

# CYPRESS AUTOMOTIVE SOLUTIONS



DIFFERENTIATION, RELIABILITY, AND SAVINGS  
WITH CUTTING-EDGE TECHNOLOGIES



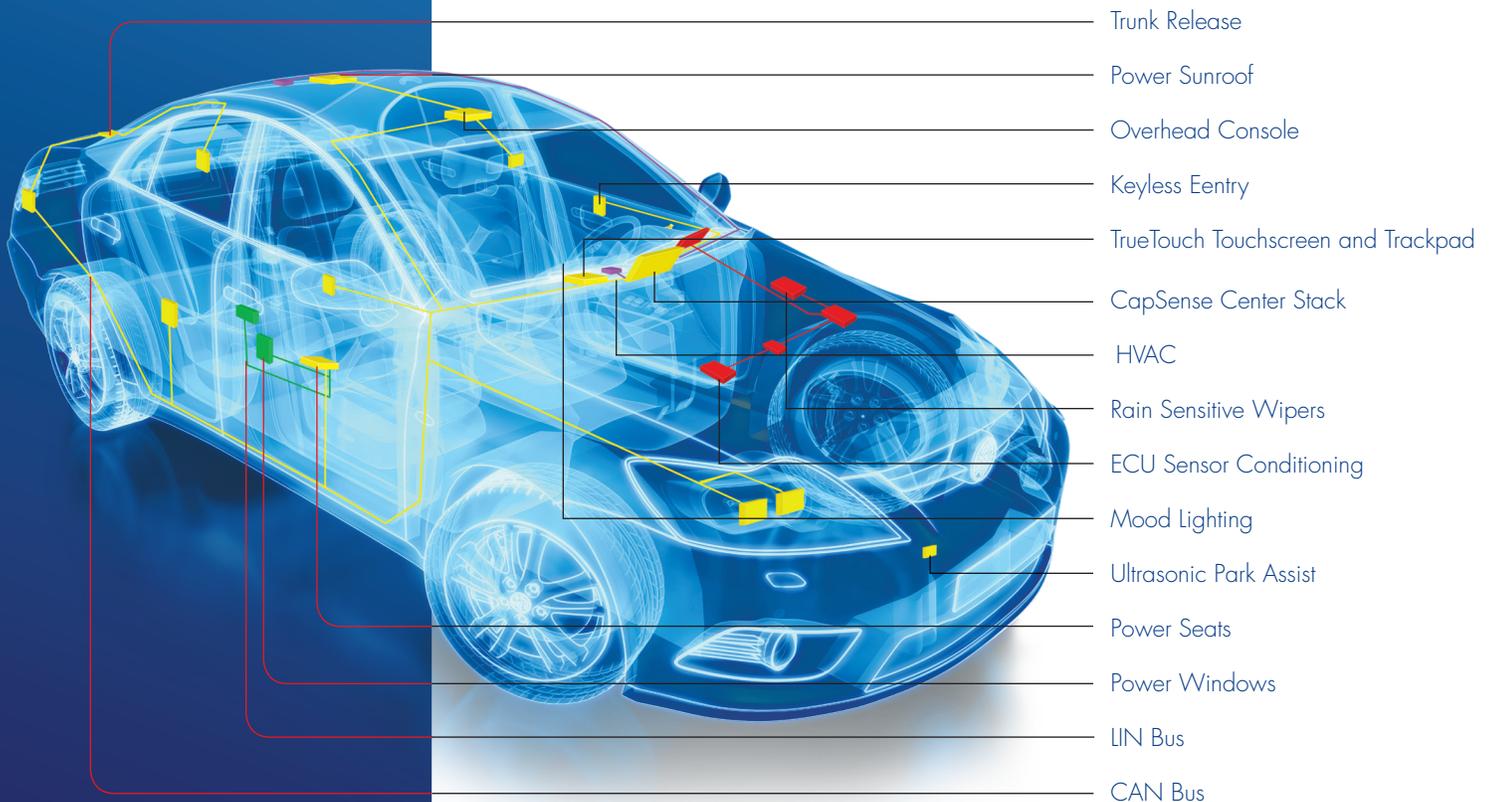
## COMMITMENT TO QUALITY

- ISO/TS 16949 quality management systems
- Product qualifications to AEC Q100
- Dedicated A-grade (-40°C to +85°C) and E-grade (-40°C to +125°C) parts
- Zero-defect manufacturing processes
- Extended Process Change Notification (PCN) to accommodate automotive cycles
- Long product lifecycles
- Mature technologies
- Dedicated quality managers

