



# SPEC® CINT2006 Result

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## Bull SAS

SPECint®\_rate2006 = 127

NovaScale T840 F2 (Intel Xeon E5603, 1.60 GHz)

SPECint\_rate\_base2006 = 118

CPU2006 license: 20

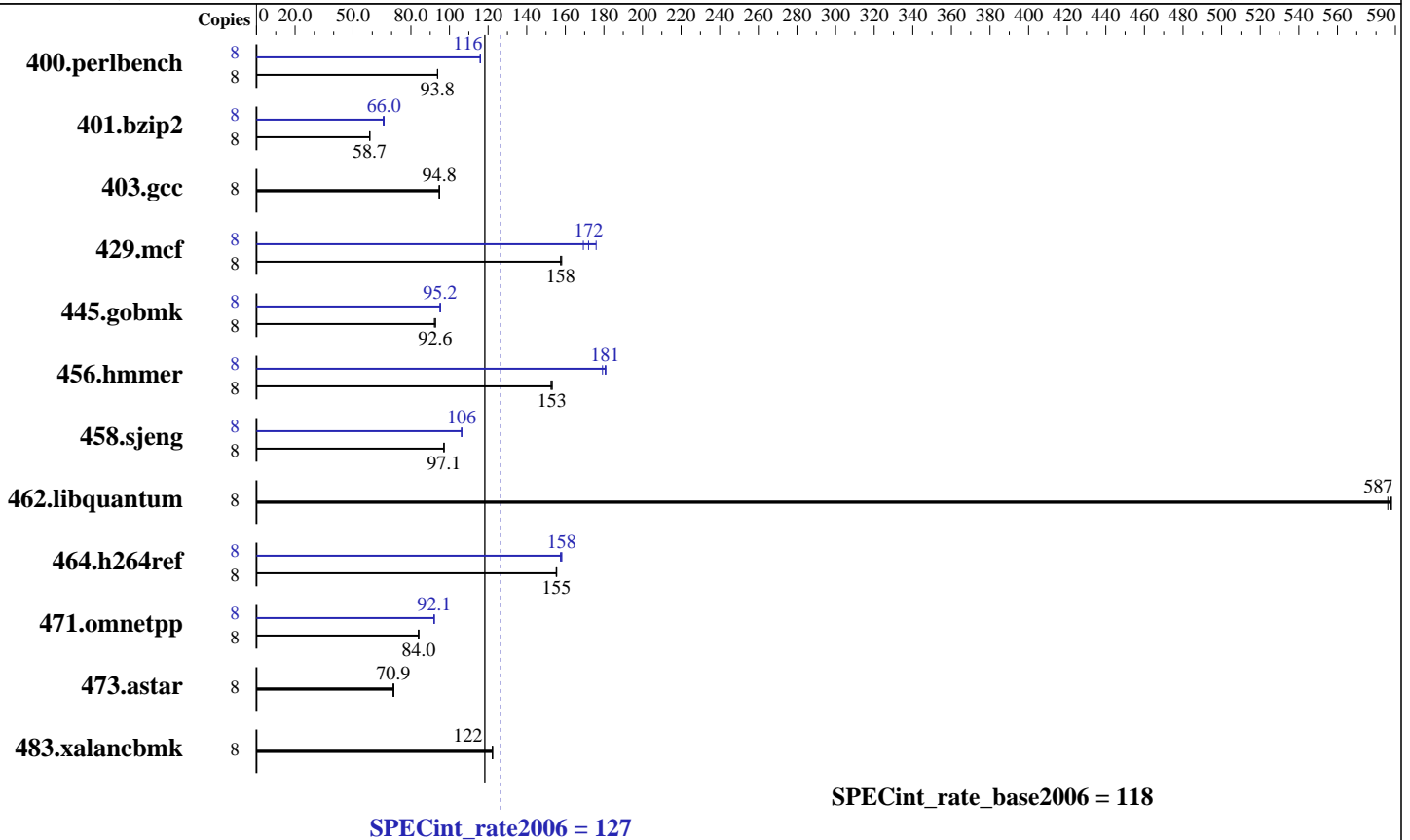
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Jun-2011

