



SPEC® CFP2006 Result

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IBM Corporation

IBM System x3250 M5
(Intel Xeon E3-1270 v3, 3.50 GHz)

SPECfp®2006 = 76.7

SPECfp_base2006 = 75.6

CPU2006 license: 11

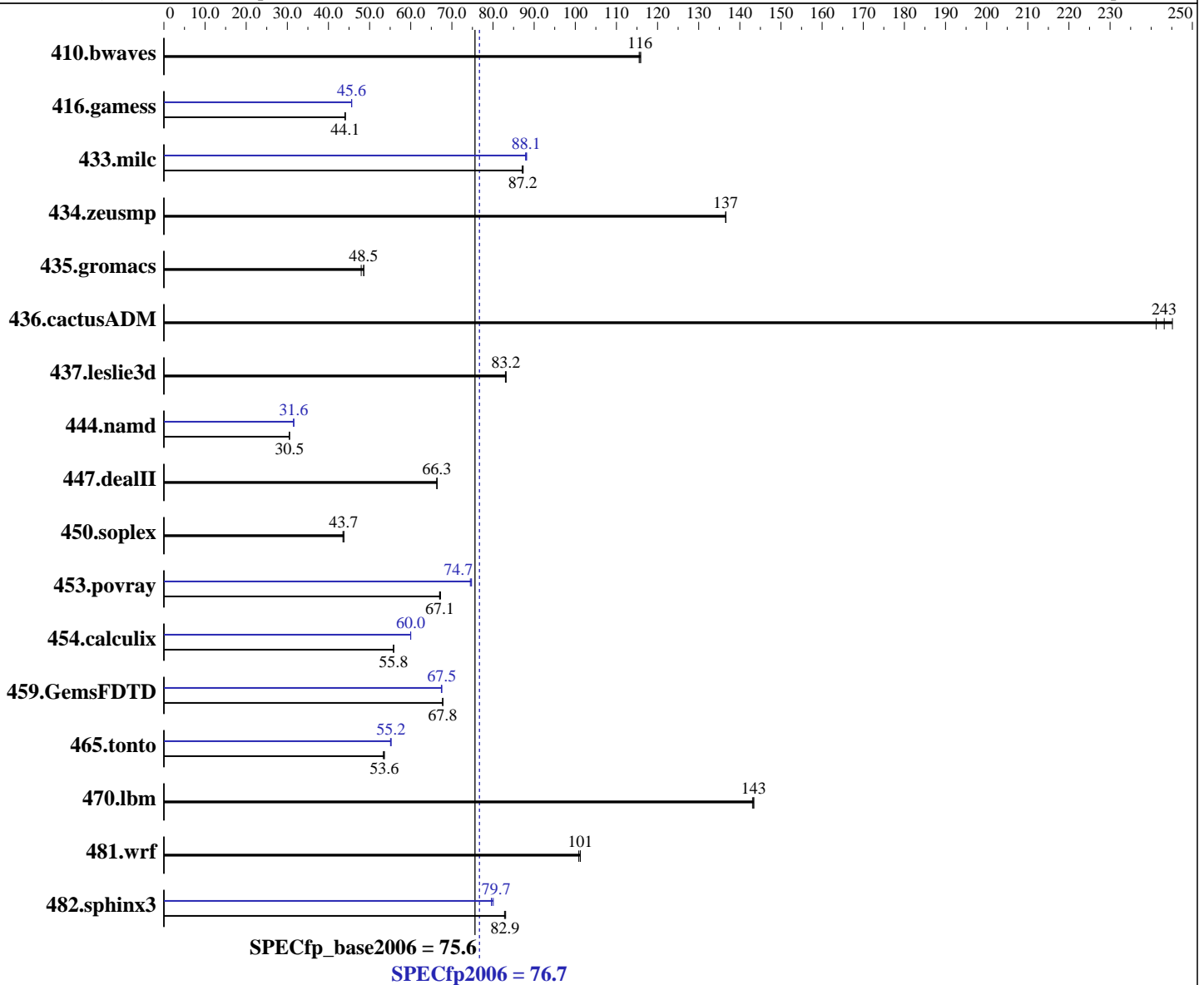
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Feb-2014

