SPEC® CINT2006 Result

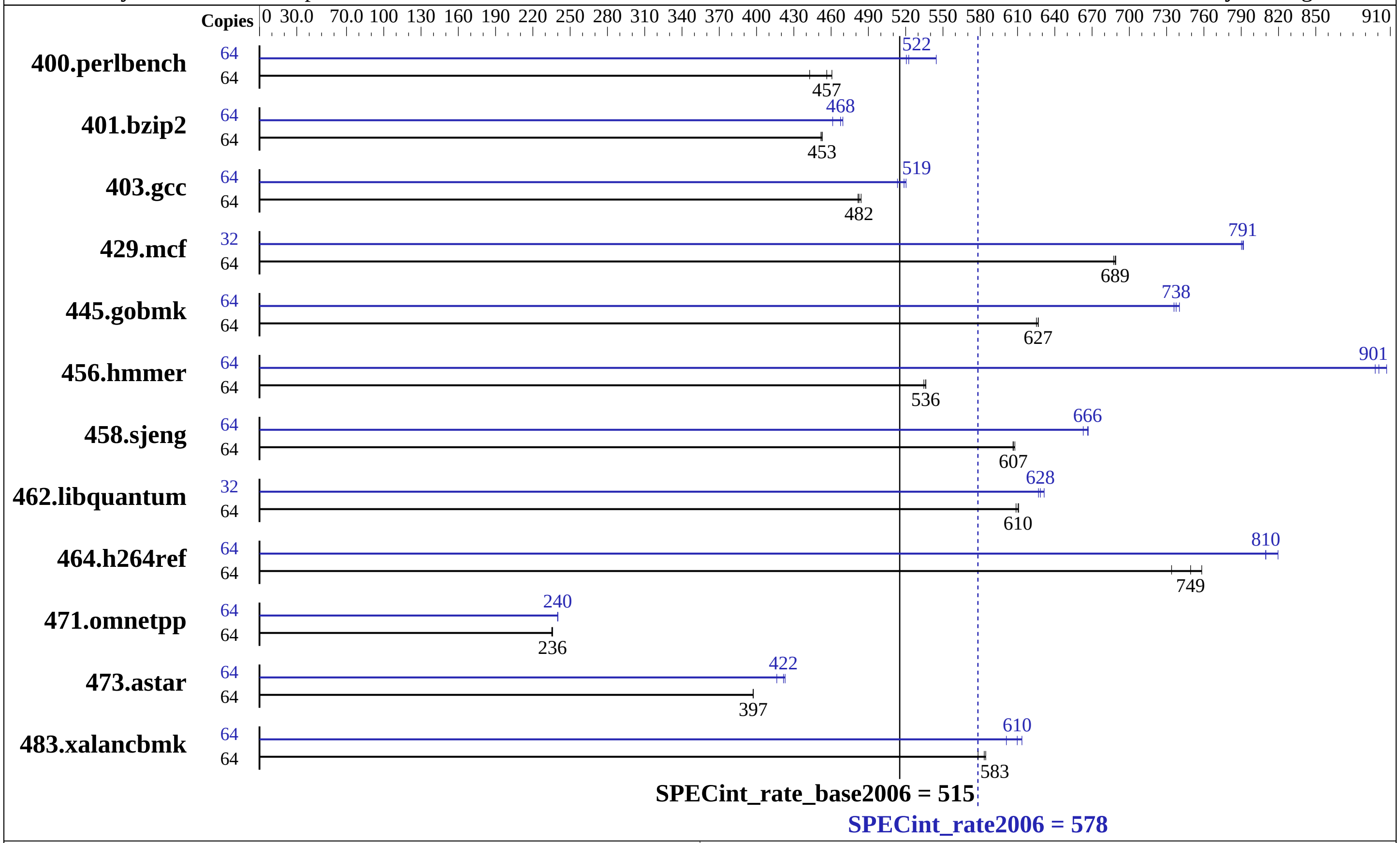
IBM Corporation

IBM Power 730 Express (3.55 GHz, 16 core, SLES)

