



# SPEC® CINT2006 Result

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IBM Corporation

SPECint®\_rate2006 = 1150

IBM Power 755 (3.61 GHz, 32 core)

SPECint\_rate\_base2006 = 1010

CPU2006 license: 11

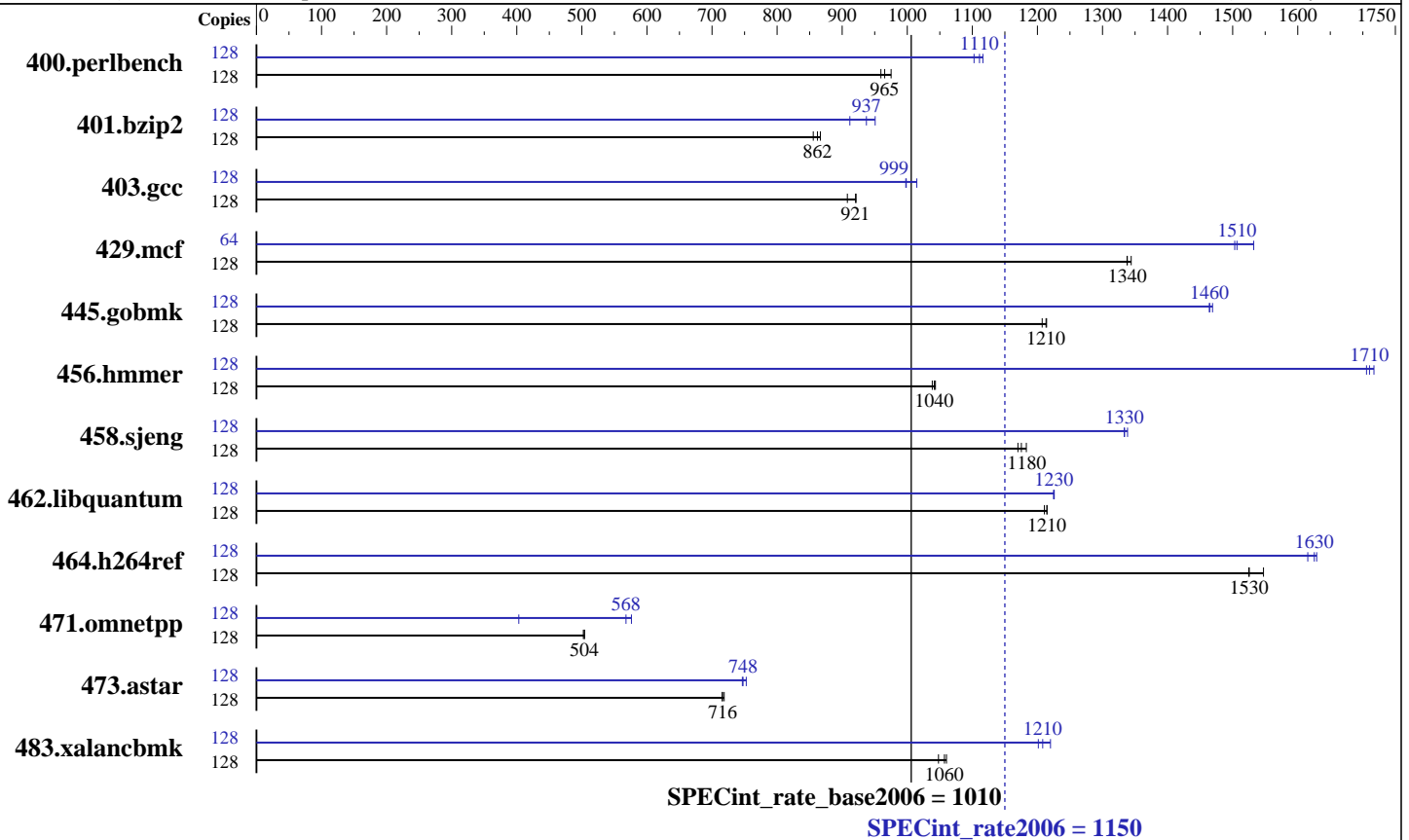
Test date: Mar-2011

Test sponsor: IBM Corporation

Hardware Availability: May-2011

Tested by: IBM Corporation

Software Availability: May-2011



### Hardware

CPU Name: POWER7  
 CPU Characteristics: Intelligent Energy Optimization enabled, up to 3.86 GHz  
 CPU MHz: 3612  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 4 threads/core  
 CPU(s) orderable: 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: None  
 Memory: 256 GB (32 x 8 GB) DDR3 1066 MHz  
 Disk Subsystem: 6 x 146.8 GB Raid0 SAS SFF 15K RPM  
 Other Hardware: None

