



# SPEC® CINT2006 Result

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## Bull SAS

## SPECint®\_rate2006 = 2250

### Escala M6-700 (3.1 GHz, 64 core)

### SPECint\_rate\_base2006 = 2020

CPU2006 license: 20

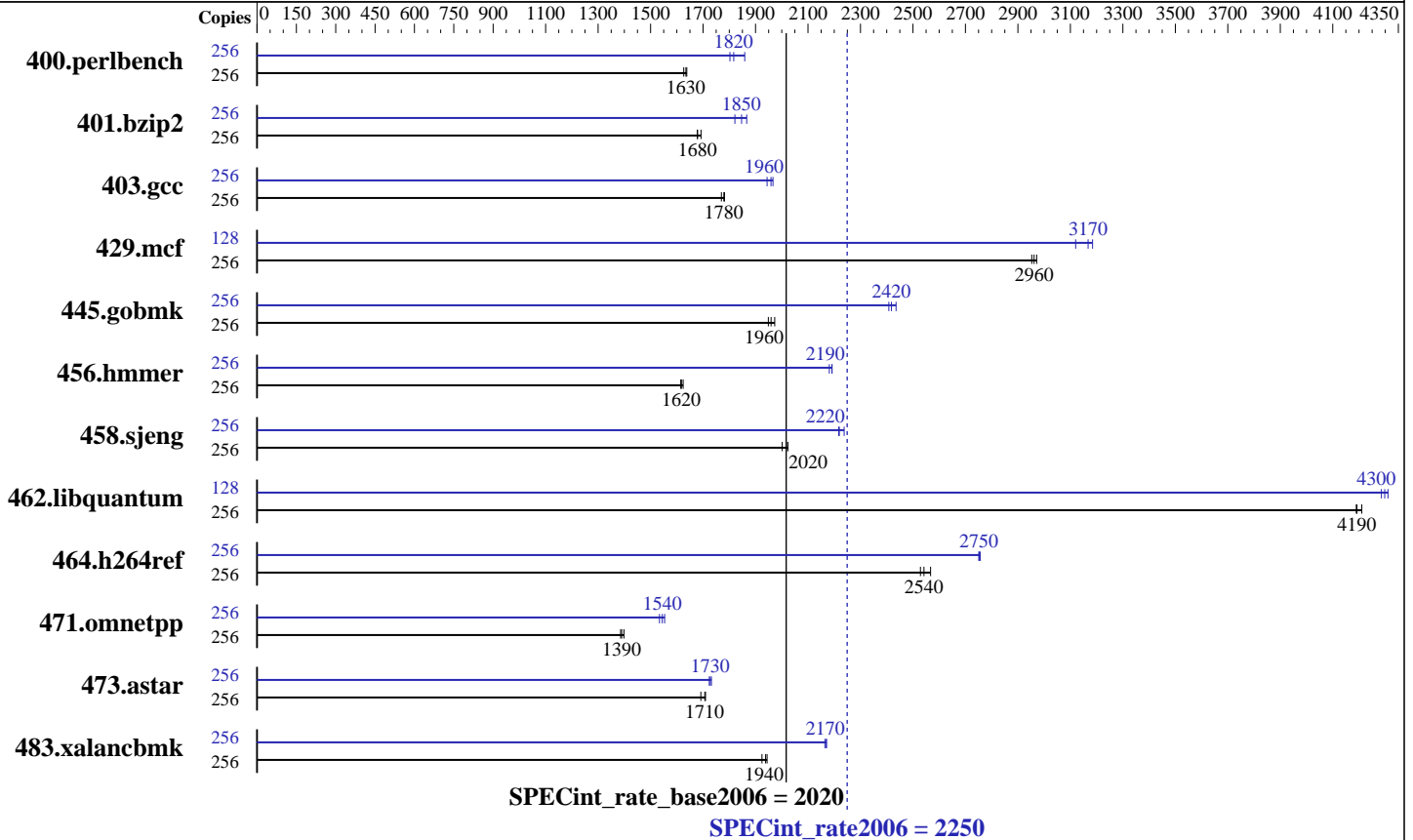
Test date: Sep-2010

Test sponsor: Bull SAS

Hardware Availability: Mar-2010

Tested by: Bull SAS

Software Availability: Sep-2010



#### Hardware

CPU Name: POWER7  
 CPU Characteristics: Intelligent Energy Optimization enabled, up to 3.41 GHz  
 CPU MHz: 3100  
 FPU: Integrated  
 CPU(s) enabled: 64 cores, 8 chips, 8 cores/chip, 4 threads/core  
 CPU(s) orderable: 12,16,24,32,36,48,64 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: 512 GB (64 x 8 GB 2Rx8 PC3L-8500R-7, ECC)  
 Disk Subsystem: 6 x 69 GB SAS SSD disks + 1 disk 15krpm 147 GB SAS  
 Other Hardware: None

#### Software

Operating System: IBM AIX V6.1 with the 6100-06 Technology Level  
 Compiler: XL C/C++ Enterprise Edition V10.1.0.5 for AIX  
 Auto Parallel: No  
 File System: AIX/JFS2  
 System State: Multi-user  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None



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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	256	1538	1630	<b><u>1530</u></b>	<b><u>1630</u></b>	1527	1640	256	1388	1800	<b><u>1377</u></b>	<b><u>1820</u></b>	1346	1860
