chips)
24 "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 8 9 10
physical 1: cores 0 1 2 8 9 10
cache size : 12288 KB

From /proc/meminfo
MemTotal:      99059436 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.1 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
Linux R710RHEL 2.6.32-131.0.15.el6.x86_64 #1 SMP Tue May 10 15:42:40 EDT 2011
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 28 13:00

SPEC is set to: /home/CPU2006v1.2
Filesystem      Type      Size Used Avail Use% Mounted on
/dev/mapper/vg_r710rhel-lv_home
                ext4      392G  3.7G  368G   1% /home

Additional information from dmidecode:
Memory:
12x 00CE04B380CE M393B1K70CHD-CH9 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:

```

KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/CPU2006v1.2/libs/32:/home/CPU2006v1.2/libs/64"
OMP_NUM_THREADS = "12"

```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5
Transparent Huge Pages enabled with:

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General Notes (Continued)

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:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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Base Optimization Flags (Continued)

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.2 -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: `-xSSE4.2(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: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel`

C++ benchmarks:

444.namd: `-xSSE4.2(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`

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Peak Optimization Flags (Continued)

447.deallI: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>



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