NAME

vm_page_bits, **vm_page_set_validclean**, **vm_page_clear_dirty**, **vm_page_set_invalid**, **vm_page_zero_invalid**, **vm_page_is_valid**, **vm_page_test_dirty**, **vm_page_dirty**, **vm_page_undirty** - manage page clean and dirty bits

SYNOPSIS

#include <sys/param.h>
#include <vm/vm.h>
#include <vm/vm_page.h>

int
vm_page_bits(*int base*, *int size*);

void
vm_page_set_validclean(*vm_page_t m*, *int base*, *int size*);

void
vm_page_clear_dirty(*vm_page_t m*, *int base*, *int size*);

void
vm_page_set_invalid(*vm_page_t m*, *int base*, *int size*);

void
vm_page_zero_invalid(*vm_page_t m*, *boolean_t setvalid*);

int
vm_page_is_valid(*vm_page_t m*, *int base*, *int size*);

void
vm_page_test_dirty(*vm_page_t m*);

void
vm_page_dirty(*vm_page_t m*);

void
vm_page_undirty(*vm_page_t m*);

DESCRIPTION

vm_page_bits() calculates the bits representing the DEV_BSIZE range of bytes between *base* and *size*. The byte range is expected to be within a single page, and if *size* is zero, no bits will be set.

vm_page_set_validclean() flags the byte range between *base* and *size* as valid and clean. The range is expected to be DEV_BSIZE aligned and no larger than PAGE_SIZE. If it is not properly aligned, any unaligned chunks of the DEV_BSIZE blocks at the beginning and end of the range will be zeroed.

If *base* is zero and *size* is one page, the modified bit in the page map is cleared; as well, the VPO_NOSYNC flag is cleared.

vm_page_clear_dirty() clears the dirty bits within a page in the range between *base* and *size*. The bits representing the range are calculated by calling **vm_page_bits**().

vm_page_set_invalid() clears the bits in both the valid and dirty flags representing the DEV_BSIZE blocks between *base* and *size* in the page. The bits are calculated by calling **vm_page_bits**(). As well as clearing the bits within the page, the generation number within the object holding the page is incremented.

vm_page_zero_invalid() zeroes all of the blocks within the page that are currently flagged as invalid. If *setvalid* is TRUE, all of the valid bits within the page are set.

In some cases, such as NFS, the valid bits cannot be set in order to maintain cache consistency.

vm_page_is_valid() checks to determine if the all of the DEV_BSIZE blocks between *base* and *size* of the page are valid. If *size* is zero and the page is entirely invalid **vm_page_is_valid**() will return TRUE, in all other cases a size of zero will return FALSE.

vm_page_test_dirty() checks if a page has been modified via any of its physical maps, and if so, flags the entire page as dirty. **vm_page_dirty**() is called to modify the dirty bits.

vm_page_dirty() flags the entire page as dirty. It is expected that the page is not currently on the cache queue.

vm_page_undirty() clears all of the dirty bits in a page.

NOTES

None of these functions are allowed to block.

AUTHORS

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