SPEC® CINT2006 Result

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Bull SAS

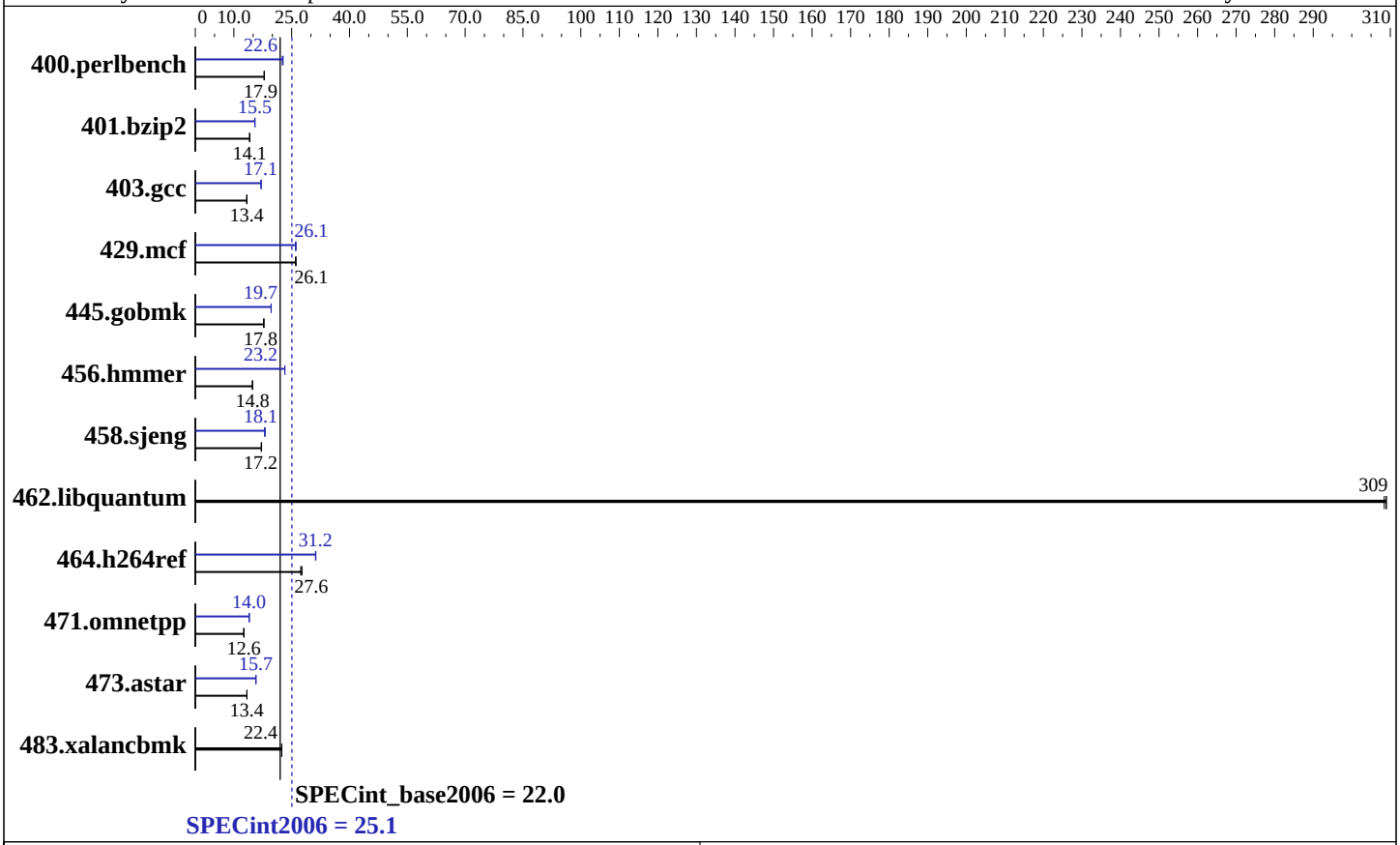
NovaScale R480 E1
(2.66 GHz, Intel Xeon X7460)

