SPEC® CFP2006 Result
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IBM Corporation

IBM System x3850 X6
(Intel Xeon E7-4820 v2, 2.00 GHz)

SPECfp®_rate2006 = NC

SPECfp_rate_base2006 = NC

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Apr-2014
Hardware Availability: Mar-2014
Software Availability: Nov-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 IBM or Intel. Please see http://www.spec.org/cpu2006/results/res2014q3/cpu2006-20140714-30410.html for updated results.

Non-Compliant

Hardware

CPU Name:	Intel Xeon E7-4820 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	16 MB I+D on chip per chip
Other Cache:	None
Memory:	1 TB (64 x 16 GB 2Rx4 PC3-12800R-11, ECC running at 1333MHz)
Disk Subsystem:	1 x 400 GB SATA, SSD
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago) 2.6.32-431.el6.x86_64
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:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	None

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Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
416.gamess	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
433.milc	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
434.zeusmp	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
435.gromacs	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
436.cactusADM	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
437.leslie3d	64	NC	NC	NC	NC	NC	NC	32	NC	NC	NC	NC	NC	NC
444.namd	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
447.dealII	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
450.soplex	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
453.povray	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
454.calculix	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
459.GemsFDTD	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
465.tonto	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
470.lbm	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
481.wrf	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC
482.sphinx3	64	NC	NC	NC	NC	NC	NC	64	NC	NC	NC	NC	NC	NC

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.
```

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Operating System Notes

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

Platform Notes

    Operating Mode set to Maximum Perfomance in BIOS
    Sysinfo program /cpu2006.1.2_14.0_aug2013/config/sysinfo.rev6818
    $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
    running on Larry-Andromeda Thu Apr 3 02:49:20 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 E7-4820 v2 @ 2.00GHz
          4 "physical id"s (chips)
          64 "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 : 8
          siblings : 16
          physical 0: cores 0 1 2 3 4 5 6 7
          physical 1: cores 0 1 2 3 4 5 6 7
          physical 2: cores 0 1 2 3 4 5 6 7
          physical 3: cores 0 1 2 3 4 5 6 7
       cache size : 16384 KB

    From /proc/meminfo
       MemTotal: 1058474560 kB
       HugePages_Total: 0
       Hugepagesize: 2048 kB

    /usr/bin/lsb_release -d
       Red Hat Enterprise Linux Server release 6.5 (Santiago)

    From /etc/*release* /etc/*version*

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Platform Notes (Continued)

```
    redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

 uname -a:
    Linux Larry-Andromeda 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST
    2013 x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Apr 2 11:23

 SPEC is set to: /cpu2006.1.2_14.0_aug2013
    Filesystem                           Type  Size  Used Avail Use% Mounted on
    /dev/mapper/vg_larryandromed-lv_root ext4  357G  122G  218G  36% /

 Additional information from dmidecode:
   BIOS IBM -[A8E103KUS-1.00]- 11/21/2013
   Memory:
    64x Hynix Unknown 16 GB 1333 MHz 2 rank
    32x NO DIMM Unknown

 (End of data from sysinfo program)
 Memory speed from dmidecode lists the downclocked speed of the run.
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/cpu2006.1.2_14.0_aug2013/libs/32:/cpu2006.1.2_14.0_aug2013/libs/64:/cpu2006.1.2_14.0_aug2013/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/redhat_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>
```

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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:
```
-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
```

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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: -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-

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Peak Optimization Flags (Continued)

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/IBM-Platform-Flags-V1.2-IVB-A.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/IBM-Platform-Flags-V1.2-IVB-A.xml

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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 Tue Aug 12 14:15:42 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 4 May 2014.