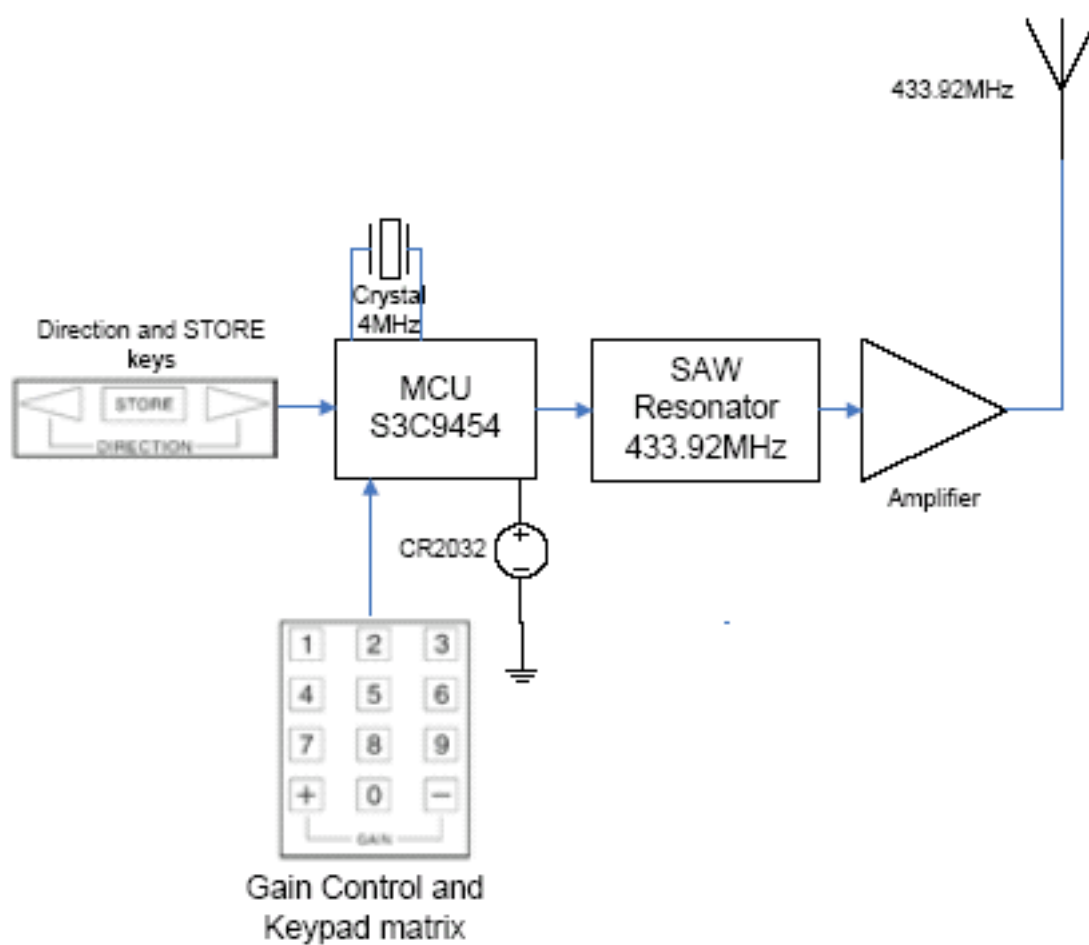


Block Diagram

RF_Remote_TX



1

PRODUCT OVERVIEW

SAM88RCRI PRODUCT FAMILY

Samsung's SAM88RCRI family of 8-bit single-chip CMOS microcontrollers offers a fast and efficient CPU, a wide range of integrated peripherals, and various mask-programmable ROM sizes.

A address/data bus architecture and a large number of bit-configurable I/O ports provide a flexible programming environment for applications with varied memory and I/O requirements. Timer/counters with selectable operating modes are included to support real-time operations.

S3C9442/C9444/C9452/C9454 MICROCONTROLLER

The S3C9442/C9444/C9452/C9454 single-chip 8-bit microcontroller is designed for useful A/D converter, SIO application field. The S3C9442/C9444/C9452/C9454 uses powerful SAM88RCRI CPU and S3C9442/C9444/C9452/C9454 architecture. The internal register file is logically expanded to increase the on-chip register space.

The S3C9442/C9444/C9452/C9454 has 2K/4K bytes of on-chip program ROM and 208 bytes of RAM. The S3C9442/C9444/C9452/C9454 is a versatile general-purpose microcontroller that is ideal for use in a wide range of electronics applications requiring simple timer/counter, PWM. In addition, the S3C9442/C9444/C9452/C9454's advanced CMOS technology provides for low power consumption and wide operating voltage range.

Using the SAM88RCRI design approach, the following peripherals were integrated with the SAM88RCRI core:

- Three configurable I/O ports (18 pins)
- Four interrupt sources with one vector and one interrupt level
- One 8-bit timer/counter with time interval mode
- Analog to digital converter with nine input channels and 10-bit resolution
- One 8-bit PWM output

The S3C9442/C9444/C9452/C9454 microcontroller is ideal for use in a wide range of electronic applications requiring simple timer/counter, PWM, ADC. S3C9452/C9454 is available in a 20/16-pin DIP and a 20-pin SOP package. S3C9452/C9454 is available in a 8-pin and a 8-pin SOP package.

MTP

The S3F9444/F9454 is an MTP (Multi Time Programmable) version of the S3C9442/C9444/C9452/C9454 microcontroller. The S3F9444/F9454 has on-chip 4-Kbyte multi-time programmable flash ROM instead of masked ROM. The S3F9444/F9454 is fully compatible with the S3C9442/C9444/C9452/C9454, in function, in D.C. electrical characteristics and in pin configuration.

