



SPEC® CFP2006 Result

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Lenovo Group Limited

SPECfp®2006 = **101**

Lenovo System x3250 M6
(3.60 GHz, Intel Xeon E3-1270 v5)

SPECfp_base2006 = **98.4**

CPU2006 license: 9017

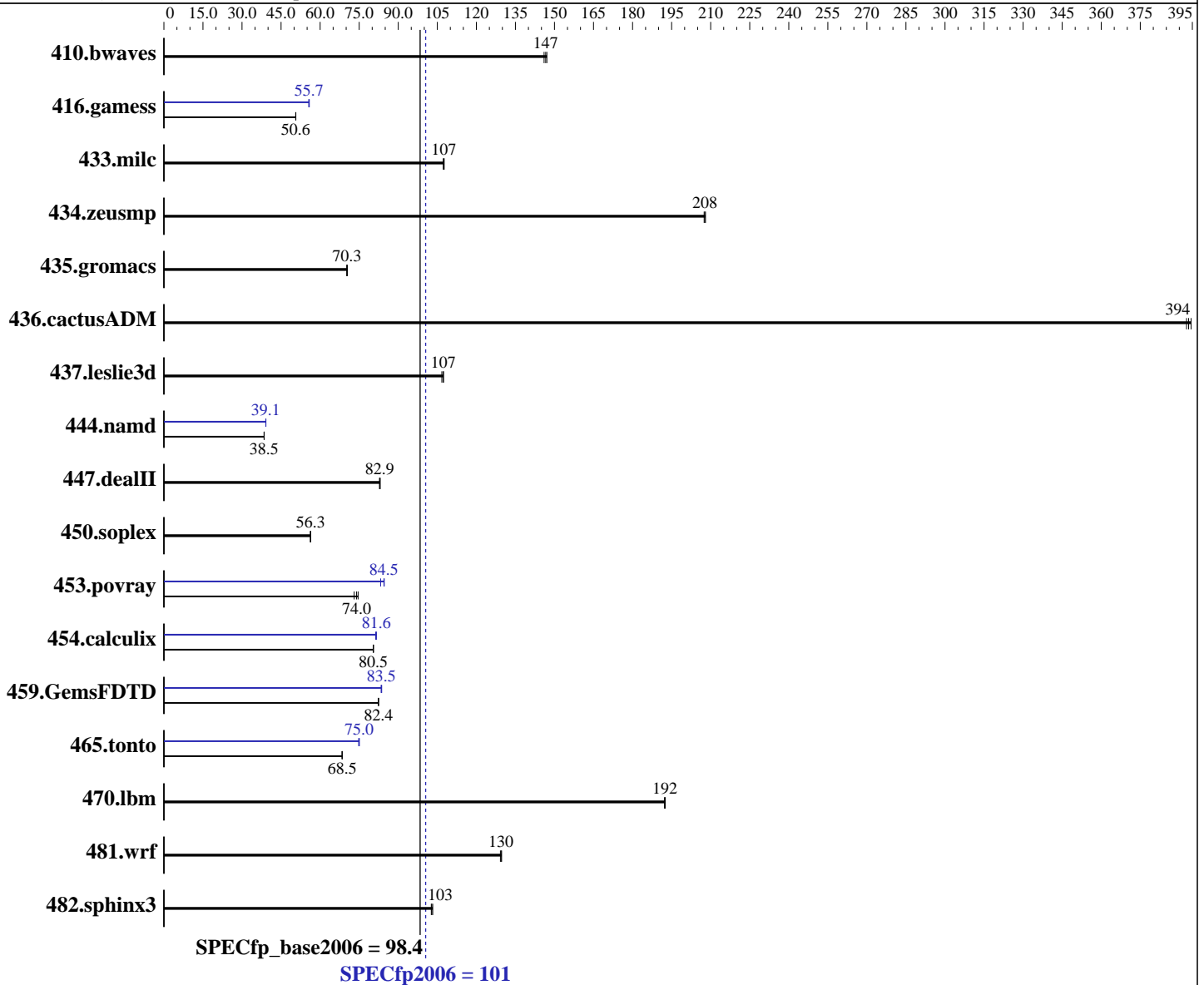
Test date: Nov-2016

Test sponsor: Lenovo Group Limited

Hardware Availability: Apr-2016

Tested by: Lenovo Group Limited

Software Availability: Mar-2016



Hardware

CPU Name: Intel Xeon E3-1270 v5
 CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz
 CPU MHz: 3600
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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Software

Operating System: SUSE Linux Enterprise Server 12 SP1 (x86_64)
 Kernel 3.12.49-11-default
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
 Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: xfs
 System State: Run level 3 (multi-user)

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (4 x 8 GB 2Rx8 PC4-2133P-E)
Disk Subsystem: 1 x 240 GB SATA SSD
Other Hardware: None

