



CYPRESS AUTOMOTIVE SOLUTIONS

Driving the future automotive experience

WWW.CYPRESS.COM/AUTOMOTIVE



REIMAGINING PERSONAL TRANSPORTATION

Imagine a car that looked less like a utilitarian mode of transportation and more like a living room on wheels; where the dashboard is integrated into the entertainment system, and there's no need for a steering wheel. What if you could watch a movie, take a nap, read a book, or close a business deal, while comfortably sitting in traffic—all while knowing you will arrive safely and well-rested?

This is how Cypress sees the future of personal transportation, and why we are working with top global automotive brands to make it happen. Every day, our customers rely on Cypress technology to deliver amazing experiences for passengers while simultaneously adapting to changing road conditions and preventing accidents.

AUTOMOTIVE TRENDS



PERSONALIZATION

Greater integration with the Cloud, connecting home to car, adaptive user interfaces, and personalized profile settings triggered by biometrics or passive entry technology



TECHNICAL CONTENT

More processing (compute) power will be needed to make advanced auto technology easy to use.



SECURITY

Encryption that prevents your car from being hacked and that protects your profile data.



SYSTEMS INTEGRATION & AUTOMATION

The integration of systems and ADAS advances that will lead to more autonomous vehicles on the road.



CONNECTIVITY AND COEXISTENCE

Enabling multiple, connected wireless devices to work inside and outside the car for flawless V:V / V:I communications.



SAFETY

Continued advances in data capture, recovery and response in ADAS systems, enabling new features, such as drowsy driver alerts.



DIAGNOSIS AND PREVENTION

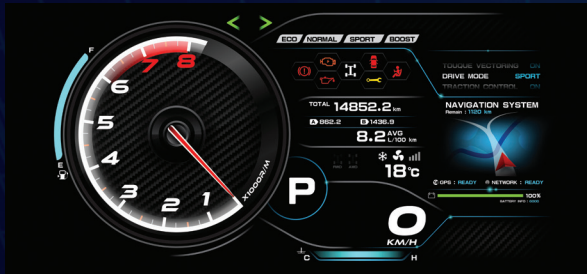
Continuous remote monitoring of vehicle systems and FOTA updates

From personalized entertainment to custom applications, our solutions meet the highest automotive quality and reliability standards, giving OEMs the inspiration to deliver an incredible range of choices to consumers and transform the expectations of what a vehicle can become. Outside the car, we're speeding the industry transition to autonomous driving with world-class connectivity solutions for fast, reliable communication between passengers, the car, the cloud and the real-time transportation infrastructure of the future.

Below are some key automotive trends that our connect, compute, and mission-critical storage technologies will enable in the years ahead.



DELIVERING SAFETY, COMFORT & CONNECTIVITY



INSTRUMENT CLUSTER

Cypress instrument cluster solutions include Traveo and PSoC microcontrollers that drive 2D and 3D graphical displays and enable I/O expansion; as well as PMIC devices for power management. Additionally, Cypress' Flash devices are used to protect display data and provide instant-access on system startup.



INFOTAINMENT

Cypress is a leading supplier of wireless and wired connectivity solutions. Our RSDB + Bluetooth wireless solution allows multiple dual-band Wi-Fi and dual-mode Bluetooth devices to simultaneously stream video and audio content. For wired connectivity, Cypress' USB-C technology provides power delivery charging and connectivity for head units and rear-seat entertainment systems. Cypress is also the No. 1 supplier of automotive TrueTouch products.

