SPEC® CFP2006 Result

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Bull SAS

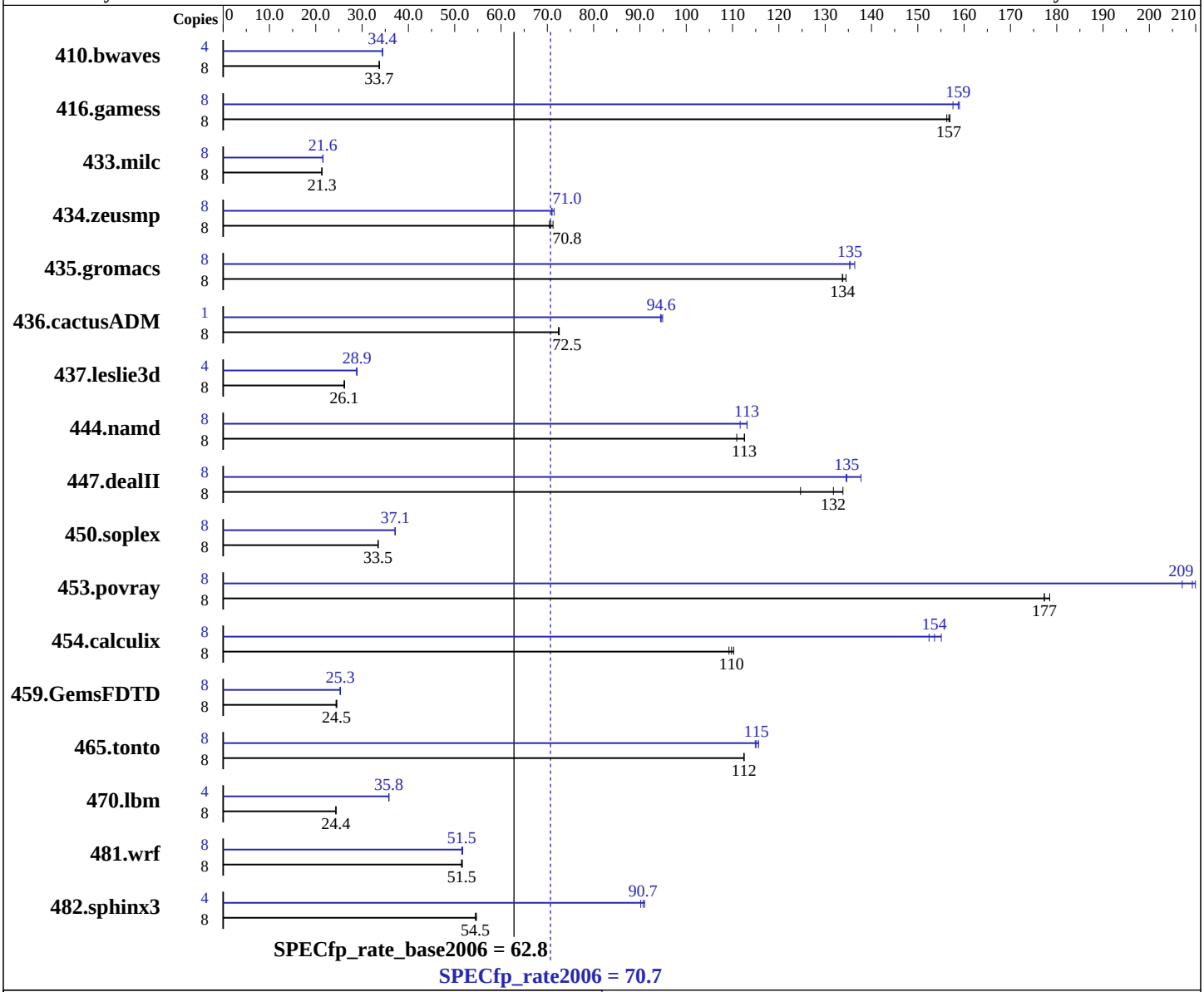
NovaScale R440 E1
(Intel Xeon E5430 ,2.66 GHz)

SPECfp®_rate2006 = 70.7

SPECfp_rate_base2006 = 62.8

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

Test date: May-2008
Hardware Availability: Jan-2008
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon E5430
CPU Characteristics:	1333 MHz system bus
CPU MHz:	2666
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

