SPEC® CFP2006 Result
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IBM Corporation

IBM System x3250 M5
(Intel Xeon E3-1280 v3, 3.60 GHz)

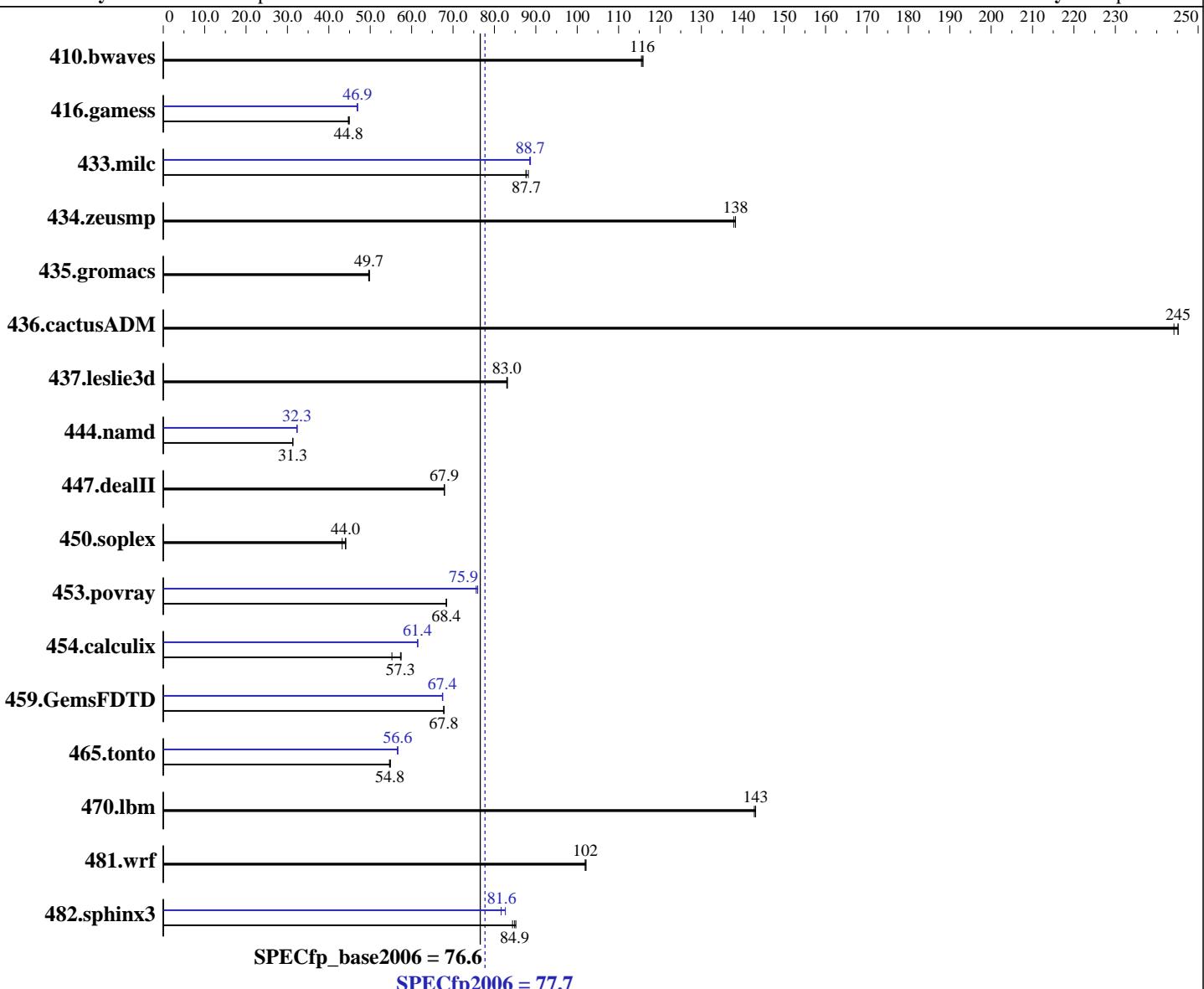$SPECfp^{®}2006 =$ 77.7

$SPECfp\_base2006 =$ 76.6

CPU2006 license: 11	**Test date:** Oct-2013
Test sponsor: IBM Corporation	**Hardware Availability:** Dec-2013
Tested by: IBM Corporation	**Software Availability:** Sep-2013

Results chart scale: 0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250

- 410.bwaves: 116
- 416.gamess: 46.9 / 44.8
- 433.milc: 88.7 / 87.7
- 434.zeusmp: 138
- 435.gromacs: 49.7
- 436.cactusADM: 245
- 437.leslie3d: 83.0
- 444.namd: 32.3 / 31.3
- 447.dealII: 67.9
- 450.soplex: 44.0
- 453.povray: 75.9 / 68.4
- 454.calculix: 61.4 / 57.3
- 459.GemsFDTD: 67.4 / 67.8
- 465.tonto: 56.6 / 54.8
- 470.lbm: 143
- 481.wrf: 102
- 482.sphinx3: 81.6 / 84.9

