



SPEC[®] CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECfp[®]_rate2006 = 194

SPECfp_rate_base2006 = 188

CPU2006 license: 9017

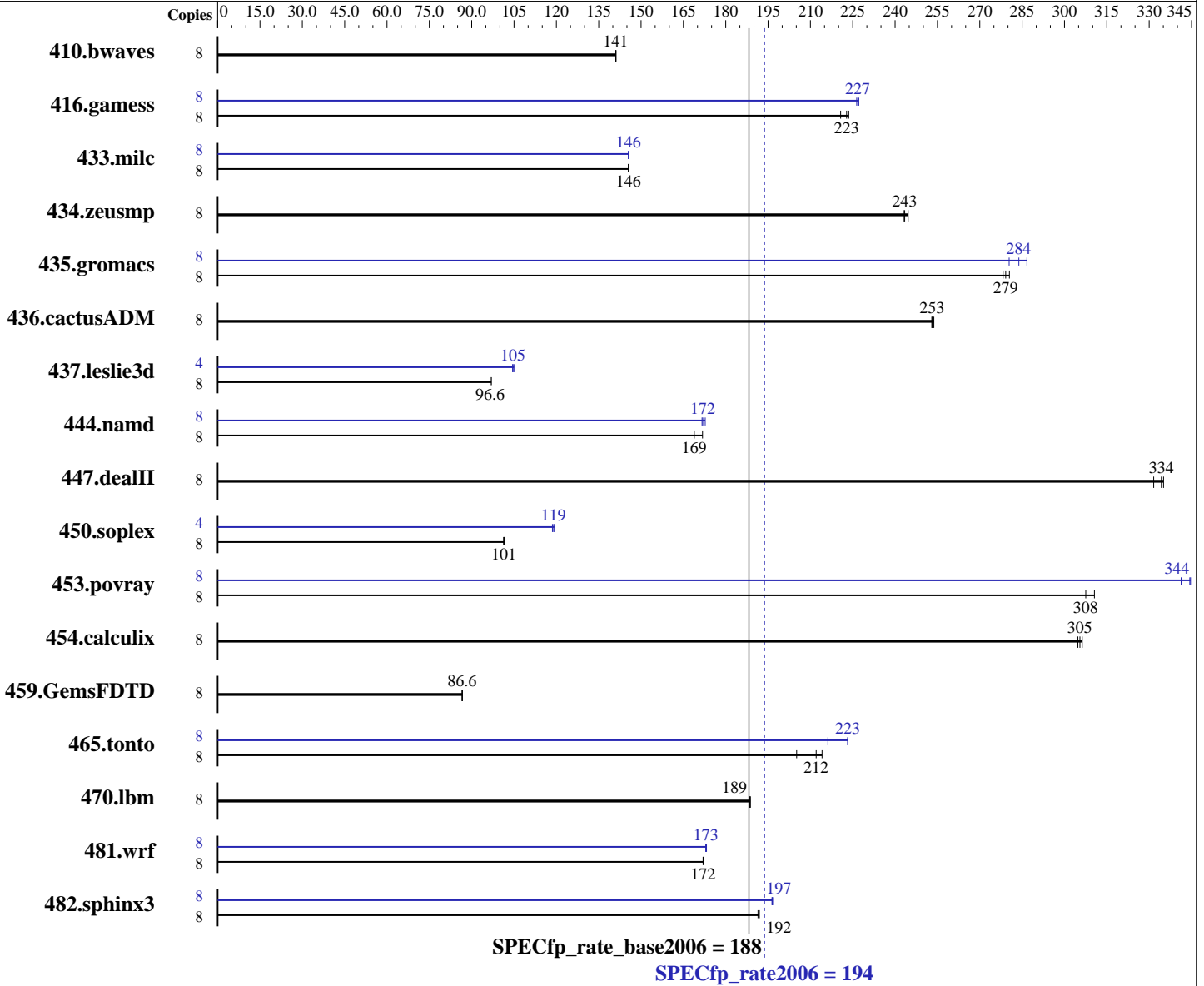
Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Feb-2017

Hardware Availability: Feb-2017

Software Availability: May-2016



Hardware

CPU Name: Intel Xeon E3-1240 v5
 CPU Characteristics: Intel Turbo Boost Technology up to 3.90 GHz
 CPU MHz: 3500
 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

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.8 (Santiago)
 Kernel 2.6.32-642.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECfp_rate2006 = 194

SPECfp_rate_base2006 = 188

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Feb-2017

Hardware Availability: Feb-2017

Software Availability: May-2016

L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (2 x 8 GB 2Rx8 PC4-2133P-E)
Disk Subsystem: 1 x 800 GB SATA SSD
Other Hardware: None

