SPEC® CINT2006 Result
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Bull SAS

NovaScale R480 F2 (Intel Xeon E7-4870, 2.40 GHz)

$SPECint^{®}\_rate2006 =$ 1100

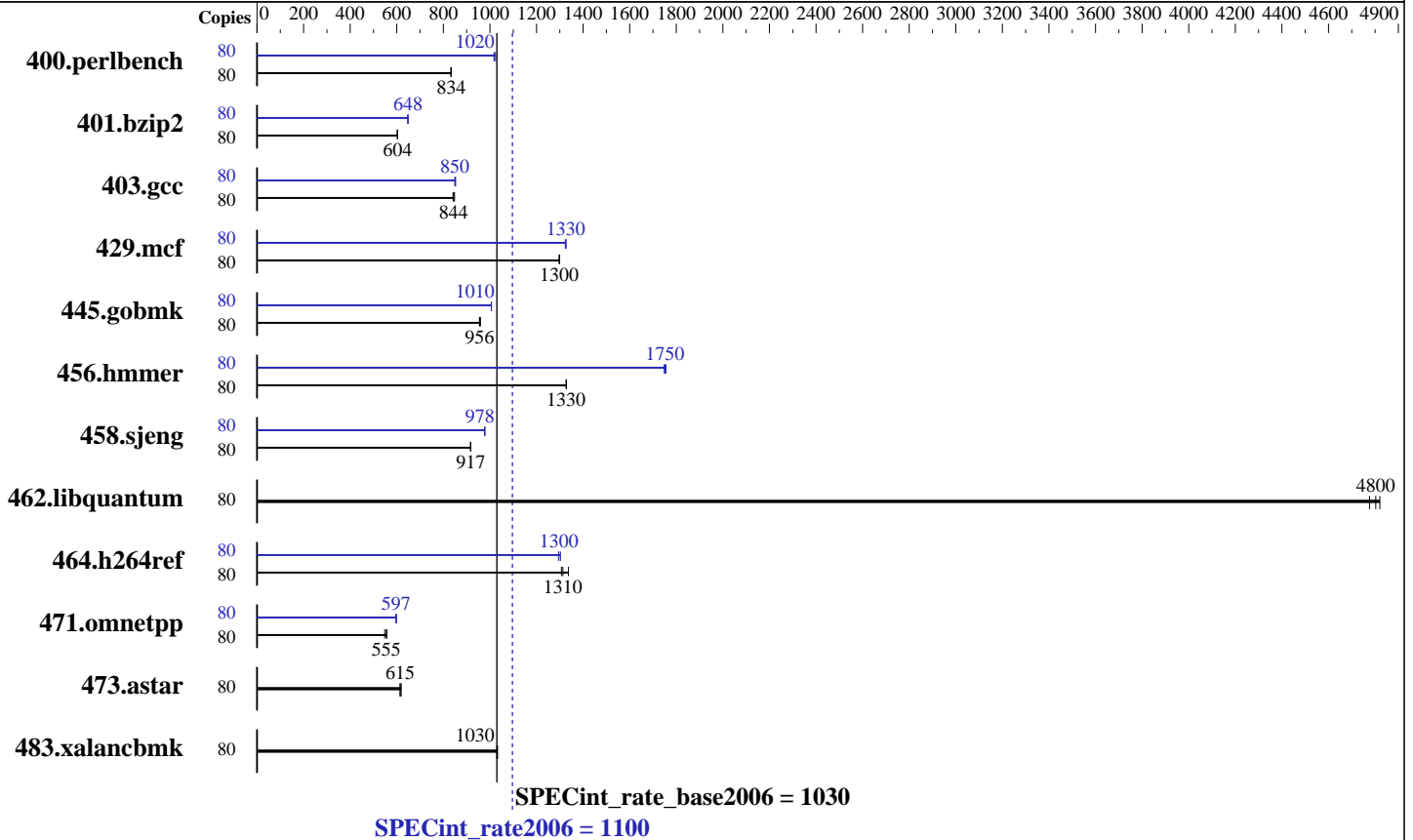$SPECint\_rate\_base2006 =$ 1030

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

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

SPECint_rate_base2006 = 1030
SPECint_rate2006 = 1100

Hardware

CPU Name:	Intel Xeon E7-4870
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	40 cores, 4 chips, 10 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 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:	30 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (64 x 8 GB 4Rx8 PC3-8500R-7, ECC)
Disk Subsystem:	1 x 500 GB 7200 RPM SAS 6Gb
Other Hardware:	None

