# SPEC® CINT2006 Result

## Hewlett-Packard Company

SPECint®_rate2006 = 387

ProLiant DL180 G6
(3.06 GHz, Intel Xeon X5675)

SPECint_rate_base2006 = 361
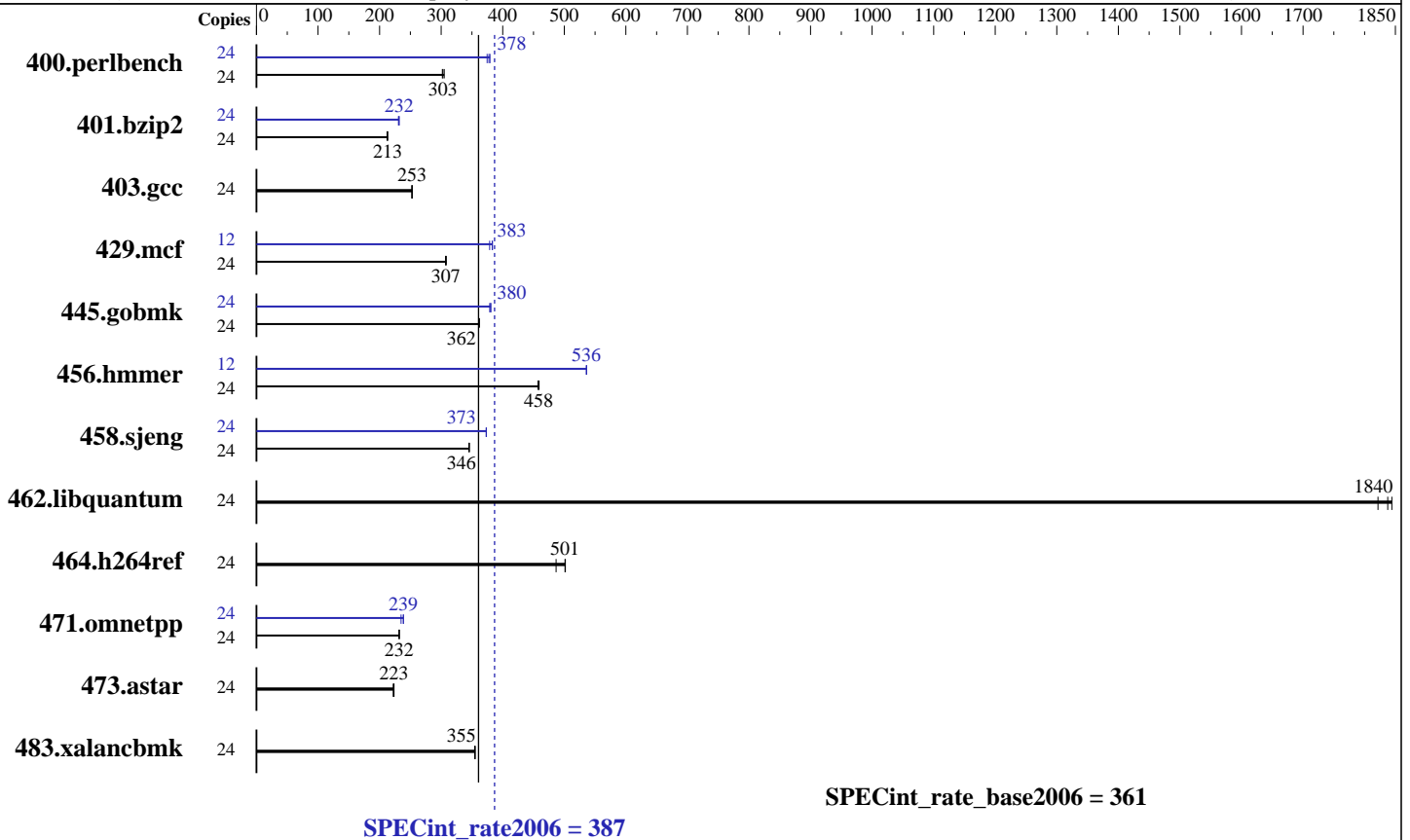
**CPU2006 license:** 3

