SPEC® CINT2006 Result

NEC Corporation

Express5800/140Re-4
(Intel Xeon processor 7140M)

SPECint®_rate2006 = 83.5

SPECint_rate_base2006 = 77.6

CPU2006 license: 9006
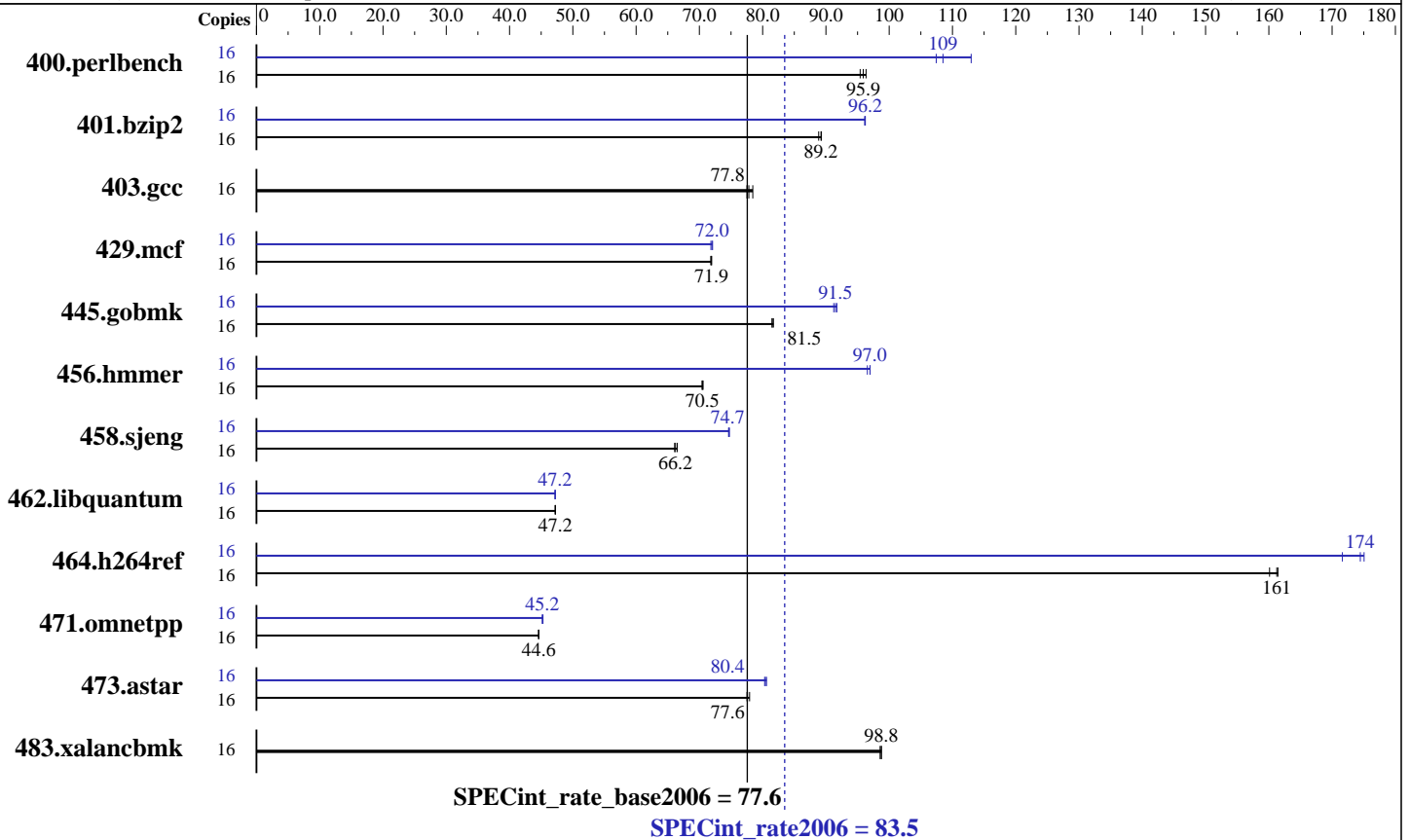**Test sponsor:** NEC Corporation
Tested by: NEC Corporation

Test date: Sep-2007
Hardware Availability: Oct-2006
Software Availability: Jun-2007

Benchmark	Copies	Value
400.perlbench	16	109
	16	95.9
401.bzip2	16	96.2
	16	89.2
403.gcc	16	77.8
429.mcf	16	72.0
	16	71.9
445.gobmk	16	91.5
	16	81.5
456.hmmer	16	97.0
	16	70.5
458.sjeng	16	74.7
	16	66.2
462.libquantum	16	47.2
	16	47.2
464.h264ref	16	174
	16	161
471.omnetpp	16	45.2
	16	44.6
473.astar	16	80.4
	16	77.6
483.xalancbmk	16	98.8

SPECint_rate_base2006 = 77.6

SPECint_rate2006 = 83.5

Hardware

CPU Name: Intel Xeon 7140M
CPU Characteristics: 3.40 GHz, 800MHz bus
CPU MHz: 3400
FPU: Integrated
CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable: 1,2,4 chips
Primary Cache: 12 K micro-ops I + 16 KB D on chip per core
Secondary Cache: 1 MB I+D on chip per core
L3 Cache: 16 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (16x2 GB PC2-3200R, 2 rank, CL3-3-3, ECC)
Disk Subsystem: 1x146.5 GB SAS, 15000RPM
Other Hardware: None

