SPEC® CINT2006 Result

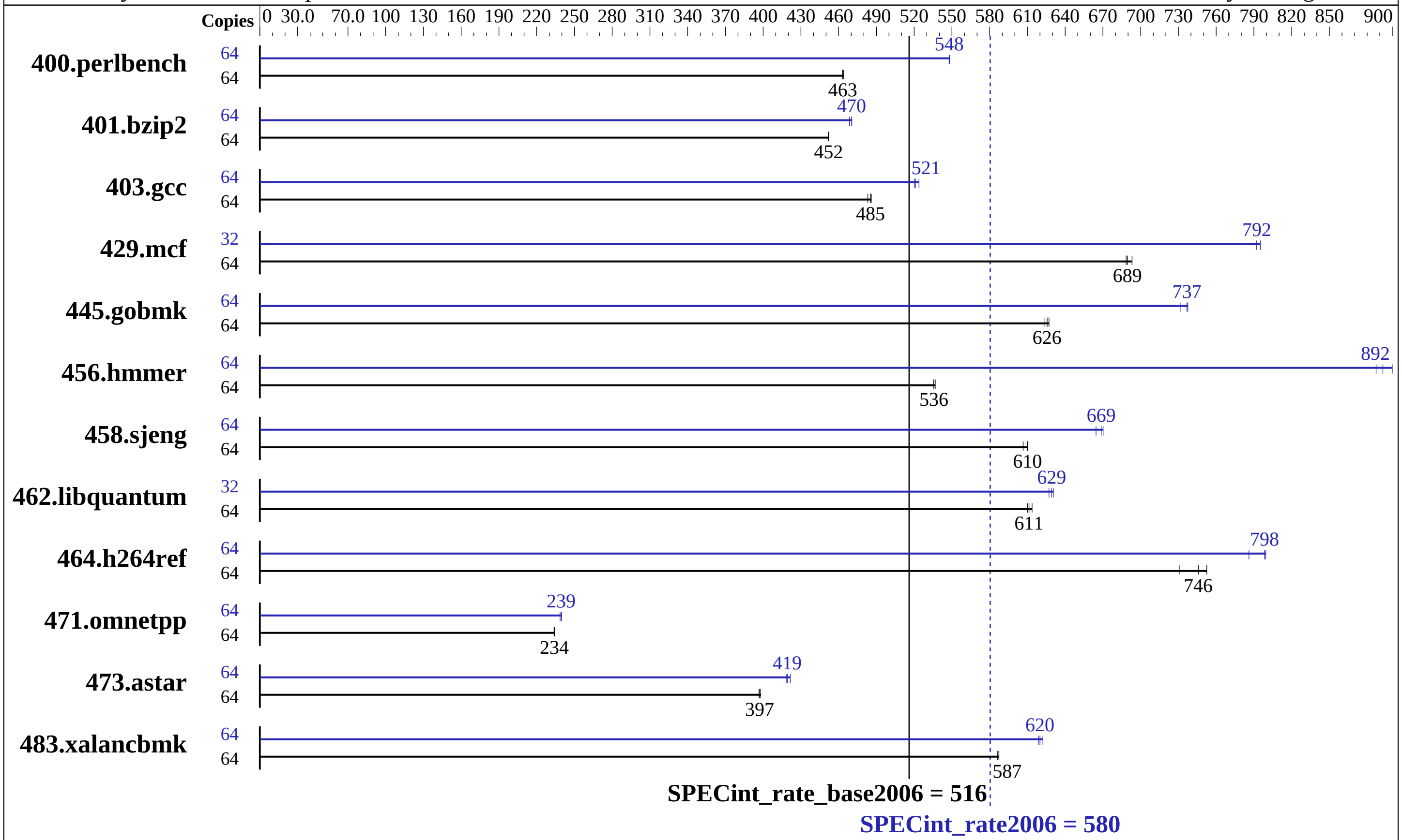
IBM Corporation

IBM Power 740 Express (3.55 GHz, 16 core, SLES)

SPECint®_rate2006 = 580

SPECint_rate_base2006 = 516

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:	256 GB (32x8 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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	64	1350	463	1348	464	**1350**	**463**	64	1140	548	1141	548	**1141**	**548**
401.bzip2	64	1367	452	**1366**	**452**	1366	452	64	**1313**	**470**	1318	469	1313	470
403.gcc	64	1060	486	1066	483	**1062**	**485**	64	984	524	**989**	**521**	990	520
429.mcf	64	842	693	848	688	**847**	**689**	32	367	795	368	792	**368**	**792**
445.gobmk	64	**1073**	**626**	1070	627	1077	623	64	**911**	**737**	918	731	910	738
456.hmmer	64	1112	537	**1115**	**536**	1115	536	64	**669**	**892**	663	900	673	887
458.sjeng	64	1277	607	**1269**	**610**	1269	610	64	1156	670	1165	665	**1158**	**669**
462.libquantum	64	2161	614	**2169**	**611**	2173	610	32	1051	631	**1054**	**629**	1057	627
464.h264ref	64	1882	753	1938	731	**1899**	**746**	64	**1774**	**798**	1802	786	1772	799
471.omnetpp	64	**1709**	**234**	1711	234	1709	234	64	1677	239	**1671**	**239**	1668	240
473.astar	64	1133	397	1129	398	**1131**	**397**	64	**1072**	**419**	1073	419	1066	422
483.xalancbmk	64	752	587	**753**	**587**	753	586	64	713	619	710	622	**712**	**620**

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`

SPEC CINT2006 Result

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 12:11:33 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 31 August 2010.