



SPEC® CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp®2006 = 111

Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2660 v3, 2.60 GHz)

SPECfp_base2006 = 106

CPU2006 license: 9017

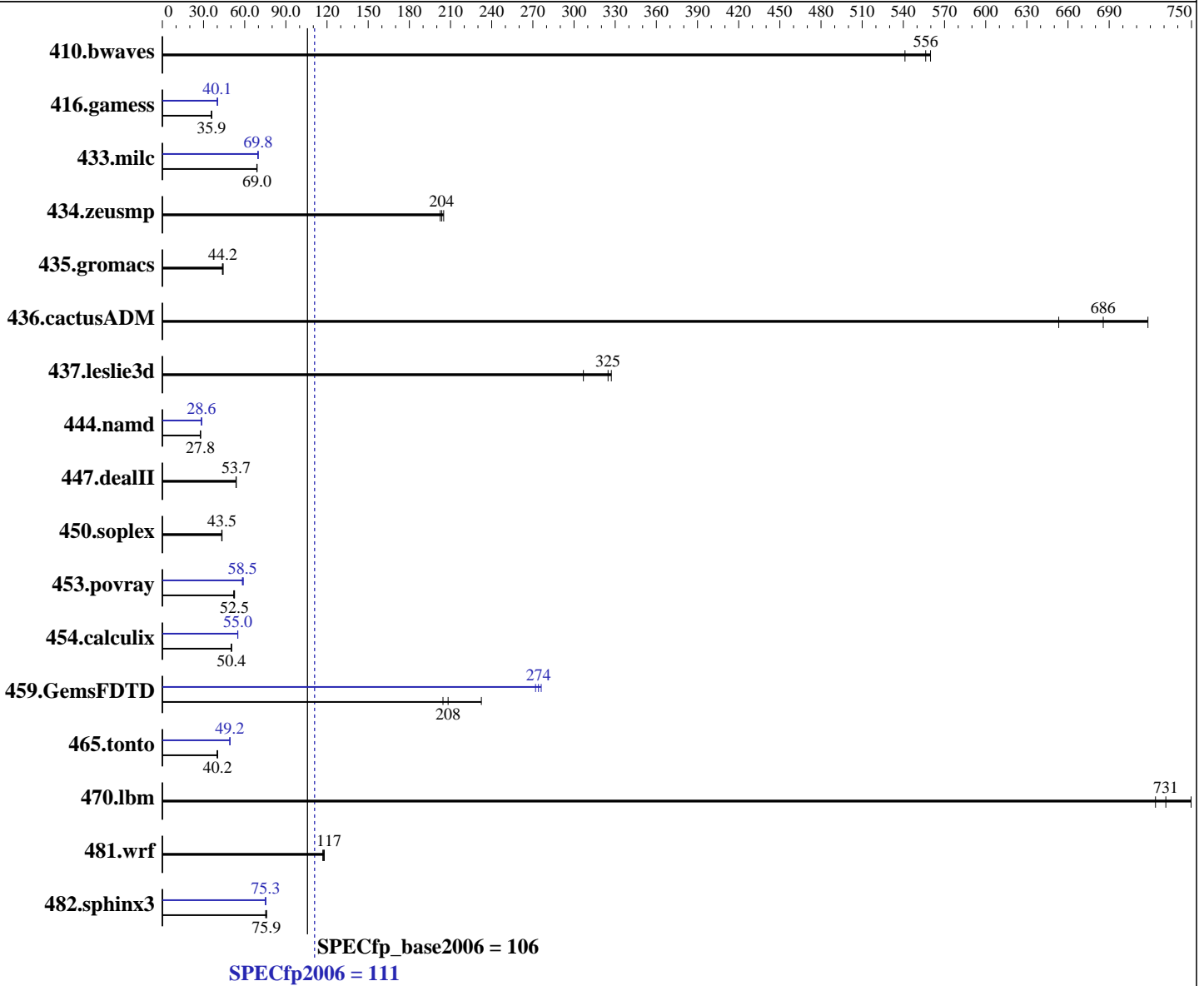
Test date: Jun-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E5-2660 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 20 cores, 2 chips, 10 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 = **111**

Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2660 v3, 2.60 GHz)

