

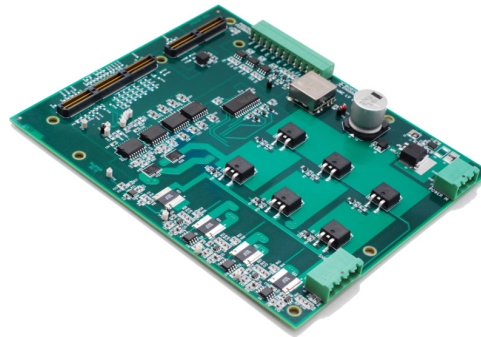


The FlexMC Motor Control Development Platform™ is a rapid development system for any motor control solution. The FlexMC Kit™ enables you to accelerate time-to-market and increase performance with powerful model-based design tools. The Boston Engineering solution combines hardware and software with out-of-the-box functionality for a brushless DC motor with hall sensor, encoder, or sensorless feedback.

## Low Voltage Kit Contents

### Hardware:

- Low Voltage Motor Control Board, 12-36V, 10A
- 24V, 3-phase Brushless DC (BLDC) Motor
- Quadrature Differential Encoder
- User Guide
- SOLD SEPERATELY: ADI ADSP-CM408 EZ Kit



### Software:

- Simulink Libraries
- C Libraries
- Demo Application

## Solution Overview

The FlexMC Kit has the hardware and software required to spin the kit's motor with speed control. With the FlexMC Kit, you model your system in MATLAB and Simulink, generate the C code, and then deploy. Utilizing system modeling and design concepts, the FlexMC Kit also contains libraries in MATLAB and Simulink for additional access to proven methodologies.

The FlexMC Kit hardware includes a PMSM motor with encoder, a Boston Engineering drive board, and a power supply that connects directly to an Analog Devices CM408 Mixed-Signal Control Processor EZ Kit. Users can prototype with PC power using MATLAB and Simulink, then deploy with the Boston Engineering FlexMC Kit. Easy connection to motors and the CM408 EZ Kit make this system perfect for your prototyping needs.

## FlexMC Kit Benefits

The FlexMC Kit enables users to:

- Model and implement motor control algorithms rapidly for sensed and unsensed motors
- Minimize setup time with out-of-the-box functionality and begin testing quickly
- Leverage the high-performance modeling environment to develop, debug, and test new control loops
- Model and implement motor control algorithms for sensed and sensorless motors
- Prototype rapidly and then deploy with the FlexMC Kit

## Applications

The FlexMC Kit is designed to develop advanced motor controls required for high-performance environments that include:

- Automation equipment
- Medical, biosciences, and pharmaceutical applications
- Pick and place systems
- Positioning systems and gantries
- Pumps and compressors
- Robotics
- Sensorless motor drives
- Servo-control systems

## FlexMC Kit Features

### Processor Module:

- Direct connection to Analog Devices' ADSP-CM408F EZ Kit
- Features Include:
  - SINC filters for glueless connection to AD74xx sigma delta converters
  - 16-bit SAR ADC
  - 240MHZ ARM Cortex M4 core with floating point unit

### Design Environments:

- MathWorks' MATLAB and Simulink
- IAR Embedded Workbench

### Control Algorithm Features:

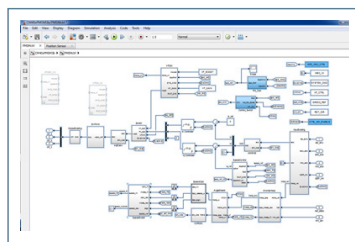
- Field-Oriented Control (FOC)
- Space Vector Modulation (SVM)
- Speed Controller (PID)
- Open-loop V/hertz or closed-loop speed control selection
- Sensored or Sensorless option

### Low Voltage Power Module:

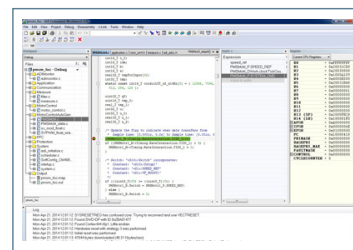
- Current – 0-10A (Configurable to 20A)
- Voltage Input – 12-36V DC
- Current Sense – Resistor Selectable
- Overcurrent Protection
- Current, Voltage Analog Feedback
- Digital Hall Sensor Feedback
- Quadrature Differential Encoder plus Index Pulse Feedback

### Motor:

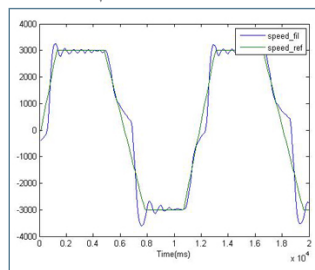
- 24V, 3-phase Brushless Motor
- 6,000 rpm nominal



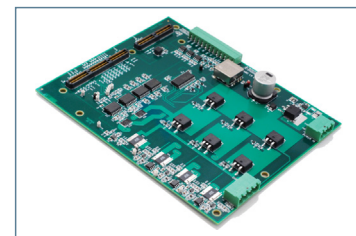
Modeling



Embedded Software Implementation



Simulation & Testing



Hardware Implementation

## About Boston Engineering

We deliver product design and engineering consulting solutions that drive innovation and achieve measurable results. Combining focused creativity, experienced insight, and a big-picture perspective, we deliver breakthrough solutions based on your product development objectives, budget, and manufacturing requirements. We apply a system-level development methodology to optimize product performance and create new capabilities. Our technical expertise includes unmatched precision and control for custom motion control engineering applications.

We offer the flexibility to manage the entire product development process – from ideation to supply-chain development. And we can come in and jumpstart a project in any product development phase. Our industry expertise includes medical devices, consumer products, robotics, defense & security, and industrial & commercial products.



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