# SPEC® CINT2006 Result

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## Hewlett-Packard Company

ProLiant DL380 G7
(2.93 GHz, Intel Xeon X5647)

$SPECint^{®}\_rate2006 =$ 270

$SPECint\_rate\_base2006 =$ 254

**CPU2006 license:** 3

**Test sponsor:** Hewlett-Packard Company

**Tested by:** Hewlett-Packard Company

**Test date:** Feb-2011

**Hardware Availability:** Feb-2011

**Software Availability:** Dec-2010

Copies

| Benchmark | Copies | Result |
|---|---|---|
| 400.perlbench | 16 / 16 | 259 / 207 |
| 401.bzip2 | 16 / 16 | 168 / 151 |
| 403.gcc | 16 | 190 |
| 429.mcf | 8 / 16 | 287 / 261 |
| 445.gobmk | 16 / 16 | 247 / 232 |
| 456.hmmer | 8 / 16 | 355 / 324 |
| 458.sjeng | 16 / 16 | 244 / 225 |
| 462.libquantum | 16 | 1240 |
| 464.h264ref | 16 / 16 | 327 / 321 |
| 471.omnetpp | 16 / 16 | 185 / 172 |
| 473.astar | 16 | 158 |
| 483.xalancbmk | 16 | 254 |

SPECint_rate_base2006 = 254

SPECint_rate2006 = 270

## Hardware

CPU Name: Intel Xeon X5647

CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz

CPU MHz: 2933

FPU: Integrated

CPU(s) enabled: 8 cores, 2 chips, 4 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: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)

Disk Subsystem: 1 x 300 GB 10 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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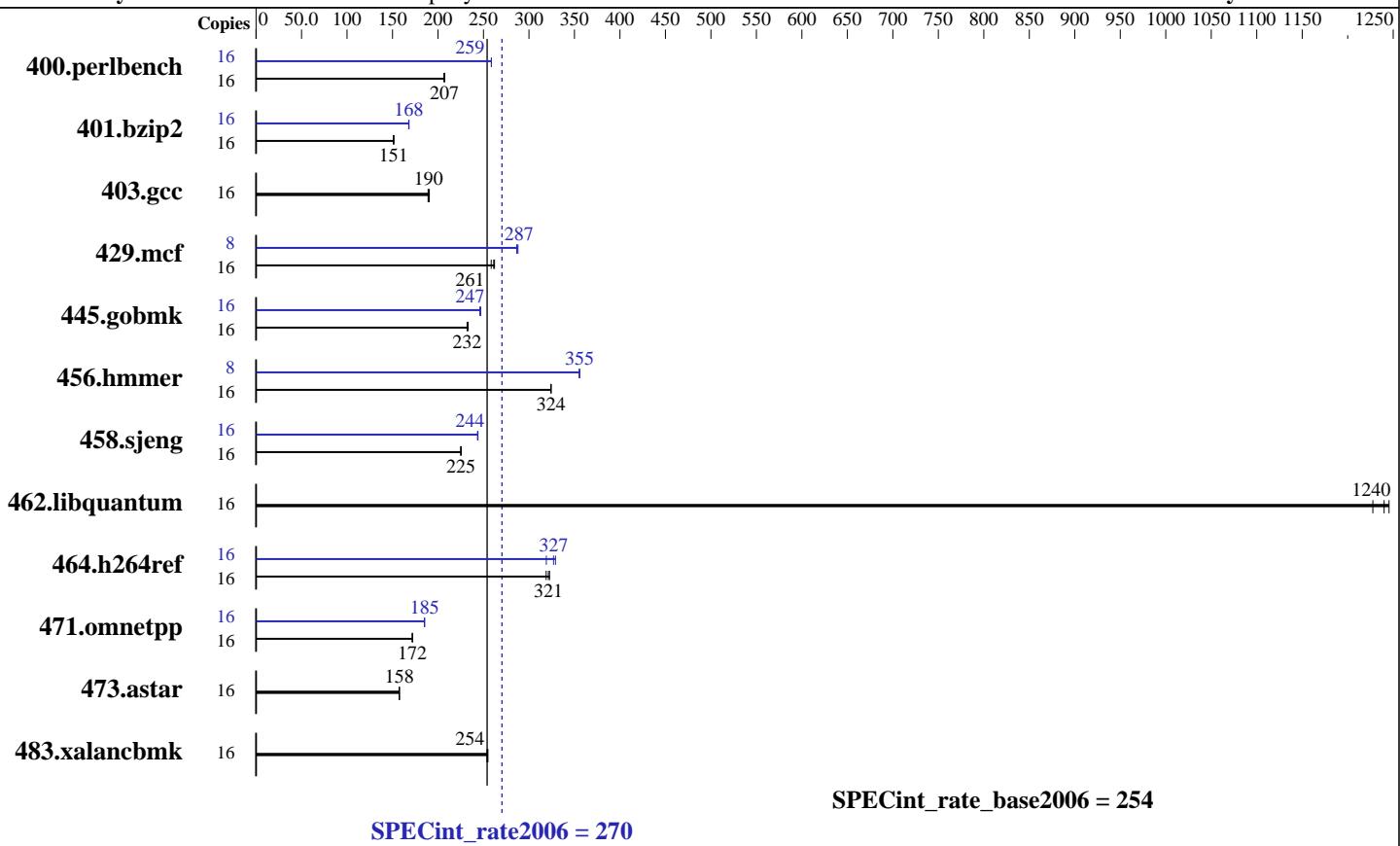SPECint_rate_base2006 = 254