401.bzip2	256	1472	1680	<b><u>1471</u></b>	<b><u>1680</u></b>	1460	1690	256	1324	1870	<b><u>1338</u></b>	<b><u>1850</u></b>	1356	1820
403.gcc	256	<b><u>1158</u></b>	<b><u>1780</u></b>	1164	1770	1157	1780	256	1060	1940	<b><u>1052</u></b>	<b><u>1960</u></b>	1048	1970
429.mcf	256	791	2950	<b><u>788</u></b>	<b><u>2960</u></b>	786	2970	128	<b><u>369</u></b>	<b><u>3170</u></b>	367	3180	374	3120
445.gobmk	256	<b><u>1371</u></b>	<b><u>1960</u></b>	1378	1950	1361	1970	256	1103	2440	1115	2410	<b><u>1111</u></b>	<b><u>2420</u></b>
456.hammer	256	1471	1620	<b><u>1477</u></b>	<b><u>1620</u></b>	1479	1620	256	1095	2180	<b><u>1090</u></b>	<b><u>2190</u></b>	1090	2190
458.sjeng	256	1531	2020	<b><u>1536</u></b>	<b><u>2020</u></b>	1548	2000	256	1397	2220	<b><u>1396</u></b>	<b><u>2220</u></b>	1384	2240
462.libquantum	256	1266	4190	<b><u>1265</u></b>	<b><u>4190</u></b>	1260	4210	128	<b><u>617</u></b>	<b><u>4300</u></b>	619	4290	615	4310
464.h264ref	256	2241	2530	2207	2570	<b><u>2229</u></b>	<b><u>2540</u></b>	256	2059	2750	<b><u>2059</u></b>	<b><u>2750</u></b>	2055	2760
471.omnetpp	256	<b><u>1151</u></b>	<b><u>1390</u></b>	1155	1390	1144	1400	256	1030	1550	<b><u>1036</u></b>	<b><u>1540</u></b>	1043	1530
473.astar	256	1051	1710	<b><u>1053</u></b>	<b><u>1710</u></b>	1062	1690	256	1038	1730	<b><u>1040</u></b>	<b><u>1730</u></b>	1043	1720
483.xalancbmk	256	909	1940	<b><u>911</u></b>	<b><u>1940</u></b>	918	1920	256	814	2170	<b><u>814</u></b>	<b><u>2170</u></b>	816	2160

