

4.8.2 MRAPI_EXCHANGE_INIT (ABB Extension)

NAME

mrapi_exchange_init

SYNOPSIS

```
void mrapi_exchange_init(
    MRAPI_OUT mrapi_atomic_barrier_t* axb,
    MRAPI_IN pid_t dest, MRAPI_OUT mrapi_msg_t*
    buffer, MRAPI_IN unsigned elems, MRAPI_IN
    size_t size, MRAPI_OUT unsigned* counter,
    MRAPI_IN mca_timeout_t timeout, MRAPI_OUT
    mrapi_status_t* status
);
```

DESCRIPTION

`mrapi_exchange_init()` initializes the structure used to synchronize atomic operations across processes, supporting spinning on non-Windows platforms. Exchange spinning works between a single writer and reader and is only necessary if the writer and reader are in different processes. The `dest` PID specifies the remote process ID or can be zero to ensure the barrier is always processed on non-Windows platforms. The buffer member references application shared memory that is organized as an array of entries (possibly only one), where each entry has `mrapi_msg_t` as the first element of its structure. The array size is `elems`, and the element size is `size`. The `counter` is a reference to an atomic counter that controls which of a finite set of buffers is used for the next read or write. The `timeout` determines how long spinning should wait before failing. These structures form the basis for lock-free data exchange in the MCAPI layer.

RETURN VALUE

None.

ERRORS

MRAPI_ERR_NODE_NOTINIT	The calling node is not initialized
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NOTE

This type of barrier has found no applicability in the MCAPI layer but has proved useful in constructing MRAPI concurrency test programs.

SEE ALSO