



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

### SPECfp<sup>®</sup>\_rate2006 = 943

Lenovo System x3500 M5  
(Intel Xeon E5-2699 v3, 2.30 GHz)

### SPECfp\_rate\_base2006 = 916

CPU2006 license: 9017

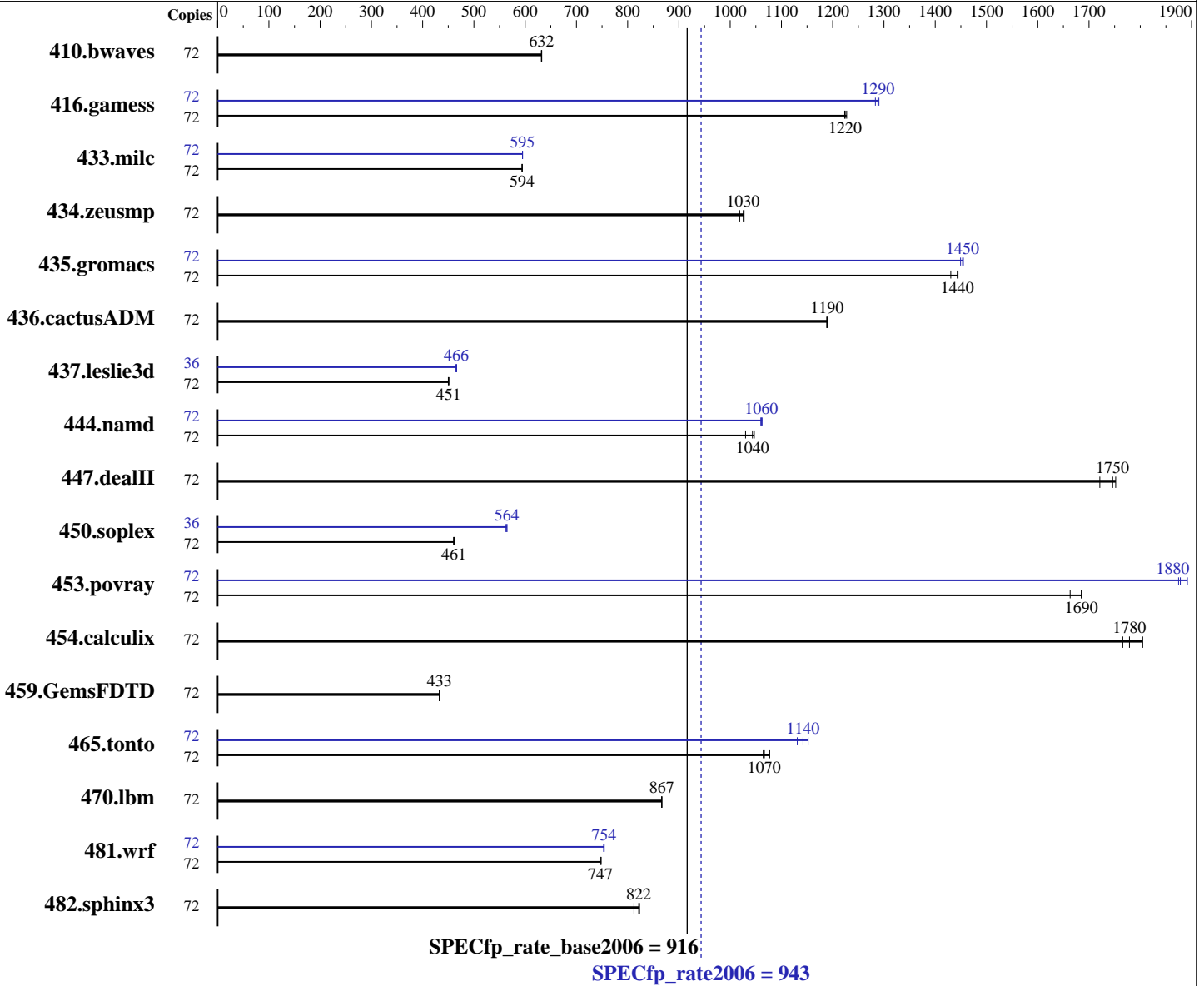
Test date: Dec-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Jan-2015

