



SPEC® CFP2006 Result

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Dell Inc.

PowerEdge R730 (Intel Xeon E5-2695 v3, 2.30 GHz)

SPECfp®2006 = 102

SPECfp_base2006 = 97.2

CPU2006 license: 55

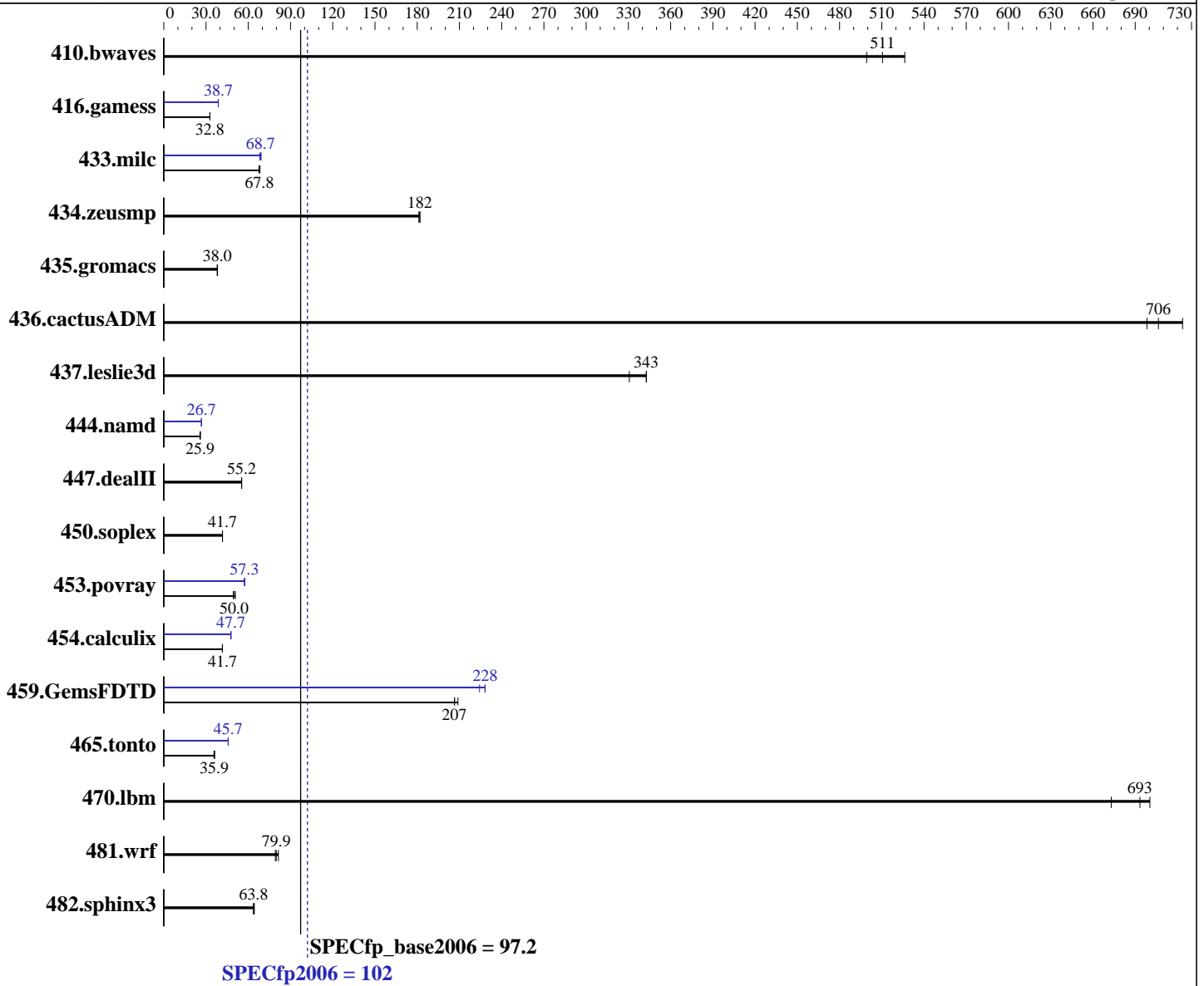
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Sep-2014

Hardware Availability: Sep-2014

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E5-2695 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 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 (x86_64) 3.0.76-0.11-default
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)

