



CYPRESS[®]
EMBEDDED IN TOMORROW™

Cypress Roadmap:

Automotive HMI Solutions and PSoC

Q1 2019



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Automotive TrueTouch[®] Roadmap



Automotive Portfolio: TrueTouch®

Active Touch Area ↑ 3-8" 7-12" > 12"	Gen6			Gen7
	Touchscreen			Next Generation
	Gestures, AMS ¹ Thick Glove ² or Thick Overlay	In-Cell ³ , Gestures, AMS Thick Glove ⁶ or Thick/Curved Overlay	SLIM ⁴ , Force Touch ⁵ , Gestures, AMS Thick Glove or Thick/Curved Overlay	
	10 Finger, AutoArmor™ ⁷ , DualSense™ ⁸ , H ₂ O ⁹ , Glove Touch ¹⁰ , Grades: A ¹¹ and S ¹²			
> 12"	CYAT8168X 88 I/O, 100-Hz RR ¹³	CYAT8268X 54 I/O, 100-Hz RR	CYAT8X68X 88 I/O, 100-Hz RR	CYAT8X7XX NDA Required, Contact Sales
7-12"	CYAT8168X 77/71 I/O ¹⁴ , 120-Hz RR	CYAT8268X 46/39 I/O, 120-Hz RR	CYAT8X68X 77/71 I/O, 120-Hz RR	CYAT8X7XX NDA Required, Contact Sales
7-12"	CYAT8168X 61 I/O, 120-Hz RR	CYAT8268X 31 I/O, 120-Hz RR	CYAT8X68X 61 I/O, 120-Hz RR	CYAT8X7XX NDA Required, Contact Sales
7-12"	CYAT8165X 48 I/O, 100-Hz RR	CYAT8268X 17 I/O, 120-Hz RR	CYAT8X65X 48 I/O, 100-Hz RR	
3-8"	CYAT816XX 36 I/O, 120-Hz RR		CYAT8X6XX 36 I/O, 100-Hz RR	

¹ Automatic Mode Switching

² 1-mm to 5-mm glove thickness (ski gloves)

³ A type of sensor stack-up in which the RX sensor is inside the LCD module under the color-filter glass

⁴ Single-Layer Independent Multi-Touch

⁵ The ability of touchscreen to distinguish between different levels of force being applied on the touchscreen

⁶ Less than 1-mm glove thickness (normal leather gloves)

⁷ Enables compliance with chip-level emission, immunity and system-level specifications

⁸ Self-Capacitance + Mutual-Capacitance

⁹ Waterproofing and wet-finger tracking

¹⁰ A feature that allows the detection of gloved fingers on a touch sensor

¹¹ AEC-Q100: -40°C to +85°C

¹² AEC-Q100: -40°C to +105°C

¹³ Refresh rate

¹⁴ Number of available I/Os depends on package selection

	Concept	Development	Sampling	Production
Industrial				
Automotive				
Availability			QQYY	QQYY

Automotive Portfolio: TrueTouch® Software¹

Software	MPN	PSoC® Designer™	TrueTouch® Host Emulator ²	TrueTouch Driver for Android ³	Manufacturing Test Kit ⁴
Current Version		5.4 SP1	3.4.50	3.5	1.9.30
Gen 1	CY8CTMA120	Production			
	CY8CTMG120	Production			
Gen 3	CY8CTMA616		Production	TTDA 2.5.1 Production	Production
	CY8CTMA884		Production		Production
Gen 4	CY8CTMA460		Production	TTDA 2.5 Production	Production
	CY8CTMA461		Production		Production
	CY8CTMA768		Production		Production
	CY8CTMA1036		Production		Production
Gen 6	CYAT8165X-48		Production	Contact Sales	Production
	CYAT8168X-61		Production		Production
	CYAT8168X-71		Production		Production
	CYAT8168X-77		Production		Production
	CYAT8168X-88		Production		Production
Gen7	CYAT8X7XX		Production	Contact Sales	Production

Contact Cypress Sales for the latest TrueTouch software, drivers and tools

¹ PSoC Designer, TTHE and MTK releases are backward compatible. The latest version is recommended for new designs.

² TrueTouch Host Emulator (TTHE) is a front-end tool used to configure, tune, debug and demonstrate TrueTouch devices

³ TrueTouch Driver for Android (TTDA) is the driver for Android that translates touch information into Linux/Android events

⁴ TrueTouch Manufacturing Test Kit (MTK) enables customers and ITO partners to test touch panels that use Cypress TrueTouch controllers through the manufacturing flow

CYAT8168X

Automotive TrueTouch® Gen6 Family

Applications

Large touchscreen human machine interface (HMI) systems

Features

Advanced User Interface

- Waterproofing¹: Works with water droplets, condensation, sweat and wet-finger tracking
- Tracking with up to 5-mm thick gloves or thick overlay

Proprietary Analog Front End² with AutoArmor™³

- True 5-V TX-Boost™ with Multi-Phase TX⁴
- 54 Receive Channels to support ≥100-Hz refresh rates
- DualSense™: Self⁵- and mutual⁶-capacitance analog front end (U.S. Patents 8,773,146; 8,358,142; 8,319,505; and 8,067,948)
- AutoArmor enables compliance with chip-level emissions (IEC 61967), immunity (IEC 62132) and system-level (CISPR 25) specifications

System Solutions

- Manufacturing test kits for production testing

Package

- 128-pin TQFP, 100-pin TQFP

Collateral

Datasheet and Design Guide: [Contact Sales](#) or automotive@cypress.com

¹ The ability of a touchscreen sensor to work properly in the presence of water droplets, condensation or sweat

² Analog circuit in the touchscreen controller used to measure self- and mutual-capacitance

