SPEC® CINT2006 Result
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Bull SAS

NovaScale R410B F2 (Intel Core i3-2100, 3.10 GHz)

$SPECint^{®}2006 = $ 36.6

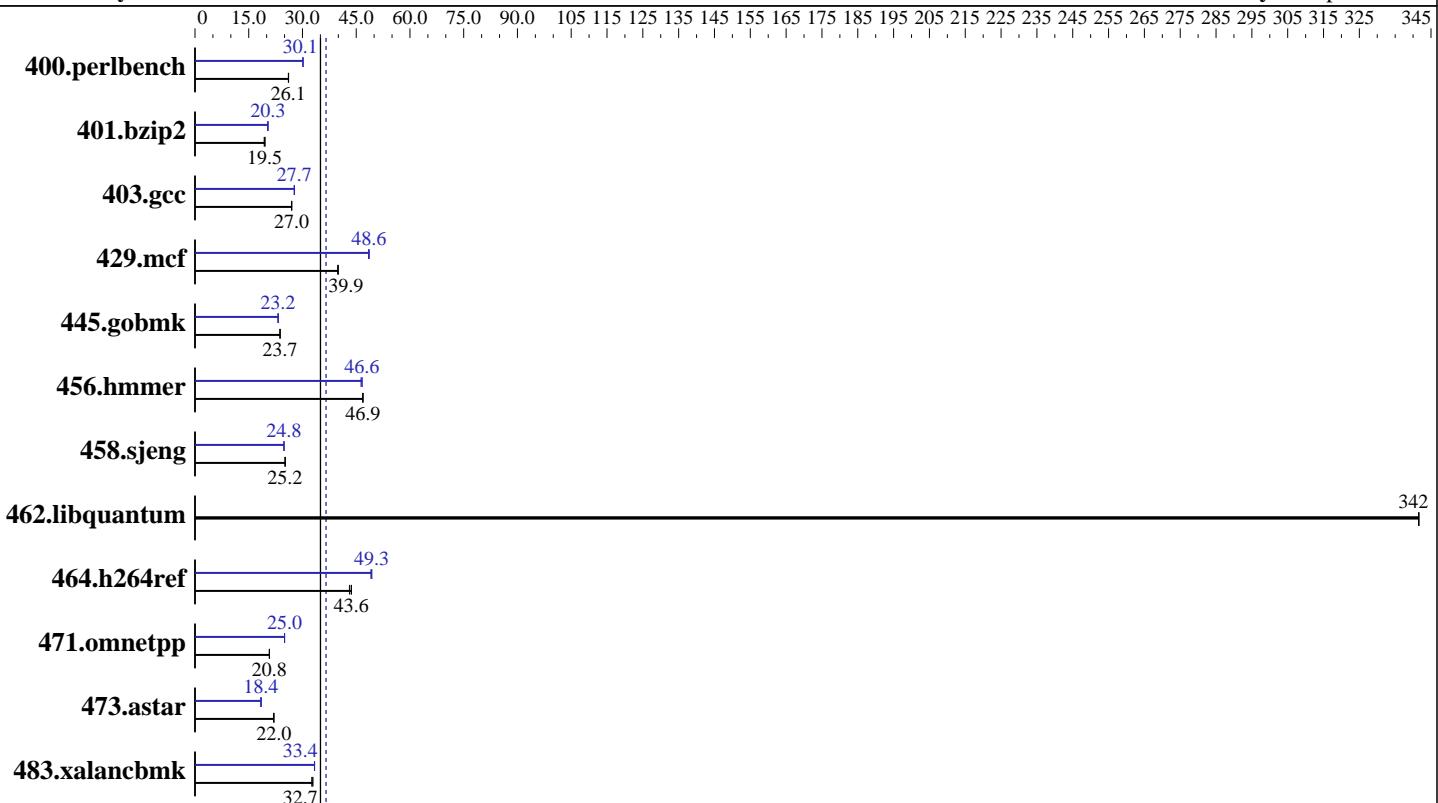$SPECint_base2006 = $ 35.0

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Dell Inc.

Test date: Mar-2011
Hardware Availability: May-2011
Software Availability: Apr-2011

SPECint_base2006 = 35.0
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Benchmark	Peak	Base
400.perlbench	30.1	26.1
401.bzip2	20.3	19.5
403.gcc	27.7	27.0
429.mcf	48.6	39.9
445.gobmk	23.2	23.7
456.hmmer	46.6	46.9
458.sjeng	24.8	25.2
462.libquantum		342
464.h264ref	49.3	43.6
471.omnetpp	25.0	20.8
473.astar	18.4	22.0
483.xalancbmk	33.4	32.7

Hardware

CPU Name:	Intel Core i3-2100
CPU Characteristics:	
CPU MHz:	3100
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	3 MB I+D on chip per chip
Other Cache:	None
Memory:	8 GB (4 x 2 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem:	1 x 146 GB 15000 RPM SAS
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
Compiler:	Intel C++ Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	SmartHeap 8.1 32-bit Library for Linux