Continued on next page



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L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 192 GB (8 x 16 GB, 8 x 8 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 1000 GB 7200 RPM SATA
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	27.2	499	25.8	526	<u>26.6</u>	<u>511</u>	27.2	499	25.8	526	<u>26.6</u>	<u>511</u>
416.gamess	597	32.8	599	32.7	<u>598</u>	<u>32.8</u>	506	38.7	<u>506</u>	<u>38.7</u>	505	38.7
433.milc	134	68.3	<u>135</u>	<u>67.8</u>	136	67.6	133	69.1	<u>134</u>	<u>68.7</u>	135	68.1
434.zeusmp	<u>50.0</u>	<u>182</u>	50.2	181	50.0	182	<u>50.0</u>	<u>182</u>	50.2	181	50.0	182
435.gromacs	188	38.0	187	38.2	<u>188</u>	<u>38.0</u>	188	38.0	187	38.2	<u>188</u>	<u>38.0</u>
436.cactusADM	<u>16.9</u>	<u>706</u>	17.1	698	16.5	724	<u>16.9</u>	<u>706</u>	17.1	698	16.5	724
437.leslie3d	<u>27.4</u>	<u>343</u>	28.4	331	27.4	343	<u>27.4</u>	<u>343</u>	28.4	331	27.4	343
444.namd	310	25.9	<u>310</u>	<u>25.9</u>	310	25.9	<u>300</u>	<u>26.7</u>	300	26.7	300	26.7
447.dealII	207	55.2	<u>207</u>	<u>55.2</u>	207	55.3	207	55.2	<u>207</u>	<u>55.2</u>	207	55.3
450.soplex	<u>200</u>	<u>41.7</u>	200	41.7	200	41.6	<u>200</u>	<u>41.7</u>	200	41.7	200	41.6
453.povray	<u>106</u>	<u>50.0</u>	105	50.8	108	49.4	92.9	57.3	92.4	57.6	<u>92.9</u>	<u>57.3</u>
454.calculix	199	41.5	198	41.7	<u>198</u>	<u>41.7</u>	173	47.7	173	47.7	<u>173</u>	<u>47.7</u>
459.GemsFDTD	51.4	207	50.8	209	<u>51.4</u>	<u>207</u>	46.5	228	<u>46.5</u>	<u>228</u>	47.3	224
465.tonto	276	35.6	<u>274</u>	<u>35.9</u>	272	36.1	215	45.8	215	45.7	<u>215</u>	<u>45.7</u>
470.lbm	<u>19.8</u>	<u>693</u>	19.6	700	20.4	673	<u>19.8</u>	<u>693</u>	19.6	700	20.4	673
481.wrf	141	79.2	137	81.4	<u>140</u>	<u>79.9</u>	141	79.2	137	81.4	<u>140</u>	<u>79.9</u>
482.sphinx3	<u>306</u>	<u>63.8</u>	306	63.7	303	64.3	<u>306</u>	<u>63.8</u>	306	63.7	303	64.3

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

BIOS settings:
Snoop Mode set to Home Snoop
Virtualization Technology disabled
Execute Disable disabled
System Profile set to Custom
CPU Power Management set to Maximum Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on linux-khqw Tue Sep 9 14:08:06 2014

Continued on next page



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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 E5-2695 v3 @ 2.30GHz
 2 "physical id"s (chips)
 56 "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    : 14
  siblings     : 28
  physical 0   : cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 1   : cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size     : 35840 KB

```

```

From /proc/meminfo
MemTotal:      198249732 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 = 3

```

```

uname -a:
Linux linux-khqw 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
(ccab990) x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Sep 8 08:32 last=S

```

SPEC is set to: /root/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext3  915G   10G  905G   2% /

```

```

Additional information from dmidecode:
BIOS Dell Inc. 1.0.4 08/28/2014
Memory:
1x 00AD00B300AD HMA42GR7MFR4N-TFTD 16 GB 2133 MHz
5x 00AD063200AD HMA42GR7MFR4N-TFT1 16 GB 2133 MHz
8x 00CE00B300CE M393A1G43DB0-CPB 8 GB 2133 MHz
2x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2133 MHz
8x Not Specified Not Specified

```

(End of data from sysinfo program)



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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"
OMP_NUM_THREADS = "28"
```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RedHat EL 6.4

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/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
```



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Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

Continued on next page



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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2 -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-ic14.0-official-linux64-revC.html>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.html>



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You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.xml>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.xml>

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

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