



# SPEC® CINT2006 Result

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## NEC Corporation

**SPECint®2006 = 41.0**

Express5800/GT110d-S (Intel Core i3-2120)

**SPECint\_base2006 = 39.0**

CPU2006 license: 9006

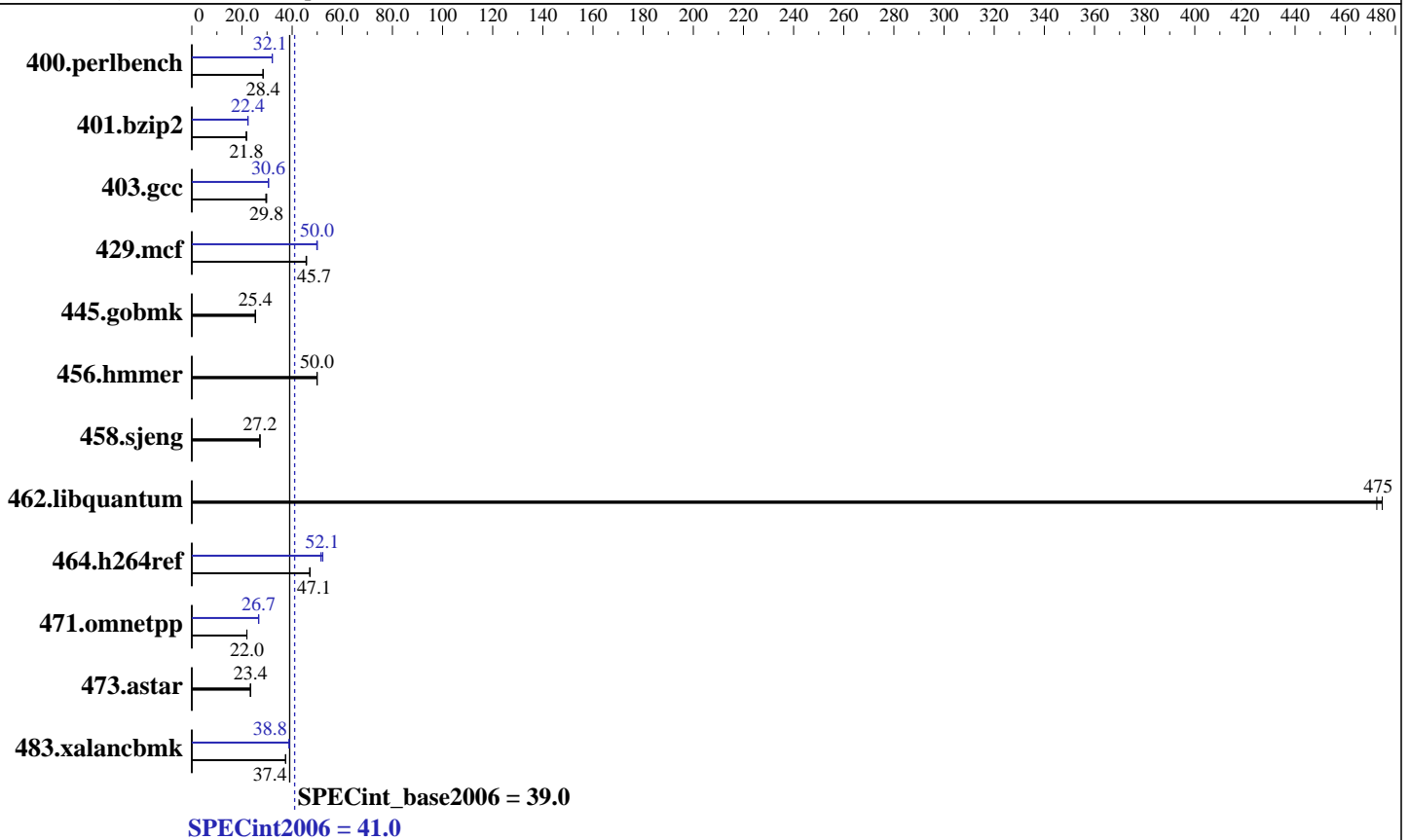
**Test date:** Sep-2011

**Test sponsor:** NEC Corporation

**Hardware Availability:** Jun-2011

**Tested by:** NEC Corporation

**Software Availability:** Mar-2011



### Hardware

CPU Name: Intel Core i3-2120  
 CPU Characteristics:  
 CPU MHz: 3300  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 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)  
 Disk Subsystem: 1 x 160 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ Intel 64 Compiler XE for applications running on Intel 64, Version 12.0.3.174 Build 20110309  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V8.1



