

PSOC™ Control C3 Entry Line Microcontrollers

The Next Generation of Industrial Microcontrollers

PSOC™ Control family of MCUs is specifically developed for motor control and power conversion applications. This family of high-performance Arm® Cortex®-M33 MCUs enables designers to innovate, solve complex design problems and get their products to market faster than ever before. Typical applications include HVAC, home appliances, robotics, telecom and server power supplies, light electric vehicle chargers, solar inverters, and industrial automation.

Real-time control

PSOC™ Control Entry Line enables **real-time control** with its high-performance 12-bit, 6-MSPS SAR ADC, the built-in 16-channel sample-and-hold functions and feature-rich timer/counter/PWM (TCPWM) blocks. Designers can select products with or without the CORDIC math coprocessor depending on their requirements.

Wide bandgap ready for higher system efficiency

PSOC™ Control's **unique ADCs** allow idle sampling to boost system performance by minimizing time delay between sampling and conversion. Being wide bandgap ready, PSOC™ Control enables **high system efficiency** with lower conduction and switching losses. Industrial-ready peripherals enable designers to reduce their total system costs.

Advanced security and safety

PSOC™ Control is **PSA Certified™ Level 2**. With crypto accelerator, TrustZone, and secure key storage, it enables secure on-site and cloud-based designs. For critical applications, robust safety is ensured with features such as Class B/SIL 2 safety libraries.

Ease-of-use for developers

PSOC™ Control is supported by ModusToolbox™, a unified ecosystem platform with tools and software solutions. ModusToolbox™ Motor Suite, and Power Suite are available for developers of PSOC™ Control focus applications. These suites provide a seamless graphical user interface that streamlines evaluation and training, and provides real-time parameter monitoring for valuable insights into performance, efficiency, and reliability. Specialized application environments enable engineers to quickly identify issues, optimize designs, and enhance overall functionality.

Find out more about [PSOC™ Control](#).



Key features

- 32-bit MCU subsystems
 - Up to 100 MHz Arm® Cortex®-M33 with DSP and FPU
 - Up to 256kB read-while-write flash with ECC
 - Up to 64kB SRAM with ECC
 - 16kB I-Cache
 - 6 power modes including deep sleep and hibernate
- High-performance analog
 - 12-bit, 6-MSPS SAR ADC
 - 18 analog channels
 - 5 comparators with built-in 10-bit DAC and slope generator
- Real-time control peripherals
 - 16 x 16-bit and 4 x 32-bit TCPWMs
 - CORDIC math coprocessor
- Up to PSA L2 device security
 - NIST P256 and TRNG
 - Cryptography
 - Secure boot
 - Secure firmware update
 - Processing isolation
- Packages
 - VQFN-48, E-LQFP-48, VQFN-64, E-LQFP-64

Key benefits

- Fast analog and digital peripherals **ready for wide bandgap systems**
- HW accelerators (CORDIC, DSP, FPU) for **boosted task execution**
- **Motor and Power Suite** with multi-functional GUI, dedicated tools, advanced libraries, etc.
- **Reduced power consumption** for battery operated applications

PRODUCT BRIEF

PSOC™ Control Entry Line – Key applications

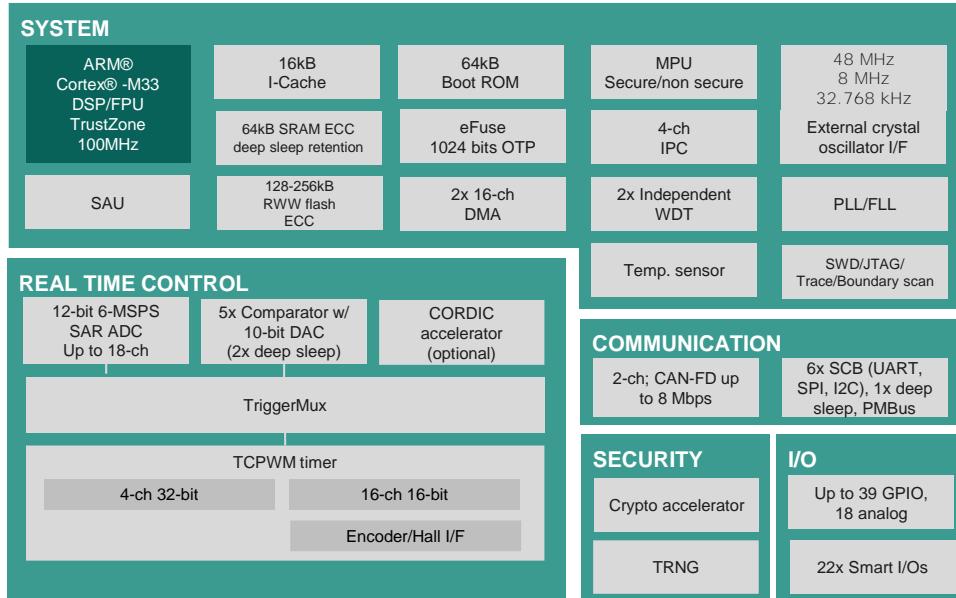
Smart Home and Home Appliances	Industrial Motor Control	Server and Telecom	Renewables
<ul style="list-style-type: none"> Power and gardening tools Lawn mower robots Home robots Residential aircon ODU Large and medium home appliances drives 	<ul style="list-style-type: none"> General purpose drives LED lighting Servo drives Commercial aircon 	<ul style="list-style-type: none"> Telecom PSUs Server PSUs Workstation PSUs 	<ul style="list-style-type: none"> PV inverters LEV EV charging

Orderable part numbers and kits

Feature/Package	PSOC™ Control Entry Line - C3M3	PSOC™ Control Entry Line - C3P2
Operating frequency	100MHz	100MHz
Flash	128kB / 256kB	128kB / 256kB
ADC	6-MSPS	6-MSPS
CORDIC accelerator	Yes	No
Hall sensor interface	Yes	No
QFP48 (128KB/256KB)	PSC3M3EDABQ1 / PSC3M3FDS2ABQ1	PSC3P2EDABQ1 / PSC3P2FDS2ABQ1
QFN48 (128KB/256KB)	PSC3M3EDLGQ1 / PSC3M3FDS2LGQ1	PSC3P2EDLGQ1 / PSC3P2FDS2LGQ1
QFP64 (128KB/256KB)	PSC3M3EDACQ1 / PSC3M3FDS2ACQ1	PSC3P2EDACQ1 / PSC3P2FDS2ACQ1
QFN64 (128KB/256KB)	PSC3M3EDLHQ1 / PSC3M3FDS2LHQ1	PSC3P2EDLHQ1 / PSC3P2FDS2LHQ1

Kit	Kit number with power board	Kit number without power board
General purpose evaluation kit	-	KIT_PSC3M5_EVK
Motor control kit	KIT_PSC3M5_MC1	KIT_PSC3M5_CC2
Power conversion kit	KIT_PSC3M5_DP1	KIT_PSC3M5_CC1

Block diagram



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