## DISCOVER A BROAD RANGE OF RELIABLE, HIGH-QUALITY AUTOMOTIVE PARTS

Demand nothing less than the best for your groundbreaking automotive designs. For ten years, Cypress solutions have been designed into some of the most demanding automotive applications, including engine control. Now, Cypress offers a broad portfolio of automotive-quality A-grade and E-grade products for use in body electronics or under the hood:

- PSoC® Programmable System-on-Chip devices
- CapSense® capacitive touch-sensing solutions
- TrueTouch® touchscreen solutions
- Memory and nonvolatile memory devices
- Timing solutions
- USB solutions





# THE FUTURE IS AT YOUR FINGERTIPS

Revolutionary touch and proximity solutions make traditional HMI interfaces a thing of the past.

Enhancing the driver experience just got a lot easier with Cypress's PSoC-based CapSense and TrueTouch technologies. PSoC provides flexible, efficient means for implementing highly differentiated and reliable capacitive sensing, proximity detection, and capacitive touchscreen solutions with a single chip. Around the globe, these innovations are making the driver experience safer and more intuitive.

As market leader, Cypress makes it easy for designers to merge new features with pre-existing mechanical platforms for functionality enhancement and vastly improved touchpad input devices.

CREATE SUPERIOR  
NEXT-GENERATION CAPACITIVE  
TOUCH-BASED APPLICATIONS  
WITH TRUETOUCH AND CAPSENSE PRODUCTS

## CapSense-enabled Steering Wheel Controls

Why have mechanical buttons and sliders? Controls that can wear down are now replaced by CapSense "buttons" that never wear out.

## Proximity-sensing Dimmer

Put your hand in the door's map pocket and a light turns on. Place your hand near a control panel or touchscreen and the backlight illuminates surroundings so you can see the controls better.

## TrueTouch-/CapSense-enabled Touchpad

Who needs buttons when you can simply point where you want to go? Trackpads powered with Cypress solutions support character recognition algorithms for a more intuitive user interface.

## CapSense-enabled Keyless Entry

Starting your car could be as easy as a touch.

## CapSense-enabled HVAC

Adjust the comfort level inside your vehicle with a single touch.

## TrueTouch-enabled Center Console

Touch an enhanced button to pop-up a menu, press it to activate. Or with button replacement, intuitively use your fingertips to quickly adjust temperature, change audio volume, or select a location on the map.



## LEADERSHIP YOU CAN TRUST

Drivers want safer, simpler access to everything that their vehicle offers: navigation, entertainment, mirrors, HVAC, dome lights, passive keyless entry and other applications. That's why so many of the world's leading vehicle OEMs and suppliers choose Cypress's capacitive touch-sensing, touchscreen and proximity-sensing solutions.

Cypress is the leader in automotive capacitive sensing solutions helping our customers revolutionize the HMI landscape. Our best-in-class solutions are backed by dedicated business-unit support, so rest assured you'll get the world-class service you deserve.

### CapSense-enabled Center Console

Add style and elegance to information and entertainment systems with buttonless, touch- or proximity-activated CapSense controls.

### CapSense-enabled Seat & Window Controls

Be as comfortable as you'd like with controls that never wear out.

