SPEC® CINT2006 Result
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IBM Corporation

IBM System x3100 M4 (Intel Core i3-2130)

$SPECint^{®}\_rate2006 =$ 92.3
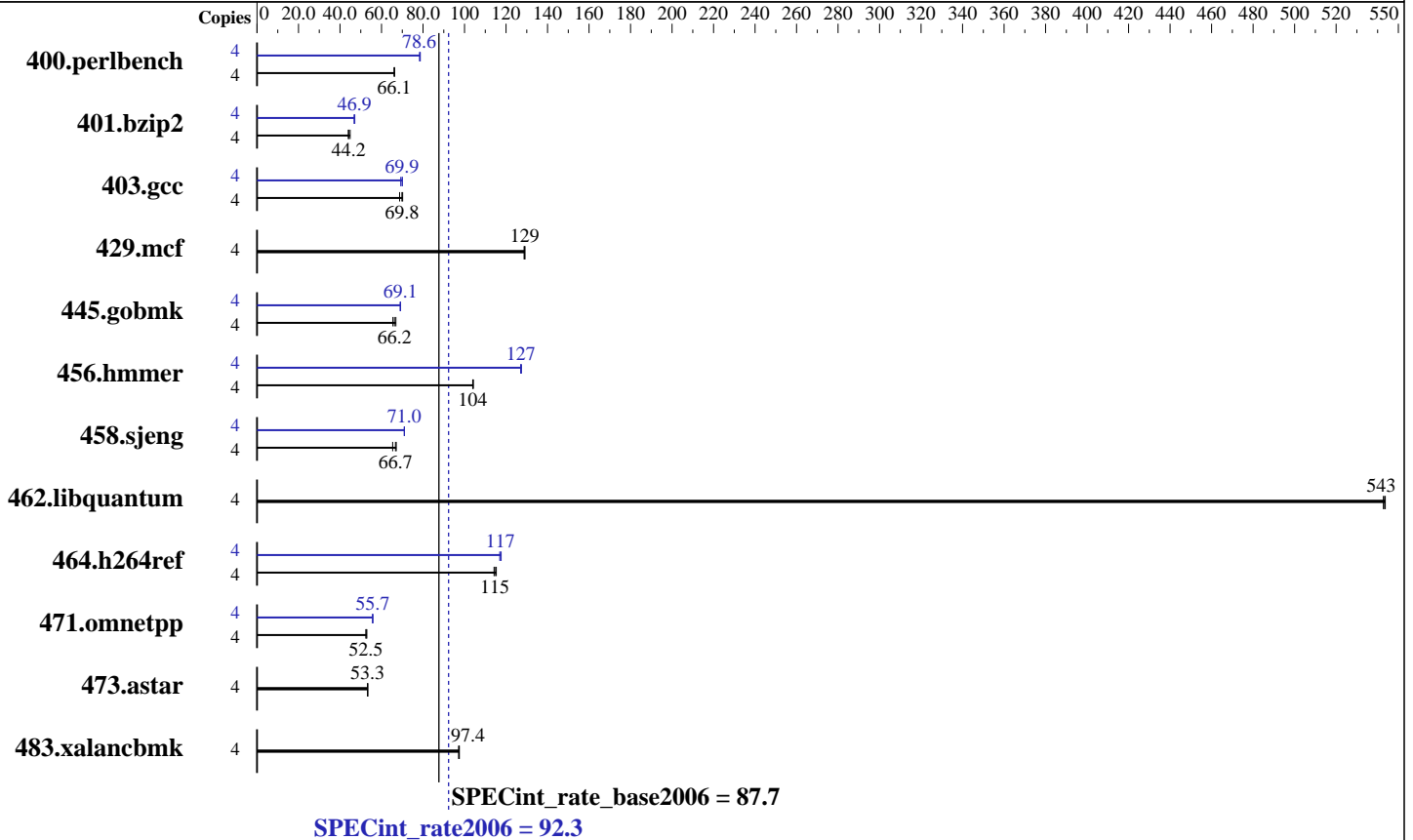
$SPECint\_rate\_base2006 =$ 87.7

