SPEC® CINT2006 Result

IBM Corporation

IBM NeXtScale nx360 M4
(Intel Xeon E5-2648L v2, 1.90 GHz)

SPECint®_rate2006 =   615

SPECint_rate_base2006 = 592

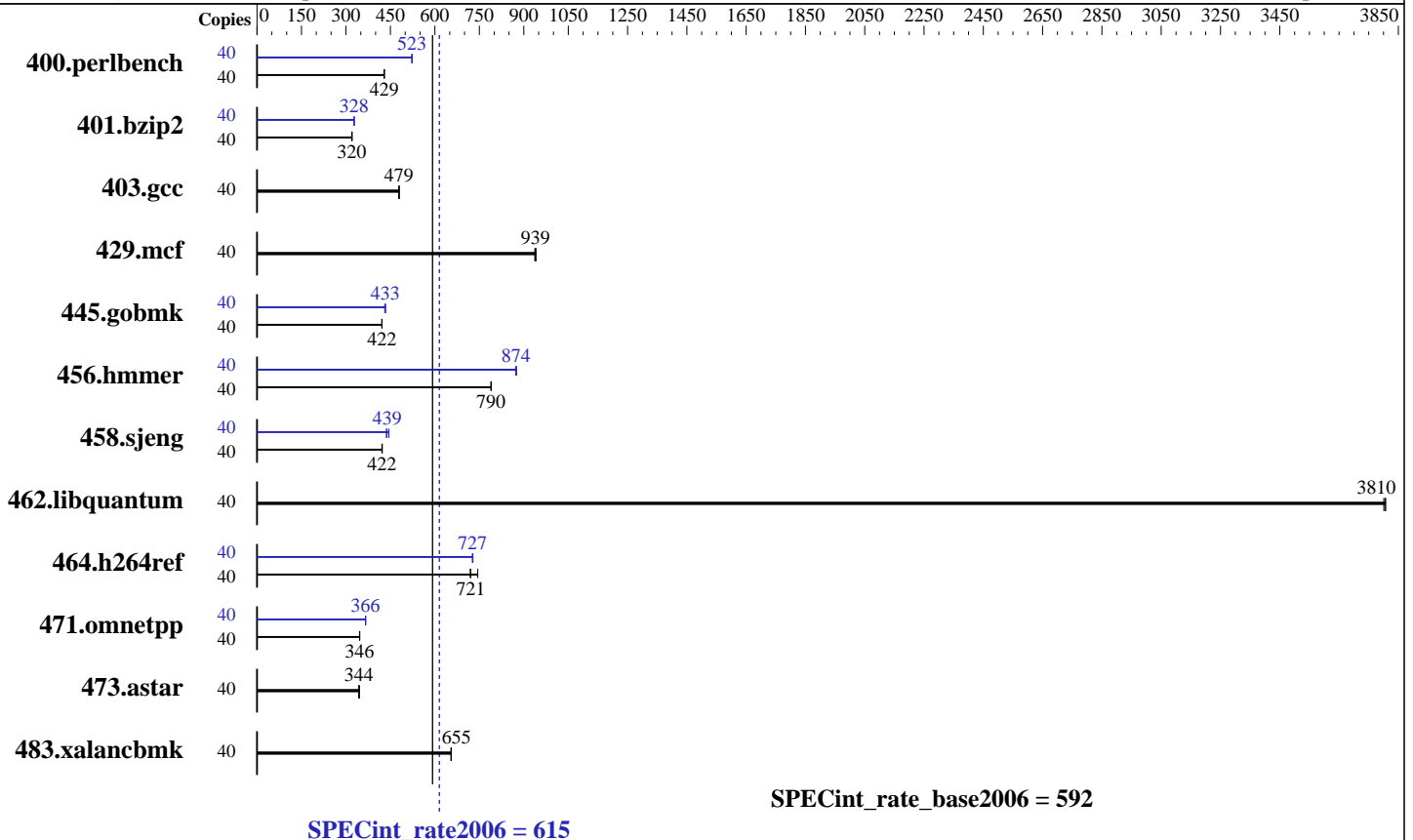|			
CPU2006 license:	11	**Test date:**	Aug-2014
Test sponsor:	IBM Corporation	**Hardware Availability:**	Nov-2013
Tested by:	IBM Corporation	**Software Availability:**	Sep-2013

