



SPEC[®] CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo System x3850 X6
(Intel Xeon E7-4850 v3, 2.20 GHz)

SPECfp[®]_rate2006 = 1570

SPECfp_rate_base2006 = 1530

CPU2006 license: 9017

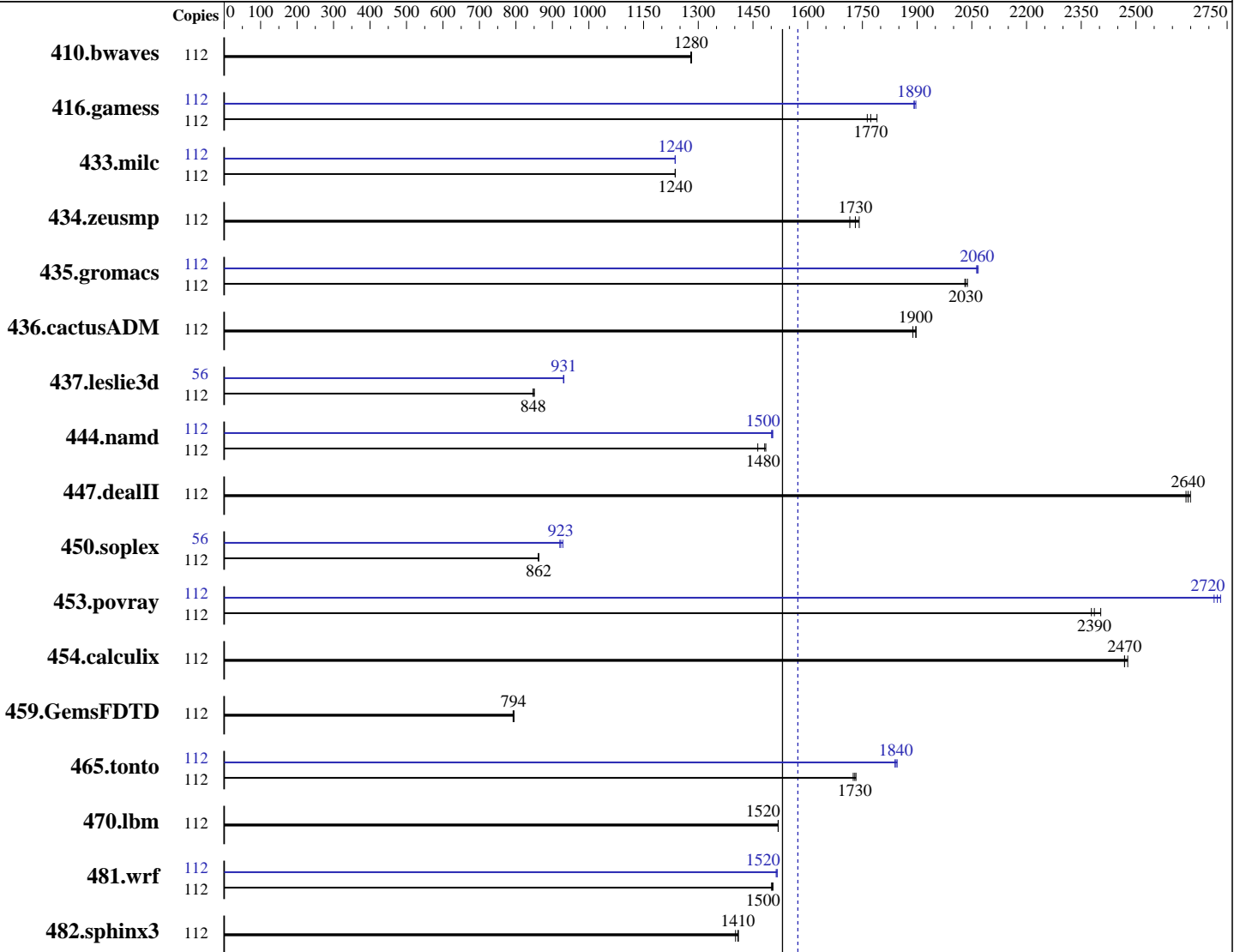
Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Jun-2015

Hardware Availability: Jul-2015

Software Availability: Oct-2014



SPECfp_rate_base2006 = 1530

SPECfp_rate2006 = 1570

Hardware

CPU Name: Intel Xeon E7-4850 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2800
 FPU: Integrated
 CPU(s) enabled: 56 cores, 4 chips, 14 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 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: SUSE Linus Enterprise Server 12 (x86_64)
 3.12.28-4-default
 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: xfs
 System State: Run level 3 (multi-user)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 1570

Lenovo System x3850 X6
(Intel Xeon E7-4850 v3, 2.20 GHz)

SPECfp_rate_base2006 = 1530

CPU2006 license: 9017

Test date: Jun-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Jul-2015

Tested by: Lenovo Group Limited

Software Availability: Oct-2014

L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (64 x 16 GB 2Rx4 PC4-2133P-R, running at 1333 MHz)
Disk Subsystem: 1 x 400 GB SAS SSD
Other Hardware: None