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	**375**	**26.1**	375	26.1	374	26.1	324	30.1	324	30.1	**324**	**30.1**
401.bzip2	500	19.3	494	19.6	**496**	**19.5**	**474**	**20.3**	476	20.3	473	20.4
403.gcc	298	27.0	**298**	**27.0**	298	27.0	**290**	**27.7**	291	27.7	290	27.7
429.mcf	229	39.9	228	40.0	**229**	**39.9**	**188**	**48.6**	188	48.4	188	48.6
445.gobmk	442	23.7	**442**	**23.7**	442	23.7	452	23.2	452	23.2	**452**	**23.2**
456.hmmer	**199**	**46.9**	199	46.8	199	46.9	**200**	**46.6**	200	46.6	201	46.3
458.sjeng	**481**	**25.2**	481	25.2	481	25.2	**487**	**24.8**	487	24.8	488	24.8
462.libquantum	60.7	342	**60.7**	**342**	60.7	342	60.7	342	**60.7**	**342**	60.7	342
464.h264ref	507	43.7	513	43.1	**508**	**43.6**	**449**	**49.3**	451	49.1	449	49.3
471.omnetpp	**301**	**20.8**	301	20.8	301	20.7	250	25.0	**250**	**25.0**	250	25.0
473.astar	319	22.0	**319**	**22.0**	320	21.9	382	18.4	**381**	**18.4**	380	18.5
483.xalancbmk	**211**	**32.7**	209	32.9	212	32.6	207	33.3	207	33.4	**207**	**33.4**

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

 'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
 echo 900> /proc/sys/vm/nr_hugepages
 export HUGETLB_MORECORE=yes
 export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

```
 BIOS Settings:
 Power Management = Maximum Performance (Default = Active Power Controller)
 Logical Processor = Disabled (Default = Enabled)
```

General Notes

```
 OMP_NUM_THREADS set to number of cores
 The Dell PowerEdge R210 II and
 the Bull NovaScale R410B F2 models are electronically equivalent.
 The results have been measured on a Dell PowerEdge R210 II model
 Binaries were compiled on RHEL5.5
```

Base Compiler Invocation

```
 C benchmarks:
      icc -m64
```

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Base Compiler Invocation (Continued)

C++ benchmarks:
    icpc -m64

Base Portability Flags

        400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
          401.bzip2: -DSPEC_CPU_LP64
            403.gcc: -DSPEC_CPU_LP64
            429.mcf: -DSPEC_CPU_LP64
          445.gobmk: -DSPEC_CPU_LP64
          456.hmmer: -DSPEC_CPU_LP64
          458.sjeng: -DSPEC_CPU_LP64
       462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
         464.h264ref: -DSPEC_CPU_LP64
         471.omnetpp: -DSPEC_CPU_LP64
          473.astar: -DSPEC_CPU_LP64
       483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
    -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

C++ benchmarks:
    -xAVX -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
    -L/smartheap -lsmartheap64
    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Base Other Flags

C benchmarks:

        403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
    icc -m64

    400.perlbench: icc -m32

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CPU2006 license: 20		**Test date:**	Mar-2011
Test sponsor: Bull SAS		**Hardware Availability:**	May-2011
Tested by: Dell Inc.		**Software Availability:**	Apr-2011

Peak Compiler Invocation (Continued)

　　　429.mcf: `icc -m32`

　　445.gobmk: `icc -m32`

　464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):
```
icpc -m32
```

　　473.astar: `icpc -m64`

Peak Portability Flags

```
   400.perlbench: -DSPEC_CPU_LINUX_IA32
       401.bzip2: -DSPEC_CPU_LP64
         403.gcc: -DSPEC_CPU_LP64
      456.hmmer: -DSPEC_CPU_LP64
       458.sjeng: -DSPEC_CPU_LP64
   462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
       473.astar: -DSPEC_CPU_LP64
    483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
   400.perlbench: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
              -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
              -ansi-alias
              -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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

         403.gcc: -xAVX -ipo -O3 -no-prec-div -inline-calloc
              -opt-malloc-options=3 -auto-ilp32
              -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

         429.mcf: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
              -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32
              -ansi-alias
              -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

       445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
              -auto-ilp32 -ansi-alias
              -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
```

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Peak Optimization Flags (Continued)

```
    456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
               -ansi-alias
               -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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

  462.libquantum: basepeak = yes

   464.h264ref: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
               -ansi-alias
               -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
```

C++ benchmarks:

```
   471.omnetpp: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -prof-use(pass 2)
               -opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs
               -L/smartheap -lsmartheap
               -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

     473.astar: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -prof-use(pass 2)
               -opt-ra-region-strategy=routine -Wl,-z,muldefs
               -L/smartheap -lsmartheap64

  483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
               -Wl,-z,muldefs -L/smartheap -lsmartheap
               -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
```

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-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.xml

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