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	344	28.4	343	28.5	<b>344</b>	<b>28.4</b>	<b>304</b>	<b>32.1</b>	304	32.1	305	32.1
401.bzip2	<b>443</b>	<b>21.8</b>	443	21.8	443	21.8	<b>431</b>	<b>22.4</b>	431	22.4	431	22.4
403.gcc	270	29.8	273	29.5	<b>270</b>	<b>29.8</b>	264	30.5	263	30.6	<b>263</b>	<b>30.6</b>
429.mcf	199	45.8	200	45.6	<b>200</b>	<b>45.7</b>	182	50.0	<b>182</b>	<b>50.0</b>	183	49.8
445.gobmk	414	25.3	414	25.4	<b>414</b>	<b>25.4</b>	414	25.3	414	25.4	<b>414</b>	<b>25.4</b>
456.hammer	187	50.0	187	50.0	<b>187</b>	<b>50.0</b>	187	50.0	187	50.0	<b>187</b>	<b>50.0</b>
458.sjeng	<b>445</b>	<b>27.2</b>	445	27.2	446	27.1	<b>445</b>	<b>27.2</b>	445	27.2	446	27.1
462.libquantum	43.8	473	<b>43.6</b>	<b>475</b>	43.6	475	43.8	473	<b>43.6</b>	<b>475</b>	43.6	475
464.h264ref	<b>469</b>	<b>47.1</b>	469	47.2	471	47.0	<b>425</b>	<b>52.1</b>	424	52.3	430	51.4
471.omnetpp	284	22.0	285	21.9	<b>285</b>	<b>22.0</b>	235	26.6	234	26.7	<b>234</b>	<b>26.7</b>
473.astar	300	23.4	300	23.4	<b>300</b>	<b>23.4</b>	300	23.4	300	23.4	<b>300</b>	<b>23.4</b>
483.xalancbmk	184	37.5	185	37.4	<b>185</b>	<b>37.4</b>	<b>178</b>	<b>38.8</b>	178	38.9	178	38.8

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
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 1800 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

BIOS Settings:  
Hyper-Threading Technology: Disabled

## General Notes

OMP\_NUM\_THREADS set to number of cores

## Base Compiler Invocation

C benchmarks:  
icc -m64

C++ benchmarks:  
icpc -m64



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## Base Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

```

## Base Optimization Flags

C benchmarks:

```

-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

```

C++ benchmarks:

```

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/opt/SmartHeap_8.1/lib64 -lsmartheap64
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

```

## Base Other Flags

C benchmarks:

```

403.gcc: -Dalloca=_alloca

```

## Peak Compiler Invocation

C benchmarks (except as noted below):

```

icc -m64

```

```

400.perlbench: icc -m32

```

```

429.mcf: icc -m32

```

```

464.h264ref: icc -m32

```

C++ benchmarks (except as noted below):

```

icpc -m32

```

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## Peak Compiler Invocation (Continued)

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
 401.bzip2: -DSPEC\_CPU\_LP64  
 403.gcc: -DSPEC\_CPU\_LP64  
 445.gobmk: -DSPEC\_CPU\_LP64  
 456.hmmer: -DSPEC\_CPU\_LP64  
 458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
 473.astar: -DSPEC\_CPU\_LP64  
 483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch  
 -ansi-alias  
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

401.bzip2: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch  
 -ansi-alias

403.gcc: -xAVX -ipo -O3 -no-prec-div -inline-calloc  
 -opt-malloc-options=3 -auto-ilp32  
 -B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

429.mcf: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32  
 -ansi-alias  
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

445.gobmk: basepeak = yes

456.hmmer: basepeak = yes

458.sjeng: basepeak = yes

462.libquantum: basepeak = yes

464.h264ref: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
 -ansi-alias

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## Peak Optimization Flags (Continued)

464.h264ref (continued):

`-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

C++ benchmarks:

471.omnetpp: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`

`-no-prec-div(pass 2) -prof-use(pass 2)`

`-opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs`

`-L/opt/SmartHeap_8.1/lib -lsmarheap`

`-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

473.astar: `basepeak = yes`

483.xalancbmk: `-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`

`-Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmarheap`

`-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

## Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.xml>

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

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