INSTRUMENT CLUSTER

- 2D and 3D Displays
- Heads-Up Display
- Data Protection
- Power Management

MONITORING & TELEMATICS

- LTE Offload
- Media Services
- OTA Updates

ADAS/DRIVER ASSISTANCE

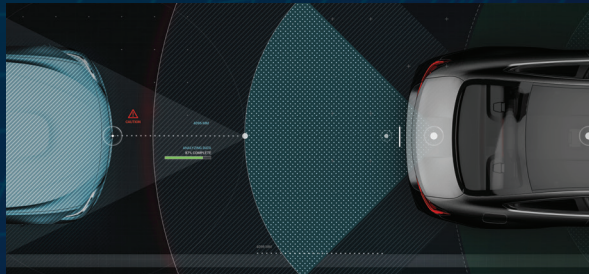
- Lane Departure Warning
- Front View Cameras
- Event Data Recorder
- Vision Systems

EVENT DATA RECORDERS

- Airbag data logger
- Automotive "Black Box"



For more than 20 years, Cypress has been working with most major Tier-one automotive system suppliers and OEMs. Today more than one-third of Cypress' business comes from the automotive market. From personalized entertainment to body electronics applications, our solutions meet the highest automotive quality and reliability standards, giving OEMs the ability to deliver an incredible range of features and choices to consumers. Four key areas that are driving growth for Cypress in the automotive space are Infotainment, Instrument Cluster, Body Electronics, and ADAS.



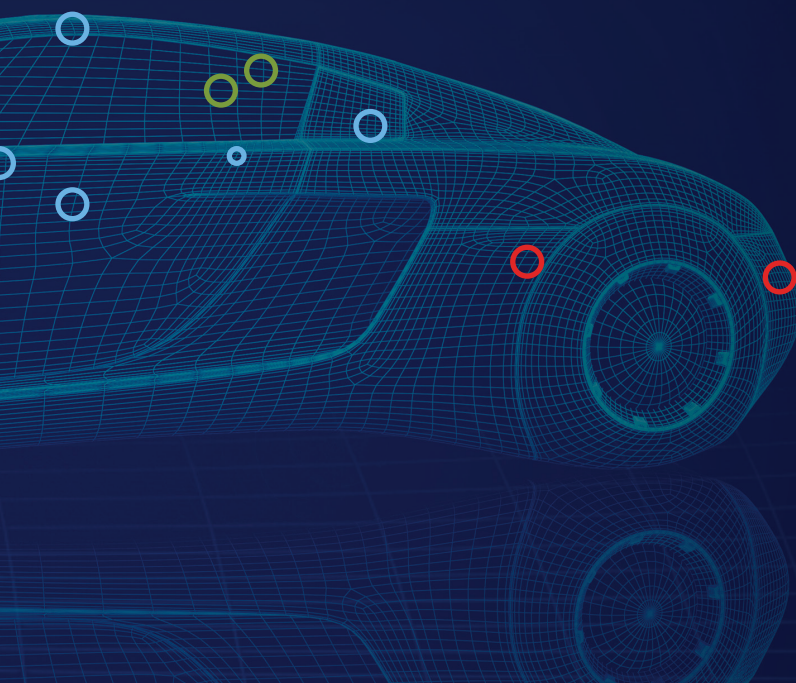
ADAS/SAFETY SYSTEMS

Cypress' mission-critical memory, MCU, PMIC, and wireless solutions are used in front-view cameras, lane-departure warning systems, vision systems, and black-box applications today and are critical technologies for enabling autonomous driving in the future.



BODY ELECTRONICS

Cypress' CapSense, TrueTouch, Traveo II and PSoC microcontrollers, wireless Bluetooth, and memory devices are deployed in a wide array of body electronics applications, ranging from HVAC control to lighting systems, gateway systems, keyless entry, and fingerprint detection.



