



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2680)

SPECfp<sup>®</sup>2006 = 89.9

SPECfp\_base2006 = 85.7

CPU2006 license: 11

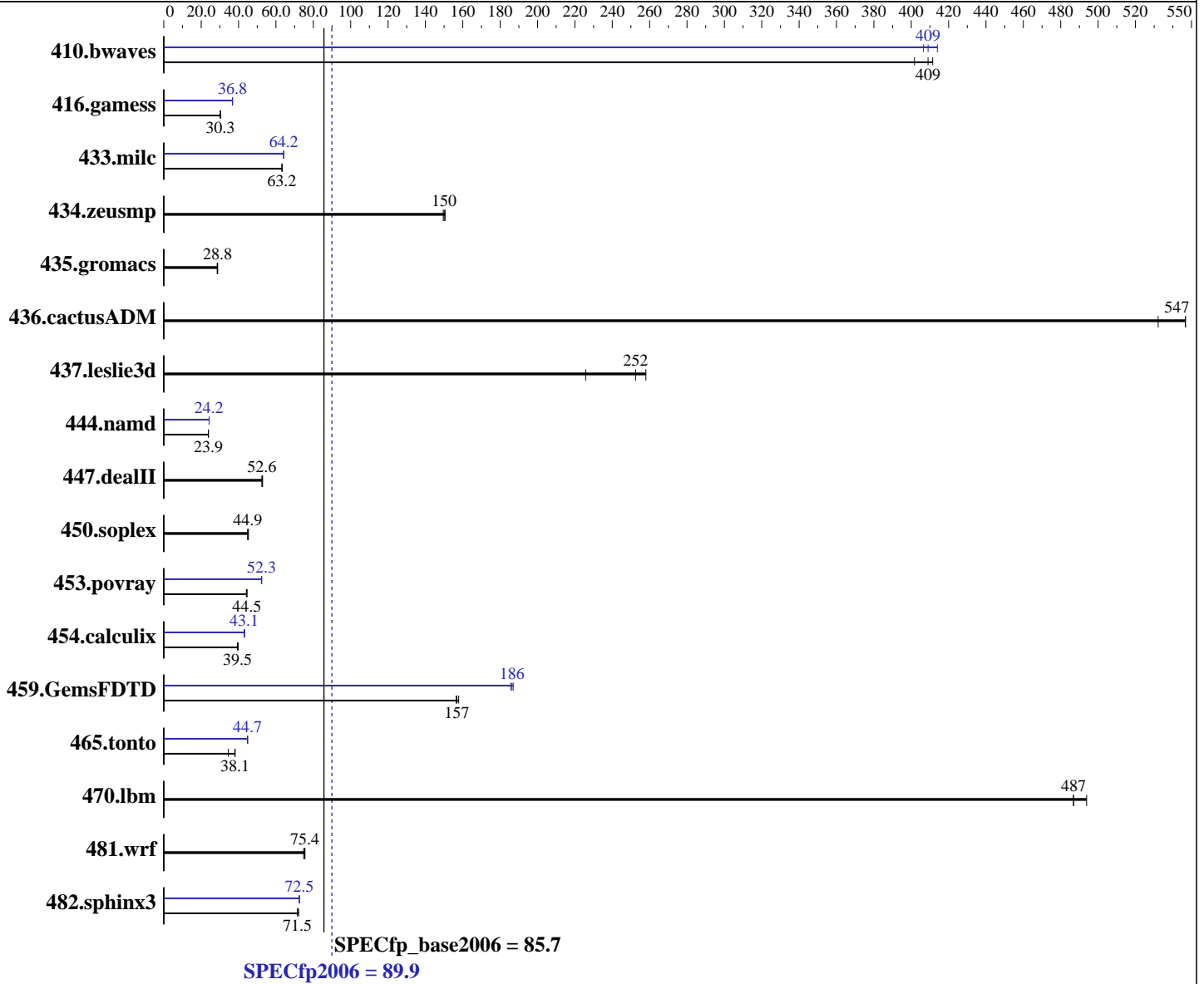
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Apr-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



**Hardware**

CPU Name: Intel Xeon E5-2680  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2700  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core  
 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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2680)

SPECfp2006 = **89.9**

SPECfp\_base2006 = **85.7**

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Apr-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011

