

The background of the slide is a dark, stormy sky with heavy, dark blue and grey clouds. Several bright, jagged lightning bolts are visible, with the most prominent one running vertically down the right side of the frame. The lightning bolts have a yellowish-white core that fades into a blueish-white glow as they branch out.

# Problem and Users Lightning Talk

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# Project Overview

- Design a microcontroller with radio communication capabilities
- Open-source
- Can be fabricated
- Will be used by ISU ChipForge group
- Designed using the Caravel platform from Efabless
- Inspired by the TI CC1352P (block diagram shown to the right)

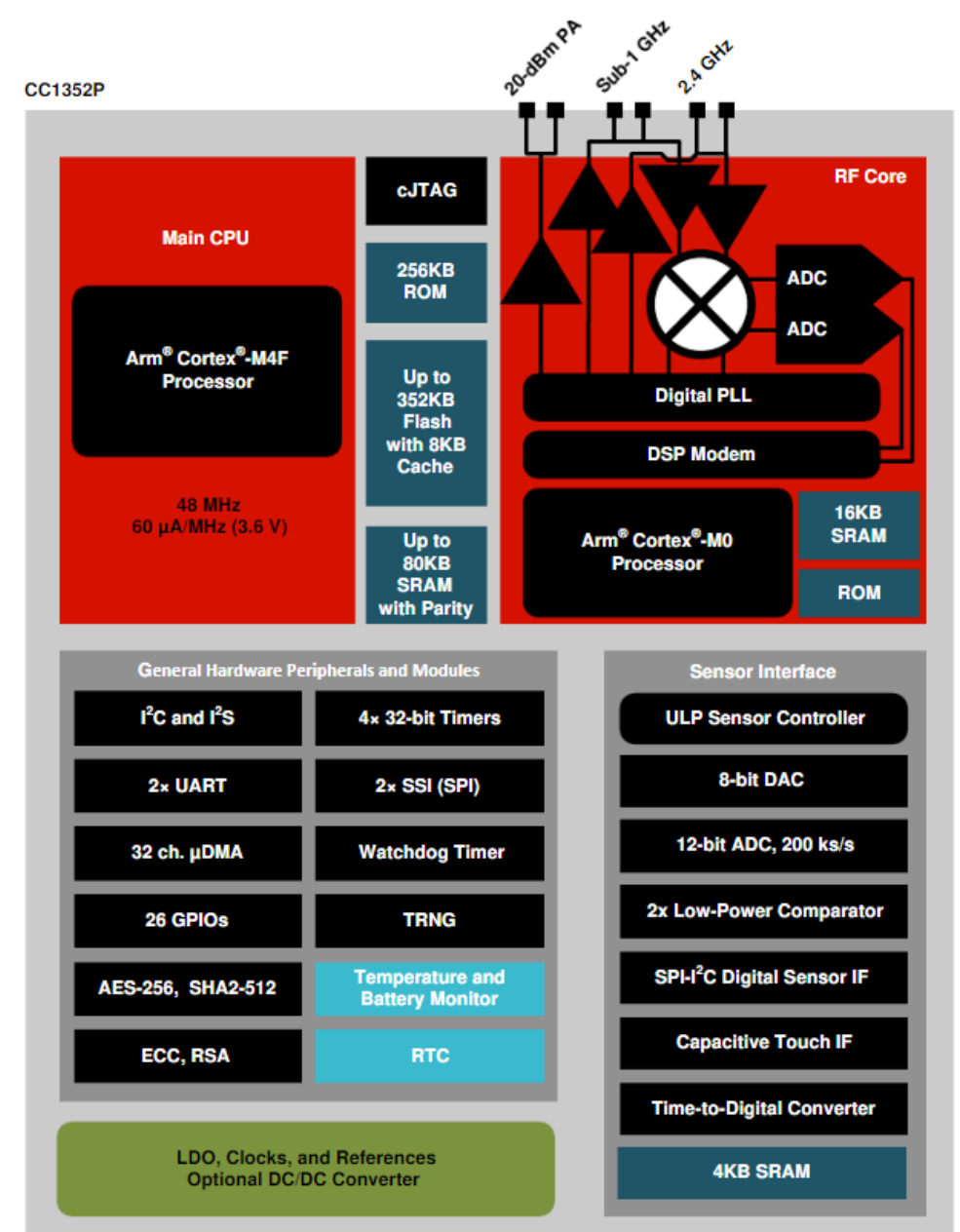


Figure 4-1. CC1352P Block Diagram

# Problem Statement

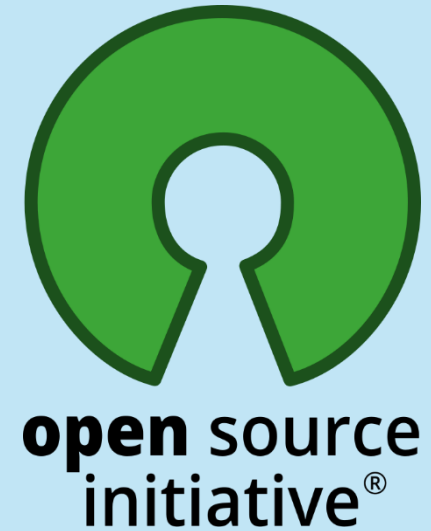
Create an open-source microcontroller with an integrated radio that can be used in a wide variety of applications tailored to a user's specific needs. It should interface with various devices both with physical connections and wirelessly. The end goal is to create a design that can be fabricated.