### Software

Operating System: IBM AIX V7.1 with Service Pack 3  
 Compiler: IBM XL C/C++ for AIX, V11.1 Version: 11.01.0000.0005  
 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	1303	959	<u>1296</u>	<u>965</u>	1282	975	128	<u>1126</u>	<u>1110</u>	1120	1120	1134	1100
401.bzip2	128	1444	856	<u>1433</u>	<u>862</u>	1426	866	128	1299	951	<u>1318</u>	<u>937</u>	1355	912
403.gcc	128	1135	908	<u>1119</u>	<u>921</u>	1118	921	128	<u>1032</u>	<u>999</u>	1033	998	1016	1010
429.mcf	128	873	1340	869	1340	<u>872</u>	<u>1340</u>	64	388	1500	381	1530	<u>387</u>	<u>1510</u>
445.gobmk	128	<u>1107</u>	<u>1210</u>	1106	1210	1112	1210	128	<u>917</u>	<u>1460</u>	917	1460	914	1470
456.hmmer	128	<u>1147</u>	<u>1040</u>	1145	1040	1150	1040	128	<u>698</u>	<u>1710</u>	700	1710	696	1720
458.sjeng	128	<u>1318</u>	<u>1180</u>	1309	1180	1324	1170	128	<u>1161</u>	<u>1330</u>	1157	1340	1162	1330
462.libquantum	128	2191	1210	2183	1210	<u>2184</u>	<u>1210</u>	128	<u>2164</u>	<u>1230</u>	2166	1220	2164	1230
464.h264ref	128	1831	1550	<u>1857</u>	<u>1530</u>	1858	1520	128	1739	1630	<u>1743</u>	<u>1630</u>	1753	1620
471.omnetpp	128	1593	502	<u>1588</u>	<u>504</u>	1587	504	128	<u>1409</u>	<u>568</u>	1985	403	1388	576
473.astar	128	<u>1255</u>	<u>716</u>	1250	719	1256	716	128	<u>1202</u>	<u>748</u>	1204	747	1194	753
483.xalancbmk	128	833	1060	843	1050	<u>835</u>	<u>1060</u>	128	735	1200	<u>731</u>	<u>1210</u>	724	1220

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

All ulimits set to unlimited.  
 12800 16M large pages defined with vmo command



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## General Notes

Environment variables set by runspec before the start of the run:

```
MALLOCOPTIONS = "pool"  
MEMORY_AFFINITY = "MCM"  
XLFRTEOPTS = "intrinthds=1"
```

The "IBM Power 750 Express (3.61 GHz)" and the "IBM Power 755 (3.61 GHz)" are electronically equivalent. The results have been measured on the "IBM Power Express 750 (3.61 GHz)".

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

C++ benchmarks:

```
-qipa=threads -bmaxdata:0x20000000 -qlargepage -O4 -qsimd -qvecnvml  
-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
```



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## 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.xalanbmk: -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) -O5 -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: -qipa=threads -bmaxdata:0x50000000 -qpdf1(pass 1)  
-qpdf2(pass 2) -O5 -qsimd -qvecnv1 -qlargepage  
-D\_ILS\_MACROS -blpdata -btextpsize:64K  
445.gobmk: -qipa=threads -qpdf1(pass 1) -qpdf2(pass 2) -O4  
-qlargepage -D\_ILS\_MACROS -blpdata -btextpsize:64K  
456.hmmr: -qipa=threads -O5 -qsimd -qvecnv1 -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

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## Peak Optimization Flags (Continued)

464.h264ref: Same as 458.sjeng

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) -O4 -qsimd -qvecnvolve -qlargepage  
-D\_ILS\_MACROS -qinlglue -qalign=natural -blpdata  
-btextpsize:64K

483.xalancbmk: -qipa=threads -bmaxdata:0x20000000 -qpdf1(pass 1)  
-qpdf2(pass 2) -O4 -qsimd -qvecnvolve -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

462.libquantum: -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.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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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