OMPM2001 Result

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IBM Corporation

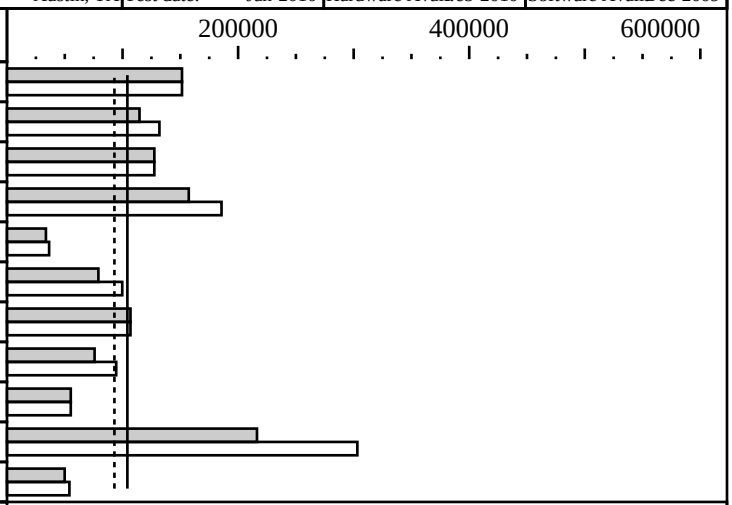
IBM Power 750 Express (3.55 GHz, 32 core, SLES)

SPECompMpeak2001 = 104175

SPECompMbase2001 = 92957

SPEC license #HPG0005 | Tested by: IBM Corporation | Test site: Austin, TX | Test date: Jan-2010 | Hardware Avail: Feb-2010 | Software Avail: Dec-2009

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	39.6	151439	39.6	151439
312.swim_m	6000	52.3	114670	45.5	131911
314.mgrid_m	7300	57.3	127503	57.3	127503
316.applu_m	4000	25.4	157302	21.5	185645
318.galgel_m	5100	151	33681	140	36445
320.equake_m	2600	32.9	79092	26.1	99722
324.apsi_m	3400	31.8	106856	31.8	106856
326.gafort_m	8700	115	75808	92.1	94505
328.fma3d_m	4600	83.4	55185	83.4	55185
330.art_m	6400	29.6	216341	21.1	303192
332.ammp_m	7000	140	49907	130	54008



Hardware

CPU:	POWER7
CPU MHz:	3550
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	8,16,24,32 cores
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	4 MB I+D on chip per core
Other Cache:	None
Memory:	256 GB (32x8 GB) DDR3 1066 MHz
Disk Subsystem:	8x146.8 GB SAS SFF 15K RPM
Other Hardware:	None

Software

OpenMP Threads:	128
Parallel:	OpenMP
Operating System:	SUSE Linux Enterprise Server 11 (ppc64) Kernel 2.6.27.19-5-ppc64
Compiler:	IBM XL C/C++ for Linux, V10.1 Updated with the Oct2009 PTF IBM XL Fortran for Linux, V12.1 Updated with the Oct2009 PTF
File System:	ext3
System State:	Run level 3 (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 (unless noted differently below):
  ENV_OMP_NUM_THREADS = 32
  ENV_OMP_DYNAMIC=FALSE
  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=4
  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
```

Notes/Tuning Information (Continued)

```
    -qsmp=omp used in all cases

    310.wupwise_m: basepeak = 1
    312.swim_m:    -O4 -q64
    314.mgrid_m:   basepeak = 1
    316.applu_m:   -O4 -q32
                   ENV_HUGETLB_MORECORE=yes
                   ENV_LD_PRELOAD=libhugetlbfs.so
    318.galgel_m:  -O4 -q64
                   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
    320.equake_m:  -O5 -q64 -qhot=arraypad -Q
    324.apsi_m:    basepeak = 1
    326.gafort_m:  -O4 -q32 -qhot=arraypad
                   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
                   ENV_OMP_NUM_THREADS = 128
                   ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
    328.fma3d_m:   basepeak = 1
    330.art_m:     -O3 -q32
                   ENV_HUGETLB_MORECORE=yes
                   ENV_LD_PRELOAD=libhugetlbfs.so
    332.ammp_m:    -O5 -q32
                   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

  ulimit -s (stack) set to 1048576.

  Large pages reserved as follows by root user:
      echo 480 > /proc/sys/vm/nr_hugepages
  System configured with libhugetlbfs library for application access to large pages

  System configured with:
      echo "NO_NEW_FAIR_SLEEPERS" > /sys/kernel/debug/sched_features

  Intelligent Energy Optimization enabled, up to 3.86 GHz
```