



SPEC[®] CFP2006 Result

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IBM Corporation

IBM System x3300 M4
(Intel Pentium 1403, 2.60 GHz)

SPECfp[®]2006 = 43.0

SPECfp_base2006 = 42.1

CPU2006 license: 11

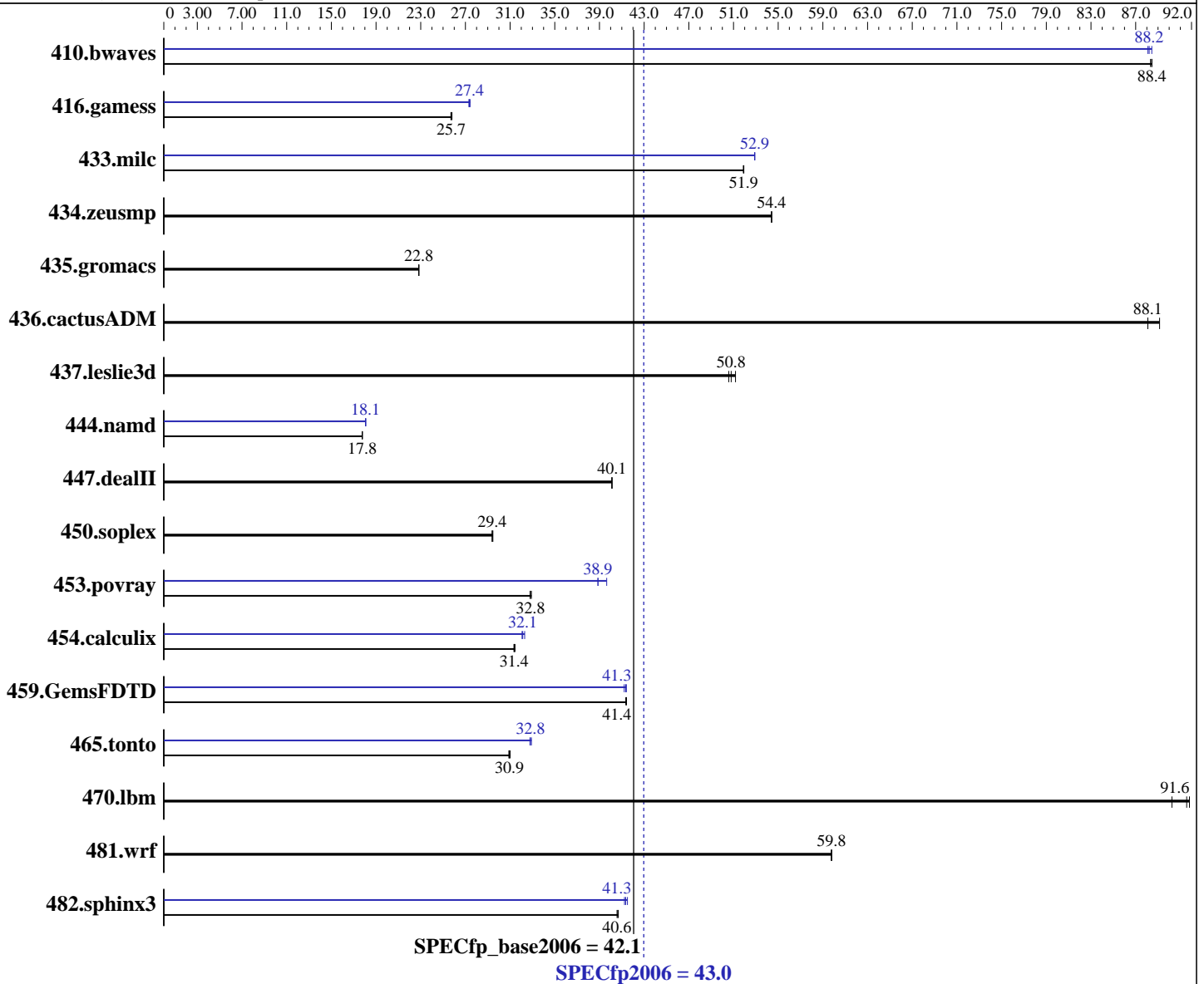
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Oct-2012

