SPEC® CINT2006 Result

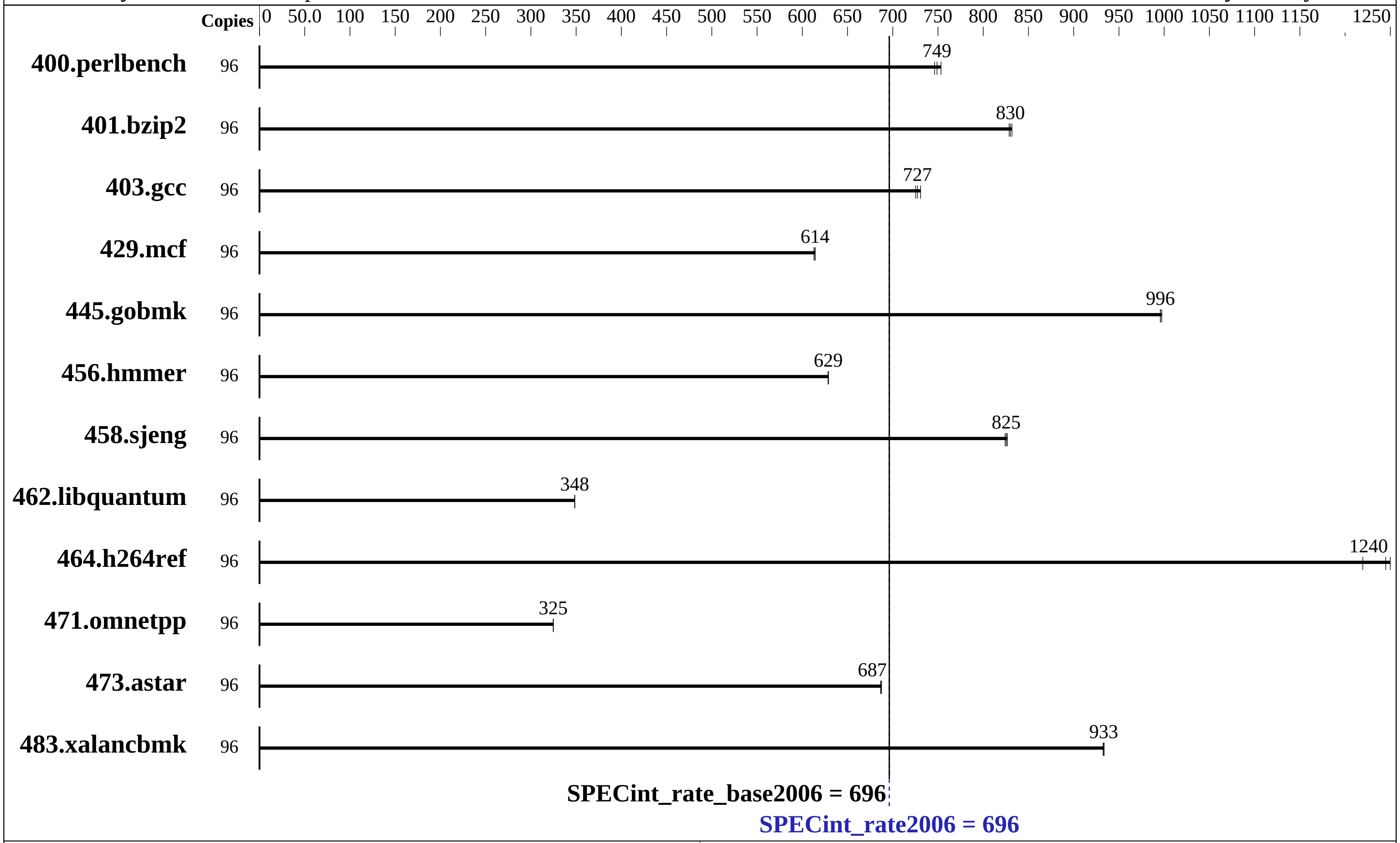
IBM Corporation

IBM Flex System p270 (3.4 GHz, 24 core, RHEL, GCC)

SPECint®_rate2006 = 696

SPECint_rate_base2006 = 696

CPU2006 license:	11	**Test date:**	Jun-2013
Test sponsor:	IBM Corporation	**Hardware Availability:**	Sep-2013
Tested by:	IBM Corporation	**Software Availability:**	May-2013



Hardware

CPU Name:	POWER7+
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.787 GHz
CPU MHz:	3416
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip, 4 threads/core
CPU(s) orderable:	24 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:	256 GB (16 x 16 GB) DDR3 1066 MHz
Disk Subsystem:	2 x 177 GB Raid0 SATA SSD 1.8"
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.4 (ppc64) kernel 2.6.32-358.6.2.el6.ppc64
Compiler:	C/C++: Version 4.7.3 of IBM Advance Toolchain 6.0-4 gcc/g++ compiler
Auto Parallel:	No
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	-IBM Advance Toolchain 6.0-4 -IBM Mathematical Acceleration Subsystem (MASS) libraries 7.1.0.2