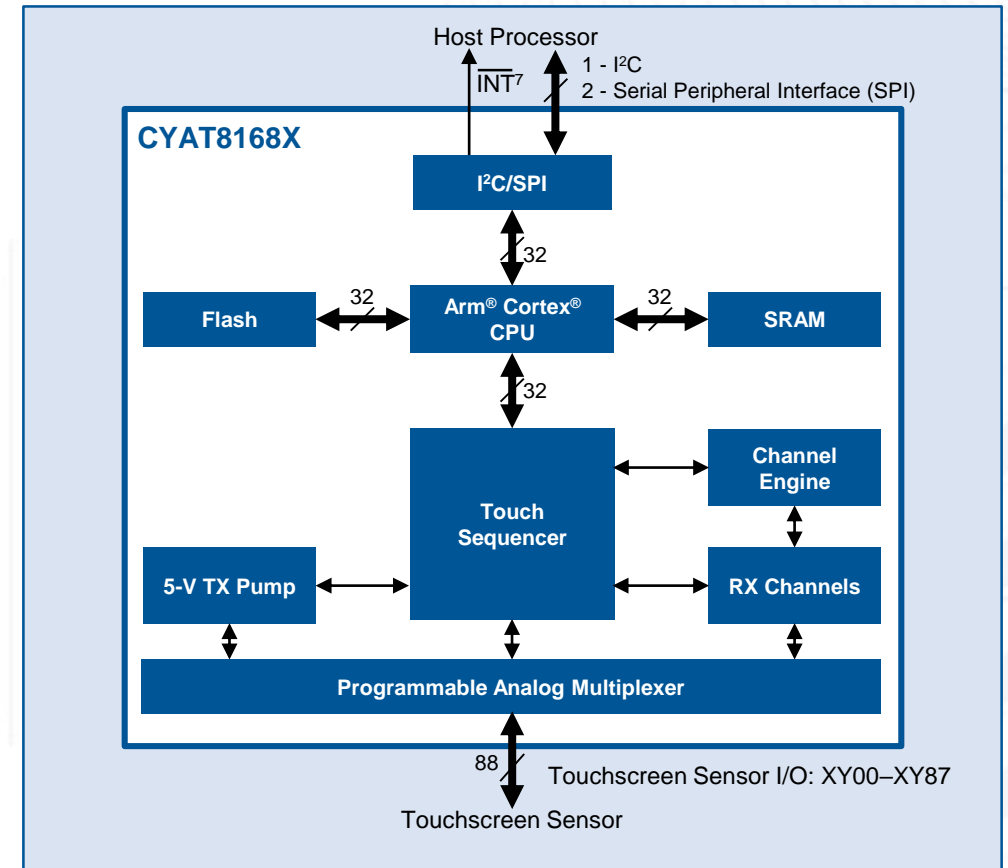
³ Cypress proprietary technology used to reduce emissions and improve EMI immunity to meet automotive EMC requirements

⁴ A scanning method used to drive multiple TX lines simultaneously

⁵ The capacitance of a row or column line in a touchscreen sensor

⁶ The capacitance between a row and a column in a touchscreen sensor

⁷ Interrupt



Availability

Sampling: Now

Production: Now

CYAT8165X

Automotive TrueTouch® Gen6 Family

Applications

Small and medium touchscreen human machine interface (HMI) systems

Features

- **Advanced User Interface**
 - Waterproofing¹: Works with water droplets, condensation, sweat and wet-finger tracking
 - Tracking with up to 5-mm thick gloves or thick overlay
- **Proprietary Analog Front End² with AutoArmor™³**
 - True 5-V TX-Boost™ with Multi-Phase TX⁴
 - 17 Receive Channels to support ≥100-Hz refresh rates
 - DualSense™: Self⁵- and mutual⁶-capacitance analog front end (U.S. Patents 8,773,146; 8,358,142; 8,319,505; and 8,067,948)
 - AutoArmor enables compliance with chip-level emissions (IEC 61967), immunity (IEC 62132) and system-level (CISPR 25) specifications
- **System Solutions**
 - Manufacturing test kits for production testing
- **Package**
 - 100-pin TQFP and 64-pin TQFP

Collateral

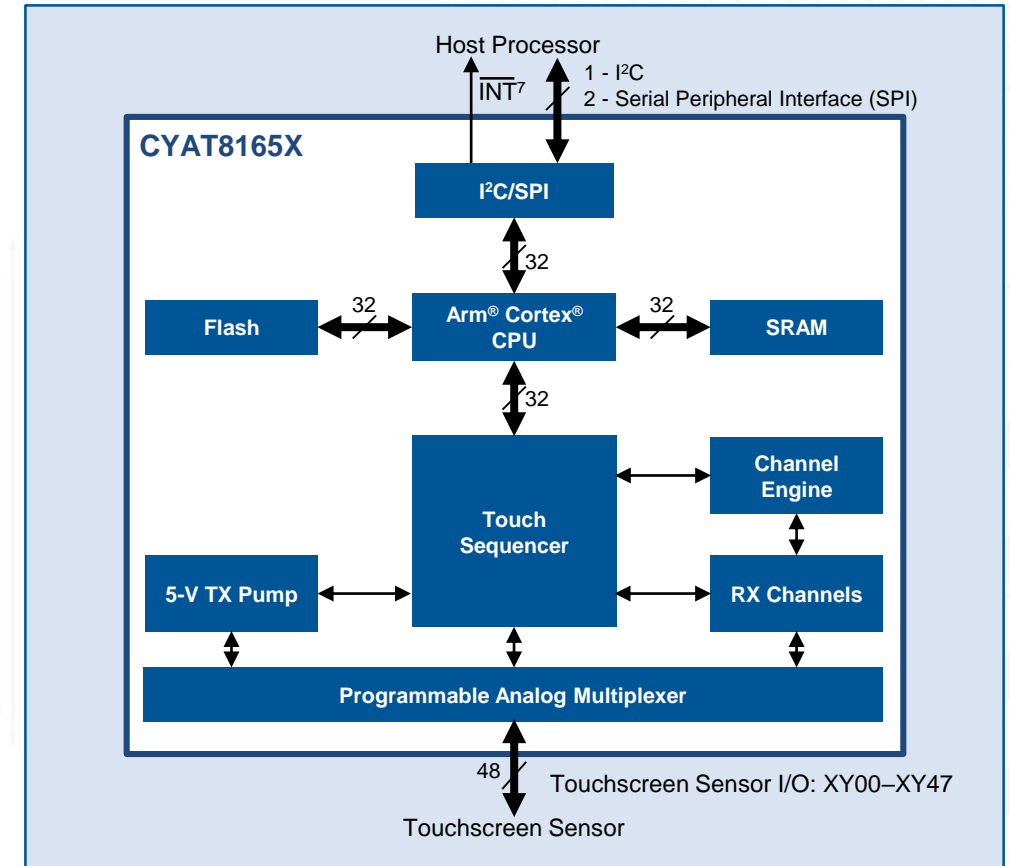
Datasheet and Design Guide: [Contact Sales](#) or automotive@cypress.com

¹ The ability of a touchscreen sensor to work properly in the presence of water droplets, condensation or sweat

² Analog circuit in the touchscreen controller used to measure self- and mutual-capacitance

³ Cypress proprietary technology used to reduce emissions and improve EMI immunity to meet automotive EMC requirements

⁴ A scanning method used to drive multiple TX lines simultaneously



Availability

Sampling: 64 TQFP (Now)

Production: 100 TQFP (Now), 64 TQFP (Q1 2019)

⁵ The capacitance of a row or column line in a touchscreen sensor

⁶ The capacitance between a row and a column in a touchscreen sensor

⁷ Interrupt

CYAT6165X

Automotive TrueTouch® Gen6 Family

Applications

Slider human machine interface (HMI) systems

Features

Advanced User Interface

- Waterproofing¹: Works with water droplets, condensation, sweat and wet-finger tracking
- Tracking with up to 5-mm thick gloves or thick overlay
- Typical refresh rate of 200 Hz
- Low-power wake-up button: Typical power consumption of 50 μ A

