**MRAPI API Specification V0.9.3**

**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 |
|  |  |

**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**