

# MCK2407 DSP MOTION CONTROL KITS MSK2407 DSP MOTION STARTER KITS

DESIGN ENVIRONMENT FOR TMS320LF2407

## STATE-OF-THE-ART DEVELOPMENT TOOLS FOR DIGITAL MOTION CONTROL

The Technosoft MSK2407 and MCK2407 are motion control and evaluation kits, built with the TMS320LF2407 DSP controller. These advanced kits accelerate the design, development and implementation of digital motion control applications.

The MSK2407 kit is the best DSP development platform for users that already have the power module and motor, and want to develop a motion control software application.

The MCK2407 kit is a DSP development platform that comes with a power module and a 25W brushless motor, providing a complete tool for digital motion control solution design.

To quickly develop and test motion control algorithms, the MSK2407 DSP board uses the 30/40MIPS computational power of the TMS320LF2407, combined with a double event manager able to drive up to 16 PWM and 16 A/D converters. The embedded CAN interface may be used to connect the board to multiple-axis structures.

The MSK2407 and MCK2407 kits can be connected to a PC via RS232 interface to download, execute and debug the software applications without the need for other hardware devices.

### MSK2407 DSP Motion Starter Kit

- ✓ MSK2407 DSP board
- ✓ Processor evaluation software
- ✓ DMCD-Lite
- ✓ User's Guide

### MCK2407 DSP Motion Control Kit

- ✓ MSK2407 DSP Motion Starter Kit
- ✓ PM50 Power module (50W).
- ✓ Brushless motor with Hall sensors and 500-line encoder.
- ✓ Motion Control Applications
- ✓ User's Guide

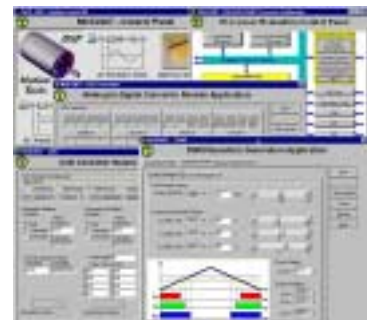


## MSK2407 DSP board – Hardware specifications

- DSP controller TMS320LF2407 running at 30/40MHz
- Internal 32K-word Flash program memory
- Internal 2.5K-word data/program of RAM memory
- External 64K-word data/program of RAM memory
- Incremental encoder interface
- RS-232 serial communication port
- Opto - isolated CAN communication interface
- Standard I/O connector (3.3V – MC-BUS) for simultaneous links with two power modules
- Address / data extension bus connector
- 16 channels of 10-bit accuracy A/D inputs
- 2 channels of 12-bit accuracy D/A outputs
- Single DC power supply: 5V
- Dimensions: 104x63 mm

## GRAPHICAL PROGRAMMING FOR DSP DIGITAL MOTOR CONTROL

The MSK2407 and MCK2407 DSP tool kits contain a comprehensive software package for processor evaluation and basic development, integrated under a Windows IDE platform. A set of ready-to-run demos (with ASM source code) is provided. Tests for timers, PWM, I/O, A/D functions are available at a click of the mouse.



Processor evaluation software

## MOTION CONTROL APPLICATIONS

Demos for AC and DC brushless motor speed control are included in the MCK2407 DSP kit. The dynamic behavior of the real-time system can easily be analyzed through an extended graphical display of all system variables. Speed and current controller parameters can be modified on-line, which allows for quick optimization of control algorithms.



Motion Control Application

New  
DSP solutions  
for digital  
motor control



TECHNO SOFT  
MOTION DESK

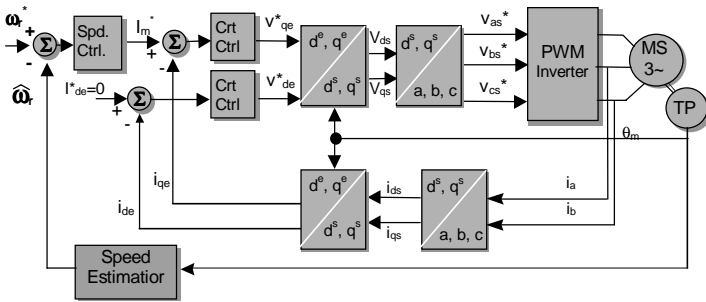
# PROFESSIONAL KITS

## DMCD-PRO, DIGITAL MOTION CONTROL DEVELOPER

The MSK2407 and MCK2407 Pro kits include DMCD-Pro, the Technosoft most advanced software platform, which allows the development of motor control applications in a Windows IDE environment, while providing:

- Real-time debugging through serial interface
- Breakpoints, single step execution, stopping and start of current program
- Project management system
- Advanced reference generator plug-in