Proprietary Analog Front End² with AutoArmor™³

- True 5-V TX-Boost™ with Multi-Phase TX⁴
- 17 Receive Channels to support \geq 200-Hz refresh rates
- DualSense™: Self⁵- and mutual⁶-capacitance analog front end (U.S. Patents 8,773,146; 8,358,142; 8,319,505; and 8,067,948)
- AutoArmor enables compliance with chip-level emissions (IEC 61967), immunity (IEC 62132) and system-level (CISPR 25) specifications

System Solutions

- Manufacturing test kits for production testing

Package

- 56-pin QFN wettable flank, 64-pin TQFP

Collateral

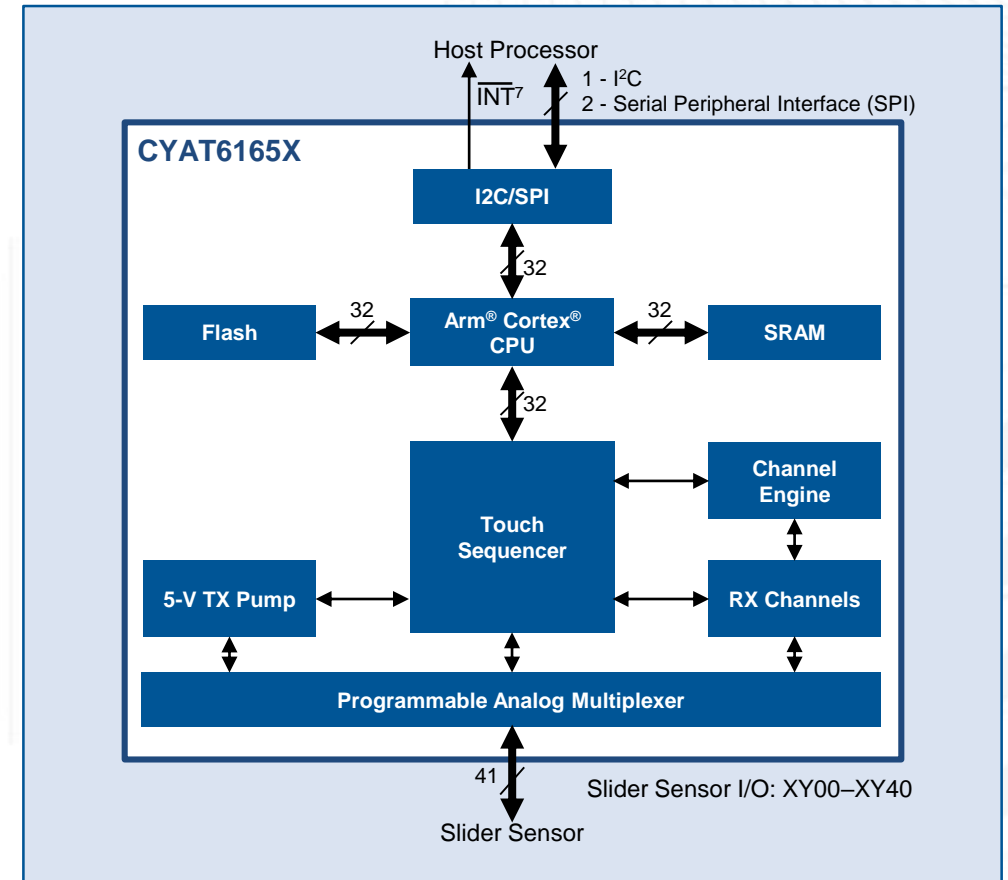
Datasheet and Design Guide: [Contact Sales](#) or automotive@cypress.com

¹ The ability of a touchscreen sensor to work properly in the presence of water droplets, condensation or sweat

² Analog circuit in the touchscreen controller used to measure self- and mutual-capacitance

³ Cypress proprietary technology used to reduce emissions and improve EMI immunity to meet automotive EMC requirements

⁴ A scanning method used to drive multiple TX lines simultaneously



Availability

Sampling: Now

Production: Now

⁵ The capacitance of a row or column line in a touchscreen sensor

⁶ The capacitance between a row and a column in a touchscreen sensor

⁷ Interrupt

CYAT817XX

Automotive TrueTouch® Gen7 Family

Applications

Integrated touchscreen human machine interface (HMI) systems with multimodal feedback

Features

Advanced User Interface

- 35-mm hover¹ performance and force touch² support
- Supports low-power CapSense^{®3} wake-up button
- 4x timer/counter/pulse-width modulator (TCPWM) blocks for haptic feedback controls
- 1x I²S block for acoustic feedback
- Parallel reporting of touch data via SCB⁴ or CAN blocks
- Includes a Crypto block for optional data encryption

Proprietary Analog Front End⁵ with AutoArmor™⁶

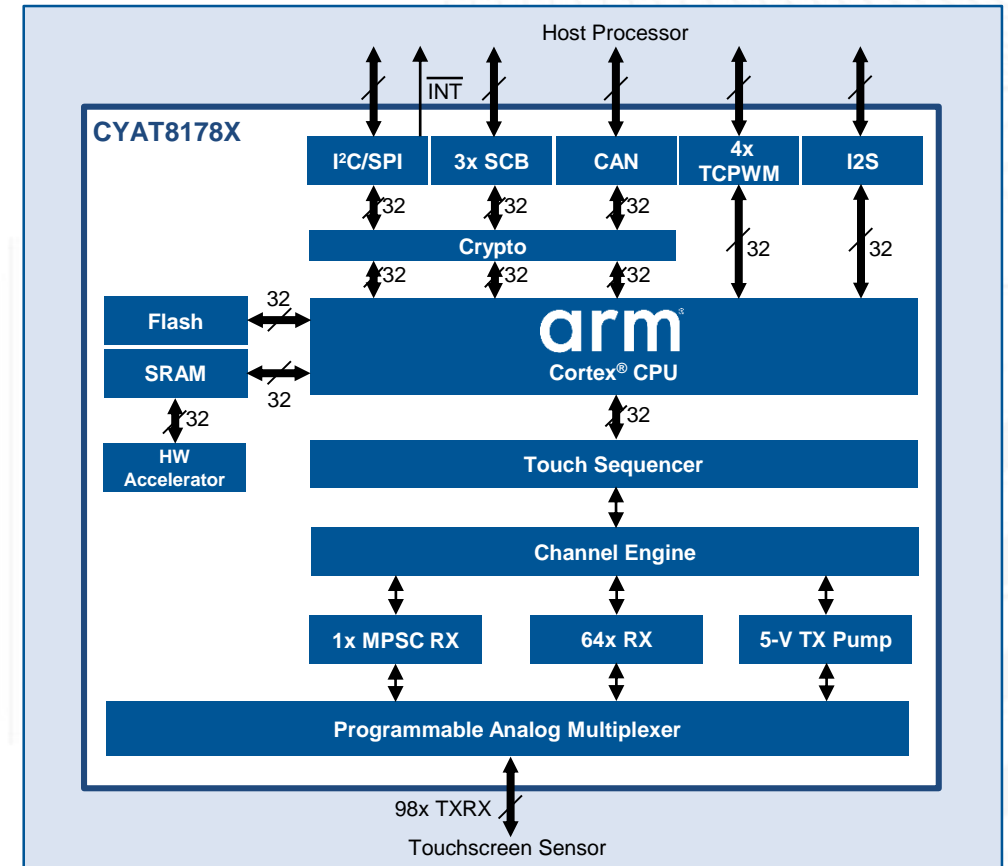
- True 5-V TX-Boost™ with multi-phase TX
- 64 receive channels to support ≥100-Hz refresh rates
- Multi-phase self-capacitance methodology aids in meeting EMI/EMC requirements without performance degradation
- AutoArmor enables compliance with chip-level emissions (IEC 61967), immunity (IEC 62132), ESD (IEC 62132) and system-level (CISPR 25) specifications

