

英飞凌家电生态圈  
<赋能课堂>

PSoC新产品介绍

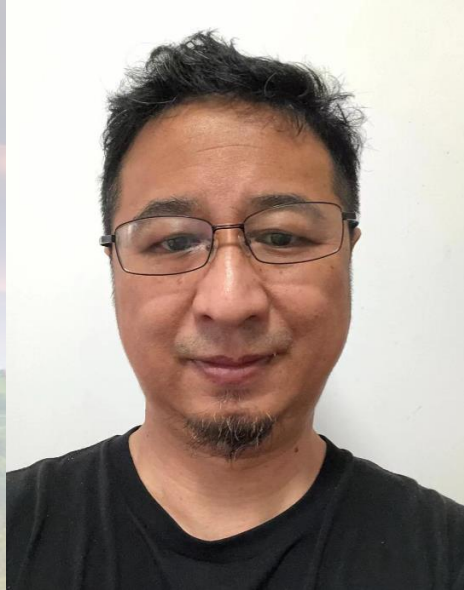
PSoC6 CY8C62x4, CY8C4588

PSoC4 CY8C4149



Alex Peng(IFCN CSS SMD GC)  
2022/06/09









Alex Peng, 彭涛, 英飞凌安全互联系统事业部市场经理。于2019年加入英飞凌科技, 负责英飞凌大中华区市场的微控制器产品在家用电器/工业类市场的业务推广工作。拥有>20年以上的微控制器相关半导体行业从业经验, 近十多年分别在富士通半导体、诗讯半导体和赛普拉斯半导体市场部任职, 从事过微控制器产品应用、技术支持、产品规划和市场营销相关业务。对中国微控制产品的市场和应用, 特别是家用电器、电机控制, 有全面深刻理解。

# Microcontroller Product Portfolio

Note: Automotive, Aurix for Industrial, iMotion covered separately

8-Bit	32-Bit Arm® Cortex®-M0/M0+	32-Bit Arm Cortex-M3	32-Bit Arm Cortex-M4 / Arm Cortex-M0+	32-bit Arm Cortex-Mx (next generation)
<p><b>IoT / Consumer</b></p> <p><b>PSoC 6</b> MCUs for the broad-base of IoT and Consumer applications, bringing best in class low power, connectivity, and security</p> <p><b>PSoC 4</b> delivers unique software-defined peripherals and industry leading capacitive sensing designs</p> 	 <div data-bbox="593 772 1003 905"> <p><b>PSoC 4</b> Cortex-M0/M0+ 48 MHz, 384KB Flash <b>Up to 13 PAB, 20 PDB, 98 I/Os</b></p> </div> <div data-bbox="593 925 1003 1058"> <p><b>FM0+ MCUs</b> Cortex®-M0+ 40 MHz, 512KB Flash, 102 I/Os</p> </div> <div data-bbox="593 1078 1003 1210"> <p><b>XMC1000 MCUs</b> Cortex®-M0 32-48 MHz, 200KB Flash, 55 I/Os</p> </div>	<div data-bbox="1072 672 1482 805"> <p><b>PSoC 5LP</b> Cortex-M3 80 MHz, 256KB Flash <b>20 PAB, 30 PDB, 72 I/Os</b></p> </div> <div data-bbox="1072 829 1482 962"> <p><b>FM3 MCUs</b> Cortex-M3 144 MHz, 1.5MB Flash, 154 I/Os</p> </div>	<div data-bbox="1556 579 1967 712"> <p><b>PSoC 6</b> 150 MHz Cortex-M4/100 Mhz M0+ 2MB Flash 7 PAB, 56 PDB, 104 I/Os</p> </div> <div data-bbox="1556 729 1967 862"> <p><b>FM4 MCUs</b> Cortex-M4 200 MHz, 2MB Flash, 190 I/Os</p> </div> <div data-bbox="1556 886 1967 1019"> <p><b>XMC4000 MCUs</b> Cortex®-M4 80-144 MHz, 2MB Flash, 119 I/Os Industrial Comms, Ta 125C</p> </div>	<div data-bbox="2040 376 2451 509"> <p><b>MCU Next</b> Multi-core Cortex-Mx ML-Ready, HMI Rich</p> </div> <div data-bbox="2040 529 2451 662"> <p><b>Industrial Evolution</b> Multi-core Cortex-Mx Industrial Quality, ECC Memories</p> </div>
<div data-bbox="96 862 507 995"> <p><b>PSoC 3</b> 8051 CPU 67 MHz, 64KB Flash <b>Up to 19 PAB, 30 PDB, 72 I/Os</b></p> </div> <div data-bbox="96 1015 507 1148"> <p><b>PSoC 1</b> M8C CPU 24 MHz, 32KB Flash <b>16 PAB, 16 PDB, 64 I/Os</b></p> </div> <div data-bbox="96 1168 507 1300"> <p><b>8FX</b> 8-bit RISC MCU 16 MHz, 32-50KB Flash</p> </div>		<p><b>Industrial</b></p> <p><b>XMC</b> is a family of high-performance Arm Cortex-M-based MCUs for industrial applications, with industrial control peripherals and extended temp range</p> <p><b>FM</b> is a portfolio of high-performance Arm Cortex-M-based MCUs for industrial and consumer applications</p> 		<p><b>Other</b> Specialized and Legacy</p> 