L3 Cache: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-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	33.8	402	33.0	411	<b><u>33.2</u></b>	<b><u>409</u></b>	33.4	407	<b><u>33.2</u></b>	<b><u>409</u></b>	32.8	414
416.gamess	644	30.4	<b><u>646</u></b>	<b><u>30.3</u></b>	648	30.2	533	36.7	532	36.8	<b><u>533</u></b>	<b><u>36.8</u></b>
433.milc	145	63.3	145	63.2	<b><u>145</u></b>	<b><u>63.2</u></b>	143	64.2	143	64.1	<b><u>143</u></b>	<b><u>64.2</u></b>
434.zeusmp	60.4	151	60.8	150	<b><u>60.6</u></b>	<b><u>150</u></b>	60.4	151	60.8	150	<b><u>60.6</u></b>	<b><u>150</u></b>
435.gromacs	250	28.6	<b><u>248</u></b>	<b><u>28.8</u></b>	248	28.8	250	28.6	<b><u>248</u></b>	<b><u>28.8</u></b>	248	28.8
436.cactusADM	<b><u>21.9</u></b>	<b><u>547</u></b>	22.5	532	21.9	547	<b><u>21.9</u></b>	<b><u>547</u></b>	22.5	532	21.9	547
437.leslie3d	36.4	258	<b><u>37.2</u></b>	<b><u>252</u></b>	41.6	226	36.4	258	<b><u>37.2</u></b>	<b><u>252</u></b>	41.6	226
444.namd	336	23.9	336	23.9	<b><u>336</u></b>	<b><u>23.9</u></b>	331	24.2	330	24.3	<b><u>331</u></b>	<b><u>24.2</u></b>
447.dealII	216	52.9	<b><u>218</u></b>	<b><u>52.6</u></b>	218	52.5	216	52.9	<b><u>218</u></b>	<b><u>52.6</u></b>	218	52.5
450.soplex	184	45.3	186	44.9	<b><u>186</u></b>	<b><u>44.9</u></b>	184	45.3	186	44.9	<b><u>186</u></b>	<b><u>44.9</u></b>
453.povray	<b><u>120</u></b>	<b><u>44.5</u></b>	120	44.2	120	44.5	102	52.3	102	52.4	<b><u>102</u></b>	<b><u>52.3</u></b>
454.calculix	<b><u>209</u></b>	<b><u>39.5</u></b>	207	39.9	209	39.5	<b><u>192</u></b>	<b><u>43.1</u></b>	192	43.0	191	43.3
459.GemsFDTD	67.2	158	67.8	156	<b><u>67.6</u></b>	<b><u>157</u></b>	57.1	186	56.7	187	<b><u>56.9</u></b>	<b><u>186</u></b>
465.tonto	258	38.2	285	34.5	<b><u>259</u></b>	<b><u>38.1</u></b>	220	44.7	219	44.9	<b><u>220</u></b>	<b><u>44.7</u></b>
470.lbm	<b><u>28.2</u></b>	<b><u>487</u></b>	27.8	494	28.2	487	<b><u>28.2</u></b>	<b><u>487</u></b>	27.8	494	28.2	487
481.wrf	148	75.5	149	74.8	<b><u>148</u></b>	<b><u>75.4</u></b>	148	75.5	149	74.8	<b><u>148</u></b>	<b><u>75.4</u></b>
482.sphinx3	<b><u>273</u></b>	<b><u>71.5</u></b>	273	71.5	270	72.2	<b><u>269</u></b>	<b><u>72.5</u></b>	269	72.6	269	72.5

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"  
Zone reclaim mode enabled with:  
echo 1 > /proc/sys/vm/zone\_reclaim\_mode

## Platform Notes

BIOS Settings:  
Operating Mode set to Maximum Performance  
Sysinfo program /root/SPECcpu-v1.2/Docs/sysinfo  
\$Rev: 6775 \$ \$Date:: 2011-08-16 #\$ 8787f7622badcf24e01c368b1db4377c  
running on tianden Wed Apr 11 17:29:12 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2680)

**SPECfp2006 = 89.9**

**SPECfp\_base2006 = 85.7**

**CPU2006 license:** 11  
**Test sponsor:** IBM Corporation  
**Tested by:** IBM Corporation

**Test date:** Apr-2012  
**Hardware Availability:** Mar-2012  
**Software Availability:** Dec-2011

### Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
  model name : Genuine Intel(R) CPU @ 2.70GHz
    2 "physical id"s (chips)
    32 "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 : 8
    siblings  : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
  cache size : 20480 KB

From /proc/meminfo
  MemTotal:      132093704 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 tianden 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 Apr 11 17:13

SPEC is set to: /root/SPECcpu-v1.2
  Filesystem      Type      Size  Used Avail Use% Mounted on
  /dev/mapper/vg_tianden-lv_root
    ext4          145G    74G   64G   54% /

(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 = "/root/SPECcpu-v1.2/libs/32:/root/SPECcpu-v1.2/libs/64"  
OMP\_NUM\_THREADS = "16"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5  
Transparent Huge Pages enabled with:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**IBM Corporation**

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2680)

**SPECfp2006 = 89.9**

**SPECfp\_base2006 = 85.7**

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Apr-2012

**Hardware Availability:** Mar-2012

**Software Availability:** Dec-2011

## General Notes (Continued)

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.lelie3d: -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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**IBM Corporation**

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2680)

**SPECfp2006 = 89.9**

**SPECfp\_base2006 = 85.7**

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Apr-2012

**Hardware Availability:** Mar-2012

**Software Availability:** Dec-2011

## 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`

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**IBM Corporation**

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2680)

**SPECfp2006 = 89.9**

**SPECfp\_base2006 = 85.7**

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Apr-2012

**Hardware Availability:** Mar-2012

**Software Availability:** Dec-2011

## 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-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-linux64.20111122.xml>

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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2680)

**SPECfp2006 = 89.9**

**SPECfp\_base2006 = 85.7**

**CPU2006 license:** 11  
**Test sponsor:** IBM Corporation  
**Tested by:** IBM Corporation

**Test date:** Apr-2012  
**Hardware Availability:** Mar-2012  
**Software Availability:** Dec-2011

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 05:04:06 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 9 May 2012.