SPEC® CINT2006 Result

Oracle Corporation
SPARC Enterprise M9000

SPECint®_rate2006 = 3150

SPECint_rate_base2006 = 2850

CPU2006 license: 6

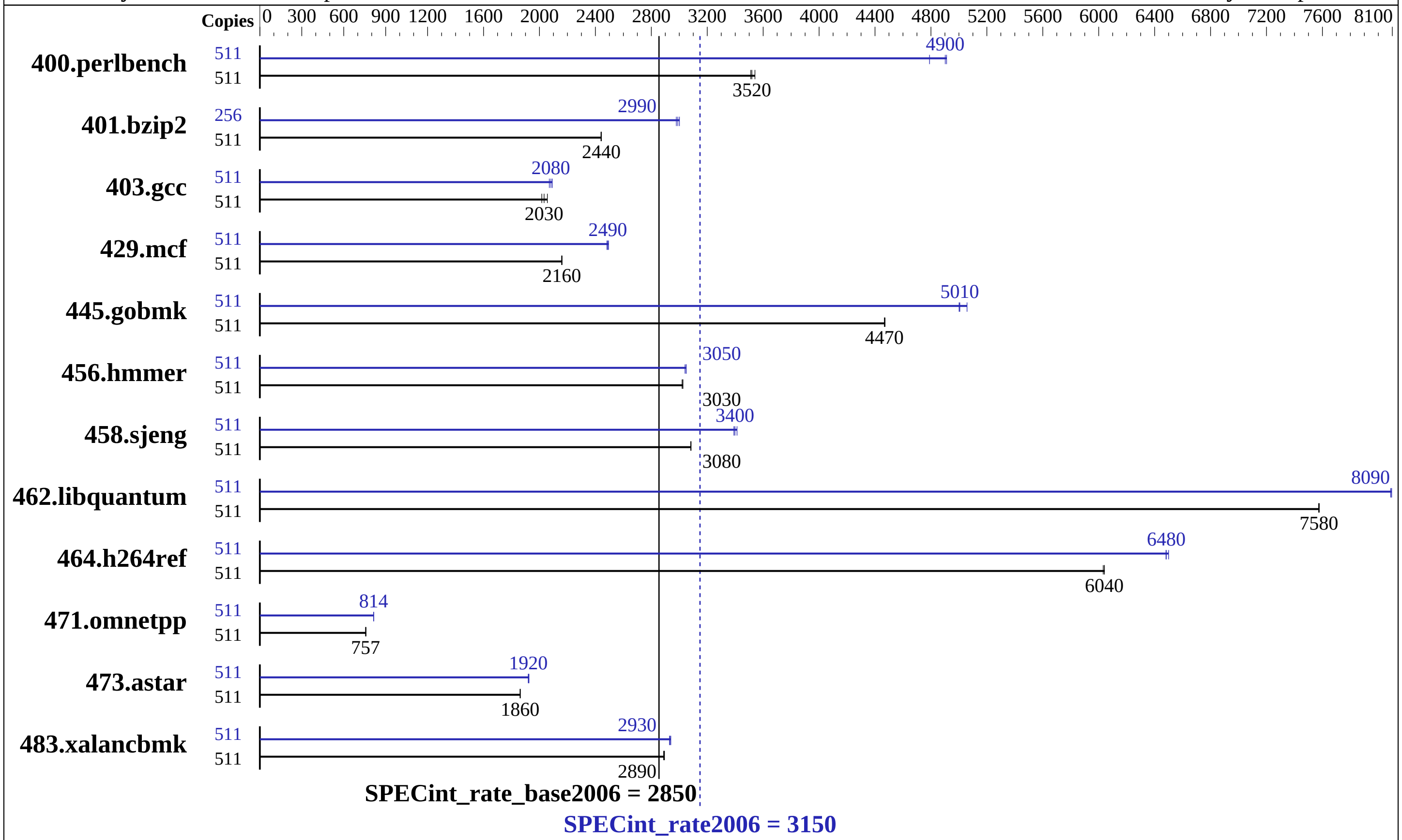
Test sponsor: Oracle Corporation

Tested by: Oracle Corporation

Test date: Nov-2010

Hardware Availability: Dec-2010

Software Availability: Sep-2010



Hardware

CPU Name:	SPARC64 VII+
CPU Characteristics:	
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	256 cores, 64 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 16 CMUs; each CMU contains 2 or 4 CPU chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	2 TB (512 x 4 GB, 8-way interleaved)
Disk Subsystem:	602 GB on 24 x 73 GB 10K RPM SAS disks, arranged as 8 x 3-way mirrors
Other Hardware:	None

Software

Operating System:	Oracle Solaris 10 9/10
Compiler:	Oracle Solaris Studio 12.2
Auto Parallel:	No
File System:	zfs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	511	**1419**	**3520**	1422	3510	1410	3540	511	**1018**	**4900**	1042	4790	1016	4910
401.bzip2	511	**2019**	**2440**	2018	2440	2021	2440	256	823	3000	**826**	**2990**	829	2980
403.gcc	511	2040	2020	2000	2060	**2023**	**2030**	511	1967	2090	**1976**	**2080**	1987	2070
429.mcf	511	**2158**	**2160**	2159	2160	2156	2160	511	1869	2490	1877	2480	**1873**	**2490**
445.gobmk	511	**1200**	**4470**	1199	4470	1200	4470	511	**1071**	**5010**	1060	5060	1072	5000
456.hmmer	511	1576	3030	1579	3020	**1576**	**3030**	511	1568	3040	1563	3050	**1564**	**3050**
458.sjeng	511	**2006**	**3080**	2006	3080	2005	3080	511	1824	3390	1812	3410	**1819**	**3400**
462.libquantum	511	**1398**	**7580**	1397	7580	1398	7570	511	**1308**	**8090**	1308	8090	1309	8090
464.h264ref	511	1875	6030	**1872**	**6040**	1872	6040	511	1745	6480	1740	6500	**1744**	**6480**
471.omnetpp	511	**4221**	**757**	4222	756	4204	760	511	3926	814	**3925**	**814**	3925	814
473.astar	511	**1927**	**1860**	1928	1860	1925	1860	511	1869	1920	**1867**	**1920**	1864	1920
483.xalancbmk	511	1218	2890	1221	2890	**1220**	**2890**	511	1200	2940	1204	2930	**1202**	**2930**

