SPEC® CINT2006 Result

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IBM Corporation

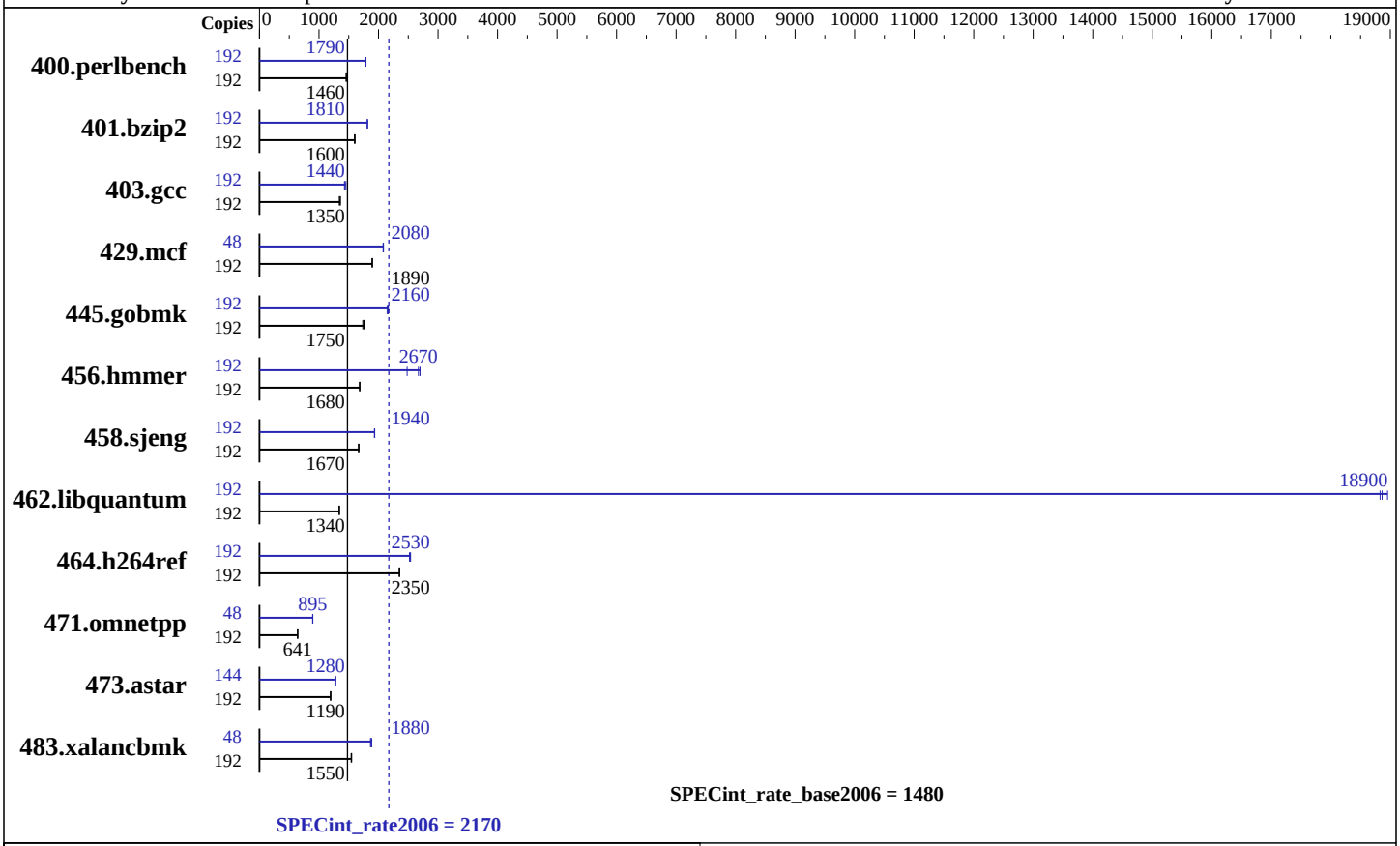
IBM Power 760 (3.4 GHz, 48 core)

