



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Dell Inc.

### SPECfp<sup>®</sup>\_rate2006 = 600

PowerEdge FC430 (Intel Xeon E5-2630L v4, 1.80 GHz)

### SPECfp\_rate\_base2006 = 587

CPU2006 license: 55

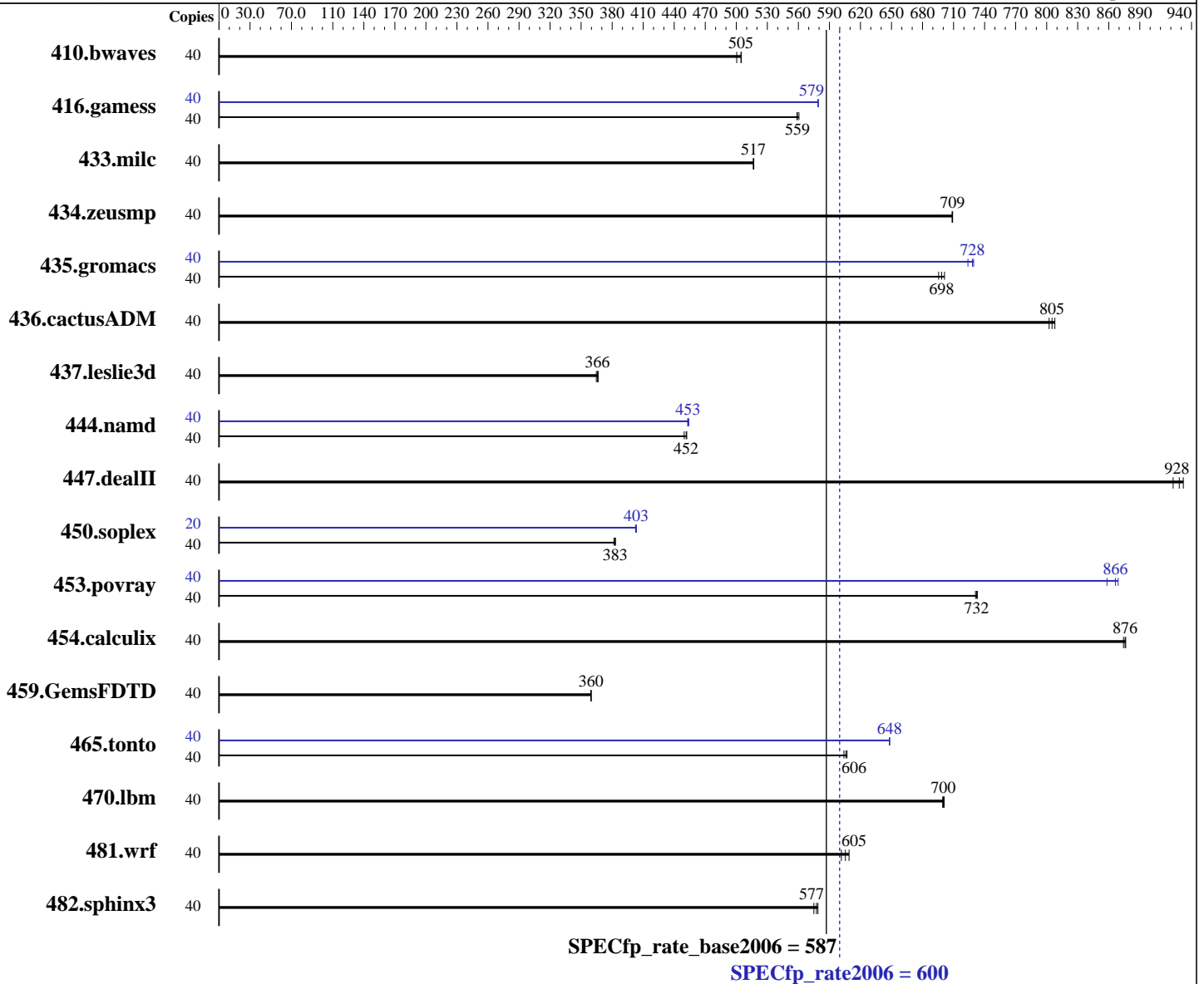
Test date: Jan-2016

Test sponsor: Dell Inc.

Hardware Availability: Mar-2016

Tested by: Dell Inc.

Software Availability: Sep-2015



### Hardware

CPU Name: Intel Xeon E5-2630L v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 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 7.1 (Maipo)  
 3.10.0-229.el7.x86\_64  
 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: No  
 File System: xfs

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 600

PowerEdge FC430 (Intel Xeon E5-2630L v4, 1.80 GHz)

SPECfp\_rate\_base2006 = 587

CPU2006 license: 55

Test date: Jan-2016

Test sponsor: Dell Inc.

Hardware Availability: Mar-2016

Tested by: Dell Inc.

