SPEC® CINT2006 Result

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IBM Corporation

IBM Power 730 Express (3.7 GHz, 12 core)

SPECint®_rate2006 =   476
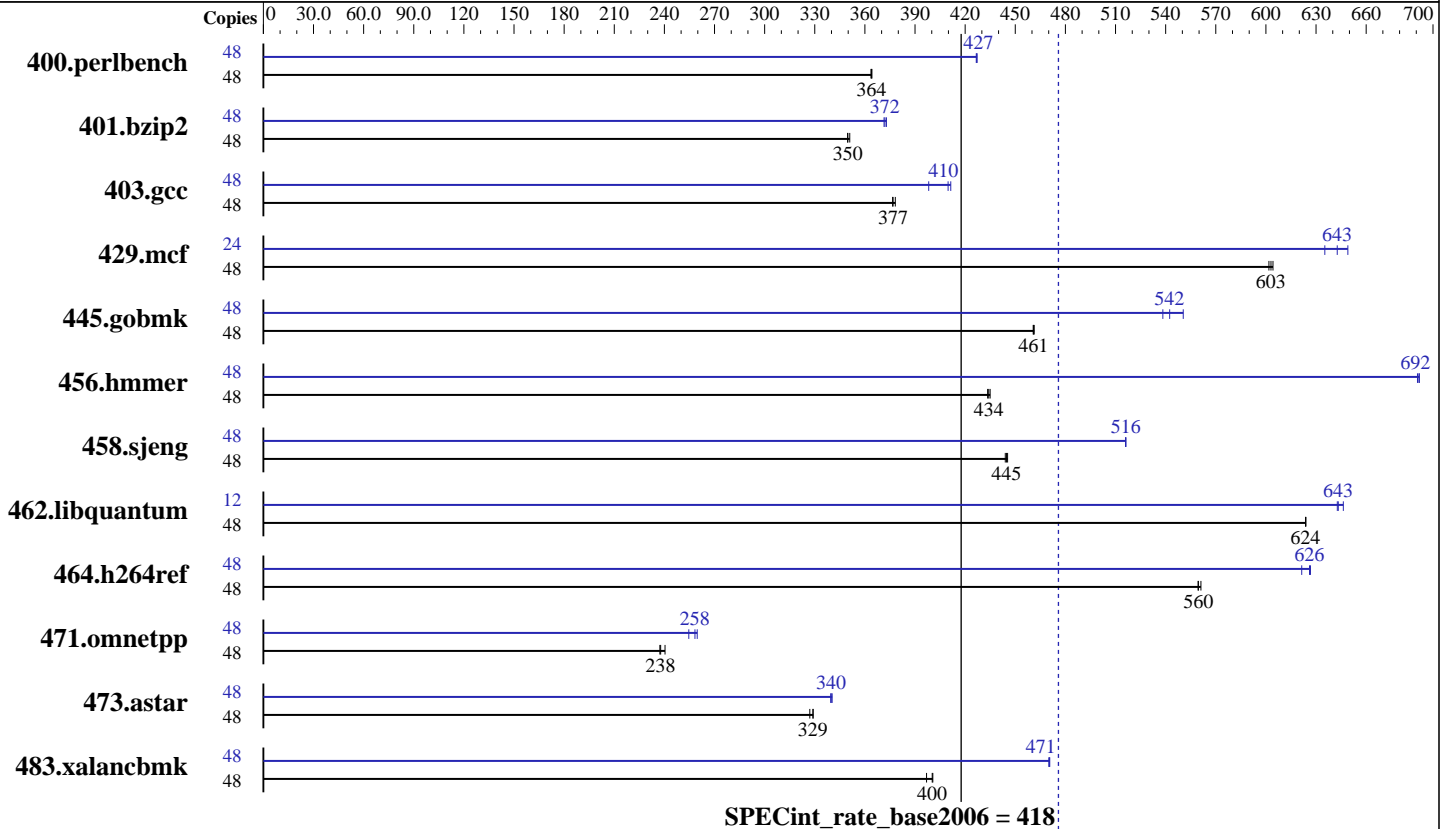
SPECint_rate_base2006 = 418

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

Test date: Aug-2010
Hardware Availability: Sep-2010
Software Availability: Sep-2010

SPECint_rate_base2006 = 418

SPECint_rate2006 = 476

	Copies	
400.perlbench	48	427
	48	364
401.bzip2	48	372
	48	350
403.gcc	48	410
	48	377
429.mcf	24	643
	48	603
445.gobmk	48	542
	48	461
456.hmmer	48	692
	48	434
458.sjeng	48	516
	48	445
462.libquantum	12	643
	48	624
464.h264ref	48	626
	48	560
471.omnetpp	48	258
	48	238
473.astar	48	340
	48	329
483.xalancbmk	48	471
	48	400

Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.92 GHz
CPU MHz:	3724
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 4 threads/core
CPU(s) orderable:	12 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:	128 GB (16x8 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	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	48	1288	364	**1288**	**364**	1290	364	48	1098	427	1099	427	**1099**	**427**
401.bzip2	48	1320	351	1325	350	**1324**	**350**	48	**1245**	**372**	1247	371	1242	373
403.gcc	48	1026	377	**1025**	**377**	1022	378	48	**943**	**410**	939	411	970	398
429.mcf	48	727	602	**726**	**603**	724	604	24	345	635	337	649	**341**	**643**
445.gobmk	48	**1092**	**461**	1091	461	1093	461	48	935	538	**928**	**542**	915	551
456.hmmer	48	**1032**	**434**	1030	435	1033	433	48	648	691	**648**	**692**	647	692
458.sjeng	48	1304	445	**1306**	**445**	1308	444	48	**1125**	**516**	1125	516	1126	516
462.libquantum	48	1594	624	1594	624	**1594**	**624**	12	**387**	**643**	385	646	387	643
464.h264ref	48	1893	561	**1898**	**560**	1899	559	48	1695	627	1709	621	**1697**	**626**
471.omnetpp	48	**1262**	**238**	1248	240	1264	237	48	1178	255	**1161**	**258**	1155	260
473.astar	48	1024	329	**1025**	**329**	1030	327	48	992	340	990	340	**991**	**340**
483.xalancbmk	48	**827**	**400**	834	397	827	401	48	**704**	**471**	705	470	704	471

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 -blpdata -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

C++ benchmarks:

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Peak Optimization Flags (Continued)

```
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

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