Tested by: Lenovo Group Limited

Software Availability: Sep-2014



### Hardware

CPU Name: Intel Xeon E5-2699 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 36 cores, 2 chips, 18 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 6.5 (Santiago)  
 2.6.32-431.el6.x86\_64  
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;  
 Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECfp\_rate2006 = 943

Lenovo System x3500 M5  
(Intel Xeon E5-2699 v3, 2.30 GHz)

SPECfp\_rate\_base2006 = 916

CPU2006 license: 9017

Test date: Dec-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Jan-2015

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

L3 Cache: 45 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)  
Disk Subsystem: 1 x 1000 GB SATA  
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	72	1549	632	<u>1548</u>	<u>632</u>	1547	632	72	1549	632	<u>1548</u>	<u>632</u>	1547	632
416.gamess	72	1152	1220	1149	1230	<u>1151</u>	<u>1220</u>	72	1099	1280	<u>1094</u>	<u>1290</u>	1093	1290
433.milc	72	1113	594	<u>1112</u>	<u>594</u>	1112	594	72	1111	595	<u>1111</u>	<u>595</u>	1111	595
434.zeusmp	72	638	1030	643	1020	<u>639</u>	<u>1030</u>	72	638	1030	643	1020	<u>639</u>	<u>1030</u>
435.gromacs	72	<u>356</u>	<u>1440</u>	356	1440	359	1430	72	353	1450	355	1450	<u>354</u>	<u>1450</u>
436.cactusADM	72	<u>723</u>	<u>1190</u>	723	1190	724	1190	72	<u>723</u>	<u>1190</u>	723	1190	724	1190
437.leslie3d	72	1504	450	1500	451	<u>1501</u>	<u>451</u>	36	<u>726</u>	<u>466</u>	726	466	728	465
444.namd	72	552	1050	<u>553</u>	<u>1040</u>	561	1030	72	545	1060	544	1060	<u>544</u>	<u>1060</u>
447.dealII	72	470	1750	<u>472</u>	<u>1750</u>	479	1720	72	470	1750	<u>472</u>	<u>1750</u>	479	1720
450.soplex	72	1301	461	<u>1303</u>	<u>461</u>	1304	460	36	532	564	<u>532</u>	<u>564</u>	534	562
453.povray	72	<u>227</u>	<u>1690</u>	227	1690	230	1660	72	<u>204</u>	<u>1880</u>	204	1870	202	1890
454.calculix	72	<u>334</u>	<u>1780</u>	329	1800	336	1770	72	<u>334</u>	<u>1780</u>	329	1800	336	1770
459.GemsFDTD	72	1766	433	1765	433	<u>1765</u>	<u>433</u>	72	1766	433	1765	433	<u>1765</u>	<u>433</u>
465.tonto	72	<u>664</u>	<u>1070</u>	658	1080	666	1060	72	615	1150	627	1130	<u>620</u>	<u>1140</u>
470.lbm	72	1141	867	1142	866	<u>1142</u>	<u>867</u>	72	1141	867	1142	866	<u>1142</u>	<u>867</u>
481.wrf	72	<u>1076</u>	<u>747</u>	1077	746	1075	748	72	<u>1067</u>	<u>754</u>	1068	753	1066	754
482.sphinx3	72	1728	812	<u>1708</u>	<u>822</u>	1705	823	72	1728	812	<u>1708</u>	<u>822</u>	1705	823

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"

## Platform Notes

BIOS setting:  
Operating Mode set to "Efficiency-Favor Performance"  
COD Preference set to Enable

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

**SPECfp\_rate2006 = 943**

Lenovo System x3500 M5  
(Intel Xeon E5-2699 v3, 2.30 GHz)