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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 | **755** | **207** | 754 | 207 | 757 | 207 | 16 | **604** | **259** | 604 | 259 | 604 | 259 |
| 401.bzip2 | 16 | 1019 | 152 | **1021** | **151** | 1023 | 151 | 16 | 920 | 168 | **919** | **168** | 919 | 168 |
| 403.gcc | 16 | 681 | 189 | **679** | **190** | 676 | 190 | 16 | 681 | 189 | **679** | **190** | 676 | 190 |
| 429.mcf | 16 | **559** | **261** | 565 | 258 | 557 | 262 | 8 | 253 | 288 | 255 | 287 | **254** | **287** |
| 445.gobmk | 16 | 720 | 233 | 724 | 232 | **723** | **232** | 16 | **680** | **247** | 680 | 247 | 682 | 246 |
| 456.hmmer | 16 | 460 | 324 | 460 | 324 | **460** | **324** | 8 | 210 | 356 | 210 | 355 | **210** | **355** |
| 458.sjeng | 16 | **860** | **225** | 860 | 225 | 858 | 226 | 16 | 795 | 244 | **795** | **244** | 794 | 244 |
| 462.libquantum | 16 | 266 | 1250 | 270 | 1230 | **267** | **1240** | 16 | 266 | 1250 | 270 | 1230 | **267** | **1240** |
| 464.h264ref | 16 | 1097 | 323 | **1102** | **321** | 1110 | 319 | 16 | **1083** | **327** | 1110 | 319 | 1076 | 329 |
| 471.omnetpp | 16 | **582** | **172** | 583 | 172 | 581 | 172 | 16 | **540** | **185** | 540 | 185 | 540 | 185 |
| 473.astar | 16 | **713** | **158** | 713 | 158 | 714 | 157 | 16 | **713** | **158** | 713 | 158 | 714 | 157 |
| 483.xalancbmk | 16 | **434** | **254** | 433 | 255 | 435 | 254 | 16 | **434** | **254** | 433 | 255 | 435 | 254 |

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 7200 > /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
```

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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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                 -unroll2 -ansi-alias

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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-revB.html
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.xml

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For other inquiries, please contact webmaster@spec.org.

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