SPEC® CINT2006 Result

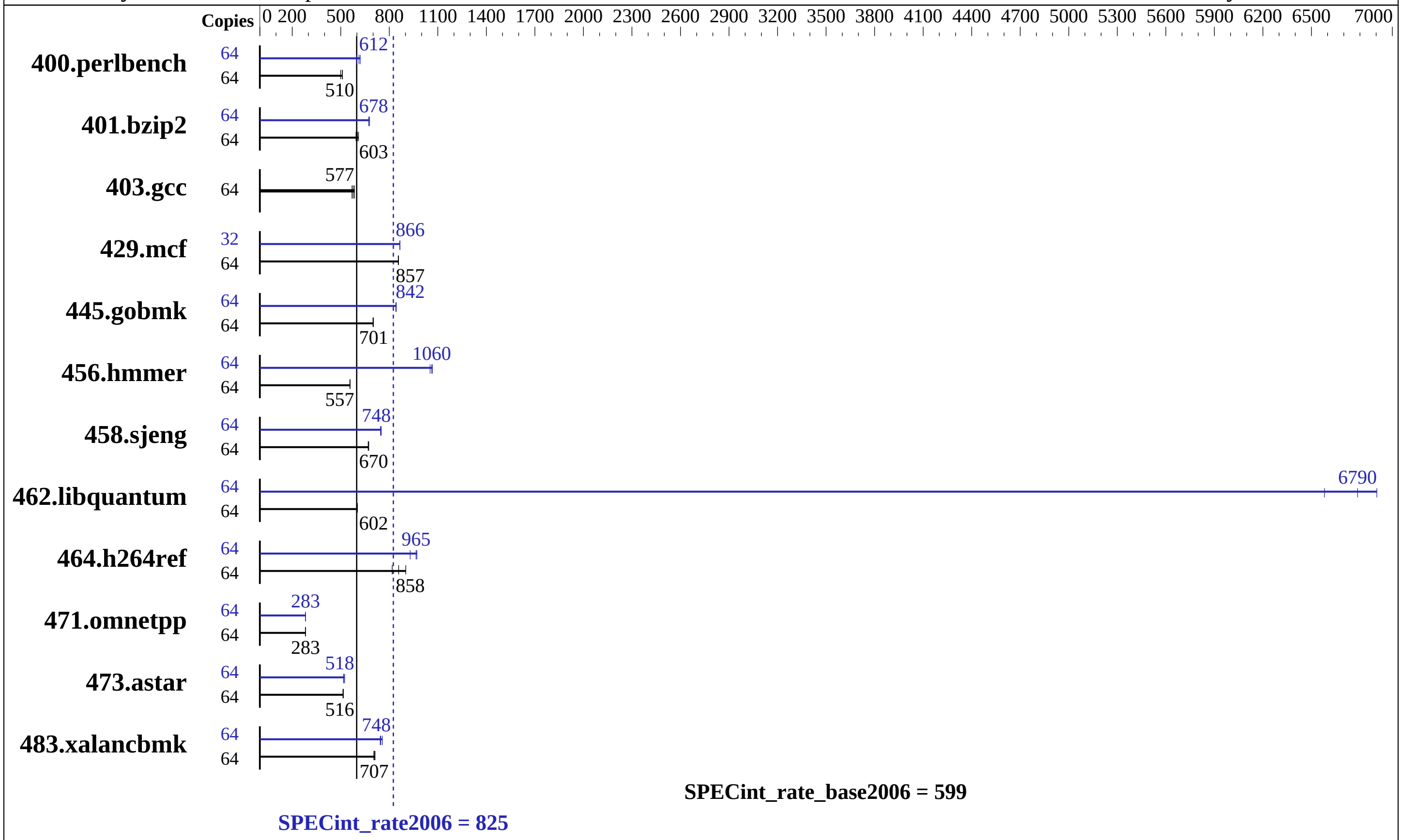
IBM Corporation

IBM Flex System p260 (4.1 GHz, 16 core, SLES)

SPECint®_rate2006 = 825

SPECint_rate_base2006 = 599

CPU2006 license: 11		**Test date:**	Oct-2012
Test sponsor:	IBM Corporation	**Hardware Availability:**	Dec-2012
Tested by:	IBM Corporation	**Software Availability:**	Dec-2012



