SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

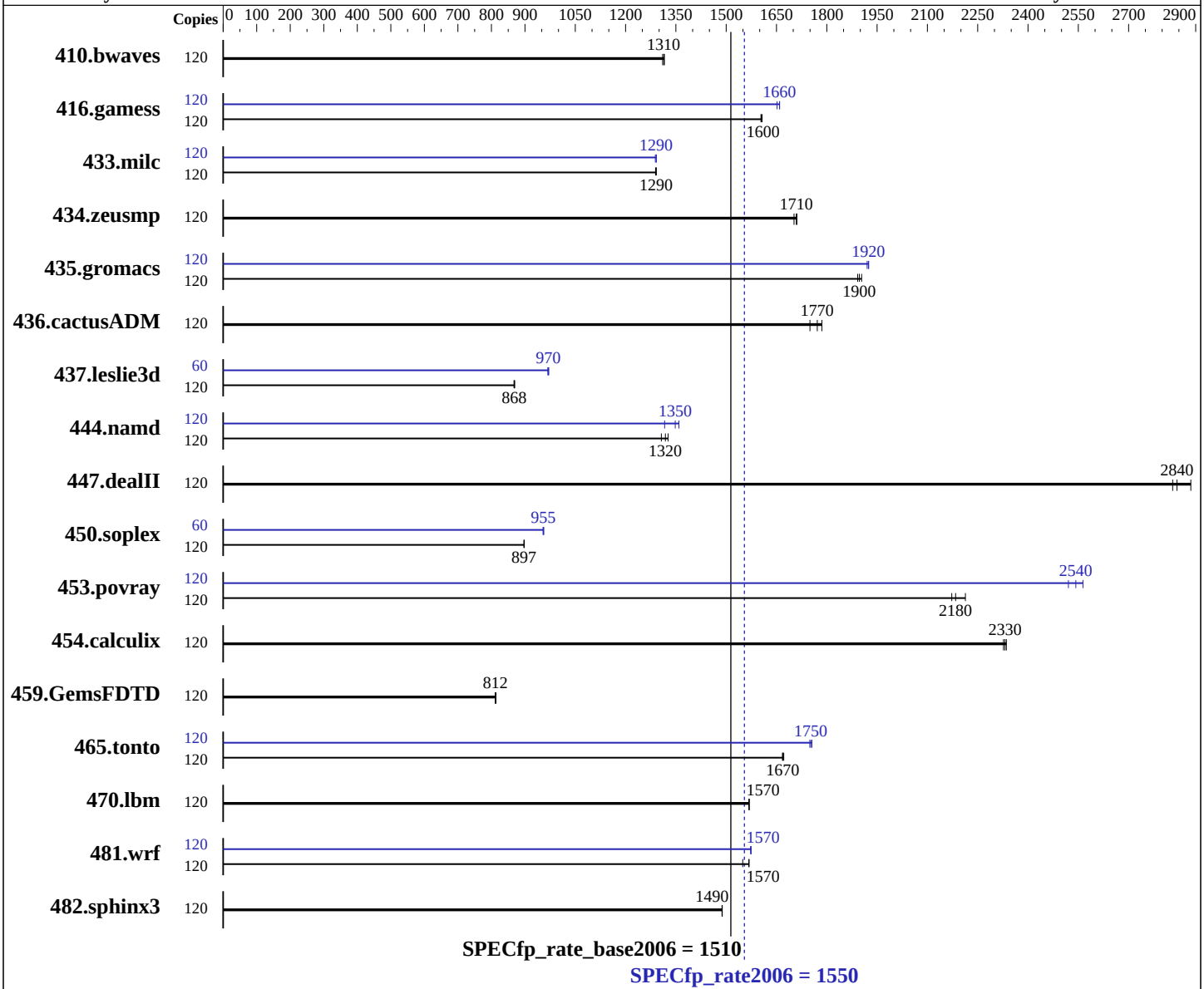
PowerEdge R920 (Intel Xeon E7-8880L v2, 2.20 GHz)

SPECfp®_rate2006 = 1550

SPECfp_rate_base2006 = 1510

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

Test date: Jan-2014
Hardware Availability: Mar-2014
Software Availability: Mar-2014



Hardware

CPU Name:	Intel Xeon E7-8880L v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2200
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:	No
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.

