SPEC® CINT2006 Result

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IBM Corporation

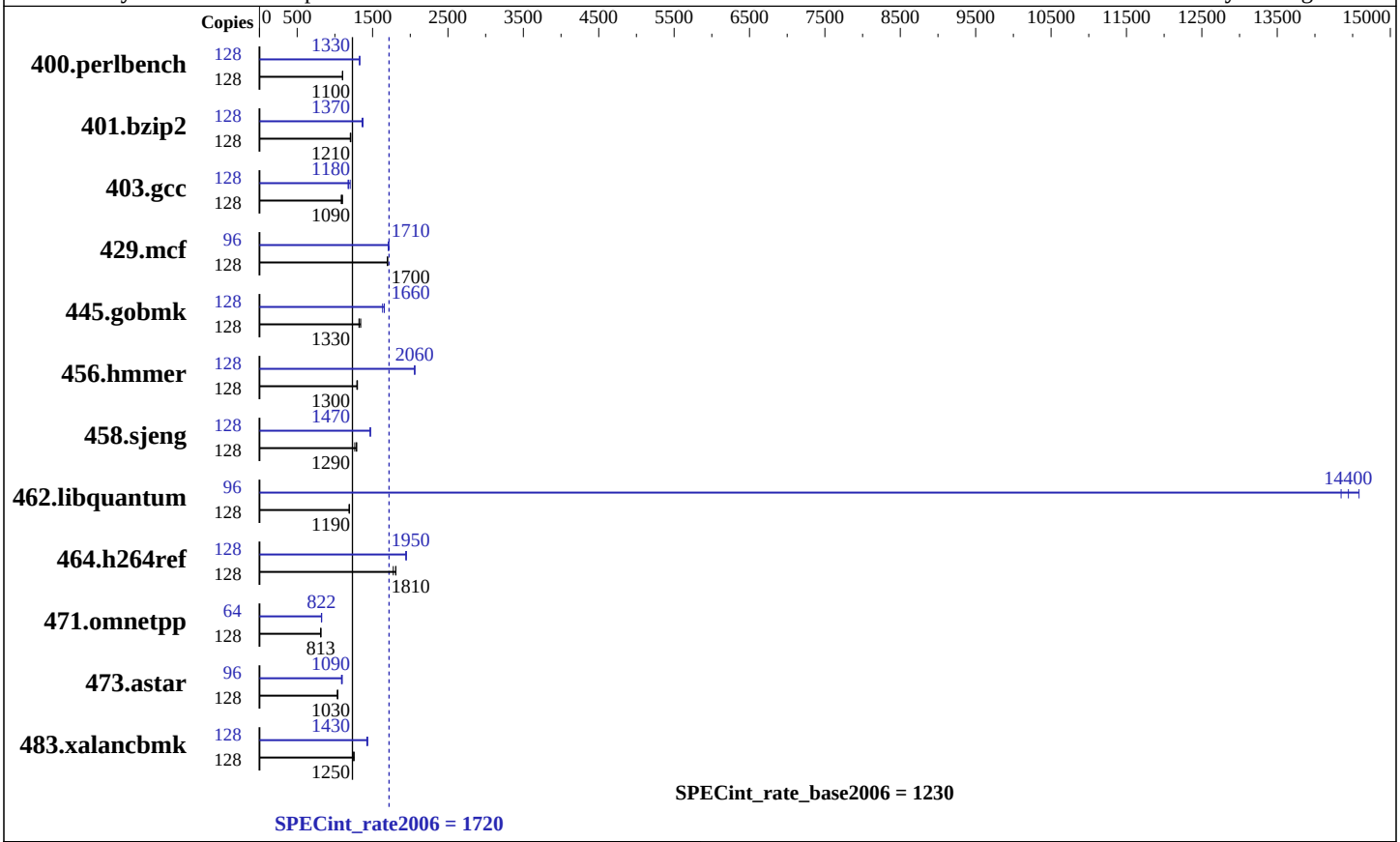
IBM Flex System p460 (4.1 GHz, 32 core)

SPECint®_rate2006 = 1720

SPECint_rate_base2006 = 1230

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

Test date: Jul-2013
Hardware Availability: Sep-2013
Software Availability: Aug-2013



Hardware

CPU Name:	POWER7+
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 4.340 GHz
CPU MHz:	4116
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	32 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:	256 GB (32 x 8 GB) DDR3 1066 MHz
Disk Subsystem:	2 x 177 GB Raid0 SATA SSD 1.8"
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	128	1136	1100	1132	1100	**1134**	**1100**	128	943	1330	940	1330	**942**	**1330**
401.bzip2	128	1019	1210	**1024**	**1210**	1025	1210	128	908	1360	**901**	**1370**	900	1370
403.gcc	128	950	1080	935	1100	**944**	**1090**	128	856	1200	877	1180	**871**	**1180**
429.mcf	128	687	1700	688	1700	**688**	**1700**	96	512	1710	**512**	**1710**	510	1720
445.gobmk	128	1000	1340	1018	1320	**1012**	**1330**	128	822	1630	**811**	**1660**	811	1660
456.hmmer	128	920	1300	**920**	**1300**	925	1290	128	**580**	**2060**	580	2060	581	2060
458.sjeng	128	**1205**	**1290**	1201	1290	1225	1260	128	1055	1470	**1053**	**1470**	1053	1470
462.libquantum	128	2220	1190	2229	1190	**2228**	**1190**	96	139	14300	**138**	**14400**	136	14600
464.h264ref	128	1566	1810	1596	1770	**1567**	**1810**	128	1459	1940	1454	1950	**1455**	**1950**
471.omnetpp	128	**984**	**813**	983	814	984	813	64	487	822	484	826	**487**	**822**
473.astar	128	865	1040	869	1030	**868**	**1030**	96	**617**	**1090**	614	1100	619	1090
483.xalancbmk	128	711	1240	**706**	**1250**	703	1260	128	**619**	**1430**	620	1420	615	1440

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 June 2013 PTF
      Version: 12.01.0000.0004
```

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 SP3

All ulimits set to unlimited.

12800 16M large pages defined with vmo command
```

Platform Notes

```
This Compute Node is housed in an
 "IBM Flex System Enterprise Chassis"
```

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 -qprefetch=dscr=0x42 -blpdata
```

Base Other Flags

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

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

Continued on next page

Peak Optimization Flags (Continued)

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

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 -qprefetch=dscr=0x42 -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 -qprefetch=dscr=0x42 -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.20130828.html
http://www.spec.org/cpu2006/flags/IBM-AIX.20130828.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-XL.20130828.xml
http://www.spec.org/cpu2006/flags/IBM-AIX.20130828.xml

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