# PSoC™ 6 MCU Portfolio

	PSoC™ 61 Line Ultra-Low-Power and High-Performance MCU Series	PSoC™ 62 Line Ultra-Low-Power, Dual-Core, and High-Performance MCU Series	PSoC™ 63 Line High-Integration Wired/Wireless Connectivity MCU Series	PSoC™ 64 Line Ultra-Low-Power, Dual-Core, “Just Works” Secure Host MCU Series	
↑ Performance and Integration	<b>CY8C61xA</b> Arm Cortex-M4 2MB/1MB <sup>1</sup> DAC <sup>2</sup> , QSPI <sup>3</sup> , FS-USB <sup>4</sup> , SDHC <sup>5</sup> , DC-DC	<b>CY8C62xA</b> Arm Cortex-M4 & Arm Cortex-M0+ 2MB/1MB DAC, QSPI, FS-USB, SDHC, DC-DC		<b>CYB064xA</b> Arm Cortex-M4 & Secure Enclave 2MB/1MB <b>Secure-Boot MCU</b> Secure Flashboot, CY Secure Bootloader,	<b>CYS0C64xA</b> Arm Cortex-M4 & Secure Enclave 2MB/1MB <b>AWS Standard Secure MCU</b> ARM_v7-M TF-M w/ PSA API TF-M Integrated with AFR
	<b>CY8C61x8</b> Arm Cortex-M4 1MB/512KB DAC, QSPI, FS-USB, SDHC, DC-DC	<b>CY8C62x8</b> Arm Cortex-M4 & Arm Cortex-M0+ 1MB/512KB DAC, QSPI, FS-USB, SDHC, DC-DC		<b>CYB06447BZI-D54</b> Arm Cortex-M4 & Secure Enclave 1MB/288KB Secure Flashboot, CY Secure Bootloader MbedOS, AFR, fRTOS Support	
	<b>CY8C61x7</b> Arm Cortex-M4 1MB/288KB DAC, QSPI, FS-USB,DC-DC	<b>CY8C62x7</b> Arm Cortex-M4 & Arm Cortex-M0+ 1MB/288KB DAC, QSPI, FS-USB, DC-DC	<b>CY8C63x7</b> Arm Cortex-M4 & Arm Cortex-M0+ 1MB/288KB DAC, QSPI, BLE, DC-DC	<b>CYB06447BZI-BLD53</b> Arm Cortex-M4 & Secure Enclave 1MB/288KB, BLE Secure Flashboot, CY Secure Bootloader MbedOS, AFR, fRTOS Support	
	<b>CY8C61x6</b> Arm Cortex-M4 512KB/128KB DAC, QSPI, FS-USB,DC-DC	<b>CY8C62x6</b> Arm Cortex-M4 & Arm Cortex-M0+ 512KB/128KB DAC, QSPI, FS-USB, DC-DC	<b>CY8C63x6</b> Arm Cortex-M4 & Arm Cortex-M0+ 512KB/128KB, 1.71–3.6V DAC, QSPI, BLE, DC-DC	<b>CY8B064x5</b> Arm Cortex-M4 & Secure Enclave 512KB/256KB Secure Flashboot, CY Secure Bootloader MbedOS, AFR, fRTOS Support	
	<b>CY8C61x5</b> Arm Cortex-M4 512KB/256KB QSPI, UDB, FS-USB,CAN FD <sup>7</sup> , SDHC	<b>CY8C62x5</b> Arm Cortex-M4 & Arm Cortex-M0+ 512KB/256KB QSPI, FS-USB, CAN FD, DC-DC, SDHC			
	<b>CY8C61x4</b> Arm Cortex-M4 256KB/128KB QSPI, FS-USB,CAN FD, 2x ADC	<b>CY8C62x4</b> Arm Cortex-M4 & Arm Cortex-M0+ 256KB/128KB QSPI, FS-USB,CAN FD, 2x ADC			

<sup>1</sup> Flash KB/SRAM KB

<sup>2</sup> Digital to analog convertor

<sup>3</sup> Quad-SPI

<sup>4</sup> Full-Speed USB

<sup>5</sup> Secure Digital Host Controller

<sup>6</sup> Universal digital block – programmable logic

<sup>7</sup> Controller Area Network Flexible Data-Rate

	Concept	Development	Sampling	Production
Status				
Availability			QQYY	QQYY

# PSoC™ 6 – CY8C62x4 Product Family

## Application

- Smart Home, Home Automation, Home Appliance HMIs,
- Battery-Powered Applications, Wearables, Industrial Sensor Hub

## Features

### › MCU Subsystem

- Dual-core architecture: 150-MHz Arm® Cortex®-M4 and 100-MHz Arm Cortex-M0+, DMA controllers
- Ultra-low-power (0.9 V) and low-power (1.1 V) operation mode
- Up to 256 KB Flash, 128 KB SRAM. Option for QSPI external flash for XIP, data storage

### › Analog Blocks

- 2x 12-bit 2 MSPS SAR ADC with synchronized sampling, 16 channel hardware sequencer
- 1x 12-bit Voltage DAC, 2x Opamps, 2x Low power comparators
- ADCs, DAC, Opamps, Comparators operational in active, sleep, and deep sleep modes
- CapSense™ capacitive-sensing block, Segment LCD drive capability

### › Digital Blocks and Communication Interfaces

- Quad SPI External Memory Interface with the on the fly encryption/decryption
- 8 x 16-bit and 4 x 32-bit timer/counter/pulse-width modulation blocks (TCPWM)
- 5 x serial communication blocks (SCBs) – I2C / SPI / UART, deep-sleep SCB – I2C / SPI
- USB 2.0 FS (Host and Device)
- CAN-FD

### › Security Features

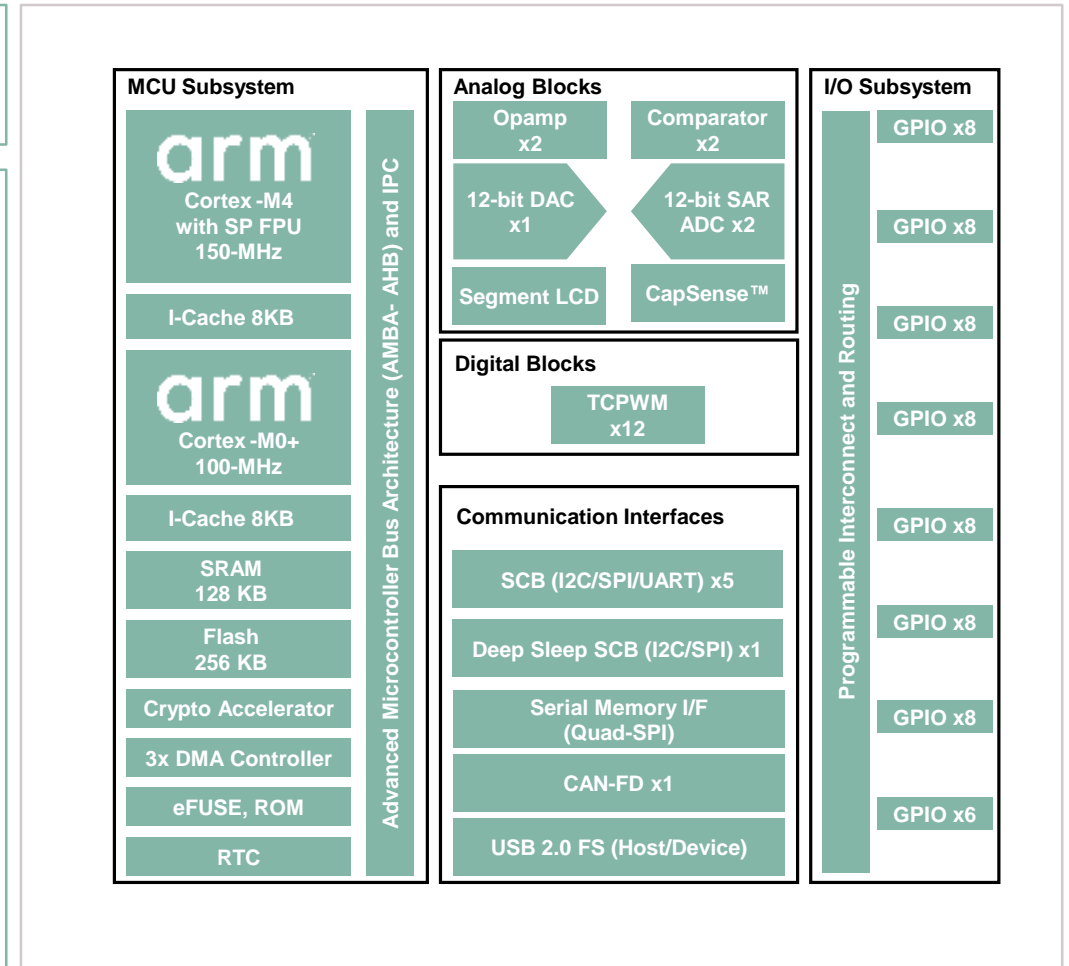
- Advanced cryptographic coprocessor (Crypto) and True random number generator
- One-time programmable eFUSE for secure key storage
- Secure over-the-air (OTA) firmware update with read-while-write Flash technology for firmware updates

