SPEC® CINT2006 Result

IBM Corporation

IBM System x3850 X6
(Intel Xeon E7-4830 v2, 2.20 GHz)

SPECint®_rate2006 =   1290

SPECint_rate_base2006 = 1260

CPU2006 license: 11	**Test date:** Jul-2014
Test sponsor: IBM Corporation	**Hardware Availability:** Mar-2014
Tested by: IBM Corporation	**Software Availability:** Nov-2013

Copies

- 400.perlbench: 80 — 1160; 80 — 986
- 401.bzip2: 80 — 635; 80 — 626
- 403.gcc: 80 — 953
- 429.mcf: 80 — 1750
- 445.gobmk: 80 — 1000; 80 — 977
- 456.hmmer: 80 — 1840; 80 — 1770
- 458.sjeng: 80 — 1010; 80 — 966
- 462.libquantum: 80 — 8780
- 464.h264ref: 80 — 1690
- 471.omnetpp: 80 — 658; 80 — 621
- 473.astar: 80 — 714
- 483.xalancbmk: 80 — 1360

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Hardware

CPU Name:	Intel Xeon E7-4830 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	40 cores, 4 chips, 10 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 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:	1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1067 MHz)
Disk Subsystem:	1 x 400 GB SATA, SSD
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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Copyright 2006-2014 Standard Performance Evaluation Corporation
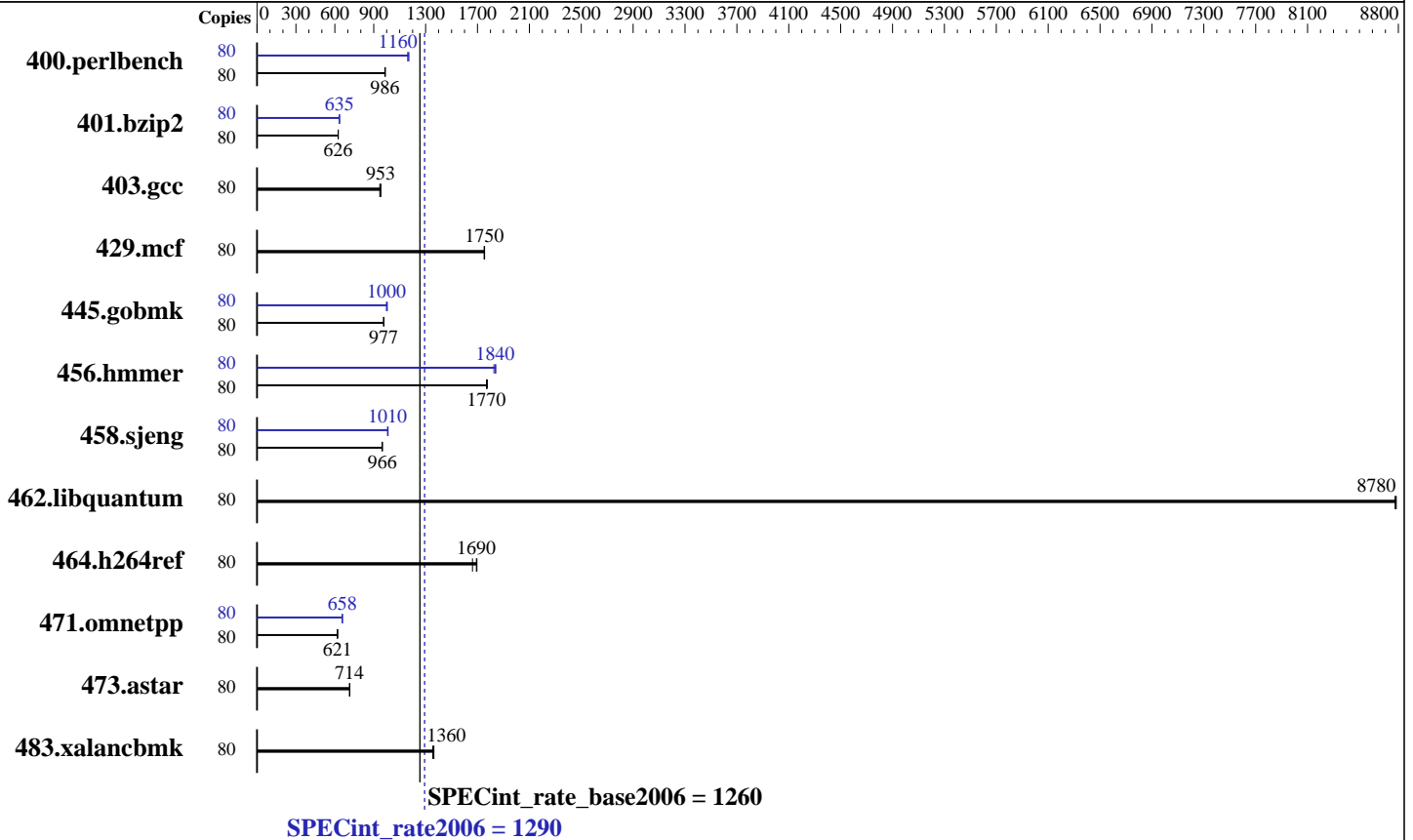
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Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	80	789	990	793	986	**792**	**986**	80	667	1170	**672**	**1160**	672	1160
401.bzip2	80	1235	625	**1233**	**626**	1232	626	80	1216	635	1214	636	**1215**	**635**
403.gcc	80	**676**	**953**	680	947	675	954	80	**676**	**953**	680	947	675	954
429.mcf	80	416	1750	416	1750	**416**	**1750**	80	416	1750	416	1750	**416**	**1750**
445.gobmk	80	**859**	**977**	859	977	859	977	80	835	1000	840	999	**839**	**1000**
456.hmmer	80	420	1780	**422**	**1770**	422	1770	80	405	1840	409	1830	**407**	**1840**
458.sjeng	80	**1002**	**966**	1004	964	1001	967	80	958	1010	**961**	**1010**	961	1010
462.libquantum	80	**189**	**8780**	189	8780	189	8780	80	**189**	**8780**	189	8780	189	8780
464.h264ref	80	**1047**	**1690**	1066	1660	1044	1700	80	**1047**	**1690**	1066	1660	1044	1700
471.omnetpp	80	805	621	**806**	**621**	807	620	80	760	658	760	658	**760**	**658**
473.astar	80	787	714	785	716	**787**	**714**	80	787	714	785	716	**787**	**714**
483.xalancbmk	80	405	1360	**405**	**1360**	407	1360	80	405	1360	**405**	**1360**	407	1360

