Dell Inc.  
PowerEdge R220 (Intel Xeon E3-1280 v3, 3.60 GHz)  

<table>
<thead>
<tr>
<th>SPECint®2006 = 64.2</th>
<th>SPECint_base2006 = 61.6</th>
</tr>
</thead>
</table>

**CPU2006 license:** 55  
**Test date:** Feb-2014  
**Test sponsor:** Dell Inc.  
**Hardware Availability:** Mar-2014  
**Tested by:** Dell Inc.  
**Software Availability:** Feb-2014

---

### Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E3-1280 v3</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 4.00 GHz</td>
</tr>
<tr>
<td>CPU MHZ</td>
<td>3600</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>4 cores, 1 chip, 4 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1 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>
<tr>
<td>L3 Cache</td>
<td>8 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>32 GB (4 x 8 GB 2Rx8 PC3L-12800E-11, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>2 x 300 GB 10000 RPM SAS</td>
</tr>
<tr>
<td>Other Hardware</td>
<td>None</td>
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</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>SUSE Linux Enterprise Server 11 (x86_64)</td>
</tr>
<tr>
<td></td>
<td>3.0.76-0.11-default</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 14.0.0.0.080 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>ext2</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software</td>
<td>Microquill SmartHeap V10.0</td>
</tr>
</tbody>
</table>
Dell Inc.

PowerEdge R220 (Intel Xeon E3-1280 v3, 3.60 GHz)

SPECint2006 = 64.2
SPECint_base2006 = 61.6

CPU2006 license: 55
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>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>216</td>
<td>45.2</td>
<td>215</td>
<td>45.5</td>
<td>215</td>
<td>45.4</td>
<td>181</td>
<td>53.9</td>
<td>182</td>
<td>53.7</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>321</td>
<td>30.1</td>
<td>320</td>
<td>30.2</td>
<td>320</td>
<td>30.1</td>
<td>318</td>
<td>30.4</td>
<td>317</td>
<td>30.4</td>
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<tr>
<td>403.gcc</td>
<td>201</td>
<td>40.1</td>
<td>201</td>
<td>40.1</td>
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<td>40.1</td>
<td>198</td>
<td>40.6</td>
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<td>40.9</td>
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<tr>
<td>429.mcf</td>
<td>340</td>
<td>30.9</td>
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<td>30.8</td>
<td>321</td>
<td>32.7</td>
<td>321</td>
<td>32.7</td>
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<tr>
<td>445.gobmk</td>
<td>117</td>
<td>77.8</td>
<td>115</td>
<td>79.1</td>
<td>115</td>
<td>79.2</td>
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<td>77.8</td>
<td>115</td>
<td>79.1</td>
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<tr>
<td>456.hmmer</td>
<td>315</td>
<td>38.4</td>
<td>315</td>
<td>38.4</td>
<td>315</td>
<td>38.4</td>
<td>312</td>
<td>38.8</td>
<td>311</td>
<td>38.9</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>14.2</td>
<td>1460</td>
<td>14.2</td>
<td>1460</td>
<td>13.2</td>
<td>1570</td>
<td>14.2</td>
<td>1460</td>
<td>14.2</td>
<td>1460</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>369</td>
<td>60.0</td>
<td>371</td>
<td>59.6</td>
<td>369</td>
<td>60.0</td>
<td>371</td>
<td>59.6</td>
<td>369</td>
<td>60.0</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>216</td>
<td>29.0</td>
<td>215</td>
<td>29.1</td>
<td>216</td>
<td>29.0</td>
<td>175</td>
<td>35.6</td>
<td>175</td>
<td>35.8</td>
</tr>
<tr>
<td>473.astar</td>
<td>185</td>
<td>38.0</td>
<td>184</td>
<td>38.2</td>
<td>183</td>
<td>38.3</td>
<td>184</td>
<td>38.2</td>
<td>184</td>
<td>38.2</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>91.5</td>
<td>75.4</td>
<td>90.8</td>
<td>76.0</td>
<td>91.1</td>
<td>75.7</td>
<td>88.6</td>
<td>77.9</td>
<td>89.0</td>
<td>77.5</td>
</tr>
</tbody>
</table>

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

Submit Notes
The config file option 'submit' was used.

