



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 AvailJun-2007 | Software AvailSep-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.quake_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.quake_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/ -t1 -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/ -t1 -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/ -t1 -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/ -t1 -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.amp_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