



OMPM2001 Result

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Hewlett-Packard Company
AlphaServer GS1280 7/1300

SPECompMpeak2001 = 42044

SPECompMbase2001 = 32727

SPEC license #HPG0009 | Tested by: Hewlett-Packard Company | Test site: Marlborough, MA | Test date: Sep-2004 | Hardware Avail: Aug-2004 | Software Avail: Jul-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	176	34090	93.7	64004	
312.swim_m	6000	58.0	103379	35.1	171122	
314.mgrid_m	7300	136	53637	117	62370	
316.applu_m	4000	53.9	74216	44.9	89175	
318.galgel_m	5100	268	19044	265	19269	
320.earthquake_m	2600	277	9391	141	18423	
324.apsi_m	3400	80.4	42296	65.8	51702	
326.gafort_m	8700	260	33510	229	38007	
328.fma3d_m	4600	247	18604	180	25546	
330.art_m	6400	119	53808	125	51238	
332.ammp_m	7000	540	12959	537	13047	

Hardware

CPU: Alpha 21364
 CPU MHz: 1300
 FPU: Integrated
 CPU(s) enabled: 32 cores, 32 chips, 1 core/chip
 CPU(s) orderable: 2 to 64
 Primary Cache: 64KB(I)+64KB(D) on chip
 Secondary Cache: 1.75MB on chip per CPU
 L3 Cache: None
 Other Cache: None
 Memory: 2GB per core; 256MB RIMMs; 64GB total
 Disk Subsystem: 36GB Ultra 160 10KRPM
 Other Hardware: None

Software

OpenMP Threads: 32
 Parallel: OpenMP
 Operating System: Tru64 UNIX V5.1B-1 + Patch Kit 4
 Compiler: HP Fortran V5.5A-3548-48D88
 Compaq C V6.5-011-48C5K
 File System: UFS
 System State: Multi-user

Notes/Tuning Information

MP_STACK_SIZE=10000000
 4Mb pages used (sysconfigtab)
 no processor sets used

Tuning pseudo-switches:

+BPD - Big page disable
 +PFB - Post-link feedback for prefetches
 See the flags description or the configuration file for more details.

Base:

Fortran: f90 -arch ev7 -fast -omp -O5
 C: cc -arch ev7 -fast -omp -O4
 alternate source purdual for 330.art_m

Peak:

All use -arch host -omp ONESTEP
 Individual benchmark tuning:
 310.wupwise_m: f90 -arch host -omp -call_shared
 -inline all -unroll 12 -align commons
 +PFB +BPD
 alternate source omp1.32
 312.swim_m: f90 -arch host -omp -fast -O5



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Notes/Tuning Information (Continued)

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+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

314.mgrid_m: f90 -arch host -omp -O5 -transform_loops
-tune ev7 -unroll 8
+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

316.applu_m: f90 -arch host -omp -fast -O5 -unroll 14
+PFB
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

318.galgel_m: f90 -arch host -omp -fast -unroll 5 -O5
+PFB

320.equake_m: cc -arch host -omp -fast -call_shared
-O4 -ldensemalloc -assume restricted_pointers
-inline speed -unroll 13
+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

324.apsi_m: f90 -arch host -omp -O5 -transform_loops
-unroll 8
+PFB
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

326.gafort_m: f90 -arch host -omp -fast -O5
-arch ev67 -tune ev67
alternate source omp1.32

328.fma3d: f90 -arch host -omp -fast -O4
-transform_loops
+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

330.art_m: cc -arch host -omp -assume whole_program
-ldensemalloc -call_shared
-assume restricted_pointers -fast -O4 -unroll 16
-inline none
+PFB +BPD
alternate source purduel

332.ammp_m: cc -arch host -omp -O4 -ifo
-assume nomath_errno
-assume trusted_short_alignment -fp_reorder
-readonly_strings -ldensemalloc
-assume restricted_pointers -unroll 9
PTHREAD_CONFIG=feature=def-scs,d4-scs

```

Information on UNIX V5.1B Patches can be found at



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Notes/Tuning Information (Continued)

<http://h30097.www3.hp.com/docs/patch/51B/bl25/ReleaseNotes.pdf>

The densemalloc library provides an alternate set of malloc routines that implement a "dense malloc" memory allocation strategy. This can improve run time performance by reducing bookkeeping overhead and rounding up padding attached to allocated chunks.

File containing flag descriptions can be found at

<http://www.spec.org/omp/results/flags/HP-ALPHA-TRU64-F90-CompaqC.txt>