SPEC® CINT2006 Result

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IBM Corporation

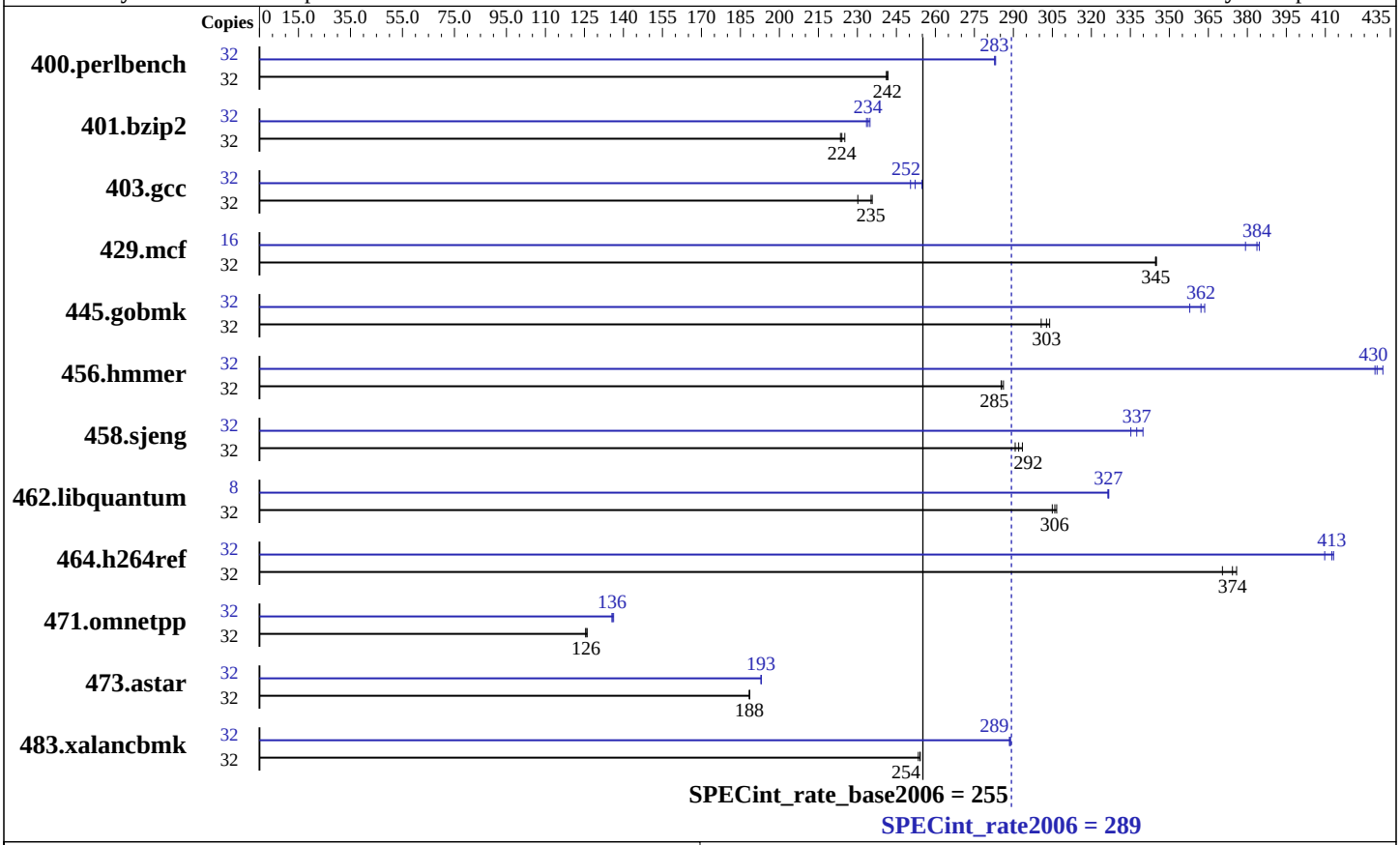
IBM Power 710 Express (3.55 GHz, 8 core)

SPECint®_rate2006 = 289

SPECint_rate_base2006 = 255

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

Test date: Aug-2010
Hardware Availability: Sep-2010
Software Availability: Sep-2010



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.86 GHz
CPU MHz:	3556
FPU:	Integrated
CPU(s) enabled:	8 cores, 1 chip, 8 cores/chip, 4 threads/core
CPU(s) orderable:	8 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:	4 MB I+D on chip per core
Other Cache:	None
Memory:	64 GB (8x8 GB) DDR3 1066 MHz
Disk Subsystem:	2x146.8 GB SAS SFF 15K RPM
Other Hardware:	None

