

## Introduction

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- **The CCU6 provides two independent timers (T12,T13) for PWM generation, especially for AC motor control. Support of special control modes for block commutation and multi-phase machines are supported**
- **Timer 12 Features**
  - Three capture/compare channels, each channel can be used either as capture or compare channel.
  - Generation of a three-phase PWM supported (six outputs, individual signals for lowside and highside switches)
  - 16 bit resolution, maximum count frequency = peripheral clock
  - Dead-time control for each channel to avoid short-circuits in the power stage
  - Concurrent update of the required control registers due to synchronous design

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- Center-aligned and edge-aligned PWM can be generated
- Single-shot mode supported
- Many interrupt request sources
- Hysteresis-like control mode (this mode might be used to realize a simple current regulator in combination with CTRAP)

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### ■ Timer 13 Features

- One independent compare channel with one output
- 16 bit resolution, maximum count frequency = peripheral clock
- Can be synchronized to T12 (Modulation of Timer 12)
- Interrupt generation at period-match and compare-match
- Single-shot mode supported

### ■ Additional Features of CCU6

- Block commutation for Brushless DC-drives implemented
- Position detection via Hall-sensor pattern
- Automatic rotational speed measurement for block commutation
- Integrated error handling
- Fast emergency stop without CPU load via external signal (CTRAP)

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- Multi-channel features: User specific control modes for 4-, 5- and 6-phase drives
- Output levels can be selected and adapted to the power stage
- Noise filtering for Hall inputs
- Support of sensorless positioning detection of BLDC
- Simple motor control feature (e.g. over current control)

# Introduction

Never stop thinking

