**Dell Inc.**

**PowerEdge R910** (Intel Xeon E7-4830, 2.13 GHz)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>51.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>47.1</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test date:** Mar-2011  
**Hardware Availability:** Apr-2011  
**Software Availability:** Apr-2011  

### Benchmark Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>19.9</td>
</tr>
<tr>
<td>416.gamess</td>
<td>15.5</td>
</tr>
<tr>
<td>433.milc</td>
<td>20.8</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>87.1</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>16.8</td>
</tr>
<tr>
<td>465.tonto</td>
<td>24.1</td>
</tr>
<tr>
<td>470.lbm</td>
<td>27.4</td>
</tr>
<tr>
<td>481.wrf</td>
<td>41.3</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>37.2</td>
</tr>
<tr>
<td>447.dealII</td>
<td>26.4</td>
</tr>
<tr>
<td>450.soplex</td>
<td>18.7</td>
</tr>
<tr>
<td>453.povray</td>
<td>28.2</td>
</tr>
<tr>
<td>454.calculix</td>
<td>22.2</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>19.8</td>
</tr>
<tr>
<td>490.GemsFDTD</td>
<td>108</td>
</tr>
<tr>
<td>491.sphinx3</td>
<td>84.8</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon E7-4830  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.40 GHz  
- **CPU MHz:** 2133  
- **FPU:** Integrated  
- **CPU(s) enabled:** 32 cores, 4 chips, 8 cores/chip  
- **Primary Cache:** 32 KB I + 32 KB D on chip per core  
- **Secondary Cache:** 256 KB I+D on chip per core

**Software**

- **Operating System:** SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default  
- **Compiler:** Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0 Update 3  
- **Auto Parallel:** Yes  
- **File System:** ext3  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit

*Continued on next page*
Dell Inc.

PowerEdge R910 (Intel Xeon E7-4830, 2.13 GHz)

