



# SPEC® CFP2006 Result

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## NEC Corporation

**SPECfp®2006 = 39.8**

### Express5800/GT110d (Intel Pentium G630)

**SPECfp\_base2006 = 39.2**

CPU2006 license: 9006

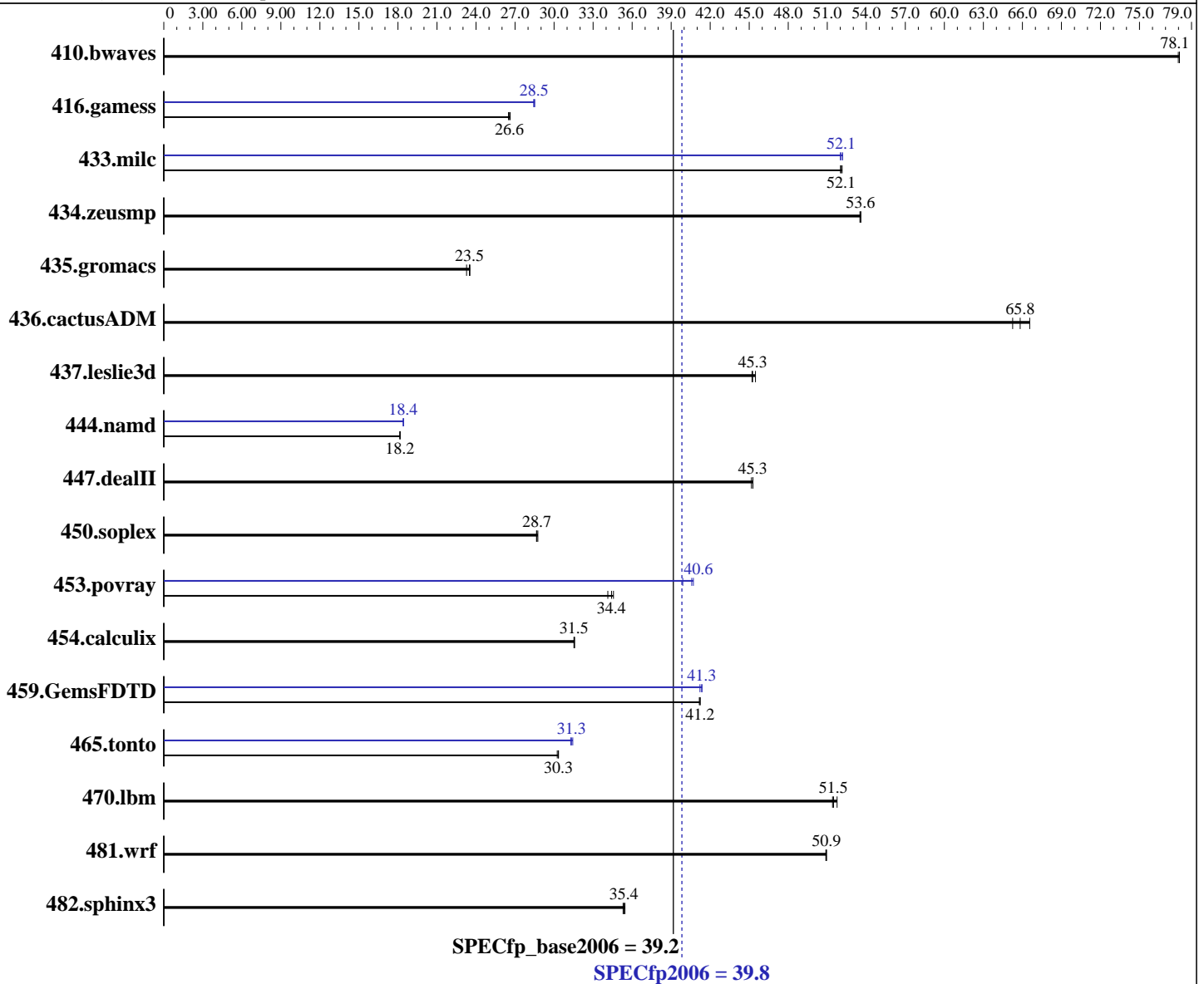
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Mar-2012