PowerEdge R920 (Intel Xeon E7-8880L v2, 2.20 GHz)

SPECfp_rate2006 = 1550

SPECfp_rate_base2006 = 1510

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

Test date: Jan-2014
Hardware Availability: Mar-2014
Software Availability: Mar-2014

L3 Cache: 37.5 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (58 x 16 GB 2Rx4 PC3L-12800R-11 + 6 x 16 GB 2Rx4 PC3-14900R-13, 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	120	1244	1310	**1241**	**1310**	1239	1320	120	1244	1310	**1241**	**1310**	1239	1320
416.gamess	120	1465	1600	**1464**	**1600**	1462	1610	120	**1416**	**1660**	1423	1650	1416	1660
433.milc	120	**853**	**1290**	854	1290	853	1290	120	**853**	**1290**	853	1290	855	1290
434.zeusmp	120	638	1710	**639**	**1710**	641	1700	120	638	1710	**639**	**1710**	641	1700
435.gromacs	120	450	1900	**452**	**1900**	453	1890	120	445	1930	446	1920	**445**	**1920**
436.cactusADM	120	**809**	**1770**	820	1750	803	1790	120	**809**	**1770**	820	1750	803	1790
437.leslie3d	120	**1299**	**868**	1301	867	1297	869	60	**581**	**970**	581	971	583	968
444.namd	120	737	1310	**730**	**1320**	725	1330	120	708	1360	731	1320	**714**	**1350**
447.dealII	120	476	2890	**483**	**2840**	485	2830	120	476	2890	**483**	**2840**	485	2830
450.soplex	120	1114	898	1116	897	**1115**	**897**	60	523	956	525	954	**524**	**955**
453.povray	120	294	2170	**292**	**2180**	288	2210	120	**251**	**2540**	253	2520	249	2560
454.calculix	120	424	2340	425	2330	**425**	**2330**	120	424	2340	425	2330	**425**	**2330**
459.GemsFDTD	120	**1569**	**812**	1565	814	1569	811	120	**1569**	**812**	1565	814	1569	811
465.tonto	120	706	1670	708	1670	**708**	**1670**	120	**674**	**1750**	675	1750	673	1760
470.lbm	120	**1051**	**1570**	1051	1570	1051	1570	120	**1051**	**1570**	1051	1570	1051	1570
481.wrf	120	865	1550	855	1570	**855**	**1570**	120	852	1570	**852**	**1570**	852	1570
482.sphinx3	120	1571	1490	1572	1490	**1572**	**1490**	120	1571	1490	1572	1490	**1572**	**1490**

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
```

Continued on next page

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 Thu Jan 23 16:24:09 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 E7-8880L v2 @ 2.20GHz
        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 : 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 23 16:13 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. 1.0.0 12/16/2013
```

Continued on next page

Platform Notes (Continued)

```
      Memory:
       41x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
       6x 00CE00B300CE M393B2G70CB0-CMA 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)
    Regarding the sysinfo display about the memory installed, although the information
    is accurate, two different types of DIMMs were used in the configuration and it may
    not be easy to immediately tell the difference.  The following has been provided to
    help make the situation more clear.
       DIMMs with â  M393B2G70BH0-YK0â   in the name are 16 GB PC3L-12800R-11 DIMMs
       DIMMs with â  M393B2G70CB0-CMAâ   in the name are 16 GB PC3-14900R-13 DIMMs
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/Desktop/Performance/ic14.0_Oct17_2013/libs/32:/root/Desktop/Performance/ic14.0_Oct17_2013/libs/64:/root/Desktop/Performance/ic14.0_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

Continued on next page

Base Portability Flags (Continued)

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:
-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 (except as noted below):
icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:
ifort -m64

Continued on next page

Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak 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
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

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: -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-malloc-options=3

Continued on next page

Peak Optimization Flags (Continued)

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

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

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R920 (Intel Xeon E7-8880L v2, 2.20 GHz)

SPECfp_rate2006 = 1550

SPECfp_rate_base2006 = 1510

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

Test date: Jan-2014
Hardware Availability: Mar-2014
Software Availability: Mar-2014

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 21:45:54 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 March 2014.