



SPEC® CFP2006 Result

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IBM Corporation

IBM System x3100 M4
(Intel Core i3-3220, 3.30 GHz)

SPECfp®2006 = **54.3**

SPECfp_base2006 = **53.1**

CPU2006 license: 11

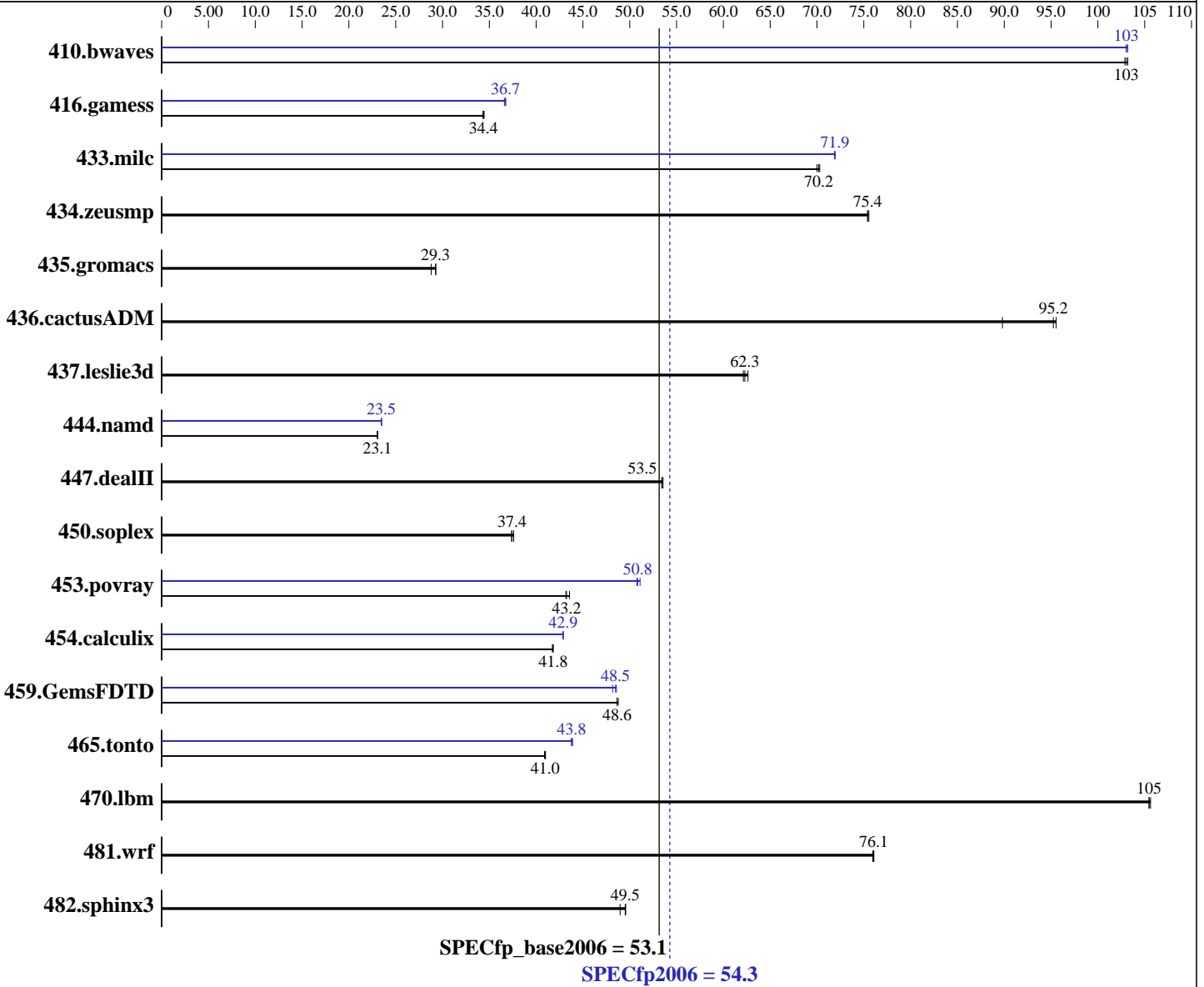
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Oct-2012

