SPEC® CINT2006 Result

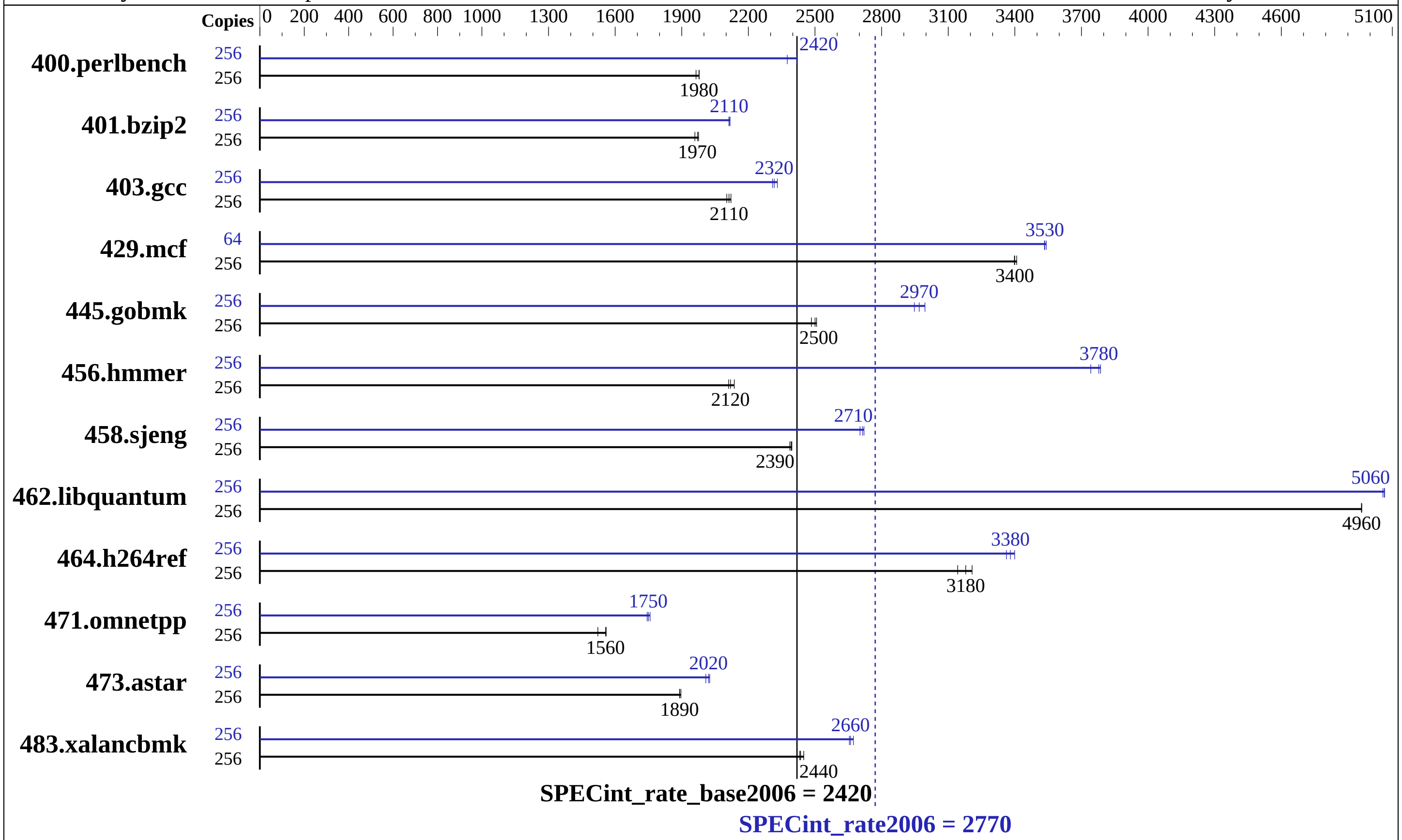
IBM Corporation

IBM Power 780 (3.92 GHz, 64 core)

SPECint®_rate2006 = 2770

SPECint_rate_base2006 = 2420

CPU2006 license: 11 | **Test date:** Sep-2011
Test sponsor: IBM Corporation | **Hardware Availability:** Oct-2011
Tested by: IBM Corporation | **Software Availability:** Oct-2011



