



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp[®]2006 = 91.7

PowerEdge R920 (Intel Xeon E7-4870 v2, 2.30 GHz)

SPECfp_base2006 = 87.3

CPU2006 license: 55

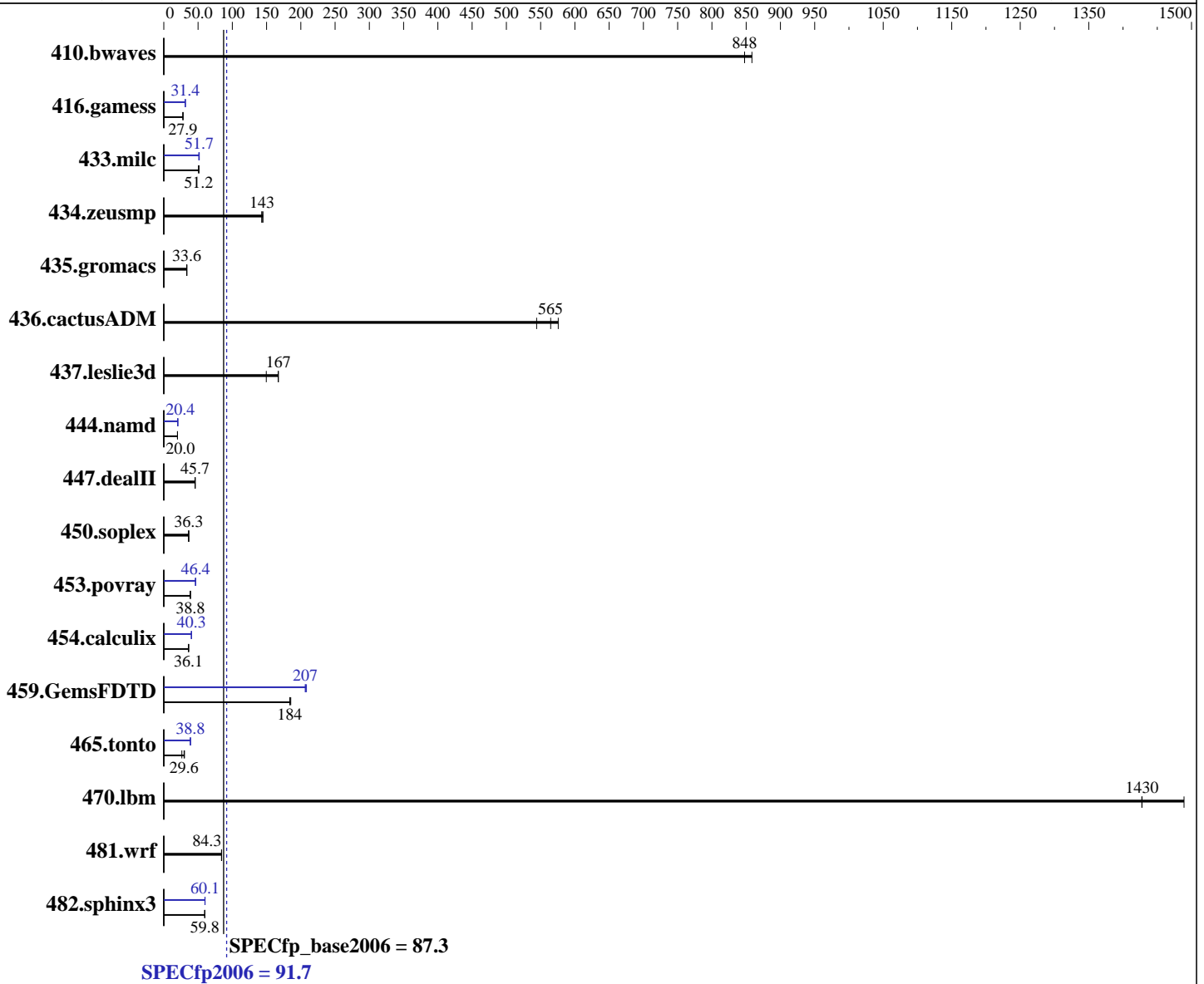
Test date: Feb-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Mar-2014



Hardware

CPU Name: Intel Xeon E7-4870 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 60 cores, 4 chips, 15 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