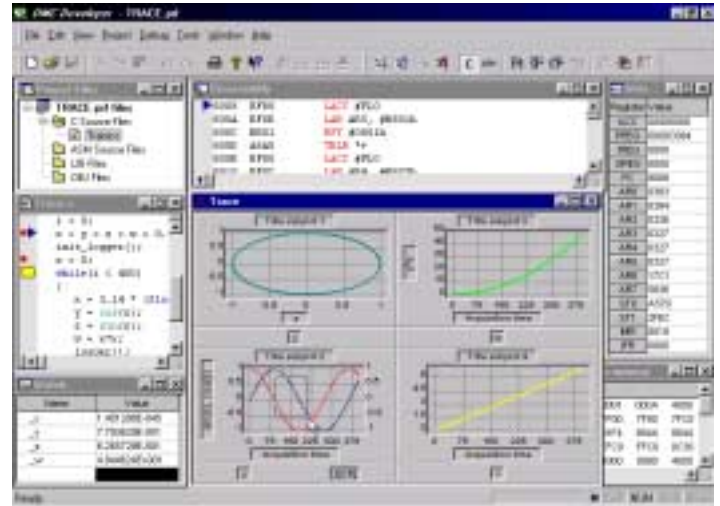
- True real-time data storage logger with advanced graphical IDE. Graphical control panel for on-line data visualization and motion parameters setting
- Observe/Edit global variables during debugging
- View/Edit of data and program memory contents of the DSP target board
- Full disassembly window for C and embedded assembly code
- Fully compatible with TI assembler, linker and C-compiler



PMSM control scheme

### Order List

Part No.	Description
24TKI70001	<b>MSK2407 DSP Motion Starter Kit</b> ✓ MSK2407 DSP board ✓ Processor evaluation software ✓ DMCD-Lite, Digital Motion Control Developer Lite
24TKI70003	<b>MSK2407 Pro</b> ✓ MSK2407 DSP Motion Starter Kit ✓ DMCD-Pro, Digital Motion Control Developer Pro
24TKI70212	<b>MSK2407 Kit C Pro</b> ✓ MSK2407 DSP Motion Control Kit ✓ DMCD-Pro, Digital Motion Control Developer Pro ✓ TI C Compiler/Assembler/Linker (TMS320C2x/C2xx/C5x)
24TKI70011	<b>MCK2407 DSP Motion Control Kit</b> ✓ MSK2407 DSP Motion Starter Kit ✓ PM50, 3-phase, 36V, 2.1A, MOSFET inverter ✓ Brushless motor with Hall sensors & 500-line encoder ✓ Motion Control Applications
24TKI70312	<b>MCK2407 Kit C Pro</b> ✓ MCK2407 DSP Motion Control Kit ✓ DMCD-Pro, Digital Motion Control Developer Pro ✓ TI C Compiler/Assembler/Linker (TMS320C2x/C2xx/C5x)
24TKI70313	<b>MCK2407 Kit C Pro – S (BL)</b> ✓ MCK2407 Kit C Pro ✓ DMCode – S(BL) plug-in for DMCD-Pro, Source Code for Brushless Motor Speed Control
24TKI70315	<b>MCK2407 Kit C Pro – S (IM)</b> ✓ MSK2407 Pro + ACPM750E + Induction Motor ✓ DMCode–S(IM) plug-in for DMCD-Pro, Source Code for Induction Motor Speed Control
24TKI70314	<b>MCK2407 Kit C Pro – L</b> ✓ MCK2407 Kit C Pro ✓ DMCode – L plug-in for DMCD-Pro, Object Code Library for AC and DC Motion Control



### DMCode, MOTION CODE PLUG-INS FOR DMCD-PRO

The MCK2407 Kit C Pro-S or L includes a complete digital motion control application sources or object code, fully documented, for the speed control of an electric motor. Options are:

- **DMCode – S (BL) plug-in for DMCD-Pro**, which contains the complete source code for brushless motor speed control:
  - Trapezoidal mode (BLDC)
  - Sinusoidal mode (PMSM – vector control)

- **DMCode – S (IM) plug-in for DMCD-Pro**, which contains the complete source code for induction motor speed control:
  - Vector control
  - V/f mode

### COMPATIBILITY WITH TEXAS INSTRUMENTS SOFTWARE TOOLS

TI software tools (C compiler, assembler and linker) are fully compatible with all MSK2407 DSP Motion Starter Kits and MCK2407 DSP Motion Control Kits.

**DMCode – L plug-in for DMCD-Pro**, which contains a complete Object Code Library for motion control:

- Digital motion control functions (BL and IM)
- Application examples for brushless and induction motors

These applications are structured as projects for the DMCD-Pro platform; they give the user all the information needed to understand advanced DSP implementation aspects, and provide a starting point for application development. The code is developed both in C language and assembler.



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