Timer Driver

Version 1.0.0

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Contents

Chapter 1

Timer Driver: Two part Time-Base/Capture Compare Driver

This driver took a bit more creative thinking to be able to combine both regular timer usage and more complex compare/capture usage into a single interface. Of course it became two interfaces, the timer_interface and timer_↩ cc_interface. An extra challenge was thinking through how to get the exact same driver to work for the three different types of timers on the stm32F411XE. The answer was to work around the weakest ones (TIM10 and TIM11). All fancy advanced features of TIM1 must be accessed the hard way with register reads and writes.

Chapter 2

Data Structure Index

2.1 Data Structures

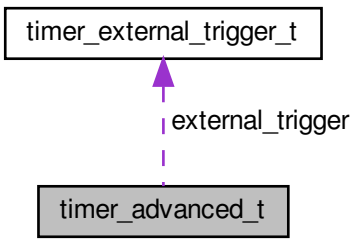
Here are the data structures with brief descriptions:

Chapter 3

Data Structure Documentation

3.1 timer_advanced_t Struct Reference

Collaboration diagram for timer_advanced_t:



Data Fields

- timer_opm_t **one_pulse_mode**
- timer_udis_t **update_event_dis**
- timer_trigger_t **trigger**
- const timer_external_trigger_t * **external_trigger**

The documentation for this struct was generated from the following file:

- /home/marko/Documents/embedded_workspace/timer_driver/timer_stm32f411_config.h

3.2 timer_cc_config_t Struct Reference

Data Fields

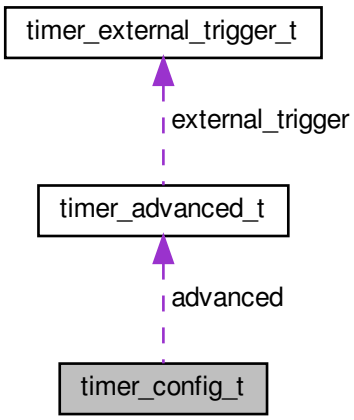
- timer_cc_mode_t **cc_mode**
- timer_cc_output_polarity_t **output_polarity**
- timer_cc_output_fe_t **output_fast_enable**
- timer_cc_output_pe_t **output_preload_enable**
- timer_cc_output_mode_t **output_mode**
- timer_cc_output_ce_t **output_clear_enable**
- timer_cc_input_prescaler_t **input_event_prescaler**
- timer_cc_input_filter_t **input_event_filter**
- timer_cc_input_polarity_t **input_polarity**

The documentation for this struct was generated from the following file:

- /home/marko/Documents/embedded_workspace/timer_driver/timer_cc_stm32f411_config.h

3.3 timer_config_t Struct Reference

Collaboration diagram for timer_config_t:



Data Fields

- timer_clock_source_t **clock_source**
- timer_slave_mode_t **slave_mode**
- timer_alignment_t **alignment**
- timer_direction_t **direction**
- timer_prescaler_t **prescaler**
- uint32_t **auto_reload**
- timer_arpe_t **auto_reload_preload_en**
- const timer_advanced_t * **advanced**

The documentation for this struct was generated from the following file:

- /home/marko/Documents/embedded_workspace/timer_driver/timer_stm32f411_config.h

3.4 timer_external_trigger_t Struct Reference

Data Fields

- timer_external_trigger_filter_t **filter**
- timer_external_trigger_prescaler_t **prescaler**
- timer_external_trigger_polarity_t **polarity**

The documentation for this struct was generated from the following file:

- /home/marko/Documents/embedded_workspace/timer_driver/timer_stm32f411_config.h