Continued on next page

Software

Operating System:	SUSE LINUX Enterprise Server 10 SP1 Kernel 2.6.16.46-0.12-smp for x86_64
Compiler:	Intel C++ and Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
Auto Parallel:	Yes
File System:	ext2
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

Continued on next page

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2 GB) FB-DIMM PC2-5300F ECC CL5
Disk Subsystem: 1x73 GB SAS, 15000 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.50.0.15

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	**3226**	**33.7**	3223	33.7	3226	33.7	4	1580	34.4	1580	34.4	**1580**	**34.4**
416.gamess	8	**1000**	**157**	998	157	1002	156	8	985	159	**987**	**159**	994	158
433.milc	8	3441	21.3	3450	21.3	**3442**	**21.3**	8	3404	21.6	**3407**	**21.6**	3414	21.5
434.zeusmp	8	**1029**	**70.8**	1022	71.2	1034	70.4	8	1026	71.0	**1025**	**71.0**	1019	71.5
435.gromacs	8	**427**	**134**	427	134	425	135	8	419	136	**422**	**135**	422	135
436.cactusADM	8	**1319**	**72.5**	1321	72.4	1317	72.6	1	126	94.9	127	94.5	**126**	**94.6**
437.leslie3d	8	**2876**	**26.1**	2880	26.1	2867	26.2	4	**1300**	**28.9**	1306	28.8	1300	28.9
444.namd	8	570	113	**570**	**113**	579	111	8	567	113	**567**	**113**	575	112
447.dealII	8	684	134	**695**	**132**	734	125	8	664	138	680	135	**680**	**135**
450.soplex	8	1996	33.4	1992	33.5	**1994**	**33.5**	8	**1797**	**37.1**	1798	37.1	1794	37.2
453.povray	8	**240**	**177**	240	177	238	178	8	**203**	**209**	203	210	206	207
454.calculix	8	**601**	**110**	604	109	599	110	8	433	152	**430**	**154**	426	155
459.GemsFDTD	8	3483	24.4	**3468**	**24.5**	3458	24.5	8	3349	25.3	3363	25.2	**3356**	**25.3**
465.tonto	8	700	112	700	112	**700**	**112**	8	**683**	**115**	685	115	681	116
470.lbm	8	**4512**	**24.4**	4510	24.4	4520	24.3	4	1535	35.8	**1536**	**35.8**	1537	35.8
481.wrf	8	1736	51.5	**1734**	**51.5**	1730	51.7	8	1727	51.7	1734	51.5	**1734**	**51.5**
482.sphinx3	8	2850	54.7	2862	54.5	**2862**	**54.5**	4	**860**	**90.7**	857	91.0	865	90.2

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
'/usr/bin/taskset' used to bind processes to CPUs
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 64M
```

General Notes

```
All benchmarks compiled in 64-bit mode except 450.soplex,
470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode
The Bull NovaScale R440 E1 (Intel Xeon E5430, 2.66 GHz) and
the Bull NovaScale R460 E1 (Intel Xeon E5430, 2.66 GHz) models are electronically equivalent.
The results have been measured on a Bull NovaScale R460 E1 (Intel Xeon E5430, 2.66 GHz) model.
```

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-fast

C++ benchmarks:
-fast

Fortran benchmarks:
-fast

Benchmarks using both Fortran and C:
-fast

Peak Compiler Invocation

C benchmarks (except as noted below):
`/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

433.milc: `icc`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

Fortran benchmarks (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib -I/opt/intel/fc/10.1.008/include`

Benchmarks using both Fortran and C:
`icc ifort`

Peak Portability Flags

410.bwaves: `-DSPEC_CPU_LP64`
416.gamess: `-DSPEC_CPU_LP64`
433.milc: `-DSPEC_CPU_LP64`
434.zeusmp: `-DSPEC_CPU_LP64`
435.gromacs: `-DSPEC_CPU_LP64 -nofor_main`
436.cactusADM: `-DSPEC_CPU_LP64 -nofor_main`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

433.milc: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -fno-alias -auto-ilp32`

470.lbm: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -scalar-rep- -prefetch -opt-malloc-options=3`

Continued on next page

Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090713.00.html

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You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090713.00.xml`

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