

MutekS

MutekS is the canonical Operating System for embedded software. It only implements the few system calls used by DSX.

trunk/dsx/lib/muteks

Available services

- Locks (spin locks)
- Synchronization barriers
- Mwmr fifos

Implementation notes

Scheduler is very basic. It's build on the simple assertion scheduling decisions can be simplified to comparing a address value with a fixed value. Six calls are available to set a thread waiting:

```
sched_wait_eq  
sched_wait_ne  
sched_wait_gt  
sched_wait_lt  
sched_wait_ge  
sched_wait_lt
```

Thus locking becomes:

```
/*  
 * Waits until a 0 is read at the lock address. This is only true when you get the lock  
 */  
sched_wait_eq( &lock, 0 );
```

Waiting on mwmr becomes:

```
/*  
 * Read on fifo, need data in it  
 * Wait on status before getting the lock, we are read-only and we'll refresh the value once the  
 */  
...  
try_again:  
    sched_wait_ge( &(mwmr->status), needed );  
    dsx_lock_lock( mwmr->lock );  
    if ( mwmr->status < needed ) {  
        // Someone probably got the lock in between and emptied the fifo  
        dsx_lock_unlock( mwmr->lock, needed );  
        goto try_again;  
    }  
...
```

And so on...