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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	96	1245	753	**1252**	**749**	1257	746	96	1245	753	**1252**	**749**	1257	746
401.bzip2	96	**1116**	**830**	1118	829	1114	832	96	**1116**	**830**	1118	829	1114	832
403.gcc	96	1058	731	**1063**	**727**	1065	725	96	1058	731	**1063**	**727**	1065	725
429.mcf	96	1425	614	**1426**	**614**	1429	613	96	1425	614	**1426**	**614**	1429	613
445.gobmk	96	**1011**	**996**	1010	997	1011	996	96	**1011**	**996**	1010	997	1011	996
456.hmmer	96	1425	628	**1424**	**629**	1424	629	96	1425	628	**1424**	**629**	1424	629
458.sjeng	96	**1407**	**825**	1409	824	1405	827	96	**1407**	**825**	1409	824	1405	827
462.libquantum	96	5708	348	5708	348	**5708**	**348**	96	5708	348	5708	348	**5708**	**348**
464.h264ref	96	1700	1250	1742	1220	**1707**	**1240**	96	1700	1250	1742	1220	**1707**	**1240**
471.omnetpp	96	1848	325	**1847**	**325**	1847	325	96	1848	325	**1847**	**325**	1847	325
473.astar	96	981	687	**981**	**687**	980	688	96	981	687	**981**	**687**	980	688
483.xalancbmk	96	709	934	**710**	**933**	710	933	96	709	934	**710**	**933**	710	933

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

Compiler Invocation Notes

```
For more information about IBM Advance Toolchain, including support, see
ftp://ftp.unicamp.br/pub/linuxpatch/toolchain/at/redhat/RHEL6/at6.0/release_notes.at6.0-6.0-4.html
```

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 6336 > /proc/sys/vm/nr_hugepages

The Mathematical Acceleration Subsystem libraries
are shipped with IBM XL C/C++ version 12.1 and
IBM XL Fortran version 14.1 compiler products.
```

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
```

Continued on next page

SPEC CINT2006 Result

Platform Notes (Continued)

```
recommendation on "IBM Chassis Management Module"
```

General Notes

```
Environment variables set by runspec before the start of the run:
HUGETLB_ELFMAP = "RW"
HUGETLB_MORECORE = "yes"
HUGETLB_VERBOSE = "0"
TCMALLOC_MEMFS_MALLOC_PATH = "/libhugetlbfs"
XLFRTEOPTS = "intrinthds=1"
```

Base Compiler Invocation

C benchmarks:
`/opt/at6.0/bin/gcc`

C++ benchmarks:
`/opt/at6.0/bin/g++`

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_PPC`
462.libquantum: `-DSPEC_CPU_LINUX`
464.h264ref: `-fsigned-char`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:

```
-ffast-math -O3 -mcpu=power7 -mtune=power7 -mrecip=rsqrt
-fpeel-loops -funroll-loops -mpopcntd -m32 -flto -fwhole-program
-fuse-linker-plugin -Wl,-q -Wl,-Map=link.map,--cref -L /opt/at6.0/lib
-L /opt/ibmcmp/xlmass/7.1/lib -Wl,-rpath,/opt/at6.0/lib
-Wl,-rpath,/opt/ibmcmp/xlmass/7.1/lib -lhugetlbfs -lmassvp7
-lmass_simdp7 -lmass
```

C++ benchmarks:

```
-ffast-math -O3 -mcpu=power7 -mtune=power7 -mrecip=rsqrt
-fpeel-loops -funroll-loops -mpopcntd -m32
--param max-inline-insns-auto=200 -Wl,-q -Wl,-Map=link.map,--cref
-L /opt/at6.0/lib -L /opt/ibmcmp/xlmass/7.1/lib
-Wl,-rpath,/opt/at6.0/lib -Wl,-rpath,/opt/ibmcmp/xlmass/7.1/lib
-lhugetlbfs -lmassvp7 -lmass_simdp7 -lmass -ltcmalloc
-lstdc++ -lpthread
```

Peak Optimization Flags

C benchmarks:

400.perlbench: `basepeak = yes`

401.bzip2: `basepeak = yes`

403.gcc: `basepeak = yes`

429.mcf: `basepeak = yes`

445.gobmk: `basepeak = yes`

456.hmmer: `basepeak = yes`

458.sjeng: `basepeak = yes`

462.libquantum: `basepeak = yes`

464.h264ref: `basepeak = yes`

C++ benchmarks:

471.omnetpp: `basepeak = yes`

473.astar: `basepeak = yes`

483.xalancbmk: `basepeak = yes`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/IBM-Power.20130828.html
http://www.spec.org/cpu2006/flags/IBM-Linux-AT.20130813.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/IBM-Power.20130828.xml
http://www.spec.org/cpu2006/flags/IBM-Linux-AT.20130813.xml

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

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