Hardware

CPU Name:	POWER7+
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 4.340 GHz
CPU MHz:	4116
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	16 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:	10 MB I+D on chip per core
Other Cache:	None
Memory:	128 GB (16 x 8 GB) DDR3 1066 MHz
Disk Subsystem:	1 x 600 GB SAS SFF 10K RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 SP2 (ppc64) kernel 3.0.13-0.27-ppc64
Compiler:	C/C++: Version 12.1 of IBM XL C/C++ for Linux
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 5.6.1-7 -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	64	1253	499	1225	510	**1227**	**510**	64	1046	598	**1021**	**612**	1008	621
401.bzip2	64	1039	594	**1024**	**603**	1013	610	64	918	673	**911**	**678**	911	678
403.gcc	64	905	569	881	585	**893**	**577**	64	905	569	881	585	**893**	**577**
429.mcf	64	**681**	**857**	681	857	682	855	32	337	866	**337**	**866**	337	866
445.gobmk	64	956	702	**957**	**701**	960	699	64	**797**	**842**	796	843	799	840
456.hmmer	64	**1072**	**557**	1071	558	1073	557	64	**562**	**1060**	560	1070	567	1050
458.sjeng	64	**1156**	**670**	1151	673	1157	670	64	1038	746	1032	750	**1036**	**748**
462.libquantum	64	**2201**	**602**	2202	602	2201	603	64	202	6580	192	6900	**195**	**6790**
464.h264ref	64	**1651**	**858**	1570	902	1731	818	64	1459	971	**1467**	**965**	1524	929
471.omnetpp	64	**1415**	**283**	1416	282	1414	283	64	1414	283	1415	283	**1414**	**283**
473.astar	64	871	516	875	514	**871**	**516**	64	858	524	869	517	**867**	**518**
483.xalancbmk	64	620	712	**625**	**707**	627	705	64	583	757	594	744	**590**	**748**

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

Compiler Invocation Notes

```
C/C++ compiler updated to December 2012 PTF
Version: 12.01.0000.0002
```

Peak Tuning Notes

```
Post-Link optimization tool used for:
400.perlbench
     with options -O4 -omullX for optimization phase,
     and -imullX for instrumentation phase
401.bzip2
     with options -O4 -vrox
403.gcc
    with options -O4 -nodp -rtb
429.mcf 445.gobmk 458.sjeng 473.astar
    with options -O3
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
```

Submit Notes

```
The config file option 'submit' was used
to assign benchmark copy to specific kernel thread using
the "numactl" command (see flags file for details).
```

Operating System Notes

```
ulimit -s (stack) set to 1048576.

Large pages reserved as follows by root user:
echo 4224 > /proc/sys/vm/nr_hugepages

Additional filesystem options:
data=writeback,noatime

The following environment varibles were set before the runspec command:
 export HUGETLB_VERBOSE=0
 export HUGETLB_MORECORE=yes
 export XLFRTEOPTS=intrinthds=1
```

Platform Notes

```
This Compute Node is housed in an "IBM Flex System Enterprise Chassis"

The Maximum Power Limit for this Compute Node was set according to
recommendation on "IBM Chassis Management Module"
```

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 -qarch=pwr7 -qtune=pwr7 -q32 -qipa=threads -qalias=noansi -qalloca -lhugetlbfs

C++ benchmarks:
-O5 -qarch=pwr7 -qtune=pwr7 -q32 -qipa=threads -qrtti -lsmartheap

Base Other Flags

C benchmarks:

C++ benchmarks:

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 -qarch=pwr7 -qtune=pwr7 -qipa=threads -qalias=noansi -qipa=level=2 -lsmartheap

401.bzip2: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O3 -qarch=pwr7 -qtune=pwr7 -lhugetlbfs

403.gcc: basepeak = yes

Continued on next page

Peak Optimization Flags (Continued)

429.mcf: -Wl,-q -O5 -qarch=pwr7 -qtune=pwr7 -qipa=threads -lhugetlbfs

445.gobmk: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr7 -qtune=pwr7 -qipa=threads -lhugetlbfs

456.hmmer: -Wl,-q -O5 -qarch=pwr7 -qtune=pwr7 -qipa=threads -qsimd -qassert=refalign -qipa=inline=threshold=2888 -qipa=inline=limit=11880 -lhugetlbfs

458.sjeng: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr7 -qtune=pwr7 -qipa=threads -lhugetlbfs

462.libquantum: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr7 -qtune=pwr7 -qipa=threads -q64 -lhugetlbfs

464.h264ref: Same as 458.sjeng

C++ benchmarks:

471.omnetpp: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr7 -qtune=pwr7 -qipa=threads -qrtti -lsmartheap

473.astar: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr7 -qtune=pwr7 -qipa=threads -lhugetlbfs -lsmartheap

483.xalancbmk: -Wl,-q -O4 -qarch=pwr7 -qtune=pwr7 -qipa=threads -qipa=partition=large -lsmartheap

Peak Other Flags

C benchmarks:

C++ benchmarks:

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/IBM-Power.20121205.html
http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20121024.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-Power.20121205.xml
http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20121024.xml

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

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