SPEC® CFP2006 Result
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NEC Corporation

Express5800/B120d (Intel Xeon E5-2430L)

$SPECfp®\_rate2006 =$ 299

$SPECfp\_rate\_base2006 =$ 292

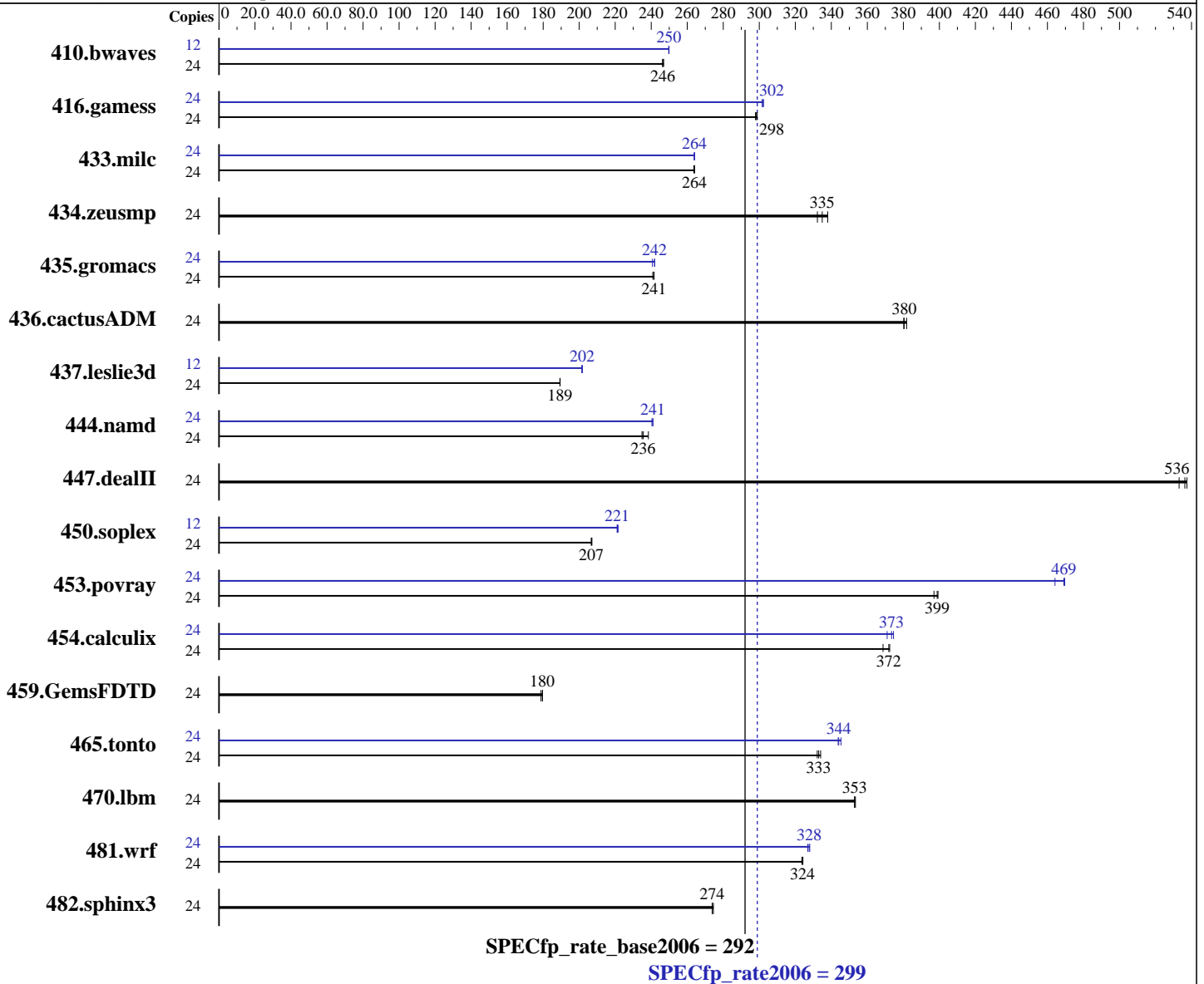**CPU2006 license:** 9006　　　　　　　　　　　　　　　　　　　　**Test date:** Jun-2012
Test sponsor: NEC Corporation　　　　　　　　　　　　**Hardware Availability:** Jun-2012
Tested by: NEC Corporation　　　　　　　　　　　　　**Software Availability:** Dec-2011