### › I/O Subsystem: Up to 62 GPIOs

### › Packages: 80-TQFP, 64-TQFP, 68-QFN

## Collateral

Datasheet: [CY8C62x4 Datasheet](#)



## Availability

Sampling: Now

Production: October 2021

# PSoC™ 6 – CY8C61x4 Product Family

## Application

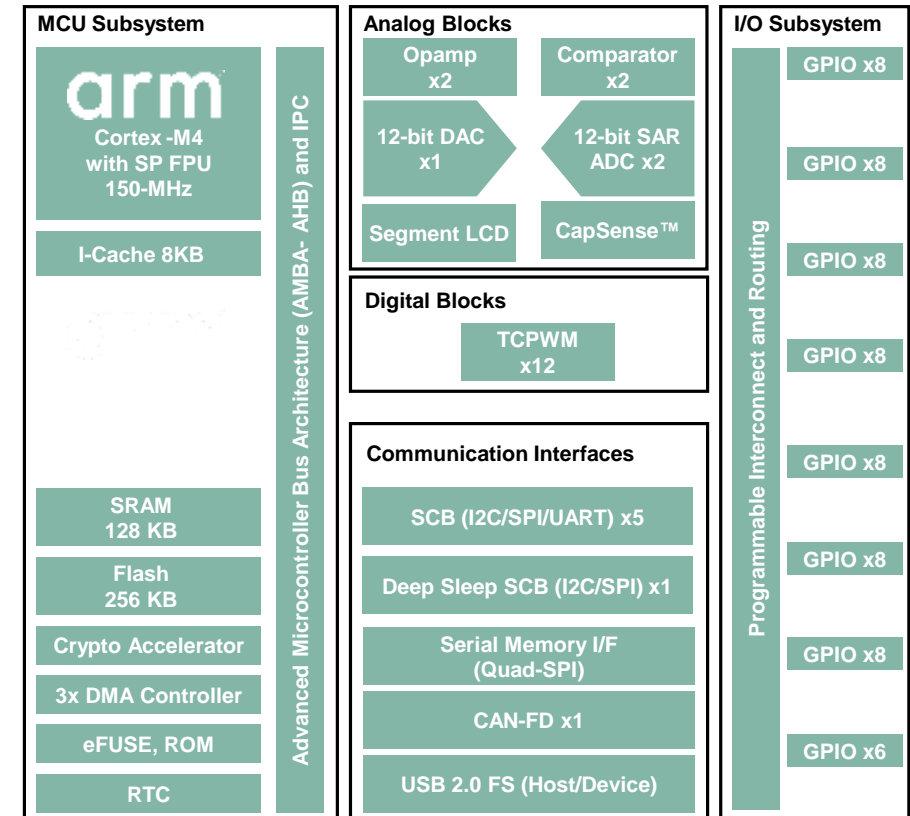
- Smart Home, Home Automation, Home Appliance HMIs,
- Industrial Sensor Hub, Main controller

## Features

- › **MCU Subsystem**
  - Single-core CPU architecture: 150-MHz Arm® Cortex®-M4, DMA controllers
  - Ultra-low-power (0.9 V) and low-power (1.1 V) operation mode
  - Up to 256 KB Flash, 128 KB SRAM. Option for QSPI external flash for XIP, data storage
- › **Analog Blocks**
  - 2x 12-bit 2 MSPS SAR ADC with synchronized sampling, 16 channel hardware sequencer
  - 1x 12-bit Voltage DAC, 2x Opamps, 2x Low power comparators
  - ADCs, DAC, Opamps, Comparators operational in active, sleep, and deep sleep modes
  - CapSense™ capacitive-sensing block, Segment LCD drive capability
- › **Digital Blocks and Communication Interfaces**
  - Quad SPI External Memory Interface with the on the fly encryption/decryption
  - 8 x 16-bit and 4 x 32-bit timer/counter/pulse-width modulation blocks (TCPWM)
  - 5 x serial communication blocks (SCBs) – I2C / SPI / UART, deep-sleep SCB – I2C / SPI
  - USB 2.0 FS (Host and Device)
  - CAN-FD
- › **Security Features**
  - Advanced cryptographic coprocessor (Crypto) and True random number generator
  - One-time programmable eFUSE for secure key storage
  - Secure over-the-air (OTA) firmware update with read-while-write Flash technology for firmware updates
- › **I/O Subsystem:** Up to 62 GPIOs
- › **Packages:** 80-TQFP, 64-TQFP, 68-QFN