**SPEC CFP2006 Result**

---

**CPU2006 license:** 55  
**Test date:** Mar-2011  
**Hardware Availability:** Apr-2011  
**Test sponsor:** Dell Inc.  
**Software Availability:** Apr-2011  
**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>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>37.5</td>
<td>362</td>
<td>34.3</td>
<td>396</td>
<td>34.1</td>
<td>398</td>
<td>37.5</td>
<td>362</td>
<td>34.3</td>
<td>396</td>
<td>34.1</td>
<td>398</td>
</tr>
<tr>
<td>416.gamess</td>
<td>1262</td>
<td>15.5</td>
<td>1269</td>
<td>15.4</td>
<td><strong>1267</strong></td>
<td>15.5</td>
<td><strong>986</strong></td>
<td>19.9</td>
<td>984</td>
<td>19.9</td>
<td>987</td>
<td>19.8</td>
</tr>
<tr>
<td>433.milc</td>
<td>441</td>
<td>20.8</td>
<td>443</td>
<td>20.7</td>
<td><strong>442</strong></td>
<td>20.8</td>
<td>441</td>
<td>20.8</td>
<td>443</td>
<td>20.7</td>
<td><strong>442</strong></td>
<td>20.8</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>105</td>
<td>86.4</td>
<td><strong>104</strong></td>
<td>87.1</td>
<td>104</td>
<td>87.6</td>
<td>105</td>
<td>86.4</td>
<td><strong>104</strong></td>
<td>87.1</td>
<td>104</td>
<td>87.6</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>455</td>
<td>15.7</td>
<td>454</td>
<td>15.7</td>
<td><strong>455</strong></td>
<td>15.7</td>
<td>424</td>
<td>16.8</td>
<td>425</td>
<td>16.8</td>
<td>426</td>
<td>16.8</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>30.8</td>
<td>388</td>
<td>45.4</td>
<td>263</td>
<td>29.2</td>
<td>409</td>
<td><strong>30.8</strong></td>
<td>388</td>
<td>45.4</td>
<td>263</td>
<td>29.2</td>
<td>409</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>58.8</td>
<td>160</td>
<td><strong>53.0</strong></td>
<td>177</td>
<td>52.4</td>
<td>179</td>
<td>58.8</td>
<td>160</td>
<td><strong>53.0</strong></td>
<td>177</td>
<td>52.4</td>
<td>179</td>
</tr>
<tr>
<td>444.namd</td>
<td>574</td>
<td>14.0</td>
<td>574</td>
<td>14.0</td>
<td>574</td>
<td>14.0</td>
<td>564</td>
<td>14.2</td>
<td>563</td>
<td>14.2</td>
<td><strong>564</strong></td>
<td>14.2</td>
</tr>
<tr>
<td>447.dealII</td>
<td>433</td>
<td>26.4</td>
<td>434</td>
<td>26.4</td>
<td><strong>433</strong></td>
<td>26.4</td>
<td>433</td>
<td>26.4</td>
<td>434</td>
<td>26.4</td>
<td><strong>433</strong></td>
<td>26.4</td>
</tr>
<tr>
<td>450.soplex</td>
<td>446</td>
<td>18.7</td>
<td><strong>446</strong></td>
<td>18.7</td>
<td>455</td>
<td>18.3</td>
<td>446</td>
<td>18.7</td>
<td><strong>446</strong></td>
<td>18.7</td>
<td>455</td>
<td>18.3</td>
</tr>
<tr>
<td>453.povray</td>
<td>239</td>
<td>22.2</td>
<td>239</td>
<td>22.2</td>
<td><strong>239</strong></td>
<td>22.2</td>
<td>189</td>
<td>28.1</td>
<td><strong>189</strong></td>
<td>28.2</td>
<td>188</td>
<td>28.2</td>
</tr>
<tr>
<td>454.calculix</td>
<td>416</td>
<td>19.8</td>
<td>417</td>
<td>19.8</td>
<td>415</td>
<td>19.9</td>
<td>350</td>
<td>23.5</td>
<td>351</td>
<td>23.5</td>
<td><strong>351</strong></td>
<td>23.5</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>112</td>
<td>94.8</td>
<td>121</td>
<td>87.4</td>
<td>110</td>
<td>96.7</td>
<td><strong>98.4</strong></td>
<td>108</td>
<td>101</td>
<td>105</td>
<td>96.2</td>
<td>110</td>
</tr>
<tr>
<td>465.tonto</td>
<td><strong>625</strong></td>
<td>15.8</td>
<td>619</td>
<td>15.9</td>
<td>634</td>
<td>15.5</td>
<td>410</td>
<td>24.0</td>
<td><strong>409</strong></td>
<td>24.1</td>
<td>409</td>
<td>24.1</td>
</tr>
<tr>
<td>470.lbm</td>
<td>31.8</td>
<td>432</td>
<td><strong>27.4</strong></td>
<td>501</td>
<td>27.0</td>
<td>508</td>
<td>31.8</td>
<td>432</td>
<td><strong>27.4</strong></td>
<td>501</td>
<td>27.0</td>
<td>508</td>
</tr>
<tr>
<td>481.wrf</td>
<td>408</td>
<td>27.4</td>
<td><strong>407</strong></td>
<td>27.4</td>
<td>397</td>
<td>28.1</td>
<td>408</td>
<td>27.4</td>
<td><strong>407</strong></td>
<td>27.4</td>
<td>397</td>
<td>28.1</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>525</td>
<td>37.1</td>
<td><strong>524</strong></td>
<td>37.2</td>
<td>524</td>
<td>37.2</td>
<td>473</td>
<td>41.2</td>
<td>472</td>
<td>41.3</td>
<td>471</td>
<td>41.3</td>
</tr>
</tbody>
</table>

**Operating System Notes**

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages  
echo 900 > /proc/sys/vm/nr_hugepages  
export HUGETLB_MORECORE=yes  
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so

**Platform Notes**

BIOS Settings:  
Power Management = Maximum Performance (Default = Active Power Controller)  
Node Interleaving = Enabled (Default = Disabled)
Dell Inc.

