SPEC® CINT2006 Result

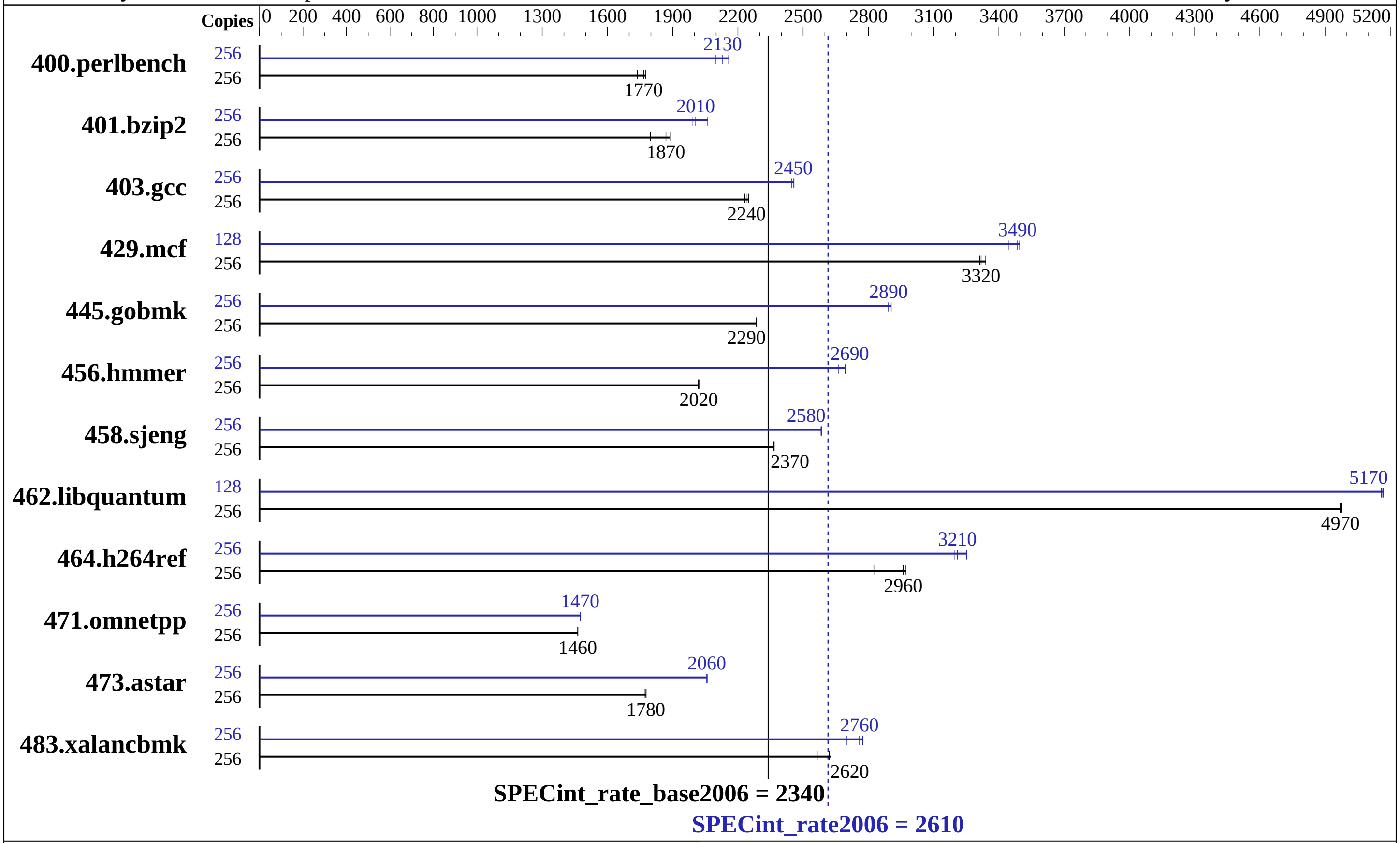
IBM Corporation

SPECint®_rate2006 = 2610

IBM Power 780 (3.86 GHz, 64 core, SLES)

SPECint_rate_base2006 = 2340

CPU2006 license:	11	**Test date:**	Mar-2010
Test sponsor:	IBM Corporation	**Hardware Availability:**	Mar-2010
Tested by:	IBM Corporation	**Software Availability:**	Dec-2009



Hardware	
CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.94 GHz
CPU MHz:	3860
FPU:	Integrated
CPU(s) enabled:	64 cores, 8 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	8,16,24,32,48,64 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:	512 GB (64x8 GB) DDR3 1066 MHz
Disk Subsystem:	6x146.8 GB SAS SFF 15K RPM
Other Hardware:	None

Software	
Operating System:	SUSE Linux Enterprise Server 11 (ppc64), Kernel 2.6.27.19-5-ppc64
Compiler:	IBM XL C/C++ for Linux, V10.1 Updated with the Oct2009 PTF
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	-Post-Link Optimization for Linux on POWER, Version 5.5.0-1 -MicroQuill SmartHeap 9

