**SPEC® CFP2006 Result**

**Dell Inc.**

PowerEdge FC630 (Intel Xeon E5-2643 v3, 3.40 GHz)

**SPEC®_rate2006 = 575**

**SPEC_rate_base2006 = 559**

---

**Hardware**

- **CPU Name:** Intel Xeon E5-2643 v3
- **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 L1 + 32 KB D on chip per core
- **Secondary Cache:** 256 KB I+D on chip per core

---

**Software**

- **Operating System:** Red Hat Enterprise Linux Server release 6.5 (Santiago)
- **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

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**Test date:** Oct-2014

**Hardware Availability:** Dec-2014

**Software Availability:** Jan-2014

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**CPU2006 license:** 55

**Test sponsor:** Dell Inc.

**Tested by:** Dell Inc.

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- 24: 24

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Continued on next page
## SPEC CFP2006 Result

**Dell Inc.**

PowerEdge FC630 (Intel Xeon E5-2643 v3, 3.40 GHz)

- **SPECfp_rate2006** = 575
- **SPECfp_rate_base2006** = 559

**CPU2006 license:** 55

**Test sponsor:** Dell Inc.

**Tested by:** Dell Inc.

**L3 Cache:** 20 MB I+D on chip per chip

**Other Cache:** None

**Memory:** 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)

**Disk Subsystem:** 1 x 300 GB 15000 RPM SAS

**Other Hardware:** None

**System State:** Run level 3 (multi-user)

**Base Pointers:** 32/64-bit

**Peak Pointers:** 32/64-bit

**Other Software:** None

### Test date:

Oct-2014

### Hardware Availability:

Dec-2014

### Software Availability:

Jan-2014

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### Results Table

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

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### 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
Platform Notes (Continued)

Execute Disable disabled  
System Profile set to Custom  
Memory Patrol Scrub set to Disabled  
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818  
$Rev: 6818$ $Date:: 2012-07-17#$ e86d102572650a6e4d596a3cee98f191  
running on localhost.localdomain Tue Oct 28 21:00:38 2014  

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 v3 @ 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 4 5  
physical 1: cores 0 1 2 3 4 5  
cache size : 20480 KB  

From /proc/meminfo  
MemTotal: 131923800 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB  

/usr/bin/lsb_release -d  
Red Hat Enterprise Linux Server release 6.5 (Santiago)  

From /etc/*release* /etc/*version*  
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
uname -a:  
Linux localhost.localdomain 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64 x86_64 x86_64 GNU/Linux  
run-level 3 Oct 28 12:11  
SPEC is set to: /root/cpu2006-1.2  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda2 ext4 272G 9.8G 248G 4% /  

Additional information from dmidecode:  
BIOS Dell Inc. 1.0.1 10/15/2014  
Memory:  
16x 000000000000 Not Specified 2133 MHz 1 rank  
8x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank  
Continued on next page
Dell Inc.  
PowerEdge FC630 (Intel Xeon E5-2643 v3, 3.40 GHz)  

**SPEC fp_rate2006 = 575**  
**SPEC fp_rate_base2006 = 559**

CPU2006 license: 55  
Test sponsor: Dell Inc.  
Tested by: Dell Inc.  

**Test date:** Oct-2014  
**Hardware Availability:** Dec-2014  
**Software Availability:** Jan-2014

---

### 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 = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4
Transparent huge pages enabled with:
```
echo always > /sys/kernel/mm/redhat_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`
- 434.vuze: `--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`

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Dell Inc.

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---

**Base Portability Flags (Continued)**

- 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

**Fortran benchmarks:**
- ifort -m64

**Benchmarks using both Fortran and C:**
- icc -m64 ifort -m64

---

**Peak Portability Flags**

- 410.bwaves: -DSPEC_CPU_LP64
- 416.gamepp: -DSPEC_CPU_LP64
- 433.milc: -DSPEC_CPU_LP64

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Dell Inc.  
PowerEdge FC630 (Intel Xeon E5-2643 v3, 3.40 GHz)  

| SPECfp_rate2006 | 575 |
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CPU2006 license: 55  
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Tested by: Dell Inc.  
Test date: Oct-2014  
Hardware Availability: Dec-2014  
Software Availability: Jan-2014

### Peak 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.dealII: -DSPEC_CPU_LP64
- 453.povray: -DSPEC_CPU_LP64
- 454.calculix: -DSPEC_CPU_LP64 -nofor_main
- 459.GemsFDTD: -DSPEC_CPU_LP64
- 463.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
- 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:**

Continued on next page
SPEC CFP2006 Result

Dell Inc.

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| SPECfp_rate2006 = | 575 |
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CPU2006 license: 55
Test sponsor: Dell Inc.
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Peak Optimization Flags (Continued)

410.bwaves: basepeak = yes

416.games: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-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)
-03(pass 2) -no-prec-div(pass 2) -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(pass 1) -ipo(pass 2)
-03(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/Dell-Platform-Settings-V1.2-revE.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revE.xml

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

Tested with SPEC CPU2006 v1.2.
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