Software

Operating System: 64-Bit SUSE LINUX Enterprise Server 10, Kernel 2.6.16.21-0.8-smp for x86_64
Compiler: Intel C++ Compiler for IA32/EM64T application, Version 10.0 - Build 20070426 Package ID: l_cc_p_10.0.023
Auto Parallel: No
File System: ext2
System State: Multiuser, Runlevel 3
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: MicroQuill SmartHeap library 8.1

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Results Table

| Benchmark | Base | | | | | | Peak | | | | | | |
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	1638	95.4	**1630**	**95.9**	1623	96.3	16	**1441**	**109**	1455	107	1384	113
401.bzip2	16	**1731**	**89.2**	1738	88.9	1729	89.3	16	**1605**	**96.2**	1606	96.1	1605	96.2
403.gcc	16	1642	78.4	1662	77.5	**1655**	**77.8**	16	1642	78.4	1662	77.5	**1655**	**77.8**
429.mcf	16	**2029**	**71.9**	2029	71.9	2032	71.8	16	**2027**	**72.0**	2024	72.1	2032	71.8
445.gobmk	16	2054	81.7	2060	81.5	**2059**	**81.5**	16	1840	91.2	**1834**	**91.5**	1830	91.7
456.hmmer	16	2120	70.4	2115	70.6	**2118**	**70.5**	16	1546	96.5	**1540**	**97.0**	1539	97.0
458.sjeng	16	2911	66.5	**2923**	**66.2**	2930	66.1	16	2595	74.6	**2593**	**74.7**	2590	74.7
462.libquantum	16	7016	47.3	**7018**	**47.2**	7024	47.2	16	**7023**	**47.2**	7021	47.2	7024	47.2
464.h264ref	16	2193	161	2211	160	**2196**	**161**	16	2063	172	2023	175	**2030**	**174**
471.omnetpp	16	2241	44.6	2243	44.6	**2241**	**44.6**	16	**2213**	**45.2**	2208	45.3	2213	45.2
473.astar	16	1449	77.5	**1447**	**77.6**	1441	77.9	16	1399	80.3	**1396**	**80.4**	1393	80.6
483.xalancbmk	16	**1118**	**98.8**	1118	98.8	1120	98.6	16	**1118**	**98.8**	1118	98.8	1120	98.6

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
    '/usr/bin/taskset' used to bind processes to CPUs

General Notes

    All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
    for peak, are compiled in 64-bit mode

    The Express5800/140Hf and the Express5800/140Re-4 models are
    electronically equivalent.
    The results have been measured on a Express5800/140Re-4 model.

Base Compiler Invocation

C benchmarks:
    icc -static(*)

C++ benchmarks:
    icpc

(*) Indicates a compiler flag that was found in a non-compiler variable.

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Base Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:

```
-xP -ipo -O3 -no-prec-div
```

C++ benchmarks:

```
-xP -ipo -O3 -no-prec-div -Wl,-z,muldefs
-L/opt/SmartHeap_8.1/lib -lsmartheap
```

Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

Peak Compiler Invocation

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

```
401.bzip2: /opt/intel/cce/10.0.023/bin/icc
          -L/opt/intel/cce/10.0.023/lib
          -I/opt/intel/cce/10.0.023/include
```

```
445.gobmk: icc
```

```
456.hmmer: /opt/intel/cce/10.0.023/bin/icc
          -L/opt/intel/cce/10.0.023/lib
          -I/opt/intel/cce/10.0.023/include -static(*)
```

C++ benchmarks:
```
icpc
```

(*) Indicates a compiler flag that was found in a non-compiler variable.

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Peak Portability Flags

```
        400.perlbench: -DSPEC_CPU_LINUX_IA32
           401.bzip2: -DSPEC_CPU_LP64
           456.hmmer: -DSPEC_CPU_LP64
       462.libquantum: -DSPEC_CPU_LINUX
       483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
        400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3
                -no-prec-div -ansi-alias -prefetch

           401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3
                -no-prec-div

             403.gcc: basepeak = yes

             429.mcf: -xP -ipo -O3 -no-prec-div -prefetch

           445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xP -O2 -ipo
                -no-prec_div -ansi-alias

           456.hmmer: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3
                -no-prec-div -unroll2 -ansi-alias

           458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3
                -no-prec-div -unroll4

       462.libquantum: Same as 458.sjeng

         464.h264ref: Same as 456.hmmer
```

C++ benchmarks:

```
         471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xP -O3 -ipo
                -no-prec_div -ansi-alias -Wl,-z,muldefs
                -L/opt/SmartHeap_8.1/lib -lsmartheap

           473.astar: Same as 471.omnetpp

       483.xalancbmk: basepeak = yes
```

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Peak Other Flags

C benchmarks:

>   403.gcc: -Dalloca=_alloca

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/NEC-ic10-ia32-intel64-linux-flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/NEC-ic10-ia32-intel64-linux-flags.xml

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

Tested with SPEC CPU2006 v1.0.
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