SPECint®_rate2006 = 2170

SPECint_rate_base2006 = 1480

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

Test date: Jan-2013
Hardware Availability: Mar-2013
Software Availability: Feb-2013



Hardware

CPU Name:	POWER7+
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.787 GHz
CPU MHz:	3416
FPU:	Integrated
CPU(s) enabled:	48 cores, 8 chips, 6 cores/chip, 4 threads/core
CPU(s) orderable:	12, 24, 36, 48 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:	512 GB (64 x 8 GB) DDR3 1066 MHz
Disk Subsystem:	5 x 300 GB 15K RPM Raid0 SFF SAS
Other Hardware:	None

Software

Operating System:	IBM AIX V7.1
Compiler:	C/C++: Version 12.1 of IBM XL C/C++ for AIX
Auto Parallel:	No
File System:	AIX/JFS2
System State:	Multi-user
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	None

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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	192	1288	1460	**1285**	**1460**	1274	1470	192	1049	1790	**1049**	**1790**	1048	1790
401.bzip2	192	1161	1600	1154	1610	**1157**	**1600**	192	1022	1810	**1022**	**1810**	1021	1810
403.gcc	192	**1148**	**1350**	1151	1340	1136	1360	192	**1075**	**1440**	1064	1450	1082	1430
429.mcf	192	**924**	**1890**	923	1900	925	1890	48	211	2080	210	2080	**210**	**2080**
445.gobmk	192	**1151**	**1750**	1147	1760	1161	1740	192	930	2170	**931**	**2160**	939	2140
456.hmmer	192	1063	1690	1064	1680	**1064**	**1680**	192	**671**	**2670**	722	2480	664	2700
458.sjeng	192	1395	1660	**1392**	**1670**	1392	1670	192	1200	1940	1203	1930	**1200**	**1940**
462.libquantum	192	2966	1340	**2966**	**1340**	2970	1340	192	210	19000	**211**	**18900**	211	18800
464.h264ref	192	1804	2360	**1807**	**2350**	1810	2350	192	1686	2520	**1679**	**2530**	1673	2540
471.omnetpp	192	**1871**	**641**	1872	641	1870	642	48	334	897	336	893	**335**	**895**
473.astar	192	1125	1200	**1128**	**1190**	1130	1190	144	793	1270	**791**	**1280**	790	1280
483.xalancbmk	192	860	1540	**857**	**1550**	855	1550	48	178	1870	176	1890	**177**	**1880**

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

Compiler Invocation Notes

```
C/C++ compiler updated to November 2012 PTF
      Version: 12.01.0000.0002
```

Peak Tuning Notes

```
400.perlbench fdpr options: -O4 -cbpth -1 -sdp -1
401.bzip2 fdpr options: -O4 -vrox -nobldcg -sdp -1
403.gcc fdpr options: -O4 -cbpth -1 -sdp -1
429.mcf fdpr options: -O3
445.gobmk fdpr options: -O3
456.hmmer fdpr options: -O4 -nodp
458.sjeng fdpr options: -O3
464.h264ref fdpr options: -O4 -sdp -1 -vrox -lu -1
473.astar fdpr options: -O3 -vrox -bldcg
483.xalancbmk fdpr options: -O3
```

Submit Notes

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

Operating System Notes

```
AIX updated to V7.1 TL 2 SP2

All ulimits set to unlimited.

19200 16M large pages defined with vmo command
```

General Notes

```
Environment variables set by runspec before the start of the run:
MALLOCOPTIONS = "pool"
MEMORY_AFFINITY = "MCM"
XLFRTEOPTS = "intrinthds=1"
```

Base Compiler Invocation

C benchmarks:
```
/usr/vac/bin/xlc -qlanglvl=extc99
```

C++ benchmarks:
```
/usr/vacpp/bin/xlC
```

Base Portability Flags

400.perlbench: `-DSPEC_CPU_AIX`
462.libquantum: `-DSPEC_CPU_AIX`
464.h264ref: `-DSPEC_CPU_AIX -qchars=signed`
483.xalancbmk: `-DSPEC_CPU_AIX`

