



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

SPECfp®\_rate2006 = 295

IBM System x3530 M4 (Intel Xeon E5-2430L)

SPECfp\_rate\_base2006 = 286

CPU2006 license: 11

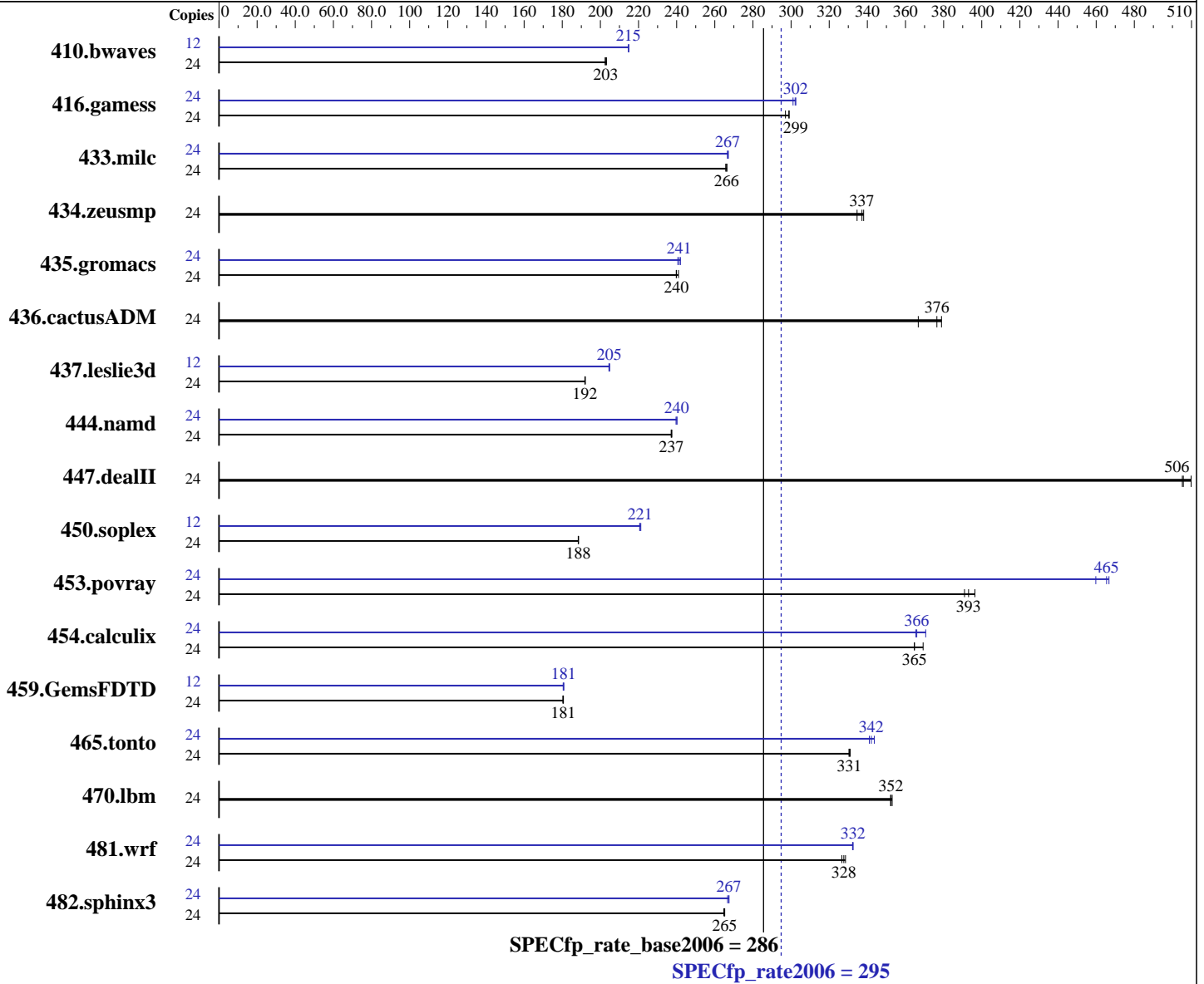
Test date: Jul-2012

Test sponsor: IBM Corporation

Hardware Availability: May-2012

Tested by: IBM Corporation

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-2430L  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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: No  
 File System: ext4

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

SPECfp\_rate2006 = **295**

IBM System x3530 M4 (Intel Xeon E5-2430L)

