SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

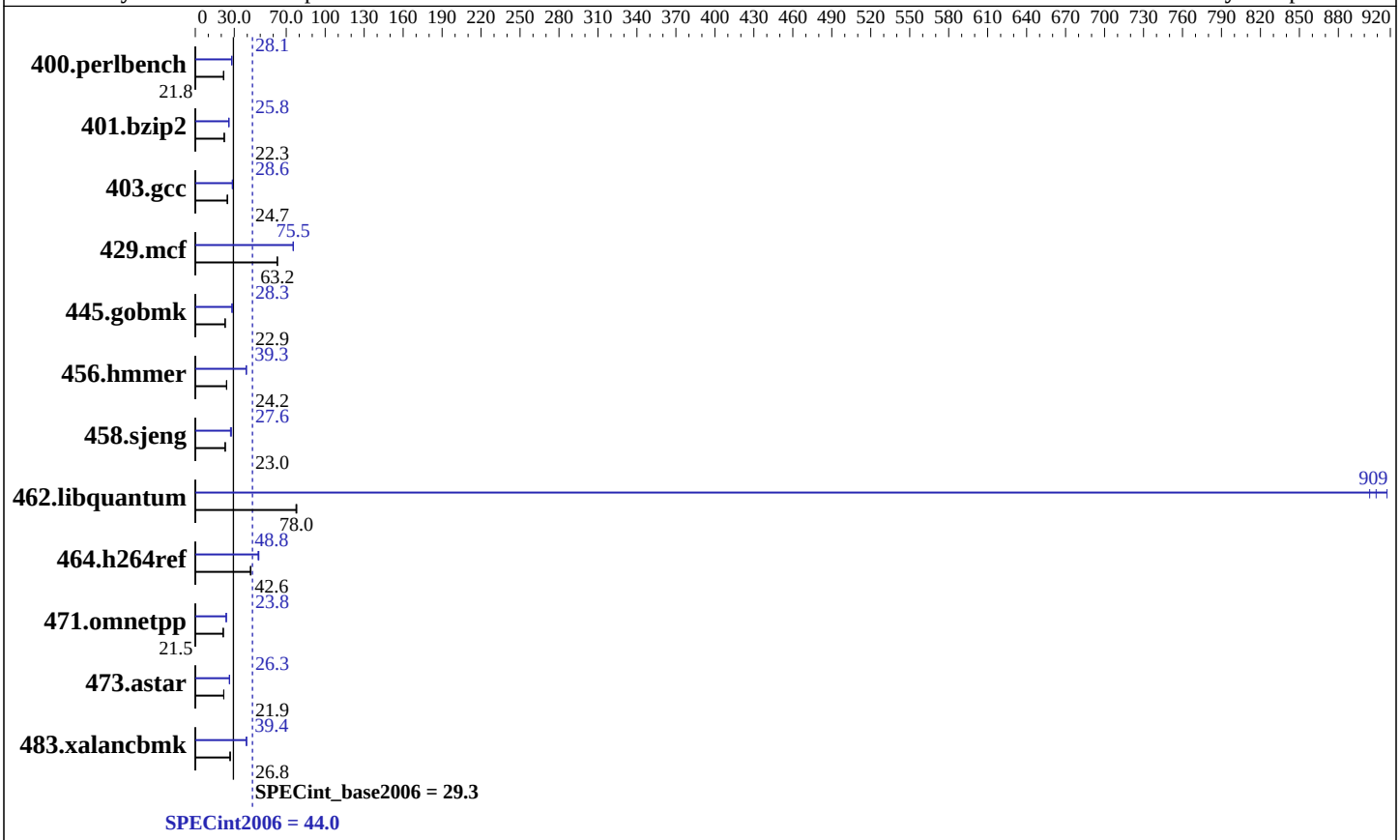
IBM Power 780 Server (4.14 GHz, 16 core)

SPECint®2006 = 44.0

SPECint_base2006 = 29.3

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

Test date: Apr-2010
Hardware Availability: Mar-2010
Software Availability: Apr-2010



Hardware

CPU Name:	POWER7
CPU Characteristics:	TurboCore mode
CPU MHz:	4140
FPU:	Integrated
CPU(s) enabled:	16 cores, 4 chips, 4 cores/chip
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:	4 MB I+D on chip per core
Other Cache:	16 MB I+D on chip per chip
Memory:	256 GB (32x8 GB) DDR3 1066 MHz
Disk Subsystem:	2x146.8 GB SAS SFF 15K RPM
Other Hardware:	--

Software

Operating System:	IBM AIX V6.1 with the 6100-05 Technology Level SP1
Compiler:	XL C/C++ Enterprise Edition V11.1.0.1 for AIX
Auto Parallel:	Yes
File System:	AIX/JFS2
System State:	Multi-user
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	None

SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Power 780 Server (4.14 GHz, 16 core)

SPECint2006 = 44.0

SPECint_base2006 = 29.3

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

Test date: Apr-2010
Hardware Availability: Mar-2010
Software Availability: Apr-2010

