SPEC® CINT2006 Result
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IBM Corporation

IBM System x3750 M4
(Intel Xeon E5-4627 v2, 3.30 GHz)

$SPECint®\_rate2006 =$ 1260

$SPECint\_rate\_base2006 =$ 1220

SPECint_rate_base2006 = 1220
SPECint_rate2006 = 1260

Hardware

CPU Name:	Intel Xeon E5-4627 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	3300
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip
CPU(s) orderable:	4 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:	16 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	1 x 300 GB SAS, 10000 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago) 2.6.32-431.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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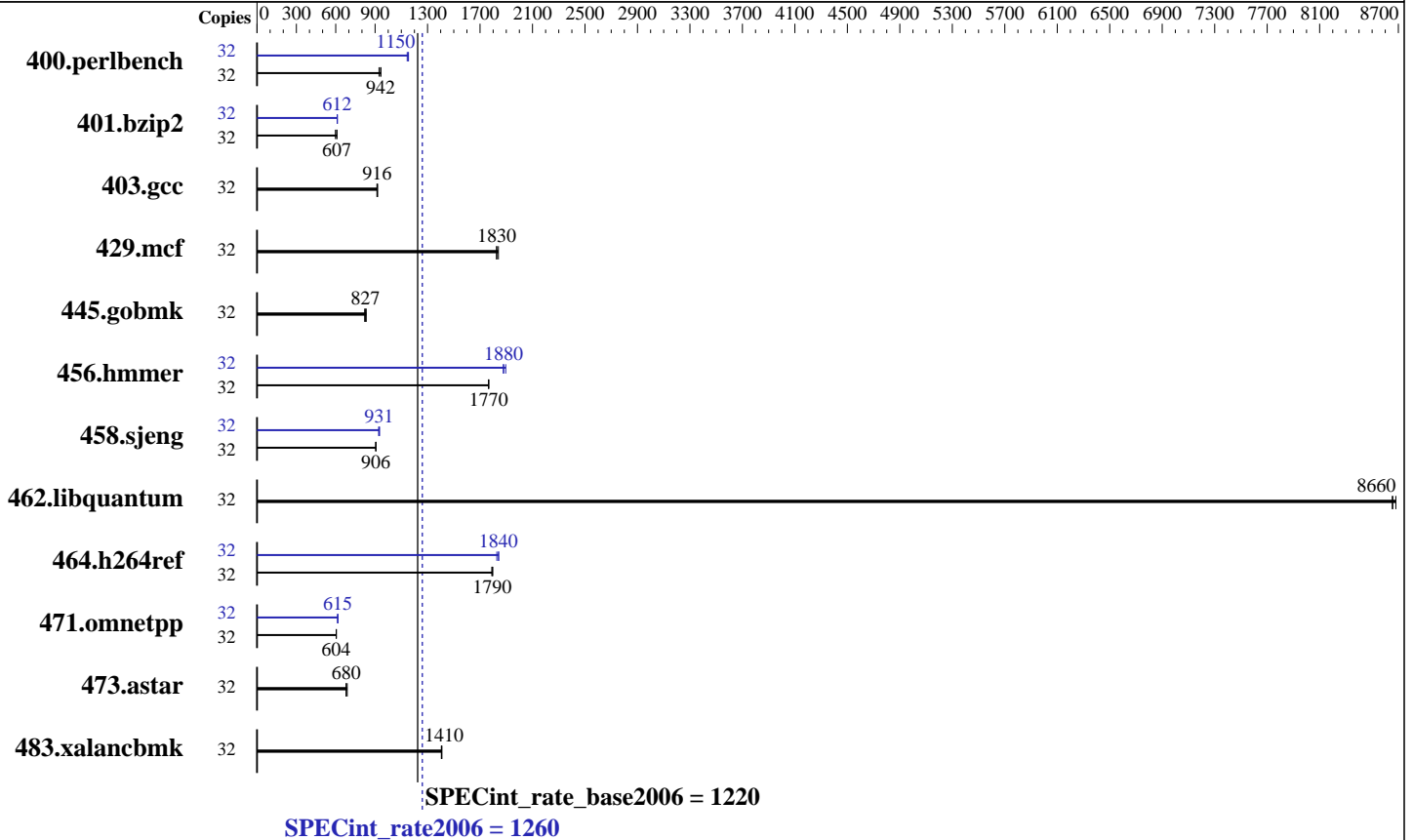
CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Aug-2014
Hardware Availability: Jun-2014
Software Availability: Nov-2013

