```
/*
 * the pte page can be thought of an array like this: pte_t[PTRS_PER_PTE]
 *
 * this macro returns the index of the entry in the pte page which would
 * control the given virtual address
 */
#define pte_index(address) \
                (((address) >> PAGE_SHIFT) & (PTRS_PER_PTE - 1))
#define pte_offset_kernel(dir, address) \
        ((pte_t *) pmd_page_kernel(*(dir)) +  pte_index(address))
```