SPEC® CINT2006 Result

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IBM Corporation

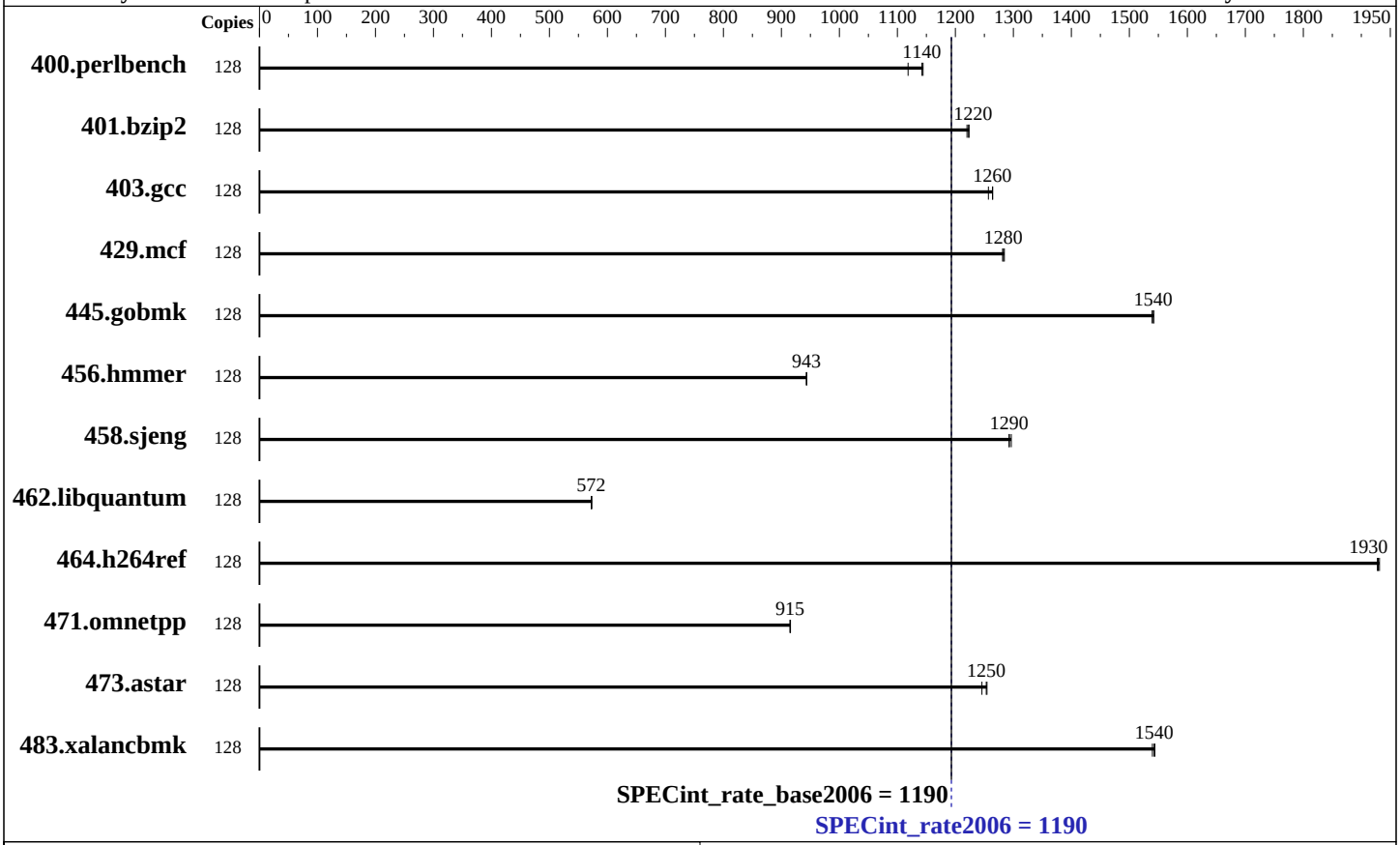
IBM Power 750 Express (4.0 GHz, 32 core, SLES, GCC)