# Users



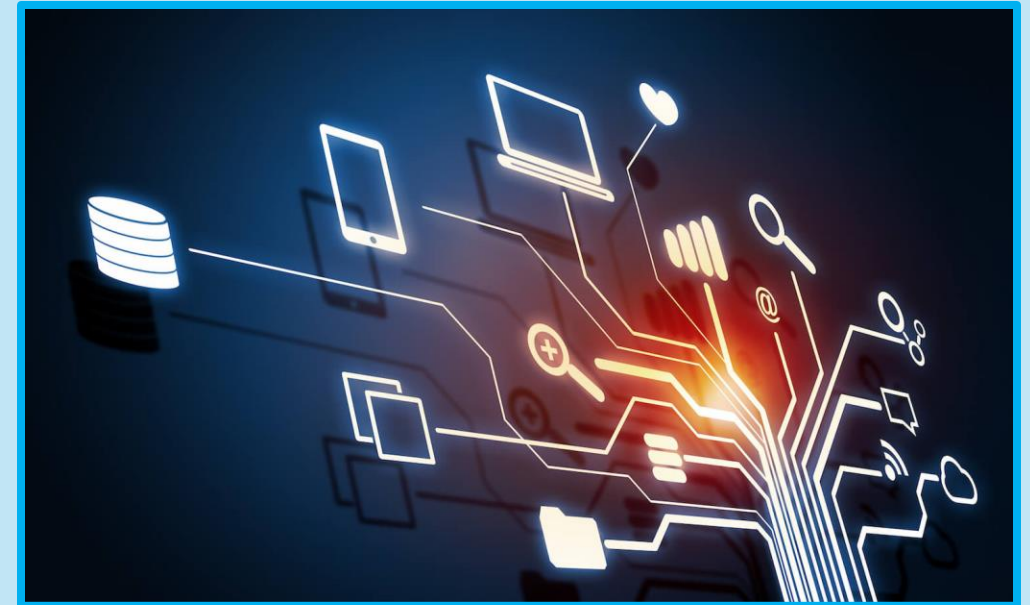
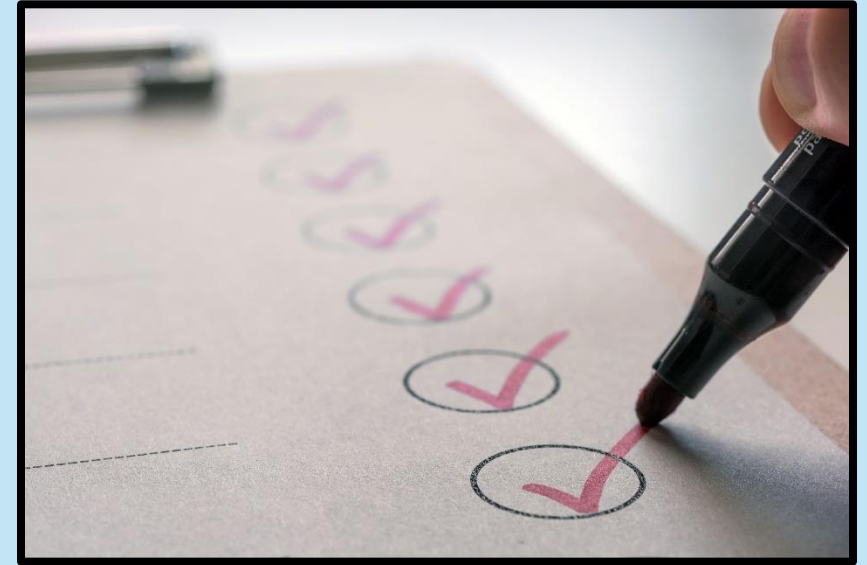
- Primary Users
  - Students in ISU ChipForge co-curricular
  - ISU student researchers (grad or undergrad)
  - Lab instructors
- Secondary Users
  - Hobbyists interested in open-source radio MCU
  - Open-source project leads and developers

MCU: Microcontroller Unit



# User Needs

- Radio MCU that can be used for testing and research
- Adequate documentation for easy development and use
- Ability to integrate the MCU with wired and wireless devices
- Project to be entirely open-source
- Ease of programming and debugging
- Design that can be fabricated



# Conclusions

- Need to consider user experience level (especially for undergrads)
- We need to provide excellent documentation
- Project needs to function for the Efabless process for it to serve as a research tool

