SPEC® CINT2006 Result
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Bull SAS
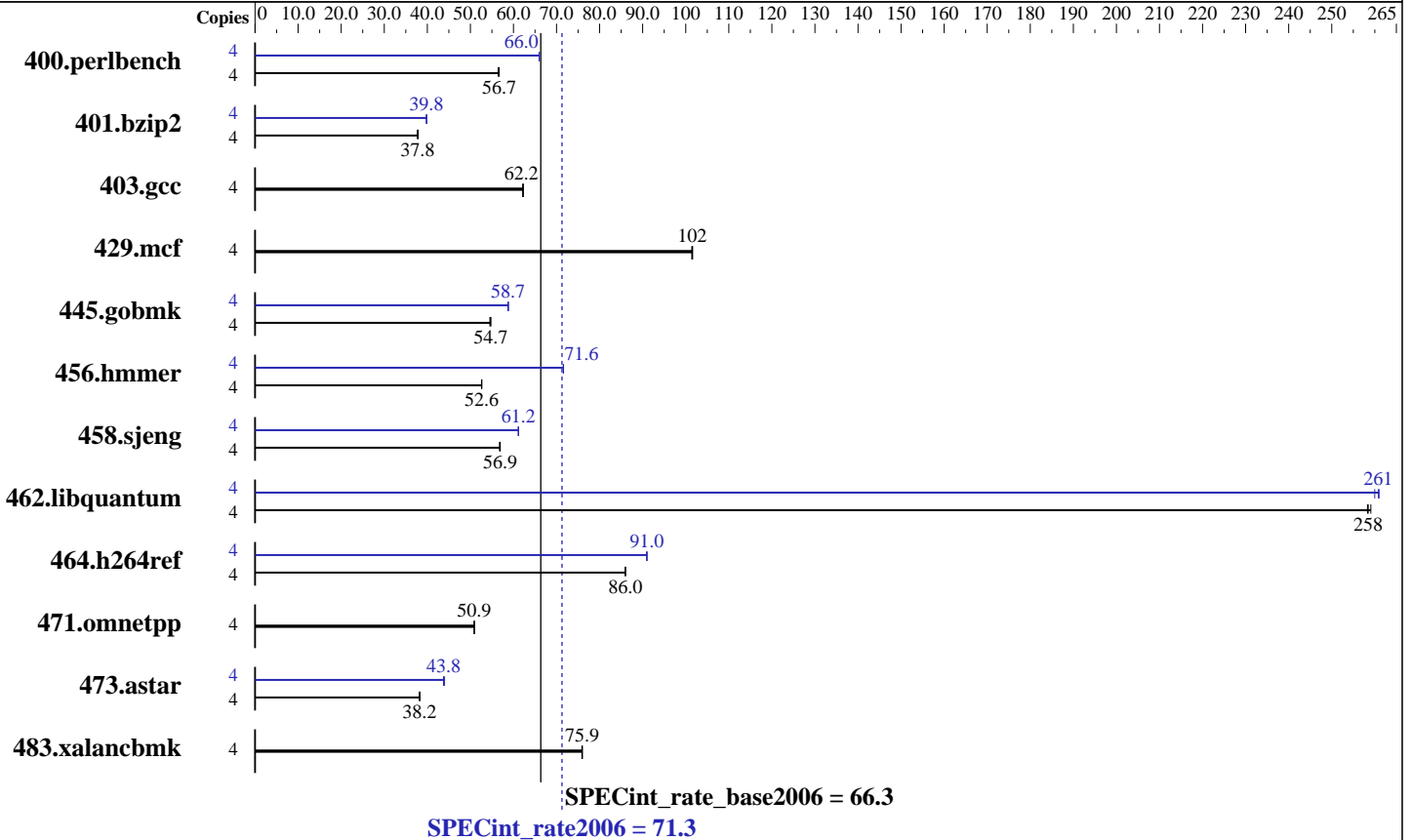
NovaScale R440 E2
(Intel Xeon E5502, 1.86 GHz)

$SPECint^{®}\_rate2006 =$ 71.3

$SPECint\_rate\_base2006 =$ 66.3

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

Test date: Mar-2009
Hardware Availability: Apr-2009
Software Availability: Feb-2009