Copies

Benchmark	Copies	Peak	Base
400.perlbench	40	523	429
401.bzip2	40	328	320
403.gcc	40		479
429.mcf	40		939
445.gobmk	40	433	422
456.hmmer	40	874	790
458.sjeng	40	439	422
462.libquantum	40		3810
464.h264ref	40	727	721
471.omnetpp	40	366	346
473.astar	40		344
483.xalancbmk	40		655

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Hardware

CPU Name:	Intel Xeon E5-2648L v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz:	1900
FPU:	Integrated
CPU(s) enabled:	20 cores, 2 chips, 10 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:	25 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	2 x 250 GB SATA, 7200RPM, RAID 0
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.4 (Santiago) 2.6.32-358.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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Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	40	910	429	**911**	**429**	911	429	40	749	522	746	524	**747**	**523**
401.bzip2	40	1207	320	1203	321	**1206**	**320**	40	1177	328	**1178**	**328**	1179	327
403.gcc	40	673	478	671	480	**672**	**479**	40	673	478	671	480	**672**	**479**
429.mcf	40	**388**	**939**	389	937	388	941	40	**388**	**939**	389	937	388	941
445.gobmk	40	997	421	995	422	**995**	**422**	40	968	433	974	431	**969**	**433**
456.hmmer	40	473	789	472	790	**473**	**790**	40	428	872	426	876	**427**	**874**
458.sjeng	40	**1147**	**422**	1149	421	1146	423	40	1110	436	**1103**	**439**	1088	445
462.libquantum	40	**218**	**3810**	218	3800	218	3810	40	**218**	**3810**	218	3800	218	3810
464.h264ref	40	1189	745	1231	719	**1228**	**721**	40	**1217**	**727**	1216	728	1218	727
471.omnetpp	40	723	346	721	347	**723**	**346**	40	683	366	682	366	**683**	**366**
473.astar	40	813	345	**816**	**344**	818	343	40	813	345	**816**	**344**	818	343
483.xalancbmk	40	**421**	**655**	422	654	421	656	40	**421**	**655**	422	654	421	656

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
Intel Idle Driver disabled with the following Linux kernel parameter in /etc/grub.conf:
intel_idle.max_cstate=0

Platform Notes

BIOS setting:
Operating Mode set to Maximum Performance
Sysinfo program /home/SPECcpu-20140116-ic14.0/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on nx360M4 Tue Aug 26 16:47:29 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 E5-2648L v2 @ 1.90GHz
      2 "physical id"s (chips)

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Software Availability: Sep-2013

Platform Notes (Continued)

```
     40 "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 : 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
   cache size : 25600 KB

 From /proc/meminfo
    MemTotal:       132087132 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.4 (Santiago)

 From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

 uname -a:
    Linux nx360M4 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
    x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Aug 25 14:36

 SPEC is set to: /home/SPECcpu-20140116-ic14.0
    Filesystem     Type    Size  Used Avail Use% Mounted on
    /dev/mapper/vg_nx360m4-lv_home
                   ext4    403G   13G  370G   4% /home

 Additional information from dmidecode:
   BIOS IBM -[FHE107NUS-1.20]- 06/03/2014
   Memory:
    8x 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 = "/home/SPECcpu-20140116-ic14.0/libs/32:/home/SPECcpu-20140116-ic14.0/libs/64:/home/SPECcpu-20140116-ic14.0/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:
```

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General Notes (Continued)

```
echo 1>        /proc/sys/vm/drop_caches
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: `-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`

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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-B.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-B.xml

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

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