



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]_rate2006 = 1060

PowerEdge R920 (Intel Xeon E7-8893 v2, 3.40 GHz)

SPECfp_rate_base2006 = 1020

CPU2006 license: 55

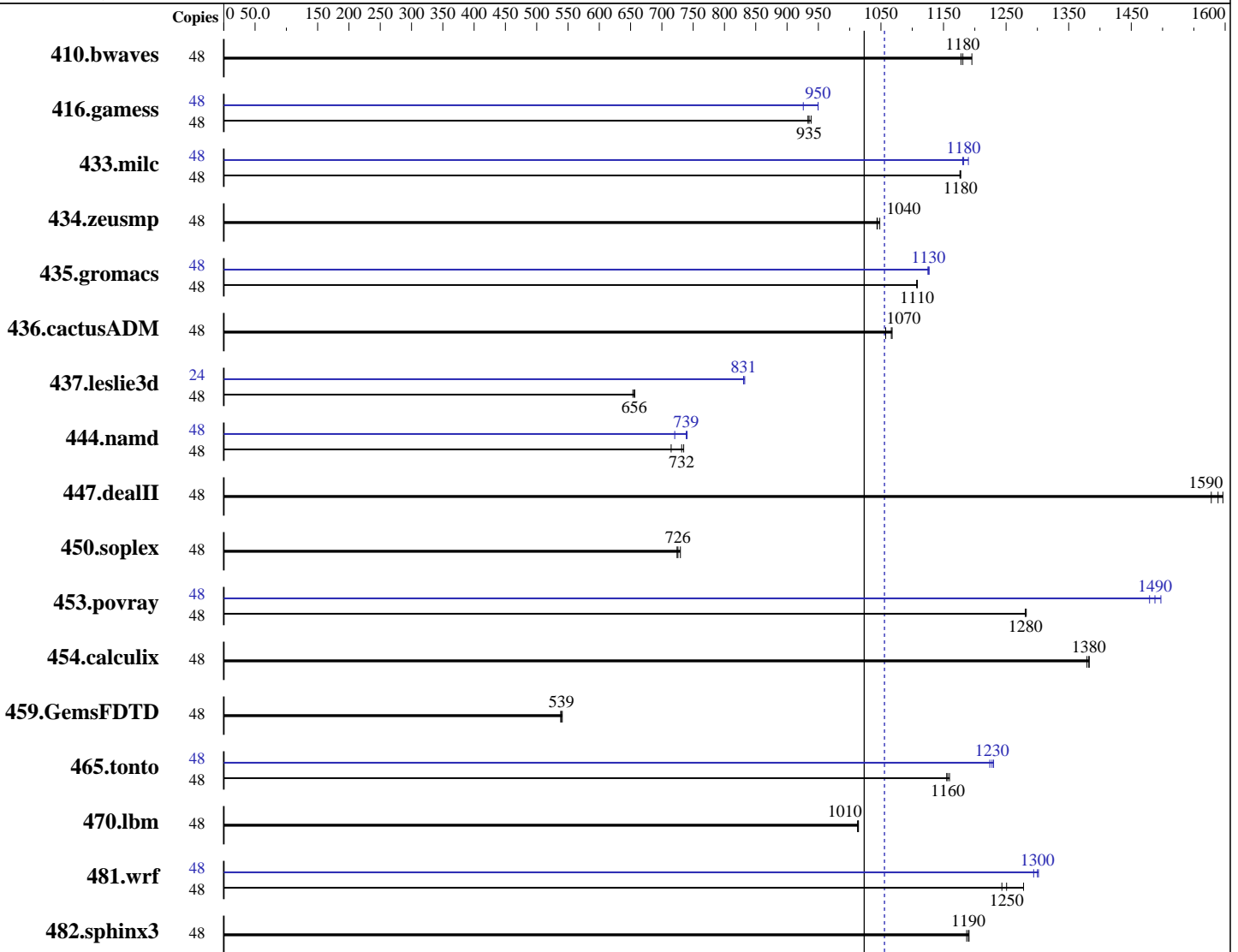
Test date: Jan-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Mar-2014



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Hardware

CPU Name: Intel Xeon E7-8893 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3400
 FPU: Integrated
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip, 2 threads/core
 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

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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: No
 File System: ext2
 System State: Run level 3 (multi-user)

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L3 Cache: 37.5 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, ECC)
Disk Subsystem: 1 x 400 GB SAS6 SSD
Other Hardware: None