## Collateral

**Datasheet:** [CY8C62x4 Datasheet](#)



## Availability

**Sampling:** Now      **Production:** October 2021

# PSoC6 4500H Series: Dual Motor Control

## Applications

Home appliances, HMI, and industrial

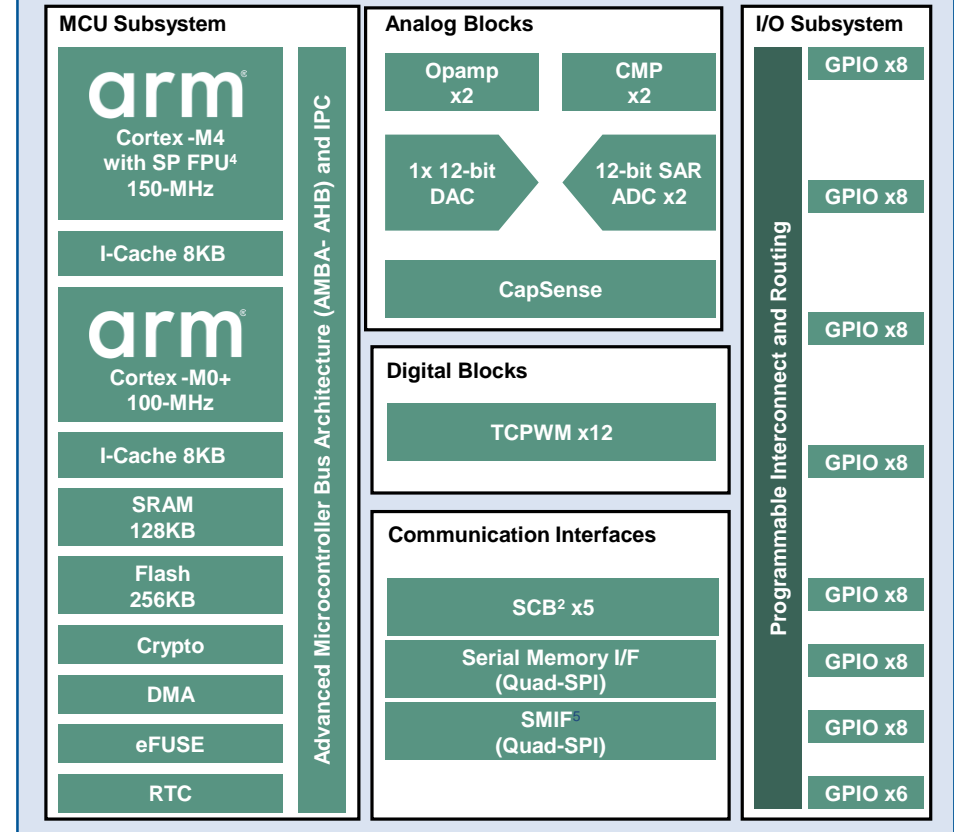
## Features

- **MCU Subsystem**
  - Dual-core architecture: 150-MHz Arm® Cortex®-M4 and 100-MHz Arm Cortex-M0+
  - Ultra-low-power (0.9 V) and low-power (1.1 V) operation mode
  - 256K Flash, 128KB SRAM with DMA
- **Analog Blocks**
  - 2 x opamps, 2 x low-power comparators (CMP)
  - 2x 12-bit SAR ADC (2 Msps) and 12-bit DAC
  - CapSense® capacitive-sensing block
- **Digital Blocks and Communication Interfaces**
  - 8 x 16-bit and 4 x 32-bit timer/counter/pulse-width modulation blocks (TCPWM)
  - 5 x serial communication blocks (SCBs), 1x deep-sleep SCB
  - SMIF (Serial memory interface for execute-in-place, encrypted Quad-SPI)
- **Security Features**
  - Advanced cryptographic coprocessor (Crypto) and True random number generator
  - One-time programmable eFUSE for secure key storage
  - Secure over-the-air (OTA) firmware update with read-while-write Flash technology for firmware updates
- **I/O Subsystem:** Up to 62 GPIOs
- **Packages:** 80-TQFP, 64-TQFP
- **Ordering MPN:** CY8C4588AZI-H675, CY8C4588AZI-H676

## Collateral

**Datasheet:** Contact Sales or MKT

## PSoC 4500H Series

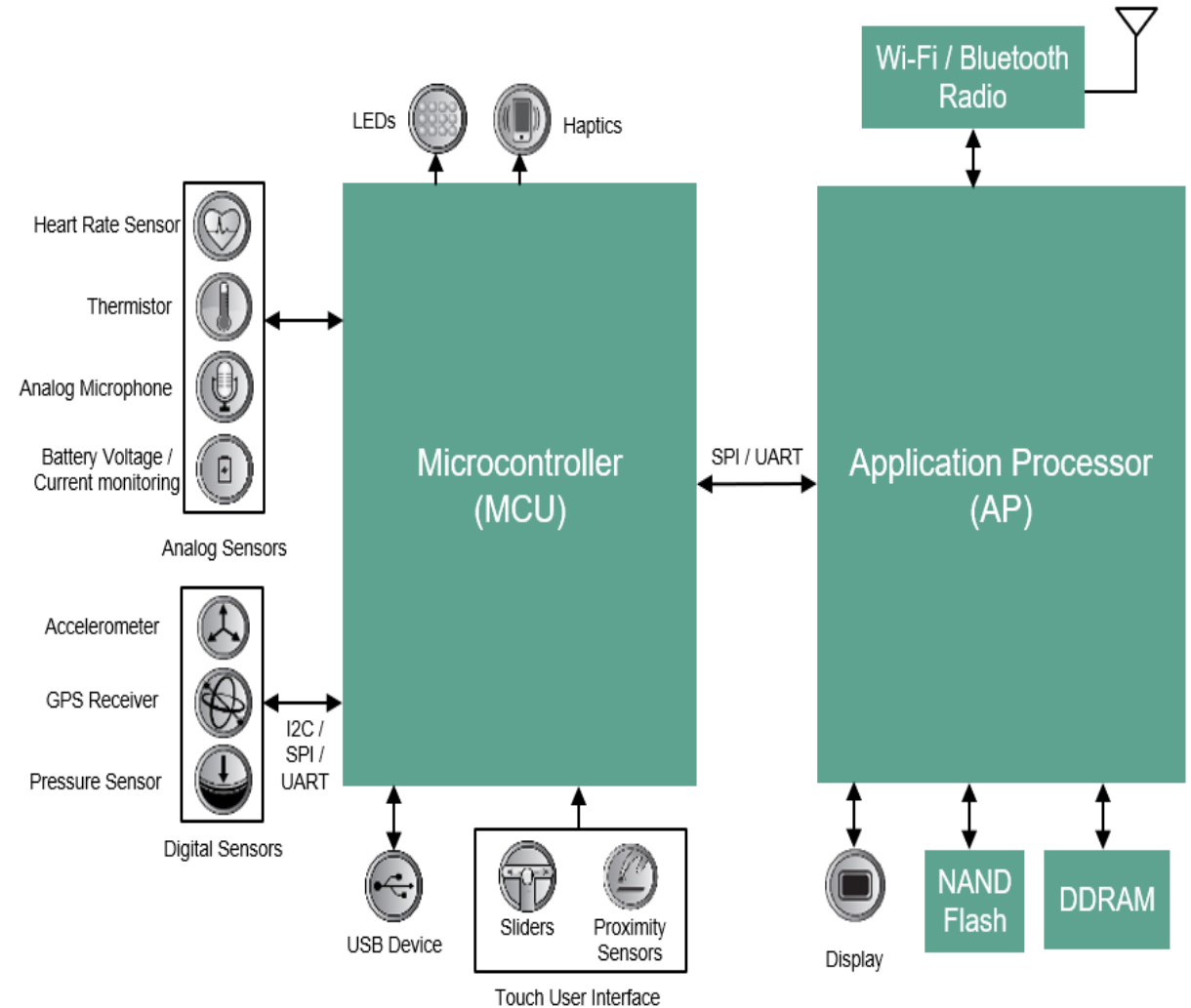


## Availability

**Sampling:** Now  
**Production:** Q421

# Our components are a perfect match with customer system needs

Sensor Hub in Consumer / Industrial IoT applications	
Main Components	Infineon Product Offering
MCU	PSoC 6 CY8C62x4, CY8C61x4 MCU
Wi-Fi / Bluetooth Radio	AIROC Wi-Fi and BT/BLE Combos
Sensors	XENSIV sensors (Pressure Sensors, Analog Microphone)





# Key features and benefits

## Key features

**Powerful Compute and Enhanced Security Features**— Dual Core CPU (Arm Cortex-M4, Arm Cortex-M0+), DMA controllers, 256 KB Flash, 128 KB SRAM, External Quad SPI Flash, Crypto Accelerator, Secure Boot

**Rich analog features** – 2x 12-bit SAR ADC, 2x Opamp, 2x Comparator, 12-bit VDAC

**Variety of on-chip peripherals** – CAN-FD, USB-FS, CapSense, Segment LCD, I2C / SPI / UART, Timer / Counter / PWM

**Optimized for low power**— Various system level low power modes - Active, Sleep, Deep Sleep, Hibernate. Analog blocks operational in Deep Sleep mode as well.