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

Compiler Invocation Notes

```
Oracle Solaris Studio 12.2 is distributed with mandatory OS patches
 118683-05  119963-20  120753-08
Oracle Solaris Studio 12.2 and patches are available at
 http://oracle.com/goto/solarisstudio
```

Submit Notes

```
Processes were assigned to specific processors using 'pbind'
commands.  The config file option 'submit' was used, along
with a list of processors in the 'BIND' variable, to generate
the pbind commands.  (For details, please see the config file.)
```

Operating System Notes

```
ulimit -s 131072 was used to limit the space
consumed by the stack (and therefore make more
space available to the heap).

 /etc/system parameters
    autoup=600
       Causes pages older than the listed number of seconds to
       be written by fsflush.
    tune_t_fsflushr=10
       Controls how many seconds elapse between runs of the
       page flush daemon, fsflush.
```

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Operating System Notes (Continued)

```
        lpg_alloc_prefer=1
            Indicates that extra effort should be taken to ensure
            that pages are created in the nearby lgroup (NUMA location).
        kernel_cage_enable=0
           Allows the kernel to use memory in any locality group.
           In particular, allows ZFS file caches to be located on
           any memory board.
        zfs:zfs_arc_min=0x10000000
        zfs:zfs_arc_max=0x10000000000
           Limits the consumption of memory by the zfs file system
           cache to 1 TB.  (The arc_max sets the maximum cache
           size; arc_min sets the minimum.)
     The "webconsole" service was turned off using
         svcadm disable webconsole
     The system had 137 GB of swap space.
```

Platform Notes

```
 Memory is 8-way interleaved by filling all slots with
 the same capacity DIMMs.

 This result is measured on a SPARC Enterprise M9000 server from
 Oracle.  The SPARC Enterprise M9000 server from Oracle and from
 Fujitsu are electrically equivalent.
```

Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Base Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_SPARC
403.gcc: -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS

Base Optimization Flags

C benchmarks:
-fast -fma=fused -xipo=2 -xpagesize=4M -xalias_level=std -ll2amm

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Base Optimization Flags (Continued)

C++ benchmarks:
    -fast -fma=fused -xipo=2 -xpagesize=4M -xalias_level=compatible
    -xdepend -library=stlport4 -lfast

Base Other Flags

C benchmarks:
    -xjobs=32 -V -#

C++ benchmarks:
    -xjobs=32 -verbose=diags,version

Peak Compiler Invocation

C benchmarks:
    cc

C++ benchmarks:
    CC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_SPARC
403.gcc: -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS

Peak Optimization Flags

C benchmarks:

400.perlbench: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-M /usr/lib/ld/map.bssalign -fma=fused -xipo=1
-xalias_level=std -xrestrict -Xc -xO4 -xprefetch=latx:0.5
-lfast

401.bzip2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xalias_level=strong -xchip=generic

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Peak Optimization Flags (Continued)

403.gcc: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -fma=fused -xipo=2 -xalias_level=std -xprefetch=no -xarch=sparcfmaf -ll2amm

429.mcf: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xipo=2 -xprefetch_auto_type=indirect_array_access -xchip=generic -xlinkopt -W2,-Apf:llist=3 -W2,-Apf:noinnerllist -lfast

445.gobmk: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -fma=fused -xalias_level=std -xrestrict -xlinkopt -xprefetch=no%auto -xunroll=6 -lfast -ll2amm

456.hmmer: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -fma=fused -xipo=2

458.sjeng: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -fma=fused -xipo=2 -xO4 -xlinkopt -xprefetch=no%auto -ll2amm

462.libquantum: -fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch=no -lbsdmalloc

464.h264ref: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xipo=2 -xarch=sparcfmaf -xalias_level=std -xprefetch=no -ll2amm

C++ benchmarks:

471.omnetpp: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xalias_level=compatible -xdepend -library=stlport4 -fma=fused -xipo=2 -Qoption cg -Qlp-av=0 -xprefetch_level=2 -xprefetch=latx:1.5 -ll2amm

473.astar: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xalias_level=compatible -xdepend -library=stlport4 -M /usr/lib/ld/map.bssalign -fma=fused -xipo=2 -xprefetch=no%auto -lfast -lbsdmalloc

483.xalancbmk: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xalias_level=compatible -xdepend -library=stlport4 -fma=fused -xipo=2 -xprefetch=no -xO4 -lfast

Peak Other Flags

C benchmarks:
```
-xjobs=32 -V -#
```

C++ benchmarks:
```
-xjobs=32 -verbose=diags,version
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.2-SPARC.20101221.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.2-SPARC.20101221.xml

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

Tested with SPEC CPU2006 v1.1.
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