Software

Operating System:	Redhat Enterprise Linux 6.0, Kernel 2.6.32-71.el6.x86_64
Compiler:	Intel C++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V9.01

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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	80	939	832	937	834	**938**	**834**	80	**766**	**1020**	768	1020	763	1020
401.bzip2	80	1284	601	1279	604	**1279**	**604**	80	**1192**	**648**	1191	648	1192	647
403.gcc	80	759	848	765	842	**763**	**844**	80	758	850	755	853	**758**	**850**
429.mcf	80	**562**	**1300**	562	1300	562	1300	80	550	1330	**550**	**1330**	551	1320
445.gobmk	80	**878**	**956**	875	959	879	955	80	834	1010	834	1010	**834**	**1010**
456.hmmer	80	562	1330	**562**	**1330**	562	1330	80	**426**	**1750**	427	1750	425	1760
458.sjeng	80	**1055**	**917**	1056	917	1055	918	80	**990**	**978**	990	977	990	978
462.libquantum	80	**345**	**4800**	344	4820	347	4780	80	**345**	**4800**	344	4820	347	4780
464.h264ref	80	1324	1340	1355	1310	**1348**	**1310**	80	1359	1300	1368	1290	**1366**	**1300**
471.omnetpp	80	**901**	**555**	897	558	912	548	80	**837**	**597**	837	597	835	599
473.astar	80	907	619	914	614	**914**	**615**	80	907	619	914	614	**914**	**615**
483.xalancbmk	80	536	1030	534	1030	**536**	**1030**	80	536	1030	534	1030	**536**	**1030**

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
    'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
    echo 72000 > /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)
```

General Notes

```
    The Dell PowerEdge R910 and
    the Bull NovaScale R480 F2 models are electronically equivalent.
    The results have been measured on a Dell PowerEdge R910 model.
     Binaries were compiled on RHEL5.5
```

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Base Compiler Invocation

C benchmarks:
```
icc  -m32
```

C++ benchmarks:
```
icpc -m32
```

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 -opt-prefetch
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
```

Base Other Flags

C benchmarks:
```
403.gcc: -Dalloca=_alloca
```

Peak Compiler Invocation

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

```
400.perlbench: icc -m64
```

```
401.bzip2: icc -m64
```

```
456.hmmer: icc -m64
```

```
458.sjeng: icc -m64
```

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Peak Compiler Invocation (Continued)

C++ benchmarks:
          icpc -m32

Peak Portability Flags

        400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
            401.bzip2: -DSPEC_CPU_LP64
            456.hmmer: -DSPEC_CPU_LP64
            458.sjeng: -DSPEC_CPU_LP64
        462.libquantum: -DSPEC_CPU_LINUX
        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) -prof-use(pass 2)
                       -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

            401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                       -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                       -opt-prefetch -auto-ilp32 -ansi-alias
                       -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

              403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div
                       -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

              429.mcf: -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 -auto-ilp32

            445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
                       -ansi-alias -auto-ilp32

            456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
                       -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

            458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                       -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                       -unroll4 -auto-ilp32
                       -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

        462.libquantum: basepeak = yes

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Peak Optimization Flags (Continued)

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

C++ benchmarks:

471.omnetpp: `-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=block -Wl,-z,muldefs`
`-L/smartheap -lsmartheap`

473.astar: basepeak = yes

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-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110517.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.20110517.xml

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

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