Operating System Notes
Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes
Virtualization Technology disabled
Execute Disable disabled
System Profile set to Performance
Logical Processor disabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on linux Thu Feb 27 09:17:20 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 E3-1280 v3 @ 3.60GHz
  1 "physical id"s (chips)
  4 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

Continued on next page
Dell Inc.
PowerEdge R220 (Intel Xeon E3-1280 v3, 3.60 GHz)

SPECint2006 = 64.2
SPECint_base2006 = 61.6

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

Test date: Feb-2014
Hardware Availability: Mar-2014
Software Availability: Feb-2014

Platform Notes (Continued)

cpu cores : 4
siblings : 4
physical 0: cores 0 1 2 3
cache size : 8192 KB

From /proc/meminfo
MemTotal: 32809896 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 = 3

uname -a:
Linux linux 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013 (ccab990)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Feb 27 09:10 last=S

SPEC is set to: /root/cpu2006-1.2

Additional information from dmidecode:
BIOS Dell Inc. 1.0.1 02/17/2014
Memory:
4x Samsung M391B1G73BH0-YK0 8 GB 1600 MHz

(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/libs32:/root/cpu2006-1.2/libs64:/root/cpu2006-1.2/sh"
OMP_NUM_THREADS = "4"

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/transparent_hugepage/enabled
runcspec command invoked through numactl i.e.:
umactl --interleave=all runspec <etc>
**SPEC CINT2006 Result**

**Dell Inc.**  
PowerEdge R220 (Intel Xeon E3-1280 v3, 3.60 GHz)  

| SPECint2006 | 64.2 |
| SPECint_base2006 | 61.6 |

**CPU2006 license:** 55  
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### Base Compiler Invocation

C benchmarks:  
```  
icc -m64  
```

C++ benchmarks:  
```  
ic++ -m64  
```

### Base Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-DSPEC_CPU_LP64`
445.gobmk: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
464.h264ref: `-DSPEC_CPU_LP64`
471.omnetpp: `-DSPEC_CPU_LP64`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

### Base Optimization Flags

C benchmarks:  
```  
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32  
```

C++ benchmarks:  
```  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -lsmartheap64  
```

### Base Other Flags

C benchmarks:  
```  
403.gcc: -Dalloca=_alloca  
```

### Peak Compiler Invocation

C benchmarks (except as noted below):  
```  
icc -m64  
```
Dell Inc.
PowerEdge R220 (Intel Xeon E3-1280 v3, 3.60 GHz)

SPECint2006 = 64.2
SPECint_base2006 = 61.6

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

Test date: Feb-2014
Hardware Availability: Mar-2014
Software Availability: Feb-2014

Peak Compiler Invocation (Continued)

400.perlbench: icc -m32
445.gobmk: icc -m32

C++ benchmarks (except as noted below):
icpc -m32
473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -ansi-alias
401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32
-opt-prefetch -ansi-alias
403.gcc: -xCORE-AVX2 -ipo -03 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32
429.mcf: basepeak = yes
445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias
456.hmmer: basepeak = yes
458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4
Dell Inc.

PowerEdge R220 (Intel Xeon E3-1280 v3, 3.60 GHz)

<table>
<thead>
<tr>
<th>SPECint2006</th>
<th>64.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_base2006</td>
<td>61.6</td>
</tr>
</tbody>
</table>

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

**Peak Optimization Flags (Continued)**

462.libquantum: basepeak = yes
464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-W1, -z, muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z, muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -W1, -z, muldefs -L/sh -lsmartheap

**Peak Other Flags**

C benchmarks:

403.gcc: Dalloca=_alloca

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revC.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revC.xml

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

Tested with SPEC CPU2006 v1.2.
Originally published on 22 April 2014.