



SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp®_rate2006 = 601

PowerEdge FC630 (Intel Xeon E5-2643 v4, 3.40 GHz)

SPECfp_rate_base2006 = 591

CPU2006 license: 55

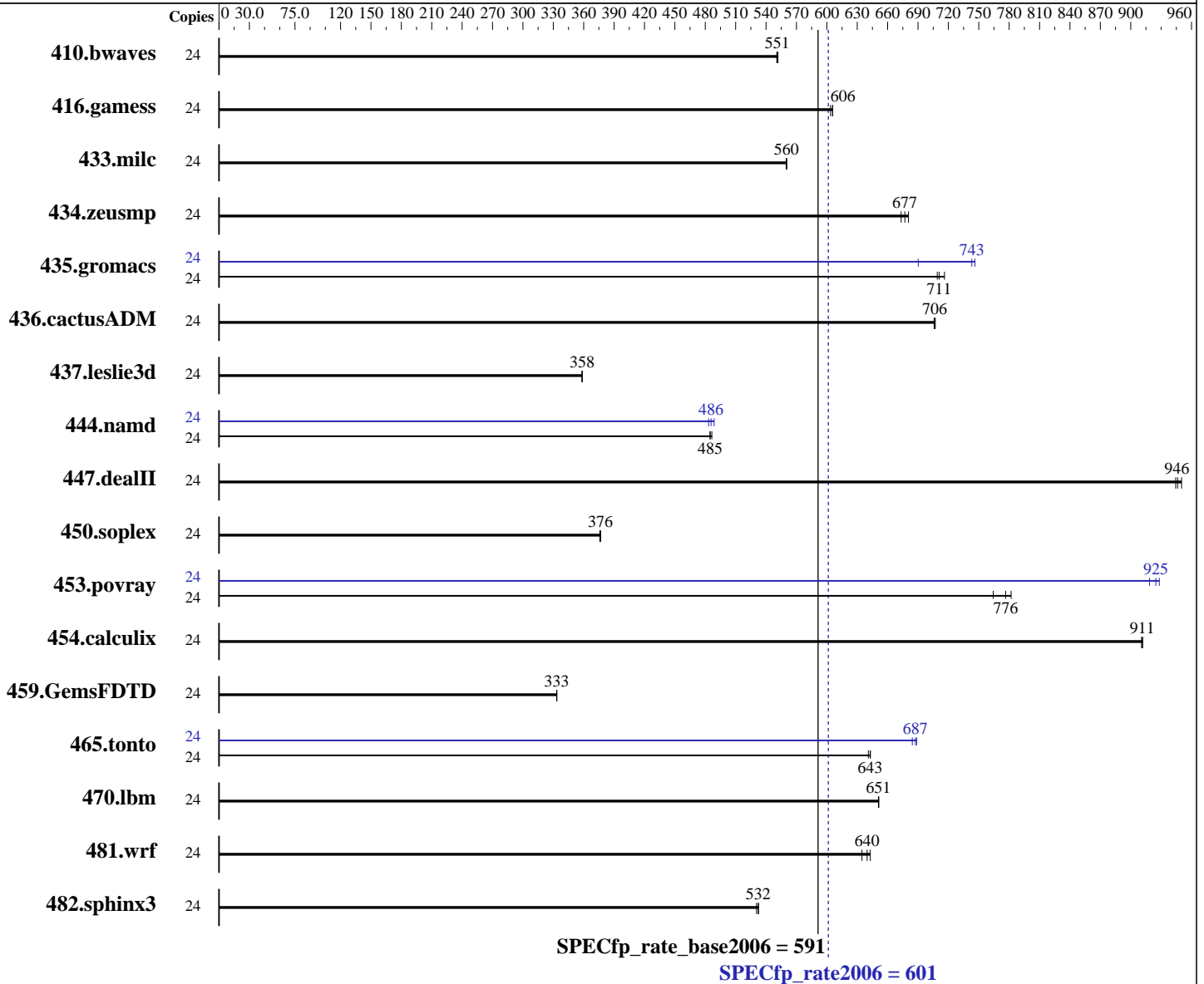
Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015



Hardware

CPU Name: Intel Xeon E5-2643 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3400
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 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 7.2 (Maipo)
 3.10.0-327.el7.x86_64
 Compiler: C/C++: Version 16.0.2.181 of Intel C++ Studio XE for Linux;
 Fortran: Version 16.0.2.181 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 = 601

PowerEdge FC630 (Intel Xeon E5-2643 v4, 3.40 GHz)