Hardware Availability: Aug-2012

Software Availability: Dec-2011



Hardware

CPU Name: Intel Pentium 1403
 CPU Characteristics:
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip
 CPU(s) orderable: 1,2 chips
 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 6.2 (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

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L3 Cache: 5 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz)
Disk Subsystem: 1 x 2 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 | 154 | 88.3 | 154 | 88.4 | 154 | 88.4 | 154 | 88.1 | 154 | 88.4 | 154 | 88.2 |
| 416.gamess | 762 | 25.7 | 759 | 25.8 | 761 | 25.7 | 714 | 27.4 | 716 | 27.4 | 717 | 27.3 |
| 433.milc | 177 | 51.9 | 177 | 51.9 | 177 | 51.9 | 174 | 52.9 | 174 | 52.9 | 174 | 52.9 |
| 434.zeusmp | 167 | 54.4 | 167 | 54.4 | 167 | 54.4 | 167 | 54.4 | 167 | 54.4 | 167 | 54.4 |
| 435.gromacs | 313 | 22.8 | 313 | 22.8 | 313 | 22.8 | 313 | 22.8 | 313 | 22.8 | 313 | 22.8 |
| 436.cactusADM | 134 | 89.1 | 136 | 88.1 | 136 | 88.1 | 134 | 89.1 | 136 | 88.1 | 136 | 88.1 |
| 437.leslie3d | 184 | 51.2 | 186 | 50.6 | 185 | 50.8 | 184 | 51.2 | 186 | 50.6 | 185 | 50.8 |
| 444.namd | 451 | 17.8 | 451 | 17.8 | 451 | 17.8 | 444 | 18.1 | 444 | 18.1 | 444 | 18.1 |
| 447.dealII | 285 | 40.1 | 285 | 40.1 | 285 | 40.1 | 285 | 40.1 | 285 | 40.1 | 285 | 40.1 |
| 450.soplex | 283 | 29.5 | 284 | 29.4 | 284 | 29.4 | 283 | 29.5 | 284 | 29.4 | 284 | 29.4 |
| 453.povray | 162 | 32.8 | 162 | 32.8 | 162 | 32.9 | 134 | 39.6 | 137 | 38.9 | 137 | 38.9 |
| 454.calculix | 263 | 31.4 | 263 | 31.3 | 262 | 31.4 | 257 | 32.1 | 257 | 32.1 | 255 | 32.3 |
| 459.GemsFDTD | 256 | 41.4 | 257 | 41.4 | 256 | 41.4 | 257 | 41.2 | 257 | 41.3 | 256 | 41.4 |
| 465.tonto | 317 | 31.0 | 318 | 30.9 | 319 | 30.9 | 300 | 32.8 | 300 | 32.8 | 299 | 32.9 |
| 470.lbm | 152 | 90.2 | 150 | 91.8 | 150 | 91.6 | 152 | 90.2 | 150 | 91.8 | 150 | 91.6 |
| 481.wrf | 187 | 59.8 | 187 | 59.8 | 187 | 59.8 | 187 | 59.8 | 187 | 59.8 | 187 | 59.8 |
| 482.sphinx3 | 480 | 40.6 | 480 | 40.6 | 479 | 40.7 | 470 | 41.5 | 473 | 41.2 | 471 | 41.3 |

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
Sysinfo program /home/SPECcpu1.2/config/sysinfo.rev6800
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
running on YungAn Thu Oct 18 19:04:25 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>

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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Pentium(R) CPU 1403 @ 2.60GHz
 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 : 5120 KB

From /proc/meminfo
MemTotal:      49406516 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 YungAn 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 17 00:23

SPEC is set to: /home/SPECcpul.2
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_yungan-lv_home
                ext4      1.7T  14G  1.6T   1% /home

Additional information from dmidecode:
Memory:
6x Samsung M393B1K70DH0-CK0 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,compact,1,0"
 LD_LIBRARY_PATH = "/home/SPECcpul.2/libs/32:/home/SPECcpul.2/libs/64"
 OMP_NUM_THREADS = "2"

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

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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

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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: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel`

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`

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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-linux64.20120425.html>

<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml>

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



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