



SPEC® CFP2006 Result

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IBM Corporation

IBM System x3250 M5
(Intel Core i3-4330, 3.50 GHz)

SPECfp®2006 = **63.7**

SPECfp_base2006 = **62.8**

CPU2006 license: 11

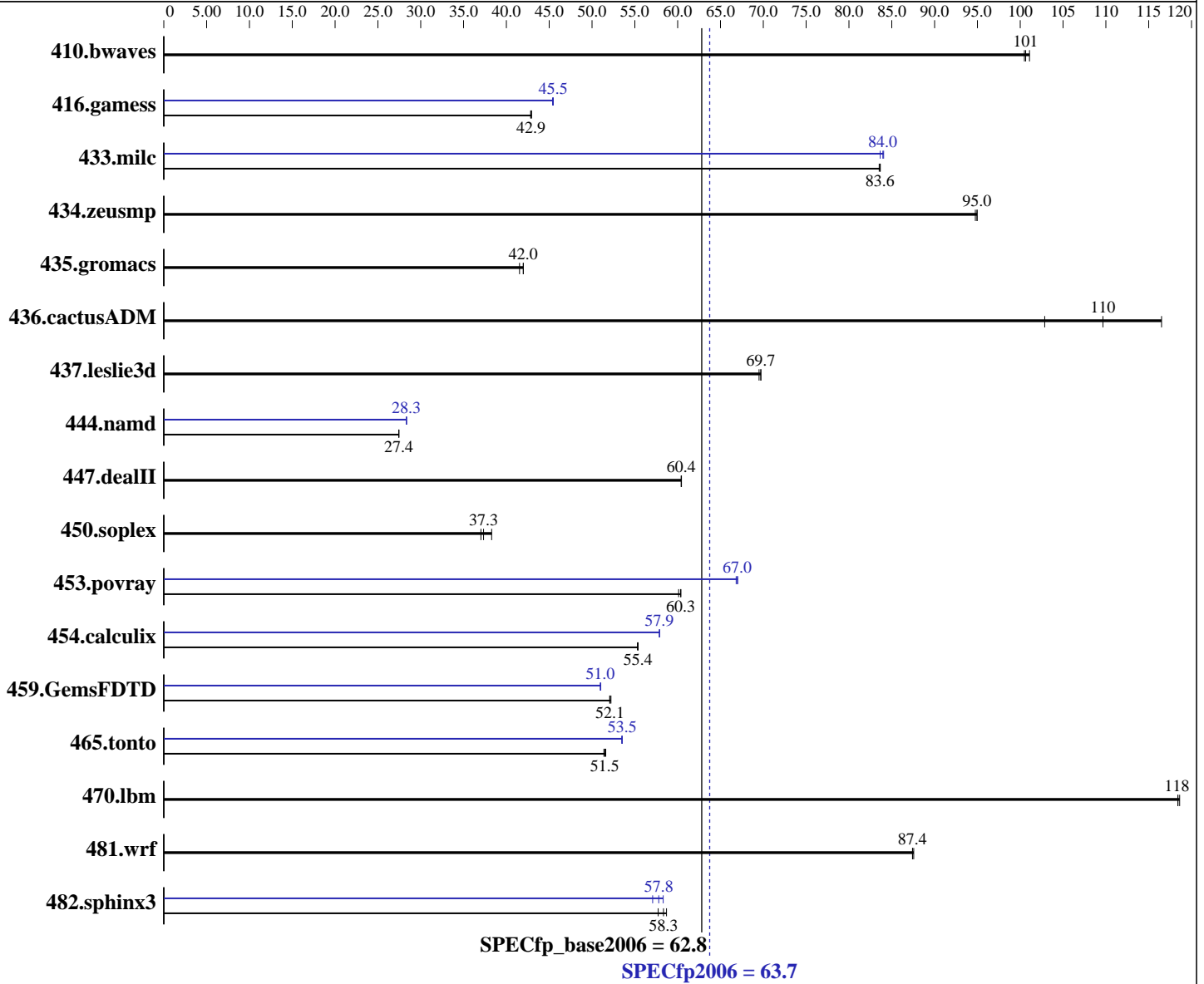
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Mar-2014