Packages

- 128-pin TQFP, 100-pin TQFP

Collateral

Datasheet and Design Guide: [Contact Sales](#) or automotive@cypress.com



Availability

Sampling: Now

Production: Now

¹ A feature allowing the detection of fingers hovering over the touchscreen sensor

² The ability of a touchscreen sensor to distinguish between different levels of force being applied on the touchscreen

³ Cypress' touch-sensing user interface solution. The industry's No. 1 solution in sales by 4x over No. 2 due to superior performance

⁴ Serial communication block, configurable as SPI, I²C or UART

⁵ Analog circuit in the touchscreen controller used to measure self- and mutual-capacitance

⁶ Cypress proprietary technology used to reduce emissions and improve EMI immunity to meet automotive EMC requirements

Automotive TrueTouch Packages

Family	Package	QFN ¹	TQFP		
	Pins	56	64	100	128
	Body Size (mm)	8 x 8	10 x 10	14 x 14	14 x 20
	Pitch (mm)	0.5	0.5	0.5	0.5
Gen 4	CY8CTMA460	✓		✓	
	CY8CTMA461	✓		✓	
	CY8CTMA768			✓	
	CY8CTMA1036			✓	
Gen 6	CYAT6165X-41	✓			
	CYAT7165X-48		✓		
	CYAT6165X-48		✓		
	CYAT8165X-48		✓	✓	
	CYAT8168X-61			✓	
	CYAT8168X-71			✓	
	CYAT8168X-77			✓	
	CYAT8168X-88				✓
	CYAT8268X-XX			✓	
Gen 7	CYAT817X-61			✓	
	CYAT817X-72			✓	
	CYAT817X-77				✓
	CYAT817X-88				✓
	CYAT817X-98				✓

¹ Wettable flanks package to allow automated optical inspection (AOI)

Automotive PSoC[®] Roadmap



Automotive PSoC and MCU Portfolio

Analog and Digital Integration

8-Bit	32-Bit Arm® Cortex®-M0/M0+	32-Bit Arm Cortex®-M3	32-Bit Arm Cortex®-M4	32-Bit Arm Cortex®-M7
High Analog Integration	Ultra-Low-Power 8-/16-Bit Replacement	Mid-Range Performance	High Performance	Next Generation
<p>Programmable System-on-Chip (PSoC) is a brand of Cypress MCUs for the broad-base embedded market that delivers an Arm Cortex-M CPU (PSoC 4+) with unique software-defined peripherals and CapSense capacitive sensing</p> <p>Flexible MCU (FM) is a portfolio of high-performance Arm® Cortex®-M-based MCUs for industrial and consumer applications</p>			<p>PSoC 6 HMI Cortex®-M4 and Cortex®-M0+ NDA Required, Contact Sales</p>	<p>PSoC 7 Cortex®-M7 NDA Required, Contact Sales</p>
	<p>PSoC 4 Cortex®-M0/M0+ 48 MHz, 256KB Flash Up to 13 PAB¹, 20 PDB², 98 I/Os</p>	<p>PSoC 5LP Cortex®-M3 80 MHz, 256KB Flash 20 PAB, 30 PDB, 72 I/Os</p>	<p>FM4 MCUs Cortex®-M4 200 MHz, 2MB Flash, 190 I/Os</p>	
<p>PSoC 3 8051 CPU 67 MHz, 64KB Flash Up to 19 PAB, 30 PDB, 72 I/Os</p>	<p>PSoC Analog Coprocessor CY8C4Axx 48 MHz, 32KB Flash Up to 12 PAB, 11 PDB, 38 I/Os</p>	<p>FM3 MCUs Cortex®-M3 144 MHz, 1.5MB Flash, 154 I/Os</p>		
<p>PSoC 1 M8C CPU 24 MHz, 32KB Flash 16 PAB, 16 PDB, 64 I/Os</p>	<p>FM0+ MCUs Cortex®-M0+ 40 MHz, 512KB Flash, 102 I/Os</p>			
<p>8FX 8-bit RISC MCU 16 MHz, 32–50KB Flash</p>				