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.948 GHz
CPU MHz:	3920
FPU:	Integrated
CPU(s) enabled:	64 cores, 8 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	16,32,48,64 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:	512 GB (64 x 8 GB) DDR3 1066 MHz
Disk Subsystem:	12 x 146.8 GB Raid0 SAS SFF 15K RPM
Other Hardware:	None

Software

Operating System:	IBM AIX V7.1
Compiler:	C/C++: Version 11.1 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

Results Table

	Base							Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	256	1273	1960	**1265**	**1980**	1264	1980	256	1053	2380	1033	2420	**1034**	**2420**
401.bzip2	256	**1254**	**1970**	1261	1960	1250	1980	256	1169	2110	1167	2120	**1169**	**2110**
403.gcc	256	**975**	**2110**	971	2120	980	2100	256	893	2310	884	2330	**890**	**2320**
429.mcf	256	685	3410	**687**	**3400**	687	3400	64	165	3540	165	3530	**165**	**3530**
445.gobmk	256	**1074**	**2500**	1071	2510	1081	2480	256	897	3000	**904**	**2970**	911	2950
456.hmmer	256	**1127**	**2120**	1131	2110	1118	2140	256	631	3790	**632**	**3780**	638	3740
458.sjeng	256	**1295**	**2390**	1293	2400	1298	2390	256	1139	2720	1146	2700	**1141**	**2710**
462.libquantum	256	1069	4960	1069	4960	**1069**	**4960**	256	1049	5060	1047	5070	**1047**	**5060**
464.h264ref	256	1803	3140	1766	3210	**1782**	**3180**	256	1685	3360	1667	3400	**1676**	**3380**
471.omnetpp	256	1026	1560	**1028**	**1560**	1051	1520	256	917	1740	910	1760	**914**	**1750**
473.astar	256	951	1890	**951**	**1890**	948	1900	256	**889**	**2020**	895	2010	887	2030
483.xalancbmk	256	721	2450	**725**	**2440**	727	2430	256	**664**	**2660**	661	2670	665	2650

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

Compiler Invocation Notes

```
C/C++ compiler update to August 2011 PTF
      Version: 11.01.0000.0007
```

Peak Tuning Notes

```
fdpr binary optimization tool used for 400.perlbench
 with options -O4 -cbpth -1 -sdp -1 -m power7
fdpr binary optimization tool used for 401.bzip2
 with options -O4 -vrox -m power7
fdpr binary optimization tool used for 403.gcc
 with options -O4 -cbpth -1 -sdp -1 -m power7
fdpr binary optimization tool used for 429.mcf
 with options -O4 -nobp -m power7
fdpr binary optimization tool used for 445.gobmk
 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 458.sjeng
 with options -O3 -m power7
fdpr binary optimization tool used for 462.libquantum
 with options -O4 -cbpth -1 -sdp -1 -m power7
fdpr binary optimization tool used for 464.h264ref
 with options -O4 -rcctf 0 -vrox -RD -m power7
fdpr binary optimization tool used for 471.omnetpp
 with options -O3 -cbpth -1 -m power7
fdpr binary optimization tool used for 473.astar
 with options -O3 -cbpth -1 -m power7
```

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Peak Tuning Notes (Continued)

```
fdpr binary optimization tool used for 483.xalancbmk
 with options -O4 -rcctf 0 -nobp -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

```
AIX updated to V7.1 TL 1 SP 1 (7.1.1.1)

All ulimits set to unlimited.

25600 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 -D_ILS_MACROS -qalias=noansi -qalloca -blpdata`

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Base Optimization Flags (Continued)

C++ benchmarks:
`-qipa=threads -bmaxdata:0x20000000 -qlargepage -O4 -qsimd -qvecnvol -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`

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) `-O5 -qlargepage -D_ILS_MACROS -blpdata -btextpsize:64K`

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Peak Optimization Flags (Continued)

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: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qsimd -qvecnvol -qlargepage -D_ILS_MACROS -blpdata -btextpsize:64K

445.gobmk: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O4 -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: -qipa=threads -O5 -q64 -qlargepage -D_ILS_MACROS -blpdata -btextpsize:64K

464.h264ref: Same as 458.sjeng

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 -qsimd -qvecnvol -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

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

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

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