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	93.1	146	92.4	147	<u>92.7</u>	<u>147</u>	93.1	146	92.4	147	<u>92.7</u>	<u>147</u>
416.gamess	387	50.6	<u>387</u>	<u>50.6</u>	386	50.7	351	55.8	<u>352</u>	<u>55.7</u>	352	55.7
433.milc	<u>85.4</u>	<u>107</u>	85.3	108	85.5	107	<u>85.4</u>	<u>107</u>	85.3	108	85.5	107
434.zeusmp	43.7	208	43.9	207	<u>43.8</u>	<u>208</u>	43.7	208	43.9	207	<u>43.8</u>	<u>208</u>
435.gromacs	102	70.2	101	70.5	<u>102</u>	<u>70.3</u>	102	70.2	101	70.5	<u>102</u>	<u>70.3</u>
436.cactusADM	<u>30.4</u>	<u>394</u>	30.3	395	30.4	393	<u>30.4</u>	<u>394</u>	30.3	395	30.4	393
437.leslie3d	<u>87.6</u>	<u>107</u>	87.5	107	88.1	107	<u>87.6</u>	<u>107</u>	87.5	107	88.1	107
444.namd	208	38.5	208	38.5	<u>208</u>	<u>38.5</u>	<u>205</u>	<u>39.1</u>	205	39.2	205	39.1
447.dealII	<u>138</u>	<u>82.9</u>	138	83.1	138	82.8	<u>138</u>	<u>82.9</u>	138	83.1	138	82.8
450.soplex	<u>148</u>	<u>56.3</u>	148	56.3	148	56.4	<u>148</u>	<u>56.3</u>	148	56.3	148	56.4
453.povray	71.3	74.6	72.8	73.1	<u>71.9</u>	<u>74.0</u>	63.9	83.2	62.9	84.6	<u>63.0</u>	<u>84.5</u>
454.calculix	<u>103</u>	<u>80.5</u>	103	80.5	103	80.4	101	81.3	<u>101</u>	<u>81.6</u>	101	81.6
459.GemsFDTD	129	82.4	<u>129</u>	<u>82.4</u>	129	82.4	127	83.6	<u>127</u>	<u>83.5</u>	127	83.5
465.tonto	<u>144</u>	<u>68.5</u>	144	68.4	144	68.5	131	75.0	132	74.8	<u>131</u>	<u>75.0</u>
470.lbm	71.4	193	<u>71.4</u>	<u>192</u>	71.5	192	71.4	193	<u>71.4</u>	<u>192</u>	71.5	192
481.wrf	86.4	129	<u>86.2</u>	<u>130</u>	86.1	130	86.4	129	<u>86.2</u>	<u>130</u>	86.1	130
482.sphinx3	189	103	<u>189</u>	<u>103</u>	190	103	189	103	<u>189</u>	<u>103</u>	190	103

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"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled

Platform Notes

BIOS Configuration:
Operating Modes set to Maximum Performance
Hyper-Threading set to Disable
Sysinfo program /home/cpu2006-1.2-ic16.0/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on TS150 Mon Nov 14 02:25:34 2016

This section contains SUT (System Under Test) info as seen by
Continued on next page



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Platform Notes (Continued)

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 E3-1270 v5 @ 3.60GHz
  1 "physical id"s (chips)
  4 "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 : 4
    siblings  : 4
    physical 0: cores 0 1 2 3
  cache size : 8192 KB

```

```

From /proc/meminfo
MemTotal:      32969104 kB
HugePages_Total:    0
Hugepagesize:   2048 kB

```

```

From /etc/*release* /etc/*version*
SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 1
  # This file is deprecated and will be removed in a future service pack or
  # release.
  # Please check /etc/os-release for details about this release.
os-release:
  NAME="SLES"
  VERSION="12-SP1"
  VERSION_ID="12.1"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp1"

```

```

uname -a:
Linux TS150 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015 (8d714a0)
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Nov 13 22:21

```

SPEC is set to: /home/cpu2006-1.2-ic16.0
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3        xfs   170G  15G  155G   9% /home

```

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.

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Platform Notes (Continued)

BIOS LENOVO -[M3E107GUS-1.20]- 10/28/2016

Memory:

4x Samsung M391A1G43EB1-CPB 8 GB 2 rank 2133 MHz

(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/cpu2006-1.2-ic16.0/libs/32:/home/cpu2006-1.2-ic16.0/libs/64:/home/cpu2006-1.2-ic16.0/sh"

OMP_NUM_THREADS = "4"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
memory using RedHat EL 7.1

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

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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 -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



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Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -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:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

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

Benchmarks using both Fortran and C:

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Peak Optimization Flags (Continued)

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -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-ic16.0-official-linux64.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-BDW-B.xml>

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