NAME

buf_ring, **buf_ring_alloc**, **buf_ring_free**, **buf_ring_enqueue**, **buf_ring_dequeue_mc**, **buf_ring_dequeue_sc**, **buf_ring_count**, **buf_ring_empty**, **buf_ring_full**, **buf_ring_peek** - multi-producer, {single, multi}-consumer lock-less ring buffer

SYNOPSIS

#include <sys/param.h>
#include <sys/buf_ring.h>

*struct buf_ring **
buf_ring_alloc(*int count*, *struct malloc_type *type*, *int flags*, *struct mtx *sc_lock*);

void
buf_ring_free(*struct buf_ring *br*, *struct malloc_type *type*);

int
buf_ring_enqueue(*struct buf_ring *br*, *void *buf*);

*void **
buf_ring_dequeue_mc(*struct buf_ring *br*);

*void **
buf_ring_dequeue_sc(*struct buf_ring *br*);

int
buf_ring_count(*struct buf_ring *br*);

int
buf_ring_empty(*struct buf_ring *br*);

int
buf_ring_full(*struct buf_ring *br*);

*void **
buf_ring_peek(*struct buf_ring *br*);

DESCRIPTION

The **buf_ring** functions provide a lock-less multi-producer and lock-less multi-consumer as well as single-consumer ring buffer.

The **buf_ring_alloc**() function is used to allocate a buf_ring ring buffer with *count* slots using malloc_type *type* and memory flags *flags*. The single consumer interface is protected by *sc_lock*.

The **buf_ring_free**() function is used to free a buf_ring. The user is responsible for freeing any enqueued items.

The **buf_ring_enqueue**() function is used to enqueue a buffer to a buf_ring.

The **buf_ring_dequeue_mc**() function is a multi-consumer safe way of dequeueing elements from a buf_ring.

The **buf_ring_dequeue_sc**() function is a single-consumer interface to dequeue elements - requiring the user to serialize accesses with a lock.

The **buf_ring_count**() function returns the number of elements in a buf_ring.

The **buf_ring_empty**() function returns TRUE if the buf_ring is empty, FALSE otherwise.

The **buf_ring_full**() function returns TRUE if no more items can be enqueued, FALSE otherwise.

The **buf_ring_peek**() function returns a pointer to the last element in the buf_ring if the buf_ring is not empty, NULL otherwise.

RETURN VALUES

The **buf_ring_enqueue**() function return ENOBUFS if there are no available slots in the buf_ring.

HISTORY

These functions were introduced in FreeBSD 8.0.