SPEC® CINT2006 Result

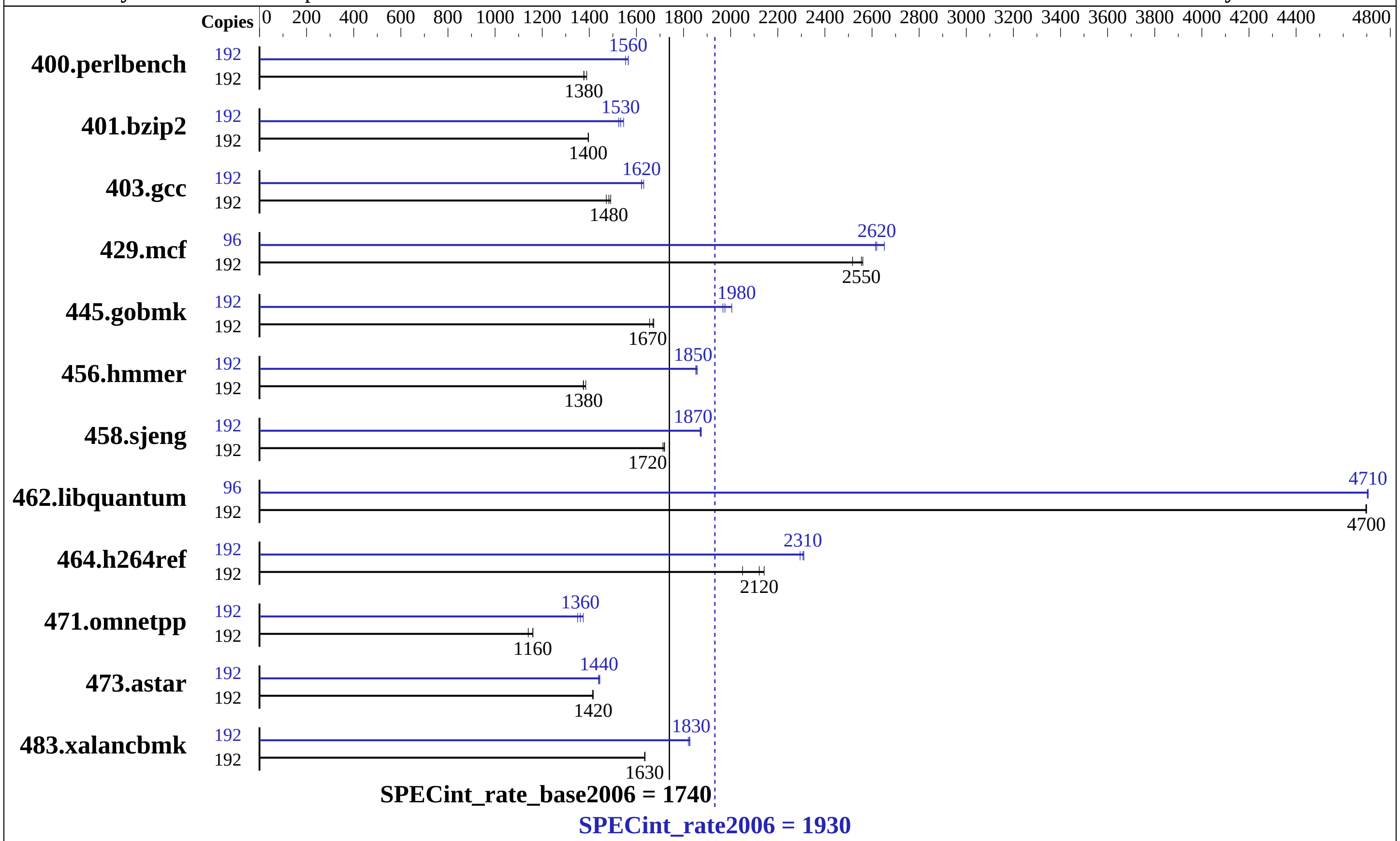
IBM Corporation

IBM Power 770 (3.5 GHz, 48 core)

SPECint®_rate2006 = 1930

SPECint_rate_base2006 = 1740

CPU2006 license:	11	**Test date:**	Jan-2010
Test sponsor:	IBM Corporation	**Hardware Availability:**	Mar-2010
Tested by:	IBM Corporation	**Software Availability:**	Mar-2010



