

## Re: ULE vs 4BSD in RELENG\_7

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*Source:* <http://unix.derkeiler.com/Mailing-Lists/FreeBSD/performance/2007-11/msg00020.html>

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  - *Date:* Mon, 5 Nov 2007 17:54:41 +1100 (EST)
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On Sun, 4 Nov 2007, Jeff Roberson wrote:

On Sun, 4 Nov 2007, Gelsema, P (Patrick) – FreeBSD wrote:

```
w/o patch
hulk# time make -j8 buildkernel
837.808u 138.167s 10:28.96 155.1% 6349+1349k 2873+7780io 303pf+0w
```

```
w patch
hulk# time make -j8 buildkernel
838.554u 168.316s 10:52.10 154.4% 6263+1332k 6489+7791io 11pf+0w
```

I only understand the 10:52 seconds thing, but it looks like it's stressing less and still getting things done.

Well this doesn't look very good at all. System time increased by 30 seconds! Must be too many extra context switches. The minimum slice value is probably too small and you've got an average of 4 threads per-core.

838 seconds for a kernel build! I'm unhappy with ~32 seconds for a kernel build on a system with 1/2 or 1/4 as much CPU here, with ULE still taking an extra 0.5 seconds. Mine is not an equivalent kernel build since it is for ~4.10 with ~5.2 userland (so that the benchmark isn't affected by anything except the kernel).

4BSD:

```
"make depend": 8.12 real 5.09 user 1.34 sys
```

```
"make": 31.94 real 56.18 user 4.49 sys
```

ULE:

```
"make depend": 8.09 real 5.16 user 1.19 sys
```

```
"make": 32.12 real 55.72 user 4.91 sys
```

The kernel is about 2/3 as large as GENERIC, with no acpi and no modules. The machine is a Turion X2 2GHz in i386 mode. The buffer cache was 100%

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warm. All makes normal ones (no buildkernel or modules pessimizations) with -j4.

Before recent vm changes, the real times were about 0.20 seconds smaller for "make".

Building on a local file system gives real times about 2 seconds smaller for "make".

Building a ~5.2 kernel on a local file system on this machine takes about 10 seconds longer (~42 seconds for 4BSD and ~43 seconds for ULE).

Building a ~5.2 world over nfs (with a cold cache) on this machine takes about 825 seconds with 4BSD and 833 seconds with ULE.

-current building itself is much slower due to source bloat and gcc bloat:  
For build a -current kernel with the same features on an Opteron X2 1.8GHz in amd64 mode over an untuned nfs with an untuned (INVARIANTS) kernel:

4BSD (several months ago), gcc-3.4.6:  
"make depend": 110.32 real 15.83 user 10.20 sys  
"make": 86.43 real 128.17 user 19.05 sys  
ULE, gcc-4.2.1:  
"make depend": 83.34 real 15.39 user 8.67 sys  
"make": 108.03 real 170.77 user 23.83 sys

The "make depend" times are not directly comparable. The untuned nfs is so slow that "make -j4 depend" takes 50-100 seconds no matter how many kernels are built in parallel, due to dead time waiting for nfs, so I build 6 kernels in parallel ("make depend" itself is mostly serial) on the slow machine but not normally. The "make" times are directly comparable (they are for "make -j4" of a single kernel on 2-way SMP systems).

Bruce

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