



OMPM2001 Result

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IBM Corporation

IBM eServer OpenPower 720 (1650 MHz, 4CPU, Linux)

SPECompMpeak2001 = 10750

SPECompMbase2001 = 9804

SPEC license #HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Feb-2005 | Hardware Avail: Sep-2004 | Software Avail: Mar-2005

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	455	13201	457	13119	
312.swim_m	6000	770	7792	762	7872	
314.mgrid_m	7300	996	7329	991	7368	
316.applu_m	4000	261	15305	242	16512	
318.galgel_m	5100	253	20186	209	24396	
320.earthquake_m	2600	279	9329	260	9992	
324.apsi_m	3400	365	9308	353	9623	
326.gafort_m	8700	1460	5960	887	9812	
328.fma3d_m	4600	813	5656	813	5660	
330.art_m	6400	281	22816	282	22693	
332.ammp_m	7000	1354	5170	1174	5964	

Hardware

CPU: POWER5
 CPU MHz: 1650
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip (SMT ON)
 CPU(s) orderable: 2,4
 Primary Cache: 64KBI+32KBD (on chip)/core
 Secondary Cache: 1920KB unified (on chip)/chip
 L3 Cache: 36MB unified (off chip)/DCM, 2DCM/SUT
 Other Cache: None
 Memory: 16x2 GB
 Disk Subsystem: 1x36GB SCSI, 10K RPM
 Other Hardware: None

Software

OpenMP Threads: 8
 Parallel: OpenMP
 Operating System: Red Hat Enterprise Linux AS 4
 Compiler: XL Fortran Enterprise Edition Version 9.1 for Linux
 XL C/C++ Enterprise Edition Version 7.0 for Linux
 Other Software: IBM ESSL for Linux on POWER,
 Version 4 Release 2
 File System: EXT2
 System State: Multi-user, run level 3

Notes/Tuning Information

Tested by IBM Corporation

Portability Flags & Environment 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
 export XLFRTOPTIONS=NAMELIST=OLD used in: 326.gafort_m

Base Flags

C: -O5 -q64 -qipa=partition=large -qmaxmem=-1 -qsmp=omp
 FORTRAN:-O5 -q32 -qipa=partition=large -qmaxmem=-1 -qsmp=omp

Base & Peak User Environment:

OMP_NUM_THREADS=8
 OMP_DYNAMIC=FALSE
 XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC
 MALLOCMULTIHEAP=1
 Stack size set to unlimited using the command "ulimit -s unlimited".

Peak Flags

-qsmp=omp used in all cases
 310.wupwise_m: -O5 -q64 -qipa=partition=large -qmaxmem=-1
 312.swim_m: -O5 -q32 -qhot -qarch=pwr5 -qtune=pwr5
 314.mgrid_m: -O5 -q64 -qipa=partition=large -qmaxmem=-1



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Notes/Tuning Information (Continued)

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"Fortran compiler invoked as /opt/ibmcmp/xlf/9.1/bin/xlf_r"
316.applu_m: -O5 -q32 -qarch=pwr5 -qtune=pwr5
318.galgel_m: -O5 -q64 -qipa=partition=large -qmaxmem=-1 -qessl -lesslsmp
320.earthquake_m: -O5 -q32 -qarch=pwr5 -qtune=pwr5 -qhot=arraypad -Q
324.apsi_m: -O4 -q32 -qarch=pwr5 -qtune=pwr5
-qipa=partition=large -qmaxmem=-1
326.gafort_m: -O5 -q32 -qhot=arraypad
-qipa=partition=large -qmaxmem=-1
328.fma3d_m: -O5 -q64 -qalign=natural -qhot=arraypad -qipa=noobject
-qipa=partition=large -qmaxmem=-1
330.art_m: -O4 -q64 -qhot
332.ammp_m: -O5 -q32 -qhot=arraypad -Q
```

Alternate sources:

Approved src.alt available as ompm-purdue1-20040324.tar.gz
Used for 330.art_m, base and peak.

Peak sources:

SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001 used
with 312.swim_m, 316.applu_m, 320.earthquake_m, 326.gafort_m
Available as ompl.32 src.alt in SPEC OMP v3.0.

SMT: Acronym for "Simultaneous Multi-Threading". A processor technology that allows the simultaneous execution of multiple thread contexts within a single processor core. (Enabled by default)

DCM: Acronym for "Dual-Chip Module" (one dual-core processor chip + one L3-cache chip)

SUT: Acronym for "System Under Test"

ESSL: Engineering and Scientific Subroutine Library

C: IBM XL C for Linux invoked as xlc_r

Fortran 90 and 77: IBM XL Fortran for Linux invoked as xlf90_r, except as noted

Flag file: IBM-20050209-Linux.txt