FEATURES

CPU

- SAM88RCRI CPU core
- The SAM88RCRI core is low-end version of the current SAM87 core.

Memory

- 2/4-Kbyte internal program memory
- 208-byte general purpose register area

Instruction Set

- 41 instructions
- The SAM88RCRI core provides all the SAM87 core instruction except the word-oriented instruction, multiplication, division, and some one-byte instruction.

Instruction Execution Time

- 400 ns at 10 MHz f_{OSC} (minimum)

Interrupts

- 4 interrupt sources with one vector
- One interrupt level

General I/O

- Three I/O ports (Max 18 pins)
- Bit programmable ports

8-bit High-speed PWM

- 8-bit PWM 1-ch (Max: 156 kHz)
- 6-bit base + 2-bit extension

Built-in reset Circuit

- Low voltage detector for safe reset

Timer/Counters

- One 8-bit basic timer for watchdog function
- One 8-bit timer/counter with time interval modes

A/D Converter

- Nine analog input pins
- 10-bit conversion resolution

Oscillation Frequency

- 1 MHz to 10 MHz external crystal oscillator
- Maximum 10 MHz CPU clock
- Internal RC: 3.2 MHz (typ.), 0.5 MHz (typ.) in $V_{DD} = 5\text{ V}$

Operating Temperature Range

- -40°C to $+85^{\circ}\text{C}$

Operating Voltage Range

- 2.0 V (LVR Level) to 5.5 V

Smart Option

Package Types

- S3C9452/C9454:
 - 20-DIP-300A
 - 20-SOP-375
 - 16-DIP-300A
- S3C9442/C9444
 - 8-DIP-300
 - 8-SOP-225

BLOCK DIAGRAM

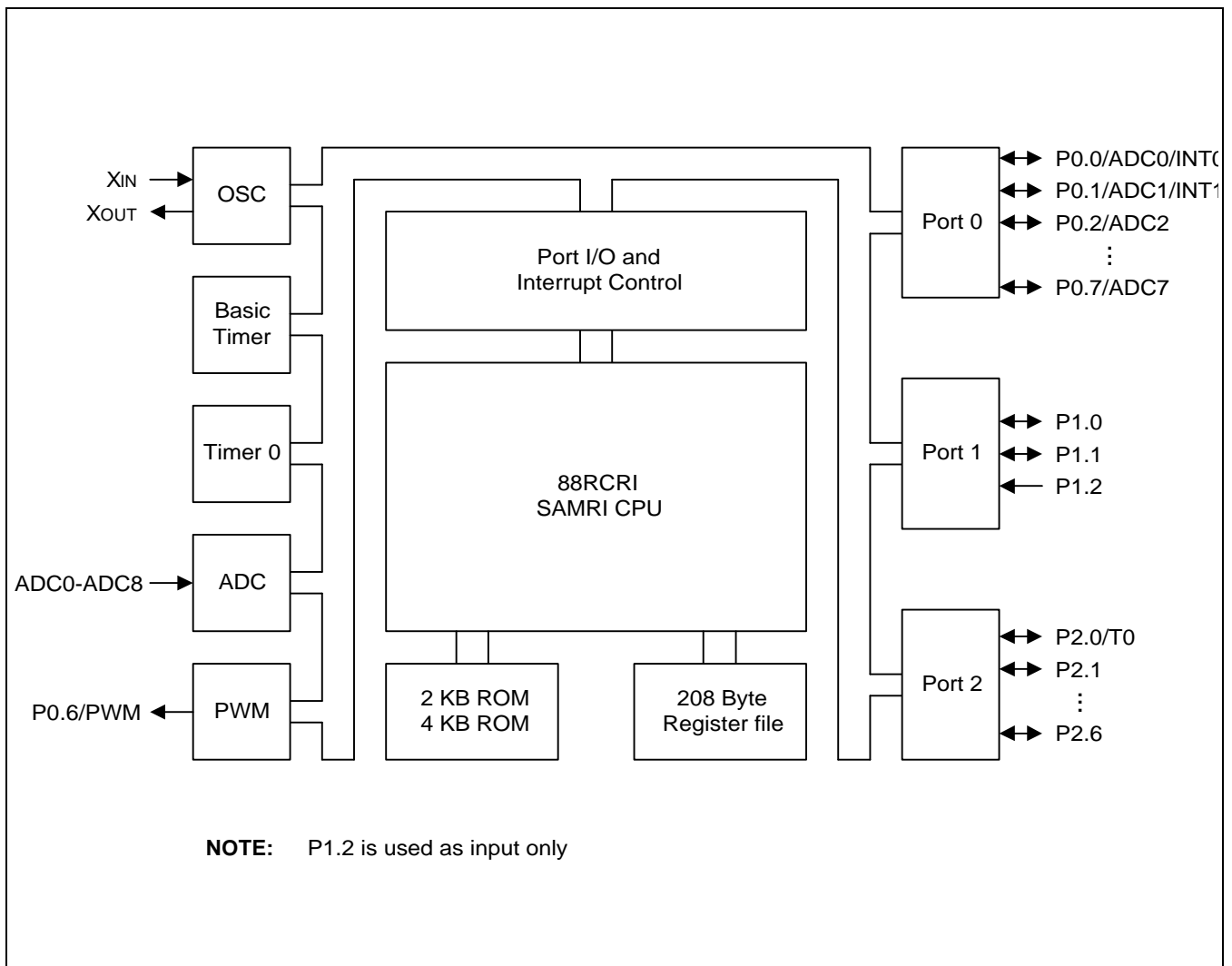


Figure 1-1. Block Diagram