# SPEC® CINT2006 Result



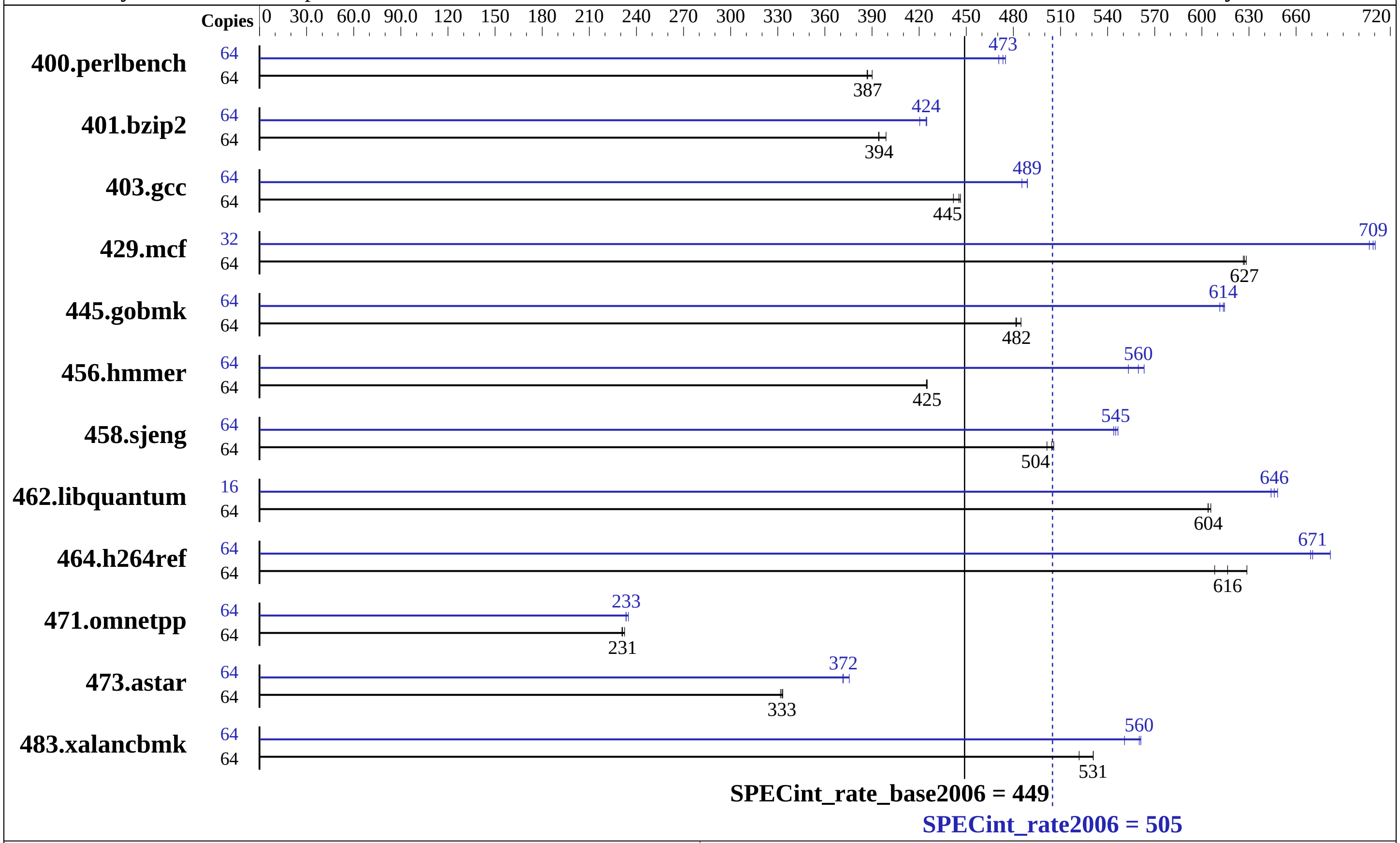
## IBM Corporation

IBM BladeCenter PS702 Express (3.0 GHz, 16 core, SLES)

SPECint®_rate2006 = 505

SPECint_rate_base2006 = 449

| | | | |
|---|---|---|---|
| **CPU2006 license:** | 11 | **Test date:** | Mar-2010 |
| **Test sponsor:** | IBM Corporation | **Hardware Availability:** | Jun-2010 |
| **Tested by:** | IBM Corporation | **Software Availability:** | Dec-2009 |




### Hardware

| | |
|---|---|
| CPU Name: | POWER7 |
| CPU Characteristics: | Intelligent Energy Optimization enabled, up to 3.30 GHz |
| CPU MHz: | 3000 |
| 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 (32x4 GB) DDR3 1066 MHz |
| Disk Subsystem: | 1x300 GB SAS SFF 10K RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 (ppc64), Kernel 2.6.27.19-5-ppc64 |
| Compiler: | IBM XL C/C++ for Linux, V10.1 Updated with the Oct2009 PTF |
| 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 5.5.0-1<br>-MicroQuill SmartHeap 9 |