SPECint_rate_base2006 = 66.3
SPECint_rate2006 = 71.3

Hardware

CPU Name: Intel Xeon E5502
CPU Characteristics:
CPU MHz: 1867
FPU: Integrated
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
CPU(s) orderable: 1,2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 X 4 GB PC3-8500R running at 800 MHz)
Disk Subsystem: 1x146.5 GB SAS, 15000 RPM
Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64)
SP2 with patch Linux kernel 20090119,
Kernel 2.6.16.60-0.34-smp
Compiler: Intel C++ Compiler 11.0 for Linux
Build 20090131 Package ID: l_cproc_p_11.0.081
Auto Parallel: No
File System: ReiserFS
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: MicroQuill SmartHeap Library 8.1
Binutils 2.18.50.0.7.20080502

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	4	692	56.4	689	56.7	**690**	**56.7**	4	592	66.0	592	66.0	**592**	**66.0**
401.bzip2	4	1019	37.9	**1022**	**37.8**	1024	37.7	4	970	39.8	**970**	**39.8**	969	39.8
403.gcc	4	**517**	**62.2**	518	62.2	517	62.3	4	**517**	**62.2**	518	62.2	517	62.3
429.mcf	4	**359**	**102**	360	101	359	102	4	**359**	**102**	360	101	359	102
445.gobmk	4	770	54.5	**767**	**54.7**	767	54.7	4	713	58.8	714	58.7	**714**	**58.7**
456.hmmer	4	710	52.6	709	52.6	**709**	**52.6**	4	521	71.6	**521**	**71.6**	521	71.6
458.sjeng	4	850	56.9	**851**	**56.9**	853	56.8	4	792	61.1	791	61.2	**791**	**61.2**
462.libquantum	4	**321**	**258**	320	259	321	258	4	319	260	**318**	**261**	318	261
464.h264ref	4	**1030**	**86.0**	1030	86.0	1029	86.0	4	**973**	**91.0**	973	91.0	973	90.9
471.omnetpp	4	**491**	**50.9**	491	50.9	491	50.9	4	**491**	**50.9**	491	50.9	491	50.9
473.astar	4	733	38.3	736	38.2	**735**	**38.2**	4	638	44.0	641	43.8	**641**	**43.8**
483.xalancbmk	4	363	76.0	**363**	**75.9**	364	75.9	4	363	76.0	**363**	**75.9**	364	75.9

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

Submit Notes

    The config file option 'submit' was used.
     numactl was used to bind copies to the cores

Operating System Notes

     'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

Platform Notes

     BIOS setting:
     NUMA configuration: Enabled

General Notes

     The NEC Express5800/R120a-1(Intel Xeon E5502),
     the NEC Express5800/R120a-2(Intel Xeon E5502),
     the Bull NovaScale R440 E2 (Intel Xeon E5502, 1.86 GHz) and
     the Bull NovaScale R460 E2 (Intel Xeon E5502, 1.86 GHz) models are electronically equivalent.
     The results have been measured on a NEC Express5800/R120a-2(Intel Xeon E5502) model.

Base Compiler Invocation

C benchmarks:
     icc

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Base Compiler Invocation (Continued)

C++ benchmarks:
    icpc

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 -static -inline-calloc`
    `-opt-malloc-options=3 -opt-prefetch`

C++ benchmarks:
    `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs`
    `-L/opt/SmartHeap_8.1/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/Compiler/11.0/081/bin/intel64/icc`

      456.hmmer: `/opt/intel/Compiler/11.0/081/bin/intel64/icc`

      458.sjeng: `/opt/intel/Compiler/11.0/081/bin/intel64/icc`

C++ benchmarks (except as noted below):
    icpc

      473.astar: `/opt/intel/Compiler/11.0/081/bin/intel64/icpc`

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Peak Portability Flags

```
     400.perlbench: -DSPEC_CPU_LINUX_IA32
         401.bzip2: -DSPEC_CPU_LP64
         456.hmmer: -DSPEC_CPU_LP64
         458.sjeng: -DSPEC_CPU_LP64
     462.libquantum: -DSPEC_CPU_LINUX
         473.astar: -DSPEC_CPU_LP64
     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) -static(pass 2)
                    -prof-use(pass 2) -ansi-alias -opt-prefetch

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

           403.gcc: basepeak = yes

           429.mcf: basepeak = yes

         445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2
                    -ipo -no-prec-div -ansi-alias

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

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

     462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static
                    -opt-malloc-options=3 -opt-prefetch

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

C++ benchmarks:

```
        471.omnetpp: basepeak = yes

          473.astar: -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=routine -auto-ilp32
                    -Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib64 -lsmartheap64
```

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Peak Optimization Flags (Continued)

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revF.html
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.20090710.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revF.xml
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.20090710.xml

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