# SPEC® CINT2006 Result

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## Bull SAS

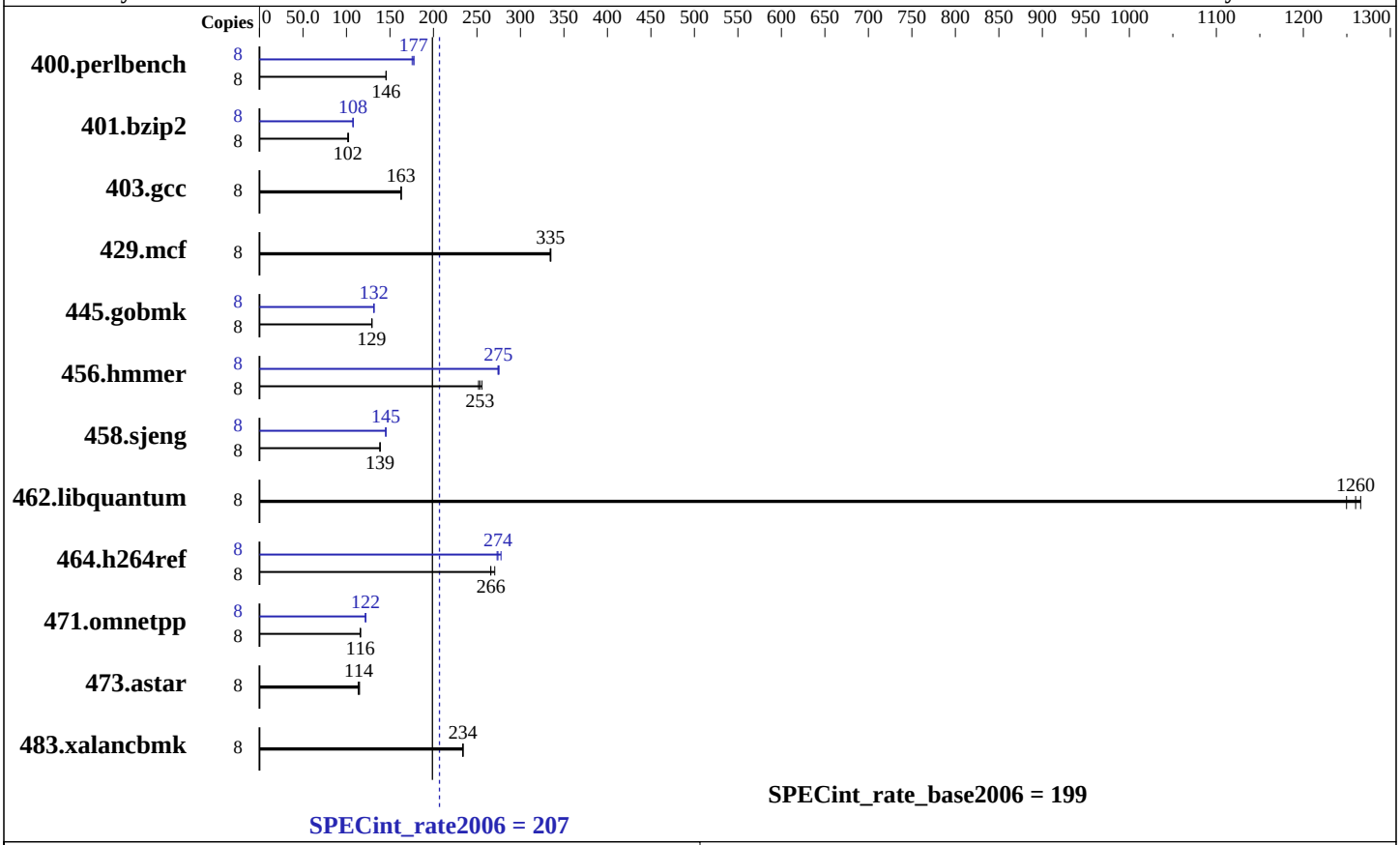
NovaScale R450 F3 (Intel Xeon E5-2407, 2.20 GHz)