SPECfp_rate_base2006 = 591

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (8 x 32 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x 300 GB 7200 RPM SATA HDD
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	24	592	551	591	552	<u>592</u>	<u>551</u>	24	592	551	591	552	<u>592</u>	<u>551</u>
416.gamess	24	778	604	776	606	<u>776</u>	<u>606</u>	24	778	604	776	606	<u>776</u>	<u>606</u>
433.milc	24	393	560	393	560	<u>393</u>	<u>560</u>	24	393	560	393	560	<u>393</u>	<u>560</u>
434.zeusmp	24	321	681	324	673	<u>323</u>	<u>677</u>	24	321	681	324	673	<u>323</u>	<u>677</u>
435.gromacs	24	239	716	242	709	<u>241</u>	<u>711</u>	24	248	690	230	746	<u>231</u>	<u>743</u>
436.cactusADM	24	406	706	<u>406</u>	<u>706</u>	406	707	24	406	706	<u>406</u>	<u>706</u>	406	707
437.leslie3d	24	629	359	<u>629</u>	<u>358</u>	630	358	24	629	359	<u>629</u>	<u>358</u>	630	358
444.namd	24	396	486	<u>397</u>	<u>485</u>	397	485	24	398	483	<u>396</u>	<u>486</u>	394	489
447.dealII	24	289	950	<u>290</u>	<u>946</u>	291	944	24	289	950	<u>290</u>	<u>946</u>	291	944
450.soplex	24	531	377	533	376	<u>532</u>	<u>376</u>	24	531	377	533	376	<u>532</u>	<u>376</u>
453.povray	24	<u>164</u>	<u>776</u>	167	764	163	782	24	139	919	<u>138</u>	<u>925</u>	138	928
454.calculix	24	<u>217</u>	<u>911</u>	217	912	217	911	24	<u>217</u>	<u>911</u>	217	912	217	911
459.GemsFDTD	24	<u>764</u>	<u>333</u>	763	334	764	333	24	<u>764</u>	<u>333</u>	763	334	764	333
465.tonto	24	368	641	367	643	<u>367</u>	<u>643</u>	24	<u>344</u>	<u>687</u>	343	689	345	684
470.lbm	24	506	651	<u>507</u>	<u>651</u>	507	651	24	506	651	<u>507</u>	<u>651</u>	507	651
481.wrf	24	417	643	422	635	<u>419</u>	<u>640</u>	24	417	643	422	635	<u>419</u>	<u>640</u>
482.sphinx3	24	<u>879</u>	<u>532</u>	882	531	878	533	24	<u>879</u>	<u>532</u>	882	531	878	533

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 = 601

PowerEdge FC630 (Intel Xeon E5-2643 v4, 3.40 GHz)

SPECfp_rate_base2006 = 591

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

Platform Notes (Continued)

System Profile set to custom
 CPU Power Management set to Hardware P States
 C States set to Autonomous
 C1E disabled
 Energy Efficient Turbo disabled
 Uncore Frequency set to Dynamic
 Energy Efficiency Policy set to Balanced 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 Mon Jul 4 21:44:44 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 E5-2643 v4 @ 3.40GHz
 2 "physical id"s (chips)
 24 "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    : 6
  siblings    : 12
  physical 0: cores 0 1 2 3 6 7
  physical 1: cores 0 1 2 3 6 7
 cache size   : 20480 KB
```

```
From /proc/meminfo
MemTotal:      263908276 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.2 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.2"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server
```

```
uname -a:
Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
EDT 2015 x86_64 x86_64 x86_64 GNU/Linux
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 601

PowerEdge FC630 (Intel Xeon E5-2643 v4, 3.40 GHz)

SPECfp_rate_base2006 = 591

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

Platform Notes (Continued)

run-level 3 Jul 4 13:22

SPEC is set to: /root/cpu2006-1.2

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	xfs	276G	8.5G	268G	4%	/

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 Dell Inc. 2.2.1 06/07/2016

Memory:

8x 00CE00B300CE M393A4K40BB1-CRC 32 GB 2 rank 2400 MHz
16x Not Specified Not Specified

(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 i7-4790K CPU + 32GB memory using RedHat EL 7.2 glibc 2.17

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 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 601

PowerEdge FC630 (Intel Xeon E5-2643 v4, 3.40 GHz)

SPECfp_rate_base2006 = 591

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

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:

```
icpc -m64
```

Fortran benchmarks:

```
ifort -m64
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 601

PowerEdge FC630 (Intel Xeon E5-2643 v4, 3.40 GHz)

SPECfp_rate_base2006 = 591

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

Peak Compiler Invocation (Continued)

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: 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: 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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 601

PowerEdge FC630 (Intel Xeon E5-2643 v4, 3.40 GHz)

SPECfp_rate_base2006 = 591

CPU2006 license: 55

Test date: Jul-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Nov-2015

Peak Optimization Flags (Continued)

```
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-calloc -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 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 24 13:13:58 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 23 August 2016.