SPEC® CINT2006 Result

IBM Corporation

SPECint®_rate2006 = 1740

IBM Power 750 Express (4.0 GHz, 32 core)

SPECint_rate_base2006 = 1230

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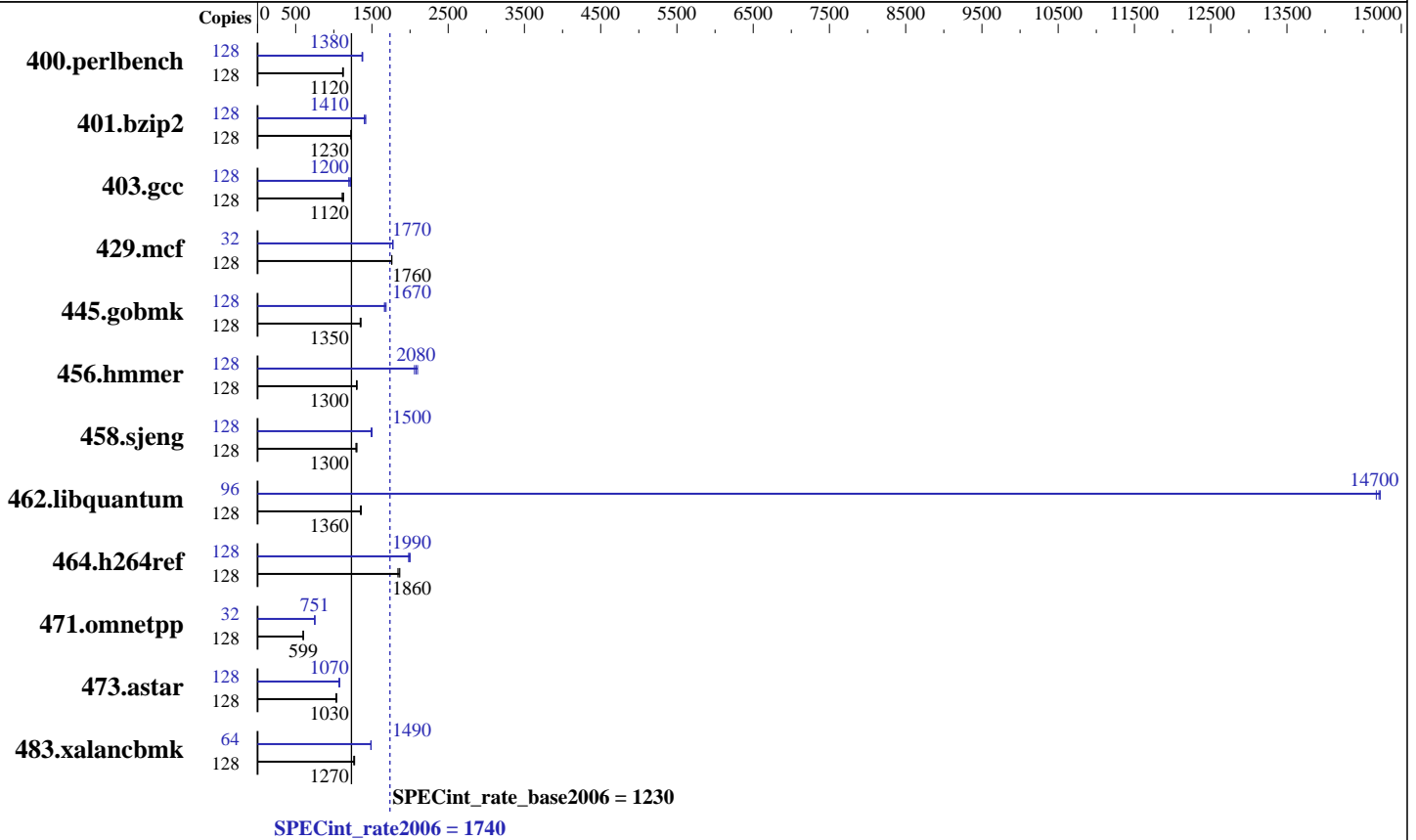**Test sponsor:** IBM Corporation
Tested by: IBM Corporation

Test date: Jan-2013
Hardware Availability: Mar-2013
Software Availability: Feb-2013

Benchmark	Copies (peak)	Peak	Copies (base)	Base
400.perlbench	128	1380	128	1120
401.bzip2	128	1410	128	1230
403.gcc	128	1200	128	1120
429.mcf	32	1770	128	1760
445.gobmk	128	1670	128	1350
456.hmmer	128	2080	128	1300
458.sjeng	128	1500	128	1300
462.libquantum	96	14700	128	1360
464.h264ref	128	1990	128	1860
471.omnetpp	32	751	128	599
473.astar	128	1070	128	1030
483.xalancbmk	64	1490	128	1270

SPECint_rate_base2006 = 1230
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Hardware

CPU Name:	POWER7+
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 4.431 GHz
CPU MHz:	4060
FPU:	Integrated
CPU(s) enabled:	32 cores, 8 chips, 4 cores/chip, 4 threads/core
CPU(s) orderable:	8, 16, 24, 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 (64 x 4 GB) DDR3 1066 MHz
Disk Subsystem:	5 x 300 GB 15K RPM Raid0 SFF SAS
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	1121	1120	1111	1130	**1117**	**1120**	128	**909**	**1380**	913	1370	908	1380
401.bzip2	128	1009	1220	**1006**	**1230**	1003	1230	128	**878**	**1410**	870	1420	882	1400
403.gcc	128	929	1110	**921**	**1120**	913	1130	128	**858**	**1200**	844	1220	860	1200
429.mcf	128	663	1760	663	1760	**663**	**1760**	32	164	1770	165	1770	**164**	**1770**
445.gobmk	128	990	1360	**993**	**1350**	998	1350	128	**802**	**1670**	807	1660	796	1690
456.hmmer	128	914	1310	921	1300	**920**	**1300**	128	580	2060	**575**	**2080**	569	2100
458.sjeng	128	1189	1300	1201	1290	**1192**	**1300**	128	1039	1490	1032	1500	**1036**	**1500**
462.libquantum	128	1950	1360	1966	1350	**1957**	**1360**	96	**135**	**14700**	135	14700	136	14700
464.h264ref	128	1539	1840	**1526**	**1860**	1518	1870	128	**1426**	**1990**	1429	1980	1416	2000
471.omnetpp	128	1335	599	1337	598	**1336**	**599**	32	**266**	**751**	266	751	267	749
473.astar	128	873	1030	**871**	**1030**	866	1040	128	**839**	**1070**	834	1080	841	1070
483.xalancbmk	128	694	1270	**698**	**1270**	699	1260	64	296	1490	297	1490	**297**	**1490**

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 November 2012 PTF
     Version: 12.01.0000.0002
```

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).
```

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Operating System Notes

```
  AIX updated to V7.1 TL 2 SP2

  All ulimits set to unlimited.

  12800 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 -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 -blpdata
```

Base Other Flags

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

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Base Other Flags (Continued)

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

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

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Peak Optimization Flags (Continued)

```
      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 -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 -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.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

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

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