Software

Operating System:	IBM AIX V7.1
Compiler:	IBM XL C/C++ for AIX, V11.1 Version: 11.01.0000.0002
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	32	1297	241	1293	242	**1294**	**242**	32	1105	283	**1105**	**283**	1104	283
401.bzip2	32	**1379**	**224**	1382	223	1371	225	32	**1319**	**234**	1322	234	1315	235
403.gcc	32	**1095**	**235**	1093	236	1119	230	32	1011	255	1029	250	**1021**	**252**
429.mcf	32	**846**	**345**	846	345	847	345	16	**380**	**384**	379	385	385	379
445.gobmk	32	1116	301	**1109**	**303**	1104	304	32	938	358	**927**	**362**	923	364
456.hmmer	32	1046	285	**1046**	**285**	1043	286	32	**694**	**430**	691	432	696	429
458.sjeng	32	**1326**	**292**	1319	293	1332	291	32	**1147**	**337**	1139	340	1155	335
462.libquantum	32	2162	307	**2167**	**306**	2174	305	8	508	326	**507**	**327**	507	327
464.h264ref	32	1884	376	1912	370	**1892**	**374**	32	**1717**	**413**	1714	413	1728	410
471.omnetpp	32	1587	126	1594	125	**1593**	**126**	32	1475	136	1468	136	**1474**	**136**
473.astar	32	1191	189	**1192**	**188**	1192	188	32	**1164**	**193**	1164	193	1164	193
483.xalancbmk	32	**869**	**254**	869	254	871	253	32	765	288	**765**	**289**	764	289

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

Peak Tuning Notes

```
fdpr binary optimization tool used for 401.bzip2
 with options -O4 -sdp 9 -rtb -vrox -nodp -m power7
fdpr binary optimization tool used for:
   403.gcc 429.mcf 445.gobmk 458.sjeng
 with options -O3 -m power7
fdpr binary optimization tool used for 456.hmmer
 with options -O3 -lu -1 -nodp -sdp 9 -m power7
fdpr binary optimization tool used for 462.libquantum
 with options -O4 -nodp -m power7
fdpr binary optimization tool used for 471.omnetpp
 with options -O4 -nodp -m power7 -vrox
fdpr binary optimization tool used for 473.astar
 with options -O4 -sdp 9 -vrox -dp -m power7
```

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

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

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Operating System Notes (Continued)

```
All ulimits set to unlimited.
6400 16M large pages defined with vmo command

See the flags file for details on settings.
```

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 -O5 -qlargepage -qsimd -qvecnvol
-D_ILS_MACROS -qalias=noansi -qalloca -blpdata
```

C++ benchmarks:
```
-qipa=threads -bmaxdata:0x20000000 -O5 -qlargepage -D_ILS_MACROS
-qrtti=all -D__IBM_FAST_SET_MAP_ITERATOR -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
```

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Peak Compiler Invocation (Continued)

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: -qipa=threads -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) -O5 -qsimd -qvecnvol -qlargepage
-D_ILS_MACROS -blpdata -btextpsize:64K

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

429.mcf: Same as 401.bzip2

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

456.hmmer: -qipa=threads -O5 -qsimd -qvecnvol -qassert=refalign
-D_ILS_MACROS -blpdata -btextpsize:64K

458.sjeng: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O5
-D_ILS_MACROS -blpdata -btextpsize:64K

462.libquantum: -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:

Continued on next page

Peak Optimization Flags (Continued)

471.omnetpp: -qipa=threads -bmaxdata:0x20000000 -qpdf1(pass 1) -qpdf2(pass 2) -O4 -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) -O4 -qlargepage -D_ILS_MACROS -qinlglue -qalign=natural -blpdata -btextpsize:64K

483.xalancbmk: -qipa=threads -bmaxdata:0x20000000 -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qsimd -qvecnvol -qarch=pwr5 -qtune=pwr5 -qlargepage -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

403.gcc: -qsuppress=1500-036

462.libquantum: -qsuppress=1500-036

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

471.omnetpp: -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.20100901.html
http://www.spec.org/cpu2006/flags/IBM-AIX.20100303.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-XL.20100901.xml
http://www.spec.org/cpu2006/flags/IBM-AIX.20100303.xml

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