## SPECint2006 Result

**Dell Inc.**

**PowerEdge T620 (Intel Xeon E5-2670, 2.60 GHz)**

| SPECint2006 | 52.1 |
| SPECint_base2006 | 48.7 |

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

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2670</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.30 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2600</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>16 cores, 2 chips, 8 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>
<tr>
<td>L3 Cache:</td>
<td>20 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 500 GB 7200 RPM SATA</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

| Operating System: | SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.9-default |
| Compiler: | CIC++: Version 12.1.0.225 of Intel C++ Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext3 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32/64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V9.01 |
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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>332</td>
<td>29.5</td>
<td>333</td>
<td>29.4</td>
<td>332</td>
<td>29.4</td>
<td>278</td>
<td>35.1</td>
<td>277</td>
<td>35.3</td>
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<tr>
<td>401.bzip2</td>
<td>443</td>
<td>21.8</td>
<td>442</td>
<td>21.8</td>
<td>442</td>
<td>21.8</td>
<td>433</td>
<td>22.3</td>
<td>433</td>
<td>22.3</td>
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<tr>
<td>403.mcf</td>
<td>273</td>
<td>29.5</td>
<td>273</td>
<td>29.5</td>
<td>273</td>
<td>29.5</td>
<td>268</td>
<td>30.1</td>
<td>268</td>
<td>30.1</td>
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<tr>
<td>429.gcc</td>
<td>147</td>
<td>62.1</td>
<td>147</td>
<td>62.3</td>
<td>147</td>
<td>62.2</td>
<td>147</td>
<td>62.1</td>
<td>147</td>
<td>62.2</td>
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<td>445.gobmk</td>
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<td>23.7</td>
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<td>23.7</td>
<td>416</td>
<td>25.2</td>
<td>415</td>
<td>25.2</td>
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<tr>
<td>456.hmmer</td>
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<td>50.0</td>
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<td>50.0</td>
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<td>50.0</td>
<td>185</td>
<td>50.3</td>
<td>185</td>
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<tr>
<td>458.sjeng</td>
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<td>26.7</td>
<td>460</td>
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<td>26.9</td>
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<td>26.9</td>
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<tr>
<td>462.libquantum</td>
<td>6.88</td>
<td>3010</td>
<td>6.88</td>
<td>3010</td>
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<td>3010</td>
<td>6.88</td>
<td>3010</td>
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</tr>
<tr>
<td>464.h264ref</td>
<td>512</td>
<td>43.2</td>
<td>515</td>
<td>43.0</td>
<td>514</td>
<td>43.0</td>
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<td>51.7</td>
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<tr>
<td>471.omnetpp</td>
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<td>24.9</td>
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<td>34.5</td>
<td>181</td>
<td>34.5</td>
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<tr>
<td>473.astar</td>
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<td>29.3</td>
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<td>29.3</td>
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<td>29.3</td>
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<td>29.3</td>
<td>240</td>
<td>29.3</td>
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<tr>
<td>483.xalancbmk</td>
<td>136</td>
<td>50.6</td>
<td>136</td>
<td>50.7</td>
<td>136</td>
<td>50.7</td>
<td>136</td>
<td>50.6</td>
<td>136</td>
<td>50.7</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 $ $Date:: 2011-10-11 #$ 6f2ebdf5032aaa42e583f96b07f99d3
running on Miller Mon Feb 13 14:12:40 2012

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 E5-2670 0 @ 2.60GHz
  2 "physical id"s (chips)
32 "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 : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7

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Platform Notes (Continued)

physical 1: cores 0 1 2 3 4 5 6 7
  cache size : 20480 KB

From /proc/meminfo
  MemTotal: 132122692 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 Miller 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012 (54ddfaf)
    x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Feb 13 14:10 last=S

SPEC is set to: /root/CPU2006-1.2

Filesystem     Type  Size  Used  Avail  Use% Mounted on
/dev/sda1      ext3   99G   55G   39G  59% /

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 = "16"

The Dell PowerEdge T620 and
the Bull NovaScale T840 F3 models are electronically equivalent.
The results have been measured on a Dell PowerEdge T620 model
Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
  echo 1> /proc/sys/vm/drop_caches
Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5
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### Base Compiler Invocation

- **C benchmarks:**
  - `icc -m64`
- **C++ benchmarks:**
  - `icpc -m64`

### Base Portability Flags

- **C benchmarks:**
  - 400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
  - 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`
  - 471.omnetpp: `-DSPEC_CPU_LP64`
  - 473.astar: `-DSPEC_CPU_LP64`
  - 483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

### Base Optimization Flags

- **C benchmarks:**
  - `-xAVX -ipo -03 -no-prec-div -parallel -opt-prefetch -auto-p32`
- **C++ benchmarks:**
  - `-xAVX -ipo -03 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs -L/smartheap -lsmartheap64`

### Base Other Flags

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

### Peak Compiler Invocation

- **C benchmarks (except as noted below):**
  - `icc -m64`

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Peak Compiler Invocation (Continued)

400.perlbench: icc -m32
445.gobmk: icc -m32
464.h264ref: icc -m32

C++ benchmarks (except as noted below):
icpc -m64
471.omnetpp: icpc -m32

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
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
-ansi-alias

401.bzip2: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch
-ansi-alias

403.gcc: -xAVX -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32
429.mcf: basepeak = yes
445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias
456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias
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Peak Optimization Flags (Continued)

458.sjeng: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll12
-ansi-alias

C++ benchmarks:

471.omnetpp: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

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-ic12.1-official-linux64.20111122.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120328.xml

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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 02:30:49 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 27 March 2012.