SPEC® CINT2006 Result

IBM Corporation

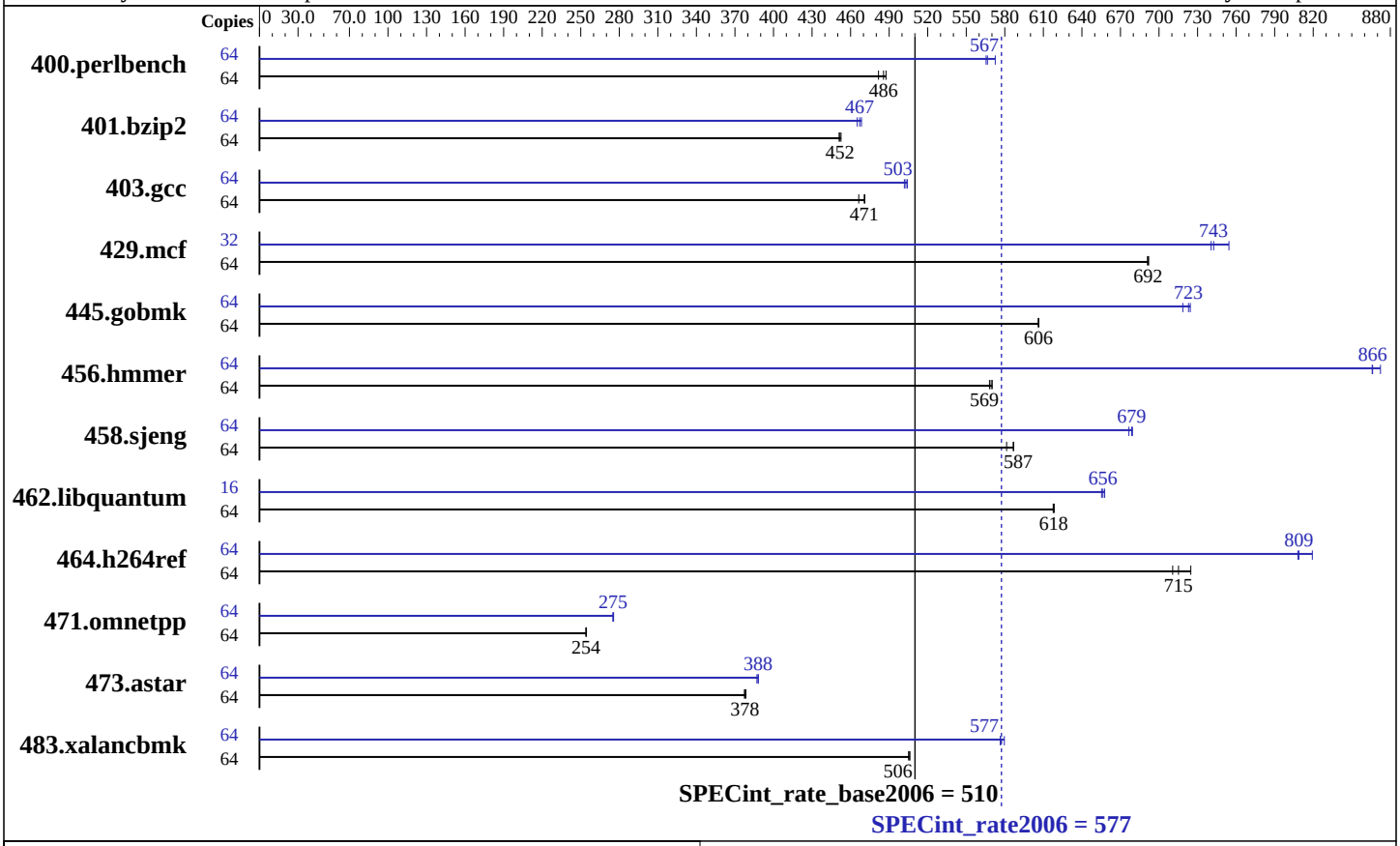
IBM Power 740 Express (3.55 GHz, 16 core)

SPECint®_rate2006 = 577

SPECint_rate_base2006 = 510

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:	16 cores, 2 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	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:	4 MB I+D on chip per core
Other Cache:	None
Memory:	256 GB (32x8 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	64	1282	488	**1288**	**486**	1298	482	64	1092	573	1106	565	**1104**	**567**
401.bzip2	64	**1367**	**452**	1365	453	1369	451	64	**1322**	**467**	1328	465	1318	468
403.gcc	64	1105	466	**1095**	**471**	1094	471	64	1022	504	1027	502	**1024**	**503**
429.mcf	64	**844**	**692**	845	691	844	692	32	387	754	394	741	**393**	**743**
445.gobmk	64	**1107**	**606**	1108	606	1107	606	64	927	724	934	719	**929**	**723**
456.hmmer	64	1051	568	**1049**	**569**	1047	570	64	685	872	**689**	**866**	690	866
458.sjeng	64	**1320**	**587**	1332	581	1319	587	64	**1141**	**679**	1145	677	1140	679
462.libquantum	64	2144	618	2147	618	**2146**	**618**	16	504	658	506	655	**505**	**656**
464.h264ref	64	1954	725	**1980**	**715**	1993	711	64	**1751**	**809**	1753	808	1729	819
471.omnetpp	64	1575	254	1572	254	**1574**	**254**	64	1452	276	1454	275	**1454**	**275**
473.astar	64	1187	379	1190	377	**1190**	**378**	64	1157	388	**1158**	**388**	1161	387
483.xalancbmk	64	**873**	**506**	874	505	873	506	64	**766**	**577**	766	577	762	580

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.
12800 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 -bdatapsize:64K -bstackpsize:64K -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

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Peak Optimization Flags (Continued)

C++ benchmarks:

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

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

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