**Modern, Flexible ModusToolbox™ software** for developing embedded applications, ready to use code examples, development kits

## Key benefits

- › Compute, security, low power - optimized right from the hardware level
- › Integration of discrete analog IC's functionality in MCU
- › Two ADCs for simultaneous analog sampling applications
- › Integration of Touch HMI feature in MCU
- › CAN-FD connectivity for Industrial applications
- › Easy to use software for prototyping and productizing end applications

## Value

Reduced system costs with feature integration in single host MCU

Improve end product user experience with robust touch based user interfaces, and intelligent analog sensing

Flexible option for both Consumer and Industrial IoT applications

Longer Battery Life for battery operated applications

Futureproof product upgrades for security, higher feature options

# Target applications

## PSoC 6 CY8C62x4, CY8C61x4 MCU

Optimized for low power analog sensing, and processing applications

Home Automation



Wearables



Battery-Powered Applications



Portable Medical



## PSoC 6 PSoC4500H CY8C4588 MCU

Dual Motor Control

Washing Drying Machine



Air-con ODU Dual Motor



Inverter Water Heater



# PSoC4500H Dual Motor Control :HPFC&Dual Motor Solution

## MCU

MPN	CY8C4588AZI
Core	Dual: CM4&CM0+
Max Operation Frequency	150MHz@CM4 100MHz@CM0+
Pin Account	64/80
Flash	256K+32K
RAM	128K
GPIO	49/62
PWM	12ch TCPWM
Timer	12
Ext Interrupt	8
A/D	16CH(2)*12bit @2MSPS
DAC	1*12bit
Comparator	2
Operation Amplifier	2
UART/SPI/I2C	5*SCB
Other COM	QSPI
DMA	3unit DMA
Operation Voltage	1.7-3.6V
Package	TQFP64/80

## Specifications and control characteristic

### Specifications:

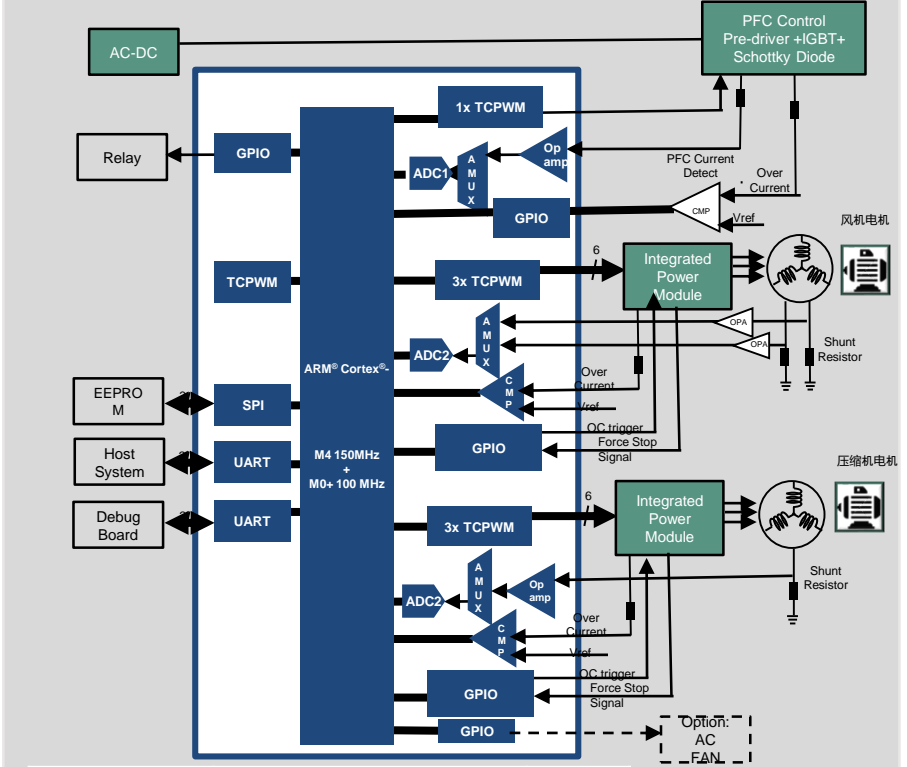
- ✓ Input Voltage: 165V~275V
- ✓ Carry Wave Freq: Compressor: 5K-8KHz; Fan: 10K-20KHz; PFC: 40KHz
- ✓ PFC>99%
- ✓ Position estimation precision :1/100

### Control Characteristic:

- ✓ Sensorless FOC control, Improved PLL to estimate the rotor position, high estimation accuracy and low sensitivity to parameters
- ✓ Using improved space vector PWM, Compare with traditional SVPWM, shorter computing time, Adopting 1-shunt sampling with Compressor and 2-Shunt sampling with Fan control
- ✓ Compressor control support weak magnetic torque compensation, maximum torque current ratio control, modulation, and other functions
- ✓ Comprehensive protection: Over voltage, over phase current flow, ac input flow, AD midpoint displacement, lack of phase, locked-rotor, IPM temperature
- ✓ Fan control brake support against the wind, wind, positive &negative detection, adaptive, have a fan locked-rotor detection, detection of lack of phase or fan soft over-current protection, under-voltage protection, demagnetization proof protection, and other functions
- ✓ Fan start don't need to locate current, without shaking; Anti-wind and catch-spin startup can reach 1000rpm, Start time maximum control within 2 s, and reversing the start-up time and current can be adaptive, no current shock deceleration

## Application block diagram

PSoC6 CY8C4588AZI-H676 高频PFC&双电机控制



方案BOM	型号	数量
MCU	CY8C4588AZI-H676	1
Aux Power	ICE5AR4770BZS	1
Fan IPM	IM231	1
Compressor IPM	IKCM15L60GA	1
IGBT Drive	1ED44175	1
PFC IGBT	IKW30N65WR5(40KHz)	1
PFC Diode	IDW30C65D1(<40KHz)	1



### Product Webpages, Product Selector

- [PSoC 6 MCU Product Page](#)
- [PSoC 62 Performance Line MCU](#) (Dual Core Apps CPU – CM4, CM0+)
- [PSoC 61 Programmable Line MCU](#) (Single Core Apps CPU – CM4)
- [PSoC 6 Product Selector Guide](#)

### Datasheets, Technical Reference Manual (TRM)

- [PSoC 61 CY8C61x4 Device Datasheet](#)
- [PSoC 62 CY8C62x4 Device Datasheet](#)
- [PSoC 61, PSoC 62 MCU: CY8C61x4, CY8C62x4 Architecture TRM](#)
- [PSoC 61, PSoC 62 MCU: CY8C61x4, CY8C62x4 Register TRM](#)

### Application Notes, Whitepapers

- [AN228571 – Getting Started with PSoC 6 MCU on ModusToolbox](#)
- [AN218241 - PSoC 6 MCU Hardware Design Considerations](#)
- [AN219528 - PSoC 6 MCU Low-Power modes and Power reduction techniques](#)
- [AN213924 - PSoC 6 MCU Bootloader Software development Kit \(SDK\) Guide](#)
- [List of all PSoC 6 Application Notes](#)

