



SPEC[®] CINT2006 Result

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Bull SAS

SPECint[®]_rate2006 = 478

Bull Escala PL1660 (4700 MHz, 16 Cores)

SPECint_rate_base2006 = 409

CPU2006 license: 20

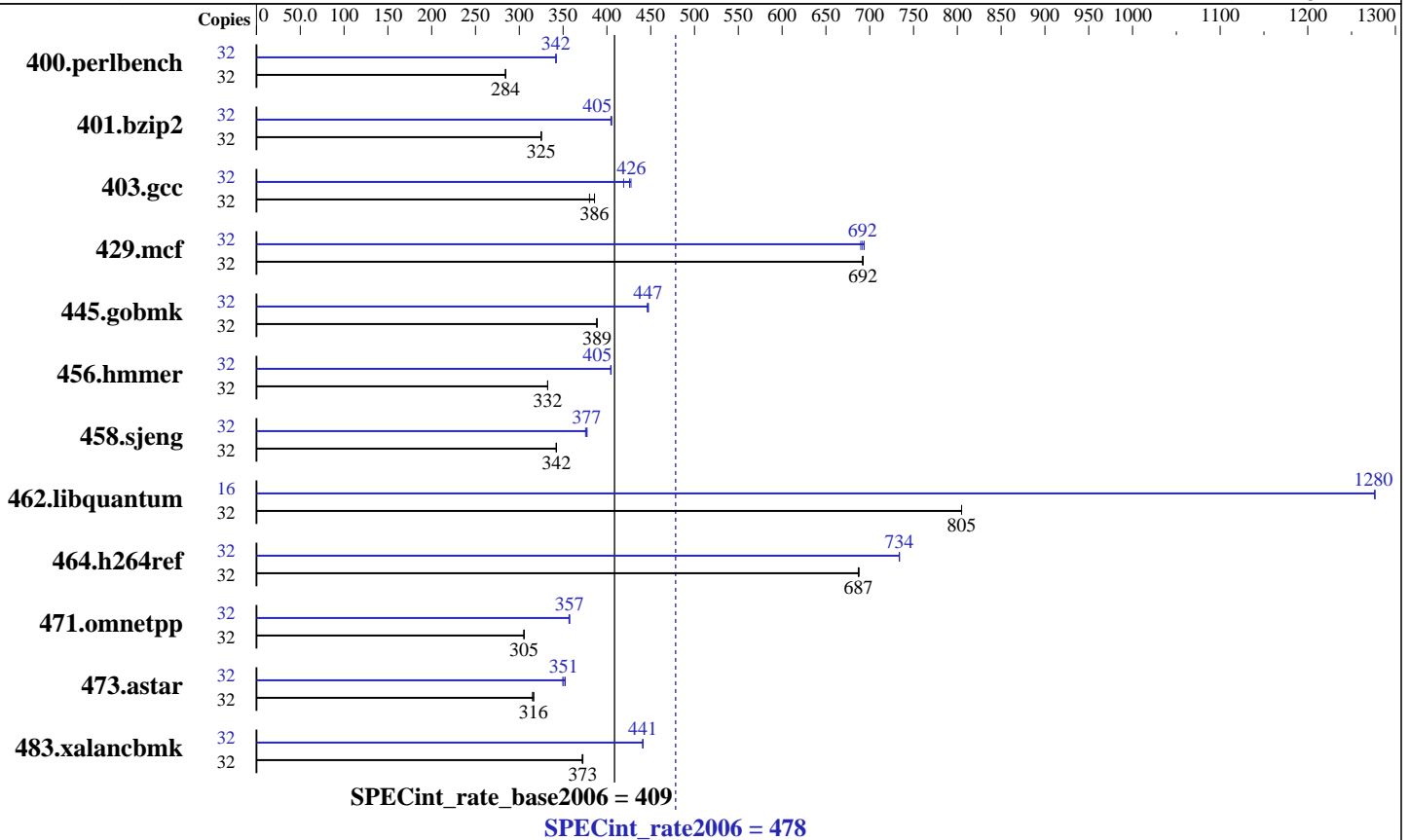
Test date: Nov-2007

Test sponsor: Bull SAS

Hardware Availability: Oct-2007

Tested by: Bull SAS

Software Availability: Aug-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 (16x8GB) DDR2 667 MHZ
 Disk Subsystem: 2x73 GB SAS, 15K RPM
 Other Hardware: None