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
    Memory Data Scrambling Disabled
    Patrol Scrub Disabled
    Sysinfo program /cpu2006.1.2_14.0_aug2013/config/sysinfo.rev6818
    $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
    running on Larry-Andromeda Mon Jul 7 18:29:46 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 E7-4830 v2 @ 2.20GHz
          4 "physical id"s (chips)
          80 "processors"
       cores, siblings (Caution: counting these is hw and system dependent. The
       following excerpts from /proc/cpuinfo might not be reliable. Use with

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Platform Notes (Continued)

```
   caution.)
      cpu cores : 10
      siblings  : 20
      physical 0: cores 0 1 2 3 4 8 9 10 11 12
      physical 1: cores 0 1 2 3 4 8 9 10 11 12
      physical 2: cores 0 1 2 3 4 8 9 10 11 12
      physical 3: cores 0 1 2 3 4 8 9 10 11 12
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       1058472600 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-Andromeda 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 Jul 7 18:27

SPEC is set to: /cpu2006.1.2_14.0_aug2013
   Filesystem                         Type  Size  Used Avail Use% Mounted on
   /dev/mapper/vg_larryandromed-lv_root ext4  357G  233G  106G  69% /

Additional information from dmidecode:
  BIOS IBM -[A8E107JUS-1.00]- 05/02/2014
  Memory:
   32x NO DIMM Unknown
   64x Samsung M393B2G70QH0-YK0 16 GB 1067 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
```

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General Notes (Continued)

```
runspec command invoked through numactl i.e.:
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

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Peak Compiler Invocation (Continued)

    456.hmmer: `icc -m64`

    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: `-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: `basepeak = yes`

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Peak Optimization Flags (Continued)

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`

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

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

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