



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECfp<sup>®</sup>2006 = 114

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECfp\_base2006 = 109

CPU2006 license: 9017

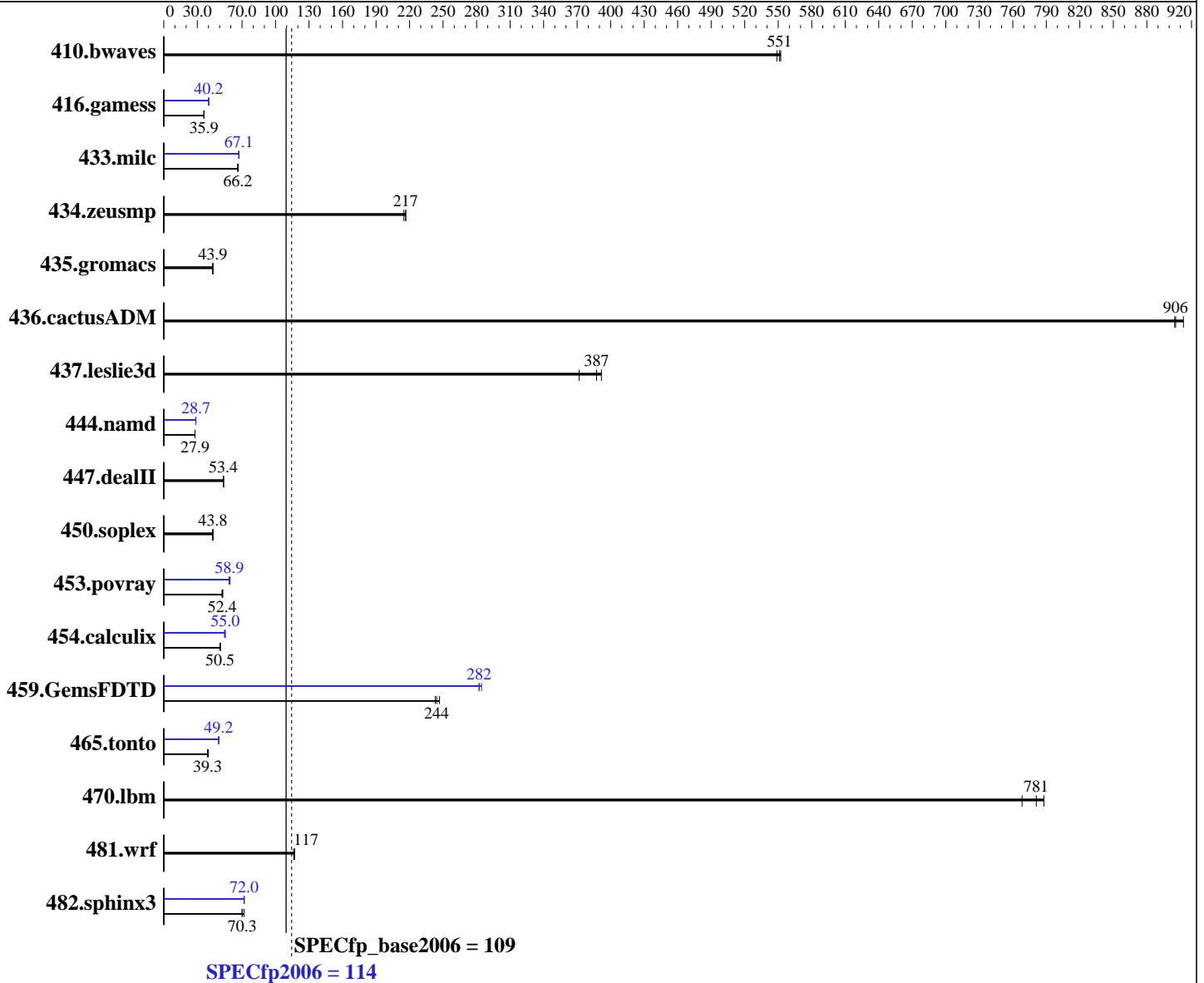
Test date: Mar-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014



### Hardware

CPU Name: Intel Xeon E5-2680 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 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 7.0 (Maipo)  
 3.10.0-123.el7.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: Yes  
 File System: xfs

