SPEC® CINT2006 Result
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IBM Corporation

$SPECint^{®}\_rate2006 =$ 1600

IBM Power 750 Express (3.5 GHz, 32 core)
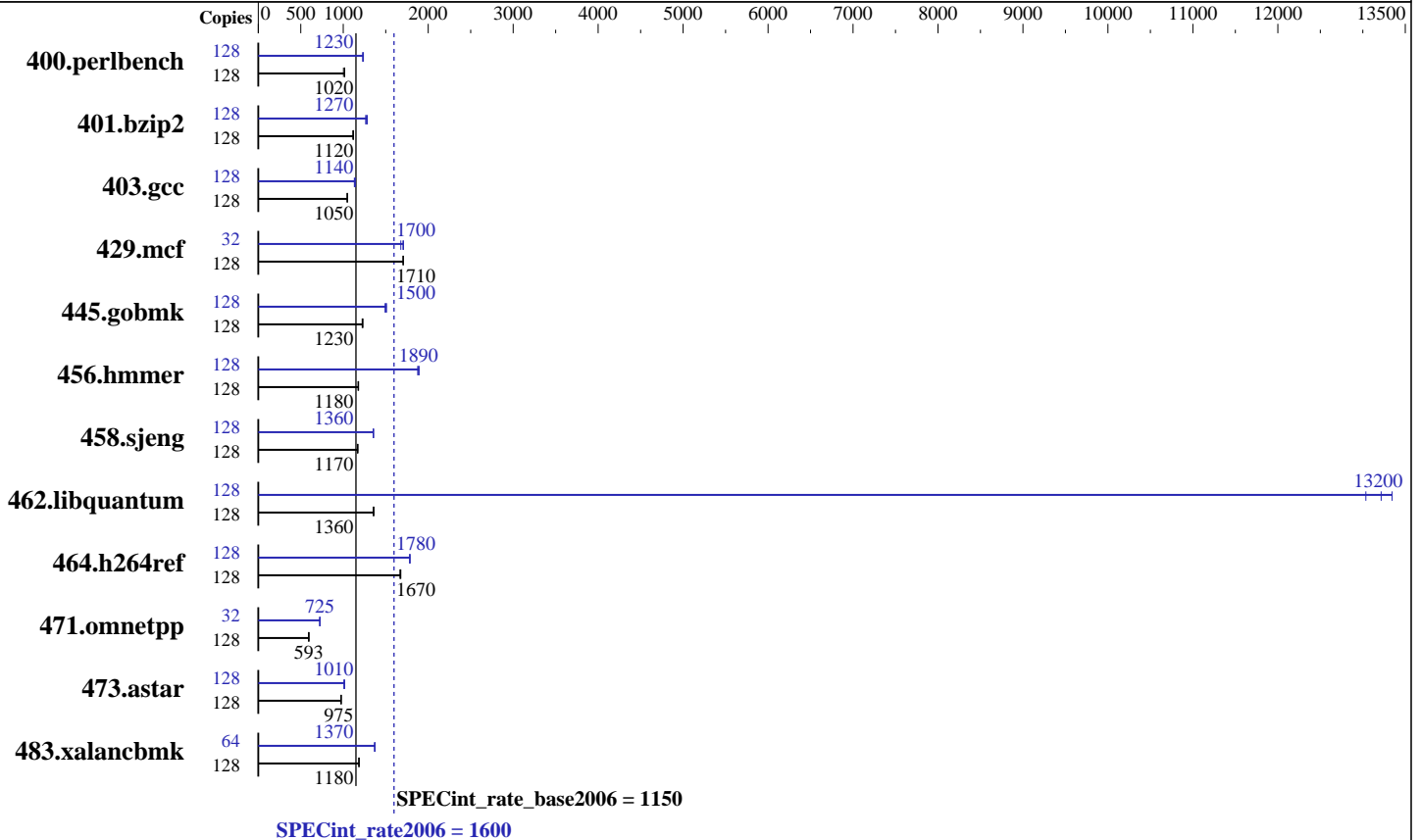
$SPECint\_rate\_base2006 =$ 1150

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	Base
400.perlbench	128 / 128	1230	1020
401.bzip2	128 / 128	1270	1120
403.gcc	128 / 128	1140	1050
429.mcf	32 / 128	1700	1710
445.gobmk	128 / 128	1500	1230
456.hmmer	128 / 128	1890	1180
458.sjeng	128 / 128	1360	1170
462.libquantum	128 / 128	13200	1360
464.h264ref	128 / 128	1780	1670
471.omnetpp	32 / 128	725	593
473.astar	128 / 128	1010	975
483.xalancbmk	64 / 128	1370	1180

SPECint_rate_base2006 = 1150

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Hardware

CPU Name:	POWER7+
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.955 GHz
CPU MHz:	3500
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	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	128	1247	1000	**1231**	**1020**	1230	1020	128	**1016**	**1230**	1011	1240	1017	1230
401.bzip2	128	1110	1110	**1104**	**1120**	1102	1120	128	963	1280	977	1260	**970**	**1270**
403.gcc	128	**984**	**1050**	986	1050	982	1050	128	**907**	**1140**	902	1140	911	1130
429.mcf	128	**685**	**1710**	685	1700	684	1710	32	171	1710	**171**	**1700**	174	1680
445.gobmk	128	**1093**	**1230**	1091	1230	1098	1220	128	**894**	**1500**	900	1490	890	1510
456.hmmer	128	1011	1180	1017	1170	**1015**	**1180**	128	631	1890	637	1880	**634**	**1890**
458.sjeng	128	1319	1170	**1326**	**1170**	1327	1170	128	1142	1360	1146	1350	**1142**	**1360**
462.libquantum	128	1959	1350	**1956**	**1360**	1948	1360	128	**201**	**13200**	203	13000	199	13300
464.h264ref	128	1699	1670	1688	1680	**1693**	**1670**	128	1590	1780	**1588**	**1780**	1586	1790
471.omnetpp	128	1339	598	1350	593	**1349**	**593**	32	277	723	**276**	**725**	275	726
473.astar	128	923	974	**921**	**975**	921	976	128	890	1010	**889**	**1010**	884	1020
483.xalancbmk	128	744	1190	**746**	**1180**	747	1180	64	321	1370	**322**	**1370**	323	1370

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
```

Continued on next page

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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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