OMPM2001 Result

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IBM Corporation

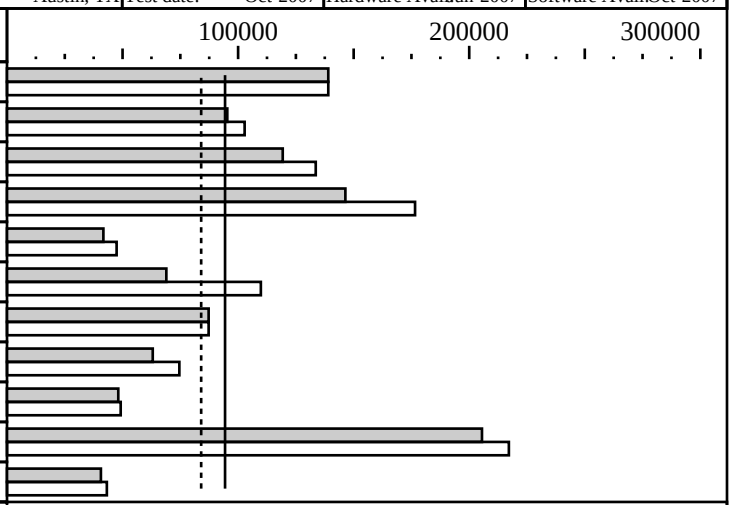
IBM System p 570 (4.7 GHz, 16 core, RedHat)

SPECompMpeak2001 = 94350

SPECompMbase2001 = 84017

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	43.2	139017	43.2	139017
312.swim_m	6000	62.9	95318	58.4	102823
314.mgrid_m	7300	61.2	119308	54.6	133590
316.applu_m	4000	27.3	146415	22.7	176562
318.galgel_m	5100	122	41706	108	47431
320.equake_m	2600	37.7	68948	23.7	109840
324.apsi_m	3400	39.0	87245	39.0	87245
326.gafort_m	8700	138	63064	117	74577
328.fma3d_m	4600	95.5	48151	93.5	49191
330.art_m	6400	31.1	205520	29.5	217156
332.ammp_m	7000	172	40630	162	43203



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 core
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:	Red Hat Enterprise Linux Advanced Platform 5.1 for IBM POWER
Compiler:	IBM XL C/C++ Advanced Edition for Linux, V9.0 IBM XL Fortran Advanced Edition for Linux, V11.1
Other Software:	IBM Engineering and Scientific Subroutine Library for Linux on POWER, Version 4.3
File System:	ext3
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 -q32 -qsmp=omp
   FORTRAN:  -O5 -q32 -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:     -O3 -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
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
    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 -q32 -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
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
    330.art_m:      -O3 -q32 -qhot=arraypad -Q
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
    332.ammp_m:     -O4 -q64 -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

kernel release 2.6.18-52.el5.

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 240 > /proc/sys/vm/nr_hugepages
System configured with libhugetlbfs library for application access to large pages

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