Bull SAS
NovaScale R440
(Intel Xeon processor E5320, 1.86GHz)

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Jul-2007
Hardware Availability: Mar-2007
Software Availability: May-2007

<table>
<thead>
<tr>
<th>Copy</th>
<th>SPECint_rate2006</th>
<th>SPECint_rate_base2006</th>
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</thead>
<tbody>
<tr>
<td>8</td>
<td>68.9</td>
<td>64.8</td>
</tr>
</tbody>
</table>

**Hardware**
- CPU Name: Intel Xeon E5320
- CPU Characteristics: 1.86 GHz, 8 MB L2, 1066 MHz system bus
- CPU MHz: 1866
- FPU: Integrated
- CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
- CPU(s) orderable: 1 to 2 chips
- Primary Cache: 32 KB I + 32 KB D on chip per core
- Secondary Cache: 8 MB I+D on chip per core, 4 MB shared / 2 cores
- L3 Cache: None
- Other Cache: None
- Memory: 12 GB (12x1 GB) FB-DIMM PC2-4200F ECC CL4
- Disk Subsystem: 1x73 GB SAS, 15000 RPM
- Other Hardware: None

**Software**
- Operating System: SUSE LINUX Enterprise Server 10
- Compiler: Intel C++ Compiler for Linux32 and Linux64 version 10.0
- Build 20070426 Package ID: l_cc_p_10.0.023
- Auto Parallel: No
- File System: ext2
- System State: Multi-user run level 3
- Base Pointers: 32-bit
- Peak Pointers: 32/64-bit
- Other Software: SmartHeap library V8.1
- Binutils 2.17.50.0.15
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SPECint_rate2006 = 68.9
SPECint_rate_base2006 = 64.8

Results Table

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<td>716</td>
<td>77.1</td>
</tr>
</tbody>
</table>

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

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'/usr/bin/taskset' used to bind processes to CPUs
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode

General Notes

The NovaScale R440 and the NovaScale R460 models are
electronically equivalent.
The results have been measured on a NovaScale R460 model.

Base Compiler Invocation

C benchmarks:
  icc
C++ benchmarks:
  icpc
SPEC CINT2006 Result

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Base Portability Flags

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

Base Optimization Flags

C benchmarks:
   -fast -Wl,-z,muldefs

C++ benchmarks:
   -xT -ipo -O3 -no-prec-div -ansi-alias -Wl,-z,muldefs
   -L/spec/cpu2006/lib -lsmartheap

Base Other Flags

C benchmarks:
   403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
   icc
      401.bzip2: /opt/intel/cce/10.0.023/bin/icc
                  -L/opt/intel/cce/10.0.023/lib
                  -I/opt/intel/cce/10.0.023/include
   456.hmmer: /opt/intel/cce/10.0.023/bin/icc
                  -L/opt/intel/cce/10.0.023/lib
                  -I/opt/intel/cce/10.0.023/include

C++ benchmarks:
   icpc

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX

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Peak Portability Flags (Continued)

483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

- 400.perlbench: -prof_gen(pass 1) -prof_use(pass 2) -fast -ansi-alias
  -prefetch -Wl,-z,muldefs
- 401.bzip2: -prof_gen(pass 1) -prof_use(pass 2) -fast -Wl,-z,muldefs
- 403.gcc: basepeak = yes
- 429.mcf: -fast -prefetch -Wl,-z,muldefs
- 445.gobmk: -prof_gen(pass 1) -prof_use(pass 2) -xt -O2 -ipo
  -no-prec_div -ansi-alias -Wl,-z,muldefs
- 456.hmmer: -prof_gen(pass 1) -prof_use(pass 2) -fast -unroll2
  -ansi-alias -Wl,-z,muldefs
- 458.sjeng: -prof_gen(pass 1) -prof_use(pass 2) -fast -unroll4
  -ansi-alias -Wl,-z,muldefs
- 462.libquantum: -prof_gen(pass 1) -prof_use(pass 2) -fast -unroll4 -Ob0
  -prefetch -opt-streaming-stores always -Wl,-z,muldefs
- 464.h264ref: Same as 456.hmmer

C++ benchmarks:

- 471.omnetpp: -prof_gen(pass 1) -prof_use(pass 2) -xt -O3 -ipo
  -no-prec_div -ansi-alias -Wl,-z,muldefs
  -L/spec/cpu2006/lib -lsmartheap
- 473.astar: Same as 471.omnetpp
- 483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

- 403.gcc: -Dalloca=_alloca
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The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/EM64T_Intel100_flags.20090714.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/EM64T_Intel100_flags.20090714.xml

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

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