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Nov-2011
Hardware Availability: Oct-2011
Software Availability: Sep-2011

Copies

- 400.perlbench: 4 / 78.6 ; 4 / 66.1
- 401.bzip2: 4 / 46.9 ; 4 / 44.2
- 403.gcc: 4 / 69.9 ; 4 / 69.8
- 429.mcf: 4 / 129
- 445.gobmk: 4 / 69.1 ; 4 / 66.2
- 456.hmmer: 4 / 127 ; 4 / 104
- 458.sjeng: 4 / 71.0 ; 4 / 66.7
- 462.libquantum: 4 / 543
- 464.h264ref: 4 / 117 ; 4 / 115
- 471.omnetpp: 4 / 55.7 ; 4 / 52.5
- 473.astar: 4 / 53.3
- 483.xalancbmk: 4 / 97.4

SPECint_rate_base2006 = 87.7

SPECint_rate2006 = 92.3

Hardware

CPU Name:	Intel Core i3-2130
CPU Characteristics:	
CPU MHz:	3400
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip, 2 threads/core
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:	16 GB (2 x 8 GB 2Rx8 PC3-10600E-9, ECC)
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server Release 6.1, Kernel 2.6.32-131.0.15.el6.x86_64
Compiler:	C/C++: Version 12.1.0.225 of Intel Compiler XE Build 20110803
Auto Parallel:	No
File System:	ext4
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	4	**591**	**66.1**	591	66.1	589	66.3	4	499	78.3	**497**	**78.6**	497	78.7
401.bzip2	4	**873**	**44.2**	878	44.0	860	44.9	4	819	47.1	**823**	**46.9**	824	46.8
403.gcc	4	**461**	**69.8**	459	70.2	469	68.7	4	**461**	**69.9**	460	70.0	465	69.2
429.mcf	4	283	129	283	129	**283**	**129**	4	283	129	283	129	**283**	**129**
445.gobmk	4	**634**	**66.2**	641	65.5	627	66.9	4	608	69.0	**607**	**69.1**	606	69.2
456.hmmer	4	**359**	**104**	359	104	358	104	4	293	127	**293**	**127**	294	127
458.sjeng	4	**725**	**66.7**	721	67.1	740	65.4	4	681	71.1	**682**	**71.0**	682	71.0
462.libquantum	4	153	543	152	544	**153**	**543**	4	153	543	152	544	**153**	**543**
464.h264ref	4	**772**	**115**	768	115	775	114	4	757	117	752	118	**754**	**117**
471.omnetpp	4	472	52.9	**476**	**52.5**	476	52.5	4	**449**	**55.7**	448	55.8	449	55.7
473.astar	4	**526**	**53.3**	527	53.2	526	53.4	4	**526**	**53.3**	527	53.2	526	53.4
483.xalancbmk	4	283	97.5	284	97.1	**283**	**97.4**	4	283	97.5	284	97.1	**283**	**97.4**

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.
 taskset was used to bind copies to the cores
```

Platform Notes

```
BIOS Settings:
C-State enabled in BIOS
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/SPECcpu12.1/smartheap:/root/SPECcpu12.1/ic12.1-libs/ia32/:/root/SPECcpu12.1/ic12.1-libs/intel64"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5 with binutils-2.17.50.0.6-14.el5
 Stack size set to unlimited using "ulimit -s unlimited"
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

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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:
    -xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:
    -xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
    -Wl,-z,muldefs -L/smartheap -lsmartheap

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

C++ benchmarks:
    icpc -m32

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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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                   -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32

        401.bzip2: -xAVX(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

          403.gcc: -xAVX -ipo -O3 -no-prec-div

         429.mcf: basepeak = yes

       445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
                   -ansi-alias -opt-mem-layout-trans=3

       456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

        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
                   -auto-ilp32

   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
```

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) -ansi-alias
                   -opt-ra-region-strategy=block -Wl,-z,muldefs
                   -L/smartheap -lsmartheap

        473.astar: basepeak = yes

     483.xalancbmk: basepeak = yes
```

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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-ic12.1-linux64.html`
`http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111220.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.xml`
`http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111220.xml`

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