Base Optimization Flags

C benchmarks:
```
-qipa=threads -bmaxdata:0x50000000 -qlargepage -O5 -qsimd -qvecnvol
-D_ILS_MACROS -qalias=noansi -qalloca -blpdata
```

C++ benchmarks:
```
-qipa=threads -bmaxdata:0x20000000 -qlargepage -O4 -D_ILS_MACROS
-qrtti=all -D__IBM_FAST_SET_MAP_ITERATOR -blpdata
```

Base Other Flags

C benchmarks:
```
-qipa=noobject -qsuppress=1500-036
```

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Base Other Flags (Continued)

C++ benchmarks:
-qipa=noobject -qsuppress=1500-036

Peak Compiler Invocation

C benchmarks:
/usr/vac/bin/xlc -qlanglvl=extc99

C++ benchmarks:
/usr/vacpp/bin/xlC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_AIX
462.libquantum: -DSPEC_CPU_AIX
464.h264ref: -DSPEC_CPU_AIX -qchars=signed
483.xalancbmk: -DSPEC_CPU_AIX

Peak Optimization Flags

C benchmarks:

400.perlbench: -bmaxdata:0x50000000 -qpdf1(pass 1) -qpdf2(pass 2) -O2
-qarch=auto -qtune=auto -D_ILS_MACROS -qalias=noansi
-blpdata -btextpsize:64K

401.bzip2: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O3 -qarch=auto -qtune=auto -qlargepage
-D_ILS_MACROS -blpdata -btextpsize:64K

403.gcc: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O5 -qlargepage -D_ILS_MACROS -qalloca
-blpdata -btextpsize:64K

429.mcf: -qipa=threads -bmaxdata:0x50000000 -O5 -qlargepage
-D_ILS_MACROS -blpdata -btextpsize:64K

445.gobmk: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O5
-qlargepage -D_ILS_MACROS -blpdata -btextpsize:64K

456.hmmer: -qipa=threads -O5 -qsimd -qvecnvol -qassert=refalign
-qipa=inline=threshold=2888 -qipa=inline=limit=11880
-D_ILS_MACROS -blpdata -btextpsize:64K

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Peak Optimization Flags (Continued)

458.sjeng: `-qipa=threads -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -D_ILS_MACROS -blpdata -btextpsize:64K`

462.libquantum: `-qipa=threads -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -q64 -qlargepage -D_ILS_MACROS -blpdata -btextpsize:64K`

464.h264ref: `-qipa=threads -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qsimd -qvecnvol -D_ILS_MACROS -blpdata -btextpsize:64K`

C++ benchmarks:

471.omnetpp: `-qipa=threads -bmaxdata:0x20000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qsimd -qvecnvol -D_ILS_MACROS -qalign=natural -qrtti=all -qinlglue -D__IBM_FAST_SET_MAP_ITERATOR -blpdata -btextpsize:64K`

473.astar: `-qipa=threads -bmaxdata:0x20000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -D_ILS_MACROS -qinlglue -qalign=natural -blpdata -btextpsize:64K`

483.xalancbmk: `-qipa=threads -bmaxdata:0x20000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qlargepage -qipa=partition=large -D_ILS_MACROS -qinlglue -D__IBM_FAST_VECTOR -blpdata -btextpsize:64K`

Peak Other Flags

C benchmarks (except as noted below):
`-qipa=noobject -qsuppress=1500-036`

400.perlbench: `-qsuppress=1500-036`

C++ benchmarks:
`-qipa=noobject -qsuppress=1500-036`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/IBM-XL.20110613.html
http://www.spec.org/cpu2006/flags/IBM-AIX.20110613.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-XL.20110613.xml
http://www.spec.org/cpu2006/flags/IBM-AIX.20110613.xml

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