SPEC® CINT2006 Result
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IBM Corporation

IBM System x3500 M4 (Intel Xeon E5-2630)

SPECint®_rate2006 = 437

SPECint_rate_base2006 = 418

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Hardware

CPU Name:	Intel Xeon E5-2630
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2300
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:	64 GB (16 x 4 GB 2Rx8 PC3-12800R-11, ECC, running at 1333 MHz)
Disk Subsystem:	1 x 300 GB SAS, 15000 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.1 (Santiago) 2.6.32-131.0.15.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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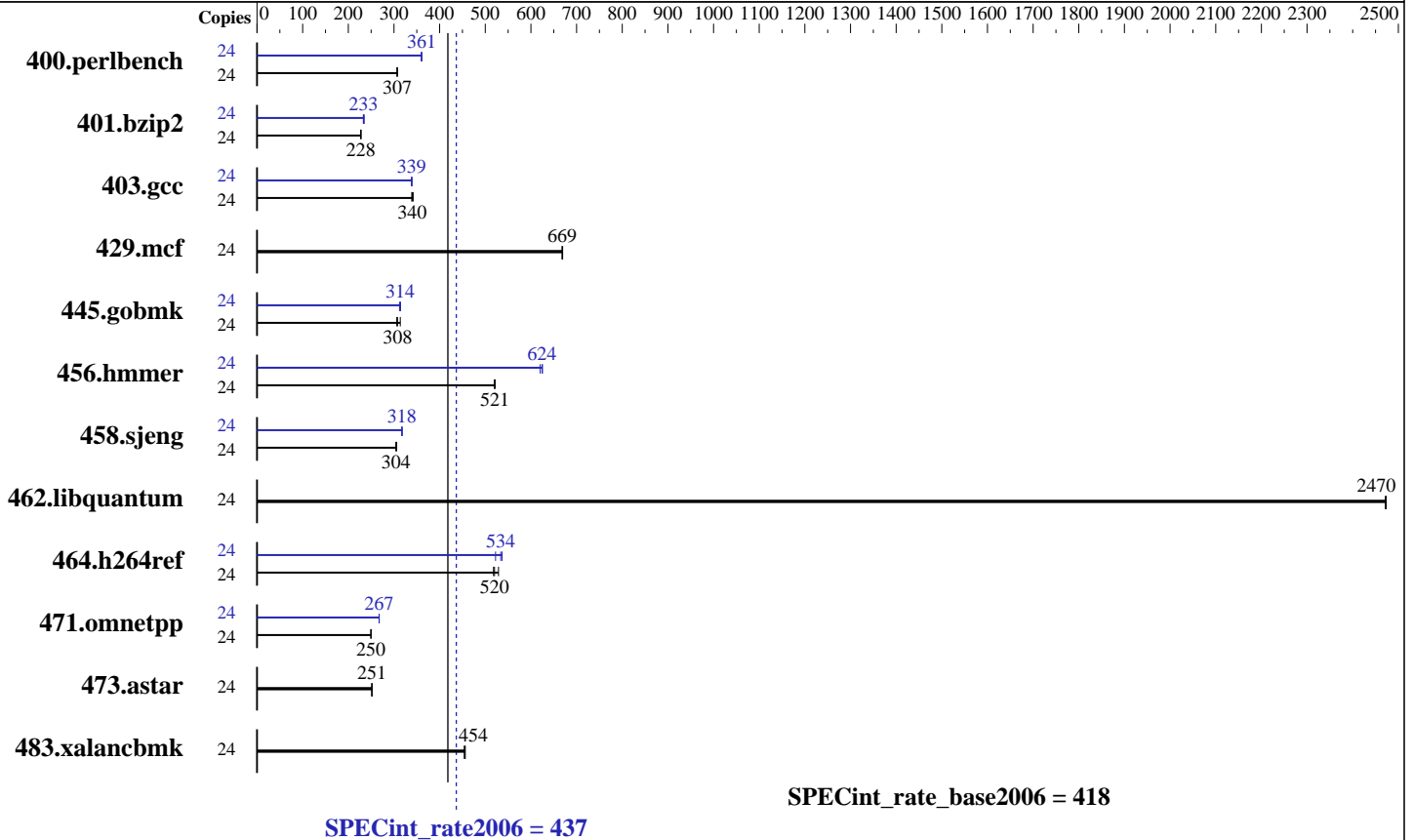
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CPU2006 license: 11
Test sponsor: IBM Corporation
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Test date: Apr-2012
Hardware Availability: Mar-2012
Software Availability: Oct-2011

Results Table

Benchmark	Base						Peak					
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	24	763	307	765	307	**763**	**307**	24	**650**	**361**	652	360	650	361
401.bzip2	24	1017	228	**1018**	**228**	1019	227	24	994	233	**993**	**233**	986	235
403.gcc	24	**568**	**340**	570	339	565	342	24	571	338	569	339	**570**	**339**
429.mcf	24	327	668	**327**	**669**	327	669	24	327	668	**327**	**669**	327	669
445.gobmk	24	**818**	**308**	822	306	802	314	24	807	312	801	314	**802**	**314**
456.hmmer	24	**430**	**521**	431	520	429	521	24	358	625	361	620	**359**	**624**
458.sjeng	24	**954**	**304**	949	306	954	304	24	913	318	916	317	**915**	**318**
462.libquantum	24	201	2470	**201**	**2470**	201	2470	24	201	2470	**201**	**2470**	201	2470
464.h264ref	24	1004	529	**1021**	**520**	1025	518	24	989	537	**995**	**534**	1016	523
471.omnetpp	24	601	250	**601**	**250**	601	250	24	**561**	**267**	561	267	560	268
473.astar	24	**670**	**251**	668	252	670	251	24	**670**	**251**	668	252	670	251
483.xalancbmk	24	**364**	**454**	365	454	363	456	24	**364**	**454**	365	454	363	456

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"
    Zone reclaim mode enabled with:
    echo 1 > /proc/sys/vm/zone_reclaim_mode

Platform Notes

    BIOS Settings:
    Operating Mode set to Maximum Performance
    Sysinfo program /root/SPECcpu-v1.2/config/sysinfo.rev6800
    $Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
    running on x3500M4 Tue Apr 24 17:32:54 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 E5-2630 0 @ 2.30GHz
          2 "physical id"s (chips)
          24 "processors"
       cores, siblings (Caution: counting these is hw and system dependent. The

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Platform Notes (Continued)

```
      following excerpts from /proc/cpuinfo might not be reliable.  Use with
      caution.)
         cpu cores : 6
         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:       66045764 kB
      HugePages_Total:        0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      Red Hat Enterprise Linux Server release 6.1 (Santiago)

   From /etc/*release* /etc/*version*
      redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
      system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

   uname -a:
      Linux x3500M4 2.6.32-131.0.15.el6.x86_64 #1 SMP Tue May 10 15:42:40 EDT 2011
      x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Apr 24 15:15

   SPEC is set to: /root/SPECcpu-v1.2
      Filesystem     Type     Size  Used Avail Use% Mounted on
      /dev/mapper/vg_x3500m4-lv_root
                     ext4     210G   69G  130G  35% /

   Additional information from dmidecode:
     Memory:
      16x Samsung M393B5273DH0-CK0 4 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 = "/root/SPECcpu-v1.2/libs/32:/root/SPECcpu-v1.2/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: -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/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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