Versatile Design Platform for Motor Control System Development

The DesignCore™ Motor Control Reference Design speeds development of motor control systems for performance-critical applications.

We start with this flexible reference design to quickly create custom motor control systems optimized for your application. We create production-ready DVTs (design verification test units) using our proven calculation sheets, Matlab® and Simulink® models, template schematics, and a rich library of software modules for various communications interfaces and commutation schemes.

We have developed dozens of custom motor control systems. We work with customers to bring them to production in automotive, commercial, medical, industrial, and military applications.

D3’s embedded system design services and proven DesignCore™ platforms give you the best of design flexibility, speed of development, and cost-effectiveness of your final product.

Proven for rapid development of production control systems for PMSM, BLDC, AC induction, DC, and stepper motors

**MOTOR TYPES**
Permanent Magnet Synchronous Motor (PMSM)
Brushless Direct (BLDC) Motor
AC Induction Motor
Stepper Motor
DC Motor

**FEATURES**
Microcontrollers from Texas Instruments, Infineon, Microchip, and NXP
Low voltage (to 48V) or high voltage (to 1200V typical)
Sensored or sensorless
TI InstaSPIN compatible
 Enables rapid development of DVT
Proven in production systems

**APPLICATIONS**
This design is used in production systems for:
Non-automotive electric vehicles
Automotive motors
Medical life support systems
Laboratory robots
HVAC systems
Military and security systems
Many more
DESIGNCORE MOTOR CONTROL REFERENCE DESIGN

**FEATURE** | **DESCRIPTION**
--- | ---
Three-Phase Motor Control | Position Control  
Velocity Control  
Torque (Current) Control
Processor | Texas Instruments C2000  
Texas Instruments TMSS70/RM4  
Infineon XMC  
Infineon AURIX  
NXP Kinetis  
Microchip dsPIC
Commutation | PMSM (Permanent Magnet Synchronous Motor) - FOC Commutation  
Sensored: Incremental Encoder, Absolute Encoder, Resolver  
Sensorless: TI InstaSPIN-FOC FAST (C2000 only), Sliding Mode Observer  
BLDC (Brushless DC) - Trapezoidal Commutation  
Sensored: Hall Effect Sensor  
Sensorless: TI InstaSPIN-BLDC (C2000 only)  
AC Induction Motor  
Open Loop: Volt/Hz  
Sensored (FOC)  
Sensorless: TI InstaSPIN-FOC FAST (C2000 only)  
Stepper Motor  
Microstepping  
FOC  
DC Motor  
BEMF Estimation
Control | Classical PID  
InstaSPIN-MOTION (C2000 only)
Inverter | Low Voltage: Up to 48V  
High Voltage: Up to 1200V typical. Higher voltage possible.
Interfaces | CAN  
LIN  
Industrial Ethernet  
RS-232  
RS-485  
I2C  
SPI  
Bluetooth  
USB  
Digital I/O  
Analog I/O

ACCELERATE TIME TO MARKET
D3 Engineering leverages our industry-proven DesignCore™ Platforms to meet your product goals, while minimizing technical and schedule risk for your development program. The DesignCore™ foundation allows you to easily integrate your IP and get your product to market fast. Contact us today about custom embedded product development for motor control applications.

CALL: 1-585-429-1550
EMAIL: sales@D3Engineering.com
VISIT: D3Engineering.com/Solutions/Connected-Automation

Copyright © 2018 D3 Engineering. All rights reserved. DesignCore is a trademark of D3 Engineering. Matlab and Simulink are registered trademarks of The MathWorks, Inc. All other trademarks are property of their respective owners. 2.20