

Polling vs Interrupts

Electrical Engineering

Two ways to notice an event, weighed on cycles and on complexity.

Polling

- The main loop checks a flag repeatedly
- Timing is simple to reason about
- Wastes cycles when nothing happens
- Latency depends on the loop period
- No shared-data hazards to manage

Interrupts

- Hardware calls a handler on the event
- Low and reasonably bounded latency
- The core can sleep between events
- Shared data needs explicit protection
- Harder to debug and to trace

THE DIFFERENCE THAT MATTERS

Poll when events are frequent and steady; interrupt when they are rare, urgent, or must wake the device.

A third option sits between the two: DMA moves data with no CPU involvement, interrupting only when a whole block is done.