SPEC® CFP2006 Result
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Dell Inc.

PowerEdge R910 (Intel Xeon E7520, 1.87 GHz)

$SPECfp^{®}\_rate2006 = \quad 280$

$SPECfp\_rate\_base2006 = \quad 272$
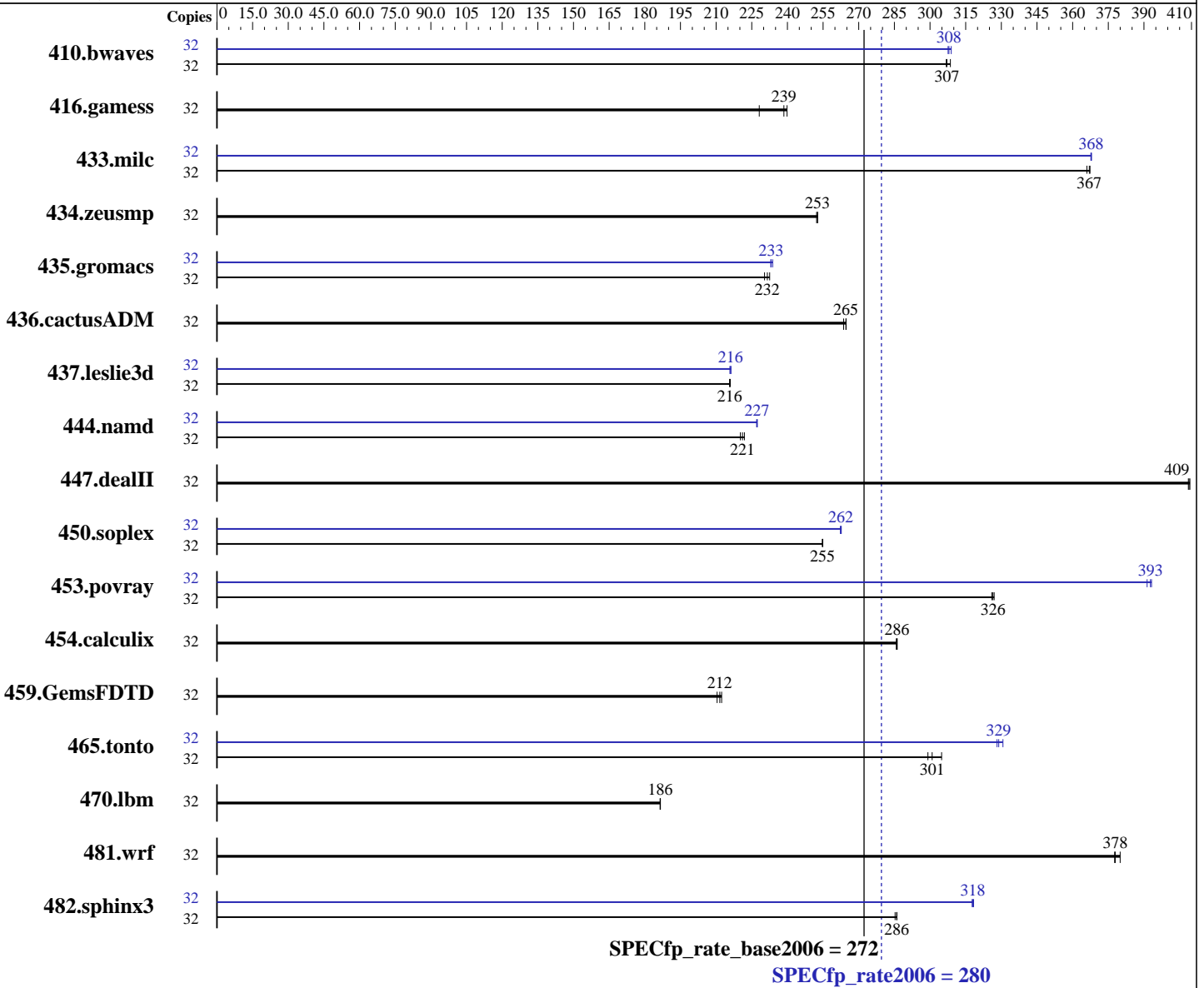
CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Feb-2010
Hardware Availability: Mar-2010
Software Availability: Dec-2009

	Copies	Result
410.bwaves	32	308
	32	307
416.gamess	32	239
433.milc	32	368
	32	367
434.zeusmp	32	253
435.gromacs	32	233
	32	232
436.cactusADM	32	265
437.leslie3d	32	216
	32	216
444.namd	32	227
	32	221
447.dealII	32	409
450.soplex	32	262
	32	255
453.povray	32	393
	32	326
454.calculix	32	286
459.GemsFDTD	32	212
465.tonto	32	329
	32	301
470.lbm	32	186
481.wrf	32	378
482.sphinx3	32	318
	32	286