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.75 GHz
CPU MHz:	3500
FPU:	Integrated
CPU(s) enabled:	48 cores, 8 chips, 6 cores/chip, 4 threads/core
CPU(s) orderable:	12,16,24,32,36,48,64 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 (64x8 GB) DDR3 1066 MHz
Disk Subsystem:	12x146.8 GB SAS SFF 15K RPM
Other Hardware:	None

Software

Operating System:	IBM AIX V6.1 with the 6100-04 Technology Level and Service Pack 3
Compiler:	XL C/C++ Enterprise Edition V10.1.0.5 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	**1362**	**1380**	1350	1390	1363	1380	192	1198	1570	1207	1550	**1199**	**1560**
401.bzip2	192	1326	1400	1328	1390	**1328**	**1400**	192	**1209**	**1530**	1199	1550	1215	1520
403.gcc	192	1050	1470	1037	1490	**1042**	**1480**	192	953	1620	948	1630	**953**	**1620**
429.mcf	192	696	2520	684	2560	**685**	**2550**	96	330	2650	335	2610	**334**	**2620**
445.gobmk	192	**1206**	**1670**	1203	1670	1216	1660	192	1005	2000	1024	1970	**1019**	**1980**
456.hmmer	192	1303	1370	1293	1380	**1302**	**1380**	192	**966**	**1850**	967	1850	964	1860
458.sjeng	192	1357	1710	1351	1720	**1352**	**1720**	192	1239	1880	1242	1870	**1241**	**1870**
462.libquantum	192	**847**	**4700**	847	4700	847	4700	96	**423**	**4710**	423	4700	423	4710
464.h264ref	192	**2003**	**2120**	1983	2140	2072	2050	192	1852	2290	**1842**	**2310**	1839	2310
471.omnetpp	192	1034	1160	1052	1140	**1035**	**1160**	192	873	1370	889	1350	**881**	**1360**
473.astar	192	951	1420	954	1410	**951**	**1420**	192	937	1440	933	1440	**935**	**1440**
483.xalancbmk	192	810	1630	809	1640	**810**	**1630**	192	728	1820	725	1830	**726**	**1830**

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 400.perlbench
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 401.bzip2
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 403.gcc
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 429.mcf
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 445.gobmk
 with options -O3 -vrox -sdp 9
fdpr binary optimization tool used for 456.hmmer
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 458.sjeng
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 462.libquantum
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 464.h264ref
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 471.omnetpp
 with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 473.astar
 with options -O4 -vrox -pbsi
```

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

```
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"

 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:
`-bmaxdata:0x50000000 -O5 -qlargepage -D_ILS_MACROS -qalias=noansi -qalloca -blpdata`

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

Base Other Flags

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

C++ benchmarks:
`-qipa=threads -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) `-O5 -D_ILS_MACROS -qalias=noansi -qfdpr -blpdata -btextpsize:64K`

401.bzip2: `-bmaxdata:0x4ffffffc -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -D_ILS_MACROS -qfdpr -blpdata`

403.gcc: `-bmaxdata:0x50000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qlargepage -D_ILS_MACROS -qalloca -qfdpr -blpdata`

429.mcf: `-bmaxdata:0x50000000 -O5 -qlargepage -D_ILS_MACROS -qfdpr -blpdata`

445.gobmk: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O3 -qarch=auto -qtune=auto -qlargepage -D_ILS_MACROS -qfdpr -blpdata`

456.hmmer: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qenablevmx -qvecnvol -D_ILS_MACROS -qfdpr -blpdata -btextpsize:64K`

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Peak Optimization Flags (Continued)

458.sjeng: -O5 -qlargepage -qenablevmx -qvecnvol -D_ILS_MACROS -qfdpr -blpdata

462.libquantum: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -q64 -D_ILS_MACROS -qfdpr -blpdata

464.h264ref: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -D_ILS_MACROS -qfdpr -blpdata -btextpsize:64K

C++ benchmarks:

471.omnetpp: -bmaxdata:0x20000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -D_ILS_MACROS -qfdpr -qalign=natural -qrtti=all -qinlglue -D__IBM_FAST_SET_MAP_ITERATOR -blpdata -btextpsize:64K

473.astar: -bmaxdata:0x20000000 -O5 -qlargepage -D_ILS_MACROS -qfdpr -qenablevmx -qvecnvol -qinlglue -qalign=natural -blpdata

483.xalancbmk: -bmaxdata:0x20000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -D_ILS_MACROS -qfdpr -qinlglue -D__IBM_FAST_VECTOR -blpdata -btextpsize:64K

Peak Other Flags

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

C++ benchmarks:
-qipa=threads -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.20100303.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.20100303.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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