SPEC® CFP2006 Result
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Bull SAS

NovaScale R480E1
(Intel Xeon E7310,1.60GHz)

$SPECfp®\_rate2006 =$ 85.5

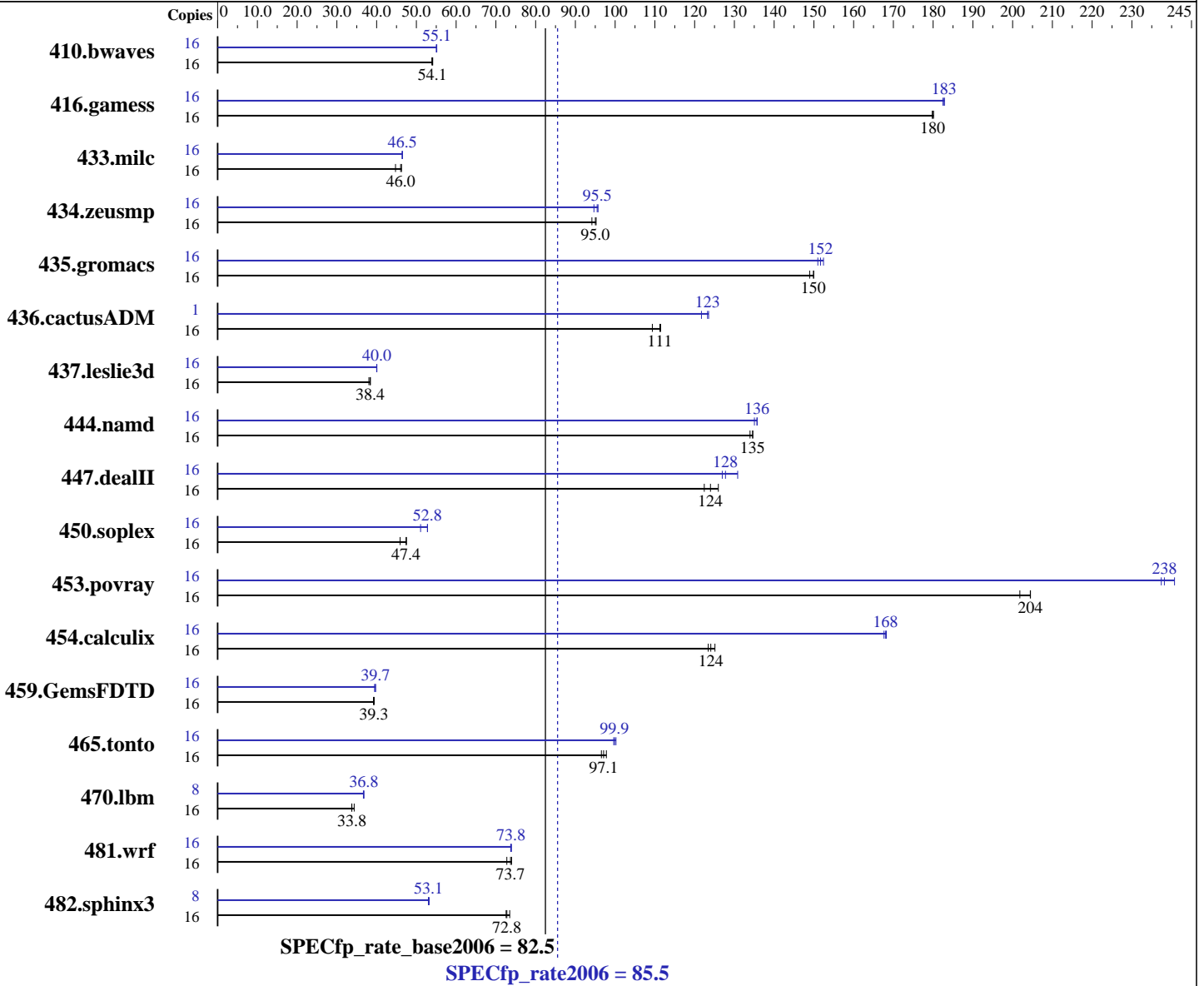SPECfp_rate_base2006 = 82.5

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

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

SPECfp_rate_base2006 = 82.5

SPECfp_rate2006 = 85.5

Copies			
410.bwaves	16	55.1	
	16	54.1	
416.gamess	16	183	
	16	180	
433.milc	16	46.5	
	16	46.0	
434.zeusmp	16	95.5	
	16	95.0	
435.gromacs	16	152	
	16	150	
436.cactusADM	1	123	
	16	111	
437.leslie3d	16	40.0	
	16	38.4	
444.namd	16	136	
	16	135	
447.dealII	16	128	
	16	124	
450.soplex	16	52.8	
	16	47.4	
453.povray	16	238	
	16	204	
454.calculix	16	168	
	16	124	
459.GemsFDTD	16	39.7	
	16	39.3	
465.tonto	16	99.9	
	16	97.1	
470.lbm	8	36.8	
	16	33.8	
481.wrf	16	73.8	
	16	73.7	
482.sphinx3	8	53.1	
	16	72.8	

