## SPEC® CFP2006 Result

**Dell Inc.**

PowerEdge R820 (Intel Xeon E5-4617, 2.90 GHz)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>76.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>72.2</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test date:** Mar-2012  
**Hardware Availability:** May-2012  
**Software Availability:** Feb-2012

### Software Availability

<table>
<thead>
<tr>
<th>File System</th>
<th>ext3</th>
</tr>
</thead>
</table>

### Operating System

- SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.27-default

### Compiler

- C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
- Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux

### Auto Parallel

- Yes

### System State

- Run level 3 (multi-user)

### Hardware

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>35.1</td>
</tr>
<tr>
<td>416.gamess</td>
<td>59.0</td>
</tr>
<tr>
<td>433.milc</td>
<td>114</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>59.0</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>18.6</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>338</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>105</td>
</tr>
<tr>
<td>444.namd</td>
<td>23.6</td>
</tr>
<tr>
<td>447.dealII</td>
<td>39.5</td>
</tr>
<tr>
<td>450.soplex</td>
<td>51.4</td>
</tr>
<tr>
<td>453.povray</td>
<td>43.2</td>
</tr>
<tr>
<td>454.calculix</td>
<td>34.8</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>150</td>
</tr>
<tr>
<td>465.tonto</td>
<td>43.2</td>
</tr>
<tr>
<td>470.lbm</td>
<td>38.3</td>
</tr>
<tr>
<td>481.wrf</td>
<td>66.9</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>32.6</td>
</tr>
</tbody>
</table>

### Continued on next page
SPEC CFP2006 Result

Dell Inc.
PowerEdge R820 (Intel Xeon E5-4617, 2.90 GHz)  

SPECfp2006 = 76.8
SPECfp_base2006 = 72.2

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

L3 Cache: 15 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
Disk Subsystem: 4 x 300 GB 10000 RPM SAS, RAID 0  
Other Hardware: None

Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>23.9</td>
<td>569</td>
<td>23.9</td>
<td>569</td>
<td>24.1</td>
<td>564</td>
<td>23.9</td>
<td>569</td>
<td>23.9</td>
<td>569</td>
<td>23.9</td>
<td>569</td>
</tr>
<tr>
<td>416.gamess</td>
<td>720</td>
<td>27.2</td>
<td>725</td>
<td>27.0</td>
<td>721</td>
<td>27.2</td>
<td>557</td>
<td>35.1</td>
<td>559</td>
<td>35.0</td>
<td>557</td>
<td>35.2</td>
</tr>
<tr>
<td>433.milc</td>
<td>155</td>
<td>59.0</td>
<td>156</td>
<td>59.0</td>
<td>155</td>
<td>59.1</td>
<td>153</td>
<td>59.9</td>
<td>153</td>
<td>59.9</td>
<td>154</td>
<td>59.7</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>79.9</td>
<td>114</td>
<td>79.7</td>
<td>114</td>
<td>79.9</td>
<td>114</td>
<td>79.9</td>
<td>114</td>
<td>79.9</td>
<td>114</td>
<td>79.9</td>
<td>114</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>385</td>
<td>18.5</td>
<td>383</td>
<td>18.7</td>
<td>384</td>
<td>18.6</td>
<td>385</td>
<td>18.5</td>
<td>383</td>
<td>18.7</td>
<td>384</td>
<td>18.6</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>35.4</td>
<td>338</td>
<td>35.6</td>
<td>336</td>
<td>35.4</td>
<td>338</td>
<td>35.6</td>
<td>336</td>
<td>35.4</td>
<td>338</td>
<td>35.6</td>
<td>336</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>89.3</td>
<td>105</td>
<td>88.9</td>
<td>106</td>
<td>89.3</td>
<td>105</td>
<td>89.3</td>
<td>105</td>
<td>89.3</td>
<td>105</td>
<td>89.3</td>
<td>105</td>
</tr>
<tr>
<td>444.namd</td>
<td>346</td>
<td>23.2</td>
<td>346</td>
<td>23.2</td>
<td>346</td>
<td>23.2</td>
<td>341</td>
<td>23.5</td>
<td>341</td>
<td>23.6</td>
<td>341</td>
<td>23.6</td>
</tr>
<tr>
<td>447.dealII</td>
<td>223</td>
<td>51.2</td>
<td>225</td>
<td>50.9</td>
<td>224</td>
<td>51.2</td>
<td>223</td>
<td>51.2</td>
<td>225</td>
<td>50.9</td>
<td>224</td>
<td>51.2</td>
</tr>
<tr>
<td>450.soplex</td>
<td>210</td>
<td>39.7</td>
<td>211</td>
<td>39.5</td>
<td>213</td>
<td>39.1</td>
<td>210</td>
<td>39.7</td>
<td>211</td>
<td>39.5</td>
<td>213</td>
<td>39.1</td>
</tr>
<tr>
<td>453.povray</td>
<td>123</td>
<td>43.2</td>
<td>124</td>
<td>43.1</td>
<td>123</td>
<td>43.4</td>
<td>105</td>
<td>50.8</td>
<td>103</td>
<td>51.4</td>
<td>103</td>
<td>51.5</td>
</tr>
<tr>
<td>454.calculix</td>
<td>239</td>
<td>34.5</td>
<td>237</td>
<td>34.8</td>
<td>237</td>
<td>34.8</td>
<td>198</td>
<td>41.7</td>
<td>198</td>
<td>41.8</td>
<td>197</td>
<td>41.8</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>82.4</td>
<td>129</td>
<td>82.2</td>
<td>129</td>
<td>82.2</td>
<td>129</td>
<td>70.7</td>
<td>150</td>
<td>70.5</td>
<td>150</td>
<td>70.5</td>
<td>150</td>
</tr>
<tr>
<td>465.tonto</td>
<td>288</td>
<td>34.2</td>
<td>288</td>
<td>34.1</td>
<td>288</td>
<td>34.1</td>
<td>227</td>
<td>43.4</td>
<td>228</td>
<td>43.2</td>
<td>228</td>
<td>43.2</td>
</tr>
<tr>
<td>470.lbm</td>
<td>18.6</td>
<td>738</td>
<td>18.6</td>
<td>738</td>
<td>18.6</td>
<td>738</td>
<td>18.6</td>
<td>738</td>
<td>18.6</td>
<td>738</td>
<td>18.6</td>
<td>738</td>
</tr>
<tr>
<td>481.wrf</td>
<td>292</td>
<td>38.3</td>
<td>293</td>
<td>38.2</td>
<td>288</td>
<td>38.8</td>
<td>292</td>
<td>38.3</td>
<td>293</td>
<td>38.2</td>
<td>288</td>
<td>38.8</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>302</td>
<td>64.5</td>
<td>300</td>
<td>64.9</td>
<td>299</td>
<td>65.1</td>
<td>291</td>
<td>66.9</td>
<td>289</td>
<td>67.4</td>
<td>294</td>
<td>66.4</td>
</tr>
</tbody>
</table>

