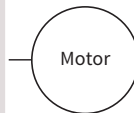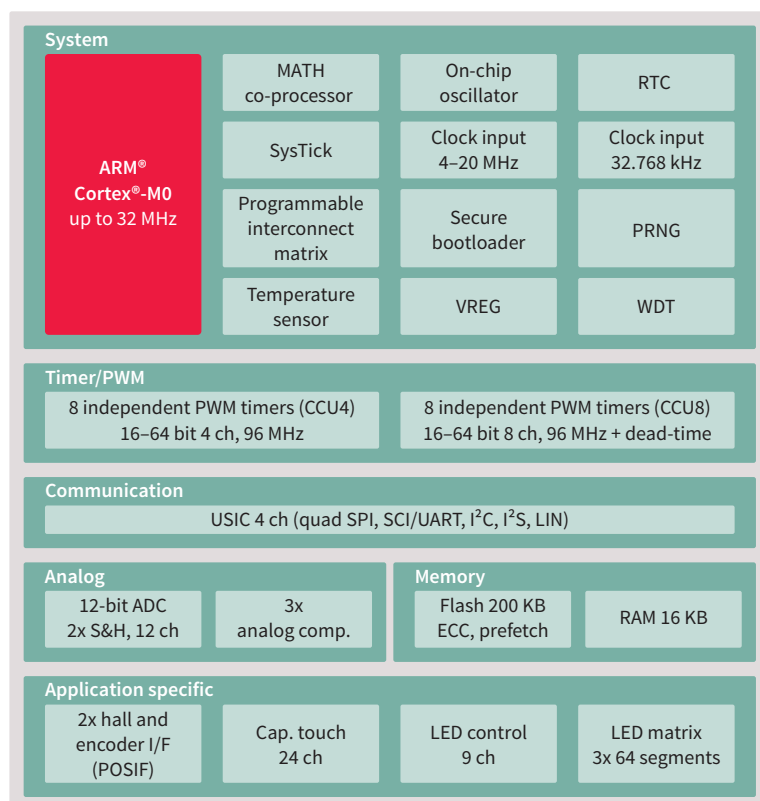Product brief

XMC1300 for motor control

The right ARM® MCU peripherals for your motor application

Infineon's XMC™ 32-bit industrial microcontroller portfolio is designed for system cost and efficiency for demanding industrial applications. It comes with the most advanced peripheral set in the industry. Fast and largely autonomous peripherals can be configured to support individual needs. Highlights include analog-mixed signal, timer/PWM and communication peripherals powered by either an ARM® Cortex®-M0 core.

Infineon's solutions for motor control provide leading-edge innovation, outstanding reliability and excellent quality. We offer the full range of microcontrollers addressing from simple to complex motor control applications.

XMC1300 family can integrate all the control and analog interface functions required for sensor less Field Oriented Control (FOC), brushless (BLDC), brushed DC and PMSM motors.

Block diagram

System			
ARM® Cortex®-M0 up to 32 MHz	MATH co-processor	On-chip oscillator	RTC
	SysTick	Clock input 4–20 MHz	Clock input 32.768 kHz
	Programmable interconnect matrix	Secure bootloader	PRNG
	Temperature sensor	VREG	WDT

Timer/PWM

8 independent PWM timers (CCU4) 16–64 bit 4 ch, 96 MHz	8 independent PWM timers (CCU8) 16–64 bit 8 ch, 96 MHz + dead-time

Motor

Communication

USIC 4 ch (quad SPI, SCI/UART, I²C, I²S, LIN)

Analog

12-bit ADC 2x S&H, 12 ch	3x analog comp.

Memory

Flash 200 KB ECC, prefetch	RAM 16 KB

Application specific

2x hall and encoder I/F (POSIF)	Cap. touch 24 ch	LED control 9 ch	LED matrix 3x 64 segments

www.infineon.com/xmc

Key features

The XMC1300 family has specific peripherals that fit perfectly to your motor control applications.

The XMC1300 includes
› MATH co-processor
› CCU8 PWM timer
› POSIF encoder
› Motor control SW

Key benefits

› Easy to use motor control libraries available for BLDC, FOC and PMSM motors
› High performance and energy optimized solution
› DAVE™ Apps IDE – improved time-to-market
› Extended range of packages options

Key applications

› ebikes
› Home appliances
› Refrigerators
› Pumps
› Fan controllers

Aircon
Home appliance
Small home appliance
Industrial drives
Multicopter
Pumps

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A comprehensive set of tools, products, components, and services are available for fast and efficient design with XMC™ microcontrollers

› **DAVE™** – professional and free-of-charge development platform

› **IEC 60730 class B library for XMC™** – free-of-charge available for XMC™ industrial microcontrollers

› **µC/Probe™ XMC™** – free-of-charge version of µC/Probe™ for XMC™ MCUs to build user interfaces for visualizing, observing, and control of the internals of XMC™ MCUs

› **XMC™ link** – functional isolated ARM® debug probe

Evaluation kit examples for XMC1300

More kits and information: www.infineon.com/xmc

Kit	Description	Order number
EVAL-M1-1302	High performance sensorless motor control card	EVALM11302TOBO1
KIT_XMC1300_DC_V1	The drive card XMC1300 can be combined with different power modules and boards	KITXMC1300DCV1TOBO1
KIT_XMC1300_IFX9201	Stepper motor control shield being compatible to Arduino as well as to Infineon's XMC1100 boot kit	KITXMC1300IFX9201TOBO1
KIT_XMC13_BOOT_001	XMC1300 CPU board to demonstrate the generic features of XMC1300 device including tool chain	KITXMC13BOOT001TOBO1
XMC1000 motor control application kit	› MCU board with XMC1300 and detachable SEGGER J-Link debug interface › Motor board 12 – 24V, up to 3 A on board 3-phase motor (24 V, 15 W) with hall sensors optional encoder interface › Power supply 24 V, 1 A	KITXMC1XAKMOTOR001TOBO1
XMC 750 watt motor control application kit	The power board includes off-the-grid supply with input filter, active PFC and high switching frequency IGBTs from Infineon to turn your 3-phase drive	KIT_XMC750WATT_MC_AK_V1
KIT_XMC_DP_EXP_01	Digital power explorer kit using XMC™ ARM® Cortex®-M microcontrollers, OptiMOS™ MOSFETs and IRS2011S high and low side drivers. The kit's power board features synchronous buck converter with on-board resistive load banks.	KITXMCDPEXP01TOBO1

Infineon's ARM® Cortex®-M0 comprehensive portfolio offers complete system solutions for motor control. The XMC1300 family offers in addition to top scalability longer product lifetime thanks to our unmatched reliability and quality.

Product table

ARM® Cortex®-M0	Co-processor	Clocks		Memory		Analog			Timer/PWM				Connectivity		Package
		Frequency [MHz]	Peripherals [MHz]			ADC 12 bit / S&H	Number of channels	Analog comparators	CCU4	CCU8	POSIF	BCCU	USIC	CAN2.0B	
XMC13x	●	32	64	Flash RAM	8–200 kB 16 kB	1/2	up to 12	up to 3	1x	1x	●	●	2x	–	VQFN-24/40 TSSOP-16/28/38
		Supply voltage range 1.8–5.5 V													
		Temperature range -40°C … 85°C/105°C													

Please note!

Additional information

For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings

Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by us in a written document signed by authorized representatives of Infineon Technologies, our products may not be used in any life-endangering applications, including but not limited to medical, nuclear, military, life-critical or any other applications where a failure of the product or any consequences of the use thereof can result in personal injury.