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECfp2006 = **114**

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECfp\_base2006 = **109**

CPU2006 license: 9017

Test date: Mar-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

L3 Cache: 30 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, 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	24.8	549	<b><u>24.7</u></b>	<b><u>551</u></b>	24.6	552	24.8	549	<b><u>24.7</u></b>	<b><u>551</u></b>	24.6	552
416.gamess	544	36.0	545	35.9	<b><u>545</u></b>	<b><u>35.9</u></b>	<b><u>487</u></b>	<b><u>40.2</u></b>	488	40.1	486	40.3
433.milc	<b><u>139</u></b>	<b><u>66.2</u></b>	139	66.2	138	66.6	<b><u>137</u></b>	<b><u>67.1</u></b>	137	67.1	136	67.3
434.zeusmp	42.0	217	<b><u>42.0</u></b>	<b><u>217</u></b>	42.3	215	42.0	217	<b><u>42.0</u></b>	<b><u>217</u></b>	42.3	215
435.gromacs	162	44.0	163	43.7	<b><u>163</u></b>	<b><u>43.9</u></b>	162	44.0	163	43.7	<b><u>163</u></b>	<b><u>43.9</u></b>
436.cactusADM	13.1	913	13.2	905	<b><u>13.2</u></b>	<b><u>906</u></b>	13.1	913	13.2	905	<b><u>13.2</u></b>	<b><u>906</u></b>
437.leslie3d	<b><u>24.3</u></b>	<b><u>387</u></b>	25.3	372	24.0	392	<b><u>24.3</u></b>	<b><u>387</u></b>	25.3	372	24.0	392
444.namd	<b><u>287</u></b>	<b><u>27.9</u></b>	287	27.9	287	27.9	<b><u>279</u></b>	<b><u>28.7</u></b>	279	28.7	280	28.7
447.dealII	214	53.5	214	53.4	<b><u>214</u></b>	<b><u>53.4</u></b>	214	53.5	214	53.4	<b><u>214</u></b>	<b><u>53.4</u></b>
450.soplex	189	44.1	191	43.7	<b><u>190</u></b>	<b><u>43.8</u></b>	189	44.1	191	43.7	<b><u>190</u></b>	<b><u>43.8</u></b>
453.povray	<b><u>101</u></b>	<b><u>52.4</u></b>	102	52.1	101	52.8	89.7	59.3	<b><u>90.3</u></b>	<b><u>58.9</u></b>	91.2	58.3
454.calculix	164	50.4	163	50.6	<b><u>164</u></b>	<b><u>50.5</u></b>	<b><u>150</u></b>	<b><u>55.0</u></b>	150	55.0	152	54.3
459.GemsFDTD	<b><u>43.4</u></b>	<b><u>244</u></b>	43.0	247	43.7	243	37.6	282	<b><u>37.6</u></b>	<b><u>282</u></b>	37.3	284
465.tonto	<b><u>250</u></b>	<b><u>39.3</u></b>	251	39.2	246	39.9	<b><u>200</u></b>	<b><u>49.2</u></b>	201	49.1	200	49.3
470.lbm	<b><u>17.6</u></b>	<b><u>781</u></b>	17.4	788	17.9	768	<b><u>17.6</u></b>	<b><u>781</u></b>	17.4	788	17.9	768
481.wrf	<b><u>95.6</u></b>	<b><u>117</u></b>	95.5	117	96.0	116	<b><u>95.6</u></b>	<b><u>117</u></b>	95.5	117	96.0	116
482.sphinx3	271	71.8	<b><u>277</u></b>	<b><u>70.3</u></b>	278	70.0	271	72.0	<b><u>271</u></b>	<b><u>72.0</u></b>	271	71.9

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 "Efficiency-Favor Performance"  
Sysinfo program /home/SPEC/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on wilykat.labs.lenovo.com Tue Mar 31 04:06:13 2015

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>

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECfp2006 = 114

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECfp\_base2006 = 109

CPU2006 license: 9017

Test date: Mar-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

### Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2680 v3 @ 2.50GHz
 2 "physical id"s (chips)
 48 "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 : 12
  siblings  : 24
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 KB

```

```

From /proc/meminfo
MemTotal:      263584116 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

```

```

uname -a:
Linux wilykat.labs.lenovo.com 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

```

```

SPEC is set to: /home/SPEC
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs      927G      11G  916G   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 -[THE106CUS-1.11]- 02/16/2015
Memory:
10x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz
6x Hynix HMA42GR7MFR4N-TFT1 16 GB 2 rank 2133 MHz

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 114

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECfp\_base2006 = 109

CPU2006 license: 9017

Test date: Mar-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

## Platform Notes (Continued)

(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/SPEC/libs/32:/home/SPEC/libs/64:/home/SPEC/sh"

OMP\_NUM\_THREADS = "24"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB  
memory using RedHat EL 7.0

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 114

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECfp\_base2006 = 109

CPU2006 license: 9017

Test date: Mar-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

## Base Portability Flags (Continued)

482.sphinx3: -DSPEC\_CPU\_LP64

## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-auto-ilp32 -ansi-alias

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 114

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECfp\_base2006 = 109

CPU2006 license: 9017

Test date: Mar-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

## Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

C++ benchmarks:

444.namd: -xCORE-AVX2(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: basepeak = yes

453.povray: -xCORE-AVX2(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: 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: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

**Lenovo Group Limited**

**SPECfp2006 = 114**

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2680 v3, 2.50 GHz)

**SPECfp\_base2006 = 109**

**CPU2006 license:** 9017

**Test date:** Mar-2015

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Nov-2014

**Tested by:** Lenovo Group Limited

**Software Availability:** Sep-2014

## Peak Optimization Flags (Continued)

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-ic15.0-official-linux64.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-HSW-B.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 Tue Apr 21 18:22:09 2015 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 21 April 2015.