SPECfp_base2006 = **106**

CPU2006 license: 9017

Test date: Jun-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

L3 Cache: 25 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 | 25.1 | 541 | 24.3 | 560 | <u>24.4</u> | <u>556</u> | 25.1 | 541 | 24.3 | 560 | <u>24.4</u> | <u>556</u> |
| 416.gamess | 548 | 35.7 | <u>545</u> | <u>35.9</u> | 543 | 36.0 | 487 | 40.2 | <u>489</u> | <u>40.1</u> | 489 | 40.1 |
| 433.milc | 133 | 68.8 | 133 | 69.0 | <u>133</u> | <u>69.0</u> | <u>132</u> | <u>69.8</u> | 132 | 69.6 | 131 | 69.9 |
| 434.zeusmp | <u>44.7</u> | <u>204</u> | 44.9 | 203 | 44.4 | 205 | <u>44.7</u> | <u>204</u> | 44.9 | 203 | 44.4 | 205 |
| 435.gromacs | <u>162</u> | <u>44.2</u> | 161 | 44.2 | 163 | 43.7 | <u>162</u> | <u>44.2</u> | 161 | 44.2 | 163 | 43.7 |
| 436.cactusADM | 18.3 | 653 | 16.6 | 718 | <u>17.4</u> | <u>686</u> | 18.3 | 653 | 16.6 | 718 | <u>17.4</u> | <u>686</u> |
| 437.leslie3d | <u>28.9</u> | <u>325</u> | 30.6 | 307 | 28.7 | 327 | <u>28.9</u> | <u>325</u> | 30.6 | 307 | 28.7 | 327 |
| 444.namd | 288 | 27.8 | 289 | 27.7 | <u>289</u> | <u>27.8</u> | 282 | 28.5 | 280 | 28.6 | <u>280</u> | <u>28.6</u> |
| 447.dealII | 213 | 53.7 | <u>213</u> | <u>53.7</u> | 212 | 53.9 | 213 | 53.7 | <u>213</u> | <u>53.7</u> | 212 | 53.9 |
| 450.soplex | 192 | 43.5 | 193 | 43.2 | <u>192</u> | <u>43.5</u> | 192 | 43.5 | 193 | 43.2 | <u>192</u> | <u>43.5</u> |
| 453.povray | <u>101</u> | <u>52.5</u> | 101 | 52.6 | 102 | 52.0 | 91.2 | 58.3 | 90.2 | 59.0 | <u>91.0</u> | <u>58.5</u> |
| 454.calculix | 165 | 50.1 | 164 | 50.5 | <u>164</u> | <u>50.4</u> | 150 | 55.0 | 150 | 54.9 | <u>150</u> | <u>55.0</u> |
| 459.GemsFDTD | 45.6 | 232 | <u>51.0</u> | <u>208</u> | 51.9 | 204 | <u>38.7</u> | <u>274</u> | 39.0 | 272 | 38.4 | 276 |
| 465.tonto | <u>245</u> | <u>40.2</u> | 247 | 39.8 | 244 | 40.3 | <u>200</u> | <u>49.2</u> | 200 | 49.3 | 200 | 49.2 |
| 470.lbm | <u>18.8</u> | <u>731</u> | 18.3 | 750 | 19.0 | 724 | <u>18.8</u> | <u>731</u> | 18.3 | 750 | 19.0 | 724 |
| 481.wrf | 94.6 | 118 | 95.5 | 117 | <u>95.2</u> | <u>117</u> | 94.6 | 118 | 95.5 | 117 | <u>95.2</u> | <u>117</u> |
| 482.sphinx3 | 259 | 75.2 | 257 | 76.0 | <u>257</u> | <u>75.9</u> | 260 | 75.0 | 259 | 75.4 | <u>259</u> | <u>75.3</u> |

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-2.labs.lenovo.com Sun Jun 28 07:52:19 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 = 111

Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2660 v3, 2.60 GHz)

SPECfp_base2006 = 106

CPU2006 license: 9017

Test date: Jun-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 E5-2660 v3 @ 2.60GHz
 2 "physical id"s (chips)
 40 "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 : 10
  siblings  : 20
  physical 0: cores 0 1 2 3 4 8 9 10 11 12
  physical 1: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB

```

```

From /proc/meminfo
MemTotal:      263585044 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-2.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  13G  915G   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 = 111

Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2660 v3, 2.60 GHz)

SPECfp_base2006 = 106

CPU2006 license: 9017

Test date: Jun-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 = "20"

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 = 111

Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2660 v3, 2.60 GHz)

SPECfp_base2006 = 106

CPU2006 license: 9017

Test date: Jun-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 = 111

Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2660 v3, 2.60 GHz)

SPECfp_base2006 = 106

CPU2006 license: 9017

Test date: Jun-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 = 111

Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2660 v3, 2.60 GHz)

SPECfp_base2006 = 106

CPU2006 license: 9017

Test date: Jun-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.

Tested with SPEC CPU2006 v1.2.
Report generated on Mon Aug 10 10:50:52 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 August 2015.