Hardware Availability: Feb-2011

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon E5603  
 CPU Characteristics:  
 CPU MHz: 1600  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 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 chip  
 Other Cache: None  
 Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC, running at 1066 MHz)  
 Disk Subsystem: 1 x 146 GB 15000 RPM SAS  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



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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	8	832	93.9	833	93.8	<b><u>833</u></b>	<b><u>93.8</u></b>	8	674	116	675	116	<b><u>674</u></b>	<b><u>116</u></b>
401.bzip2	8	1317	58.6	1314	58.7	<b><u>1316</u></b>	<b><u>58.7</u></b>	8	<b><u>1169</u></b>	<b><u>66.0</u></b>	1169	66.1	1176	65.7
403.gcc	8	679	94.8	<b><u>679</u></b>	<b><u>94.8</u></b>	681	94.6	8	679	94.8	<b><u>679</u></b>	<b><u>94.8</u></b>	681	94.6
429.mcf	8	463	158	461	158	<b><u>463</u></b>	<b><u>158</u></b>	8	431	169	<b><u>424</u></b>	<b><u>172</u></b>	415	176
445.gobmk	8	911	92.1	905	92.7	<b><u>906</u></b>	<b><u>92.6</u></b>	8	880	95.3	<b><u>881</u></b>	<b><u>95.2</u></b>	883	95.1
456.hammer	8	<b><u>488</u></b>	<b><u>153</u></b>	489	153	487	153	8	416	179	<b><u>413</u></b>	<b><u>181</u></b>	412	181
458.sjeng	8	996	97.2	997	97.1	<b><u>997</u></b>	<b><u>97.1</u></b>	8	<b><u>911</u></b>	<b><u>106</u></b>	910	106	911	106
462.libquantum	8	<b><u>282</u></b>	<b><u>587</u></b>	282	588	283	586	8	<b><u>282</u></b>	<b><u>587</u></b>	282	588	283	586
464.h264ref	8	<b><u>1139</u></b>	<b><u>155</u></b>	1138	156	1140	155	8	<b><u>1120</u></b>	<b><u>158</u></b>	1120	158	1124	157
471.omnetpp	8	594	84.1	596	83.9	<b><u>595</u></b>	<b><u>84.0</u></b>	8	544	92.0	<b><u>543</u></b>	<b><u>92.1</u></b>	543	92.1
473.astar	8	789	71.2	793	70.8	<b><u>793</u></b>	<b><u>70.9</u></b>	8	789	71.2	793	70.8	<b><u>793</u></b>	<b><u>70.9</u></b>
483.xalancbmk	8	451	122	452	122	<b><u>451</u></b>	<b><u>122</u></b>	8	451	122	452	122	<b><u>451</u></b>	<b><u>122</u></b>

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.  
numactl was used to bind copies to the cores

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
  
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages  
echo 3600 > /proc/sys/vm/nr\_hugepages  
export HUGETLB\_MORECORE=yes  
export LD\_PRELOAD=/usr/lib64/libhugetlbfs.so

## Platform Notes

BIOS Settings:  
Power Management = Maximum Performance (Default = Active Power Controller)  
Data Reuse = Disabled (Default = Enabled)

## General Notes

The Dell PowerEdge T610 and the Bull NovaScale T840 F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge T610 model. Binaries were compiled on RHEL5.5



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## Base Compiler Invocation

C benchmarks:  
icc -m32

C++ benchmarks:  
icpc -m32

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/smartheap -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

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## Peak Compiler Invocation (Continued)

C++ benchmarks:  
icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

403.gcc: basepeak = yes

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll4 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias

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## Peak Optimization Flags (Continued)

C++ benchmarks:

```
471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
             -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
             -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
             -L/smartheap -lsmartheap
```

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.xml>

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

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