# SPEC® CINT2006 Result

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## Bull SAS

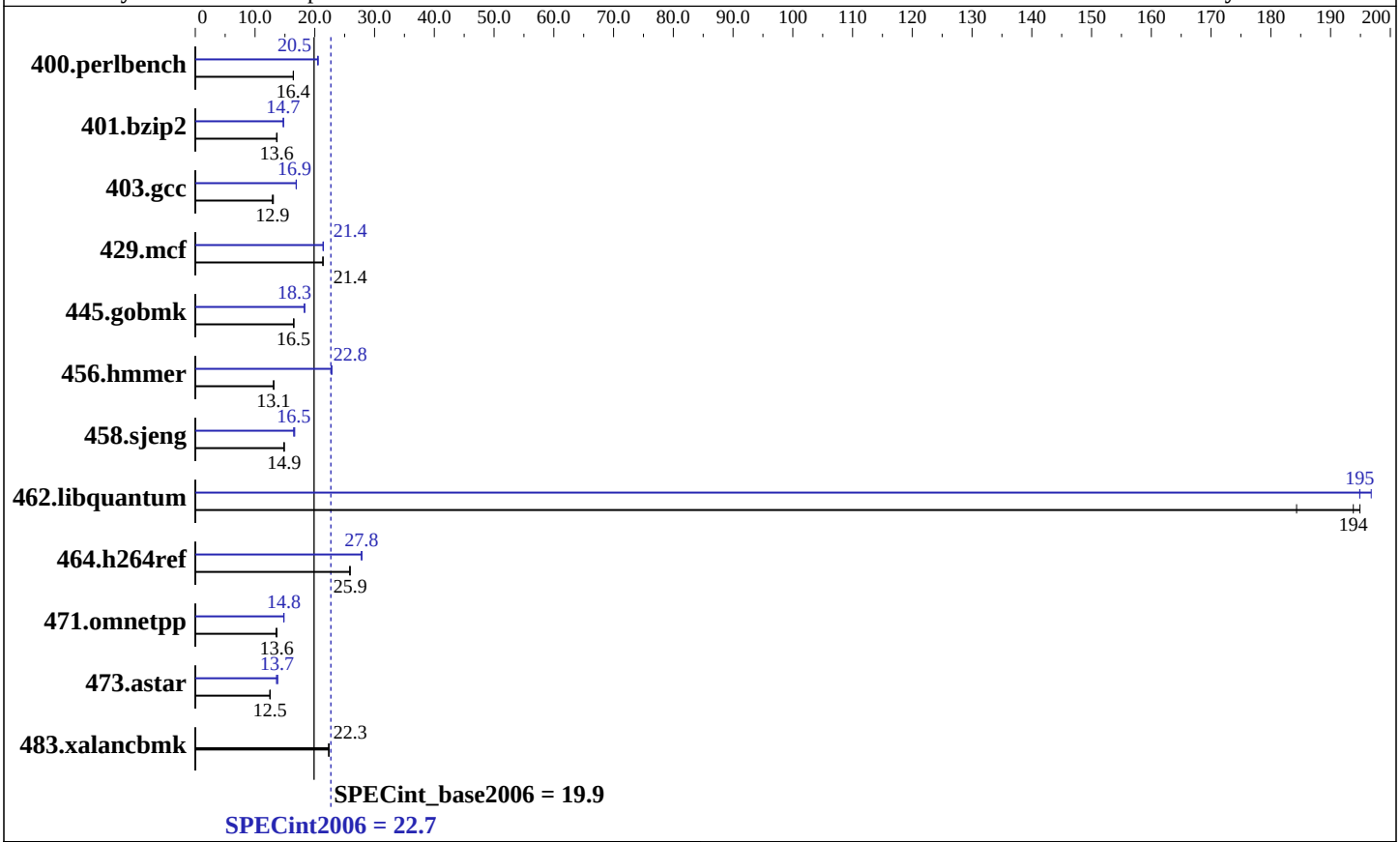
NovaScale R460 E1
(Intel Xeon E5420,2.50GHz)

