# SPEC® CINT2006 Result

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## IBM Corporation

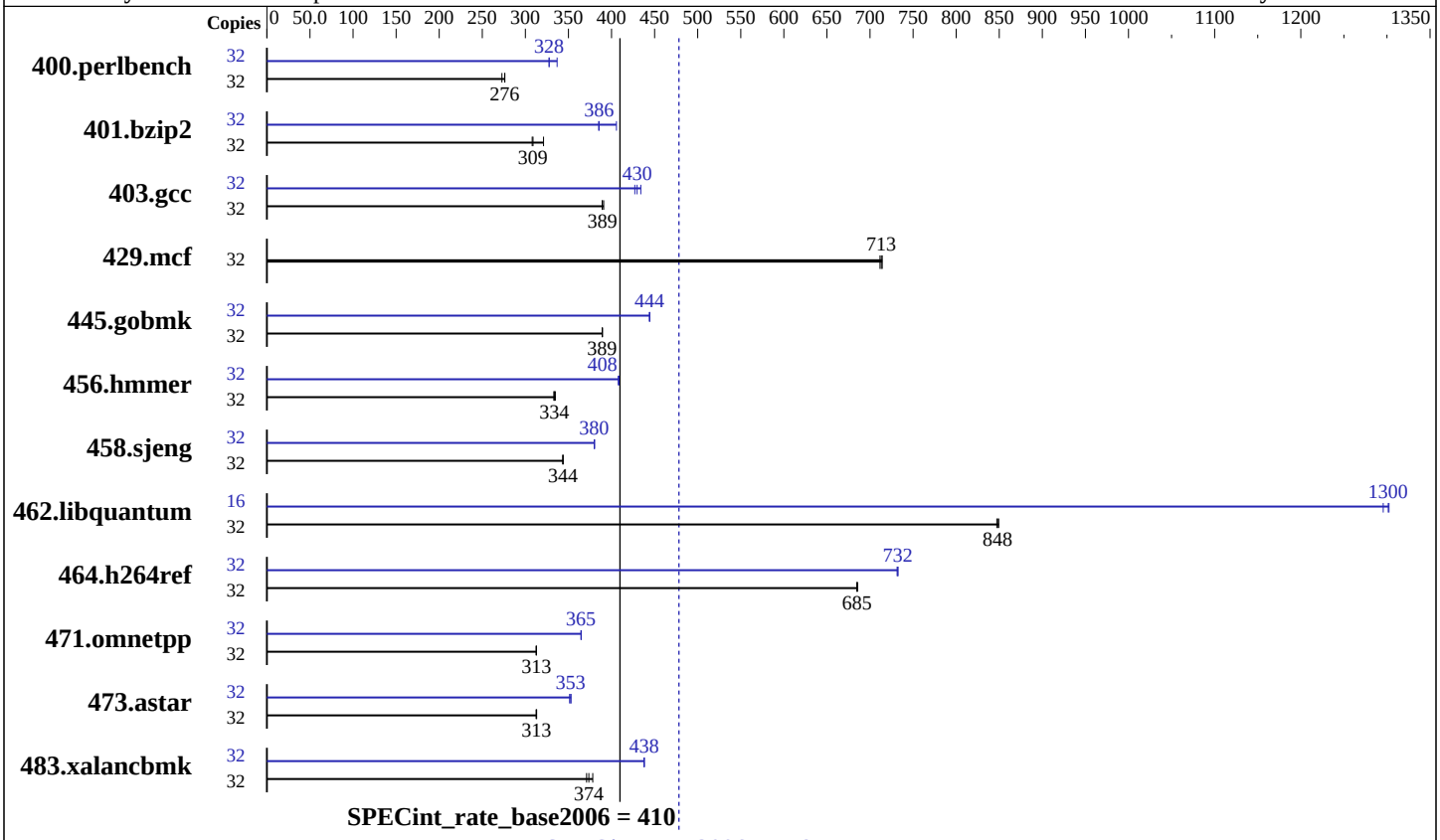
## IBM System p 570 (4.7 GHz, 16 core)

**SPECint®_rate2006 = 478**

**SPECint_rate_base2006 = 410**

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

**Test date:** May-2007
**Hardware Availability:** Jun-2007
**Software Availability:** Jun-2007




## Hardware

| | |
|---|---|
| CPU Name: | POWER6 |
| CPU Characteristics: | |
| CPU MHz: | 4700 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 8 chips, 2 cores/chip, 2 threads/core |
| CPU(s) orderable: | 2,4,8,12,16 cores |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 4 MB I+D on chip per core |
| L3 Cache: | 32 MB I+D off chip per chip |
| Other Cache: | None |
| Memory: | 128 GB (64x2 GB) DDR2 667 MHz |
| Disk Subsystem: | 2x73 GB 2x146 GB SAS 15K RPM |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | IBM AIX 5L V5.3 |
| Compiler: | XL C/C++ Enterprise Edition Version 9.0 for AIX |
| Auto Parallel: | No |
| File System: | AIX/JFS2 |
| System State: | Multi-user |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | -- |

