Lab 11, _div, testing print

By ADMIN | *Published:* APRIL 13, 2013

Interesting point we missed in lab10. Those are stubs that we have in main():
_div, _divu, _mod, _modu

Amazingly, I do not know what it is 😐 ,

Plan9/Inferno people, can you give a help regarding purpose of these references and way how they affect?
(I will update the lab as I get more info about this)

It is clear that without them fixed you can not have *print()* call working and other stuff in the kernel.
By checking/compiling/running/checking, we reveal that in other arm ports it is fixed in next way in **l.s**(**load.s**):

```
    ...
    BL      ,main(SB)
dead:
    B       dead
    B       ,0(PC)
    BL      _div(SB)    /* hack to load _div, etc. */
```

As we have such code in **load.s**, then *print()* call can be used after we initialize *serwrite* variable. Also let's add little more tracing to main() call to see more information:

```
pl011_puts("Entered main() at ");
pl011_addr(&main, 0);
pl011_puts(" with SP=");
pl011_addr((void *)getsp(), 1.);

pl011_puts("Clearing Mach:  ");
memset(m, 0, sizeof(Mach));
pl011_addr((char *)m,       0); pl011_puts("-");
pl011_addr((char *)(m+1),   1);

pl011_puts("Clearing edata: ");
memset(edata, 0, end-edata);
pl011_addr((char *)&edata,  0); pl011_puts("-");
pl011_addr((char *)&end,    1);

conf.nmach = 1;
serwrite = &pl011_serputs;

confinit();
xinit();
poolinit();
poolsizeinit();

pl011_puts("to inifinite loop\n\n");
for (;;);
```

Function *pl011_addr()* was created in the way that it can print address even when you have data segment broken (would be useful in debugging/tracing):

```
void
pl011_addr(void *a, int nl)
```

```
{
    int i;
    unsigned char *ca = (unsigned char *)&a;
    unsigned char h,l;

    for (i=3;i>=0;--i) {
        h = ca[i]/16;
        l = ca[i]%16;
        pl011_putc(h<10 ? h+0x30 : h-10+0x41);
        pl011_putc(l<10 ? l+0x30 : l-10+0x41);
    }
    if (nl) {
        pl011_putc(13);
        pl011_putc(10);
    }
}
```

So, that was a small lab to test everything that coded before with some small polishing.

Executing:

```
...
TFTP from server 10.0.55.112; our IP address is 10.0.55.105
Filename 'irpi'.
Load address: 0x7fe0
Loading: T #T #####################################
done
Bytes transferred = 543966 (84cde hex)
## Starting application at 0x00008000 ...
Entered main() at 00008404 with SP=00002FEC
Clearing Mach:  00002000-00002018
Clearing edata: 00064638-0006B760
Conf: top=134217728, npage0=32660, ialloc=26755072, nproc=735
to inifinite loop
```

FILES:
rpi
mkfile
fns.h
mem.h
load.s
armv6.s
main.c
pl011.c

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