SPEC® CINT2006 Result
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IBM Corporation
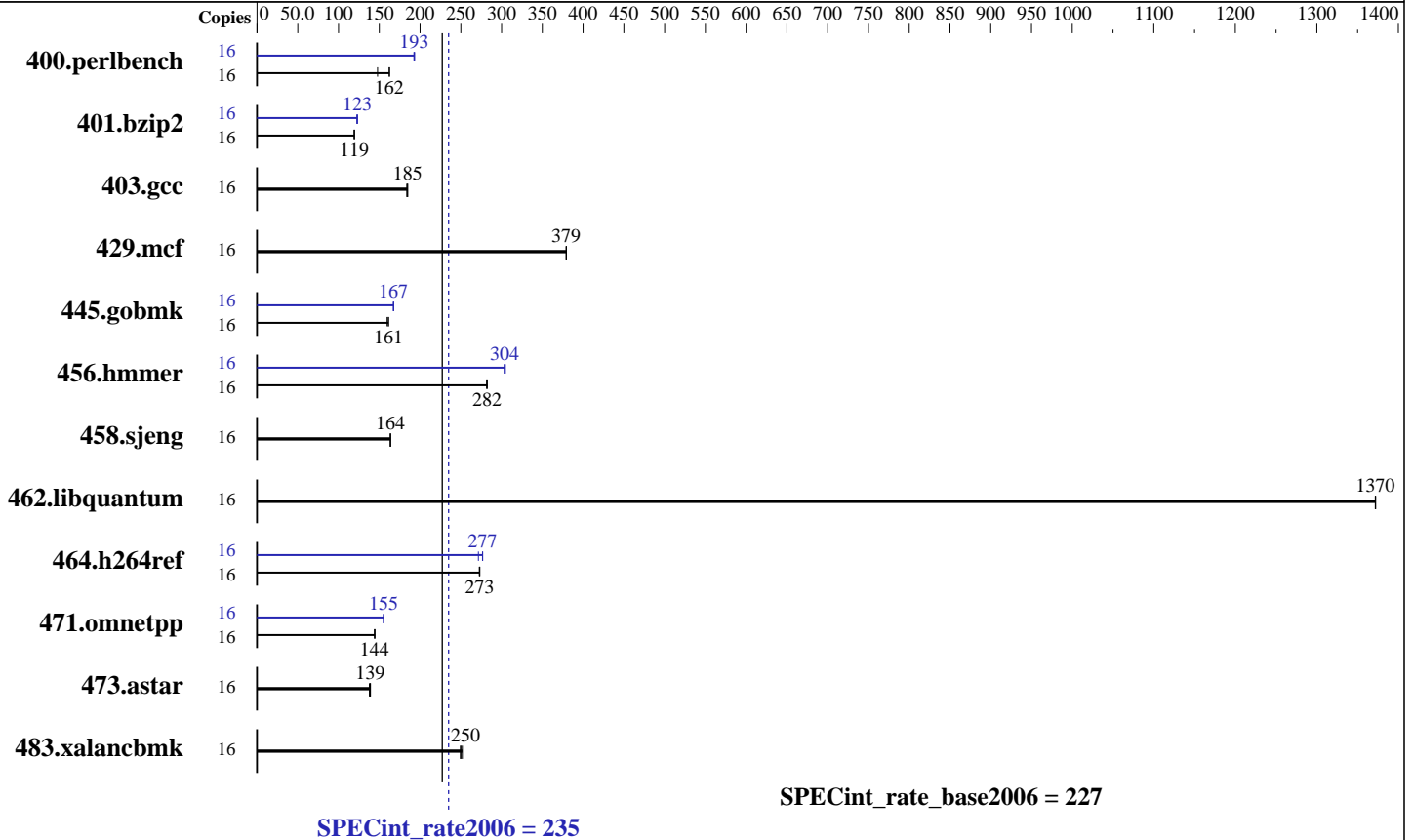
IBM Flex System x222
(Intel Xeon E5-2418L, 2.00 GHz)

