### Dell Inc.

**PowerEdge R720** (Intel Xeon E5-2637, 3.00 GHz)

**SPECfp®2006 =** 67.6

**SPECfp_base2006 =** 65.6

---

#### Hardware

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2637</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.50 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>3000</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>4 cores, 2 chips, 2 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1,2 chip</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

---

#### Software

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.27-default</td>
</tr>
<tr>
<td>Compiler</td>
<td>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</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>ext3</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
</tbody>
</table>

---

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

---

**Test sponsor:** Dell Inc.  
**Tested by:** Dell Inc.
### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>61.1</td>
<td>222</td>
<td>60.7</td>
<td>224</td>
<td>60.7</td>
<td>224</td>
<td>60.3</td>
<td>225</td>
<td>60.5</td>
<td>225</td>
<td>60.1</td>
<td>226</td>
<td></td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td>604</td>
<td>32.4</td>
<td>599</td>
<td>32.7</td>
<td>603</td>
<td>32.5</td>
<td>542</td>
<td>36.1</td>
<td>542</td>
<td>36.2</td>
<td>542</td>
<td>36.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
<td>155</td>
<td>59.3</td>
<td>155</td>
<td>59.3</td>
<td>155</td>
<td>59.2</td>
<td>153</td>
<td>60.0</td>
<td>153</td>
<td>60.0</td>
<td>153</td>
<td>60.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>100</td>
<td>90.8</td>
<td>100</td>
<td>90.8</td>
<td>100</td>
<td>90.9</td>
<td>100</td>
<td>90.8</td>
<td>100</td>
<td>90.8</td>
<td>100</td>
<td>90.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>435.gromacs</td>
<td>192</td>
<td>37.2</td>
<td>190</td>
<td>37.6</td>
<td>190</td>
<td>37.6</td>
<td>192</td>
<td>37.2</td>
<td>190</td>
<td>37.6</td>
<td>190</td>
<td>37.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>68.0</td>
<td>176</td>
<td>68.2</td>
<td>175</td>
<td>67.8</td>
<td>176</td>
<td>68.0</td>
<td>176</td>
<td>68.2</td>
<td>175</td>
<td>67.8</td>
<td>176</td>
<td></td>
<td></td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>81.6</td>
<td>115</td>
<td>81.6</td>
<td>115</td>
<td>80.2</td>
<td>117</td>
<td>81.6</td>
<td>115</td>
<td>81.6</td>
<td>115</td>
<td>80.2</td>
<td>117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>336</td>
<td>23.9</td>
<td>336</td>
<td>23.8</td>
<td>336</td>
<td>23.8</td>
<td>331</td>
<td>24.3</td>
<td>331</td>
<td>24.2</td>
<td>331</td>
<td>24.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>447.dealII</td>
<td>222</td>
<td>51.6</td>
<td>221</td>
<td>51.8</td>
<td>221</td>
<td>51.7</td>
<td>222</td>
<td>51.6</td>
<td>221</td>
<td>51.8</td>
<td>221</td>
<td>51.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>450.soplex</td>
<td>255</td>
<td>32.7</td>
<td>255</td>
<td>32.7</td>
<td>255</td>
<td>32.7</td>
<td>255</td>
<td>32.7</td>
<td>255</td>
<td>32.7</td>
<td>255</td>
<td>32.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>453.povray</td>
<td>120</td>
<td>44.3</td>
<td>119</td>
<td>44.7</td>
<td>119</td>
<td>44.8</td>
<td>101</td>
<td>52.8</td>
<td>101</td>
<td>52.5</td>
<td>101</td>
<td>52.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>454.calculix</td>
<td>209</td>
<td>39.5</td>
<td>208</td>
<td>39.6</td>
<td>207</td>
<td>39.8</td>
<td>197</td>
<td>41.9</td>
<td>196</td>
<td>42.0</td>
<td>196</td>
<td>42.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>124</td>
<td>85.4</td>
<td>124</td>
<td>85.4</td>
<td>124</td>
<td>85.4</td>
<td>117</td>
<td>90.6</td>
<td>117</td>
<td>90.6</td>
<td>117</td>
<td>90.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>465.tonto</td>
<td>240</td>
<td>40.9</td>
<td>240</td>
<td>40.9</td>
<td>268</td>
<td>36.7</td>
<td>227</td>
<td>43.3</td>
<td>228</td>
<td>43.2</td>
<td>228</td>
<td>43.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>470.lbm</td>
<td>54.4</td>
<td>252</td>
<td>54.2</td>
<td>253</td>
<td>54.0</td>
<td>254</td>
<td>54.4</td>
<td>252</td>
<td>54.2</td>
<td>253</td>
<td>54.0</td>
<td>254</td>
<td></td>
<td></td>
</tr>
<tr>
<td>481.wrf</td>
<td>152</td>
<td>73.6</td>
<td>151</td>
<td>74.1</td>
<td>150</td>
<td>74.4</td>
<td>152</td>
<td>73.6</td>
<td>151</td>
<td>74.1</td>
<td>150</td>
<td>74.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>339</td>
<td>57.5</td>
<td>349</td>
<td>55.9</td>
<td>349</td>
<td>55.8</td>
<td>348</td>
<td>56.0</td>
<td>342</td>
<td>57.0</td>
<td>343</td>
<td>56.8</td>
<td></td>
<td></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
Turbo Boost set to Enabled
Memory Frequency set to Maximum Performance
C States/C1E set to Enabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdfff5032aaa42e583f96b07f99d3

This section contains SUT (System Under Test) info as seen by
Continued on next page
Dell Inc. PowerEdge R720 (Intel Xeon E5-2637, 3.00 GHz)

SPECfp2006 = 67.6
SPECfp_base2006 = 65.6

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

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 E5-2637 0 @ 3.00GHz
- 2 "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 : 2
  - siblings : 4
  - physical 0: cores 0 1
  - physical 1: cores 0 1
- cache size : 5120 KB

From /proc/meminfo
- MemTotal: 132122700 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/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 R720-Latency1 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 27 12:35 last=S

SPEC is set to: /root/cpu2006-1.2
- Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda1 ext3 128G 9.2G 113G 8% /

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"
- OMP_NUM_THREADS = "4"
SPEC CFP2006 Result

Dell Inc.

PowerEdge R720 (Intel Xeon E5-2637, 3.00 GHz)  SPECfp2006 = 67.6
SPECfp_base2006 = 65.6

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

General Notes (Continued)

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 R720 and the Bull NovaScale R460 F3 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R720 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.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

Dell Inc.

PowerEdge R720 (Intel Xeon E5-2637, 3.00 GHz)

SPECfp2006 = 67.6
SPECfp_base2006 = 65.6

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

Base Optimization Flags

C benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -ipo -O3 -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) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

Continued on next page
Dell Inc.  

PowerEdge R720 (Intel Xeon E5-2637, 3.00 GHz)  

**SPEC CFP2006 Result**

<table>
<thead>
<tr>
<th>Test sponsor:</th>
<th>Dell Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2006 license:</td>
<td>55</td>
</tr>
<tr>
<td>Test date:</td>
<td>Mar-2012</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Mar-2012</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Feb-2012</td>
</tr>
</tbody>
</table>

**SPECfp2006 = 67.6**  
**SPECfp_base2006 = 65.6**

---

### 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

## SPEC CFP2006 Result

**Dell Inc.**

**PowerEdge R720 (Intel Xeon E5-2637, 3.00 GHz)**

<table>
<thead>
<tr>
<th>SPECfp2006 =</th>
<th>67.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006 =</td>
<td>65.6</td>
</tr>
</tbody>
</table>

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