## NEC Corporation

**Express5800/R120b-2 (Intel Xeon X5687)**

**SPECint\_rate2006 = 329**  
**SPECint\_rate\_base2006 = 313**

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### Hardware

<table>
<thead>
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<th>Tested by</th>
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<tr>
<td>CPU2006 license</td>
<td>9006</td>
<td>Test date</td>
<td>Jun-2011</td>
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<td>NEC Corporation</td>
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</table>

**CPU Name:** Intel Xeon X5687  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.87 GHz  
**CPU MHz:** 3600  
**FPU:** Integrated  
**CPU(s) enabled:** 8 cores, 2 chips, 4 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  
**L3 Cache:** 12 MB I+D on chip per chip  
**Other Cache:** None  
**Memory:** 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
**Disk Subsystem:** 1 x 500 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:** C/C++: Version 12.0.3.174 of Intel Compiler XE Build 20110309  
**Auto Parallel:** No  
**File System:** ext3  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 32-bit  
**Peak Pointers:** 32/64-bit  
**Other Software:** Microquill SmartHeap V8.1

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## Results Table

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<td>16</td>
<td>617 254</td>
<td>524 250</td>
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<td>401.bzip2</td>
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<td>473.astar</td>
<td>16</td>
<td>587 191</td>
<td>587 192</td>
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<td>483.xalancbmk</td>
<td>16</td>
<td>346 319</td>
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</tr>
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</table>

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.
numactl was used to bind copies to the cores

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
Huge pages were not configured for this run

## Platform Notes

**BIOS Settings:**
- Performance/Watt: Traditional
- Server Class: Custom
- Data Reuse Optimization: Disabled
- Memory Voltage: Normal

## Base Compiler Invocation

- **C benchmarks:**
  - `icc -m32`

- **C++ benchmarks:**
  - `icpc -m32`
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**Base Portability Flags**

- 400.perlbench: -DSPEC\_CPU\_LINUX\_IA32
- 462.libquantum: -DSPEC\_CPU\_LINUX
- 483.xalancbmk: -DSPEC\_CPU\_LINUX

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**Base Optimization Flags**

**C benchmarks:**
- -xsSSE4.2 -ipo -03 -no-prec-div -opt-prefetch
- -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

**C++ benchmarks:**
- -xsSSE4.2 -ipo -03 -no-prec-div -opt-prefetch -Wl,-z,muldefs
- -L/opt/SmartHeap_8.1/lib -lsmartheap
- -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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**Base Other Flags**

**C benchmarks:**
- 403.gcc: -Dalloca=_alloca

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**Peak Compiler Invocation**

**C benchmarks (except as noted below):**
- icc -m32
  - 400.perlbench: icc -m64
  - 401.bzip2: icc -m64
  - 456.hmmer: icc -m64
  - 458.sjeng: icc -m64

**C++ benchmarks:**
- icpc -m32

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**Peak Portability Flags**

- 400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64
- 401.bzip2: -DSPEC\_CPU\_LP64

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Peak Portability Flags (Continued)

456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

403.gcc: basepeak = yes

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -03 -no-prec-div -unroll2 -auto-ilp32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/opt/SmartHeap_8.1/lib -lsmartheap

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### Peak Optimization Flags (Continued)

- 473.astar: basepeak = yes
- 483.xalancbmk: basepeak = yes

### Peak Other Flags

**C benchmarks:**

- 403.gcc: -Dalloca=_alloca

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


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


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