SPEC® CINT2006 Result

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IBM Corporation

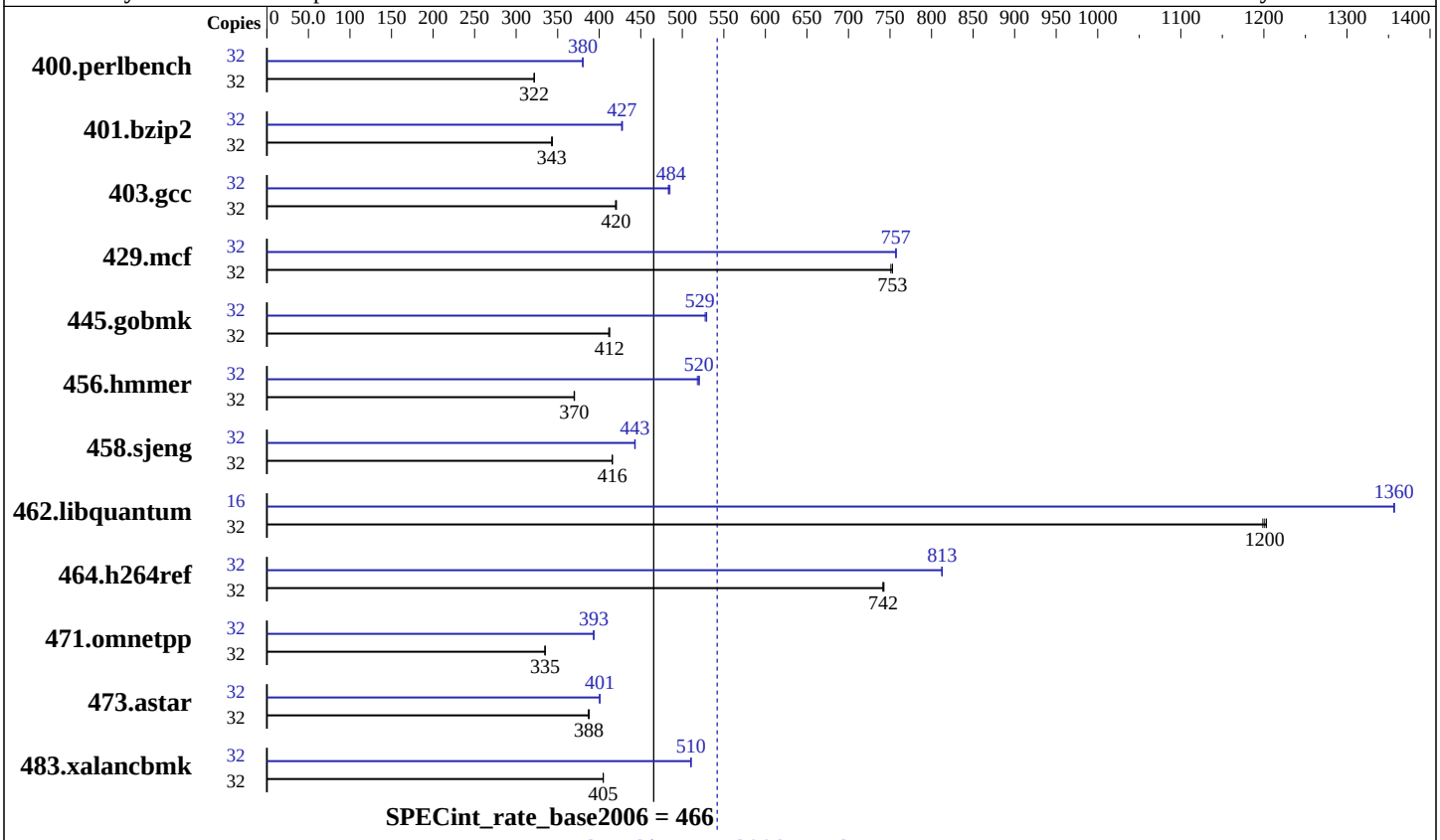
IBM Power 570 (5.0 GHz, 16 core)

SPECint®_rate2006 = 542

SPECint_rate_base2006 = 466

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

Test date: Sep-2008
Hardware Availability: Nov-2008
Software Availability: Nov-2008



Hardware

CPU Name:	POWER6+
CPU Characteristics:	
CPU MHz:	5000
FPU:	Integrated
CPU(s) enabled:	16 cores, 8 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable:	2,4,8,12,16 cores
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per core
L3 Cache:	32 MB I+D off chip per chip
Other Cache:	None
Memory:	128 GB (64x2 GB) DDR2 667 MHz
Disk Subsystem:	4x73 GB 4x146 GB SAS 15K RPM
Other Hardware:	None

Software

Operating System:	IBM AIX V6.1 with the 6100-02 Technology Level
Compiler:	IBM XL C/C++ V10.1 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	32	972	322	971	322	**971**	**322**	32	822	380	822	380	**822**	**380**
401.bzip2	32	**900**	**343**	901	343	899	344	32	723	427	722	428	**722**	**427**
403.gcc	32	612	421	614	420	**613**	**420**	32	**533**	**484**	533	483	531	485
429.mcf	32	389	751	**388**	**753**	388	753	32	386	757	**385**	**757**	385	757
445.gobmk	32	814	412	**814**	**412**	816	411	32	636	527	634	529	**635**	**529**
456.hmmer	32	807	370	806	370	**807**	**370**	32	576	518	**574**	**520**	574	520
458.sjeng	32	931	416	**931**	**416**	932	416	32	875	443	**874**	**443**	874	443
462.libquantum	32	553	1200	551	1200	**552**	**1200**	16	244	1360	244	1360	**244**	**1360**
464.h264ref	32	**954**	**742**	953	743	955	741	32	871	813	872	812	**871**	**813**
471.omnetpp	32	597	335	**597**	**335**	598	335	32	**508**	**393**	509	393	508	393
473.astar	32	**579**	**388**	581	387	579	388	32	561	401	**561**	**401**	561	401
483.xalancbmk	32	545	405	**545**	**405**	545	405	32	**433**	**510**	433	511	433	510

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 401.bzip2 403.gcc 456.hmmer 458.sjeng
                                       464.h264ref 471.omnetpp 473.astar 483.xalancbmk
  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 429.mcf
  with options -kr -lap -lro -nop -nopr -RC -tb -tlo -vro -lu 9 -rt 0.95 -sdpla 8
               -sdpms 512 -shci 15 -si -sidf 45 -siht 10 -lun 13 -m ppc405 -vrox -gcpyp
fdpr binary optimization tool used for 462.libquantum
  with options -bf -bp -dp -hr -kr -las -lro -nop -RC -RD -tlo -vro -A 32 -isf 12
               -lu 9 -rt 0.00 -ihf 20 -sdp 9 -shci 90 -si -sidf 50 -vrox -dce
```

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.
3200 16M large pages defined with vmo command
```

Platform Notes

```
System set to "Enhanced" mode when defining partition on HMC.
```

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 -bdatapsize:64K
-bstackpsize:64K -btextpsize:64K

401.bzip2: -bmaxdata:0x4fffffc -qpdf1(pass 1) -qpdf2(pass 2) -O4
-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 -bdatapsize:64K -bstackpsize:64K
-btextpsize:64K

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
-bdatapsize:64K -bstackpsize:64K -btextpsize:64K

Continued on next page

Peak Optimization Flags (Continued)

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

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

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-AIX.html
http://www.spec.org/cpu2006/flags/IBM-XL.20090713.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-AIX.xml
http://www.spec.org/cpu2006/flags/IBM-XL.20090713.xml

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