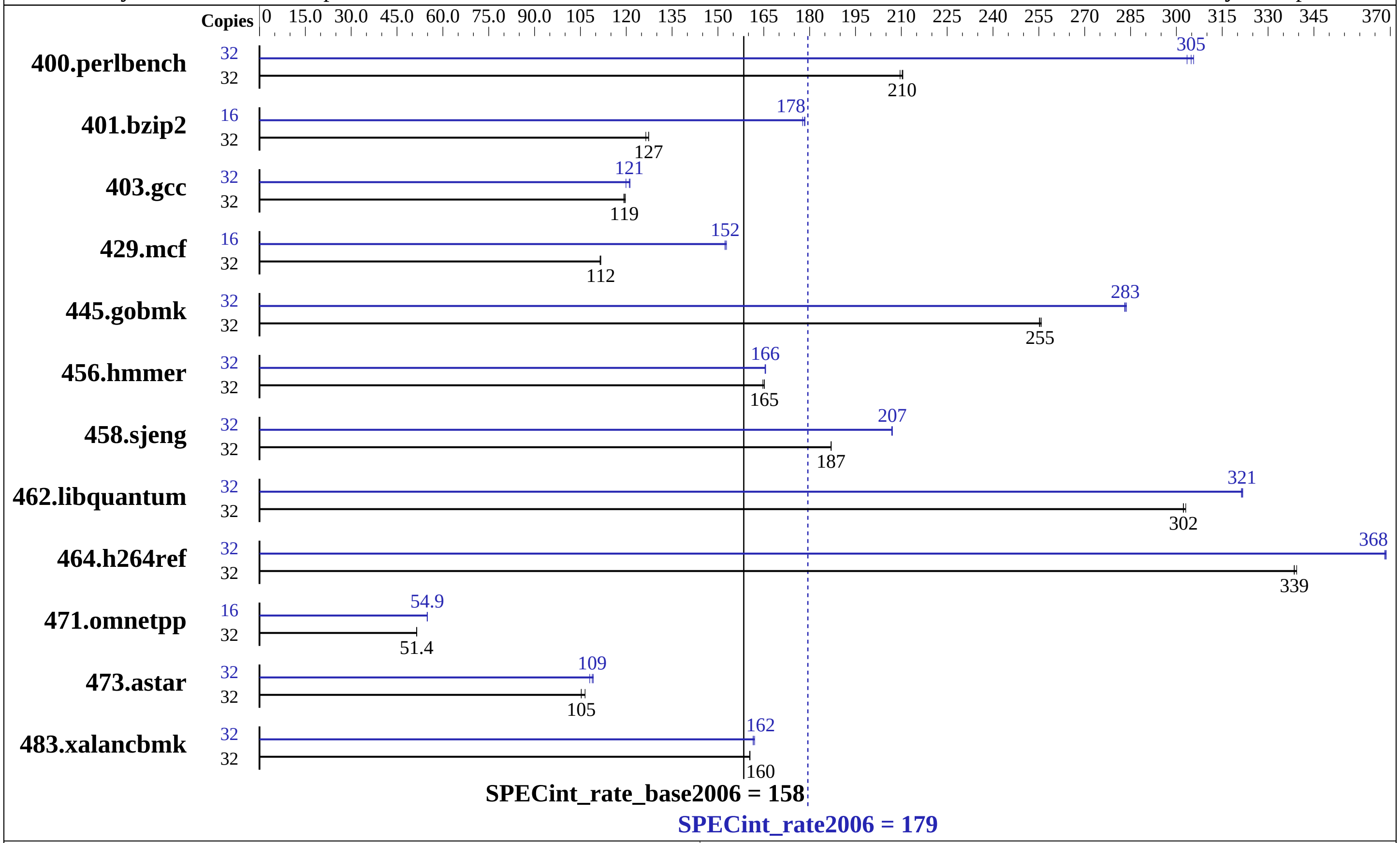
SPEC® CINT2006 Result

Oracle Corporation
SPARC Enterprise M4000

SPECint®_rate2006 = 179

SPECint_rate_base2006 = 158

CPU2006 license: 6		**Test date:**	Nov-2010
Test sponsor:	Oracle Corporation	**Hardware Availability:**	Dec-2010
Tested by:	Oracle Corporation	**Software Availability:**	Sep-2010



Hardware

CPU Name:	SPARC64 VII+
CPU Characteristics:	
CPU MHz:	2660
FPU:	Integrated
CPU(s) enabled:	16 cores, 4 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 2 CPUMs; each CPUM contains 2 CPU chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	11 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	64 GB (32 x 2 GB, 8-way interleaved)
Disk Subsystem:	201 GB on 6 x 72 GB 15K RPM FC disks organized as 3 x 2-way ZFS mirrors with gzip compression
Other Hardware:	None

Software

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

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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	32	1492	210	1485	211	**1487**	**210**	32	1023	306	**1026**	**305**	1030	303
401.bzip2	32	**2426**	**127**	2443	126	2425	127	16	865	178	869	178	**866**	**178**
403.gcc	32	2152	120	**2158**	**119**	2160	119	32	2125	121	2148	120	**2129**	**121**
429.mcf	32	**2614**	**112**	2614	112	2619	111	16	**958**	**152**	955	153	958	152
445.gobmk	32	1315	255	1312	256	**1314**	**255**	32	1183	284	**1185**	**283**	1186	283
456.hmmer	32	1813	165	**1808**	**165**	1807	165	32	1805	165	**1804**	**166**	1803	166
458.sjeng	32	2070	187	2070	187	**2070**	**187**	32	1870	207	1872	207	**1870**	**207**
462.libquantum	32	2194	302	2188	303	**2193**	**302**	32	2061	322	**2063**	**321**	2064	321
464.h264ref	32	2087	339	**2091**	**339**	2092	339	32	1921	369	1923	368	**1922**	**368**
471.omnetpp	32	3887	51.5	3890	51.4	**3890**	**51.4**	16	**1821**	**54.9**	1823	54.8	1821	54.9
473.astar	32	2109	107	2134	105	**2133**	**105**	32	**2063**	**109**	2079	108	2057	109
483.xalancbmk	32	1377	160	**1376**	**160**	1376	161	32	1367	162	**1366**	**162**	1363	162

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)

```
      zfs:zfs_arc_max=0x0x1C0000000
      zfs:zfs_arc_min=0x10000000
         Limits the consumption of memory by the zfs file system
         cache to 256 MB to 7 GB .  (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 32 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 M4000 server from
Oracle.  The SPARC Enterprise M4000 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

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

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

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Peak Optimization Flags (Continued)

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 -xO4 -lfast`

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 -#`

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Peak Other Flags (Continued)

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.

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