ECE 2534

Interfacing with Switches

One bit on a PIC32 I/O port
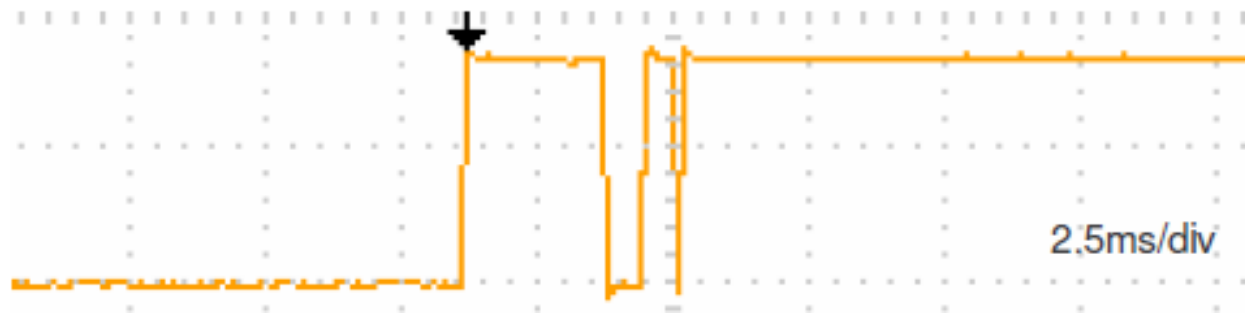
Figure 12-1: **Typical Port Structure Block Diagram**

(Mistake in Manuals)
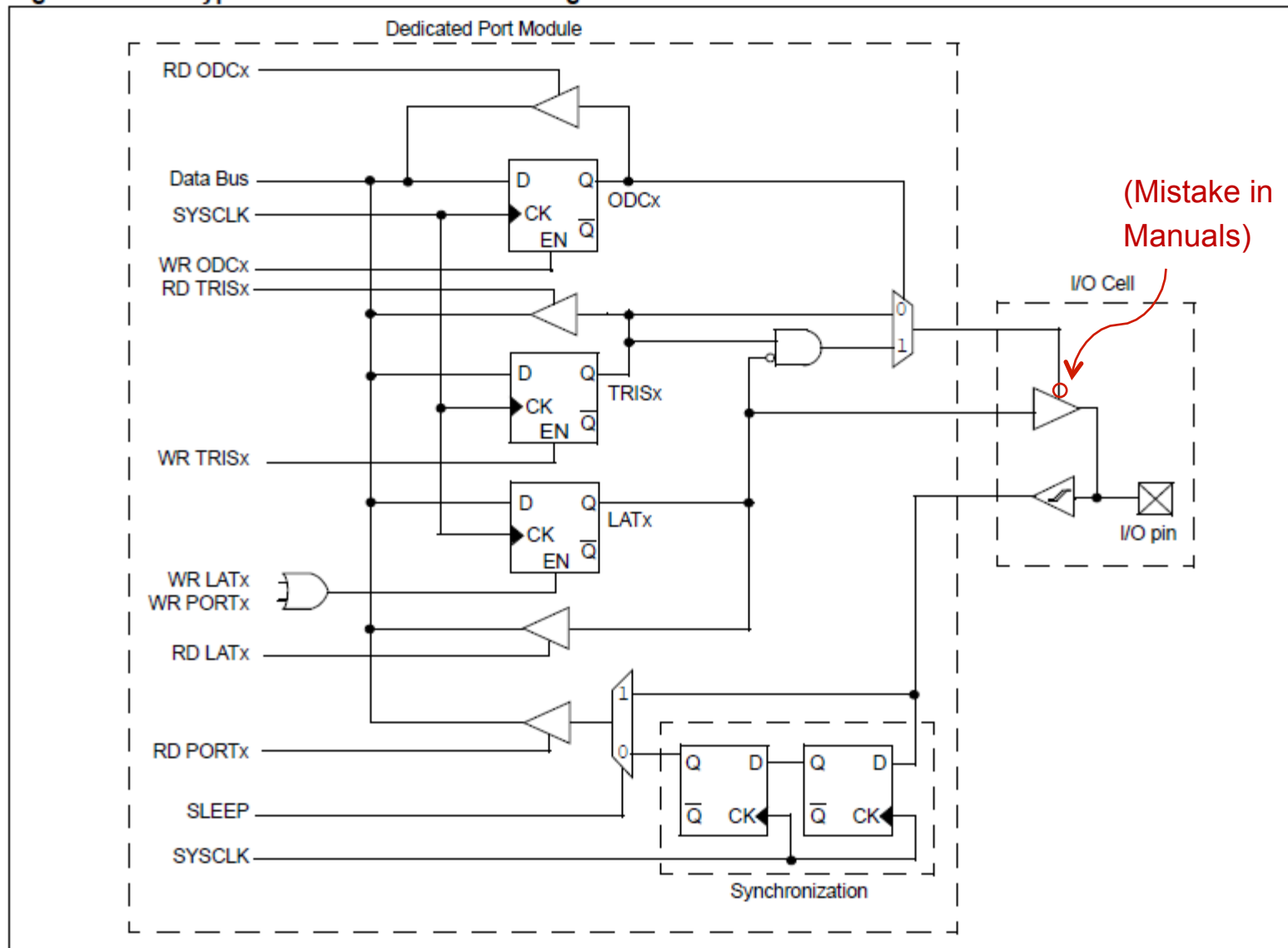
Timing diagram for an ideal switch

Oscillocope trace from an actual mechanical switch

2.5ms/div

Summary

❑ Most mechanical switches will "bounce" when they are actuated

❑ When electrical contacts bounce, noisy and unpredictable electrical signals will result

❑ Contact bounce is especially a concern when we want to detect *transitions* of the switch positions

❑ These signals need to be **debounced**
- Do not react to every transition of the electrical signal
- Instead, use a *delay* to wait for the signal level to stabilize
- Debouncing can be performed in hardware
- Debouncing can be performed in software