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

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

System Profile set to Custom
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost set to Enabled
C States/C1E set to Enabled
Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on icon4p Mon Mar 19 17:01:37 2012

This section contains SUT (System Under Test) info as seen by
Continued on next page
## Platform Notes (Continued)

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 E5-4617 0 @ 2.90GHz  
- 4 "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`: 6  
- `physical 0`: cores 0 1 2 3 4 5  
- `physical 1`: cores 0 1 2 3 4 5  
- `physical 2`: cores 0 1 2 3 4 5  
- `physical 3`: cores 0 1 2 3 4 5  
- `cache size`: 15360 KB

From /proc/meminfo

- `MemTotal`: 264501512 kB  
- `HugePages_Total`: 0  
- `Hugepagesize`: 2048 kB

From /usr/bin/lsb_release -d  

SUSE Linux Enterprise Server 11 (x86_64)

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

- SuSE-release:  
  SUSE Linux Enterprise Server 11 (x86_64)  
  VERSION = 11  
  PATCHLEVEL = 2

```
uname -a:
Linux icon4p 3.0.13-0.27-default #1 SMP Wed Feb 15 13:33:49 UTC 2012
d73692b) x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Mar 19 10:56 last=S

SPEC is set to: /root/CPU2006-1.2

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext3 1.1T 123G 917G 12% /
```

Additional information from dmidecode:

(End of data from sysinfo program)

## General Notes

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

```
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/CPU2006-1.2/libs/32:/root/CPU2006-1.2/libs/64"
```

Continued on next page
Dell Inc.  

PowerEdge R820 (Intel Xeon E5-4617, 2.90 GHz)  

| SPECfp2006 = | 76.8 |
| SPECfp_base2006 = | 72.2 |

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

General Notes (Continued)

OMP_NUM_THREADS = "24"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5  
Transparent Huge Pages disabled with:  
echo never > /sys/kernel/mm/transparent_hugepage/enabled  
Filesystem page cache cleared with:  
echo 1> /proc/sys/vm/drop_caches  
The Dell PowerEdge R820 and the Bull NovaScale R470 F3 Models are electronically equivalent.  
The results have been measured on a Dell PowerEdge R820 model.

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.reusemp: -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 -nofor_main  
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  
464.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
Dell Inc.

PowerEdge R820 (Intel Xeon E5-4617, 2.90 GHz)

SPECfp2006 = 76.8
SPECfp_base2006 = 72.2

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

Test date: Mar-2012
Hardware Availability: May-2012
Software Availability: Feb-2012

---

Base Optimization Flags

C benchmarks:
- xAVX
- -ipo
- -03
- -no-prec-div
- -static
- -parallel
- -opt-prefetch
- -ansi-alias

C++ benchmarks:
- xAVX
- -ipo
- -03
- -no-prec-div
- -static
- -opt-prefetch
- -ansi-alias

Fortran benchmarks:
- xAVX
- -ipo
- -03
- -no-prec-div
- -static
- -parallel
- -opt-prefetch

Benchmarks using both Fortran and C:
- xAVX
- -ipo
- -03
- -no-prec-div
- -static
- -parallel
- -opt-prefetch
- -ansi-alias

---

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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: 
- xAVX(pass 2)
- -prof-gen(pass 1)
- -ipo(pass 2)
- -03(pass 2)
- -no-prec-div(pass 2)
- -prof-use(pass 2)
- -static
- -auto-ilp32
- -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: 
- xAVX
- -ipo
- -03
- -no-prec-div
- -unroll2
- -ansi-alias
- -parallel

Continued on next page
Dell Inc.

PowerEdge R820 (Intel Xeon E5-4617, 2.90 GHz) SPECfp2006 = 76.8
SPECfp_base2006 = 72.2

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

Test date: Mar-2012
Hardware Availability: May-2012
Software Availability: Feb-2012

Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
   -auto-ilp32

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
   -static
416.gamess: -xAVX(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- -static
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xAVX(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 -opt-prefetch -parallel
465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc
   -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
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-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.html
## SPEC CFP2006 Result

**Dell Inc.**

PowerEdge R820 (Intel Xeon E5-4617, 2.90 GHz)

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>76.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>72.2</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 55

**Test sponsor:** Dell Inc.

**Test date:** Mar-2012

**Tested by:** Dell Inc.

**Hardware Availability:** May-2012

**Software Availability:** Feb-2012

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

- [http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.xml](http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.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.


Originally published on 5 June 2012.