SPECint®2006 = 22.7

SPECint_base2006 = 19.9

**CPU2006 license:** 20
**Test sponsor:** Bull SAS
**Tested by:** NEC Corporation

**Test date:** Jan-2008
**Hardware Availability:** Dec-2007
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5420 |
| CPU Characteristics: | 2.50 GHz, 2x6 MB L2 shared, 1333 MHz bus |
| CPU MHz: | 2500 |
| 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: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 12 GB (12x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC) |
| Disk Subsystem: | 1x73.2 GB SAS, 15000RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ Compiler for Linux32 and Linux64 version 10.1 Build 20070913 Package ID: l_cc_p_10.1.008 |
| Auto Parallel: | Yes |
| File System: | ext2 |
| System State: | Multiuser, Runlevel 3 |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | MicroQuill SmartHeap library 8.1 binutils-2.17.tar.gz, Version 2.17 |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | **595** | **16.4** | 596 | 16.4 | 595 | 16.4 | **476** | **20.5** | 477 | 20.5 | 475 | 20.6 |
| 401.bzip2 | 705 | 13.7 | **707** | **13.6** | 709 | 13.6 | 654 | 14.7 | **654** | **14.7** | 655 | 14.7 |
| 403.gcc | 616 | 13.1 | 623 | 12.9 | **622** | **12.9** | 476 | 16.9 | 477 | 16.9 | **476** | **16.9** |
| 429.mcf | 427 | 21.4 | **427** | **21.4** | 427 | 21.4 | 426 | 21.4 | 426 | 21.4 | **426** | **21.4** |
| 445.gobmk | 636 | 16.5 | 637 | 16.5 | **637** | **16.5** | **574** | **18.3** | 573 | 18.3 | 574 | 18.3 |
| 456.hmmer | **711** | **13.1** | 712 | 13.1 | 711 | 13.1 | 409 | 22.8 | **409** | **22.8** | 409 | 22.8 |
| 458.sjeng | 813 | 14.9 | **814** | **14.9** | 816 | 14.8 | **732** | **16.5** | 727 | 16.6 | 734 | 16.5 |
| 462.libquantum | 106 | 195 | 112 | 184 | **107** | **194** | 105 | 197 | 106 | 195 | **106** | **195** |
| 464.h264ref | 854 | 25.9 | **854** | **25.9** | 857 | 25.8 | 796 | 27.8 | **795** | **27.8** | 794 | 27.9 |
| 471.omnetpp | **459** | **13.6** | 458 | 13.6 | 462 | 13.5 | 421 | 14.8 | 423 | 14.8 | **421** | **14.8** |
| 473.astar | **562** | **12.5** | 562 | 12.5 | 560 | 12.5 | 517 | 13.6 | 509 | 13.8 | **511** | **13.7** |
| 483.xalancbmk | 308 | 22.4 | **309** | **22.3** | 309 | 22.3 | 308 | 22.4 | **309** | **22.3** | 309 | 22.3 |

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

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores (default).

## Platform Notes

Bios settings:
Intel SpeedStep Technology: Disabled

## General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode

The NEC Express5800/120Rh-1(Intel Xeon Prosessor E5420),
the NEC Express5800/120Rj-2(Intel Xeon Prosessor E5420),
the Bull NovaScale R440 E1 (Intel Xeon E5420,2.50GHz) and
the Bull NovaScale R460 E1 (Intel Xeon E5420,2.50GHz) models are electronically equivalent.
The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon Prosessor E5420) model.

## Base Compiler Invocation

C benchmarks:
icc

Continued on next page

## Base Compiler Invocation (Continued)

C++ benchmarks:
icpc

## Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

## Base Optimization Flags

C benchmarks:
-fast -vec-guard-write -parallel -par-runtime-control

C++ benchmarks:
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs
-L/opt/SmartHeap_8.1/lib -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):
icc

401.bzip2: /opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include

C++ benchmarks:
icpc

## Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias
-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-auto-ilp32

403.gcc: -fast -inline-calloc -opt-malloc-options=3

429.mcf: -fast -prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xT -O2 -ipo
-no-prec-div -ansi-alias

456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive
-auto-ilp32

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch
-opt-streaming-stores always -vec-guard-write
-opt-malloc-options=3 -parallel -par-runtime-control

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo
-no-prec-div -ansi-alias -opt-ra-region-strategy=block
-Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine
-Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmartheap

483.xalancbmk: basepeak = yes

# Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090713.01.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090713.01.xml`


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