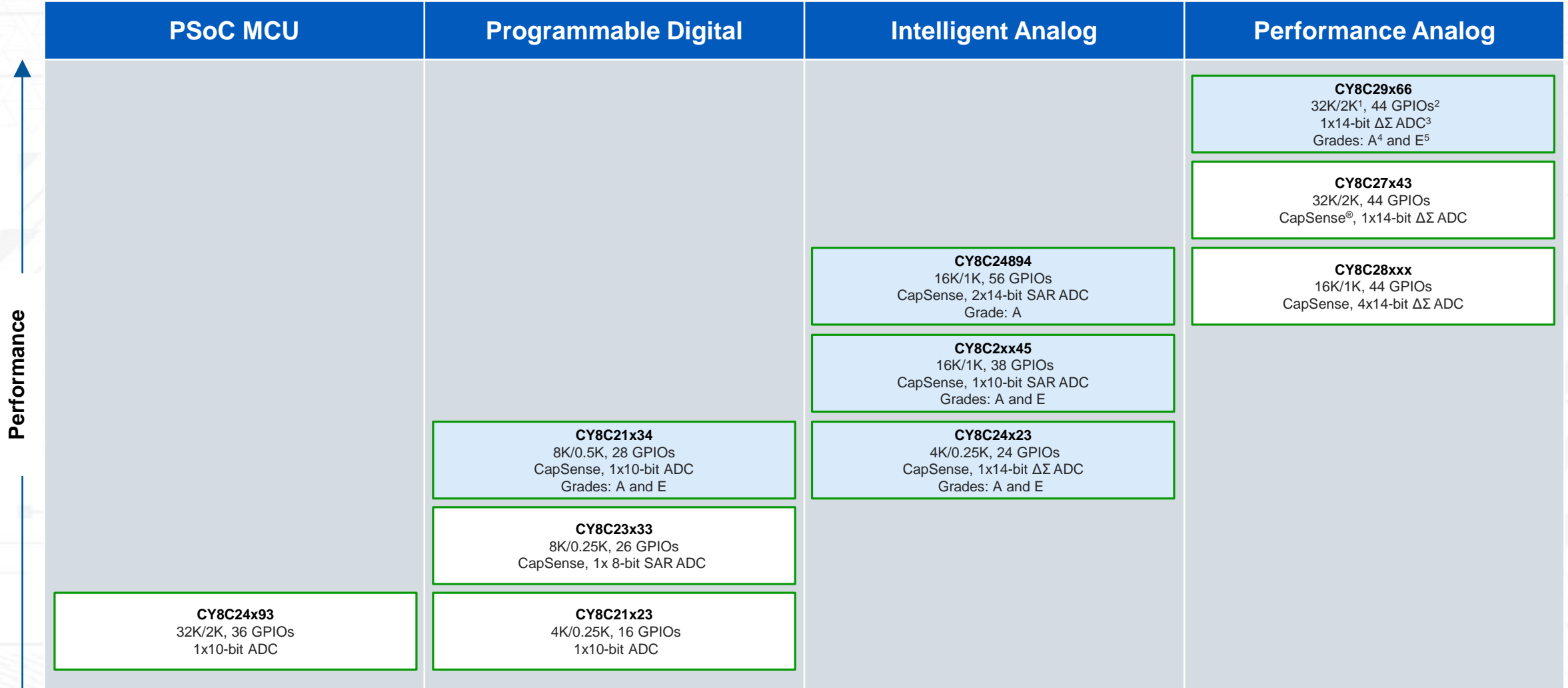
¹ A programmable analog block that is configured using PSoC software to create analog front ends, signal conditioning circuits with opamps and filters

² A programmable digital block that is configured using PSoC software to implement custom digital peripherals and glue logic



Automotive Portfolio: PSoC[®] 1

M8C CPU | 24 MHz



¹ Flash KB/SRAM KB

² General-purpose input/output pins

³ Analog-to-digital converter: Includes incremental, successive approximation register (SAR) or Delta-Sigma (ΔΣ) ADCs

⁴ AEC-Q100: -40°C to +85°C

⁵ AEC-Q100: -40°C to +125°C



Automotive Portfolio: PSoC[®] 4

Flexibility | CapSense[®] | Ease-of-Use

Flash	PSoC MCU PSoC 4000	Intelligent Analog PSoC 4100			Programmable Digital PSoC 4200	Sense Anything PSoC 4700
		S = S-Series	M = M-Series	L = L-Series		
		CY8C4127-M 24-MHz M0, 128K/16K NDA Contact Sales <small>Q119</small>	CY8C4127-S 24-MHz M0+, 128K/16K NDA Contact Sales <small>Q119</small>	CY8C4147-S 48-MHz M0+, 128K/16K NDA Contact Sales <small>Q119</small>	CY8C4148-S 48-MHz M0+, 256K/32K ¹ NDA Contact Sales	CY8C4248-L 48-MHz M0, 256K/32K CMP ² , Opamp, ADC SCB, IDAC ³ , UDB ⁴ , CAN ⁵ USB
		CY8C4126-M 24-MHz M0, 64K/8K NDA Contact Sales <small>Q119</small>	CY8C4126-S 24-MHz M0+, 64K/8K CMP, Opamp, ADC SCB, IDAC, Smart I/O Grades: A, S and E	CY8C4146-S 48-MHz M0+, 64K/8K CMP, Opamp, ADC SCB, IDAC, Smart I/O Grades: A, S and E	CY8C4147-S3 48-MHz M0+, 128K/16K NDA Contact Sales	CY8C4247-L 48-MHz M0, 128K/16K CMP, Opamp, ADC SCB, IDAC, UDB, CAN USB <small>Q119</small>
	CY8C4045-S 48-MHz M0+, 32K/4K CMP, ADC, SCB IDAC, Smart I/O Grades: A and S	CY8C4125 24-MHz M0, 32K/4K CMP, Opamp, ADC SCB, IDAC Grades: A ⁶ and S ⁷	CY8C4125-S 24-MHz M0+, 32K/4K CMP, Opamp, ADC SCB, IDAC, Smart I/O Grades: A, S and E		CY8C4246-M 48-MHz M0, 64K/8K NDA Contact Sales <small>Q119</small>	CY8C4246-L 48-MHz M0, 64K/8K CMP, Opamp, ADC SCB, IDAC, UDB, CAN USB
	CY8C4024-S 24-MHz M0+, 16K/2K CMP, ADC, SCB IDAC, Smart I/O Grades: A and S	CY8C4124 24-MHz M0, 16K/4K CMP, Opamp, ADC SCB, IDAC Grades: A and S	CY8C4124-S 24-MHz M0+, 16K/2K CMP, Opamp, ADC SCB, IDAC, Smart I/O Grades: A, S and E		CY8C4245 48-MHz M0, 32K/4K CMP, Opamp, ADC SCB, IDAC, UDB Grades: A and S	
	CY8C4014 16-MHz M0, 16K/2K CMP, I ² C, IDAC Grades: A and S				CY8C4244 48-MHz M0, 16K/4K CMP, Opamp, ADC SCB, IDAC, UDB Grades: A and S	CY8C47xx-S 48-MHz M0+, 32K/4K NDA Contact Sales <small>Q119</small>

¹ Flash KB/SRAM KB

² Comparator

³ Current-output DAC

⁴ Universal digital block

⁵ Controller area network

⁶ AEC-Q100: -40°C to +85°C

⁷ AEC-Q100: -40°C to +105°C



Automotive Portfolio: PSoC[®] Software¹

Software	PSoC Creator ^{TM2}	PSoC Designer ^{TM3}	PSoC Programmer ⁴	EZ-Click ^{TM5}
Current Version	4.2	5.4 SP1	3.28	2.0 SP2
PSoC 1		Production	Production	
PSoC 4	Production		Production	

Download the latest PSoC software version [here](#)

¹ All software and tool releases are backward compatible. The latest versions are recommended for new designs

² PSoC Creator is an Integrated Design Environment (IDE) that allows concurrent hardware and firmware design of PSoC 3 and PSoC 4 systems

³ PSoC Designer is an IDE that enables firmware design using a library of precharacterized peripherals for PSoC 1 systems

⁴ PSoC Programmer can be used with PSoC Designer and PSoC Creator to program and debug any design onto a PSoC device

