OMPM2001 Result

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IBM Corporation

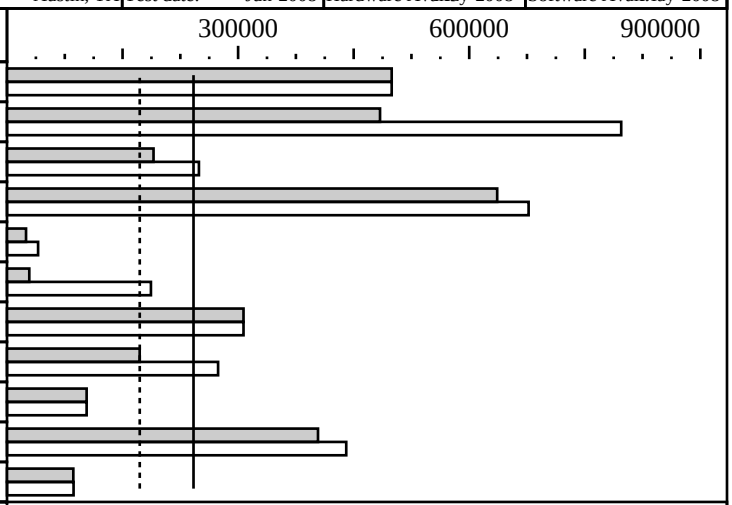
IBM Power 595 (5.0 GHz, 64 core, Red Hat)

SPECompMpeak2001 = 242116

SPECompMbase2001 = 172311

SPEC license #: HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Jun-2008 | Hardware Avail: May-2008 | Software Avail: May-2008

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	12.0	499351	12.0	499351
312.swim_m	6000	12.4	484225	7.53	797288
314.mgrid_m	7300	38.4	190212	29.3	249133
316.applu_m	4000	6.29	636307	5.91	677086
318.galgel_m	5100	206	24713	126	40367
320.equake_m	2600	89.9	28934	13.9	186833
324.apsi_m	3400	11.1	307014	11.1	307014
326.gafort_m	8700	50.5	172244	31.8	274016
328.fma3d_m	4600	44.5	103369	44.5	103369
330.art_m	6400	15.9	403712	14.5	440361
332.ammp_m	7000	81.3	86095	81.0	86407



Hardware

CPU:	POWER6
CPU MHz:	5000
FPU:	Integrated
CPU(s) enabled:	64 cores, 32 chips, 2 cores/chip. 2 threads/core
CPU(s) orderable:	8,16,24,32,40,48,56,64 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:	512 GB (256x2 GB) DDR2 667 MHz
Disk Subsystem:	4x146 GB SCSI 15K RPM
Other Hardware:	None

Software

OpenMP Threads:	128
Parallel:	OpenMP
Operating System:	Red Hat Red Hat Enterprise Linux Server release 5.2
Compiler:	IBM XL C/C++ Advanced Edition for Linux, V9.0 IBM XL Fortran Advanced Edition for Linux, V11.1 Updated with the Mar2008 PTF.
Other Software:	IBM Engineering and Scientific Subroutine Library for Linux on POWER, Version 4.3.1.1
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 -q64 -qsmp=omp
   FORTRAN:  -O5 -q64 -qsmp=omp

Base & Peak Environment Flags:
  ENV_OMP_NUM_THREADS = 128
  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 -qhot=arraypad -Q -qpdf1/pdf2
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=2
                    ENV_OMP_NUM_THREADS = 64
    314.mgrid_m:    -O5 -q64
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=2
                    ENV_OMP_NUM_THREADS = 64
    316.applu_m:    -O4 -q64
    318.galgel_m:   -O4 -q32 -qessl
                    -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
                    ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=2
                    ENV_OMP_NUM_THREADS = 64
                    EXTRA_LIBS=-lesslsmp
                    ENV_HUGETLB_MORECORE=yes
    320.equake_m:   -O5 -q64 -qpdf1/pdf2 -qhot=arraypad -Q
    324.apsi_m:     basepeak = 1
    326.gafort_m:   -O5 -q32 -qhot=arraypad
    328.fma3d_m:    basepeak = 1
    330.art_m:      -O3 -q64 -qhot=arraypad -Q
    332.ammp_m:     -O4 -q64 -qhot=arraypad -Q
                    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

Use flags-description file IBM-20080408-Linux.txt
kernel release 2.6.18-92.el5.

ulimit -s (stack) set to unlimited.

System in normal architected mode

Large pages reserved as follows by root user:
    echo 800 > /proc/sys/vm/nr_hugepages
System configured with libhugetlbfs library for application access to large pages
```