SPECfp_base2006 = 76.6
SPECfp2006 = 77.7

Hardware

CPU Name:	Intel Xeon E3-1280 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz:	3600
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1 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:	Red Hat Enterprise Linux Server release 6.4 (Santiago) 2.6.32-358.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:	Yes
File System:	ext4

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L3 Cache:	8 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x 1 TB SATA, 7200 RPM	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**117**	**116**	117	116	118	116	**117**	**116**	117	116	118	116
416.gamess	438	44.7	**437**	**44.8**	436	45.0	**417**	**46.9**	417	46.9	418	46.8
433.milc	105	87.6	**105**	**87.7**	104	88.2	103	88.7	**104**	**88.7**	104	88.5
434.zeusmp	66.0	138	65.8	138	**65.8**	**138**	66.0	138	65.8	138	**65.8**	**138**
435.gromacs	**144**	**49.7**	143	49.8	144	49.6	**144**	**49.7**	143	49.8	144	49.6
436.cactusADM	**48.7**	**245**	48.9	244	48.7	245	**48.7**	**245**	48.9	244	48.7	245
437.leslie3d	113	83.2	**113**	**83.0**	113	83.0	113	83.2	**113**	**83.0**	113	83.0
444.namd	**256**	**31.3**	256	31.3	256	31.3	248	32.3	248	32.3	**248**	**32.3**
447.dealII	168	67.9	169	67.9	**168**	**67.9**	168	67.9	169	67.9	**168**	**67.9**
450.soplex	193	43.2	189	44.1	**190**	**44.0**	193	43.2	189	44.1	**190**	**44.0**
453.povray	**77.8**	**68.4**	77.8	68.4	77.7	68.4	**70.1**	**75.9**	70.4	75.6	70.0	76.0
454.calculix	144	57.5	149	55.2	**144**	**57.3**	134	61.4	**134**	**61.4**	134	61.5
459.GemsFDTD	156	67.8	**157**	**67.8**	157	67.8	**157**	**67.4**	157	67.5	157	67.4
465.tonto	179	54.9	**180**	**54.8**	180	54.6	174	56.6	174	56.7	**174**	**56.6**
470.lbm	**96.0**	**143**	96.0	143	96.2	143	**96.0**	**143**	96.0	143	96.2	143
481.wrf	**110**	**102**	109	102	110	102	**110**	**102**	109	102	110	102
482.sphinx3	231	84.4	**230**	**84.9**	229	85.2	236	82.7	**239**	**81.6**	239	81.6

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 setting:
Operating Mode set to Custom
C-State enabled in BIOS
Hyper-Threading set to Disabled
Sysinfo program /home/SPECcpu/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on x3250M5 Wed Oct 23 20:35:52 2013

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

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Platform Notes (Continued)

```
   http://www.spec.org/cpu2006/Docs/config.html#sysinfo

   From /proc/cpuinfo
      model name : Intel(R) Xeon(R) CPU E3-1280 v3 @ 3.60GHz
         1 "physical id"s (chips)
         4 "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 : 4
         siblings  : 4
         physical 0: cores 0 1 2 3
      cache size : 8192 KB

   From /proc/meminfo
      MemTotal:        16299396 kB
      HugePages_Total:        0
      Hugepagesize:        2048 kB

   /usr/bin/lsb_release -d
      Red Hat Enterprise Linux Server release 6.4 (Santiago)

   From /etc/*release* /etc/*version*
      redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
      system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

   uname -a:
      Linux x3250M5 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
      x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Oct 21 11:41

   SPEC is set to: /home/SPECcpu
      Filesystem     Type    Size  Used Avail Use% Mounted on
      /dev/mapper/vg_x3250m5-lv_home
                     ext4    852G  8.6G  800G   2% /home

   Additional information from dmidecode:
     BIOS IBM -[JUE109GUS-1.00]- 09/28/2013
     Memory:
      2x 0000     1600 MHz
      2x Micron 18KSF1G72AZ-1G6E1 8 GB 1600 MHz 2 rank

   (End of data from sysinfo program)
  "2x 0000     1600 MHz" memory information from dmidecode indicates unused DIMM slots.
```

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General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/SPECcpu/libs/32:/home/SPECcpu/libs/64:/home/SPECcpu/sh"
OMP_NUM_THREADS = "4"

 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
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
 Turbo Mode enabled in BIOS
```

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:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
```

Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xCORE-AVX2 -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: -xCORE-AVX2(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

    470.lbm: basepeak = yes

 482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
              -parallel
```

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Peak Optimization Flags (Continued)

C++ benchmarks:

```
   444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2 -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/IBM-Platform-Flags-V1.2-HSW-A.html

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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-HSW-A.xml

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