Hardware Availability: Dec-2013

Software Availability: Sep-2013



Hardware

CPU Name: Intel Core i3-4330
 CPU Characteristics:
 CPU MHz: 3500
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 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

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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: 4 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	135	100	134	101	<u>135</u>	<u>101</u>	135	100	134	101	<u>135</u>	<u>101</u>
416.gamess	<u>457</u>	<u>42.9</u>	457	42.8	456	42.9	431	45.5	<u>431</u>	<u>45.5</u>	431	45.4
433.milc	110	83.5	110	83.7	<u>110</u>	<u>83.6</u>	<u>109</u>	<u>84.0</u>	110	83.6	109	84.1
434.zeusmp	96.0	94.8	<u>95.8</u>	<u>95.0</u>	95.8	95.0	96.0	94.8	<u>95.8</u>	<u>95.0</u>	95.8	95.0
435.gromacs	<u>170</u>	<u>42.0</u>	170	42.0	172	41.5	<u>170</u>	<u>42.0</u>	170	42.0	172	41.5
436.cactusADM	<u>109</u>	<u>110</u>	103	117	116	103	<u>109</u>	<u>110</u>	103	117	116	103
437.leslie3d	135	69.5	135	69.7	<u>135</u>	<u>69.7</u>	135	69.5	135	69.7	<u>135</u>	<u>69.7</u>
444.namd	<u>292</u>	<u>27.4</u>	292	27.4	292	27.4	283	28.3	283	28.3	<u>283</u>	<u>28.3</u>
447.dealII	<u>189</u>	<u>60.4</u>	189	60.4	189	60.4	<u>189</u>	<u>60.4</u>	189	60.4	189	60.4
450.soplex	218	38.3	225	37.0	<u>223</u>	<u>37.3</u>	218	38.3	225	37.0	<u>223</u>	<u>37.3</u>
453.povray	88.1	60.4	88.5	60.1	<u>88.2</u>	<u>60.3</u>	79.6	66.8	<u>79.4</u>	<u>67.0</u>	79.4	67.0
454.calculix	149	55.4	149	55.3	<u>149</u>	<u>55.4</u>	143	57.9	<u>143</u>	<u>57.9</u>	143	57.9
459.GemsFDTD	203	52.2	204	52.1	<u>204</u>	<u>52.1</u>	208	51.0	<u>208</u>	<u>51.0</u>	208	51.0
465.tonto	191	51.6	<u>191</u>	<u>51.5</u>	191	51.4	184	53.5	<u>184</u>	<u>53.5</u>	184	53.5
470.lbm	116	118	<u>116</u>	<u>118</u>	116	119	116	118	<u>116</u>	<u>118</u>	116	119
481.wrf	<u>128</u>	<u>87.4</u>	128	87.6	128	87.4	<u>128</u>	<u>87.4</u>	128	87.6	128	87.4
482.sphinx3	<u>334</u>	<u>58.3</u>	332	58.7	338	57.7	<u>337</u>	<u>57.8</u>	341	57.1	334	58.3

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 Wed Mar 19 22:31:35 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>

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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Core(TM) i3-4330 CPU @ 3.50GHz
 1 "physical id"s (chips)
 2 "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 : 2
  siblings  : 2
  physical 0: cores 0 1
cache size : 4096 KB

```

```

From /proc/meminfo
MemTotal:      16299404 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 Mar 19 17:17

```

SPEC is set to: /home/SPECcpu-new
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_x3250m5-lv_home
                ext4      852G  16G  794G   2% /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"

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General Notes (Continued)

OMP_NUM_THREADS = "2"

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

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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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