### Development Kits

- [PSoC™ 62S4 Pioneer Kit \(CY8CKIT-062S4\)](#)

### Software, Code Examples

- [ModusToolbox Software \(Download link\)](#)
- [PSoC 6 MCU Code Examples](#)
- [Board Support Package \(BSP\) for PSoC™ 62S4 Pioneer Kit \(CY8CKIT-062S4\)](#)

# Consumer/IoT: PSoC 4

Flexibility | CapSense® | Ease-of-Use



Performance and Integration ↑

PSoC MCU PSoC 4000	Intelligent Analog PSoC 4100	Programmable Digital PSoC 4200	Analog Coprocessor PSoC 4A00	Application Specific PSoC 4500, 4700	
BL = BLE-Series		S = S-Series	M = M-Series	L = L-Series	
	<p><b>CY8C4129-S</b> <sup>Q222</sup> 24-MHz M0+, 384K/32K<sup>1</sup> CMP<sup>2</sup>, Opamp, ADC<sup>3</sup> SCB<sup>4</sup>, MSC<sup>12</sup>, Smart I/O<sup>6</sup></p> <p><b>CY8C4128-S</b> 24-MHz M0+, 256K/32K<sup>1</sup> CMP<sup>2</sup>, Opamp, ADC<sup>3</sup> SCB<sup>4</sup>, IDAC<sup>5</sup>, Smart I/O<sup>6</sup></p> <p><b>CY8C4147-S</b> 48-MHz M0+, 128K/16K CMP, Opamp, ADC SCB, IDAC, Smart I/O</p> <p><b>CY8C4127-S</b> 24-MHz M0+, 128K/16K CMP, Opamp, ADC SCB, IDAC, Smart I/O</p> <p><b>CY8C4127-M</b> 24-MHz M0, 128K/16K CMP, Opamp, ADC, SCB IDAC</p> <p><b>CY8C4126-M</b> 24-MHz M0, 64K/8K CMP, Opamp, ADC, SCB IDAC</p> <p><b>CY8C4125</b> 24-MHz M0, 32K/4K CMP, Opamp, ADC, SCB IDAC</p> <p><b>CY8C4124</b> 24-MHz M0, 16K/4K CMP, Opamp, ADC, SCB IDAC</p>	<p><b>CY8C4149-S</b> <sup>Q222</sup> 48-MHz M0+, 384K/32K CMP, Opamp, ADC SCB, MSC, Smart I/O</p> <p><b>CY8C4148-S</b> 48-MHz M0+, 256K/32K CMP, Opamp, ADC SCB, IDAC, Smart I/O</p> <p><b>CY8C4128-BL</b> 24-MHz M0, 256K/32K CMP, Opamp, ADC, SCB IDAC, BLE<sup>7</sup></p> <p><b>CY8C4127-BL</b> 24-MHz M0, 128K/16K CMP, Opamp, ADC, SCB IDAC, BLE</p> <p><b>CY8C4146-S</b> 48-MHz M0+, 64K/8K CMP, Opamp, ADC, SCB IDAC, Smart I/O</p> <p><b>CY8C41xx-PS</b> 48-MHz M0+, 32K/4K CMP, Opamp, ADC SCB, VDAC, Smart I/O</p> <p><b>CY8C4125-S</b> 24-MHz M0+, 32K/4K CMP, Opamp, ADC, SCB IDAC, Smart I/O</p> <p><b>CY8C4124-S</b> 24-MHz M0+, 16K/4K CMP, Opamp, ADC, SCB IDAC, Smart I/O</p>	<p><b>CY8C4247-M</b> 48-MHz M0, 128K/16K, CMP, Opamp, ADC, SCB IDAC, UDB<sup>8</sup>, CAN<sup>9</sup></p> <p><b>CY8C4246-M</b> 48-MHz M0, 64K/8K, CMP, Opamp, ADC, SCB IDAC, UDB</p> <p><b>CY8C4246-DS</b> 48-MHz M0, 64K/8K CMP, SCB UDB, Smart I/O</p> <p><b>CY8C4245-DS</b> 48-MHz M0, 32K/4K CMP, SCB UDB, Smart I/O</p> <p><b>CY8C4245</b> 48-MHz M0, 32K/4K CMP, Opamp, ADC, SCB IDAC, UDB</p> <p><b>CY8C4244</b> 48-MHz M0, 16K/4K, CMP, Opamp, ADC, SCB IDAC, UDB</p>	<p><b>CY8C4248-BL</b> 48-MHz M0, 256K/32K CMP, Opamp, ADC, SCB IDAC, BLE, UDB</p> <p><b>CY8C4247-BL</b> 48-MHz M0, 128K/16K CMP, Opamp, ADC, SCB IDAC, BLE, UDB</p> <p><b>CY8C4248-L</b> 48-MHz M0, 256K/32K CMP, Opamp, ADC, SCB IDAC, UDB, CAN, USB</p> <p><b>CY8C4247-L</b> 48-MHz M0, 128K/16K CMP, Opamp, ADC, SCB IDAC, UDB, CAN, USB</p> <p><b>CY8C4246-L</b> 48-MHz M0, 64K/8K CMP, Opamp, ADC, SCB IDAC, UDB, CAN, USB</p>	<p><b>CY8C45xx-H</b> <sup>Q221</sup> <b>Motor Control</b> 150-MHz M4, 256K/128K CMP, Opamp 2X ADC, SCB, IDAC Smart I/O, ECO</p> <p><b>CY8C45xx-S</b> <b>Motor Control</b> 48-MHz M0+, 256K/32K MCA<sup>11</sup>, CMP, Opamp 2X ADC, SCB, IDAC Smart I/O, ECO</p> <p><b>CY8C47xx-S</b> <b>Inductive Sensing</b> 48-MHz M0+, 32K/4K CMP, Opamp, UAB<sup>10</sup> ADC, SCB, VDAC Smart I/O</p>
<p><b>CY8C40x-S</b> 48-MHz M0+, 64K/8K CMP, ADC, SCB, MSC<sup>12</sup>, Smart I/O</p> <p><b>CY8C4045-S</b> 48-MHz M0+, 32K/4K CMP, ADC, SCB IDAC, Smart I/O</p> <p><b>CY8C4024-S</b> 24-MHz M0+, 16K/2K CMP, ADC, SCB IDAC, Smart I/O</p> <p><b>CY8C4014</b> 16-MHz M0, 16K/2K CMP, I<sup>2</sup>C, IDAC</p>			<p><b>CY8C4Axx</b> 48-MHz M0+, 32K/4K CMP, Opamp, UAB<sup>10</sup> ADC, SCB, VDAC Smart I/O</p>		

