



# SPEC® CFP2006 Result

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## IBM Corporation

IBM System x3300 M4  
(Intel Pentium 1407, 2.80 GHz)

SPECfp®2006 = 45.4

SPECfp\_base2006 = 44.5

CPU2006 license: 11

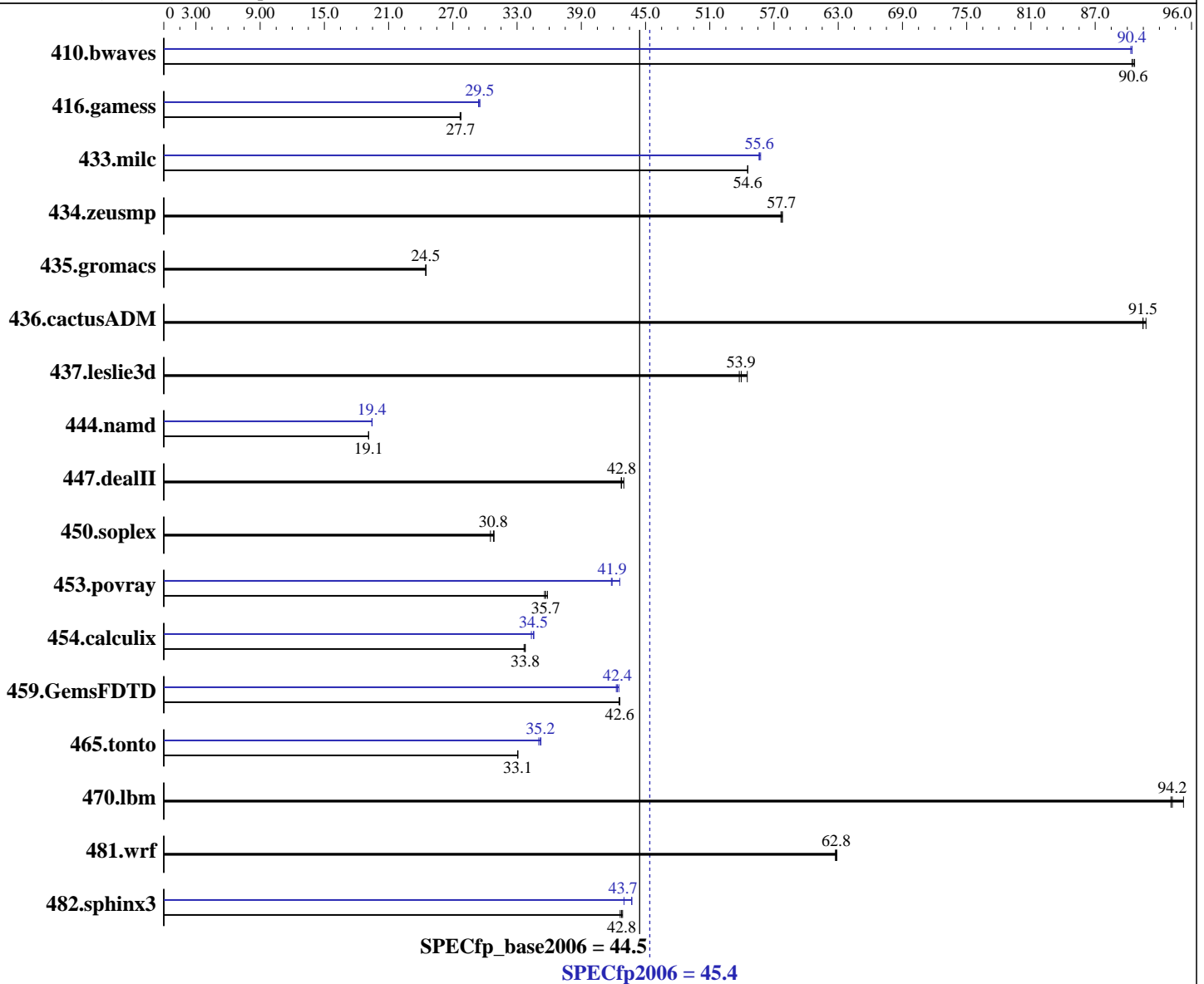
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Oct-2012

Hardware Availability: Aug-2012

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Pentium 1407  
 CPU Characteristics:  
 CPU MHz: 2800  
 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

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

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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	<b>150</b>	<b>90.6</b>	150	90.4	150	90.7	150	90.4	<b>150</b>	<b>90.4</b>	150	90.3
416.gamess	707	27.7	<b>706</b>	<b>27.7</b>	706	27.7	663	29.5	<b>664</b>	<b>29.5</b>	666	29.4
433.milc	168	54.6	<b>168</b>	<b>54.6</b>	168	54.5	<b>165</b>	<b>55.6</b>	165	55.7	165	55.6
434.zeusmp	<b>158</b>	<b>57.7</b>	157	57.8	158	57.6	<b>158</b>	<b>57.7</b>	157	57.8	158	57.6
435.gromacs	<b>292</b>	<b>24.5</b>	292	24.5	292	24.5	<b>292</b>	<b>24.5</b>	292	24.5	292	24.5
436.cactusADM	131	91.5	130	91.7	<b>131</b>	<b>91.5</b>	131	91.5	130	91.7	<b>131</b>	<b>91.5</b>
437.leslie3d	172	54.5	<b>174</b>	<b>53.9</b>	175	53.8	172	54.5	<b>174</b>	<b>53.9</b>	175	53.8
444.namd	419	19.1	<b>419</b>	<b>19.1</b>	419	19.1	412	19.4	<b>412</b>	<b>19.4</b>	412	19.5
447.dealII	266	43.0	268	42.7	<b>268</b>	<b>42.8</b>	266	43.0	268	42.7	<b>268</b>	<b>42.8</b>
450.soplex	<b>271</b>	<b>30.8</b>	270	30.9	273	30.5	<b>271</b>	<b>30.8</b>	270	30.9	273	30.5
453.povray	148	35.8	150	35.6	<b>149</b>	<b>35.7</b>	125	42.6	127	41.8	<b>127</b>	<b>41.9</b>
454.calculix	245	33.7	244	33.8	<b>244</b>	<b>33.8</b>	239	34.6	<b>239</b>	<b>34.5</b>	240	34.3
459.GemsFDTD	250	42.5	<b>249</b>	<b>42.6</b>	249	42.6	250	42.5	<b>250</b>	<b>42.4</b>	251	42.3
465.tonto	298	33.0	<b>298</b>	<b>33.1</b>	298	33.1	<b>280</b>	<b>35.2</b>	281	35.0	279	35.2
470.ibm	<b>146</b>	<b>94.2</b>	144	95.3	146	94.1	<b>146</b>	<b>94.2</b>	144	95.3	146	94.1
481.wrf	178	62.9	<b>178</b>	<b>62.8</b>	178	62.7	178	62.9	<b>178</b>	<b>62.8</b>	178	62.7
482.sphinx3	457	42.6	<b>456</b>	<b>42.8</b>	455	42.9	453	43.0	<b>446</b>	<b>43.7</b>	446	43.7

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/SPECcpul.2/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on YungAn Sat Oct 13 16:22:07 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 1407 @ 2.80GHz
 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 13 01:43

SPEC is set to: /home/SPECcpul.2
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/mapper/vg_yungan-lv_home
                ext4      1.7T      65G   1.6T    5% /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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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