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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 | 32 | 1146 | 273 | 1132 | 276 | **1132** | **276** | 32 | **954** | **328** | 954 | 328 | 928 | 337 |
| 401.bzip2 | 32 | 1003 | 308 | **1000** | **309** | 962 | 321 | 32 | **801** | **386** | 802 | 385 | 761 | 406 |
| 403.gcc | 32 | 659 | 391 | **662** | **389** | 662 | 389 | 32 | 603 | 427 | **600** | **430** | 594 | 434 |
| 429.mcf | 32 | 410 | 712 | **409** | **713** | 409 | 714 | 32 | 410 | 712 | **409** | **713** | 409 | 714 |
| 445.gobmk | 32 | 862 | 389 | **862** | **389** | 863 | 389 | 32 | **756** | **444** | 755 | 444 | 756 | 444 |
| 456.hmmer | 32 | 896 | 333 | **895** | **334** | 892 | 335 | 32 | **731** | **408** | 732 | 408 | 730 | 409 |
| 458.sjeng | 32 | 1126 | 344 | 1127 | 343 | **1127** | **344** | 32 | 1018 | 380 | 1019 | 380 | **1019** | **380** |
| 462.libquantum | 32 | 781 | 849 | **782** | **848** | 783 | 847 | 16 | 255 | 1300 | **255** | **1300** | 256 | 1300 |
| 464.h264ref | 32 | 1033 | 686 | **1034** | **685** | 1034 | 685 | 32 | 968 | 731 | 967 | 732 | **967** | **732** |
| 471.omnetpp | 32 | 640 | 312 | 639 | 313 | **639** | **313** | 32 | 549 | 365 | 548 | 365 | **548** | **365** |
| 473.astar | 32 | 719 | 312 | 717 | 313 | **718** | **313** | 32 | 639 | 351 | **637** | **353** | 636 | 353 |
| 483.xalancbmk | 32 | 595 | 371 | **591** | **374** | 584 | 378 | 32 | 505 | 438 | **504** | **438** | 504 | 438 |

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

## General Notes

```
AIX 5L V5.3 updated with the 5300-06 Technology Level.
See flags file for details on following settings.
all ulimits set to unlimited
Envionment variables set before executing benchmarks:
  MALLOCOPTIONS=pool
  MEMORY_AFFINITY=MCM
  XLFRTEOPTS=intrinthds=1
System set to "Enhanced" mode when defining partition on HMC
6144 pages of size 16M defined on systems with vmo command
fdpr binary optimization tool used for peak versions of
  401.bzip2 403.gcc 429.mcf 456.hmmer 462.libquantum 473.astar
submit used to bind benchmark to a processor using "bindprocessor"
The "IBM System p 570" and "IBM System i 570" are electronically equivalent.
The results have been measured on the "IBM System p 570" model.
```

## Base Compiler Invocation

C benchmarks:

```
/usr/vac/bin/xlc -qlanglvl=extc99
```

C++ benchmarks:

```
/usr/vacpp/bin/xlC
```

## Base Portability Flags

400.perlbench: -DSPEC_CPU_AIX
462.libquantum: -DSPEC_CPU_AIX
464.h264ref: -DSPEC_CPU_AIX -qchars=signed
483.xalancbmk: -DSPEC_CPU_AIX

## Base Optimization Flags

C benchmarks:
-bmaxdata:0x50000000 -O5 -qlargepage -D_ILS_MACROS -qalias=noansi -qalloca -blpdata

C++ benchmarks:
-bmaxdata:0x20000000 -O5 -qlargepage -D_ILS_MACROS -qrtti=all -blpdata

## Base Other Flags

C benchmarks:
-qipa=noobject -qipa=threads -qsuppress=1500-036

C++ benchmarks:
-qipa=noobject -qipa=threads -qsuppress=1500-036

## Peak Compiler Invocation

C benchmarks:
/usr/vac/bin/xlc -qlanglvl=extc99

C++ benchmarks:
/usr/vacpp/bin/xlC

## Peak Portability Flags

400.perlbench: -DSPEC_CPU_AIX
403.gcc: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_AIX
464.h264ref: -DSPEC_CPU_AIX -qchars=signed
483.xalancbmk: -DSPEC_CPU_AIX

## Peak Optimization Flags

C benchmarks:

400.perlbench: `-bmaxdata:0x50000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -qenablevmx -qvecnvol -D_ILS_MACROS -qalias=noansi -blpdata`

401.bzip2: `-bmaxdata:0x4ffffffc -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -qenablevmx -qvecnvol -D_ILS_MACROS -blpdata`

403.gcc: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -D_ILS_MACROS -qalloca -q64 -blpdata`

429.mcf: `basepeak = yes`

445.gobmk: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -qenablevmx -qvecnvol -D_ILS_MACROS -blpdata`

456.hmmer: `-O5 -qlargepage -D_ILS_MACROS -blpdata`

458.sjeng: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4 -qlargepage -qenablevmx -qvecnvol -D_ILS_MACROS -blpdata`

462.libquantum: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -qenablevmx -qvecnvol -D_ILS_MACROS -q64 -blpdata`

464.h264ref: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -D_ILS_MACROS -blpdata`

C++ benchmarks:

471.omnetpp: `-bmaxdata:0x20000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -qenablevmx -qvecnvol -D_ILS_MACROS -qalign=natural -qrtti=all -qinlglue -blpdata`

473.astar: `-bmaxdata:0x20000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -qenablevmx -qvecnvol -D_ILS_MACROS -blpdata`

483.xalancbmk: `-bmaxdata:0x20000000 -qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5 -qlargepage -D_ILS_MACROS -qinlglue -D__IBM_FAST_VECTOR -blpdata`

## Peak Other Flags

C benchmarks:
`-qipa=noobject -qipa=threads -qsuppress=1500-036`

C++ benchmarks:
`-qipa=noobject -qipa=threads -qsuppress=1500-036`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.xml


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

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