SPEC® CINT2006 Result
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IBM Corporation
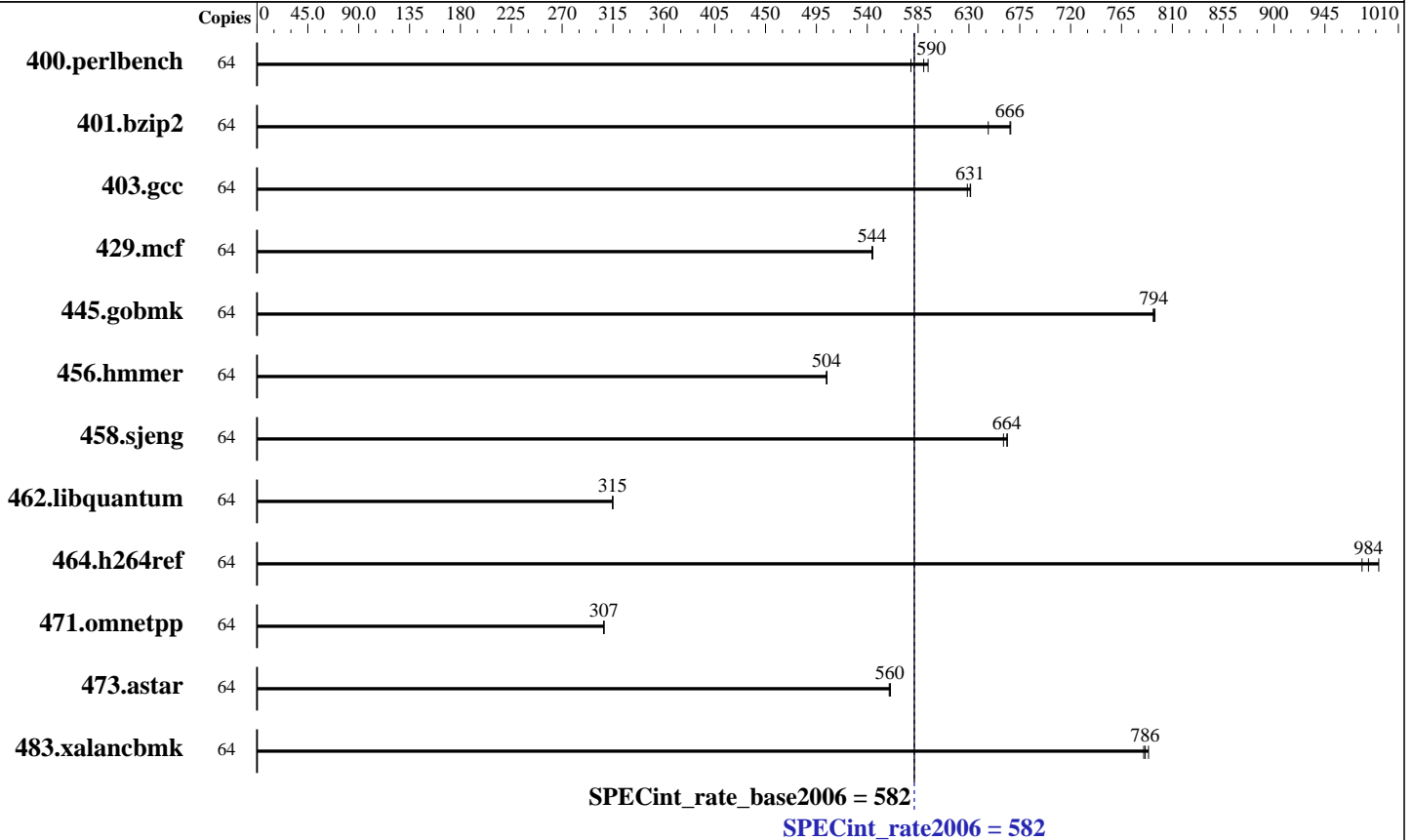
IBM Power 730 Express (4.2 GHz, 16 core, SLES, GCC)

SPECint®_rate2006 = 582

SPECint_rate_base2006 = 582

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

Test date: Jan-2013
Hardware Availability: Feb-2013
Software Availability: Nov-2012

Copies 0 45.0 90.0 135 180 225 270 315 360 405 450 495 540 585 630 675 720 765 810 855 900 945 1010

Benchmark	Copies	Value
400.perlbench	64	590
401.bzip2	64	666
403.gcc	64	631
429.mcf	64	544
445.gobmk	64	794
456.hmmer	64	504
458.sjeng	64	664
462.libquantum	64	315
464.h264ref	64	984
471.omnetpp	64	307
473.astar	64	560
483.xalancbmk	64	786

