SPEC® CINT2006 Result
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IBM Corporation
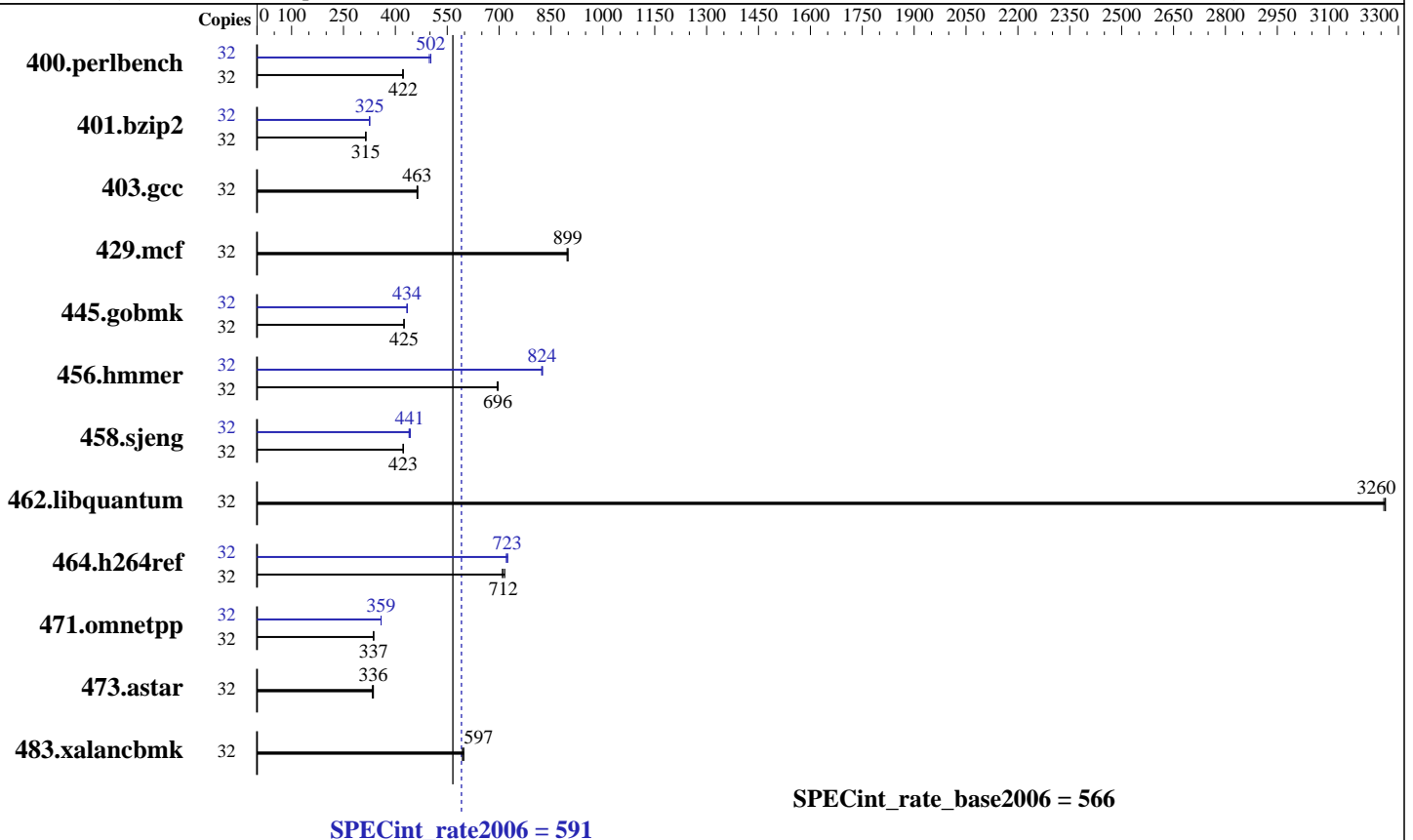
IBM BladeCenter HS23
(Intel Xeon E5-2660, 2.20 GHz)

SPECint®_rate2006 =   591

SPECint_rate_base2006 = 566

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

Test date: Apr-2012
Hardware Availability: Apr-2012
Software Availability: Dec-2011

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Hardware

CPU Name:	Intel Xeon E5-2660
CPU Characteristics:	Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	1 x 300 GB SAS, 10000 RPM
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 12.1.0.225 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 V9.01

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Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	32	**740**	**422**	739	423	742	421	32	628	498	622	503	**623**	**502**
401.bzip2	32	**981**	**315**	984	314	980	315	32	**949**	**325**	947	326	950	325
403.gcc	32	557	463	554	465	**556**	**463**	32	557	463	554	465	**556**	**463**
429.mcf	32	**325**	**899**	326	896	325	899	32	**325**	**899**	326	896	325	899
445.gobmk	32	789	425	**790**	**425**	790	425	32	**773**	**434**	774	434	773	434
456.hmmer	32	430	694	428	697	**429**	**696**	32	**362**	**824**	362	826	363	823
458.sjeng	32	**916**	**423**	914	424	917	422	32	**878**	**441**	874	443	881	440
462.libquantum	32	204	3260	203	3260	**203**	**3260**	32	204	3260	203	3260	**203**	**3260**
464.h264ref	32	998	709	**994**	**712**	989	716	32	977	725	**979**	**723**	983	721
471.omnetpp	32	**593**	**337**	593	337	594	337	32	557	359	558	359	**558**	**359**
473.astar	32	**668**	**336**	674	333	668	336	32	**668**	**336**	674	333	668	336
483.xalancbmk	32	369	598	**370**	**597**	372	594	32	369	598	**370**	**597**	372	594

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.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on tigershark-pete Mon Apr 30 12:30:16 2012

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 E5-2660 0 @ 2.20GHz
      2 "physical id"s (chips)
      32 "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 : 8

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Platform Notes (Continued)

```
      siblings  : 16
      physical 0: cores 0 1 2 3 4 5 6 7
      physical 1: cores 0 1 2 3 4 5 6 7
    cache size : 20480 KB

 From /proc/meminfo
    MemTotal:        132135800 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 tigershark-pete 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 Apr 30 12:04

 SPEC is set to: /cpu2006.1.2
    Filesystem     Type     Size  Used Avail Use% Mounted on
    /dev/mapper/vg_tigersharkpet-lv_root
                   ext4     265G   67G  186G  27% /

 Additional information from dmidecode:
   Memory:
    9x Micron 36JDYS1G72PZ-1G6M1 8 GB 1600 MHz 2 rank
    7x Samsung M392B1K70DM0-CK0 8 GB 1600 MHz 2 rank

 (End of data from sysinfo program)
```

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"

 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/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: `-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/smartheap -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-ic12.1-official-linux64.20111122.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-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.xml

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