⁵ EZ-Click is a Windows[®] GUI-based tool that enables development of CapSense MBR solutions. It allows you to set up sensor configuration, apply global system properties, monitor real-time sensor output, and run production-line system diagnostics

PSoC® 4000S-Series

PSoC MCU

Applications

User interface for infotainment systems, user interface for heating, ventilation, air conditioning

Features

- **32-Bit MCU Subsystem**
 - 48-MHz Arm® Cortex®-M0+ CPU
 - Up to 32KB Flash
 - 4KB SRAM
 - Real-time clock (RTC) capability with a watch crystal oscillator (WCO)
- **Programmable Analog Blocks**
 - One 10-bit, 46.8-kSPS single-slope analog-to-digital converter (ADC)¹
 - Two low-power comparators (CMP)
 - One CapSense® block that supports low-power operation with self- and mutual-capacitance sensing
 - Two 7-bit current-output digital-to-analog converters (IDAC) configurable as a single 8-bit IDAC
- **Programmable Digital Blocks**
 - Five 16-bit timer/counter/pulse-width modulation (TCPWM) blocks
 - Two serial communication blocks (SCB) that are configurable as I²C, SPI, UART or LIN Slave
- **Packages**
 - 24-pin QFN and 28-pin SSOP
- **I/O Subsystem**
 - Up to 24 GPIOs, including 16 Smart I/Os²

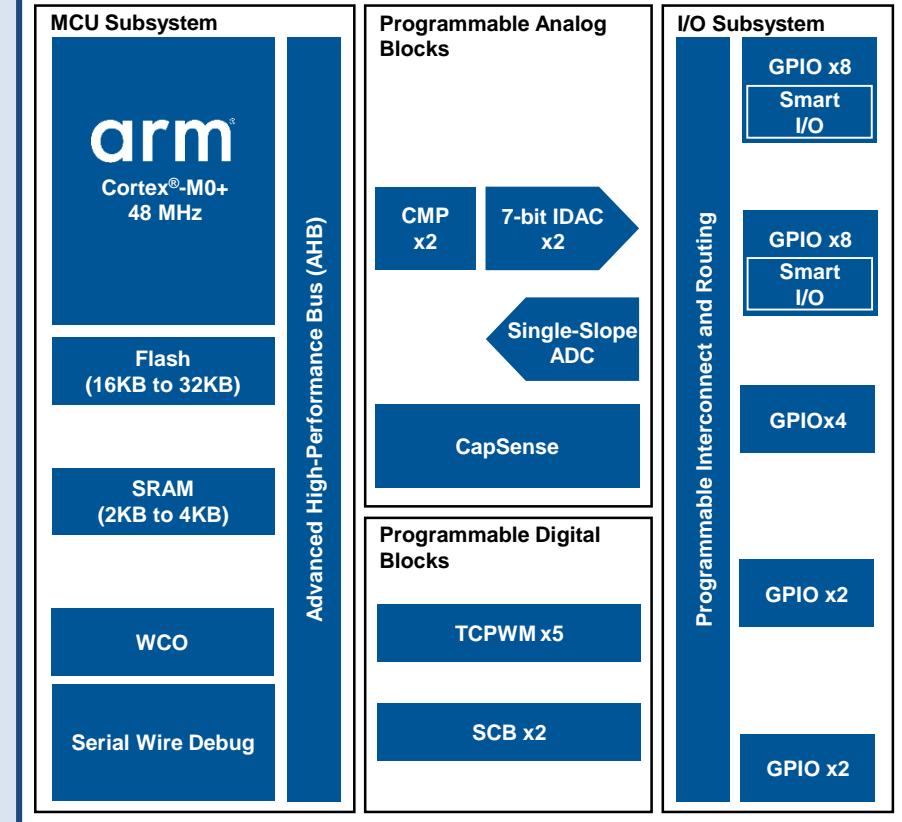
Collateral

Datasheet: [PSoC 4000S](#)

¹ A simple ADC used to measure slow-moving signals

² Embedded programmable digital logic in the I/O subsystem

PSoC® 4 One-Chip Solution



Availability

Sampling: Now

Production: Now

PSoC® 4100S-Series

Intelligent Analog

Applications

User interface for heating, ventilation, air conditioning, MCU and discrete analog replacement

Features

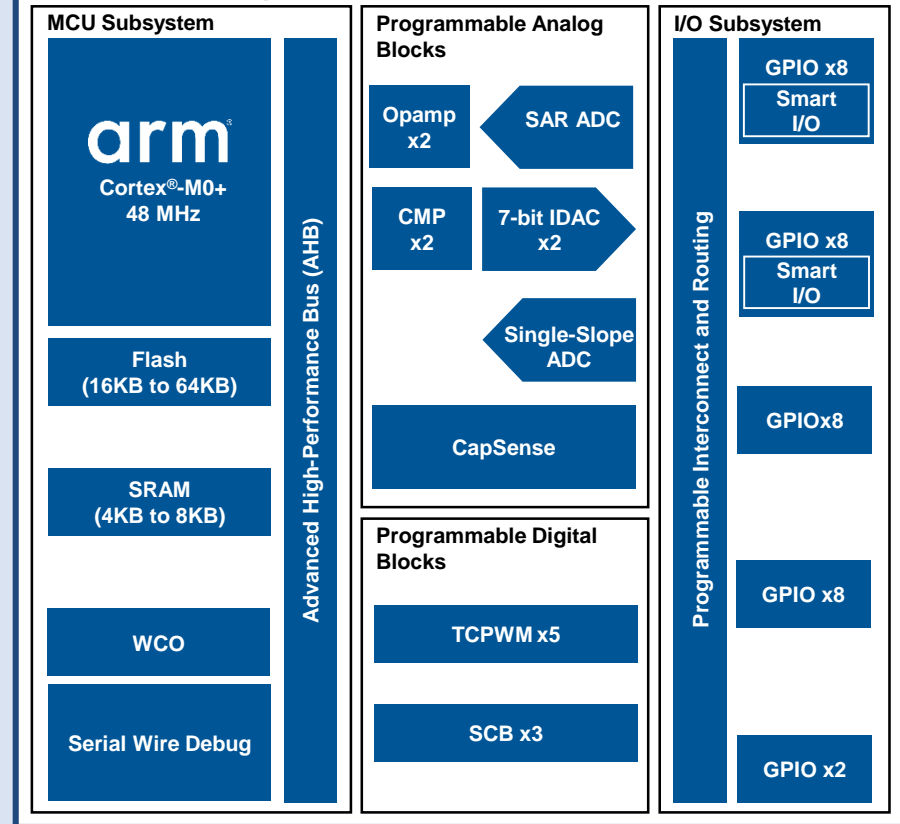
- **32-Bit MCU Subsystem**
 - 48-MHz Arm® Cortex®-M0+ CPU
 - Up to 64KB Flash
 - 8KB SRAM
 - Real-time clock (RTC) capability with a watch crystal oscillator (WCO)
- **Programmable Analog Blocks**
 - One 12-bit, 1-Msps successive approximation register (SAR) analog-to-digital converter (ADC)
 - One 10-bit, 46.8-kSPS single-slope ADC¹
 - Two opamps configurable as programmable gain amplifiers (PGA), comparators, etc.
 - Two low-power comparators (CMP)
 - One CapSense® block that supports low-power operation with self- and mutual-capacitance sensing
 - Two 7-bit current-output digital-to-analog converters (IDAC) configurable as a single 8-bit IDAC
- **Programmable Digital Blocks**
 - Five 16-bit timer/counter/pulse-width modulation (TCPWM) blocks
 - Three serial communication blocks (SCBs) that are configurable as I²C, SPI, UART or LIN Slave
- **Packages**
 - 28-pin SSOP and 40-pin QFN
- **I/O Subsystem**
 - Up to 34 GPIOs, including 16 Smart I/Os²