**Test sponsor:** Hewlett-Packard Company

**Tested by:** Hewlett-Packard Company

**Test date:** Jan-2011

**Hardware Availability:** Feb-2011

**Software Availability:** Dec-2010



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## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5675 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.46 GHz |
| CPU MHz: | 3067 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 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: | 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC) |
| Disk Subsystem: | 1 x 146 GB 15 K SAS |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7-default |
| Compiler: | Intel C++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116 |
| 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 V9.01 |

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## Results Table

| Benchmark | Base Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Peak Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 400.perlbench | 24 | 777 | 302 | **774** | **303** | 769 | 305 | 24 | **621** | **378** | 626 | 375 | 618 | 379 |
| 401.bzip2 | 24 | **1087** | **213** | 1092 | 212 | 1087 | 213 | 24 | 1000 | 232 | **1000** | **232** | 1004 | 231 |
| 403.gcc | 24 | 763 | 253 | 765 | 252 | **765** | **253** | 24 | 763 | 253 | 765 | 252 | **765** | **253** |
| 429.mcf | 24 | 712 | 307 | **712** | **307** | 710 | 308 | 12 | 285 | 383 | 289 | 379 | **286** | **383** |
| 445.gobmk | 24 | **696** | **362** | 696 | 362 | 696 | 362 | 24 | 661 | 381 | 665 | 379 | **662** | **380** |
| 456.hmmer | 24 | **489** | **458** | 488 | 459 | 490 | 457 | 12 | 209 | 536 | 209 | 536 | **209** | **536** |
| 458.sjeng | 24 | 840 | 346 | **840** | **346** | 841 | 345 | 24 | 778 | 373 | **778** | **373** | 777 | 374 |
| 462.libquantum | 24 | 273 | 1820 | 270 | 1840 | **271** | **1840** | 24 | 273 | 1820 | 270 | 1840 | **271** | **1840** |
| 464.h264ref | 24 | 1091 | 487 | 1059 | 502 | **1060** | **501** | 24 | 1091 | 487 | 1059 | 502 | **1060** | **501** |
| 471.omnetpp | 24 | **647** | **232** | 647 | 232 | 646 | 232 | 24 | 629 | 239 | 639 | 235 | **629** | **239** |
| 473.astar | 24 | 759 | 222 | **755** | **223** | 754 | 223 | 24 | 759 | 222 | **755** | **223** | 754 | 223 |
| 483.xalancbmk | 24 | **467** | **355** | 466 | 355 | 467 | 354 | 24 | **467** | **355** | 466 | 355 | 467 | 354 |

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

    'nodev   /mnt/hugepages   hugetlbfs   defaults   0 0' added to /etc/fstab
    'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
    echo 10800 > /proc/sys/vm/nr_hugepages
    export HUGETLB_MORECORE=yes
    export LD_PRELOAD=/usr/lib64/libhugetlbfs.so

## Platform Notes

    BIOS configuration:
     HP Power Profile set to Maximum Performance
     Thermal Configuration set to Increased Cooling
     Data Reuse set to Disabled

## General Notes

    Binaries were compiled on RHEL5.5 with Binutils binutils-2.17.50.0.6-14.el5

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## Base Compiler Invocation

C benchmarks:
    icc  -m32

C++ benchmarks:
    icpc -m32

## Base Portability Flags

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

## Base Optimization Flags

C benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch
    -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
    -L/smartheap -lsmartheap
    -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

## Base Other Flags

C benchmarks:

        403.gcc: -Dalloca=_alloca

## 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

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## Peak Compiler Invocation (Continued)

C++ benchmarks:
    icpc -m32

## Peak Portability Flags

    400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
       401.bzip2: -DSPEC_CPU_LP64
      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)
                   -O3(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)
                   -O3(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)
                   -O3(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 -O3 -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)
                   -O3(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: basepeak = yes

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# Peak Optimization Flags (Continued)

C++ benchmarks:

> 471.omnetpp: `-xSSE4.2(pass 2)` `-prof-gen(pass 1)` `-ipo(pass 2)`
> `-O3(pass 2)` `-no-prec-div(pass 2)` `-prof-use(pass 2)`
> `-ansi-alias` `-opt-ra-region-strategy=block` `-Wl,-z,muldefs`
> `-L/smartheap` `-lsmartheap`

> 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
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.html
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110216.00.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110216.00.xml

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

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