



OMPM2001 Result

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Hewlett-Packard Company
hp server rx8620 (1300 MHz Itanium 2)

SPECompMpeak2001 = 17415

SPECompMbase2001 = 16714

SPEC license #HPG2116 | Tested by: Hewlett-Packard Company | Test site: Richardson, Texas | Test date: Dec-2003 | Hardware Avail: Nov-2003 | Software Avail: Jan-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	10000 20000 30000		
310.wupwise_m	6000	289	20783	259	23134	[Bar chart showing performance relative to 10000, 20000, 30000]		
312.swim_m	6000	227	26462	227	26462	[Bar chart showing performance relative to 10000, 20000, 30000]		
314.mgrid_m	7300	332	21959	332	21959	[Bar chart showing performance relative to 10000, 20000, 30000]		
316.applu_m	4000	153	26162	153	26162	[Bar chart showing performance relative to 10000, 20000, 30000]		
318.galgel_m	5100	594	8582	594	8582	[Bar chart showing performance relative to 10000, 20000, 30000]		
320.earthquake_m	2600	232	11183	202	12854	[Bar chart showing performance relative to 10000, 20000, 30000]		
324.apsi_m	3400	154	22127	133	25633	[Bar chart showing performance relative to 10000, 20000, 30000]		
326.gafort_m	8700	565	15388	565	15388	[Bar chart showing performance relative to 10000, 20000, 30000]		
328.fma3d_m	4600	383	12011	363	12670	[Bar chart showing performance relative to 10000, 20000, 30000]		
330.art_m	6400	259	24696	258	24805	[Bar chart showing performance relative to 10000, 20000, 30000]		
332.ammp_m	7000	754	9287	753	9290	[Bar chart showing performance relative to 10000, 20000, 30000]		

Hardware

CPU: Intel Itanium 2
CPU MHz: 1300
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: 3072 KB, associativity = 12
Other Cache: None
Memory: 32GB (64 * 512MB DIMMs)
Disk Subsystem: root disk 1x36 SCSI
Other Hardware: --

Software

OpenMP Threads: 16
Parallel: OpenMP
Operating System: HP-UX 11i-TCOE B.11.23
Compiler: HP C/ANSI C Compiler C.05.55
HP aC++ Compiler C.05.55
HP Fortran 90 Compiler B.11.23.03
HP LIBF90 PHSS_29620
HP F90 Compiler PHSS_29663
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 = chatr -s +id disable +pd 256k +pi 256k
+mergeseg disable $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,+pd64k -Wl,+pi64k
ONESTEP = true
submit = chatr -s +id disable $commandexe;
_M_ARENA_OPTS=64:32 mpsched -T FILL $command
```



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Notes/Tuning Information (Continued)

```

312.swim_m: basepeak=true

314.mgrid_m: basepeak=true

316.applu_m: basepeak=true

318.galgel_m: basepeak=true

320.equake_m: +Ofaster +Oopenmp +DD64 +Oinfo -minshared -AOe
+Onofltacc +Onoparmsoverlap +Odataprefetch=direct +Otype_safety=strong
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: +Ofast -ipo +Oopenmp +Oinfo +DD64 -minshared
ONESTEP = true
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

326.gafort_m: basepeak=true

328.fma3d_m: +Ofaster +Oopenmp +Oinfo +DD64
-minshared +Oinline_budget=75
ONESTEP=true
submit = chatr -s +id disable +pd 1m +pi 1m
$commandexe; _M_ARENA_OPTS=64:32
_M_CACHE_OPTS=32768:256:1024
mpsched -T FILL $command

330.art_m: +Ofaster +Oopenmp +DD64 +Oinfo
+DSitanium2 -minshared -AOe +Onofl tacc +Otype_safety=strong
submit = chatr -s +id disable +pd 256k +pi 256k $commandexe;
_M_ARENA_OPTS=64:32 _M_SBA_OPTS=16348:150:256 mpsched -T FILL $command

332.ammp_m: +Ofaster +Oopenmp +DD64 +Oinfo
-minshared -AOe +Onofltacc +Otype_safety=strong
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:

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

Kernel Parameters (/stand/system):

```

maxdsiz      0xc0000000
maxdsiz_64bit 0x3fffbfffff
maxssiz      0x17f00000
maxssiz_64bit 0x40000000
maxtsiz      0x40000000

```



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```

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