Bull SAS
NovaScale R422
(Intel Xeon processor 5160,3.00GHz)

SPEClnt®_rate2006 = 63.8
SPEClnt_rate_base2006 = 59.0

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS
Test date: Sep-2007
Hardware Availability: Aug-2007
Software Availability: Aug-2007

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

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Hardware
CPU Name: Intel Xeon 5160
CPU Characteristics: 3.00 GHz, 4 MB L2, 1333 MHz system bus
CPU MHz: 3000
FPU: Integrated
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
CPU(s) orderable: 1 to 2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 4 MB I+D on chip per chip
L3 Cache: None
Other Cache: None
Memory: 8 GB (8x1 GB) FB-DIMM PC2-5300F ECC CL5
Disk Subsystem: 1x73 GB SAS, 15000 RPM
Other Hardware: None

Software
Operating System: SUSE LINUX Enterprise Server 10
Kernel 2.6.16.21-0.8-smp for x86_64
Compiler: Intel C++ Compiler for Linux32 version 10.0
Build 20070809 Package ID: l_cc_p_10.0.026
Auto Parallel: No
File System: ext3
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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Results Table

| Benchmark  | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
|------------|--------|---------|-------|---------|-------|---------|-------|--------|---------|-------|---------|-------|---------|-------|---------|-------|--------|
| 400.perlbench | 4      | 518     | 75.4  | 504     | 77.6  | 504     | 77.6  | 4      | 431     | 90.7  | 431     | 90.7  | 426     | 91.1  |
| 401.bzip2    | 4      | 911     | 42.4  | 900     | 42.9  | 873     | 44.2  | 4      | 872     | 44.3  | 856     | 45.1  | 862     | 44.8  |
| 403.gcc      | 4      | 602     | 53.5  | 609     | 52.9  | 609     | 52.9  | 4      | 602     | 53.5  | 609     | 52.9  | 609     | 52.9  |
| 429.mcf      | 4      | 758     | 48.1  | 759     | 48.1  | 757     | 48.2  | 4      | 742     | 49.2  | 742     | 49.1  | 742     | 49.2  |
| 445.gobmk    | 4      | 557     | 75.3  | 558     | 75.2  | 557     | 75.3  | 4      | 510     | 82.2  | 510     | 82.2  | 510     | 82.2  |
| 456.hmmer    | 4      | 599     | 62.3  | 599     | 62.3  | 599     | 62.3  | 4      | 476     | 78.4  | 476     | 78.4  | 476     | 78.4  |
| 458.sjeng    | 4      | 710     | 68.2  | 710     | 68.2  | 710     | 68.2  | 4      | 631     | 76.7  | 631     | 76.7  | 631     | 76.7  |
| 462.libquantum | 4    | 1734    | 47.8  | 1739    | 47.7  | 1736    | 47.7  | 4      | 1573    | 52.7  | 1570    | 52.8  | 1582    | 52.4  |
| 464.h264ref  | 4      | 767     | 115   | 763     | 116   | 762     | 116   | 4      | 728     | 122   | 727     | 122   | 725     | 122   |
| 471.onnetpp  | 4      | 688     | 36.3  | 688     | 36.3  | 688     | 36.3  | 4      | 647     | 38.7  | 647     | 38.7  | 647     | 38.6  |
| 473.astar    | 4      | 636     | 44.1  | 635     | 44.2  | 635     | 44.2  | 4      | 595     | 47.2  | 595     | 47.2  | 594     | 47.2  |
| 483.xalancbmk| 4      | 371     | 74.4  | 371     | 74.3  | 371     | 74.3  | 4      | 371     | 74.4  | 371     | 74.3  | 371     | 74.3  |

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

General Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'/usr/bin/taskset' was used to bind processes to CPUs
The R422 is built with two identical (half size) motherboards.
Only one of the two motherboards was powered on during the test run.
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX
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Base Optimization Flags

C benchmarks:
- fast

C++ benchmarks:
- -xT
- -ipo
- -O3
- -no-prec-div
- -Wl,-z,muldefs
- -L/tmp/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/10.0.026/bin/icc
- -L/opt/intel/cce/10.0.026/lib
- -I/opt/intel/cce/10.0.026/include

456.hmmer: /opt/intel/cce/10.0.026/bin/icc
- -L/opt/intel/cce/10.0.026/lib
- -I/opt/intel/cce/10.0.026/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
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

Continued on next page
SPEC CINT2006 Result

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Peak Optimization Flags (Continued)

400.perlbench: -prof_gen(pass 1) -prof_use(pass 2) -fast -ansi-alias
-prefetch

401.bzip2: -prof_gen(pass 1) -prof_use(pass 2) -fast

403.gcc: basepeak = yes

429.mcf: -fast -prefetch

445.gobmk: -prof_gen(pass 1) -prof_use(pass 2) -xT -O2 -ipo
-no-prec_div -ansi-alias

456.hmmer: -prof_gen(pass 1) -prof_use(pass 2) -fast -unroll2
-ansi-alias

458.sjeng: -prof_gen(pass 1) -prof_use(pass 2) -fast -unroll4

462.libquantum: -prof_gen(pass 1) -prof_use(pass 2) -fast -unroll4 -Ob0
-prefetch -opt-streaming-stores always

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/tmp/spec/cpu2006/lib -lsmartheap

473.astar: Same as 471.omnetpp

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/EM64T_Intel100_flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/EM64T_Intel100_flags.xml
<table>
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For other inquiries, please contact webmaster@spec.org.

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