



OMPM2001 Result

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Hewlett-Packard Company
hp server rx8620 (1500 MHz Itanium 2)

SPECompMpeak2001 = 19716
SPECompMbase2001 = 17852

SPEC license #HPG2116 | Tested by: Hewlett-Packard Company | Test site: Richardson, Texas | Test date: Oct-2003 | Hardware Avail: Nov-2003 | Software Avail: Oct-2003

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	268	22380	248	24211	
312.swim_m	6000	223	26901	223	26901	
314.mgrid_m	7300	348	20954	348	20954	
316.applu_m	4000	129	30889	85.9	46551	
318.galgel_m	5100	509	10023	444	11496	
320.earthquake_m	2600	201	12922	167	15557	
324.apsi_m	3400	137	24809	136	24954	
326.gafort_m	8700	558	15586	558	15586	
328.fma3d_m	4600	389	11832	309	14865	
330.art_m	6400	286	22411	286	22411	
332.ammp_m	7000	617	11341	589	11889	

Hardware

CPU: Intel Itanium 2
 CPU MHz: 1500
 FPU: Integrated
 CPU(s) enabled: 16
 CPU(s) orderable: 2 to 16 by 2
 Primary Cache: L1 Inst/Data: 16 KB, associativity = 4
 Secondary Cache: L2 Unified: 256 KB, associativity = 8
 L3 Cache: L3 Unified: 6144 KB, associativity = 24
 Other Cache: None
 Memory: 32GB (64 * 512MB DIMMs)
 Disk Subsystem: root disk 1x36 SCSI
 Other Hardware: --

Software

OpenMP Threads: 16
 Parallel: OpenMP
 Operating System: HPUX11i-TCOE B.11.23
 Compiler: HP C/ANSI C Compiler B.11.23
 HP aC++ Compiler B.11.23
 HP Fortran 90 Compiler B.11.23
 HP LIBF90 PHSS_29620
 HP F90 Compiler PHSS_29663
 HP aC++ Compiler PHSS_29655
 HP C Compiler PHSS_29656
 u2comp/be/plugin library PHSS_29657

File System: vxfs
 System State: Multi-user

Notes/Tuning Information

User environment:

```
MP_IDLE_THREADS_WAIT=-1
OMP_FIRST_USE=0
```

Portability Flags:

```
318.galgel: +source=fixed +extend_source
```

Base:

```
F90 +Ofaster +Oopenmp
+Oinfo +DD64 -minshared
cc +Ofaster +Oopenmp +DD64 +Oinfo
-minshared -AOe +Onofltacc
submit = chattr -s +id disable +pd 256k +pi 256k +mergeseg $commandexe; \
_M_ARENA_OPTS=64:32 _M_SBA_OPTS=16348:150:256 \
_M_CACHE_OPTS=32768:256:1024 mpsched -T FILL $command
```

Peak:

```
310.wupwise_m: +Ofaster +cat +O3 +Oopenmp
+Oinfo +DD64 -minshared -Wl,+pd256k -Wl,+pi256k
ONESTEP = true
submit = chattr -s +id disable $commandexe;
```



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Notes/Tuning Information (Continued)

`_M_ARENA_OPTS=64:32 mpsched -T FILL $command`

312.swim_m: basepeak=true

314.mgrid_m: basepeak=true

316.applu_m: +Ofaster +Oopenmp +Oinfo
+DD64 -minshared +DSitanium
ONESTEP=true
submit = chatr -s +id disable +pd 256k +pi 256k \$commandexe;
`_M_ARENA_OPTS=64:32 OMP_NUM_THREADS=15`
`_M_CACHE_OPTS=32768:256:1024 mpsched -T FILL $command`

318.galgel_m: +Ofaster +Oopenmp +Oinfo
+DD64 -minshared +Onodataprefetch +Oloop_unroll=14
ONESTEP = true
submit = chatr -s +id disable +pd 256k +pi 256k \$commandexe;
`OMP_NUM_THREADS=9 _M_ARENA_OPTS=64:32`
`_M_CACHE_OPTS=32768:256:1024 mpsched -T FILL $command`

320.equake_m: +Ofaster +Oopenmp +DD64 +Oinfo
-minshared -AOe +Onofltacc +Onoparmsoverlap +Odataprefetch=direct
submit = chatr -s +id disable +pd 64k +pi 64k \$commandexe;
`_M_ARENA_OPTS=64:32 _M_CACHE_OPTS=32768:256:1024`
`mpsched -T FILL $command`

324.apsi_m: +Ofaster +Oopenmp +Oinfo +DD64 -minshared
ONESTEP = true
submit = chatr -s +id disable +pd 256k +pi 256k
\$commandexe; `_M_ARENA_OPTS=64:32`
`_M_CACHE_OPTS=32768:256:1024`
`mpsched -T FILL $command`

326.gafort_m: basepeak=true

328.fma3d_m: +Ofaster +Oopenmp +Oinfo +DD64
-minshared +Oinline_budget=75
ONESTEP=true
submit = chatr -s +id disable +pd 256k +pi 256k
\$commandexe; `_M_ARENA_OPTS=64:32`
`_M_CACHE_OPTS=32768:256:1024`
`mpsched -T FILL $command`

330.art_m: basepeak=true

332.ammp_m: +Ofaster +Oopenmp +DD64 +Oinfo
-minshared -AOe +Onofltacc
submit = chatr -s +id enable +pd 4m +pi 4m
\$commandexe; `_M_ARENA_OPTS=64:32`
`_M_CACHE_OPTS=32768:256:1024`
`mpsched -T FILL $command`

Alternate Sources:

hpg.1 C++ compiler compatible sources
from SPEC Web site `ompm2001-isoc-20020619.tar.gz`



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Notes/Tuning Information (Continued)

used for Base 320.equake_m 330.art_m 332.ammp_m
used for Peak 332.ammp_m

ompl.32 OMPL 32 bit compatible sources
from SPEC Web site ompm2001-srcl32bit-20020822.tar.gz
used for Peak 310.wupwise_m 328.fma3d_m

Kernel Paramters (/stand/system):
maxdsiz 0xc0000000
maxdsiz_64bit 0x3fffbfffffff
maxssiz 0x17f00000
maxssiz_64bit 0x40000000
maxtsiz 0x40000000
maxtsiz_64bit 0x40000000
vps_pagesize 4096
vps_ceiling 16384
dbc_min_pct 20
dbc_max_pct 20
swapmem_on 0

Notes:

System was configured with 1/2 of memory interleaved and
1/2 of memory local to each cell

System configured as a single partition with 4 cells and
4 processors per cell

Threads were assigned to cpus using the FILL strategy
from the HP-UX mpsched utility

Memory tuning is documented in man page malloc(3C)

M_ARENA_OPTS=64:32
64 malloc arenas, 32 4k pages expansion

M_SBA_OPTS=16348:150:256
16384 maxfast size, 150 small blocks, 256 grain size

M_CACHE_OPTS=32768:256:1024
32768 bucket_size: 256 buckets:1024 retirement_age