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	32	336	930	**332**	**942**	331	944	32	**272**	**1150**	273	1140	271	1150
401.bzip2	32	507	609	**509**	**607**	517	598	32	506	611	**505**	**612**	504	612
403.gcc	32	280	919	**281**	**916**	282	914	32	280	919	**281**	**916**	282	914
429.mcf	32	159	1840	**160**	**1830**	160	1830	32	159	1840	**160**	**1830**	160	1830
445.gobmk	32	403	833	**406**	**827**	409	820	32	403	833	**406**	**827**	409	820
456.hmmer	32	169	1770	**169**	**1770**	169	1770	32	159	1880	**159**	**1880**	157	1900
458.sjeng	32	**427**	**906**	427	906	428	905	32	418	927	**416**	**931**	414	934
462.libquantum	32	76.6	8650	76.4	8680	**76.6**	**8660**	32	76.6	8650	76.4	8680	**76.6**	**8660**
464.h264ref	32	396	1790	394	1800	**395**	**1790**	32	**385**	**1840**	387	1830	384	1840
471.omnetpp	32	**331**	**604**	331	604	331	604	32	326	614	**325**	**615**	324	617
473.astar	32	327	688	**330**	**680**	331	679	32	327	688	**330**	**680**	331	679
483.xalancbmk	32	**157**	**1410**	157	1410	157	1410	32	**157**	**1410**	157	1410	157	1410

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_14.0_aug2013/config/sysinfo.rev6818
    $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
    running on Larry-KongIVB Tue Aug 12 16:37:52 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) Xeon(R) CPU E5-4627 v2 @ 3.30GHz
          4 "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  : 8
      physical 0: cores 0 1 2 3 4 5 6 7
      physical 1: cores 0 1 2 3 4 5 6 7
      physical 2: cores 0 1 2 3 4 5 6 7
      physical 3: cores 0 1 2 3 4 5 6 7
   cache size : 16384 KB

From /proc/meminfo
   MemTotal:       529089016 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux Larry-KongIVB 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 12 16:35

SPEC is set to: /cpu2006.1.2_14.0_aug2013
   Filesystem                       Type  Size  Used Avail Use% Mounted on
   /dev/mapper/vg_larrykongivb-lv_root ext4  264G  100G  151G  40% /

Additional information from dmidecode:
  BIOS IBM -[KOE141AUS-1.50]- 05/03/2014
  Memory:
   31x Micron 36JSF2G72PZ-1G9E1 16 GB 1867 MHz 2 rank
   16x Not Specified Not Specified
   1x Samsung M393B2G70QH0-CMA 16 GB 1867 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_14.0_aug2013/libs/32:/cpu2006.1.2_14.0_aug2013/libs/64:/cpu2006.1.2_14.0_aug2013/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
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
```

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General Notes (Continued)

```
numactl --interleave=all runspec <etc>
```

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
```

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Peak Compiler Invocation (Continued)

       458.sjeng: `icc -m64`

C++ benchmarks:
    `icpc -m32`

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: basepeak = yes

        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:

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Peak Optimization Flags (Continued)

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`

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-IVB-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-IVB-A.xml

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Tested with SPEC CPU2006 v1.2.
Report generated on Wed Sep 10 16:12:24 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 September 2014.