

MOTOR & MOTION CONTROL DEVELOPMENT KITS

DEVELOPED BY 



FEATURES

- **Modular development platform**
 - Control, communications and drive interface modules based on Synapticon SOMANET technology
 - Dimensions: 40 x 50 x 15mm
 - Suitable for small volume production
- **Core module:**
 - Programmable control module with up to 2000MIPS
 - Run control loops faster than PWM (> 62 kHz)
 - Distributed real-time control
 - Allocate motion control intelligence to motor controllers
- **Drive interface module:**
 - Brushless DC (BLDC), brushed DC and stepper motor
 - 120W, 3-phase, 8- 24V DC
- **Communications module:**
 - EtherCAT (Linux master available)
- **Software modules:**
 - Current, speed and position control loops, closed on slave or master
 - CiA[™] 402 drive profile

The XMOS Motor & Motion Control development kits are integrated board and software packages which contain everything embedded systems designers need to begin developing single and multi-axis motion control applications on the powerful xCORE[™] multicore microcontrollers.

Based on Synapticon SOMANET technology the compact platforms are ideal for designers seeking to add intelligence "close to the node" in automation projects. Unlike other motion controllers, the XMOS platform is completely programmable in C/C++ enabling designers to rapidly customize the platform to meet the exact needs of their applications and implement motion control intelligence at the motor.

The kits include an xCORE powered control module (CORE), a communications module (COM), and a motor interface drive module (IFM) as well as the interconnect cables. Software, development tools and manuals are available from the XMOS website.

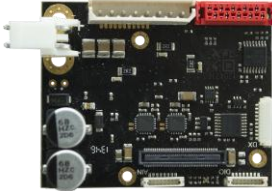
The motor control software is available to download via xTIMEcomposer and contains everything required to use the hardware resources, including motor commutation with position, speed and torque/current control loops and a CiA[™] 402 compliant drive profile.

SOMANET CORE

The Core C22 module features two interconnected 16-core XMOS XS1-L16 processors in a compact format. Measuring just 30mm x 30mm and providing up to 2000MIPS while typically consuming under 1W, it can be said that this board is probably the most efficient piece of embedded hardware available.



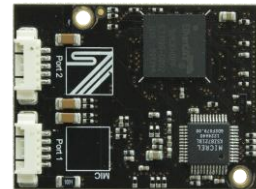
SOMANET IFM DRIVE



The IFM Drive DC100 implements latest power transistor technology to efficiently drive one brushless DC motor with up to 120 W. Hall-effect based current sensors for each phase, together with a high-quality ADC enable sophisticated control concepts such as current-based torque control. An RS422-compatible quadrature encoder interface and a port with SPI, ADC input and GPIOs, the module supports any external sensor that may be required by your application.

SOMANET COM

Communication interface modules (COMs) provide the network link. COM EtherCAT provides Industrial Ethernet technology for communication within a SOMANET-based system, and unlike other compact EtherCAT solutions includes on-board Ethernet transceivers and magnetics. COM EtherCAT provides safe signalling over common 100BASE-TX distances using SFTP cables. An open source EtherCAT Linux master is available to simplify evaluations. Windows users must purchase a suitable EtherCAT master such as Beckhoff TwinCAT.



DEVELOPMENT TOOLS

Download the latest version of xTIMEcomposer development tools at <http://www.xmos.com/tools>.

ORDERING INFORMATION

A range of Motor & Motion Control Development Kits are available depending on your needs.

Description	Motor & Motion Control Kit (EtherCAT/Hall Sensor)	Motor & Motion Control Kit (EtherCAT/Quadrature Encoder)
Control Module	SOMANET Core C22	SOMANET Core C22
Motor IFM Module	SOMANET IFM Drive DC 100 (120W, 3 phase, 8 – 24V DC)	SOMANET IFM Drive DC 100 (120W, 3 phase, 8 – 24V DC)
Motor	Moons 42BL30L2-5 (30W, 5000RPM, 24V)	Nanotec DB42S03 (26W, 4000RPM, 24V)
Sensor type	Hall Sensor	Quadrature encoder
Communications module	EtherCAT slave	EtherCAT slave
Order Code	XK-SN-1BH12-E	XK-SN-1BQ12-E

For availability please visit our website for a list of distributors <http://www.xmos.com/distributors>.



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This is a preliminary product brief, contents are subject to change.

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