Software Availability: Sep-2015

L3 Cache: 25 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (8 x 32 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)  
 Disk Subsystem: 1 x 240 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	40	<b>1077</b>	<b>505</b>	1077	505	1086	500	40	<b>1077</b>	<b>505</b>	1077	505	1086	500
416.gamess	40	1397	561	1402	559	<b>1401</b>	<b>559</b>	40	1353	579	<b>1353</b>	<b>579</b>	1352	579
433.milc	40	710	517	711	516	<b>711</b>	<b>517</b>	40	710	517	711	516	<b>711</b>	<b>517</b>
434.zeusmp	40	<b>513</b>	<b>709</b>	513	709	514	709	40	<b>513</b>	<b>709</b>	513	709	514	709
435.gromacs	40	407	701	411	696	<b>409</b>	<b>698</b>	40	392	729	<b>392</b>	<b>728</b>	395	724
436.cactusADM	40	596	802	<b>594</b>	<b>805</b>	592	808	40	596	802	<b>594</b>	<b>805</b>	592	808
437.leslie3d	40	1026	366	<b>1028</b>	<b>366</b>	1031	365	40	1026	366	<b>1028</b>	<b>366</b>	1031	365
444.namd	40	<b>710</b>	<b>452</b>	713	450	710	452	40	708	453	<b>708</b>	<b>453</b>	706	454
447.dealII	40	491	932	<b>493</b>	<b>928</b>	496	922	40	491	932	<b>493</b>	<b>928</b>	496	922
450.soplex	40	874	382	871	383	<b>871</b>	<b>383</b>	20	<b>414</b>	<b>403</b>	414	403	414	403
453.povray	40	<b>291</b>	<b>732</b>	291	731	290	733	40	<b>246</b>	<b>866</b>	248	858	245	869
454.calculix	40	<b>377</b>	<b>876</b>	377	876	377	874	40	<b>377</b>	<b>876</b>	377	876	377	874
459.GemsFDTD	40	1180	360	<b>1180</b>	<b>360</b>	1181	359	40	1180	360	<b>1180</b>	<b>360</b>	1181	359
465.tonto	40	648	607	<b>650</b>	<b>606</b>	652	604	40	<b>607</b>	<b>648</b>	607	648	607	648
470.lbm	40	784	701	<b>785</b>	<b>700</b>	786	699	40	784	701	<b>785</b>	<b>700</b>	786	699
481.wrf	40	743	602	<b>738</b>	<b>605</b>	734	609	40	743	602	<b>738</b>	<b>605</b>	734	609
482.sphinx3	40	1347	579	<b>1350</b>	<b>577</b>	1356	575	40	1347	579	<b>1350</b>	<b>577</b>	1356	575

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"

## Platform Notes

BIOS settings:  
Snoop Mode set to Cluster on Die  
Virtualization Technology disabled

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 600

PowerEdge FC430 (Intel Xeon E5-2630L v4, 1.80 GHz)

SPECfp\_rate\_base2006 = 587

CPU2006 license: 55

Test date: Jan-2016

Test sponsor: Dell Inc.

Hardware Availability: Mar-2016

Tested by: Dell Inc.

Software Availability: Sep-2015

## Platform Notes (Continued)

```

System Profile set to Performance
Memory Patrol Scrub disabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Wed Jan 20 13:29:54 2016

```

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 E5-2630L v4 @ 1.80GHz
 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:      263862928 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.1 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.1"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server

```

```

uname -a:
Linux localhost.localdomain 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38
EST 2015 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Jan 19 23:33

```

SPEC is set to: /root/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   234G  13G  222G   6% /

```

Additional information from dmidecode:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 600

PowerEdge FC430 (Intel Xeon E5-2630L v4, 1.80 GHz)

SPECfp\_rate\_base2006 = 587

CPU2006 license: 55

Test date: Jan-2016

Test sponsor: Dell Inc.

Hardware Availability: Mar-2016

Tested by: Dell Inc.

Software Availability: Sep-2015

## Platform Notes (Continued)

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 Dell Inc. 1.7.12 12/23/2015

Memory:

8x 00CE00B300CE M393A4K40BB1-CRC 32 GB 2 rank 2400 MHz, configured at 2133 MHz

(End of data from sysinfo program)

## General Notes

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

LD\_LIBRARY\_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"

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

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

## Base Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64

416.gamess: -DSPEC\_CPU\_LP64

433.milc: -DSPEC\_CPU\_LP64

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 600

PowerEdge FC430 (Intel Xeon E5-2630L v4, 1.80 GHz)

SPECfp\_rate\_base2006 = 587

CPU2006 license: 55

Test date: Jan-2016

Test sponsor: Dell Inc.

Hardware Availability: Mar-2016

Tested by: Dell Inc.

Software Availability: Sep-2015

## Base Portability Flags (Continued)

```

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
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/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

```

Fortran benchmarks:

```

ifort -m64

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 600

PowerEdge FC430 (Intel Xeon E5-2630L v4, 1.80 GHz)

SPECfp\_rate\_base2006 = 587

CPU2006 license: 55

Test date: Jan-2016

Test sponsor: Dell Inc.

Hardware Availability: Mar-2016

Tested by: Dell Inc.

Software Availability: Sep-2015

## Peak Compiler Invocation (Continued)

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  
 450.soplex: -D\_FILE\_OFFSET\_BITS=64  
 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: 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) -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:threadsafe(pass 1)  
 -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
 -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)  
 -prof-use(pass 2) -opt-malloc-options=3

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 600

PowerEdge FC430 (Intel Xeon E5-2630L v4, 1.80 GHz)

SPECfp\_rate\_base2006 = 587

CPU2006 license: 55

Test date: Jan-2016

Test sponsor: Dell Inc.

Hardware Availability: Mar-2016

Tested by: Dell Inc.

Software Availability: Sep-2015

## Peak Optimization Flags (Continued)

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) -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: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: basepeak = yes

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) -unroll4 -auto  
-inline-alloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -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) -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: 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/Dell-Platform-Settings-V1.2-revD.20151006.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/Dell-Platform-Settings-V1.2-revD.20151006.xml>



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 600

PowerEdge FC430 (Intel Xeon E5-2630L v4, 1.80 GHz)

SPECfp\_rate\_base2006 = 587

CPU2006 license: 55

Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Jan-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015

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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Apr 5 14:54:53 2016 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 5 April 2016.