



## 英飞凌MC-ISAR eMotor电机驱动软件 针对大批量生产，减少系统成本

汽车技术日新月异，逆变器、底盘控制、双离合变速箱……这些以节能低碳为导向的新技术，均与电机驱动密切相关。如何驱动以永磁同步电动机(PMSM)和无刷直流电机(BLDC)为代表的三相电机，成为汽车为汽车电子关注的焦点。

永磁同步电动机的特点是：绕组分为三相正弦分布绕组和机械位移绕组两种。三相正弦波和时间位移电流可以产生旋转磁场，从而驱动电机。三相电流通过MOSFET切换到电机绕组。控制电流所需的PWM信号通过磁场定向控制(FOC)算法产生。驱动过程中，转子位置和驱动电流持续不断地被检测，并被赋予新值。高性能的单片是FOC算法的灵魂，旨在提高精度，改善效率，并创造安全可靠的驱动环境。

MC-ISAR eMotor驱动程序集电流和扭矩控制于一身，定位和控速针对各种应用量身裁定，支持多位采集模式，满足客户的不同需求。

MC-ISAR eMotor 的优势:

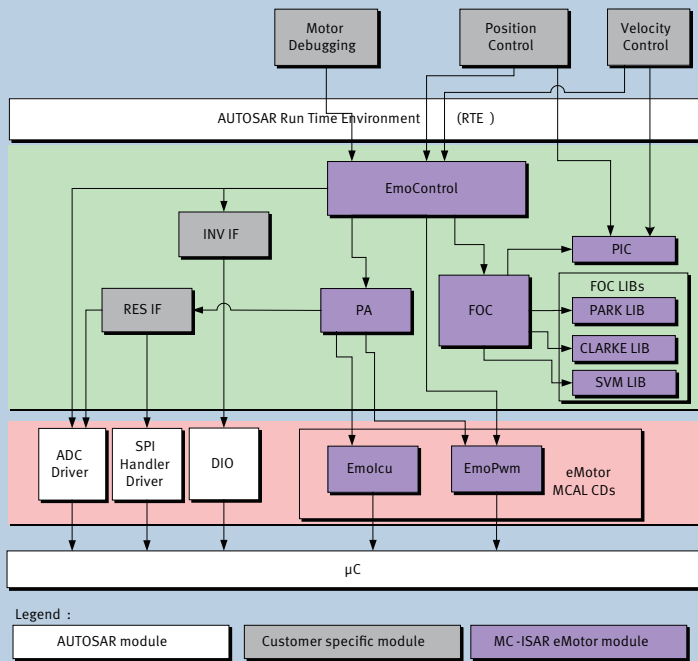
- 专为大批量生产研发
- 减少软件开发成本
- 直接旋变器模式(无需外接旋变器芯片)
- 符合ISO26262和CMM3级安全标准
- 采用AUTOSAR MCAL，统一配置
- 简单易用

### 主要特性

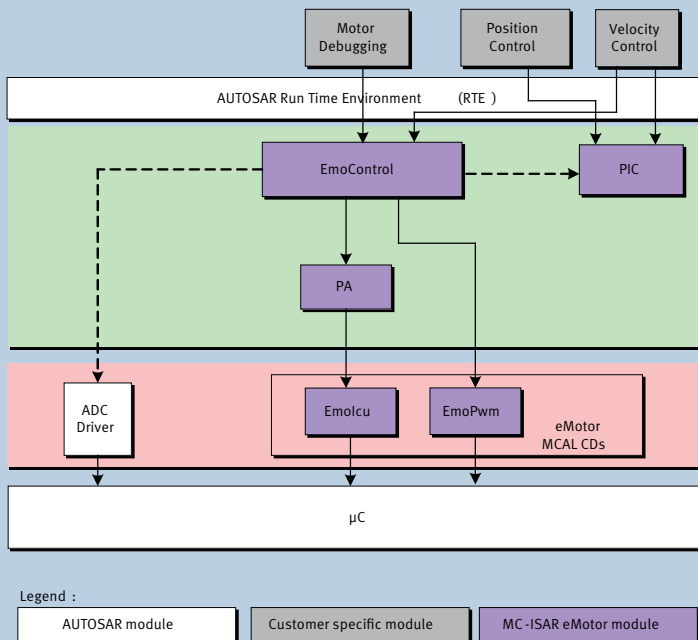
- 适用于以下芯片：
  - TC1798
- 功能亮点：
  - 通过磁场定向控制(FOC)控制永磁同步电动机(PMSM)含空间矢量调制(SVM)
  - 通过块交换(BC)控制无刷直流电机(BLDC)
  - FOC/ BC电机混合控制
  - 集成AUTOSAR标准的驱动程序
  - 支持安全应用
- 传感器FOC模式
  - 霍尔传感器/增量式编码器
  - 直接旋变器(Resolver)模式
  - 旋变器模式(含外接旋变器IC)
  - 无需传感器的FOC模式
  - 电流测量：三相、两相并联和串联、直流母线串联
- 传感器BC模式
  - 霍尔传感器
  - 通过反电动势，无需传感器
  - 电流测量：直流母线单次测量模式

## 英飞凌MC-ISAR的eMotor电机驱动软件 针对大批量生产，减少系统成本

## FOC模式



## BC模式



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