**Bull SAS**

**NovaScale R430 F3 (Intel Xeon E5-2430L, 2.00 GHz)**

<table>
<thead>
<tr>
<th>Test sponsor</th>
<th>Bull SAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested by</td>
<td>Dell Inc.</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 20

**Test date:** Feb-2012

**Hardware Availability:** May-2012

**Software Availability:** Feb-2012

---

### SPECint Rate

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>320</td>
</tr>
<tr>
<td>bzip2</td>
<td>209</td>
</tr>
<tr>
<td>gcc</td>
<td>298</td>
</tr>
<tr>
<td>mcf</td>
<td>582</td>
</tr>
<tr>
<td>gobmk</td>
<td>277</td>
</tr>
<tr>
<td>hammer</td>
<td>540</td>
</tr>
<tr>
<td>sjeng</td>
<td>447</td>
</tr>
<tr>
<td>libquantum</td>
<td>365</td>
</tr>
</tbody>
</table>

**SPECint_rate2006 = 380**

**SPECint_rate_base2006 = 364**

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### Hardware

- **CPU Name:** Intel Xeon E5-2430L
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.50 GHz
- **CPU MHz:** 2000
- **FPU:** Integrated
- **CPU(s) enabled:** 12 cores, 2 chips, 6 cores/chip, 2 threads/core
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 256 KB I+D on chip per core
- **L3 Cache:** 15 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)
- **Disk Subsystem:** 2 x 600 GB 15000 RPM SAS, RAID 1
- **Other Hardware:** None

---

### 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:** No
- **File System:** ext3
- **System State:** Run level 3 (add definition here)
- **Base Pointers:** 32-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V9.01

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Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
### SPEC CINT2006 Result

**Bull SAS**

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<table>
<thead>
<tr>
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</table>

**SPECint_rate2006** = 380

**SPECint_rate_base2006** = 364

---

#### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</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>24</td>
<td>863</td>
<td>272</td>
<td>875</td>
<td>268</td>
<td>24</td>
<td>734</td>
<td>320</td>
<td>729</td>
<td>322</td>
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<tr>
<td>401.bzip2</td>
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<td>1174</td>
<td>197</td>
<td>1140</td>
<td>203</td>
<td>24</td>
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<td>210</td>
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<td>403.gcc</td>
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<td>650</td>
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<td>390</td>
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<td>588</td>
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<td>582</td>
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<td>445.gobmk</td>
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<td>929</td>
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<td>930</td>
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<td>450</td>
<td>502</td>
<td>446</td>
<td>24</td>
<td>415</td>
<td>540</td>
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<td>540</td>
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<tr>
<td>458.sjeng</td>
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<td>270</td>
<td>1075</td>
<td>270</td>
<td>24</td>
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<td>282</td>
<td>1032</td>
<td>281</td>
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<td>282</td>
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<tr>
<td>462.libquantum</td>
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<td>236</td>
<td>2110</td>
<td>235</td>
<td>2120</td>
<td>24</td>
<td>236</td>
<td>2110</td>
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<td>2120</td>
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<td>2120</td>
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<tr>
<td>464.h264ref</td>
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<td>471.omnetpp</td>
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<td>681</td>
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<td>680</td>
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<td>640</td>
<td>234</td>
<td>640</td>
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<td>638</td>
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<tr>
<td>473.astar</td>
<td>24</td>
<td>774</td>
<td>218</td>
<td>778</td>
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<td>779</td>
<td>216</td>
<td>774</td>
<td>218</td>
<td>778</td>
<td>217</td>
<td>779</td>
</tr>
</tbody>
</table>

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

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#### Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

---

#### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

---

#### Platform Notes

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 Slice Sat Feb 25 04:23:18 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](http://www.spec.org/cpu2006/Docs/config.html#sysinfo)

From /proc/cpuinfo
- model name : Intel(R) Xeon(R) CPU E5-2430L 0 @ 2.00GHz
- 2 "physical id"s (chips)
- 24 "processors"
- cores, siblings (Caution: counting these is hw and system dependent. The Continued on next page
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CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Dell Inc.

Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 6
siblings : 12
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB

From /proc/meminfo
MemTotal: 49381468 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 Slice 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 25 04:21 last=S

SPEC is set to: /root/CPU2006-1.2
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda1      ext3  266G   11G  242G   5% /

Additional information from dmidecode:

(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/libs/32:/root/CPU2006-1.2/libs/64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5
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
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
The Dell PowerEdge R420 and the Bull NovaScale R430 F3 models are electronically equivalent.

Continued on next page
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General Notes (Continued)
The results have been measured on a Dell PowerEdge R420 model

Base Compiler Invocation

C benchmarks:
   icc -m32

C++ benchmarks:
   icpc -m32

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
   -xsse4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:
   -xsse4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
      -Wl,-z,muldefs -L/smartheap -lsmartheap

Base Other Flags

C benchmarks:
   403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
   icc -m32

400.perlbench: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64

Continued on next page
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Hardware Availability: May-2012
Tested by: Dell Inc.
Software Availability: Feb-2012

Peak Compiler Invocation (Continued)

458.sjeng:icc -m64

C++ benchmarks:
icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes
445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias

Continued on next page
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Peak Optimization Flags (Continued)

C++ benchmarks:
471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-o3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/smartheap -lsmartheap

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

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.20120410.00.xml

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