CapSense HVAC Panel

## THE INDUSTRY LEADER

- Free your designers with superior product differentiation.
- Widest portfolio of touchscreen solutions in automotive with qualified devices available.
- Single chip solutions to support large multi-touch all point touchscreens.
- Enjoy greater reliability since CapSense buttons have no moving parts.
- Complement or expand the functionality of traditional mechanical interfaces.
- Remove all mechanical components and restrictions imposed by mechanical designs such as curvatures, overlay material, and the manufacturability of complex designs.
- Configurable solutions which reduce tuning effort effectively shortening design cycles.



## MEMORY APPLICATIONS

- ECU
- Body control units
- Navigation
- Dashboard
- Cluster
- GPS module
- Digital tachograph
- Satellite radio
- Audio equipment
- On-board computer
- Data logger
- Infotainment

### NONVOLATILE SRAMS: THE AUTOMOTIVE "BLACK BOX" ADVANTAGES

- Critical and fast data storage (20 years data retention)
- Directly replaces SRAM, battery-backed SRAM
- RoHS compliant
- No data loss from electrical noise
- Smaller footprint than competing technologies
- Unlimited read, write and recall cycles
- 25 ns access time

# MEMORY, USB, AND TIMING SOLUTIONS

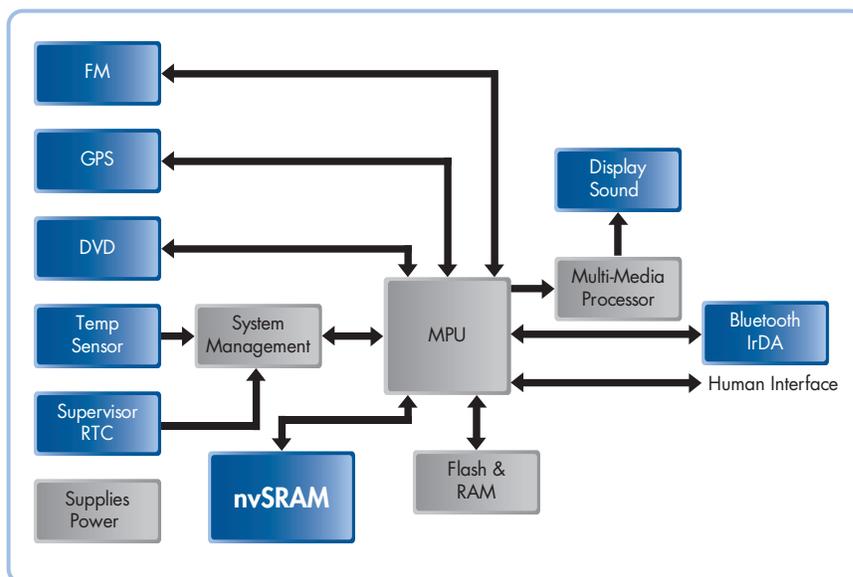
Cypress is committed to your long-term automotive memory needs with more than 25 years of technology innovation and the broadest product portfolio in the industry. If you need a Cypress part that is not currently A- or E- qualified, please contact us so we can add it to our roadmap.

## SRAM

Cypress provides SRAM portfolio from 256 Kbit to 4 Mbit for its fast asynchronous memories and 64 Kbit to 16 Mbit for its low-power asynchronous memories. The products are available in industry-standard voltage, bus width, and package options. Cypress's low-power MoBL™ SRAMs are ideal for ECUs, TCUs, infotainment systems, dashboard clusters, and other applications.

## NONVOLATILE SRAM

The automotive market is rich with applications such as event data recorders (EDR), infotainment devices, body electronics, and power train. These include transaction logs, data logs, configuration and setting updates based on changing performance and temperature - all of which needs a dependable solid state nonvolatile fast SRAM solution such as nvSRAM. Cypress plans to offer nvSRAM in automotive with a Parallel variant in 4 Mbit and Serial variants in 1 Mbit, 256 Kbit, and 64 Kbit densities.