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: ext2
 System State: Run level 3 (multi-user)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.7

PowerEdge R920 (Intel Xeon E7-4870 v2, 2.30 GHz)

SPECfp_base2006 = 87.3

CPU2006 license: 55

Test date: Feb-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Mar-2014

L3 Cache: 30 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: 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	16.0	848	15.8	858	16.0	848	16.0	848	15.8	858	16.0	848
416.gamess	701	27.9	698	28.1	702	27.9	623	31.4	624	31.4	624	31.4
433.milc	181	50.7	179	51.2	179	51.2	180	51.0	178	51.7	178	51.7
434.zeusmp	62.9	145	63.5	143	63.7	143	62.9	145	63.5	143	63.7	143
435.gromacs	213	33.6	212	33.7	214	33.3	213	33.6	212	33.7	214	33.3
436.cactusADM	21.2	565	22.0	544	20.8	576	21.2	565	22.0	544	20.8	576
437.leslie3d	62.8	150	56.2	167	56.2	167	62.8	150	56.2	167	56.2	167
444.namd	401	20.0	402	20.0	402	20.0	393	20.4	393	20.4	393	20.4
447.dealII	249	45.9	251	45.7	251	45.5	249	45.9	251	45.7	251	45.5
450.soplex	230	36.3	230	36.2	229	36.5	230	36.3	230	36.2	229	36.5
453.povray	137	38.8	137	38.8	137	38.8	115	46.4	115	46.4	115	46.2
454.calculix	227	36.4	229	36.1	230	35.9	205	40.3	204	40.4	205	40.3
459.GemsFDTD	57.3	185	57.7	184	57.7	184	51.4	207	51.0	208	51.4	207
465.tonto	326	30.2	374	26.3	333	29.6	253	38.8	252	39.0	254	38.7
470.lbm	9.62	1430	9.62	1430	9.23	1490	9.62	1430	9.62	1430	9.23	1490
481.wrf	133	84.2	132	84.3	132	84.4	133	84.2	132	84.3	132	84.4
482.sphinx3	326	59.8	327	59.6	325	60.1	325	60.0	324	60.1	324	60.2

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

BIOS settings:
Virtualization Technology disabled
Execute Disable disabled
System Profile set to Custom
ClE enabled
C States enabled
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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.7

PowerEdge R920 (Intel Xeon E7-4870 v2, 2.30 GHz)

SPECfp_base2006 = 87.3

CPU2006 license: 55

Test date: Feb-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Mar-2014

Platform Notes (Continued)

running on slesperf2 Sat Feb 8 10:50:32 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 E7-4870 v2 @ 2.30GHz
 4 "physical id"s (chips)
 120 "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 : 15
  siblings  : 30
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
cache size : 30720 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 Feb 8 10:47 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  191G  173G  53% /

```

Additional information from dmidecode:

BIOS Dell Inc. 1.0.4 01/27/2014

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

```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.7

PowerEdge R920 (Intel Xeon E7-4870 v2, 2.30 GHz)

SPECfp_base2006 = 87.3

CPU2006 license: 55

Test date: Feb-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Mar-2014

Platform Notes (Continued)

(End of data from sysinfo program)

General Notes

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

KMP_AFFINITY = "granularity=fine,compact,1,0"

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"

OMP_NUM_THREADS = "60"

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

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.7

PowerEdge R920 (Intel Xeon E7-4870 v2, 2.30 GHz)

SPECfp_base2006 = 87.3

CPU2006 license: 55

Test date: Feb-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Mar-2014

Base Portability Flags (Continued)

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 -parallel -opt-prefetch -ansi-alias
C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch
Benchmarks using both Fortran and C:
-xAVX -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: -xAVX(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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.7

PowerEdge R920 (Intel Xeon E7-4870 v2, 2.30 GHz)

SPECfp_base2006 = 87.3

CPU2006 license: 55

Test date: Feb-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Mar-2014

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.dealIII: 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-

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



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 91.7

PowerEdge R920 (Intel Xeon E7-4870 v2, 2.30 GHz)

SPECfp_base2006 = 87.3

CPU2006 license: 55

Test date: Feb-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Mar-2014

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>

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 20:49:04 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 25 March 2014.