Hardware Availability: Sep-2012

Software Availability: Dec-2011



Hardware

CPU Name: Intel Core i3-3220
 CPU Characteristics:
 CPU MHz: 3300
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core
 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 6.2 (Santiago)
 2.6.32-220.el6.x86_64
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

Continued on next page



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L3 Cache: 3 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 250 GB 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	132	103	132	103	132	103	132	103	132	103	132	103
416.gamess	570	34.4	571	34.3	569	34.4	535	36.6	533	36.7	533	36.7
433.milc	131	70.3	131	70.2	131	70.0	128	71.9	128	71.9	128	71.9
434.zeusmp	121	75.4	121	75.4	120	75.5	121	75.4	121	75.4	120	75.5
435.gromacs	244	29.3	248	28.8	244	29.3	244	29.3	248	28.8	244	29.3
436.cactusADM	125	95.5	133	89.8	125	95.2	125	95.5	133	89.8	125	95.2
437.leslie3d	151	62.3	151	62.1	150	62.6	151	62.3	151	62.1	150	62.6
444.namd	348	23.0	348	23.1	348	23.1	342	23.5	341	23.5	342	23.5
447.dealII	214	53.6	214	53.5	214	53.4	214	53.6	214	53.5	214	53.4
450.soplex	223	37.4	223	37.4	222	37.6	223	37.4	223	37.4	222	37.6
453.povray	123	43.2	122	43.6	123	43.2	105	50.8	105	50.8	104	51.1
454.calculix	197	41.8	197	41.8	198	41.7	192	42.9	192	42.9	193	42.8
459.GemsFDTD	218	48.6	218	48.8	218	48.6	219	48.5	218	48.6	220	48.2
465.tonto	240	41.0	240	41.0	241	40.9	225	43.8	224	43.9	225	43.8
470.lbm	130	105	130	106	130	105	130	105	130	106	130	105
481.wrf	147	76.1	147	76.0	147	76.1	147	76.1	147	76.0	147	76.1
482.sphinx3	394	49.5	398	49.0	393	49.6	394	49.5	398	49.0	393	49.6

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 Settings:
Turbo Mode enabled in BIOS
C-State enabled in BIOS
Sysinfo program /root/SPECcpul.2/config/sysinfo.rev6800
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Sat Oct 13 19:35:04 2012

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) Core(TM) i3-3220 CPU @ 3.30GHz
 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 : 2
  siblings  : 4
  physical 0: cores 0 1
cache size : 3072 KB

From /proc/meminfo
MemTotal:      16322724 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
Linux localhost.localdomain 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13
EST 2011 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 11 15:55

SPEC is set to: /root/SPECcpul.2
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/VolGroup-lv_root
                ext4      50G   43G   4.2G  92% /

Additional information from dmidecode:
Memory:
  2x Micron 18JSF1G72AZ-1G6D1 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)

```

General Notes

Environment variables set by runspec before the start of the run:

```

KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/SPECcpul.2/libs/32:/root/SPECcpul.2/libs/64"
OMP_NUM_THREADS = "2"

```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB

Continued on next page



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General Notes (Continued)

memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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

Base Optimization Flags

C benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Continued on next page



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Base Optimization Flags (Continued)

Fortran benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xAVX -ipo -O3 -no-prec-div -static -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: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
-ansi-alias`

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) -prof-use(pass 2) -fno-alias
-auto-ilp32`

Continued on next page



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Peak Optimization Flags (Continued)

447.deallI: 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) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
-static

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- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

465.tonto: -xAVX(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: -xAVX -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-ic12.1-official-linux64.20111122.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-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-A.xml>



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