<sup>1</sup> Flash KB/SRAM KB

<sup>2</sup> Comparator

<sup>3</sup> Analog-to-digital converter

<sup>4</sup> Serial communication block

<sup>5</sup> Current-output DAC

<sup>6</sup> Embedded programmable digital logic in the I/O subsystem

<sup>7</sup> Bluetooth Low Energy

<sup>8</sup> Universal digital block

<sup>9</sup> Controller area network

<sup>10</sup> Universal analog block

<sup>11</sup> Motor Control Accelerator

<sup>12</sup> Multi-sense converter

Status  
Availability



## Application

Main control and user interface for home appliance, consumer, and industrial applications

## Features

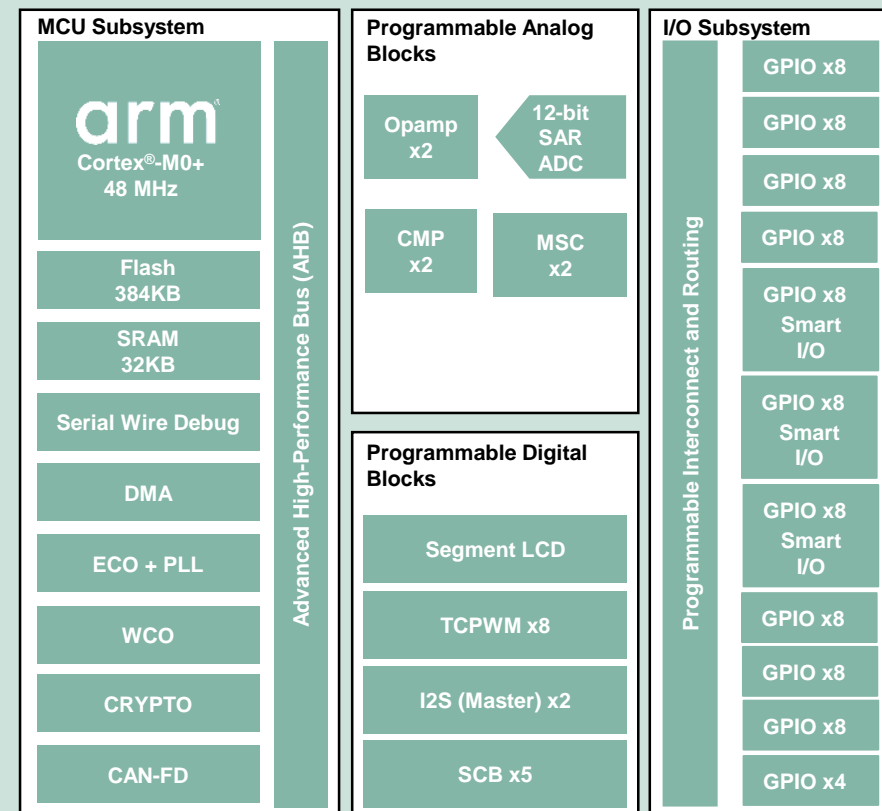
- **32-bit MCU Subsystem**
  - 48-MHz Arm® Cortex®-M0+ CPU with a DMA controller
  - 384KB flash and 32KB SRAM
  - External MHz oscillator (ECO) with PLL and 32-kHz watch crystal oscillator (WCO)
  - CRYPTO block include AES, TRNG, PRNG, CRC and SHA
- **Programmable Analog Blocks**
  - One 12-bit, 1-Msps SAR ADC
  - Two opamps configurable as programmable gain amplifiers (PGAs), comparators (CMPs), etc.
  - Two low-power comparators
  - Two MSC (Multi-Sense Converter) blocks for next-generation CapSense® technology
- **Programmable Digital Blocks**
  - Eight 16-bit timer/counter/pulse-width modulator (TCPWM) blocks
  - Five serial communication blocks (SCBs) that are configurable as I<sup>2</sup>C, SPI, or UART
  - Segment LCD
  - Two I2S Master channels
- **One CAN-FD (Controller Area Network with Flexible Data-rate) Controller**
- **Packages**
  - 48-TQFP, 64-TQFP and 100-TQFP
- **I/O Subsystem**
  - Up to 84 GPIOs, including 24 Smart I/Os<sup>1</sup>

## Collateral

Datasheet: [Contact Sales](#)

<sup>1</sup> Embedded programmable digital logic in the I/O subsystem

## PSoC® 4100S Max



## Availability

Sampling: **NOW**  
 Production: CQ2'2022

# Infineon Touch HMI Opportunity is Everywhere!



# PSoC<sup>®</sup> 4 Solution Example: Cooktop HMI Control

## PSoC Value

### Design Challenges

- Complete various system control functions efficiently
- Support multiple system or user interface configurations
- Implement a premium user interface by:
  - Providing a reliable capacitive touch user interface
  - Sensing up to 70 capacitive buttons in various shapes and sizes
- Requires Class B certification

### PSoC 4 Solution

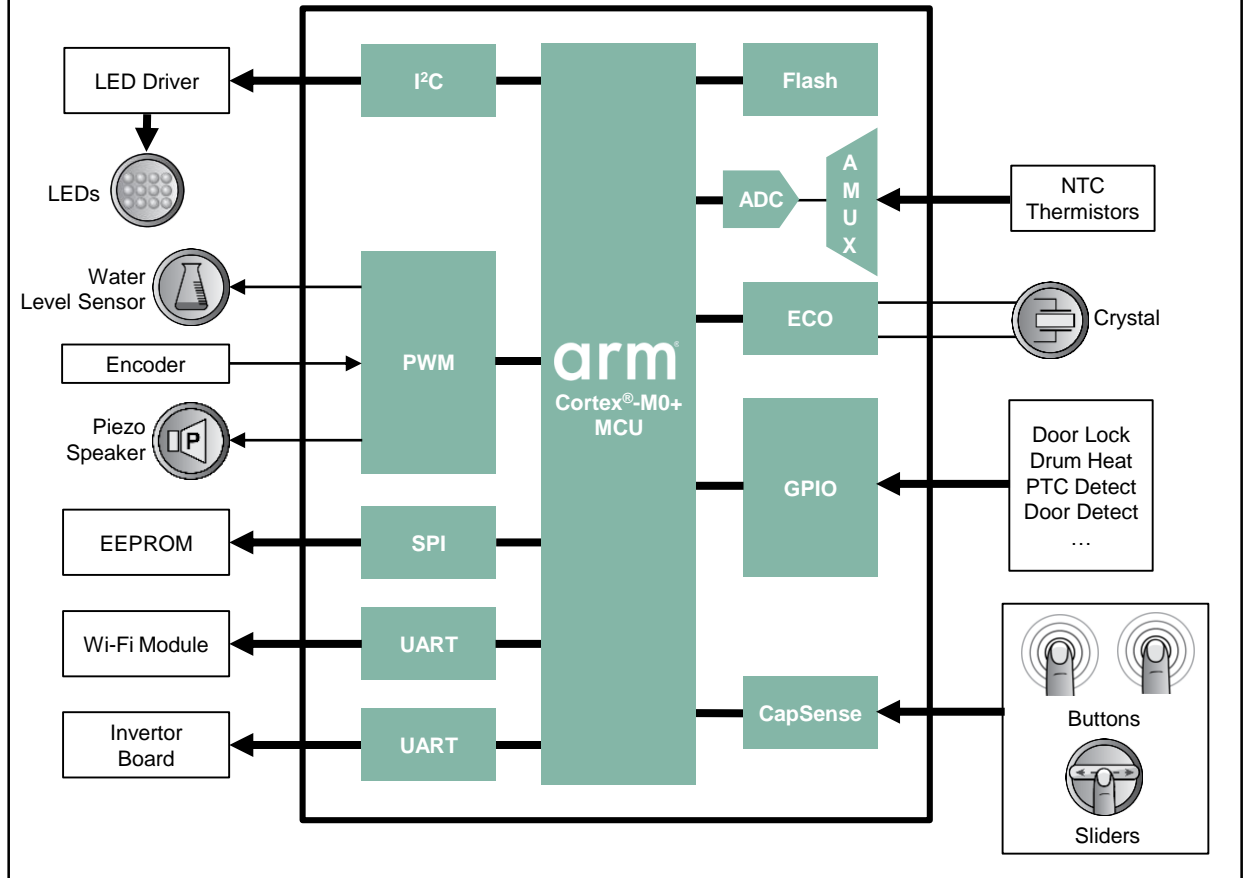
- Integrates all the main control functions and communication interfaces in a powerful Arm<sup>®</sup> Cortex<sup>®</sup>-M0+ MCU
- Includes up to 386KB Flash memory to store configuration profiles
- Enables a one-chip solution of a premium user interface with a liquid-tolerant CapSense<sup>®</sup> solution
- Provides a Class B library for safe operation