System State: Run level 3 (multi-user)
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	8	<u>771</u>	<u>141</u>	770	141	771	141	8	<u>771</u>	<u>141</u>	770	141	771	141
416.gamess	8	701	224	710	221	<u>703</u>	<u>223</u>	8	692	226	690	227	<u>691</u>	<u>227</u>
433.milc	8	505	146	504	146	<u>505</u>	<u>146</u>	8	505	146	<u>504</u>	<u>146</u>	504	146
434.zeusmp	8	<u>299</u>	<u>243</u>	298	245	300	243	8	<u>299</u>	<u>243</u>	298	245	300	243
435.gromacs	8	205	278	<u>205</u>	<u>279</u>	204	280	8	199	287	<u>201</u>	<u>284</u>	204	280
436.cactusADM	8	378	253	377	254	<u>378</u>	<u>253</u>	8	378	253	377	254	<u>378</u>	<u>253</u>
437.leslie3d	8	775	97.0	779	96.5	<u>779</u>	<u>96.6</u>	4	358	105	360	104	<u>359</u>	<u>105</u>
444.namd	8	<u>380</u>	<u>169</u>	373	172	380	169	8	371	173	<u>373</u>	<u>172</u>	374	172
447.dealII	8	273	335	276	332	<u>274</u>	<u>334</u>	8	273	335	276	332	<u>274</u>	<u>334</u>
450.soplex	8	657	101	658	101	<u>658</u>	<u>101</u>	4	281	119	<u>280</u>	<u>119</u>	280	119
453.povray	8	139	306	137	311	<u>138</u>	<u>308</u>	8	<u>124</u>	<u>344</u>	125	341	123	345
454.calculix	8	215	306	217	305	<u>216</u>	<u>305</u>	8	215	306	217	305	<u>216</u>	<u>305</u>
459.GemsFDTD	8	<u>980</u>	<u>86.6</u>	980	86.6	979	86.7	8	<u>980</u>	<u>86.6</u>	980	86.6	979	86.7
465.tonto	8	<u>371</u>	<u>212</u>	384	205	368	214	8	<u>353</u>	<u>223</u>	364	216	353	223
470.lbm	8	583	189	<u>583</u>	<u>189</u>	583	189	8	583	189	<u>583</u>	<u>189</u>	583	189
481.wrf	8	<u>519</u>	<u>172</u>	519	172	520	172	8	517	173	<u>517</u>	<u>173</u>	516	173
482.sphinx3	8	<u>813</u>	<u>192</u>	813	192	814	191	8	793	197	<u>793</u>	<u>197</u>	794	196

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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"
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



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 194

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECfp_rate_base2006 = 188

CPU2006 license: 9017

Test date: Feb-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Feb-2017

Tested by: Lenovo Group Limited

Software Availability: May-2016

Platform Notes

BIOS Configuration:

```
Boot performance mode set to Turbo Performance
Sysinfo program /home/cpu2006-ic14/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on TS460-01 Thu Feb 16 09:58:31 2017
```

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 E3-1240 v5 @ 3.50GHz
 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:      16273840 kB
HugePages_Total: 0
Hugepagesize:   2048 kB
```

/usr/bin/lsb_release -d

```
Red Hat Enterprise Linux Server release 6.8 (Santiago)
```

From /etc/*release* /etc/*version*

```
redhat-release: Red Hat Enterprise Linux Server release 6.8 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.8 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

uname -a:

```
Linux TS460-01 2.6.32-642.el6.x86_64 #1 SMP Wed Apr 13 00:51:26 EDT 2016
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Feb 16 02:08

SPEC is set to: /home/cpu2006-ic14

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal        ext4   50G   17G   31G  36% /
```

Additional information from dmidecode:

```
BIOS LENOVO TB1TS100 11/26/2016
Memory:
 2x      8 GB
 2x Not Specified Not Specified
 2x Samsung M391A1G43EB1-CPB 8 GB 2133 MHz 2 rank
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 194

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECfp_rate_base2006 = 188

CPU2006 license: 9017

Test date: Feb-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Feb-2017

Tested by: Lenovo Group Limited

Software Availability: May-2016

Platform Notes (Continued)

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/home/cpu2006-ic14/libs/32:/home/cpu2006-ic14/libs/64:/home/cpu2006-ic14/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RedHat EL 6.4

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



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 194

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECfp_rate_base2006 = 188

CPU2006 license: 9017

Test date: Feb-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Feb-2017

Tested by: Lenovo Group Limited

Software Availability: May-2016

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 (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

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.deallI: -DSPEC_CPU_LP64

453.povray: -DSPEC_CPU_LP64

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 5



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 194

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECfp_rate_base2006 = 188

CPU2006 license: 9017

Test date: Feb-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Feb-2017

Tested by: Lenovo Group Limited

Software Availability: May-2016

Peak Portability Flags (Continued)

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

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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
 -unroll2

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

447.dealII: 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) -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-

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp_rate2006 = 194

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECfp_rate_base2006 = 188

CPU2006 license: 9017

Test date: Feb-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Feb-2017

Tested by: Lenovo Group Limited

Software Availability: May-2016

Peak Optimization Flags (Continued)

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) -unroll4
-auto -inline-alloc -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-ic14.0-official-linux64.20140128.html>
<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-BDW-revE.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>
<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-BDW-revE.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 Tue Mar 7 16:14:27 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 7 March 2017.