SPECint®_rate2006 =   235

SPECint_rate_base2006 = 227

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Hardware

CPU Name:	Intel Xeon E5-2418L
CPU Characteristics:	Intel Turbo Boost Technology up to 2.10 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip, 2 threads/core
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:	10 MB I+D on chip per chip
Other Cache:	None
Memory:	96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)
Disk Subsystem:	1 x 100 GB SATA, SSD
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.2 (Santiago) 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 13.0.0.133 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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Test sponsor: IBM Corporation
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Test date: Jul-2013
Hardware Availability: Sep-2013
Software Availability: Oct-2012

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	1057	148	**965**	**162**	961	163	16	**811**	**193**	812	193	808	193
401.bzip2	16	1295	119	**1293**	**119**	1293	119	16	1254	123	1261	122	**1255**	**123**
403.gcc	16	**697**	**185**	701	184	697	185	16	**697**	**185**	701	184	697	185
429.mcf	16	**385**	**379**	384	380	385	379	16	**385**	**379**	384	380	385	379
445.gobmk	16	1041	161	1052	160	**1042**	**161**	16	**1003**	**167**	1002	168	1003	167
456.hmmer	16	530	282	**529**	**282**	529	282	16	**491**	**304**	492	303	490	305
458.sjeng	16	1182	164	1184	163	**1183**	**164**	16	1182	164	1184	163	**1183**	**164**
462.libquantum	16	**242**	**1370**	242	1370	242	1370	16	**242**	**1370**	242	1370	242	1370
464.h264ref	16	1296	273	1299	273	**1296**	**273**	16	1279	277	1304	272	**1280**	**277**
471.omnetpp	16	693	144	692	145	**693**	**144**	16	645	155	642	156	**643**	**155**
473.astar	16	807	139	815	138	**808**	**139**	16	807	139	815	138	**808**	**139**
483.xalancbmk	16	**441**	**250**	438	252	443	249	16	**441**	**250**	438	252	443	249

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

Submit Notes

    The numactl mechanism was used to bind copies to processors. The config file option 'submit'
    was used to generate numactl 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

    Operating Mode set to Maximum Perfomance in BIOS
    Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
    $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
    running on Cara-speccpu1 Fri Jul 12 14:43:03 2013

    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) Xeon(R) CPU E5-2418L 0 @ 2.00GHz
          2 "physical id"s (chips)
          16 "processors"
       cores, siblings (Caution: counting these is hw and system dependent. The
       following excerpts from /proc/cpuinfo might not be reliable. Use with
       caution.)
          cpu cores : 4

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Platform Notes (Continued)

```
      siblings  : 8
      physical 0: cores 0 1 2 3
      physical 1: cores 0 1 2 3
    cache size : 10240 KB

 From /proc/meminfo
    MemTotal:        99038608 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.2 (Santiago)

 From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

 uname -a:
    Linux Cara-speccpu1 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
    x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Jul 12 14:41

 SPEC is set to: /cpu2006.1.2
    Filesystem     Type    Size  Used Avail Use% Mounted on
    /dev/mapper/vg_caraspeccpu1-lv_root
                   ext4    82G  8.0G   70G  11% /

 Additional information from dmidecode:
   BIOS IBM -[CCE123MUS-1.00]- 04/18/2013
   Memory:
    12x Samsung M393B1K70DH0-CK0 8 GB 1333 MHz 2 rank

 (End of data from sysinfo program)
Memory speed from dmidecode lists the downclocked speed of the run.
```

General Notes

```
 Environment variables set by runspec before the start of the run
 LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64:/cpu2006.1.2/sh"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
 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:
    -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

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
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: basepeak = yes

     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: basepeak = yes

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

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-ic13-official-linux64.html
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.xml

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

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