PowerEdge R910 (Intel Xeon E7-4830, 2.13 GHz)

SPECfp2006 = 51.2
SPECfp_base2006 = 47.1

CPU2006 license: 55
Test sponsor: Dell Inc.
Test date: Mar-2011
Tested by: Dell Inc.
Hardware Availability: Apr-2011
Software Availability: Apr-2011

General Notes

The Dell PowerEdge R910 and the Bull NovaScale R480 F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge R910 model. OMP_NUM_THREADS set to number of cores. Binaries were compiled on RHEL5.5

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 -nofor_main
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:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
SPEC CFP2006 Result

Dell Inc.
PowerEdge R910 (Intel Xeon E7-4830, 2.13 GHz)

| SPECfp2006 | 51.2 |
| SPECfp_base2006 | 47.1 |

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.
Test date: Mar-2011
Hardware Availability: Apr-2011
Software Availability: Apr-2011

Base Optimization Flags (Continued)

C++ benchmarks:
- xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:
- xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
- xSSE4.2 -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: basepeak = yes
470.lbm: basepeak = yes
482.sphinx3: xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel

C++ benchmarks:
444.namd: xSSE4.2(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

Continued on next page
**SPEC CFP2006 Result**

**Dell Inc.**

PowerEdge R910 (Intel Xeon E7-4830, 2.13 GHz)

**SPECfp2006 = 51.2**  
**SPECfp_base2006 = 47.1**

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Test date:</td>
<td>Mar-2011</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2011</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Apr-2011</td>
</tr>
</tbody>
</table>

**Peak Optimization Flags (Continued)**

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: 
-\texttt{xSSE4.2(pass 2)} \texttt{-prof-gen(pass 1)} \texttt{-ipo(pass 2)} \texttt{-O3(pass 2)} \texttt{-no-prec-div(pass 2)} \texttt{-prof-use(pass 2)} \texttt{-unroll12 -ansi-alias} \texttt{-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT}

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: 
-\texttt{xSSE4.2(pass 2)} \texttt{-prof-gen(pass 1)} \texttt{-ipo(pass 2)} \texttt{-O3(pass 2)} \texttt{-no-prec-div(pass 2)} \texttt{-prof-use(pass 2)} \texttt{-unroll12 -inline-level=0 -scalar-rep- -static}
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: 
-\texttt{xSSE4.2(pass 2)} \texttt{-prof-gen(pass 1)} \texttt{-ipo(pass 2)} \texttt{-O3(pass 2)} \texttt{-no-prec-div(pass 2)} \texttt{-prof-use(pass 2)} \texttt{-unroll12 -inline-level=0 -opt-prefetch -parallel} \texttt{-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT}
465.tonto: 
-\texttt{xSSE4.2(pass 2)} \texttt{-prof-gen(pass 1)} \texttt{-ipo(pass 2)} \texttt{-O3(pass 2)} \texttt{-no-prec-div(pass 2)} \texttt{-prof-use(pass 2)} \texttt{-inline-calloc} \texttt{-opt-malloc-options=3 -auto -unroll14} \texttt{-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT}

Benmarks using both Fortran and C:

435.gromacs: 
-\texttt{xSSE4.2(pass 2)} \texttt{-prof-gen(pass 1)} \texttt{-ipo(pass 2)} \texttt{-O3(pass 2)} \texttt{-no-prec-div(pass 2)} \texttt{-prof-use(pass 2)} \texttt{-static -auto-ilp32 -ansi-alias}
436.cactusADM: basepeak = yes
454.calculix: 
-\texttt{xSSE4.2 -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-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.html

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

http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.xml
Dell Inc.

PowerEdge R910 (Intel Xeon E7-4830, 2.13 GHz)

SPECfp2006 = 51.2
SPECfp_base2006 = 47.1

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

Test date: Mar-2011
Hardware Availability: Apr-2011
Software Availability: Apr-2011

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 v1.1.