SPEC® CINT2006 Result
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Sun Microsystems
Sun SPARC Enterprise M4000

SPECint®2006 =   10.8
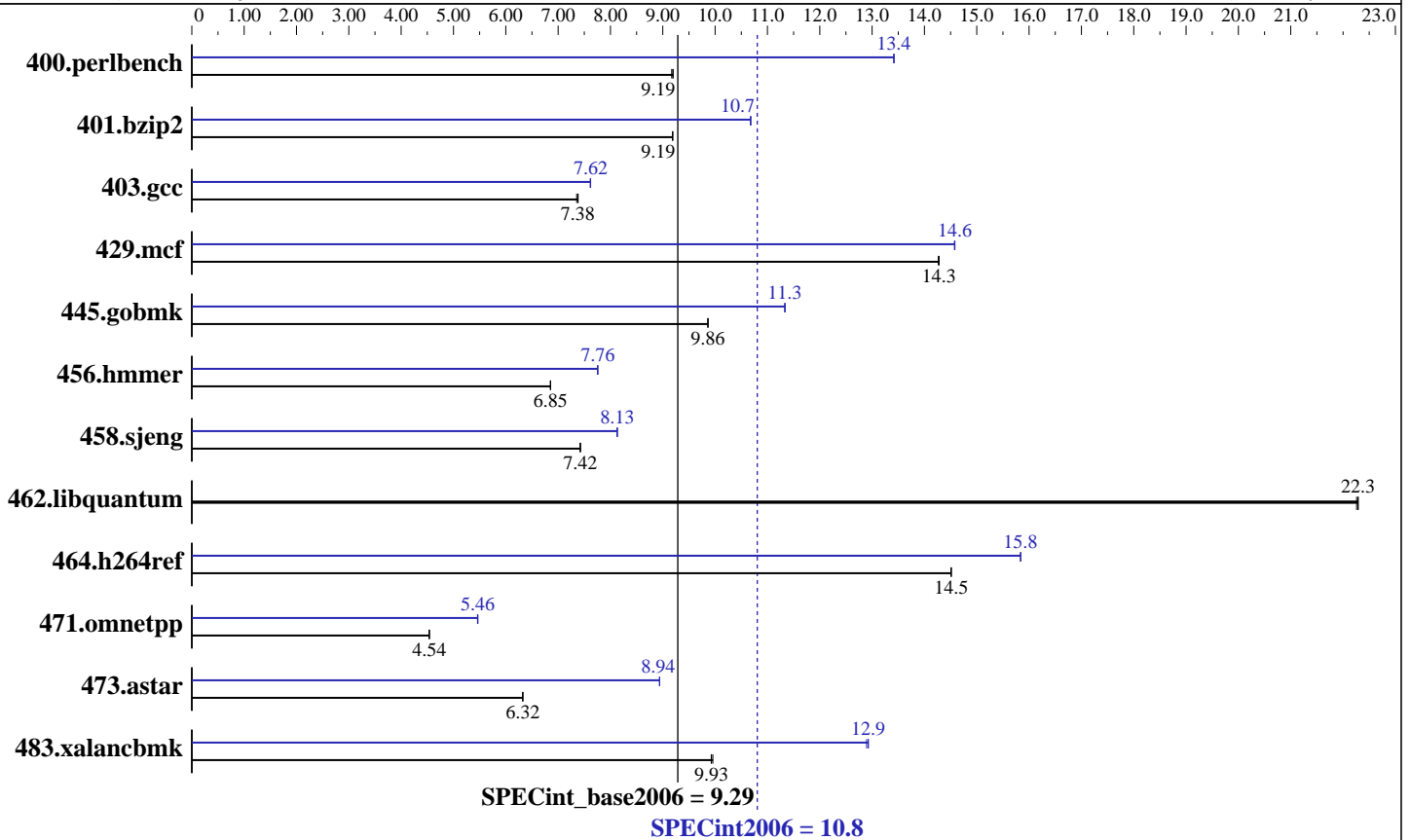
SPECint_base2006 =   9.29

CPU2006 license: 6
Test sponsor: Sun Microsystems
Tested by: Fujitsu Limited

Test date: Mar-2007
Hardware Availability: Apr-2007
Software Availability: May-2007

Benchmark	Peak	Base
400.perlbench	13.4	9.19
401.bzip2	10.7	9.19
403.gcc	7.62	7.38
429.mcf	14.6	14.3
445.gobmk	11.3	9.86
456.hmmer	7.76	6.85
458.sjeng	8.13	7.42
462.libquantum	22.3	
464.h264ref	15.8	14.5
471.omnetpp	5.46	4.54
473.astar	8.94	6.32
483.xalancbmk	12.9	9.93

SPECint_base2006 = 9.29
SPECint2006 = 10.8

Hardware
CPU Name:	SPARC64 VI
CPU Characteristics:	
CPU MHz:	2150
FPU:	Integrated
CPU(s) enabled:	8 cores, 4 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable:	1 or 2 CPUM; each CPUM contains 2 CPU chips
Primary Cache:	128 KB I + 128 KB D on chip per core
Secondary Cache:	5 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	16 GB (16 x 1 GB, see notes for details)
Disk Subsystem:	73 GB 10,000 RPM Fujitsu MAY2073RC SAS
Other Hardware:	None