SPECint®_rate2006 = 1190

SPECint_rate_base2006 = 1190

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jan-2013
Hardware Availability: Mar-2013
Software Availability: Nov-2012



Hardware

CPU Name:	POWER7+
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 4.431 GHz
CPU MHz:	4060
FPU:	Integrated
CPU(s) enabled:	32 cores, 8 chips, 4 cores/chip, 4 threads/core
CPU(s) orderable:	8, 16, 24, 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:	10 MB I+D on chip per core
Other Cache:	None
Memory:	256 GB (64 x 4 GB) DDR3 1066 MHz
Disk Subsystem:	3 x 146.8 GB Raid0 SAS SFF 15K RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 SP2 (ppc64) kernel 3.0.42-0.7-ppc64
Compiler:	C/C++: Version 4.7.3 of IBM Advance Toolchain 6.0-1 gcc/g++ compiler
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	-IBM Advance Toolchain 6.0-1

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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	1118	1120	**1095**	**1140**	1093	1140	128	1118	1120	**1095**	**1140**	1093	1140
401.bzip2	128	1010	1220	1012	1220	**1010**	**1220**	128	1010	1220	1012	1220	**1010**	**1220**
403.gcc	128	815	1260	820	1260	**815**	**1260**	128	815	1260	820	1260	**815**	**1260**
429.mcf	128	**910**	**1280**	909	1280	911	1280	128	**910**	**1280**	909	1280	911	1280
445.gobmk	128	871	1540	**871**	**1540**	872	1540	128	871	1540	**871**	**1540**	872	1540
456.hmmer	128	**1266**	**943**	1266	943	1266	943	128	**1266**	**943**	1266	943	1266	943
458.sjeng	128	**1198**	**1290**	1198	1290	1195	1300	128	**1198**	**1290**	1198	1290	1195	1300
462.libquantum	128	4636	572	4628	573	**4634**	**572**	128	4636	572	4628	573	**4634**	**572**
464.h264ref	128	1469	1930	**1468**	**1930**	1467	1930	128	1469	1930	**1468**	**1930**	1467	1930
471.omnetpp	128	874	915	**874**	**915**	874	916	128	874	915	**874**	**915**	874	916
473.astar	128	716	1250	**717**	**1250**	721	1250	128	716	1250	**717**	**1250**	721	1250
483.xalancbmk	128	572	1540	574	1540	**572**	**1540**	128	572	1540	574	1540	**572**	**1540**

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://linuxpatch.ncsa.uiuc.edu/toolchain/at/suse/SLES_11/at6.0/release_notes.at6.0-6.0-1.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 8448 > /proc/sys/vm/nr_hugepages

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

Base Compiler Invocation

C benchmarks:

```
/opt/at6.0/bin/gcc
```

Continued on next page

Base Compiler Invocation (Continued)

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:
-O3 -mcpu=power7 -mtune=power7 -m32 -ffast-math -fpeel-loops
-funroll-loops -mvsx -maltivec -ftree-vectorize -mpopcntd
-mrecip=rsqrt -flto -fwhole-program -fuse-linker-plugin -lhugetlbfs

C++ benchmarks:
-O3 -mcpu=power7 -mtune=power7 -m32 -ffast-math -fpeel-loops
-funroll-loops -mvsx -maltivec -ftree-vectorize -mpopcntd
-mrecip=rsqrt -flto -fwhole-program -fuse-linker-plugin -ltcmalloc

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

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Peak Optimization Flags (Continued)

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.20130226.html`
`http://www.spec.org/cpu2006/flags/IBM-Linux-AT.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/IBM-Power.20130226.xml`
`http://www.spec.org/cpu2006/flags/IBM-Linux-AT.xml`

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For other inquiries, please contact webmaster@spec.org.

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