### Induction Cooktop

PSoC 4 provides a one-chip solution that integrates the induction drive control and user interface. PSoC 4 and PSoC Creator Components simplify the interface to analog humidity and temperature sensors



## PSoC 4 One-Chip Solution





### Product Webpages, Product Selector

- [PSoC 4 MCU Product Page](#)
- [PSoC 4100 MCU \(CM0+\)](#)
- [PSoC 4100 Product Selector Guide](#)

### Datasheets, Technical Reference Manual (TRM)

- [Contact Sales](#)

### Application Notes, Whitepapers

- [AN79953 – Getting Started with PSoC 4 MCU](#)
- [AN85951 - PSoC 4 and PSoC 6 MCU CapSense Design Guide](#)
- [List of all PSoC 4 Application Notes](#)

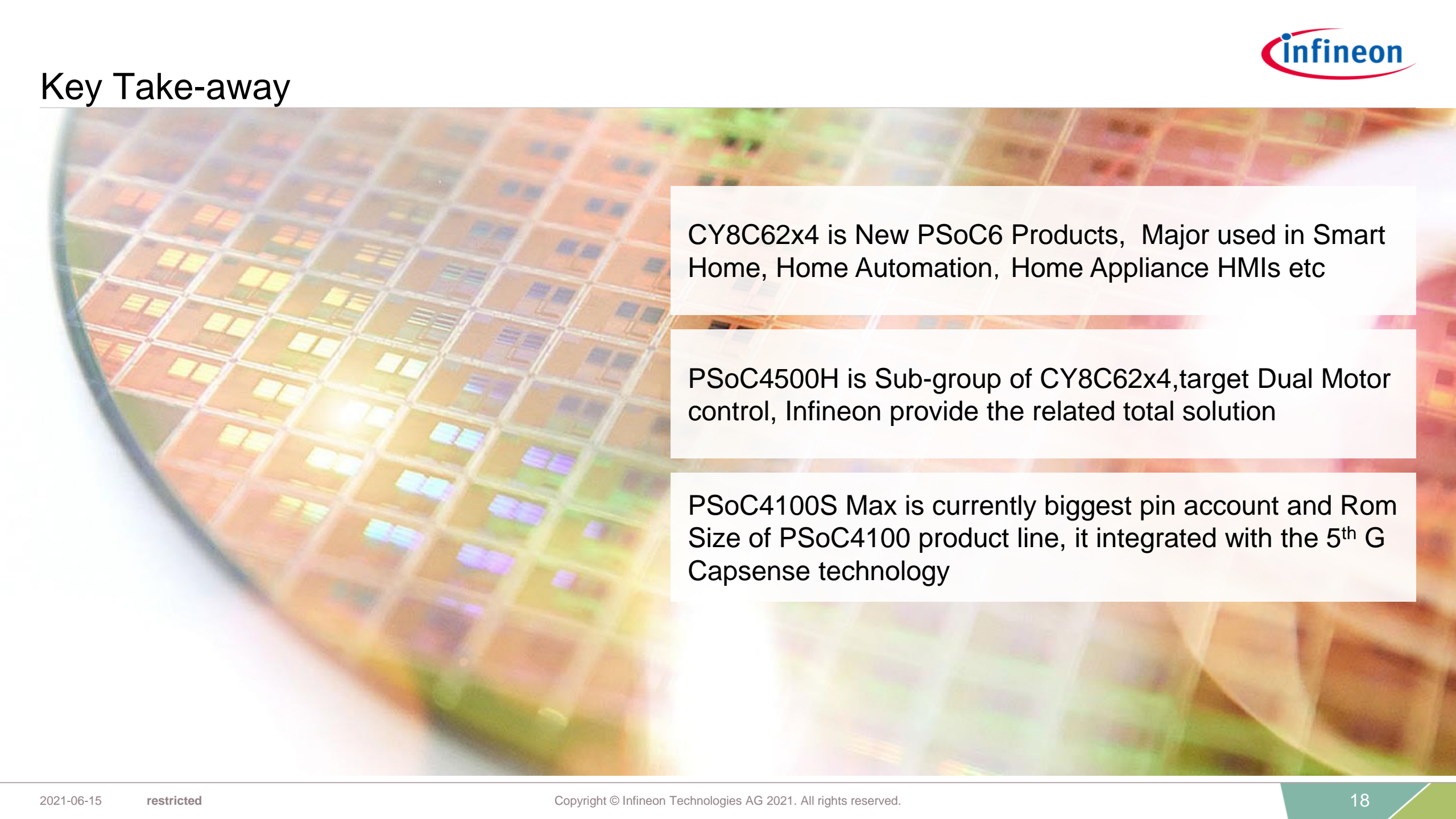
### Development Kits

- [PSoC™ 4100S Max Pioneer Kit \(CY8CKIT-041S-MAX\)](#)

### Software, Code Examples

- [ModusToolbox Software \(Download link\)](#)
- [PSoC 4 MCU Code Examples](#)

## Key Take-away

A close-up, angled view of a circular silicon microchip die. The die is covered in a complex grid of microscopic circuitry, with various colored regions (yellow, blue, purple, green) representing different functional blocks. The die is set against a blurred background of other similar dies.

CY8C62x4 is New PSoC6 Products, Major used in Smart Home, Home Automation, Home Appliance HMIs etc

PSoC4500H is Sub-group of CY8C62x4, target Dual Motor control, Infineon provide the related total solution

PSoC4100S Max is currently biggest pin account and Rom Size of PSoC4100 product line, it integrated with the 5<sup>th</sup> G Capsense technology



Part of your life. Part of tomorrow.

