Bull SAS

NovaScale R440 F3 (Intel Xeon E5-2670, 2.60 GHz)

SPECint®2006 = 52.1
SPECint_base2006 = 48.6

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Dell Inc.

Hardware

CPU Name: Intel Xeon E5-2670
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHZ: 2600
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable: 1.2 chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 2 x 146 GB 15000 RPM SAS, RAID 0
Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.9-default
Compiler: C/C++ 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
**SPEC CINT2006 Result**

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

## 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>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>335</td>
<td>29.2</td>
<td>338</td>
<td>28.9</td>
<td>334</td>
<td>29.3</td>
<td>279</td>
<td>35.1</td>
<td>278</td>
<td>35.1</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>448</td>
<td>21.5</td>
<td>447</td>
<td>21.6</td>
<td>443</td>
<td>21.8</td>
<td>434</td>
<td>22.3</td>
<td>434</td>
<td>22.3</td>
</tr>
<tr>
<td>403.gcc</td>
<td>274</td>
<td>29.4</td>
<td>274</td>
<td>29.4</td>
<td>274</td>
<td>29.4</td>
<td>268</td>
<td>30.0</td>
<td>269</td>
<td>30.0</td>
</tr>
<tr>
<td>429.mcf</td>
<td>147</td>
<td>62.1</td>
<td>147</td>
<td>62.0</td>
<td>147</td>
<td>62.1</td>
<td>147</td>
<td>62.1</td>
<td>147</td>
<td>62.1</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>442</td>
<td>23.7</td>
<td>443</td>
<td>23.7</td>
<td>443</td>
<td>23.7</td>
<td>415</td>
<td>25.3</td>
<td>416</td>
<td>25.2</td>
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<tr>
<td>456.hmmer</td>
<td>187</td>
<td>49.9</td>
<td>187</td>
<td>50.0</td>
<td>187</td>
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<td>49.9</td>
<td>187</td>
<td>50.0</td>
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<tr>
<td>458.sjeng</td>
<td>453</td>
<td>26.7</td>
<td>453</td>
<td>26.7</td>
<td>460</td>
<td>26.3</td>
<td>450</td>
<td>26.9</td>
<td>450</td>
<td>26.9</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>6.88</td>
<td>3010</td>
<td>6.88</td>
<td>3010</td>
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<td>6.88</td>
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<td>3010</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>520</td>
<td>42.5</td>
<td>513</td>
<td>43.2</td>
<td>516</td>
<td>42.9</td>
<td>426</td>
<td>51.9</td>
<td>427</td>
<td>51.9</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>251</td>
<td>24.9</td>
<td>249</td>
<td>25.1</td>
<td>250</td>
<td>25.0</td>
<td>178</td>
<td>35.0</td>
<td>181</td>
<td>34.6</td>
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<tr>
<td>473.astar</td>
<td>240</td>
<td>29.3</td>
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<td>29.3</td>
<td>240</td>
<td>29.3</td>
<td>240</td>
<td>29.3</td>
<td>239</td>
<td>29.3</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>137</td>
<td>50.4</td>
<td>137</td>
<td>50.3</td>
<td>136</td>
<td>50.6</td>
<td>136</td>
<td>50.9</td>
<td>137</td>
<td>50.4</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 $ $Date:: 2011-10-11 #$ 6f2ebdf5032aaa42e583f96b07f99d3  
running on unsvr Mon Feb 13 14:12:18 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
```

Continued on next page
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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: 132089856 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 unsvr 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 14:09 last=S

SPEC is set to: /root/CPU2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext3 265G 68G 184G 27% /

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 R620 and
the Bull NovaScale R440 F3 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R620 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 benchmark:
icc -m64

C++ benchmark:
icpc -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
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 -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xAVX -ipo -O3 -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

Continued on next page
SPEC CINT2006 Result

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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 -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
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -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: basepeak = yes

Continued on next page
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**SPEC CINT2006 Result**

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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) -unroll14

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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
    -Wl,-z,muldefs -L/smartheap -lsmartheap

**Peak Other Flags**

C benchmarks:

403.gcc: -Dalloca=_alloca

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

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