SPEC® CFP2006 Result

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Dell Inc.

PowerEdge R920 (Intel Xeon E7-4809 v2, 1.90 GHz)

SPECfp®2006 = NC

SPECfp_base2006 = NC

CPU2006 license: 55	**Test date:** Jan-2014
Test sponsor: Dell Inc.	**Hardware Availability:** Mar-2014
Tested by: Dell Inc.	**Software Availability:** Oct-2013

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Dell or Intel.

Hardware

CPU Name:	Intel Xeon E7-4809 v2
CPU Characteristics:	
CPU MHz:	1900
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
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
L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	1 TB (58 x 16 GB 2Rx4 PC3L-12900R-11 + 6 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz)
Disk Subsystem:	1 x 400 GB SAS SSD
Other Hardware:	None

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 5 (multi-user + display manager)
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
416.gamess	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
433.milc	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
434.zeusmp	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
435.gromacs	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
436.cactusADM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
437.leslie3d	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
444.namd	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
447.dealII	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
450.soplex	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
453.povray	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
454.calculix	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
459.GemsFDTD	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
465.tonto	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
470.lbm	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
481.wrf	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
482.sphinx3	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

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

Continued on next page

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Platform Notes (Continued)

```
System Profile set to Custom
C1E enabled
C States enabled
Memory Patrol Scrub set to disabled
 Sysinfo program
 /root/Desktop/Performance/i.14.0_Oct17_2013/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on slesperf2 Wed Jan 15 07:01:16 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 E7-4809 v2 @ 1.90GHz
       4 "physical id"s (chips)
       24 "processors"
    cores, siblings (Caution: counting these is hw and system dependent.  The
    following excerpt from /proc/cpuinfo might not be reliable.  Use with
    caution.)
       cpu cores : 6
       siblings  : 6
       physical 0: cores 0 1 2 3 4 5
       physical 1: cores 0 1 2 3 4 5
       physical 2: cores 0 1 2 3 4 5
       physical 3: cores 0 1 2 3 4 5
    cache size : 12288 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)
```

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Platform Notes (Continued)

```
        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 5 Jan 14 20:51 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       173G  53% /

   Additional information from dmidecode:
     BIOS Dell Inc. 1.0.9 12/16/2013
     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 "M393B2G70BH0-YK0" in the name are 16 GB PC3L-12800R-11 DIMMs
      DIMMs with "M393B2G70CB0-CMA" in the name are 16 GB PC3-14900R-13 DIMMs
```

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/ic14.0_Oct17_2013/libs/32:/root/Desktop/Performance/ic14.0_Oct17_2013/libs/64:/root/Desktop/Performance/ic14.0_Oct17_2013/sh"
   OMP_NUM_THREADS = "24"

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

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General Notes (Continued)

```
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
```

Non-Compliant

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Base Portability Flags (Continued)

```
      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 -parallel -opt-prefetch -ansi-alias
```

C++ benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
```

Fortran benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias
```

Peak Compiler Invocation

```
    icc    -m64
```

C++ benchmarks:
```
    icpc   -m64
```

Fortran benchmarks:
```
    ifort -m64
```

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

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Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

        433.milc: basepeak = yes

        470.lbm: basepeak = yes

        482.sphinx3: basepeak = yes

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

        447.dealII: 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-

        434.zeusmp: basepeak = yes

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Peak Optimization Flags (Continued)

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 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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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