



SPEC[®] CFP2006 Result

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Lenovo Group Limited

Lenovo System x3100 M5
(Intel Xeon E3-1271 v3, 3.60 GHz)

SPECfp[®]2006 = 78.9

SPECfp_base2006 = 76.9

CPU2006 license: 9017

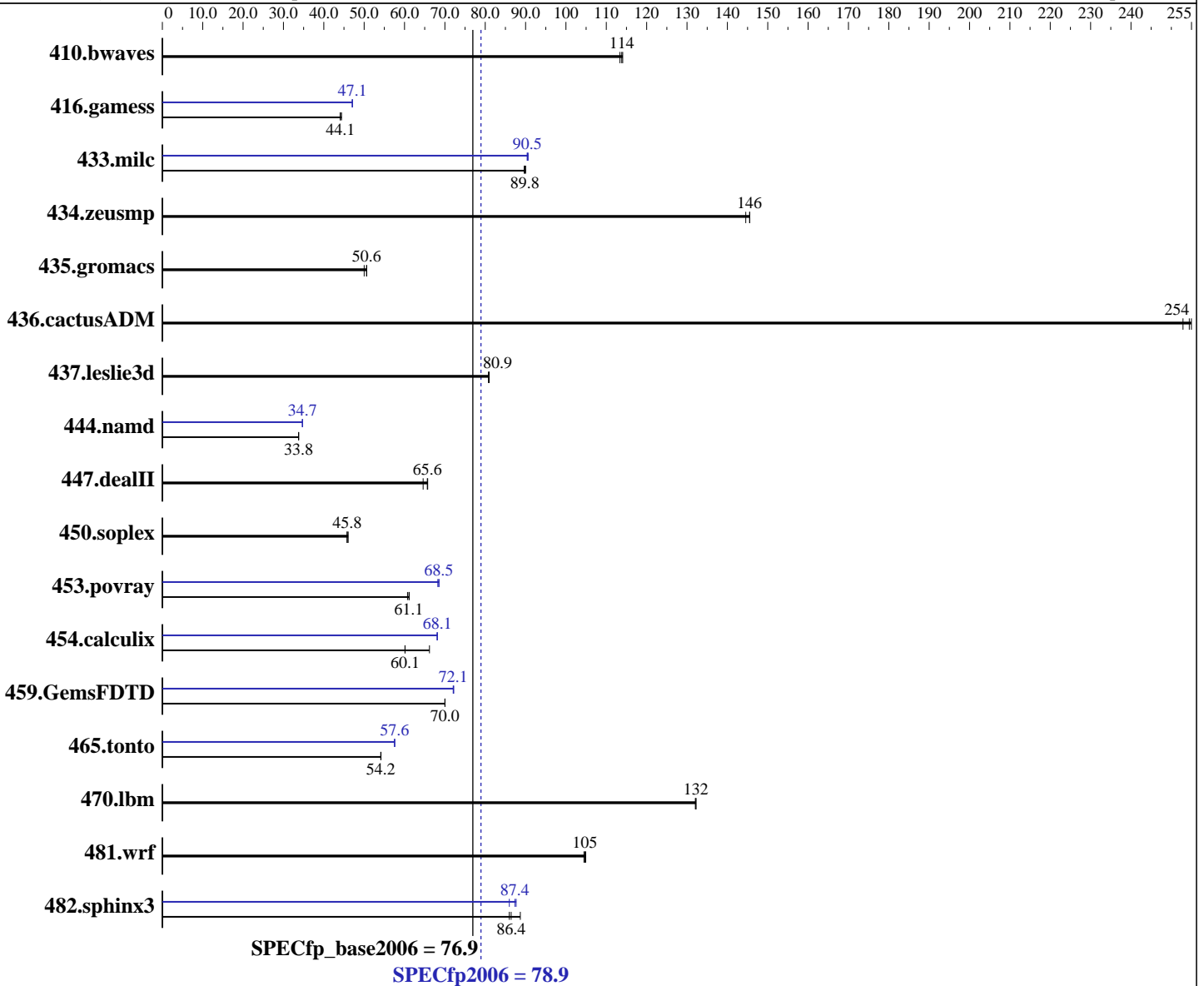
Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Mar-2015