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 -vrox -pbsi
fdpr binary optimization tool used for 401.bzip2
with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 403.gcc
with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 429.mcf
with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 445.gobmk
with options -O3 -vrox -sdp 9
fdpr binary optimization tool used for 456.hammer
with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 458.sjeng
with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 462.libquantum
with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 464.h264ref
with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 471.omnetpp
with options -O4 -vrox -pbsi
fdpr binary optimization tool used for 473.astar
with options -O4 -vrox -pbsi

```



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## Submit Notes

The config file option 'submit' was used to assign benchmark copy to specific kernel thread using the "bindprocessor" command (see flags file for details).

## Operating System Notes

all ulimits set to unlimited.  
25600 16M large pages defined with vmo command

## General Notes

Environment variables set by runspec before the start of the run:  
MALLOCOPTIONS = "pool"  
MEMORY\_AFFINITY = "MCM"  
XLFRTLOPTS = "intrinthds=1"

See the flags file for details on settings.

## 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  
-D\_\_IBM\_FAST\_SET\_MAP\_ITERATOR -blpdata



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## Base Other Flags

C benchmarks:  
-qipa=threads -qipa=noobject -qsuppress=1500-036  
C++ benchmarks:  
-qipa=threads -qipa=noobject -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  
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  
-D\_ILS\_MACROS -qalias=noansi -qfdpr -blpdata  
-btextpsize:64K  
401.bz2: -bmaxdata:0x4ffffffc -qpdf1(pass 1) -qpdf2(pass 2) -O5  
-qlargepage -D\_ILS\_MACROS -qfdpr -blpdata  
403.gcc: -bmaxdata:0x50000000 -qpdf1(pass 1) -qpdf2(pass 2) -O4  
-qlargepage -D\_ILS\_MACROS -qalloca -qfdpr -blpdata  
429.mcf: -bmaxdata:0x50000000 -O5 -qlargepage -D\_ILS\_MACROS -qfdpr  
-blpdata  
445.gobmk: -qpdf1(pass 1) -qpdf2(pass 2) -O3 -qarch=auto -qtune=auto  
-qlargepage -D\_ILS\_MACROS -qfdpr -blpdata  
456.hmmer: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qenablevmx -qvecnv01  
-D\_ILS\_MACROS -qfdpr -blpdata -btextpsize:64K

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## Peak Optimization Flags (Continued)

458.sjeng: -O5 -qlargepage -qenablevmx -qvecnvml -D\_ILS\_MACROS  
-qfdpr -blpdata

462.libquantum: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qlargepage -q64  
-D\_ILS\_MACROS -qfdpr -blpdata

464.h264ref: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -D\_ILS\_MACROS -qfdpr  
-blpdata -btextpsize:64K

C++ benchmarks:

471.omnetpp: -bmaxdata:0x20000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5  
-qlargepage -D\_ILS\_MACROS -qfdpr -qalign=natural  
-qrtti=all -qinlglue -D\_\_IBM\_FAST\_SET\_MAP\_ITERATOR  
-blpdata -btextpsize:64K

473.astar: -bmaxdata:0x20000000 -O5 -qlargepage -D\_ILS\_MACROS -qfdpr  
-qenablevmx -qvecnvml -qinlglue -qalign=natural -blpdata

483.xalancbmk: -bmaxdata:0x20000000 -qpdf1(pass 1) -qpdf2(pass 2) -O5  
-qlargepage -D\_ILS\_MACROS -qfdpr -qinlglue  
-D\_\_IBM\_FAST\_VECTOR -blpdata -btextpsize:64K

## Peak Other Flags

C benchmarks:

-qipa=threads -qipa=noobject -qsuppress=1500-036

C++ benchmarks:

-qipa=threads -qipa=noobject -qsuppress=1500-036

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/IBM-AIX.20101027.html>

<http://www.spec.org/cpu2006/flags/IBM-XL.20101027.html>

You can also download the XML flags sources by saving the following links:

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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