SPECint_rate_base2006 = 582

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Hardware

CPU Name:	POWER7+
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 4.540 GHz
CPU MHz:	4228
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	8, 16 cores
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	10 MB I+D on chip per core
Other Cache:	None
Memory:	128 GB (16 x 8 GB) DDR3 1066 MHz
Disk Subsystem:	1 x 146.8 GB SAS SFF 15K RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 SP2 (ppc64) kernel 3.0.42-0.7-ppc64
Compiler:	C/C++: Version 4.7.3 of IBM Advance Toolchain 6.0-1 gcc/g++ compiler
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	-IBM Advance Toolchain 6.0-1

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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	64	1053	594	1081	579	**1060**	**590**	64	1053	594	1081	579	**1060**	**590**
401.bzip2	64	**927**	**666**	954	647	926	667	64	**927**	**666**	954	647	926	667
403.gcc	64	**816**	**631**	820	629	816	631	64	**816**	**631**	820	629	816	631
429.mcf	64	1072	544	1071	545	**1072**	**544**	64	1072	544	1071	545	**1072**	**544**
445.gobmk	64	**846**	**794**	845	795	847	793	64	**846**	**794**	845	795	847	793
456.hmmer	64	1184	504	**1185**	**504**	1185	504	64	1184	504	**1185**	**504**	1185	504
458.sjeng	64	1172	661	**1167**	**664**	1166	664	64	1172	661	**1167**	**664**	1166	664
462.libquantum	64	**4213**	**315**	4213	315	4214	315	64	**4213**	**315**	4213	315	4214	315
464.h264ref	64	1448	978	**1440**	**984**	1427	993	64	1448	978	**1440**	**984**	1427	993
471.omnetpp	64	**1304**	**307**	1302	307	1304	307	64	**1304**	**307**	1302	307	1304	307
473.astar	64	803	559	802	561	**802**	**560**	64	803	559	802	561	**802**	**560**
483.xalancbmk	64	**562**	**786**	563	785	560	789	64	**562**	**786**	563	785	560	789

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Invocation Notes

For more information about IBM Advance Toolchain, including support, see
ftp://linuxpatch.ncsa.uiuc.edu/toolchain/at/suse/SLES_11/at6.0/release_notes.at6.0-6.0-1.html

Submit Notes

The config file option 'submit' was used
to assign benchmark copy to specific kernel thread using
the "numactl" command (see flags file for details).

Operating System Notes

ulimit -s (stack) set to 1048576.

Large pages reserved as follows by root user:
echo 4224 > /proc/sys/vm/nr_hugepages

The following environment varibles were set before the runspec command:
  export HUGETLB_VERBOSE=0
  export HUGETLB_MORECORE=yes

Base Compiler Invocation

C benchmarks:
      /opt/at6.0/bin/gcc

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Base Compiler Invocation (Continued)

C++ benchmarks:
```
/opt/at6.0/bin/g++
```

Base Portability Flags

```
    400.perlbench: -DSPEC_CPU_LINUX_PPC
    462.libquantum: -DSPEC_CPU_LINUX
      464.h264ref: -fsigned-char
    483.xalancbmk: -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:
```
    -O3 -mcpu=power7 -mtune=power7 -m32 -ffast-math -fpeel-loops
    -funroll-loops -mvsx -maltivec -ftree-vectorize -mpopcntd
    -mrecip=rsqrt -flto -fwhole-program -fuse-linker-plugin -lhugetlbfs
```

C++ benchmarks:
```
    -O3 -mcpu=power7 -mtune=power7 -m32 -ffast-math -fpeel-loops
    -funroll-loops -mvsx -maltivec -ftree-vectorize -mpopcntd
    -mrecip=rsqrt -flto -fwhole-program -fuse-linker-plugin -ltcmalloc
```

Peak Optimization Flags

C benchmarks:

```
    400.perlbench: basepeak = yes

      401.bzip2: basepeak = yes

        403.gcc: basepeak = yes

        429.mcf: basepeak = yes

      445.gobmk: basepeak = yes

      456.hmmer: basepeak = yes

      458.sjeng: basepeak = yes

   462.libquantum: basepeak = yes

      464.h264ref: basepeak = yes
```

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/IBM-Linux-AT.html
http://www.spec.org/cpu2006/flags/IBM-Power.20130226.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-Linux-AT.xml
http://www.spec.org/cpu2006/flags/IBM-Power.20130226.xml

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

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 15:15:50 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 February 2013.