Hardware Availability: Jun-2014

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E3-1271 v3
 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, 2 threads/core
 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: 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

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (4 x 4 GB 2Rx8 PC3-12800U-13)
Disk Subsystem: 1 x 500 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	119	114	120	113	<u>119</u>	<u>114</u>	119	114	120	113	<u>119</u>	<u>114</u>
416.gamess	441	44.4	444	44.1	<u>444</u>	<u>44.1</u>	<u>416</u>	<u>47.1</u>	416	47.1	416	47.0
433.milc	102	89.6	102	90.0	<u>102</u>	<u>89.8</u>	102	90.4	<u>101</u>	<u>90.5</u>	101	90.6
434.zeusmp	63.0	145	<u>62.5</u>	<u>146</u>	62.5	146	63.0	145	<u>62.5</u>	<u>146</u>	62.5	146
435.gromacs	141	50.6	143	50.0	<u>141</u>	<u>50.6</u>	141	50.6	143	50.0	<u>141</u>	<u>50.6</u>
436.cactusADM	46.9	255	47.3	253	<u>47.0</u>	<u>254</u>	46.9	255	47.3	253	<u>47.0</u>	<u>254</u>
437.leslie3d	116	80.8	<u>116</u>	<u>80.9</u>	116	81.0	116	80.8	<u>116</u>	<u>80.9</u>	116	81.0
444.namd	238	33.7	<u>238</u>	<u>33.8</u>	237	33.8	<u>231</u>	<u>34.7</u>	231	34.7	231	34.7
447.dealII	177	64.6	<u>174</u>	<u>65.6</u>	174	65.7	177	64.6	<u>174</u>	<u>65.6</u>	174	65.7
450.soplex	<u>182</u>	<u>45.8</u>	181	46.0	182	45.8	<u>182</u>	<u>45.8</u>	181	46.0	182	45.8
453.povray	87.6	60.7	<u>87.1</u>	<u>61.1</u>	87.0	61.2	77.9	68.3	<u>77.7</u>	<u>68.5</u>	77.6	68.6
454.calculix	<u>137</u>	<u>60.1</u>	137	60.1	125	66.2	<u>121</u>	<u>68.1</u>	121	68.1	121	68.1
459.GemsFDTD	<u>152</u>	<u>70.0</u>	151	70.0	152	70.0	147	72.2	<u>147</u>	<u>72.1</u>	147	72.1
465.tonto	<u>182</u>	<u>54.2</u>	182	54.1	182	54.2	171	57.5	<u>171</u>	<u>57.6</u>	171	57.6
470.lbm	104	132	104	132	<u>104</u>	<u>132</u>	104	132	104	132	<u>104</u>	<u>132</u>
481.wrf	107	104	106	105	<u>107</u>	<u>105</u>	107	104	106	105	<u>107</u>	<u>105</u>
482.sphinx3	220	88.7	227	86.0	<u>226</u>	<u>86.4</u>	227	86.0	222	87.7	<u>223</u>	<u>87.4</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 x3100m5 Thu Mar 12 06:25:48 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>

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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E3-1271 v3 @ 3.60GHz
 1 "physical id"s (chips)
 8 "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  : 8
  physical 0: cores 0 1 2 3
  cache size : 8192 KB

From /proc/meminfo
MemTotal:      16102880 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 x3100m5 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

run-level 3 Mar 12 01:39

SPEC is set to: /home/SPEC
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs   458G  11G  447G   3% /

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  -[J9E113EUS-1.02]-  04/25/2014
Memory:
 4x Hynix/Hyundai HMT351U7EFR8A-PB 4 GB 2 rank 1600 MHz

(End of data from sysinfo program)

```



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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 = "4"

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
 482.sphinx3: -DSPEC_CPU_LP64



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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

470.lbm: basepeak = yes

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

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Peak Optimization Flags (Continued)

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

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/Lenovo-Platform-Flags-V1.2-HSW-A.html>



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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/Lenovo-Platform-Flags-V1.2-HSW-A.xml>

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For other inquiries, please contact webmaster@spec.org.

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