SPEC® CINT2006 Result

IBM Corporation

IBM Power 780 (4.14 GHz, 32 core, SLES)

SPECint®_rate2006 = 1470

SPECint_rate_base2006 = 1310

CPU2006 license: 11

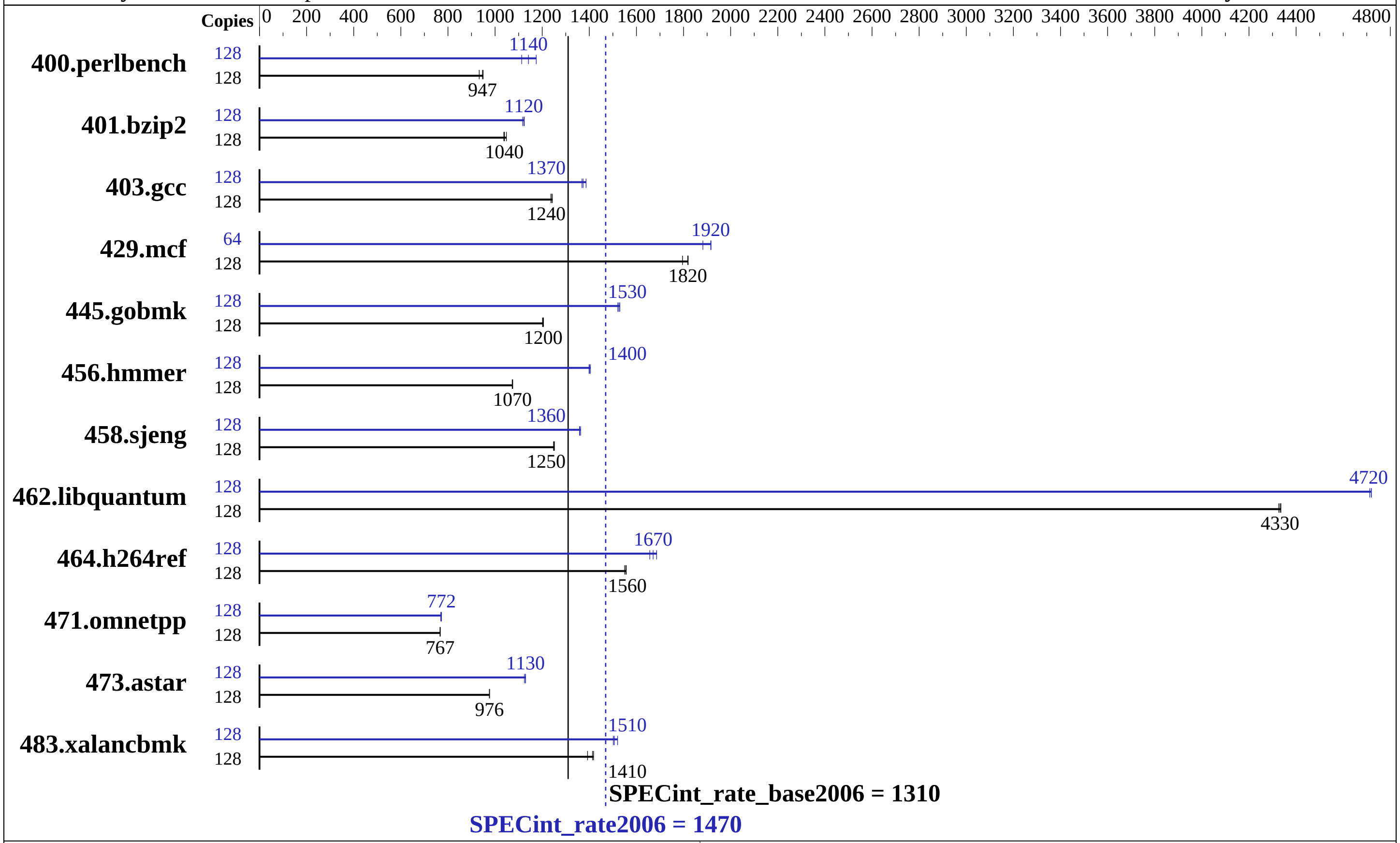
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Mar-2010

Hardware Availability: Mar-2010

Software Availability: Dec-2009



Hardware

CPU Name:	POWER7
CPU Characteristics:	TurboCore mode
CPU MHz:	4140
FPU:	Integrated
CPU(s) enabled:	32 cores, 8 chips, 4 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:	16 MB I+D on chip per chip
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

	Base							Peak						
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
400.perlbench	128	1317	949	**1321**	**947**	1341	933	128	1124	1110	1065	1170	**1095**	**1140**
401.bzip2	128	1191	1040	1178	1050	**1188**	**1040**	128	**1101**	**1120**	1106	1120	1099	1120
403.gcc	128	**832**	**1240**	833	1240	829	1240	128	753	1370	**750**	**1370**	743	1390
429.mcf	128	642	1820	**642**	**1820**	650	1800	64	305	1920	310	1880	**305**	**1920**
445.gobmk	128	1118	1200	1114	1210	**1115**	**1200**	128	878	1530	**880**	**1530**	883	1520
456.hmmer	128	**1112**	**1070**	1113	1070	1111	1080	128	854	1400	**852**	**1400**	850	1400
458.sjeng	128	1241	1250	1237	1250	**1239**	**1250**	128	**1140**	**1360**	1140	1360	1136	1360
462.libquantum	128	613	4330	**612**	**4330**	612	4340	128	563	4710	562	4720	**562**	**4720**
464.h264ref	128	1827	1550	**1822**	**1560**	1820	1560	128	**1695**	**1670**	1710	1660	1680	1690
471.omnetpp	128	**1043**	**767**	1044	766	1043	767	128	**1036**	**772**	1040	769	1036	772
473.astar	128	920	976	**920**	**976**	921	976	128	**796**	**1130**	799	1120	795	1130
483.xalancbmk	128	634	1390	**625**	**1410**	623	1420	128	**586**	**1510**	588	1500	581	1520

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 7040 > /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`

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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