SPEC® CINT2006 Result

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Bull SAS

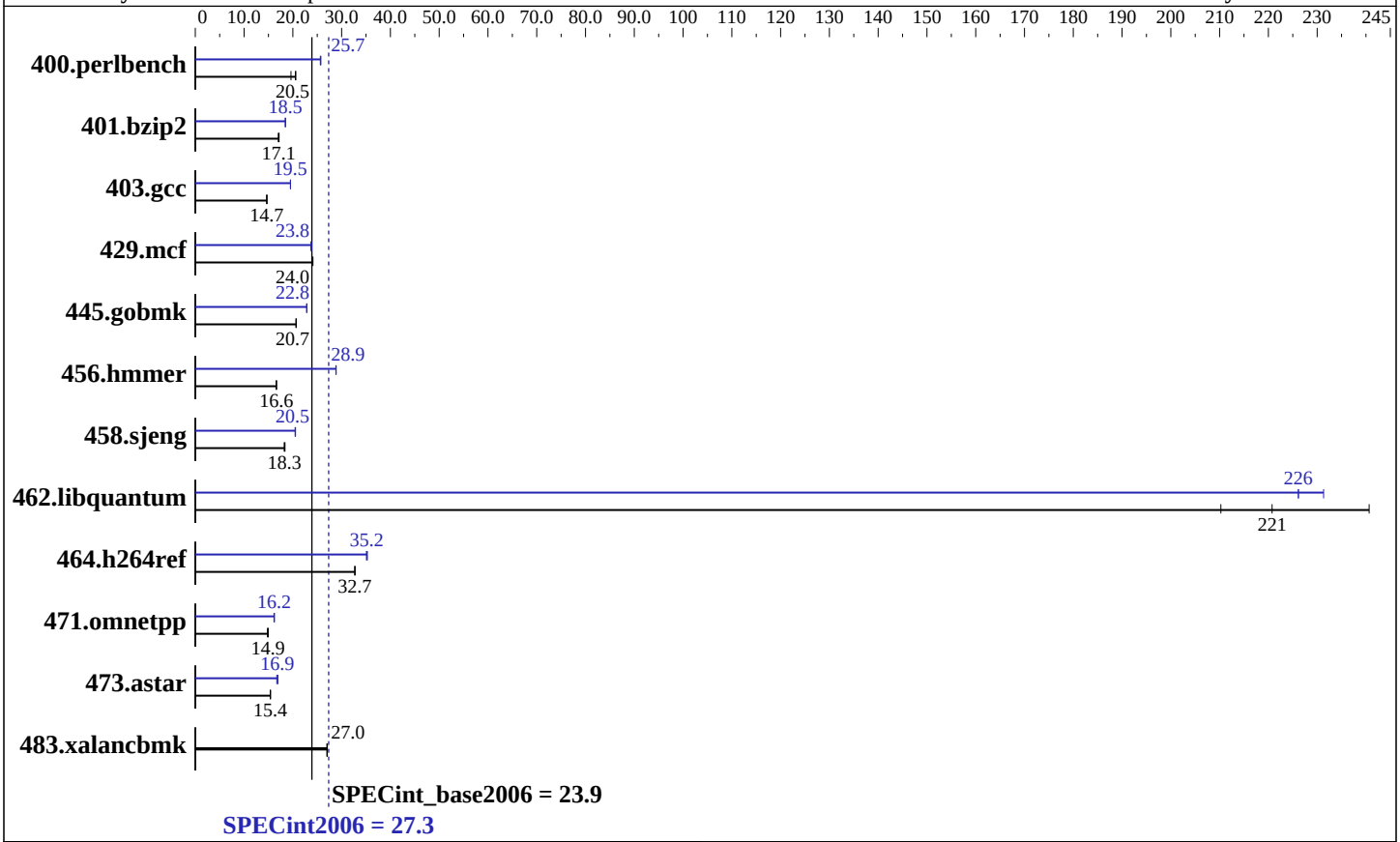
NovaScale R440 E1
(Intel Xeon X5460,3.16GHz)

SPECint®2006 = 27.3

SPECint_base2006 = 23.9

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

Test date: Dec-2007
Hardware Availability: Dec-2007
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon X5460
CPU Characteristics:	3.16 GHz, 2x6 MB L2 shared, 1333 MHz bus
CPU MHz:	3160
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	474	20.6	**476**	**20.5**	498	19.6	381	25.6	380	25.7	**380**	**25.7**
401.bzip2	567	17.0	562	17.2	**564**	**17.1**	521	18.5	523	18.4	**522**	**18.5**
403.gcc	**549**	**14.7**	548	14.7	550	14.6	412	19.5	413	19.5	**412**	**19.5**
429.mcf	378	24.1	**380**	**24.0**	382	23.9	385	23.7	**384**	**23.8**	383	23.8
445.gobmk	507	20.7	508	20.7	**507**	**20.7**	459	22.8	459	22.9	**459**	**22.8**
456.hmmer	561	16.6	**561**	**16.6**	562	16.6	323	28.9	324	28.8	**323**	**28.9**
458.sjeng	**662**	**18.3**	663	18.3	658	18.4	589	20.5	**590**	**20.5**	591	20.5
462.libquantum	**93.9**	**221**	98.5	210	86.1	241	91.6	226	**91.6**	**226**	89.6	231
464.h264ref	676	32.7	676	32.7	**676**	**32.7**	631	35.1	**629**	**35.2**	627	35.3
471.omnetpp	419	14.9	**419**	**14.9**	423	14.8	**386**	**16.2**	387	16.1	386	16.2
473.astar	457	15.4	**456**	**15.4**	455	15.4	420	16.7	415	16.9	**416**	**16.9**
483.xalancbmk	255	27.1	256	27.0	**255**	**27.0**	255	27.1	256	27.0	**255**	**27.0**

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 X5460),
 the NEC Express5800/120Rj-2(Intel Xeon Prosessor X5460),
 the Bull NovaScale R440 E1 (Intel Xeon X5460,3.16GHz) and
 the Bull NovaScale R460 E1 (Intel Xeon X5460,3.16GHz) models are electronically equivalent.
 The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon Prosessor X5460) 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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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 18:04:48 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 17 April 2008.