Collateral

Datasheet: [PSoC 4100S](#)

¹ A simple ADC used to measure slow-moving signals ² Embedded programmable digital logic in the I/O subsystem

PSoC® 4 One-Chip Solution



Availability

Sampling: Now

Production: Now

PSoC® 4100S Plus-Series

Intelligent Analog

Applications

User interface for HMI applications, Body Control and HVAC applications

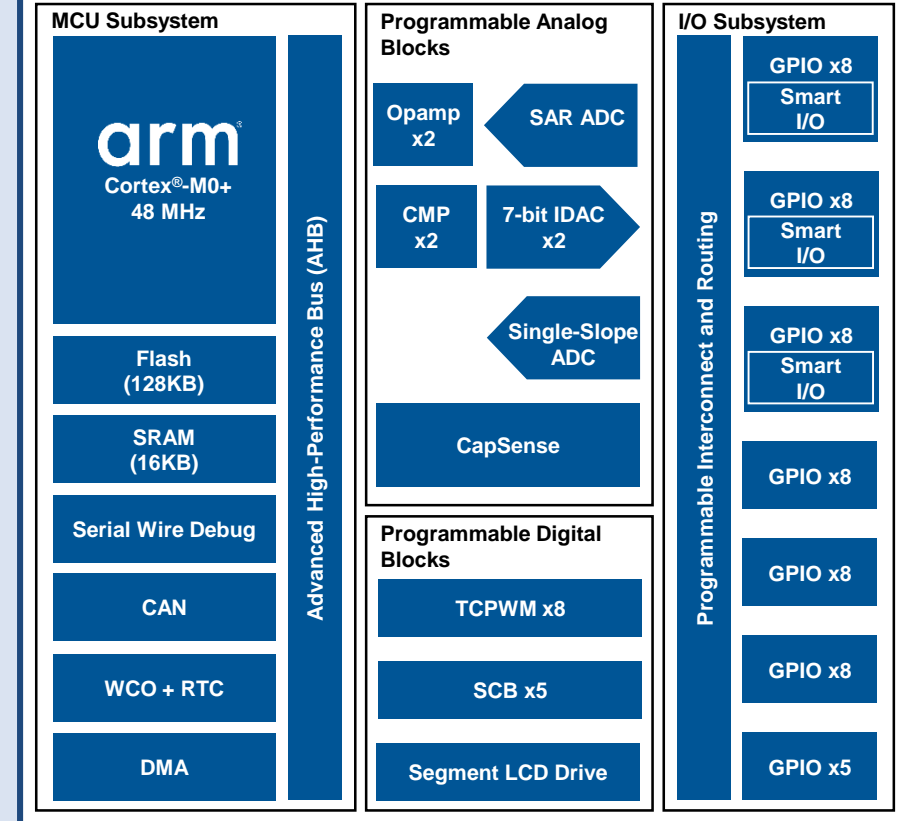
Features

- **32-Bit MCU Subsystem**
 - 48-MHz Arm® Cortex®-M0+ CPU with DMA controller and real-time clock (RTC)
 - 128KB Flash and 16KB SRAM
 - External MHz oscillator (ECO) with PLL and 32KHz watch crystal oscillator (WCO)
- **Programmable Analog Blocks**
 - One 12-bit, 1-Msps successive approximation register (SAR) analog-to-digital converter (ADC)
 - One 10-bit, 46.8-ksps single-slope ADC¹
 - Two opamps configurable as programmable gain amplifiers (PGA), comparators, etc.
 - Two low-power comparators (CMP)
 - One CapSense® block that supports low-power operation with self- and mutual-capacitance sensing
 - Two 7-bit current-output digital-to-analog converters (IDAC) configurable as a single 8-bit IDAC
- **Programmable Digital Blocks**
 - Eight 16-bit timer/counter/pulse-width modulation (TCPWM) blocks
 - Five serial communication blocks (SCBs) that are configurable as I²C, SPI, UART or LIN Slave
- **One Controller Area Network (CAN) Controller**
- **Packages**
 - 40-pin QFN and 64-pin TQFP
- **I/O Subsystem**
 - Up to 54 GPIOs, including 24 Smart I/Os²

Collateral

Datasheet: [Contact Sales](#)

PSoC® 4 One-Chip Solution



Availability

Sampling: 64-pin TQFP (Now), 40-pin QFN (Q2 2019)

Production: 64-pin TQFP (Q1 2019), 40-pin QFN (Q4 2019)

¹ A simple ADC used to measure slow-moving signals ² Embedded programmable digital logic in the I/O subsystem