SPECint®_rate2006 = 207

SPECint_rate_base2006 = 199

**CPU2006 license:** 20
**Test sponsor:** Bull SAS
**Tested by:** Dell Inc.

**Test date:** Mar-2012
**Hardware Availability:** May-2012
**Software Availability:** Feb-2012




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2407 |
| CPU Characteristics: | |
| CPU MHz: | 2200 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip |
| CPU(s) orderable: | 1,2 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |
| L3 Cache: | 10 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz) |
| Disk Subsystem: | 2 x 600 GB 15000 RPM SAS, RAID 1 |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.9-default |
| Compiler: | C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Run level 3 (add definition here) |
| 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 | 537 | 146 | 537 | 145 | **537** | **146** | 8 | 440 | 178 | 445 | 175 | **441** | **177** |
| 401.bzip2 | 8 | 759 | 102 | 754 | 102 | **759** | **102** | 8 | **717** | **108** | 718 | 108 | 717 | 108 |
| 403.gcc | 8 | 395 | 163 | **396** | **163** | 396 | 163 | 8 | 395 | 163 | **396** | **163** | 396 | 163 |
| 429.mcf | 8 | 218 | 334 | **218** | **335** | 218 | 335 | 8 | 218 | 334 | **218** | **335** | 218 | 335 |
| 445.gobmk | 8 | **650** | **129** | 650 | 129 | 649 | 129 | 8 | **638** | **132** | 638 | 131 | 637 | 132 |
| 456.hmmer | 8 | 292 | 256 | 296 | 252 | **295** | **253** | 8 | 272 | 274 | 271 | 275 | **272** | **275** |
| 458.sjeng | 8 | **698** | **139** | 698 | 139 | 698 | 139 | 8 | 667 | 145 | 666 | 145 | **666** | **145** |
| 462.libquantum | 8 | 133 | 1250 | **132** | **1260** | 131 | 1270 | 8 | 133 | 1250 | **132** | **1260** | 131 | 1270 |
| 464.h264ref | 8 | **666** | **266** | 666 | 266 | 655 | 270 | 8 | 638 | 278 | **646** | **274** | 648 | 273 |
| 471.omnetpp | 8 | 430 | 116 | **431** | **116** | 432 | 116 | 8 | **410** | **122** | 411 | 122 | 409 | 122 |
| 473.astar | 8 | 495 | 113 | 488 | 115 | **491** | **114** | 8 | 495 | 113 | 488 | 115 | **491** | **114** |
| 483.xalancbmk | 8 | **236** | **234** | 236 | 234 | 236 | 233 | 8 | **236** | **234** | 236 | 234 | 236 | 233 |

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

## Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

## Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

## Platform Notes

```
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost set to Enabled
C States/C1E set to Enabled
Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on Silk-2P Fri Mar 16 08:33:51 2012

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2407 0 @ 2.20GHz
      2 "physical id"s (chips)
      8 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
```

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## Platform Notes (Continued)

```
      following excerpts from /proc/cpuinfo might not be reliable.  Use with
      caution.)
         cpu cores : 4
         siblings  : 4
         physical 0: cores 0 1 2 3
         physical 1: cores 0 1 2 3
      cache size : 10240 KB

   From /proc/meminfo
      MemTotal:       49381468 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      SUSE Linux Enterprise Server 11 (x86_64)

   From /etc/*release* /etc/*version*
      SuSE-release:
         SUSE Linux Enterprise Server 11 (x86_64)
         VERSION = 11
         PATCHLEVEL = 2

   uname -a:
      Linux Silk-2P 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012
      (54ddfaf) x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Mar 16 08:28 last=S

   SPEC is set to: /root/CPU2006-1.2
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda1      ext3  493G   11G  457G   3% /

   Additional information from dmidecode:

   (End of data from sysinfo program)
```

## General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/root/CPU2006-1.2/libs/32:/root/CPU2006-1.2/libs/64"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RHEL5.5
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/transparent_hugepage/enabled
  Filesystem page cache cleared with:
  echo 1>       /proc/sys/vm/drop_caches
  runspec command invoked through numactl i.e.:
  numactl --interleave=all runspec <etc>
  The Dell PowerEdge R520 and
  the Bull NovaScale R450 F3 models are electronically equivalent.
```

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## General Notes (Continued)

The results have been measured on a Dell PowerEdge R520 model

## 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 -opt-mem-layout-trans=3

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/smartheap -lsmartheap

## 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

Continued on next page

## Peak Compiler Invocation (Continued)

458.sjeng: icc -m64

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)
-auto-ilp32

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

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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

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-ic12.1-official-linux64.20111122.html`
`http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml`
`http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.xml`


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