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	449	21.8	447	21.9	**448**	**21.8**	348	28.1	348	28.1	**348**	**28.1**
401.bzip2	433	22.3	433	22.3	**433**	**22.3**	**373**	**25.8**	374	25.8	373	25.9
403.gcc	**326**	**24.7**	326	24.7	326	24.7	**282**	**28.6**	282	28.6	281	28.6
429.mcf	144	63.2	144	63.1	**144**	**63.2**	121	75.3	121	75.5	**121**	**75.5**
445.gobmk	456	23.0	**457**	**22.9**	457	22.9	371	28.3	**370**	**28.3**	370	28.4
456.hmmer	386	24.2	389	24.0	**386**	**24.2**	238	39.3	238	39.3	**238**	**39.3**
458.sjeng	526	23.0	**526**	**23.0**	526	23.0	447	27.1	437	27.7	**438**	**27.6**
462.libquantum	265	78.0	**266**	**78.0**	267	77.5	22.6	917	22.9	904	**22.8**	**909**
464.h264ref	519	42.6	**519**	**42.6**	520	42.6	**454**	**48.8**	458	48.3	452	48.9
471.omnetpp	290	21.5	**290**	**21.5**	292	21.4	**262**	**23.8**	263	23.8	262	23.8
473.astar	321	21.9	**320**	**21.9**	320	21.9	267	26.3	**267**	**26.3**	267	26.3
483.xalancbmk	258	26.8	**258**	**26.8**	256	26.9	175	39.4	**175**	**39.4**	176	39.3

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
     with options -O4 -vrox
  403.gcc
     with options -O4 -nodp -rtb
  429.mcf 445.gobmk 458.sjeng 473.astar
     with options -O3
  456.hmmer
     with options -O4 -nodp -m power7
  462.libquantum
     with options -O4 -vrox -nodp
  464.h264ref
     with options -O4 -vrox -nodp -rtb
  471.omnetpp
     with options -O3 -lu -1 -nodp -sdp 9
  483.xalancbmk
     with options -O3 -m power7
```

Operating System Notes

```
 all ulimits set to unlimited.
 2000 16M large pages defined with vmo command
System set to single thread mode with the OS command:
 smtctl -m off -w boot
```

General Notes

```
Environment variables set by runspec before the start of the run:
MALLOCMULTIHEAP = "1"
MALLOCOPTIONS = "pool"
MEMORY_AFFINITY = "MCM"
XLFRTEOPTS = "intrinthds=1"
XLSMPOPTS = "spins=0:yields=0"

 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_r
```

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 -D_ILS_MACROS
-qalias=noansi -qalloca -blpdata
```

C++ benchmarks:
```
-qipa=threads -bmaxdata:0x20000000 -O5 -qlargepage -D_ILS_MACROS
-qsmp=auto -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 (except as noted below):
/usr/vac/bin/xlc -qlanglvl=extc99

458.sjeng: /usr/vac/bin/xlc_r -qlanglvl=extc99

462.libquantum: /usr/vac/bin/xlc_r -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: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O2 -qarch=auto -qtune=auto -qipa=level=2
-qipa=inline=threshold=2048 -qipa=inline=limit=10240
-D_ILS_MACROS -qalias=noansi -blpdata -btextpsize:64K

401.bzip2: -qipa=threads -bmaxdata:0x4ffffffc -qpdf1(pass 1)
-qpdf2(pass 2) -O5 -qlargepage -qipa=inline=threshold=2888
-qipa=inline=limit=11880 -qipa=partition=large
-D_ILS_MACROS -blpdata

403.gcc: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O5 -qsimd -qvecnvol -qlargepage
-qipa=inline=threshold=630 -qipa=inline=limit=4920
-qipa=partition=large -D_ILS_MACROS -qalloca -blpdata

429.mcf: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O5 -qsimd -qvecnvol -qlargepage
-D_ILS_MACROS -blpdata

445.gobmk: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qsimd
-qvecnvol -qlargepage -D_ILS_MACROS -blpdata

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

Continued on next page

Peak Optimization Flags (Continued)

458.sjeng: `-qipa=threads -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qsmp=auto -D_ILS_MACROS -blpdata`

462.libquantum: `-qipa=threads -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qsmp=auto -q64 -qlargepage -D_ILS_MACROS -blpdata`

464.h264ref: `-qipa=threads -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qsmp=auto -qsimd -qvecnvol -qipa=inline=threshold=1864 -qipa=inline=limit=9830 -D_ILS_MACROS -blpdata -btextpsize:64K`

C++ benchmarks:

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) `-O5 -qlargepage -qipa=inline=threshold=2468 -qipa=inline=limit=11060 -qipa=partition=large -D_ILS_MACROS -qinlglue -qalign=natural -blpdata`

483.xalancbmk: `-qipa=threads -bmaxdata:0x20000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qarch=pwr5 -qtune=pwr5 -qlargepage -qipa=inline=threshold=2468 -qipa=inline=limit=11060 -D_ILS_MACROS -qinlglue -D__IBM_FAST_VECTOR -blpdata -btextpsize:64K`

Peak Other Flags

C benchmarks:
`-qipa=noobject -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-AIX.20100511.html
http://www.spec.org/cpu2006/flags/IBM-XL.20100511.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-AIX.20100511.xml
http://www.spec.org/cpu2006/flags/IBM-XL.20100511.xml

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 07:05:34 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 May 2010.