SPEC® CINT2006 Result
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IBM Corporation
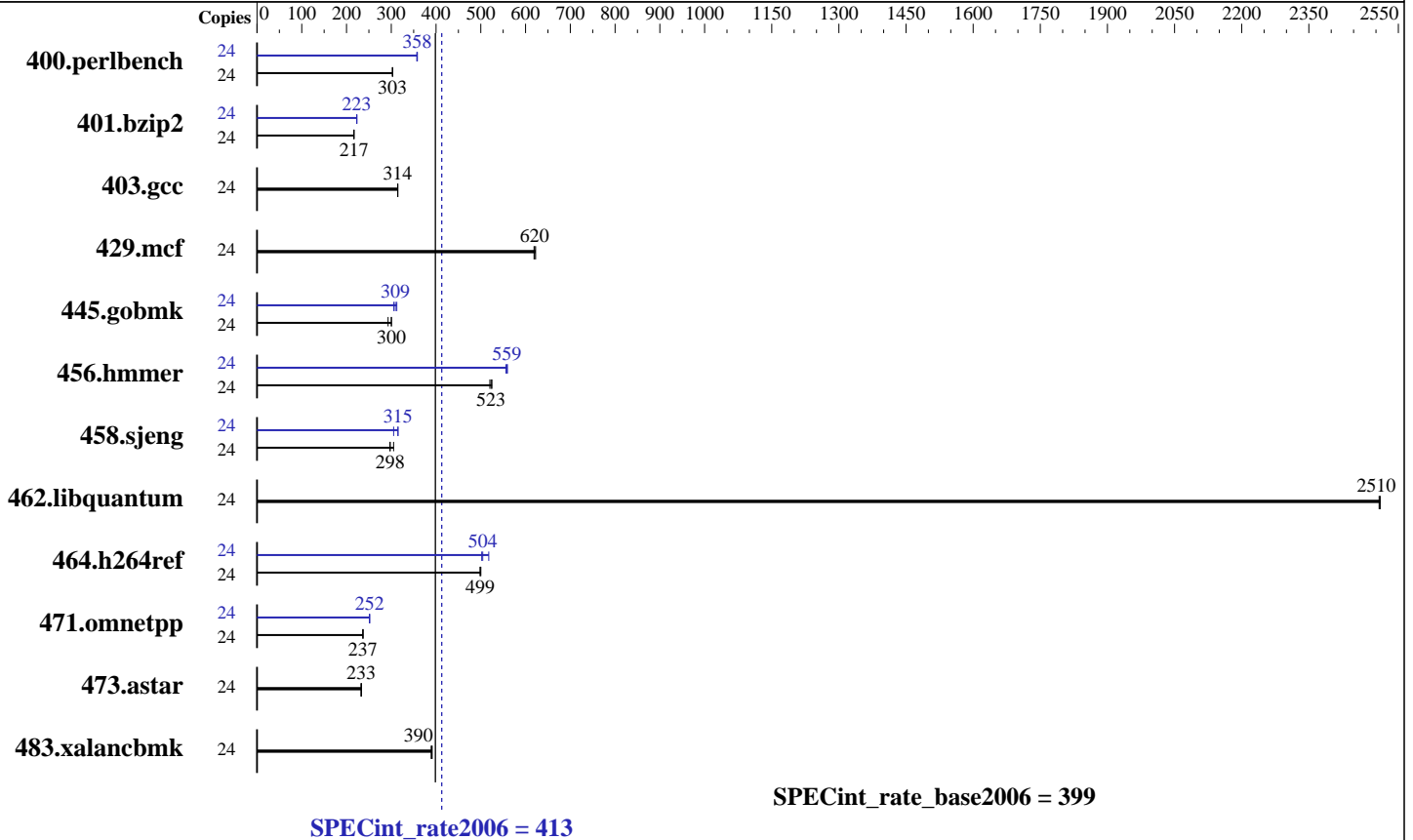
IBM Flex System x222
(Intel Xeon E5-2430, 2.20 GHz)

SPECint®_rate2006 =　413

SPECint_rate_base2006 =　399

CPU2006 license: 11	**Test date:** Jun-2013
Test sponsor: IBM Corporation	**Hardware Availability:** Sep-2013
Tested by: IBM Corporation	**Software Availability:** Oct-2012

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Hardware

CPU Name:	Intel Xeon E5-2430
CPU Characteristics:	Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 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:	15 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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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	24	**775**	**303**	774	303	775	303	24	**655**	**358**	655	358	657	357
401.bzip2	24	**1069**	**217**	1070	217	1069	217	24	**1040**	**223**	1040	223	1038	223
403.gcc	24	**615**	**314**	614	315	615	314	24	**615**	**314**	614	315	615	314
429.mcf	24	**353**	**620**	354	619	352	622	24	**353**	**620**	354	619	352	622
445.gobmk	24	838	300	860	293	**839**	**300**	24	806	312	824	306	**815**	**309**
456.hmmer	24	430	520	427	525	**428**	**523**	24	400	559	403	556	**401**	**559**
458.sjeng	24	952	305	**976**	**298**	978	297	24	951	305	**923**	**315**	922	315
462.libquantum	24	198	2510	**198**	**2510**	198	2510	24	198	2510	**198**	**2510**	198	2510
464.h264ref	24	1065	499	1062	500	**1065**	**499**	24	1026	518	1058	502	**1053**	**504**
471.omnetpp	24	634	237	**634**	**237**	633	237	24	596	252	**596**	**252**	598	251
473.astar	24	721	234	725	233	**724**	**233**	24	721	234	725	233	**724**	**233**
483.xalancbmk	24	426	389	423	391	**424**	**390**	24	426	389	423	391	**424**	**390**

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 Tue Jun 11 15:00:27 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 E5-2430 0 @ 2.20GHz
          2 "physical id"s (chips)
          24 "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 : 6

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Platform Notes (Continued)

```
      siblings  : 12
      physical 0: cores 0 1 2 3 4 5
      physical 1: cores 0 1 2 3 4 5
   cache size : 15360 KB

 From /proc/meminfo
    MemTotal:        99037652 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 Jun 11 09:44

 SPEC is set to: /cpu2006.1.2
    Filesystem      Type    Size  Used Avail Use% Mounted on
    /dev/mapper/vg_caraspeccpu1-lv_root
                    ext4    82G  7.9G   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

        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: 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: -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-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

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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 17:38:15 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 19 November 2013.