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	112	1189	1280	1189	1280	1188	1280	112	1189	1280	1189	1280	1188	1280
416.gamess	112	1244	1760	1237	1770	1225	1790	112	1156	1900	1159	1890	1159	1890
433.milc	112	831	1240	831	1240	831	1240	112	831	1240	832	1240	831	1240
434.zeusmp	112	589	1730	585	1740	594	1720	112	589	1730	585	1740	594	1720
435.gromacs	112	392	2040	394	2030	393	2030	112	387	2070	388	2060	387	2060
436.cactusADM	112	705	1900	709	1890	706	1900	112	705	1900	709	1890	706	1900
437.leslie3d	112	1242	848	1242	848	1238	851	56	566	930	565	932	565	931
444.namd	112	606	1480	605	1490	614	1460	112	597	1500	598	1500	598	1500
447.dealII	112	485	2640	486	2640	484	2650	112	485	2640	486	2640	484	2650
450.soplex	112	1083	863	1084	862	1084	862	56	503	929	507	920	506	923
453.povray	112	251	2380	250	2390	248	2400	112	219	2720	218	2730	220	2710
454.calculix	112	374	2470	374	2470	373	2480	112	374	2470	374	2470	373	2480
459.GemsFDTD	112	1500	792	1497	794	1495	795	112	1500	792	1497	794	1495	795
465.tonto	112	639	1720	636	1730	637	1730	112	598	1840	599	1840	597	1850
470.lbm	112	1013	1520	1013	1520	1013	1520	112	1013	1520	1013	1520	1013	1520
481.wrf	112	833	1500	834	1500	831	1500	112	825	1520	825	1520	827	1510
482.sphinx3	112	1550	1410	1557	1400	1548	1410	112	1550	1410	1557	1400	1548	1410

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"



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 1570

Lenovo System x3850 X6
(Intel Xeon E7-4850 v3, 2.20 GHz)

SPECfp_rate_base2006 = 1530

CPU2006 license: 9017

Test date: Jun-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Jul-2015

Tested by: Lenovo Group Limited

Software Availability: Oct-2014

Platform Notes

Operating Mode set to Custom in BIOS
Cstates disabled in BIOS
Sysinfo program /home/cpu2006/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on linux-w3yn Sat Jun 20 00:24:25 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>

```
From /proc/cpuinfo
model name      : Intel(R) Xeon(R) CPU E7-4850 v3 @ 2.20GHz
 4 "physical id"s (chips)
 112 "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    : 14
  siblings     : 28
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size     : 35840 KB
```

```
From /proc/meminfo
MemTotal:      1058526364 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12
```

```
From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 0
# 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"
VERSION_ID="12"
PRETTY_NAME="SUSE Linux Enterprise Server 12"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12"
```

```
uname -a:
Linux linux-w3yn 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 1570

Lenovo System x3850 X6
(Intel Xeon E7-4850 v3, 2.20 GHz)

SPECfp_rate_base2006 = 1530

CPU2006 license: 9017

Test date: Jun-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Jul-2015

Tested by: Lenovo Group Limited

Software Availability: Oct-2014

Platform Notes (Continued)

(9879bd4) x86_64 x86_64 x86_64 GNU/Linux

run-level 5 Jun 19 10:34

SPEC is set to: /home/cpu2006

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda4	xfs	331G	289G	42G	88%	/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.

BIOS IBM -[A9E121SUS-1.00]- 03/13/2015

Memory:

64x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1333 MHz
32x 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 = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

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

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



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 1570

Lenovo System x3850 X6
(Intel Xeon E7-4850 v3, 2.20 GHz)

SPECfp_rate_base2006 = 1530

CPU2006 license: 9017

Test date: Jun-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Jul-2015

Tested by: Lenovo Group Limited

Software Availability: Oct-2014

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

```

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 -L/opt/intel/composer_xe_2015/lib/ia32

```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 1570

Lenovo System x3850 X6
(Intel Xeon E7-4850 v3, 2.20 GHz)

SPECfp_rate_base2006 = 1530

CPU2006 license: 9017

Test date: Jun-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Jul-2015

Tested by: Lenovo Group Limited

Software Availability: Oct-2014

Peak Compiler Invocation (Continued)

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
 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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 1570

Lenovo System x3850 X6
(Intel Xeon E7-4850 v3, 2.20 GHz)

SPECfp_rate_base2006 = 1530

CPU2006 license: 9017

Test date: Jun-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Jul-2015

Tested by: Lenovo Group Limited

Software Availability: Oct-2014

Peak Optimization Flags (Continued)

447.deallI: 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:

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) -unroll12
-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) -unroll14
-auto -inline-calloc -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-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Default-Platform-Flags.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/Default-Platform-Flags.xml>



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo System x3850 X6
(Intel Xeon E7-4850 v3, 2.20 GHz)

SPECfp_rate2006 = 1570

SPECfp_rate_base2006 = 1530

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Jun-2015

Hardware Availability: Jul-2015

Software Availability: Oct-2014

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 Wed Aug 12 11:07:24 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 12 August 2015.