u-boot与kernel之间存在memory占用情况的协作问题。

比如u-boot不能把一些要传给kernel的data放在kernel需要reserved的memory。

在目前的u-boot中是这样处理的：

in u-boot/common/image.c

```
int image_setup_linux(bootm_headers_t *images)
{
        ulong of_size = images->ft_len;
        char **of_flat_tree = &images->ft_addr;
        ulong *initrd_start = &images->initrd_start;
        ulong *initrd_end = &images->initrd_end;
        struct lmb *lmb = &images->lmb;
        ulong rd_len;
        int ret;

        if (IMAGE_ENABLE_OF_LIBFDT)
                boot_fdt_add_mem_rsv_regions(lmb, *of_flat_tree);            ①

        if (IMAGE_BOOT_GET_CMDLINE) {
                ret = boot_get_cmdline(lmb, &images->cmdline_start,
                                &images->cmdline_end);
                if (ret) {
                        puts("ERROR with allocation of cmdline\n");
                        return ret;
                }
        }
        if (IMAGE_ENABLE_RAMDISK_HIGH) {
                rd_len = images->rd_end - images->rd_start;
                ret = boot_ramdisk_high(lmb, images->rd_start, rd_len,
                                initrd_start, initrd_end);
                if (ret)
                        return ret;
        }

        if (IMAGE_ENABLE_OF_LIBFDT) {
                ret = boot_relocate_fdt(lmb, of_flat_tree, &of_size);
                if (ret)
                        return ret;
        }

        if (IMAGE_ENABLE_OF_LIBFDT && of_size) {
                ret = image_setup_libfdt(images, *of_flat_tree, of_size, lmb);
                if (ret)
                        return ret;
        }

        return 0;
}
```

①

在enable device tree的情况下

```
/**
 * boot_fdt_add_mem_rsv_regions - Mark the memreserve sections as unusable
 * @lmb: pointer to lmb handle, will be used for memory mgmt
 * @fdt_blob: pointer to fdt blob base address
 *
 * Adds the memreserve regions in the dtb to the lmb block.  Adding the
 * memreserve regions prevents u-boot from using them to store the initrd
 * or the fdt blob.
 */
void boot_fdt_add_mem_rsv_regions(struct lmb *lmb, void *fdt_blob)
{
        uint64_t addr, size;
        int i, total;

        if (fdt_check_header(fdt_blob) != 0)
                return;

        total = fdt_num_mem_rsv(fdt_blob);
        for (i = 0; i < total; i++) {
                if (fdt_get_mem_rsv(fdt_blob, i, &addr, &size) != 0)
                        continue;
                printf("   reserving fdt memory region: addr=%llx size=%llx\n",
                       (unsigned long long)addr, (unsigned long long)size);
                lmb_reserve(lmb, addr, size);
        }
}
```

u-boot通过读取dtb binary中的reserved memory region的信息来获知kernel有哪些reserved memory region，并记录在u-boot中（通过lmb_reserve function）。