Infotainment System

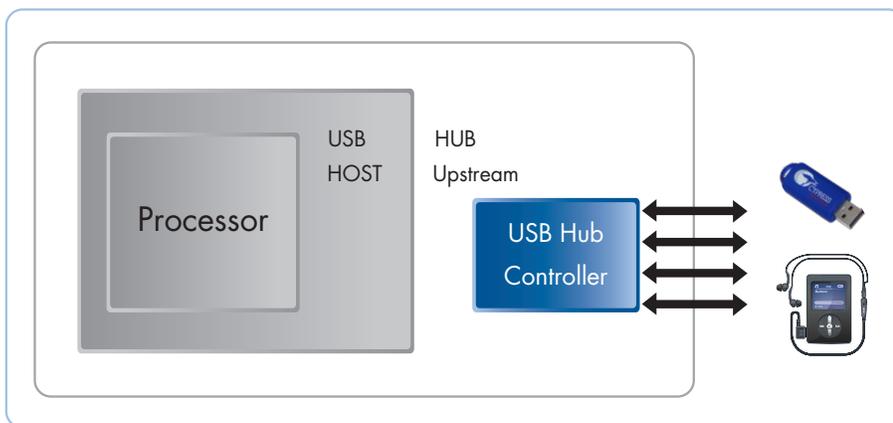
## USB SOLUTIONS

Cypress is the market leader in USB. With the industry's most comprehensive portfolio USB devices can be qualified into automotive based on customer requirements.

Our current portfolio of devices in automotive includes:

- **USB Embedded Full Speed Hosts:** EZ-Host is the world's first automotive qualified multiport Full-Speed USB host/peripheral controller. A 16-bit RISC processor enables EZ-Host to act as a co-processor or operate in standalone mode. Two built in host/peripheral serial interface engines (SIEs) and four USB transceivers enable up to four downstream ports in host mode, and two peripheral ports in peripheral mode.
- **USB Embedded High Speed Hubs:** This is the world's first automotive-qualified, low-power USB 2.0 hub controller with two and four port variants. It is a mature product that has seen a number of design wins in infotainment systems enabling USB connectivity to multiple consumer devices.

We also plan to qualify our West Bridge® controllers into automotive devices. West Bridge controllers are multimedia mass storage controllers based on Cypress's Simultaneous Link to Independent Multimedia (SLIM™).



## TIMING SOLUTIONS

Cypress has a broad portfolio of clock devices catering to every unique system timing requirement that can be easily qualified into automotive. Our current/planned portfolio of automotive clocks includes:

- **Zero Delay Buffers:** Industry standard 5 output zero delay buffers, best performance providing more timing margin and better reliability for your systems.
- **Clock Generators:** The plan is to qualify clock generator multi-output devices, which can produce all of the system's frequencies using a single first order, low-cost crystal.

## USB PRODUCTS

- Bridges
- USB Embedded Hosts
- USB High-speed Peripherals
- USB Hubs

## MEMORY PRODUCTS

- Fast SRAMs
- MicroPower™ SRAMs
- Nonvolatile Memory
- Sync SRAMs

## TIMING PRODUCTS

- Zero Delay Buffers
- Clock Generators
  - EMI
  - PCI Express
  - Programmable Clocks



# CONTACT US

## CYPRESS HEADQUARTERS

### Cypress Semiconductor Corporation

198 Champion Court  
San Jose, CA 95134 USA  
Tel: +1 (408) 943-2600  
Fax: +1 (408) 943-6848  
Toll-free: +1 (800) 858-1810 (U.S. only)

[www.cypress.com](http://www.cypress.com)

## FOR MORE INFORMATION ON AUTOMOTIVE SOLUTIONS:

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## ABOUT CYPRESS

Cypress delivers high-performance, mixed-signal, programmable solutions that provide customers with rapid time-to-market and exceptional system value. Cypress offerings include the PSoC Programmable System-on-Chip, USB controllers, general-purpose programmable clocks, and memories. Cypress also offers wired and wireless connectivity solutions ranging from its CyFi low-power RF solution, to West Bridge and EZ-USB FX2LP controllers that enhance connectivity and performance in multimedia handsets. Cypress serves numerous markets, including consumer, computation, data communications, automotive and industrial. Cypress trades on the NYSE under the ticker symbol CY.

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