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## Results Table

| | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Benchmark** | **Copies** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Copies** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** |
| 400.perlbench | 64 | 1616 | 387 | **1615** | **387** | 1603 | 390 | 64 | 1328 | 471 | 1316 | 475 | **1321** | **473** |
| 401.bzip2 | 64 | 1548 | 399 | 1567 | 394 | **1566** | **394** | 64 | **1455** | **424** | 1469 | 420 | 1454 | 425 |
| 403.gcc | 64 | **1157** | **445** | 1154 | 446 | 1166 | 442 | 64 | 1061 | 485 | **1054** | **489** | 1054 | 489 |
| 429.mcf | 64 | 929 | 628 | 932 | 626 | **931** | **627** | 32 | 413 | 707 | 411 | 710 | **412** | **709** |
| 445.gobmk | 64 | **1393** | **482** | 1394 | 482 | 1385 | 485 | 64 | 1098 | 611 | 1093 | 614 | **1094** | **614** |
| 456.hmmer | 64 | **1405** | **425** | 1406 | 425 | 1405 | 425 | 64 | 1060 | 563 | **1067** | **560** | 1079 | 553 |
| 458.sjeng | 64 | 1545 | 501 | **1535** | **504** | 1531 | 506 | 64 | 1417 | 547 | 1424 | 544 | **1421** | **545** |
| 462.libquantum | 64 | 2196 | 604 | **2195** | **604** | 2189 | 606 | 16 | 511 | 648 | 515 | 644 | **513** | **646** |
| 464.h264ref | 64 | 2329 | 608 | **2298** | **616** | 2253 | 629 | 64 | 2077 | 682 | 2116 | 669 | **2112** | **671** |
| 471.omnetpp | 64 | 1721 | 232 | 1733 | 231 | **1731** | **231** | 64 | 1703 | 235 | 1714 | 233 | **1713** | **233** |
| 473.astar | 64 | 1354 | 332 | **1351** | **333** | 1348 | 333 | 64 | 1196 | 376 | **1209** | **372** | 1210 | 371 |
| 483.xalancbmk | 64 | 846 | 522 | 832 | 531 | **832** | **531** | 64 | 802 | 551 | 787 | 561 | **788** | **560** |

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

## 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
System configured with libhugetlbfs library for application access to large pages
Environment variables set before executing benchmarks.
    export HUGETLB_VERBOSE=0
    export HUGETLB_MORECORE=yes
    export XLFRTEOPTS=intrinthds=1
```

## General Notes

```
IBM Post-Link Optimization tool with
options "-O4 -omullX -see 0 -m power6" used for
    400.perlbench 401.bzip2 403.gcc 456.hmmer 458.sjeng
    483.xalancbmk
options "-bf -dp -hr -las -pca -RC -RD -rmte -si -tlo -A 64 -isf 104 -lu 8 -rt 0.16
        -hrf 0.18 -ihf 40 -sdp 6 -sdpms 128 -shci 65 -si -sidf 45 -omullX" used for
   429.mcf
options "-q -O3 -A 32 -omullX" used for
   445.gobmk
options "-bf -dp -lro -nop -RC -RD -tb -tlo -vro -A 4
```

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## General Notes (Continued)

```
          -isf 88 -lu 8 -hrf 0.10 -sdp 4 -lun 27 -omullX" used for
     462.libquantum
  options "-O4 -omullX -see 1" used for
     473.astar
  options "-O4" used for
     464.h264ref
  Whenever option "-omullX" was used during the optimization phase,
     option "-imullX" was also used during the instrumentation phase.
```

## 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 -qalias=noansi -qalloca -lhugetlbfs

C++ benchmarks:
 -O5 -qrtti -lsmartheap

## Base Other Flags

C benchmarks:
 -qipa=noobject -qipa=threads

C++ benchmarks:
 -qipa=noobject -qipa=threads

## 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` `-qalias=noansi` `-lsmartheap`

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

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

429.mcf: `-Wl,-q` `-O5` `-qnoenablevmx` `-lhugetlbfs`

445.gobmk: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qnoenablevmx` `-lhugetlbfs`

456.hmmer: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5` `-lhugetlbfs`

458.sjeng: `-Wl,-q` `-O5` `-lhugetlbfs`

462.libquantum: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5` `-qnoenablevmx` `-q64` `-lhugetlbfs`

464.h264ref: Same as 456.hmmer

C++ benchmarks:

471.omnetpp: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qrtti` `-lsmartheap`

473.astar: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qnoenablevmx` `-lsmartheap`

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# Peak Optimization Flags (Continued)

483.xalancbmk: `-Wl,-q -O5 -lsmartheap`

# Peak Other Flags

C benchmarks:
`-qipa=noobject -qipa=threads`

C++ benchmarks:
`-qipa=noobject -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.20100302.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20100302.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 07:36:11 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 27 April 2010.