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48	546	1200	<u>552</u>	<u>1180</u>	554	1180	48	546	1200	<u>552</u>	<u>1180</u>	554	1180
416.gamess	48	1007	933	1002	938	<u>1005</u>	<u>935</u>	48	1015	926	<u>990</u>	<u>950</u>	990	950
433.milc	48	<u>374</u>	<u>1180</u>	375	1180	374	1180	48	370	1190	<u>373</u>	<u>1180</u>	373	1180
434.zeusmp	48	417	1050	419	1040	<u>418</u>	<u>1040</u>	48	417	1050	419	1040	<u>418</u>	<u>1040</u>
435.gromacs	48	309	1110	310	1110	<u>309</u>	<u>1110</u>	48	305	1130	304	1130	<u>304</u>	<u>1130</u>
436.cactusADM	48	<u>538</u>	<u>1070</u>	542	1060	537	1070	48	<u>538</u>	<u>1070</u>	542	1060	537	1070
437.leslie3d	48	690	654	687	657	<u>688</u>	<u>656</u>	24	<u>272</u>	<u>831</u>	272	830	271	832
444.namd	48	539	715	524	735	<u>526</u>	<u>732</u>	48	534	721	520	740	<u>521</u>	<u>739</u>
447.dealII	48	344	1600	<u>346</u>	<u>1590</u>	348	1580	48	344	1600	<u>346</u>	<u>1590</u>	348	1580
450.soplex	48	549	730	<u>552</u>	<u>726</u>	553	724	48	549	730	<u>552</u>	<u>726</u>	553	724
453.povray	48	199	1280	<u>199</u>	<u>1280</u>	199	1280	48	171	1500	<u>172</u>	<u>1490</u>	173	1480
454.calculix	48	287	1380	286	1380	<u>287</u>	<u>1380</u>	48	287	1380	286	1380	<u>287</u>	<u>1380</u>
459.GemsFDTD	48	946	538	<u>944</u>	<u>539</u>	942	541	48	946	538	<u>944</u>	<u>539</u>	942	541
465.tonto	48	409	1160	407	1160	<u>408</u>	<u>1160</u>	48	386	1220	<u>385</u>	<u>1230</u>	384	1230
470.lbm	48	<u>651</u>	<u>1010</u>	650	1010	651	1010	48	<u>651</u>	<u>1010</u>	650	1010	651	1010
481.wrf	48	420	1280	431	1240	<u>429</u>	<u>1250</u>	48	412	1300	<u>412</u>	<u>1300</u>	414	1290
482.sphinx3	48	786	1190	788	1190	<u>786</u>	<u>1190</u>	48	786	1190	788	1190	<u>786</u>	<u>1190</u>

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

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

Platform Notes

BIOS settings:
Virtualization Technology disabled
Execute Disable disabled

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Platform Notes (Continued)

System Profile set to Custom
 Memory Patrol Scrub set to disabled
 Sysinfo program
 /root/Desktop/Performance/ic14.0_Oct17_2013/config/sysinfo.rev6818
 \$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
 running on slesperf2 Fri Jan 31 17:43:42 2014

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 E7-8893 v2 @ 3.40GHz
4 "physical id"s (chips)
48 "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 3 4 5 6 10 11
  physical 1: cores 3 4 5 6 10 11
  physical 2: cores 3 4 5 6 10 11
  physical 3: cores 3 4 5 6 10 11
cache size    : 38400 KB
```

```
From /proc/meminfo
MemTotal:      1058789108 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 slesperf2 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 Jan 31 17:32 last=S

```
SPEC is set to: /root/Desktop/Performance/ic14.0_Oct17_2013
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext2  365G  190G  174G  53% /
```

Additional information from dmidecode:
 BIOS Dell Inc. 1.0.4 01/27/2014

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Platform Notes (Continued)

Memory:

47x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
11x 00CE04B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
6x 00CE04B300CE M393B2G70CB0-YK0 16 GB 1333 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = */root/Desktop/Performance/icl4.0_Oct17_2013/libs/32:/root/Desktop/Performance/icl4.0_Oct17_2013/libs/64:/root/Desktop/Performance/icl4.0_Oct17_2013/sh*

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

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Base Portability Flags (Continued)

```

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 -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

```

C++ benchmarks:

```

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

```

Fortran benchmarks:

```

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

```

Benchmarks using both Fortran and C:

```

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

```

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



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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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(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) -opt-mem-layout-trans=3(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-

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

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

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

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Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

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

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

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