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

**Test date:** Aug-2007
**Test sponsor:** Bull SAS
**Tested by:** Bull SAS

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp_rate2006</th>
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<tbody>
<tr>
<td>410.bwaves</td>
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<tr>
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</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 chip, 4 MB shared / 2 cores

**Software**
- **Operating System:** SUSE LINUX Enterprise Server 10
- **Compiler:** Intel C++ Compiler for IA32/EM64T application version 10.0
- **Auto Parallel:** No
- **File System:** ext2
Bull SAS
NovaScale R440
(Intel Xeon processor E5320, 1.86GHz)

SPEC CFP2006 Result
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SPECfp_rate2006 = 44.1
SPECfp_rate_base2006 = 43.6

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

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

System State: Multi-user run level 3
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.50.0.15

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

Results Table

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</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

General Notes

All binaries were built with 64-bit Intel compiler except:
433.milc, 434.zeusmp, 450.soplex, 470.lbm and 482.sphinx3 in peak were built with
32-bit Intel compiler by changing the path for include and library files.

The NovaScale R440 and the NovaScale R460 models are
electronically equivalent.
The results have been measured on a NovaScale R460 model.
Bull SAS
NovaScale R440
(Intel Xeon processor E5320, 1.86GHz)

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SPECfp\_rate\_base2006 = 43.6

CPU2006 license: 20
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Test date: Aug-2007
Hardware Availability: Mar-2007
Software Availability: May-2007

Base Compiler Invocation

C benchmarks:
  icc
C++ benchmarks:
  icpc
Fortran benchmarks:
  ifort
Benchmarks using both Fortran and C:
  icc ifort

Base Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64
416.gamess: -DSPEC\_CPU\_LP64
433.milc: -DSPEC\_CPU\_LP64
434.zeusmp: -DSPEC\_CPU\_LP64
435.gromacs: -DSPEC\_CPU\_LP64 -nofor\_main
436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main
437.leslie3d: -DSPEC\_CPU\_LP64
444.namd: -DSPEC\_CPU\_LP64
447.dealII: -DSPEC\_CPU\_LP64
450.soplex: -DSPEC\_CPU\_LP64
453.povray: -DSPEC\_CPU\_LP64
454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main
459.GemsFDTD: -DSPEC\_CPU\_LP64
465.tonto: -DSPEC\_CPU\_LP64
470.lbm: -DSPEC\_CPU\_LP64
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX
482.sphinx3: -DSPEC\_CPU\_LP64

Base Optimization Flags

C benchmarks:
  -fast
C++ benchmarks:
  -fast
Fortran benchmarks:
  -fast
Benchmarks using both Fortran and C:
  -fast
SPEC CFP2006 Result

Bull SAS
NovaScale R440
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Peak Compiler Invocation

C benchmarks:
/opt/intel/cc/10.0.023/bin/icc -L/opt/intel/cc/10.0.023/lib
-I/opt/intel/cc/10.0.023/include

C++ benchmarks (except as noted below):
icpc
450.soplex: /opt/intel/cc/10.0.023/bin/icpc -L/opt/intel/cc/10.0.023/lib
-I/opt/intel/cc/10.0.023/include

Fortran benchmarks (except as noted below):
ifort
434.zeusmp: /opt/intel/fc/10.0.023/bin/ifort -L/opt/intel/fc/10.0.023/lib
-I/opt/intel/fc/10.0.023/include

Benchmarks using both Fortran and C:
icc ifort

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
433.milc: -prof_gen(pass 1) -prof_use(pass 2) -fast -auto_ilp32
470.lbm: Same as 433.milc
482.sphinx3: -fast -auto_ilp32

C++ benchmarks:
-prof_gen(pass 1) -prof_use(pass 2) -fast -auto_ilp32

Continued on next page
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Hardware Availability: Mar-2007
Software Availability: May-2007

Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: -prof_gen(pass 1) -prof_use(pass 2) -fast
416.gamess: Same as 410.bwaves
434.zeusmp: -fast
437.leslie3d: Same as 410.bwaves
459.GemsFDTD: Same as 410.bwaves
465.tonto: Same as 410.bwaves

Benchmarks using both Fortran and C:

-prof_gen(pass 1) -prof_use(pass 2) -fast -auto_ilp32

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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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