SPEC® CINT2006 Result
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IBM Corporation

IBM System x3250 M5
(Intel Pentium G3220, 3.00 GHz)

$SPECint^®\_rate2006 =$ 78.3

$SPECint\_rate\_base2006 =$ 75.5

CPU2006 license: 11	**Test date:** Mar-2014
Test sponsor: IBM Corporation	**Hardware Availability:** Dec-2013
Tested by: IBM Corporation	**Software Availability:** Sep-2013

Copies

Benchmark	Copies	
400.perlbench	2	74.5
	2	60.8
401.bzip2	2	36.7
	2	35.0
403.gcc	2	57.6
	2	57.8
429.mcf	2	118
445.gobmk	2	48.9
	2	48.7
456.hmmer	2	106
	2	98.9
458.sjeng	2	58.3
	2	56.9
462.libquantum	2	505
464.h264ref	2	108
	2	104
471.omnetpp	2	42.5
	2	40.2
473.astar	2	42.3
483.xalancbmk	2	97.1

SPECint_rate_base2006 = 75.5

SPECint_rate2006 = 78.3

Hardware

CPU Name:	Intel Pentium G3220
CPU Characteristics:	
CPU MHz:	3000
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:	16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC, running at 1333 MHz)
Disk Subsystem:	1 x 1 TB SATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.4 (Santiago) 2.6.32-358.el6.x86_64
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
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 V10.0

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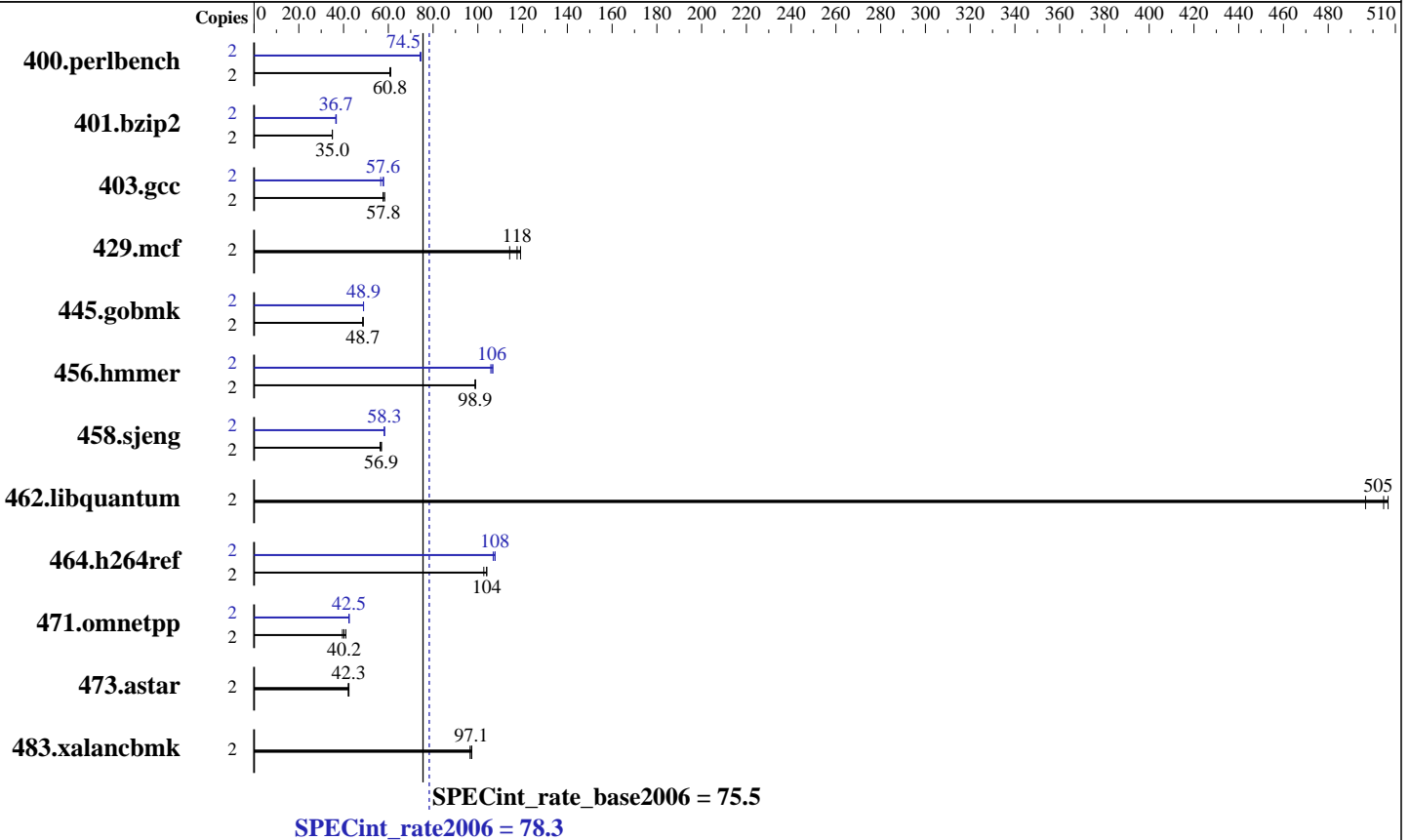SPECint_rate_base2006 = 75.5