SPECint®_rate2006 = 578

SPECint_rate_base2006 = 515

CPU2006 license:	11	**Test date:**	Jul-2010
Test sponsor:	IBM Corporation	**Hardware Availability:**	Sep-2010
Tested by:	IBM Corporation	**Software Availability:**	Aug-2010



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.86 GHz
CPU MHz:	3556
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:	4 MB I+D on chip per core
Other Cache:	None
Memory:	128 GB (16x8 GB) DDR3 1066 MHz
Disk Subsystem:	2x146.8 GB SAS SFF 15K RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 SP1 (ppc64), Kernel 2.6.32.12-0.7-ppc64
Compiler:	IBM XL C/C++ for Linux, V11.1
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 5.5.0-3 -MicroQuill SmartHeap 9

IBM Corporation

IBM Power 730 Express (3.55 GHz, 16 core, SLES)

SPECint_rate2006 = 578

SPECint_rate_base2006 = 515

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation
Test date: Jul-2010
Hardware Availability: Sep-2010
Software Availability: Aug-2010

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	64	1357	461	1412	443	**1370**	**457**	64	1201	521	**1197**	**522**	1148	545
401.bzip2	64	**1364**	**453**	1364	453	1367	452	64	1339	461	**1321**	**468**	1316	469
403.gcc	64	1064	484	1070	482	**1068**	**482**	64	**993**	**519**	1004	513	990	520
429.mcf	64	**848**	**689**	847	689	849	687	32	369	790	**369**	**791**	369	792
445.gobmk	64	1074	625	1071	627	**1071**	**627**	64	**910**	**738**	907	740	912	736
456.hmmer	64	1117	535	1114	536	**1114**	**536**	64	658	907	665	898	**663**	**901**
458.sjeng	64	1277	606	**1276**	**607**	1274	608	64	**1162**	**666**	1161	667	1168	663
462.libquantum	64	2178	609	2171	611	**2172**	**610**	32	1058	627	1050	631	**1055**	**628**
464.h264ref	64	1930	734	**1890**	**749**	1868	758	64	1728	820	**1749**	**810**	1749	810
471.omnetpp	64	1701	235	**1696**	**236**	1696	236	64	1666	240	1668	240	**1667**	**240**
473.astar	64	**1131**	**397**	1130	397	1131	397	64	**1066**	**422**	1079	416	1062	423
483.xalancbmk	64	**757**	**583**	764	578	756	584	64	**724**	**610**	735	601	720	614

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

Peak Tuning Notes

```
fdpr binary 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
  456.hmmer
     with options -O4 -nodp -m power7
  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.
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 3520 > /proc/sys/vm/nr_hugepages
The following environment varibles were set before the runspec command:
  export XLFRTEOPTS=intrinthds=1
  export HUGETLB_VERBOSE=0
  export HUGETLB_MORECORE=yes
  export HUGETLB_ELFMAP=RW
```

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 -qalias=noansi -qalloca -lhugetlbfs`

C++ benchmarks:
`-O5 -qarch=pwr7 -qtune=pwr7 -qrtti -lsmartheap`

Base Other Flags

C benchmarks:
`-qipa=threads`

C++ benchmarks:
`-qipa=threads`

IBM Corporation

IBM Power 730 Express (3.55 GHz, 16 core, SLES)

SPECint_rate2006 = 578

SPECint_rate_base2006 = 515

CPU2006 license: 11		**Test date:**	Jul-2010
Test sponsor:	IBM Corporation	**Hardware Availability:**	Sep-2010
Tested by:	IBM Corporation	**Software Availability:**	Aug-2010

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 -qalias=noansi -qipa=level=2 -lsmartheap`

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

403.gcc: `-Wl,-q -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qarch=pwr7 -qtune=pwr7 -qalloca -lhugetlbfs`

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

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

456.hmmer: `-Wl,-q -O5 -qarch=pwr7 -qtune=pwr7 -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 -lhugetlbfs`

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

464.h264ref: Same as 458.sjeng

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

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

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

483.xalancbmk: `-Wl,-q -O5 -qarch=pwr7 -qtune=pwr7 -lsmartheap`

Peak Other Flags

C benchmarks:
`-qipa=threads`

C++ benchmarks:
`-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.20100901.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20100901.xml

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

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 12:21:26 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 31 August 2010.