SPECfp\_rate\_base2006 = **286**

CPU2006 license: 11

Test date: Jul-2012

Test sponsor: IBM Corporation

Hardware Availability: May-2012

Tested by: IBM Corporation

Software Availability: Dec-2011

L3 Cache: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
410.bwaves	24	1611	202	<b>1609</b>	<b>203</b>	1605	203	12	759	215	759	215	<b>759</b>	<b>215</b>		
416.gamess	24	<b>1572</b>	<b>299</b>	1582	297	1572	299	24	<b>1555</b>	<b>302</b>	1561	301	1553	303		
433.milc	24	829	266	827	266	<b>828</b>	<b>266</b>	24	<b>826</b>	<b>267</b>	825	267	826	267		
434.zeusmp	24	646	338	653	335	<b>648</b>	<b>337</b>	24	646	338	653	335	<b>648</b>	<b>337</b>		
435.gromacs	24	711	241	715	240	<b>714</b>	<b>240</b>	24	<b>710</b>	<b>241</b>	712	241	708	242		
436.cactusADM	24	782	367	757	379	<b>762</b>	<b>376</b>	24	782	367	757	379	<b>762</b>	<b>376</b>		
437.leslie3d	24	1176	192	1174	192	<b>1175</b>	<b>192</b>	12	<b>551</b>	<b>205</b>	551	205	552	204		
444.namd	24	812	237	<b>811</b>	<b>237</b>	810	238	24	<b>802</b>	<b>240</b>	801	240	803	240		
447.dealII	24	<b>543</b>	<b>506</b>	543	505	539	510	24	<b>543</b>	<b>506</b>	543	505	539	510		
450.soplex	24	<b>1062</b>	<b>188</b>	1061	189	1062	188	12	<b>453</b>	<b>221</b>	452	221	454	221		
453.povray	24	<b>325</b>	<b>393</b>	327	391	322	396	24	<b>274</b>	<b>465</b>	278	460	274	467		
454.calculix	24	543	365	536	369	<b>543</b>	<b>365</b>	24	<b>541</b>	<b>366</b>	542	365	534	371		
459.GemsFDTD	24	1410	181	<b>1410</b>	<b>181</b>	1412	180	12	<b>705</b>	<b>181</b>	704	181	705	180		
465.tonto	24	<b>714</b>	<b>331</b>	713	331	715	330	24	692	341	687	344	<b>690</b>	<b>342</b>		
470.lbm	24	936	352	<b>936</b>	<b>352</b>	934	353	24	936	352	<b>936</b>	<b>352</b>	934	353		
481.wrf	24	821	327	<b>818</b>	<b>328</b>	816	329	24	<b>806</b>	<b>332</b>	806	332	807	332		
482.sphinx3	24	<b>1764</b>	<b>265</b>	1764	265	1767	265	24	<b>1750</b>	<b>267</b>	1754	267	1749	267		

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## 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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 295

IBM System x3530 M4 (Intel Xeon E5-2430L)

SPECfp\_rate\_base2006 = 286

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2012

Hardware Availability: May-2012

Software Availability: Dec-2011

## Platform Notes

BIOS setting:

Operating Mode set to Maximum Performance

Sysinfo program /root/SPECcpu-v1.2/config/sysinfo.rev6800

\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3

running on localhost.localdomain Sat Jul 14 08:34:30 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>

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-2430L 0 @ 2.00GHz

2 "physical id"s (chips)

24 "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 : 6

siblings : 12

physical 0: cores 0 1 2 3 4 5

physical 1: cores 0 1 2 3 4 5

cache size : 15360 KB

From /proc/meminfo

MemTotal: 99043512 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsc\_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 Jul 13 17:36

SPEC is set to: /root/SPECcpu-v1.2

Filesystem Type Size Used Avail Use% Mounted on

/dev/mapper/vg\_x3530m4-lv\_root

ext4 133G 34G 93G 27% /

Additional information from dmidecode:

Memory:

12x Samsung M393B1K70DH0-CK0 8 GB 1333 MHz 2 rank

(End of data from sysinfo program)



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 295

IBM System x3530 M4 (Intel Xeon E5-2430L)

SPECfp\_rate\_base2006 = 286

CPU2006 license: 11

Test date: Jul-2012

Test sponsor: IBM Corporation

Hardware Availability: May-2012

Tested by: IBM Corporation

Software Availability: Dec-2011

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/root/SPECcpu-v1.2/libs/32:/root/SPECcpu-v1.2/libs/64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
Filesystem page cache cleared with:  
echo 1 > /proc/sys/vm/drop\_caches  
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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 295

IBM System x3530 M4 (Intel Xeon E5-2430L)

SPECfp\_rate\_base2006 = 286

CPU2006 license: 11

Test date: Jul-2012

Test sponsor: IBM Corporation

Hardware Availability: May-2012

Tested by: IBM Corporation

Software Availability: Dec-2011

## Base Optimization Flags

C benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak 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

453.povray: -DSPEC\_CPU\_LP64

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 5



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 295

IBM System x3530 M4 (Intel Xeon E5-2430L)

SPECfp\_rate\_base2006 = 286

CPU2006 license: 11

Test date: Jul-2012

Test sponsor: IBM Corporation

Hardware Availability: May-2012

Tested by: IBM Corporation

Software Availability: Dec-2011

## Peak Portability Flags (Continued)

454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
 465.tonto: -DSPEC\_CPU\_LP64  
 470.lbm: -DSPEC\_CPU\_LP64  
 481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX

## 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  
 -opt-mem-layout-trans=3

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2

### 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

447.dealIII: basepeak = yes

450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -prof-use(pass 2) -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: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 295

IBM System x3530 M4 (Intel Xeon E5-2430L)

SPECfp\_rate\_base2006 = 286

CPU2006 license: 11

Test date: Jul-2012

Test sponsor: IBM Corporation

Hardware Availability: May-2012

Tested by: IBM Corporation

Software Availability: Dec-2011

## Peak Optimization Flags (Continued)

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch  
-static -auto-ilp32 -opt-mem-layout-trans=3

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32  
-opt-mem-layout-trans=3

481.wrf: Same as 454.calculix

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 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 11:53:53 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 14 August 2012.