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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	2	320	61.1	**321**	**60.8**	322	60.8		2	262	74.6	**262**	**74.5**	263	74.2
401.bzip2	2	552	34.9	552	35.0	**552**	**35.0**		2	525	36.8	529	36.5	**526**	**36.7**
403.gcc	2	276	58.4	279	57.6	**279**	**57.8**		2	284	56.6	278	57.9	**279**	**57.6**
429.mcf	2	**155**	**118**	153	119	160	114		2	**155**	**118**	153	119	160	114
445.gobmk	2	**431**	**48.7**	432	48.6	430	48.8		2	429	48.9	**429**	**48.9**	429	48.9
456.hmmer	2	**189**	**98.9**	189	98.9	189	98.8		2	176	106	175	107	**176**	**106**
458.sjeng	2	425	56.9	430	56.3	**426**	**56.9**		2	**415**	**58.3**	416	58.2	415	58.3
462.libquantum	2	83.4	497	**82.1**	**505**	81.8	507		2	83.4	497	**82.1**	**505**	81.8	507
464.h264ref	2	426	104	**426**	**104**	431	103		2	411	108	414	107	**411**	**108**
471.omnetpp	2	316	39.5	305	41.0	**311**	**40.2**		2	294	42.5	295	42.4	**294**	**42.5**
473.astar	2	**332**	**42.3**	331	42.4	334	42.1		2	**332**	**42.3**	331	42.4	334	42.1
483.xalancbmk	2	143	96.5	142	97.3	**142**	**97.1**		2	143	96.5	142	97.3	**142**	**97.1**

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

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

```
BIOS setting:
Operating Mode set to Maximum Performance
Sysinfo program /home/SPECcpu-new/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on x3250M5 Thu Mar 27 11:09:12 2014

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Pentium(R) CPU G3220 @ 3.00GHz
      1 "physical id"s (chips)
      2 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
```

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Platform Notes (Continued)

```
      cpu cores : 2
      siblings  : 2
      physical 0: cores 0 1
   cache size : 3072 KB

 From /proc/meminfo
    MemTotal:       16299404 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

 /usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.4 (Santiago)

 From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

 uname -a:
    Linux x3250M5 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
    x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Mar 27 11:05

 SPEC is set to: /home/SPECcpu-new
    Filesystem      Type      Size  Used Avail Use% Mounted on
    /dev/mapper/vg_x3250m5-lv_home
                    ext4      852G   14G  795G   2% /home

 Additional information from dmidecode:
   BIOS IBM -[JUE109OUS-1.00]- 11/20/2013
   Memory:
    2x Micron 18KSF1G72AZ-1G6E1 8 GB 1333 MHz 2 rank
    2x Not Specified Not Specified

 (End of data from sysinfo program)
 "Not Specified" memory information from dmidecode indicates unused DIMM slots.
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/home/SPECcpu-new/libs/32:/home/SPECcpu-new/libs/64:/home/SPECcpu-new/sh"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RedHat EL 6.4
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

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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 -opt-mem-layout-trans=3

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
    -Wl,-z,muldefs -L/sh -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: -xSSE4.2(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: -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

     403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div

     429.mcf: basepeak = yes

    445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
                -ansi-alias -opt-mem-layout-trans=3

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

    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

 462.libquantum: basepeak = yes

   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/sh -lsmartheap

    473.astar: basepeak = yes
```

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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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-HSW-A.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-HSW-A.xml

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

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