SPECfp_rate_base2006 = 272

SPECfp_rate2006 = 280

Hardware

CPU Name: Intel Xeon E7520
CPU Characteristics: None
CPU MHz: 1866
FPU: Integrated
CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable: 2,4 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
Continued on next page

Software

Operating System: Red Hat Linux Enterprise Linux 5 (x86_64) Update 4 errata kernel (RHEL 5.4.z) kernel-2.6.18-164.9.1.el5.x86_64
Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel: No
File System: ext3
Continued on next page

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L3 Cache:	18 MB I+D on chip per chip	System State:	Run level 5 (multi-user mode, with display manager as well as console logins)
Other Cache:	None		
Memory:	256 GB (64 x 4 GB DDR3-1067 QR RDIMM)	Base Pointers:	64-bit
Disk Subsystem:	1 x 300 GB 10000 RPM SAS 6Gb	Peak Pointers:	32/64-bit
Other Hardware:	None	Other Software:	Binutils 2.17.50.0.6-12.el5

Results Table

| Benchmark | Base | | | | | | Peak | | | | | | |
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	1409	309	**1416**	**307**	1417	307	32	1408	309	1414	308	**1412**	**308**
416.gamess	32	**2627**	**239**	2746	228	2612	240	32	**2627**	**239**	2746	228	2612	240
433.milc	32	803	366	800	367	**800**	**367**	32	**799**	**368**	798	368	799	368
434.zeusmp	32	1154	252	1152	253	**1153**	**253**	32	1154	252	1152	253	**1153**	**253**
435.gromacs	32	992	230	983	233	**987**	**232**	32	980	233	**980**	**233**	977	234
436.cactusADM	32	1445	265	1450	264	**1445**	**265**	32	1445	265	1450	264	**1445**	**265**
437.leslie3d	32	**1394**	**216**	1395	216	1393	216	32	1391	216	1394	216	**1392**	**216**
444.namd	32	**1161**	**221**	1165	220	1157	222	32	**1129**	**227**	1129	227	1130	227
447.dealII	32	896	409	894	409	**895**	**409**	32	896	409	894	409	**895**	**409**
450.soplex	32	**1048**	**255**	1047	255	1048	255	32	**1017**	**262**	1016	263	1018	262
453.povray	32	522	326	521	327	**521**	**326**	32	**433**	**393**	435	391	433	393
454.calculix	32	924	286	**923**	**286**	923	286	32	924	286	**923**	**286**	923	286
459.GemsFDTD	32	**1605**	**212**	1614	210	1599	212	32	**1605**	**212**	1614	210	1599	212
465.tonto	32	1033	305	1053	299	**1047**	**301**	32	952	331	959	328	**957**	**329**
470.lbm	32	2358	186	2357	187	**2358**	**186**	32	2358	186	2357	187	**2358**	**186**
481.wrf	32	941	380	**946**	**378**	946	378	32	941	380	**946**	**378**	946	378
482.sphinx3	32	**2181**	**286**	2180	286	2186	285	32	1959	318	**1961**	**318**	1963	318

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

Submit Notes

The config file option 'submit' was used.

Platform Notes

    vm.zone_reclaim_mode = 1 in /etc/sysctl.conf file
    BIOS Settings:
    Power Management = Maximum Performance (Default = Active Power Controller)

General Notes

    The Dell PowerEdge R910 and the Bull NovaScale R480 F2 models are electronically equivalent.
    The results have been measured on a Dell PowerEdge R910 model.

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Base Compiler Invocation

C benchmarks:
    icc   -m64

C++ benchmarks:
    icpc -m64

Fortran benchmarks:
    ifort -m64

Benchmarks using both Fortran and C:
    icc   -m64 ifort -m64

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:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

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Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc   -m64
```

    482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
```
icpc  -m64
```

    450.soplex: `icpc -m32`

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

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`
    437.leslie3d: `-DSPEC_CPU_LP64`
    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`
    470.lbm: `-DSPEC_CPU_LP64`
    481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

    433.milc: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)`
`-fno-alias -opt-prefetch`

    470.lbm: basepeak = yes

    482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2`

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Peak Optimization Flags (Continued)

C++ benchmarks:

    444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
        -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
        -fno-alias -auto-ilp32

    447.dealII: basepeak = yes

    450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
        -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
        -opt-malloc-options=3

    453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
        -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
        -unroll4 -ansi-alias

Fortran benchmarks:

    410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

    416.gamess: basepeak = yes

    434.zeusmp: basepeak = yes

    437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static

  459.GemsFDTD: basepeak = yes

    465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
        -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
        -unroll4 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

    435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
        -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
        -opt-prefetch -auto-ilp32

  436.cactusADM: basepeak = yes

    454.calculix: basepeak = yes

      481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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