Software

Operating System: AIX 5L V5.3
 Compiler: XL C/C++ Enterprise Edition Version 9.0 for AIX + Aug07 PTF
 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	32	<u>1099</u>	<u>284</u>	1101	284	1098	285	32	914	342	<u>914</u>	<u>342</u>	915	342
401.bzip2	32	<u>950</u>	<u>325</u>	950	325	950	325	32	763	405	<u>763</u>	<u>405</u>	761	406
403.gcc	32	678	380	668	386	<u>668</u>	<u>386</u>	32	603	427	615	419	<u>605</u>	<u>426</u>
429.mcf	32	422	692	421	692	<u>422</u>	<u>692</u>	32	<u>422</u>	<u>692</u>	421	694	423	690
445.gobmk	32	863	389	864	388	<u>864</u>	<u>389</u>	32	752	446	750	447	<u>751</u>	<u>447</u>
456.hmmmer	32	898	332	<u>898</u>	<u>332</u>	899	332	32	737	405	738	404	<u>738</u>	<u>405</u>
458.sjeng	32	<u>1131</u>	<u>342</u>	1131	342	1132	342	32	1031	376	1026	377	<u>1028</u>	<u>377</u>
462.libquantum	32	824	805	824	805	<u>824</u>	<u>805</u>	16	260	1280	260	1280	<u>260</u>	<u>1280</u>
464.h264ref	32	<u>1031</u>	<u>687</u>	1030	688	1031	687	32	965	734	965	734	<u>965</u>	<u>734</u>
471.omnetpp	32	655	305	655	305	<u>655</u>	<u>305</u>	32	561	357	<u>560</u>	<u>357</u>	560	357
473.astar	32	710	316	713	315	<u>711</u>	<u>316</u>	32	<u>640</u>	<u>351</u>	637	352	642	350
483.xalancbmk	32	593	373	<u>593</u>	<u>373</u>	594	372	32	501	441	500	441	<u>501</u>	<u>441</u>

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

Operating System Notes

AIX 5.3 Updated with the 5300-06 Technology Level
ulimits set to unlimited

Environment variables set before executing benchmarks:

```
MALLOCOPTIONS=pool
MEMORY_AFFINITY=MCM
XLFRTEOPTS=intrinthds=1
```

System set to "Enhanced" mode when defining partition on HMC
bindprocessor command used on submit to bind each copy to a unique processor.

Large page mode was set as follows:

```
vmo -r -o lpgg_regions=6144 -o lpgg_size=16777216
```

General Notes

fdpr binary optimization tool used for
401.bzip2 403.gcc 429.mcf 456.hmmmer 462.libquantum 473.astar

Base Compiler Invocation

C benchmarks:
/usr/vac/bin/xlc

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Base Compiler Invocation (Continued)

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:

-qlanglvl=extc99 -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

C++ benchmarks:

/usr/vacpp/bin/xlC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_AIX

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Peak Portability Flags (Continued)

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: -qlanglvl=extc99 -bmaxdata:0x50000000 -qpdf1(pass 1)
-qpdf2(pass 2) -O5 -qlargepage -qenablevmx -qvecnvml
-D_ILS_MACROS -qalias=noansi -blpdata

401.bzip2: -qlanglvl=extc99 -bmaxdata:0x4ffffffc -qpdf1(pass 1)
-qpdf2(pass 2) -O5 -qlargepage -qenablevmx -qvecnvml
-D_ILS_MACROS -blpdata

403.gcc: -qlanglvl=extc99 -qpdf1(pass 1) -qpdf2(pass 2) -O5
-qlargepage -D_ILS_MACROS -qalloca -q64 -blpdata

429.mcf: -qlanglvl=extc99 -bmaxdata:0x50000000 -O5 -qlargepage
-qenablevmx -qvecnvml -D_ILS_MACROS -blpdata

445.gobmk: -qlanglvl=extc99 -qpdf1(pass 1) -qpdf2(pass 2) -O5
-qlargepage -qenablevmx -qvecnvml -D_ILS_MACROS -blpdata

456.hmmr: -qlanglvl=extc99 -O5 -qlargepage -D_ILS_MACROS -blpdata

458.sjeng: -qlanglvl=extc99 -qpdf1(pass 1) -qpdf2(pass 2) -O4
-qlargepage -qenablevmx -qvecnvml -D_ILS_MACROS -blpdata

462.libquantum: -qlanglvl=extc99 -qpdf1(pass 1) -qpdf2(pass 2) -O5
-qlargepage -qenablevmx -qvecnvml -D_ILS_MACROS -q64
-blpdata

464.h264ref: -qlanglvl=extc99 -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 -qvecnvml -D_ILS_MACROS
-qalign=natural -qrtti=all -qinlglue -blpdata

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

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Peak Optimization Flags (Continued)

```
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.20090714.08.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.08.xml

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