SPECfp_rate_base2006 = 292

SPECfp_rate2006 = 299

Hardware	
CPU Name:	Intel Xeon E5-2430L
CPU Characteristics:	Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software	
Operating System:	Red Hat Enterprise Linux Server release 6.2 (Santiago) Kernel 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.2.273 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	ext4

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L3 Cache:	15 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	96 GB (12 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 x 500 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

	Base						Peak					
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	24	**1323**	**246**	1321	247	1324	246	12	653	250	**653**	**250**	653	250
416.gamess	24	**1576**	**298**	1573	299	1577	298	24	**1555**	**302**	1558	302	1554	302
433.milc	24	**835**	**264**	834	264	836	264	24	835	264	834	264	**835**	**264**
434.zeusmp	24	646	338	**652**	**335**	657	332	24	646	338	**652**	**335**	657	332
435.gromacs	24	**710**	**241**	709	242	711	241	24	708	242	**709**	**242**	712	241
436.cactusADM	24	754	380	751	382	**754**	**380**	24	754	380	751	382	**754**	**380**
437.leslie3d	24	1192	189	1191	189	**1192**	**189**	12	559	202	560	201	**559**	**202**
444.namd	24	**817**	**236**	807	238	820	235	24	799	241	801	240	**799**	**241**
447.dealII	24	**512**	**536**	515	533	511	537	24	**512**	**536**	515	533	511	537
450.soplex	24	**968**	**207**	967	207	968	207	12	**453**	**221**	452	222	453	221
453.povray	24	320	399	322	397	**320**	**399**	24	**272**	**469**	275	464	272	470
454.calculix	24	**532**	**372**	537	369	532	372	24	529	375	**530**	**373**	534	371
459.GemsFDTD	24	**1418**	**180**	1418	180	1424	179	24	**1418**	**180**	1418	180	1424	179
465.tonto	24	707	334	**709**	**333**	711	332	24	**686**	**344**	684	345	687	344
470.lbm	24	934	353	**934**	**353**	933	353	24	934	353	**934**	**353**	933	353
481.wrf	24	**827**	**324**	828	324	827	324	24	**818**	**328**	820	327	817	328
482.sphinx3	24	**1708**	**274**	1704	275	1708	274	24	**1708**	**274**	1704	275	1708	274

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

Submit Notes

    The numactl mechanism was used to bind copies to processors. The config file option 'submit'
    was used to generate numactl commands to bind each copy to a specific processor.
    For details, please see the config file.

Operating System Notes

    Stack size set to unlimited using "ulimit -s unlimited"

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Platform Notes

      BIOS Settings:
       Energy Performance: Performance

General Notes

    Environment variables set by runspec before the start of the run:
    LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

     Added glibc-static-2.12-1.47.el6.x86_64.rpm
     to enable static linking

     Transparent Huge Pages enabled with:
     echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
     Filesystem page cache cleared with:
     echo 1>   /proc/sys/vm/drop_caches
     runspec command invoked through numactl i.e.:
     numactl --interleave=all runspec <etc>

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

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Base Portability Flags (Continued)

```
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:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Peak Compiler Invocation

C benchmarks:
```
icc    -m64
```

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
```

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Peak Portability Flags (Continued)

```
 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
482.sphinx3: -DSPEC_CPU_LP64
```

Peak Optimization Flags

C benchmarks:

```
 433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
          -opt-mem-layout-trans=3

  470.lbm: basepeak = yes

482.sphinx3: basepeak = yes
```

C++ benchmarks:

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

447.dealII: basepeak = yes

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

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

Fortran benchmarks:

```
410.bwaves: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
           -inline-level=0 -scalar-rep- -static
```

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Peak Optimization Flags (Continued)

```
     434.zeusmp: basepeak = yes

     437.leslie3d: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

  459.GemsFDTD: basepeak = yes

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

Benchmarks using both Fortran and C:

```
     435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
                  -static -auto-ilp32 -opt-mem-layout-trans=3

  436.cactusADM: basepeak = yes

     454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
                   -opt-mem-layout-trans=3

        481.wrf: Same as 454.calculix
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.xml

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

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