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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	256	1439	1740	**1416**	**1770**	1408	1780	256	1193	2100	**1174**	**2130**	1159	2160
401.bzip2	256	**1322**	**1870**	1374	1800	1309	1890	256	1242	1990	**1232**	**2010**	1198	2060
403.gcc	256	916	2250	**919**	**2240**	924	2230	256	**839**	**2450**	838	2460	842	2450
429.mcf	256	699	3340	**704**	**3320**	705	3310	128	334	3500	**335**	**3490**	339	3440
445.gobmk	256	1174	2290	1175	2290	**1175**	**2290**	256	924	2900	928	2890	**928**	**2890**
456.hmmer	256	1182	2020	1184	2020	**1182**	**2020**	256	**887**	**2690**	887	2690	897	2660
458.sjeng	256	1309	2370	1310	2360	**1310**	**2370**	256	**1199**	**2580**	1199	2580	1200	2580
462.libquantum	256	1067	4970	1066	4970	**1067**	**4970**	128	514	5160	513	5170	**513**	**5170**
464.h264ref	256	2005	2830	**1914**	**2960**	1906	2970	256	1742	3250	**1765**	**3210**	1772	3200
471.omnetpp	256	1093	1460	**1093**	**1460**	1092	1460	256	1085	1470	**1085**	**1470**	1085	1470
473.astar	256	1014	1770	1011	1780	**1011**	**1780**	256	874	2060	873	2060	**874**	**2060**
483.xalancbmk	256	689	2560	**674**	**2620**	672	2630	256	654	2700	**640**	**2760**	637	2770

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The config file option 'submit' was used.
Benchmarks bound to a processor using numactl on the submit command.
```

Operating System Notes

```
ulimit -s (stack) set to 1048576.
Large pages reserved as follows by root user:
    echo 14080 > /proc/sys/vm/nr_hugepages
System configured with libhugetlbfs library for application access to large pages
Environment variables set before executing benchmarks.
    export HUGETLB_VERBOSE=0
    export HUGETLB_MORECORE=yes
    export XLFRTEOPTS=intrinthds=1
```

General Notes

```
IBM Post-Link Optimization tool with
options "-O4 -omullX -see 0 -m power6" used for
    400.perlbench 401.bzip2 403.gcc 456.hmmer 458.sjeng
    483.xalancbmk
options "-bf -dp -hr -las -pca -RC -RD -rmte -si -tlo -A 64 -isf 104 -lu 8 -rt 0.16
        -hrf 0.18 -ihf 40 -sdp 6 -sdpms 128 -shci 65 -si -sidf 45 -omullX" used for
   429.mcf
options "-q -O3 -A 32 -omullX" used for
   445.gobmk
options "-bf -dp -lro -nop -RC -RD -tb -tlo -vro -A 4
```

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General Notes (Continued)

```
         -isf 88 -lu 8 -hrf 0.10 -sdp 4 -lun 27 -omullX" used for
   462.libquantum
options "-O4 -omullX -see 1" used for
   473.astar
options "-O4" used for
   464.h264ref
Whenever option "-omullX" was used during the optimization phase,
   option "-imullX" was also used during the instrumentation phase.
```

Base Compiler Invocation

C benchmarks:
`xlc -qlanglvl=extc99`

C++ benchmarks:
`xlC`

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_PPC`
462.libquantum: `-DSPEC_CPU_LINUX`
464.h264ref: `-qchars=signed`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
`-O5 -qalias=noansi -qalloca -lhugetlbfs`

C++ benchmarks:
`-O5 -qrtti -lsmartheap`

Base Other Flags

C benchmarks:
`-qipa=noobject -qipa=threads`

C++ benchmarks:
`-qipa=noobject -qipa=threads`

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Peak Compiler Invocation

C benchmarks:
`xlc -qlanglvl=extc99`

C++ benchmarks:
`xlC`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_PPC`
462.libquantum: `-DSPEC_CPU_LINUX`
464.h264ref: `-qchars=signed`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qalias=noansi` `-lsmartheap`

401.bzip2: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O3` `-qarch=auto` `-qtune=auto` `-lhugetlbfs`

403.gcc: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qalloca` `-lhugetlbfs`

429.mcf: `-Wl,-q` `-O5` `-qnoenablevmx` `-lhugetlbfs`

445.gobmk: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qnoenablevmx` `-lhugetlbfs`

456.hmmer: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5` `-lhugetlbfs`

458.sjeng: `-Wl,-q` `-O5` `-lhugetlbfs`

462.libquantum: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5` `-qnoenablevmx` `-q64` `-lhugetlbfs`

464.h264ref: Same as 456.hmmer

C++ benchmarks:

471.omnetpp: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qrtti` `-lsmartheap`

473.astar: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qnoenablevmx` `-lsmartheap`

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Peak Optimization Flags (Continued)

483.xalancbmk: `-Wl,-q -O5 -lsmartheap`

Peak Other Flags

C benchmarks:
`-qipa=noobject -qipa=threads`

C++ benchmarks:
`-qipa=noobject -qipa=threads`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20100302.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20100302.xml

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

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