PRODUCT BRIEF

PSOC™ Control C1 Entry Line

Cost-effective motor control with real-time performance

PSOC™ Control C1 microcontrollers (MCUs) are developed for motor control and industrial applications. This C1 Entry Line features an Arm® Cortex®-M0 MCU with a CORDIC MATH Coprocessor. Typical applications include Home and Professional Appliances, Professional Tools, Transportation, General Purpose, and Lighting; enabling designers to innovate, cost effectively solve design problems and speed up system design cycles.

Real-time control

PSOC™ Control C1 Entry Line enables cost-effective motor control applications with its exceptional real-time performance with the Arm® Cortex®-M0 core running at up to 48 MHz The MCUs feature single cycle access to all peripherals; and key peripherals running up to 96 MHz, as well as fast and highly flexible PWM channels with 16 to 64-bit resolution.

Analog blocks

Programmable hardware interconnections between peripherals including logical combinations and analog blocks, that include 12-bit ADC with two sample and hold, post processing with averaging, FIR, IIR, and 30ns comparators. Complementing with multiple communication interfaces, with up to 4x UART/SPI/I2S/I2C/LIN, PMBus™, and 2x CAN.

Advanced security and safety

PSOC™ Control C1 safety is ensured with IEC 60730 Class B safety compliant libraries.

Ease-of-use for developers

PSOC™ Control C1 is supported by ModusToolbox™, a unified ecosystem platform with tools and software solutions. ModusToolbox™ Motor Suite is available for developers of PSOC™ Control focused on motor control applications. It provides libraries, code examples, and a seamless graphical user interface (GUI) 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 C1 Entry Line.



Key features

- 48 MHz Arm® Cortex®-M0
  - MATH Coprocessor featuring CORDIC accelerator, 96 MHz
- Up to 200 KB Flash (with ECC)
- 16 KB SRAM (with parity)

Programable analog blocks

- 1x 12-ch 12-bit, 1.1-MSPS SAR ADC
- Up to 4 fast analog comparators

Real-time control peripherals

- 8x 16-64-bit PWMs 4-ch 96 MHz
- 8x 16-64-bit PWMs 8-ch 96 MHz, Dead-Time
- 2x Hall/Quadrature Encoders (POSIF)
- 1x 9-ch LED control for dimming and color control, flicker-free

Multiple communication interfaces

- Up to 4x UART/SPI/I2S/I2C/LIN
- PMBus™
- 2x CAN

IEC 60730 Class B safety compliant LIB

- VQFN-48, LQFP-48, VQFN-40, TSSOP-38

Operating Temperature

- Ta: -40°C to 105°C

Voltage

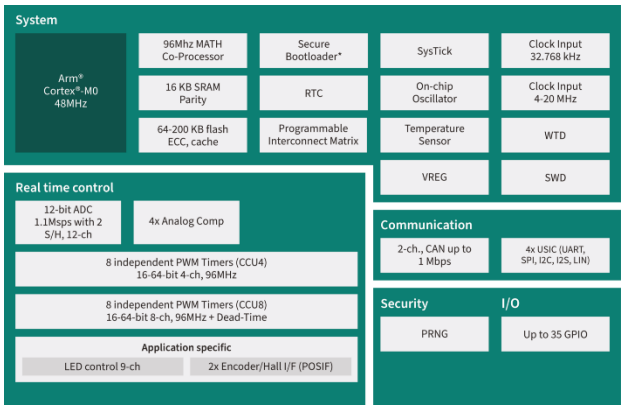
- 1.8V – 5.5V Extended Supply Range

Key benefits

- Excellent real-time performance
- Fast and highly flexible PWM channels
- Programmable hardware interconnections between peripherals including logical combinations
- Programmable analog blocks

PRODUCT BRIEF

Block Diagram



Orderable Part Numbers and Kits

Kit	Description
KIT-PSC1M3-EVK	PSOC Control C1 Evaluation Kit
KIT-PSC1M2-M1	PSOC Control C1 Motor Control

Part Number	Package	TC/PWM	Flash	SRAM	A/D Input Lines	ADC	GPIO	Temp (Ta)
PSC1M2FBTBQ0AT	TSSOP-38	8/29	200 KB	16 KB	12	2	34	-40 to 105°C
PSC1M2FBLEQ0AT	VQFN-40	16/25	200 KB	16 KB	12	2	35	-40 to 105°C
PSC1M3FBLGQ0AT	VQFN-48	16/25	200 KB	16 KB	12	2	42	-40 to 105°C
PSC1M3FBABQ0AT	LQFP-48	16/28	200 KB	16 KB	14	2	35	-40 to 105°C

Additional parts can be found on PSOC™ Control C1 webpage

Key Applications

Home and Professional Appliances	IP protection, fast ramp-up, form factor, size and weight
Professional Tools	Motor control, reliability, sensored or sensorless operation, customizable
Transportation	Robustness, functional safety, lifetime, reliability and quality
General Purpose	Sensors, battery monitoring, cost effectiveness, functional safety
Lighting	Energy efficiency, ease of use, remote monitoring, form factors

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