Hardware Availability: Dec-2013

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E3-1270 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.90 GHz
 CPU MHz: 3500
 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

Continued on next page



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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC)
Disk Subsystem: 1 x 1 TB SATA, 7200 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
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	118	116	117	116	<u>117</u>	<u>116</u>	118	116	117	116	<u>117</u>	<u>116</u>
416.gamess	444	44.1	<u>444</u>	<u>44.1</u>	445	44.0	<u>429</u>	<u>45.6</u>	429	45.6	429	45.7
433.milc	105	87.3	105	87.1	<u>105</u>	<u>87.2</u>	104	88.2	104	87.9	<u>104</u>	<u>88.1</u>
434.zeusmp	66.6	137	66.6	137	<u>66.6</u>	<u>137</u>	66.6	137	66.6	137	<u>66.6</u>	<u>137</u>
435.gromacs	<u>147</u>	<u>48.5</u>	149	48.0	147	48.6	<u>147</u>	<u>48.5</u>	149	48.0	147	48.6
436.cactusADM	48.7	245	49.5	241	<u>49.1</u>	<u>243</u>	48.7	245	49.5	241	<u>49.1</u>	<u>243</u>
437.leslie3d	113	83.2	<u>113</u>	<u>83.2</u>	113	83.0	113	83.2	<u>113</u>	<u>83.2</u>	113	83.0
444.namd	263	30.5	<u>263</u>	<u>30.5</u>	263	30.4	<u>254</u>	<u>31.6</u>	254	31.6	254	31.5
447.dealII	172	66.4	172	66.3	<u>172</u>	<u>66.3</u>	172	66.4	172	66.3	<u>172</u>	<u>66.3</u>
450.soplex	<u>191</u>	<u>43.7</u>	192	43.5	191	43.8	<u>191</u>	<u>43.7</u>	192	43.5	191	43.8
453.povray	79.1	67.2	79.4	67.0	<u>79.3</u>	<u>67.1</u>	71.1	74.8	71.4	74.5	<u>71.2</u>	<u>74.7</u>
454.calculix	148	55.8	<u>148</u>	<u>55.8</u>	148	55.8	138	60.0	138	60.0	<u>138</u>	<u>60.0</u>
459.GemsFDTD	156	67.8	157	67.8	<u>157</u>	<u>67.8</u>	<u>157</u>	<u>67.5</u>	157	67.5	157	67.4
465.tonto	<u>184</u>	<u>53.6</u>	184	53.3	184	53.6	179	55.1	<u>178</u>	<u>55.2</u>	178	55.2
470.lbm	95.8	143	<u>95.8</u>	<u>143</u>	96.0	143	95.8	143	<u>95.8</u>	<u>143</u>	96.0	143
481.wrf	<u>110</u>	<u>101</u>	111	101	110	101	<u>110</u>	<u>101</u>	111	101	110	101
482.sphinx3	235	83.1	<u>235</u>	<u>82.9</u>	235	82.8	<u>245</u>	<u>79.7</u>	243	80.1	245	79.6

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 Maximum Performance
Hyper-Threading set to Disabled
Sysinfo program /home/SPECcpu-new/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on x3250M5 Fri Feb 21 05:29:32 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>

Continued on next page



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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E3-1270 v3 @ 3.50GHz
 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 Feb 20 14:34

```

SPEC is set to: /home/SPECcpu-new
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_x3250m5-lv_home
                ext4      852G  33G  777G   4% /home

```

```

Additional information from dmidecode:
BIOS IBM -[JUE109OUS-1.00]- 11/20/2013
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.

General Notes

Environment variables set by runspec before the start of the run:
 KMP_AFFINITY = "granularity=fine,compact,1,0"
 LD_LIBRARY_PATH = "/home/SPECcpu-new/libs/32:/home/SPECcpu-new/libs/64:/home/SPECcpu-new/sh"

Continued on next page



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General Notes (Continued)

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>

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.deallI: -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

Continued on next page



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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.dealIII: 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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