**SPECfp\_rate\_base2006 = 916**

**CPU2006 license:** 9017

**Test date:** Dec-2014

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Jan-2015

**Tested by:** Lenovo Group Limited

**Software Availability:** Sep-2014

### Platform Notes (Continued)

```
Sysinfo program /root/SPECCpu2014Sep01/config/sysinfo.rev6874
$Rev: 6874 $ $Date:: 2013-11-20 #$ 654bd3fcf53b06faef0efe54ed011998
running on x3500M5 Mon Dec 22 13:10:09 2014
```

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 E5-2699 v3 @ 2.30GHz
 2 "physical id"s (chips)
 72 "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 : 18
  siblings  : 36
  physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size : 23040 KB
```

```
From /proc/meminfo
MemTotal:      264153244 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux x3500M5 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Dec 21 23:38
```

```
SPEC is set to: /root/SPECCpu2014Sep01
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/VolGroup-lv_root ext4  1.8T   26G  1.7T   2% /
```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS IBM -[TAE103F-1.02]- 12/05/2014  
Memory:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

**Lenovo Group Limited**

**SPECfp\_rate2006 = 943**

Lenovo System x3500 M5  
(Intel Xeon E5-2699 v3, 2.30 GHz)

**SPECfp\_rate\_base2006 = 916**

**CPU2006 license:** 9017

**Test date:** Dec-2014

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Jan-2015

**Tested by:** Lenovo Group Limited

**Software Availability:** Sep-2014

## Platform Notes (Continued)

3x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz  
13x Hynix HMA42GR7MFR4N-TFT1 16 GB 2 rank 2133 MHz  
8x NO DIMM Unknown

(End of data from sysinfo program)

## General Notes

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

```
LD_LIBRARY_PATH = "/root/SPECCpu2014Sep01/libs/32:/root/SPECCpu2014Sep01/libs/64:/root/SPECCpu2014Sep01/sh"
```

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.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
```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

**Lenovo Group Limited**

**SPECfp\_rate2006 = 943**

Lenovo System x3500 M5  
(Intel Xeon E5-2699 v3, 2.30 GHz)

**SPECfp\_rate\_base2006 = 916**

**CPU2006 license:** 9017

**Test date:** Dec-2014

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Jan-2015

**Tested by:** Lenovo Group Limited

**Software Availability:** Sep-2014

## Base Portability Flags (Continued)

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:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

## Peak Compiler Invocation

C benchmarks:

icc -m64

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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECfp\_rate2006 = 943

Lenovo System x3500 M5  
(Intel Xeon E5-2699 v3, 2.30 GHz)

SPECfp\_rate\_base2006 = 916

CPU2006 license: 9017

Test date: Dec-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Jan-2015

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

## Peak Portability Flags (Continued)

```

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
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

```

## Peak Optimization Flags

C benchmarks:

```

433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
         -O3(pass 2) -no-prec-div(pass 2)
         -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
         -auto-ilp32

```

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

```

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
         -O3(pass 2) -no-prec-div(pass 2)
         -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias
         -auto-ilp32

```

447.dealII: basepeak = yes

```

450.soplex: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
          -O3(pass 2) -no-prec-div(pass 2)
          -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
          -opt-malloc-options=3

```

```

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
          -O3(pass 2) -no-prec-div(pass 2)
          -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll14
          -ansi-alias

```

Fortran benchmarks:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp\_rate2006 = 943

Lenovo System x3500 M5  
(Intel Xeon E5-2699 v3, 2.30 GHz)

SPECfp\_rate\_base2006 = 916

CPU2006 license: 9017

Test date: Dec-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Jan-2015

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

## Peak Optimization Flags (Continued)

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(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-

434.zeusmp: basepeak = yes

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4  
-auto -inline-alloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2)  
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-HSW-B.20141230.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-HSW-B.20141230.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 Wed Jan 14 10:28:19 2015 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 13 January 2015.