Hello, and welcome to this presentation of the STM32 InfraRed Interface (IRTIM). It covers the main features of this peripheral, which is used to generate an infrared remote control signal.

Main differences with STM32F0

- The main difference with the STM32F0 microcontroller is the introduction of the polarity selection. The related bit is located in the SYSCFG chapter.
- The USART and Timers available to build the signal remain the same.

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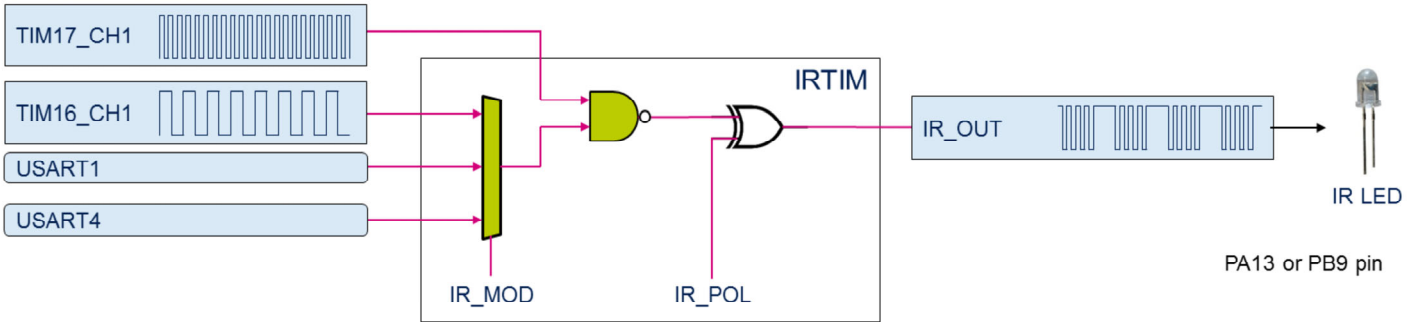
This slide highlights the differences between the STM32F0 and STM32G0 IRTIM modules.

IRTIM block diagram



- To generate the infrared remote control signals, the IR interface must be enabled and TIM16 channel 1 (TIM16_OC1) and TIM17 channel 1 (TIM17_OC1) must be properly configured to generate correct waveforms.

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An infrared interface (IRTIM) for remote control is available on the device.
It can be used with an infrared LED to perform remote control functions.
TIM17 is used to generate the high frequency carrier signal, while TIM16 or alternatively USART1 or USART4 generates the modulation envelope.
The IR output signal can be driven on GPIOs PA13 or PB9.

IRTIM block diagram

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- SYSCFG_CFGR1[IR_MOD] selects the source of the modulation envelope signal: USART1, USART4 or TIM16.
- SYSCFG_CFGR1[IR_POL] selects the IR output signal polarity.
- The infrared function is output on the IR_OUT pin.
  - The high sink LED driver capability (only available on the PB9 pin) can be activated through the I2C_PB9_FMP bit in the SYSCFG_CFGR1 register

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To generate infrared signals, the following software configuration is required:

- IR_MOD field in the SYSCFG_CFGR1 register controls the multiplexor in charge of selecting the source of the modulation envelope signal
- IR_POL field in the SYSCFG_CFGR1 register selects the polarity of the IR output signal
- GPIO PB9 can be configured to support high driving capability in order to accommodate the high sink capability of the IR LED.

GPIO PA13 does not support this option.