OMPM2001 Result

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IBM Corporation

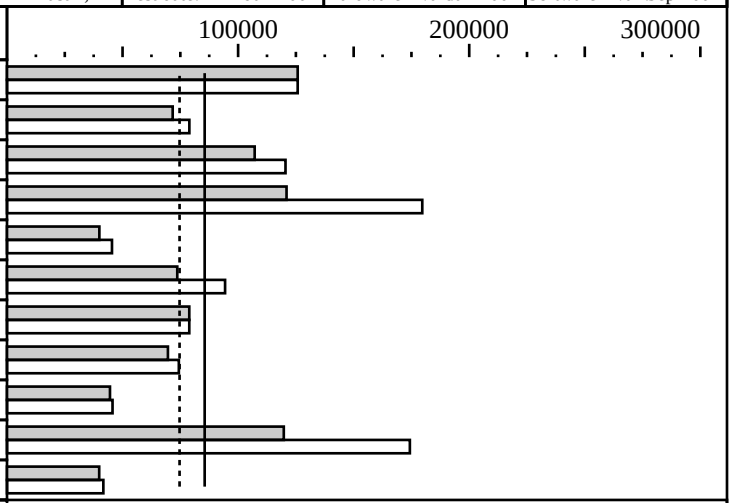
IBM System p 570 (4.7 GHz, 16 core, SLES)

SPECompMpeak2001 = 85533

SPECompMbase2001 = 74670

SPEC license #HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Jun-2007 | Hardware Avail: Jun-2007 | Software Avail: Sep-2007

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	47.7	125777	47.7	125777
312.swim_m	6000	83.7	71691	76.0	78904
314.mgrid_m	7300	68.1	107168	60.6	120506
316.applu_m	4000	33.1	120958	22.3	179684
318.galgel_m	5100	128	39966	112	45425
320.equake_m	2600	35.3	73675	27.6	94361
324.apsi_m	3400	43.1	78870	43.1	78870
326.gafort_m	8700	125	69632	117	74353
328.fma3d_m	4600	103	44557	101	45663
330.art_m	6400	53.4	119765	36.7	174315
332.ammp_m	7000	175	39891	168	41690



Hardware

CPU:	POWER6
CPU MHz:	4700
FPU:	Integrated
CPU(s) enabled:	16 cores, 8 chips, 2 cores/chip. 2 threads/core
CPU(s) orderable:	2,4,8,12,16 cores
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per chip
L3 Cache:	32 MB I+D off chip per chip
Other Cache:	None
Memory:	128 GB (64x2 GB) DDR2 667 MHz
Disk Subsystem:	2x73 GB SAS 15K RPM
Other Hardware:	None

Software

OpenMP Threads:	32
Parallel:	OpenMP
Operating System:	SUSE Linux Enterprise 10 SP1
Compiler:	IBM XL C/C++ Advanced Edition V9.0 for Linux IBM XL Fortran Advanced Edition V11.1 for Linux
Other Software:	Engineering and Scientific Subroutine Library for Linux on POWER, Version 4.3
File System:	reiserfs
System State:	Multi-User

Notes/Tuning Information

```
Portability Flags Variables
  -qfixed used in: 310.wupwise_m, 312.swim_m, 314.mgrid_m, 316.applu_m, 324.apsi_m
  -qfixed=80 used in: 318.galgel_m
  -qsuffix=f=f90 used in: 318.galgel_m 326.gafort_m, 328.fma3d_m

Base Flags
   C:        -O5 -q64 -qsmp=omp
   FORTRAN:  -O5  -qsmp=omp

Base & Peak Environment Flags:
  ENV_OMP_NUM_THREADS=32
  ENV_OMP_DYNAMIC=FALSE
  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
  ENV_XLFRTEOPTS=intrinthds=1


Peak sources:
  SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001 used
  with 312.swim_m, 316.applu_m, 320.equake_m, 326.gafort_m


Peak Flags
  -qsmp=omp used in all cases
```

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Notes/Tuning Information (Continued)

```
    310.wupwise_m   basepeak = 1
    312.swim_m:     -O4 -q32 -qpdf1/pdf2
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
    314.mgrid_m:    -O4 -q64
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
    316.applu_m:    -O4 -q64 -qpdf1/pdf2
                    -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                    ENV_HUGETLB_MORECORE=yes
    318.galgel_m:   -O5 -q64 -qessl
                    -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
                    EXTRA_LIBS=-lesslsmp
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                    ENV_HUGETLB_MORECORE=yes
    320.equake_m:   -O5 -q64 -qpdf1/pdf2 -qhot=arraypad -Q
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
    324.apsi_m:     basepeak = 1
    326.gafort_m:   -O5 -qhot=arraypad
                    -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=B
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                    ENV_HUGETLB_MORECORE=yes
    328.fma3d_m:    -O5 -q64 -qhot=arraypad
                    -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=B
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                    ENV_HUGETLB_MORECORE=yes
    330.art_m:      -O5 -q64 -qpdf1/pdf2 -qhot=arraypad -Q
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                    ENV_HUGETLB_MORECORE=yes
                    ENV_LD_PRELOAD=libhugetlbfs.so
    332.ammp_m:     -O3 -q32 -qarch=pwr6e -qtune=pwr6 -qhot=arraypad -Q
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                    ENV_HUGETLB_MORECORE=yes
                    ENV_LD_PRELOAD=libhugetlbfs.so

 C:              IBM XL C for Linux invoked as xlc_r
 Fortran 90:     IBM XL Fortran for Linux invoked as xlf90_r

ulimit -s (stack) set to unlimited.


System set to Enhanced mode when defining partition on HMC

Large pages reserved as follows by root user:
    echo 200 > /proc/sys/vm/nr_hugepages
System configured with libhugetlbfs library for application access to large pages

Use flags-description file IBM-20070718-Linux.txt
```