Hardware

CPU Name: Intel Xeon E7310
CPU Characteristics: 1.60 GHz, 4 MB L2, 1066 MHz system bus
CPU MHz: 1600
FPU: Integrated
CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip
CPU(s) orderable: 1 to 4 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 4 MB I+D on chip per chip, 2 MB shared / 2 cores

Software

Operating System: SUSE LINUX Enterprise Server 10 SP1
Kernel 2.6.16.46-0.12-smp for x86_64
Compiler: Intel C++ Compiler for Linux32 and Linux64
version 10.1
Build 20070725
Auto Parallel: Yes
File System: ReiserFS
System State: Multi-user run level 3
Base Pointers: 64-bit

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L3 Cache: None	Peak Pointers: 32/64-bit
Other Cache: None	Other Software: SmartHeap library V8.1
Memory: 32 GB (16x2 GB) FB-DIMM PC2-5300F ECC CL5	Binutils 2.17.50.0.15
Disk Subsystem: 1x73 GB SAS, 15000 RPM	
Other Hardware: None	

Results Table

Benchmark		Base							Peak					
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	4035	53.9	4018	54.1	**4023**	**54.1**	16	3954	55.0	3944	55.1	**3945**	**55.1**
416.gamess	16	**1742**	**180**	1743	180	1739	180	16	**1714**	**183**	1713	183	1717	182
433.milc	16	**3190**	**46.0**	3282	44.7	3174	46.3	16	3166	46.4	**3159**	**46.5**	3158	46.5
434.zeusmp	16	1529	95.2	1546	94.2	**1532**	**95.0**	16	1521	95.7	**1525**	**95.5**	1538	94.7
435.gromacs	16	767	149	762	150	**762**	**150**	16	757	151	**753**	**152**	749	152
436.cactusADM	16	1716	111	1748	109	**1719**	**111**	1	98.2	122	**97.0**	**123**	96.7	124
437.leslie3d	16	**3919**	**38.4**	3953	38.0	3913	38.4	16	**3756**	**40.0**	3760	40.0	3754	40.1
444.namd	16	**953**	**135**	953	135	958	134	16	950	135	945	136	**946**	**136**
447.dealII	16	1453	126	**1476**	**124**	1495	122	16	1442	127	**1433**	**128**	1399	131
450.soplex	16	**2815**	**47.4**	2907	45.9	2809	47.5	16	2613	51.1	**2529**	**52.8**	2527	52.8
453.povray	16	**416**	**204**	422	202	416	204	16	**357**	**238**	359	237	354	241
454.calculix	16	1055	125	1070	123	**1064**	**124**	16	785	168	**785**	**168**	787	168
459.GemsFDTD	16	4310	39.4	4329	39.2	**4323**	**39.3**	16	4300	39.5	4274	39.7	**4275**	**39.7**
465.tonto	16	1631	96.5	**1621**	**97.1**	1610	97.8	16	**1577**	**99.9**	1571	100	1580	99.6
470.lbm	16	**6510**	**33.8**	6517	33.7	6399	34.4	8	2998	36.7	2988	36.8	**2989**	**36.8**
481.wrf	16	**2426**	**73.7**	2456	72.8	2417	74.0	16	2424	73.7	**2422**	**73.8**	2418	73.9
482.sphinx3	16	4297	72.6	**4286**	**72.8**	4244	73.5	8	**2939**	**53.1**	2941	53.0	2930	53.2

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

All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3 for peak, are compiled in 32-bit mode

/usr/bin/taskset utility used to bind CPU(s) to processes

General Notes

BIOS settings :
Hardware Prefetcher : Disabled
Adjacent Cache-Line Prefetch : Disabled

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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

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Peak Compiler Invocation

C benchmarks (except as noted below):
```
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include
```

433.milc: `icc`

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

450.soplex: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icpc`
`-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib`
`-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include`

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

437.leslie3d: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/ifort`
`-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib`
`-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/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`

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Peak Optimization Flags (Continued)

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

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`

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The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/EM64T_Intel101_flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/EM64T_Intel101_flags.xml

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