PSoC® 4100M-Series

Intelligent Analog

Applications

User interface for HMI applications, body Control and HVAC applications

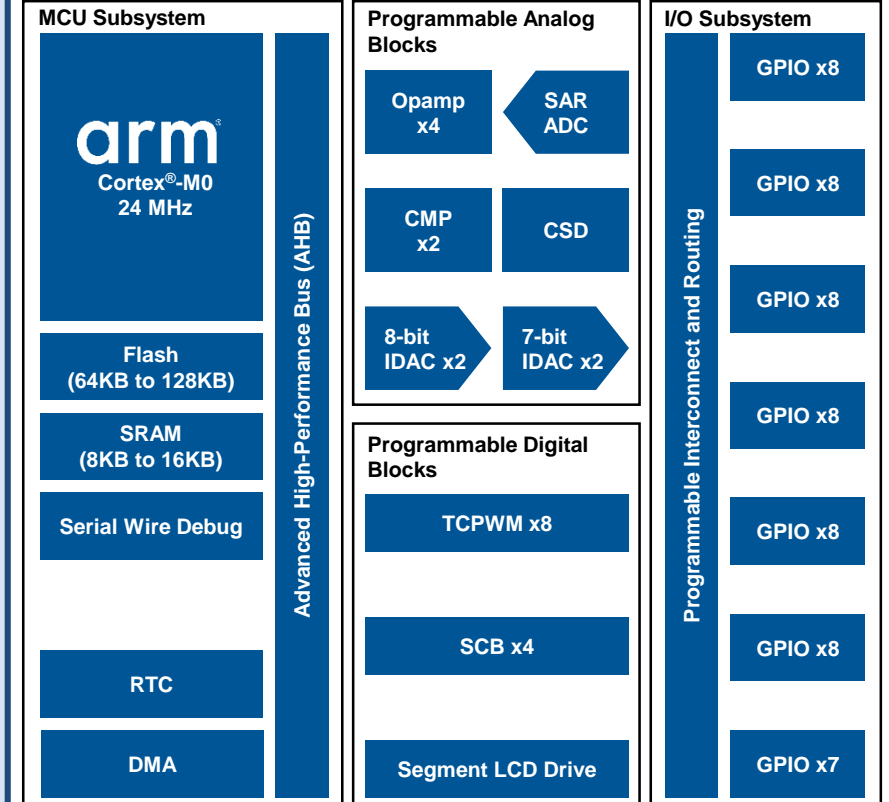
Features

- **32-bit MCU Subsystem**
 - 24-MHz Arm® Cortex®-M0 CPU with a DMA controller and real-time clock (RTC)
 - Up to 128KB Flash and 16KB SRAM
- **Programmable Analog Blocks**
 - Two comparators (CMP)
 - Four opamps, programmed as PGAs, CMPs, filters, etc.
 - One 12-bit/1-Msp/s successive approximation register (SAR) ADC
 - One CapSense® block with self- and mutual-capacitance sensing
 - Four (2x 8-bit, 2x 7-bit) current-output digital-to-analog converters (IDACs)
- **Programmable Digital Blocks**
 - Eight programmable 16-bit timer/counter/pulse-width modulation (TCPWM) blocks
 - Four serial communication blocks (SCBs) configurable as I²C master or slave, SPI master or slave, or UART
- **Packages**
 - 48-pin LQFP and 64-pin TQFP
- **I/O Subsystem**
 - Up to 51 GPIOs

Collateral

Datasheet: [Contact Sales](#)

PSoC® 4 One-Chip Solution



Availability

Sampling: Now

Production: Q1 2019

PSoC[®] 4200M-Series

Programmable Digital

Applications

User interface for HMI applications, body Control and HVAC applications

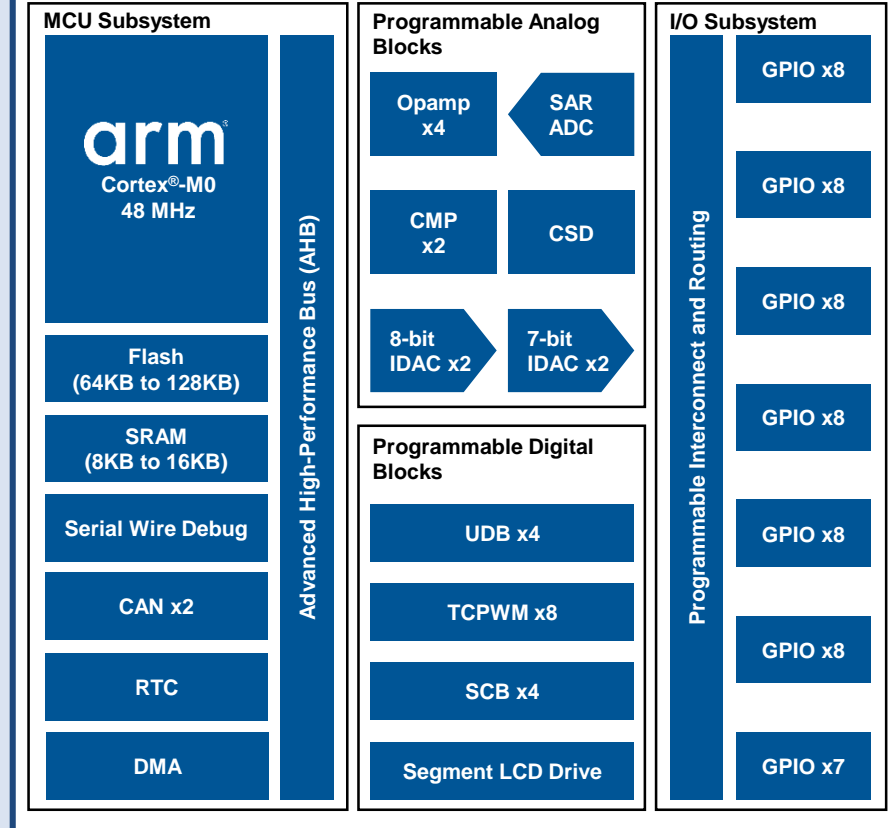
Features

- **32-bit MCU Subsystem**
 - 48-MHz Arm[®] Cortex[®]-M0 CPU with a DMA controller and real-time clock (RTC)
 - Up to 128KB Flash and 16KB SRAM
- **Programmable Analog Blocks**
 - Two comparators (CMP)
 - Four opamps, programmed as PGAs, CMPs, filters, etc.
 - One 12-bit/1-Msps successive approximation register (SAR) analog-to-digital converter (ADC)
 - One CapSense[®] block with self- and mutual-capacitance sensing
 - Four (2x 8-bit, 2x 7-bit) current-output digital-to-analog converters (IDACs)
- **Programmable Digital Blocks**
 - Four universal digital blocks (UDBs): custom digital peripherals
 - Eight programmable 16-bit timer/counter/pulse-width modulation (TCPWM) blocks
 - Four serial communication blocks (SCBs) configurable as I²C master or slave, SPI master or slave, or UART
- **Two Controller Area Network (CAN) Controllers**
- **Packages**
 - 48-pin LQFP, 56-pin QFN and 64-pin TQFP

Collateral

Datasheet: [Contact Sales](#)

PSoC[®] 4 One-Chip Solution



Availability

Sampling: Now

Production: Q1 2019

Automotive PSoC Packages

Family	Package	QFN			SOIC	SSOP		
	Pins	24	40	56	16	20	28	48
	Body Size (mm)	4 x 4	6 x 6	8 x 8	3.8 x 9.9	5.3 x 7.3	5.3 x 10.3	7.5 x 15.8
	Pitch (mm)	0.5	0.5	0.5	1.27	0.65	0.65	0.635
PSoC 1	2XX45						✓	✓
	21X34					✓	✓	
	24X23					✓	✓	
	24894			✓				
	29X66						✓	✓
PSoC 4	4000	✓			✓			
	41/42XX						✓	
	40XXS	✓ ¹					✓	
	41XXS		✓ ¹				✓	

¹ Wettable flanks package to allow automated optical inspection (AOI)



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