SPECint®2006 = 25.1

SPECint_base2006 = 22.0

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

Test date: Nov-2008
Hardware Availability: Nov-2008
Software Availability: Nov-2008



Hardware

CPU Name:	Intel Xeon X7460
CPU Characteristics:	1066 MHz system bus
CPU MHz:	2667
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
CPU(s) orderable:	1,2,3,4 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	9 MB I+D on chip per chip, 3 MB shared / 2 cores
L3 Cache:	16 MB I+D on chip per chip
Other Cache:	None
Memory:	32 GB (16x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem:	1x73.2 GB SAS, 15000 RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smp
Compiler:	Intel C++ Compiler 11.0 for Linux Build 20080930 Package ID: l_cproc_p_11.0.069
Auto Parallel:	Yes
File System:	ext2
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	MicroQuill SmartHeap Library 8.1 Binutils 2.18.50.0.7.20080502

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	545	17.9	547	17.9	**546**	**17.9**	432	22.6	429	22.8	**432**	**22.6**
401.bzip2	687	14.0	**682**	**14.1**	681	14.2	626	15.4	623	15.5	**624**	**15.5**
403.gcc	605	13.3	**600**	**13.4**	600	13.4	472	17.1	**471**	**17.1**	471	17.1
429.mcf	351	26.0	349	26.1	**350**	**26.1**	**350**	**26.1**	351	26.0	349	26.1
445.gobmk	590	17.8	**590**	**17.8**	590	17.8	534	19.6	**533**	**19.7**	532	19.7
456.hmmer	628	14.9	**629**	**14.8**	629	14.8	402	23.2	402	23.2	**402**	**23.2**
458.sjeng	708	17.1	**704**	**17.2**	704	17.2	673	18.0	**669**	**18.1**	669	18.1
462.libquantum	67.2	308	**67.1**	**309**	67.1	309	67.2	308	**67.1**	**309**	67.1	309
464.h264ref	800	27.7	**802**	**27.6**	810	27.3	710	31.2	**709**	**31.2**	707	31.3
471.omnetpp	496	12.6	**496**	**12.6**	497	12.6	**447**	**14.0**	447	14.0	446	14.0
473.astar	**524**	**13.4**	524	13.4	524	13.4	448	15.7	**446**	**15.7**	446	15.8
483.xalancbmk	**308**	**22.4**	308	22.4	307	22.5	**308**	**22.4**	308	22.4	307	22.5

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
KMP_AFFINITY set to "physical,0"
```

Platform Notes

```
Bios settings:
Hardware Prefetcher:              Enabled
Adjacent Cache Line Prefetch:     Enabled
FSB High Bandwidth Optimization: Disabled
```

General Notes

```
The NEC Express5800/R140a-4(Intel Xeon X7460) and
the Bull NovaScale R480 E1(Intel Xeon X7460, 2.66 GHz) models are electronically equivalent.
The results have been measured on a NEC Express5800/R140a-4(Intel Xeon X7460) model.
```

Base Compiler Invocation

C benchmarks:
icc

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:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -opt-prefetch

C++ benchmarks:
-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -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/Compiler/11.0/069/bin/intel64/icc
-L/opt/intel/Compiler/11.0/069/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/069/ipp/em64t/include

456.hmmer: /opt/intel/Compiler/11.0/069/bin/intel64/icc
-L/opt/intel/Compiler/11.0/069/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/069/ipp/em64t/include

C++ benchmarks:
icpc

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64

Continued on next page

Peak Portability Flags (Continued)

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) -xSSE4.1 -ipo -O3
-no-prec-div -static -ansi-alias -opt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -auto-ilp32 -opt-prefetch
-ansi-alias

403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc
-opt-malloc-options=3

429.mcf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo
-no-prec-div -ansi-alias

456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2
-ansi-alias -auto-ilp32

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4

462.libquantum: basepeak = yes

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

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-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) -xSSE4.1 -ipo -O3
-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 files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.html`
`http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.xml`
`http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.xml`

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