Enabling Ultra Low Power Embedded Systems Applications with Minimal Developer Effort

Typical Hardware Platform

Typical Application

Producer
- Every 5 minutes:
  - Write prior samples
  - Sample photo active
  - Sample total solar
  - Sample temperature
  - Sample humidity

Consumer
- Every 12 hours:
  - For all new entries:
    - Read next sample

Energy Breakdown

With Power Locks in Place

Code Complexity

Hand-Tuned Application
- Turn on SPI bus
- Turn on flash chip
- Turn on ADC
- Wait for flash chip
- Wait for ADC
- Read total solar sample
- Read prior samples
- Sample photo active
- Wait 5ms for log
- Turn off flash chip
- Turn off ADC

ICEM Application
- Log write
- Log timeout
- Log samples
- Sample humidity
- Sample total solar
- Sample photo active
- Sample temperature

Energy Consumption

The Power Lock

Power Lock Based Device Drivers

Typical Application

Every 5 minutes:
- Write prior samples
- Sample photo active
- Sample total solar
- Sample temperature
- Sample humidity

Every 12 hours:
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Energy Consumption

The Power Lock

Power Lock Based Device Drivers

Typical Application

Every 5 minutes:
- Log prior readings
- Sample humidity
- Sample total solar
- Sample photo active
- Sample temperature

Every 12 hours:
- For all new entries:
  - Read next sample