Software
Operating System:	Solaris 10 11/06
Compiler:	Sun Studio 12 (Early Access)
Auto Parallel:	No
File System:	ufs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	1062	9.20	**1063**	**9.19**	1065	9.17	728	13.4	**728**	**13.4**	728	13.4
401.bzip2	1050	9.19	**1050**	**9.19**	1050	9.19	**904**	**10.7**	904	10.7	904	10.7
403.gcc	1095	7.35	**1091**	**7.38**	1090	7.38	**1056**	**7.62**	1056	7.62	1057	7.61
429.mcf	**639**	**14.3**	639	14.3	639	14.3	626	14.6	**625**	**14.6**	625	14.6
445.gobmk	1064	9.86	1064	9.86	**1064**	**9.86**	**925**	**11.3**	926	11.3	925	11.3
456.hmmer	**1361**	**6.85**	1361	6.85	1361	6.85	**1203**	**7.76**	1203	7.76	1203	7.76
458.sjeng	1629	7.43	**1630**	**7.42**	1631	7.42	**1488**	**8.13**	1488	8.13	1489	8.13
462.libquantum	931	22.3	930	22.3	**930**	**22.3**	931	22.3	930	22.3	**930**	**22.3**
464.h264ref	**1525**	**14.5**	1525	14.5	1526	14.5	**1397**	**15.8**	1397	15.8	1397	15.8
471.omnetpp	1379	4.53	1376	4.54	**1377**	**4.54**	1143	5.47	**1144**	**5.46**	1145	5.46
473.astar	1110	6.33	**1110**	**6.32**	1110	6.32	785	8.94	785	8.94	**785**	**8.94**
483.xalancbmk	693	9.96	695	9.93	**695**	**9.93**	535	12.9	**534**	**12.9**	534	12.9

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

Operating System Notes

```
   These shell commands request use of local 4MB pages:
        MPSSHEAP=4MB
        MPSSSTACK=4MB
        MADV=access_lwp
        LD_PRELOAD=mpss.so.1:madv.so.1
    'access_lwp' means that the next light weight
   process to touch the specified address range
   will access it the most heavily.


   Stack size set to unlimited via "ulimit -s unlimited"

   The run was bound to processor #27 using the "psrset" command
        psrset -c processor id...: creates a set
        psrset -e set_id command:  runs command on a set


    System Tunables:
    (/etc/system parameters)
       maxphys=4194304
          Defines the maximum size of I/O requests, in bytes.
       maxpgio=1024
          Defines the maximum number of page I/O requests that can
          be queued by the paging system.
       tune_t_fsflushr=1
          Controls how many seconds elapse between runs of the
          page flush daemon, fsflush.
       autoup=60
```

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$SPECint2006 =$ 10.8

$SPECint\_base2006 =$ 9.29

Operating System Notes (Continued)

```
    Causes pages older than the listed number of seconds to
    be written by fsflush.
bufhwm=3000
    Memory byte limit for caching I/O buffers
segmap_percent=1
    Set maximum percent memory for file system cache
```

Platform Notes

```
"CPUM" = CPU Module; each module holds two CPU chips.

Memory was 8-way interleaved by filling same capacity
DIMMs in every other slot

This result is measured on a Fujitsu SPARC Enterprise
M4000 Server.  Note that the Fujitsu SPARC Enterprise
M4000 and Sun SPARC Enterprise M4000 are electrically
equivalent.
```

Base Compiler Invocation

C benchmarks:
```
/opt/SUNWspro12_EA070303/bin/cc
```

C++ benchmarks:
```
/opt/SUNWspro12_EA070303/bin/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 -xipo=2 -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
-Wc,-fma=fused -xprefetch_level=2
```

C++ benchmarks:
```
-library=stlport4 -fast -xipo=2 -xtarget=sparc64vi -xarch=sparcfmaf
-fma=fused -Qoption cg -fma=fused -xprefetch_level=2
```

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Peak Compiler Invocation

C benchmarks:
```
/opt/SUNWspro12_EA070303/bin/cc
```

C++ benchmarks:
```
/opt/SUNWspro12_EA070303/bin/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 -xipo=2
               -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
               -Wc,-fma=fused -xprefetch_level=2 -xalias_level=std
               -xrestrict -lfast

    401.bzip2: -xprofile=collect:./feedback(pass 1)
               -xprofile=use:./feedback(pass 2) -fast -xipo=2
               -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
               -Wc,-fma=fused -xalias_level=strong

     403.gcc: -xprofile=collect:./feedback(pass 1)
               -xprofile=use:./feedback(pass 2) -fast -xipo=2
               -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
               -Wc,-fma=fused -xalias_level=std

     429.mcf: -xprofile=collect:./feedback(pass 1)
               -xprofile=use:./feedback(pass 2) -fast -xipo=2
               -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
               -Wc,-fma=fused -xprefetch_level=3 -W2,-Apf:llist=3
               -W2,-Apf:noinnerllist

    445.gobmk: -xprofile=collect:./feedback(pass 1)
               -xprofile=use:./feedback(pass 2) -fast -xipo=2
               -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
               -Wc,-fma=fused

    456.hmmer: Same as 403.gcc
```

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Peak Optimization Flags (Continued)

        458.sjeng: Same as 445.gobmk

  462.libquantum: basepeak = yes

      464.h264ref: Same as 403.gcc

C++ benchmarks:

    471.omnetpp: -library=stlport4 -xprofile=collect:./feedback(pass 1)
                -xprofile=use:./feedback(pass 2) -fast -xipo=2
                -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
                -Qoption cg -fma=fused

        473.astar: -library=stlport4 -xprofile=collect:./feedback(pass 1)
                -xprofile=use:./feedback(pass 2) -fast -xipo=2
                -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
                -Qoption cg -fma=fused -xalias_level=compatible -lfast

    483.xalancbmk: -library=stlport4 -xprofile=collect:./feedback(pass 1)
                -xprofile=use:./feedback(pass 2) -fast -xipo=2
                -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
                -Qoption cg -fma=fused -lfast

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12.20090714.02.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12.20090714.02.xml

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

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