Hardware Availability: Jan-2012

Software Availability: Dec-2011



Hardware		Software	
CPU Name:	Intel Pentium G630	Operating System:	Red Hat Enterprise Linux Server release 6.1 (Santiago)
CPU Characteristics:			2.6.32-131.0.15.el6.x86_64
CPU MHz:	2700	Compiler:	C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux;
FPU:	Integrated		Fortran: Version 12.1.2.273 of Intel Fortran Studio XE for Linux
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip	Auto Parallel:	Yes
CPU(s) orderable:	1 chip	File System:	ext4
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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L3 Cache: 3 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC, running at 1066 MHz and CL7)  
 Disk Subsystem: 1 x 160 GB SATA, 7200 RPM  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<b>174</b>	<b>78.1</b>	174	78.0	174	78.1	<b>174</b>	<b>78.1</b>	174	78.0	174	78.1
416.gamess	735	26.6	<b>737</b>	<b>26.6</b>	739	26.5	689	28.4	687	28.5	<b>688</b>	<b>28.5</b>
433.milc	176	52.0	176	52.1	<b>176</b>	<b>52.1</b>	177	52.0	<b>176</b>	<b>52.1</b>	176	52.2
434.zeusmp	<b>170</b>	<b>53.6</b>	170	53.5	170	53.6	<b>170</b>	<b>53.6</b>	170	53.5	170	53.6
435.gromacs	303	23.5	307	23.3	<b>304</b>	<b>23.5</b>	303	23.5	307	23.3	<b>304</b>	<b>23.5</b>
436.cactusADM	183	65.3	180	66.6	<b>182</b>	<b>65.8</b>	183	65.3	180	66.6	<b>182</b>	<b>65.8</b>
437.leslie3d	208	45.2	<b>208</b>	<b>45.3</b>	207	45.5	208	45.2	<b>208</b>	<b>45.3</b>	207	45.5
444.namd	442	18.2	442	18.2	<b>442</b>	<b>18.2</b>	436	18.4	435	18.4	<b>436</b>	<b>18.4</b>
447.dealII	253	45.3	253	45.2	<b>253</b>	<b>45.3</b>	253	45.3	253	45.2	<b>253</b>	<b>45.3</b>
450.soplex	291	28.6	290	28.8	<b>291</b>	<b>28.7</b>	291	28.6	290	28.8	<b>291</b>	<b>28.7</b>
453.povray	<b>155</b>	<b>34.4</b>	156	34.1	154	34.6	133	39.9	<b>131</b>	<b>40.6</b>	131	40.7
454.calculix	261	31.6	262	31.5	<b>262</b>	<b>31.5</b>	261	31.6	262	31.5	<b>262</b>	<b>31.5</b>
459.GemsFDTD	<b>257</b>	<b>41.2</b>	257	41.2	258	41.2	256	41.4	<b>257</b>	<b>41.3</b>	257	41.2
465.tonto	<b>324</b>	<b>30.3</b>	324	30.3	325	30.2	313	31.4	<b>314</b>	<b>31.3</b>	315	31.3
470.lbm	267	51.4	265	51.8	<b>267</b>	<b>51.5</b>	267	51.4	265	51.8	<b>267</b>	<b>51.5</b>
481.wrf	<b>219</b>	<b>50.9</b>	219	50.9	219	50.9	<b>219</b>	<b>50.9</b>	219	50.9	219	50.9
482.sphinx3	552	35.3	550	35.4	<b>551</b>	<b>35.4</b>	552	35.3	550	35.4	<b>551</b>	<b>35.4</b>

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

## Operating System Notes

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

## Platform Notes

Default BIOS settings were used.

## General Notes

Environment variables set by runspec before the start of the run:  
 KMP\_AFFINITY = "granularity=fine,scatter"  
 LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"  
 OMP\_NUM\_THREADS = "2"

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## General Notes (Continued)

The Express5800/GT110d-S and the Express5800/GT110d models are electronically equivalent. The results have been measured on the Express5800/GT110d-S model.

Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

Added glibc-static-2.12-1.25.el6.x86\_64.rpm to enable static linking

## 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



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## Base Optimization Flags

C benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias
```

C++ benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

Fortran benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:

```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias
```

## Peak Compiler Invocation

C benchmarks:

```
icc -m64
```

C++ benchmarks:

```
icpc -m64
```

Fortran benchmarks:

```
ifort -m64
```

Benchmarks using both Fortran and C:

```
icc -m64 ifort -m64
```

## Peak Portability Flags

Same as Base Portability Flags

## 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) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias
```

```
470.lbm: basepeak = yes
```

```
482.sphinx3: basepeak = yes
```

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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) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(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: basepeak = yes

416.gamess: -xSSE4.2(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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(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 -opt-prefetch -parallel

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

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/NEC-platform-Settings-V1.2-R110d-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-linux64.20111122.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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