INFOTAINMENT

- Touchscreen
- Rotary knob
- Wireless Connectivity & RSDB
- Wired Connectivity

POWER TRAIN

- Battery Management System (EV)
- Engine Management

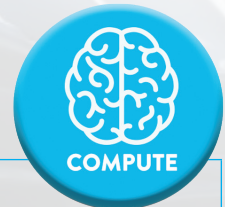
BODY ELECTRONICS

- HVAC Control
- Lighting Systems
- Gateway Systems
- Fingerprint
- Keyless Entry
- Tire Pressure Monitoring
- Parking Assist

BROAD PORTFOLIO: COMPUTE & CONNECT

Cypress' broad portfolio of AEC-Q100-qualified solutions includes flexible, Arm-based microcontrollers for power management, driving displays, interpreting sensor data, and enabling state-of-the-art human interfaces. Our storage solutions enable instant-on access and “black-box” protection of mission-critical data.

COMPUTE



Microcontroller Solutions	
Traveo, Traveo II	Automotive MCUs based on Arm® Cortex® cores that deliver high performance, enhanced human-machine interfaces, high-security and advanced networking protocols for many applications, including body electronics, infotainment, and automotive cluster displays.
PSoC 6, PSoC 4	A family of Arm-based programmable, embedded SOCs, integrating configurable analog and digital peripheral functions, memory, and a microcontroller on a single chip.
PMIC	Power management ICs (PMICs) help prevent system blackouts and reduce standby current of always-on functions.
Human-Machine Interface and Sensing	
CapSense	Brings an elegant, reliable, and easy-to-use capacitive touch sensing interface to a wide array of automotive applications.
TrueTouch	Touchscreen controllers deliver best-in-class performance to automotive touchscreens, with full multi-touch, glove-touch, hover, and gesture capabilities.
Fingerprint Sensing	Superior imaging and pattern-matching performance offers everything needed to efficiently design and integrate user authentication into cars.
Liquid-Level Sensing	Uses CapSense technology to monitor automotive liquid levels.

STORAGE



Memory Solutions	
Semper Flash	Failsafe flash memory that exceeds automotive quality and functional safety requirements. Semper protects people by ensuring that critical systems always have access to complex system codes and algorithms.
Excelon F-RAM	Offers read/write endurance of 100 trillion cycles to log data continuously for 15-20 years at 85°C. Ideal for automotive black box applications.

CONNECT



Wireless Connectivity	
Wi-Fi and Bluetooth Combo Solutions	Cypress' industry-leading, automotive-qualified, WiFi and Bluetooth combo solutions power the infotainment and telematics systems in today's connected cars. Cypress automotive connectivity solutions allow drivers and passengers to easily sync and stream content from mobile devices to the car's infotainment system and rear-seat displays, while enabling high-speed connectivity beyond the vehicle. Our Wi-Fi Real Simultaneous Dual Band (RSDB) solutions provide simultaneous operation in both 2.4GHz and 5GHz bands delivering the bandwidth and architecture required without relying on cellular data service.
Bluetooth Solutions	Cypress' automotive Bluetooth solutions are ideal for a variety of body control applications, such as keyless entry, phone as key, parking automation, tire-pressure monitoring, and remote sensors control.
Wired Connectivity	
USB-C / Power Delivery	Cypress' industry-leading USB-C provides power-delivery charging and connectivity for head units and rear-seat infotainment systems.

HIGHEST-QUALITY PRODUCTS



Cypress' automotive-grade products adhere to the most-stringent standards in the industry:

- All automotive products qualified to AEC-Q100 standards
- Firmware development process certified by TÜV SÜD ensuring ISO 26262 compliance for functional safety
- Manufacturing and support operations certified to the automotive industry's highest standards for quality management, IATF 16949:2016 and ISO 9001:2015
- Broad portfolio of automotive temperature grades—Grade 3 (-40°C to +85°C), Grade 2 (-40°C to +105°C), Grade 1 (-40°C to +125°C)
- Strict, zero-defect manufacturing and test processes
- Manufacturing sites carefully monitored and controlled
- Aggressive data-screening methodologies and 99.5% stuck-at fault test coverage
- True root-cause and corrective action methods with maximal read-across
- Production Part Approval Process (PPAP) capable
- Commitment to long product life-cycles and continuity of supply

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

CYPRESS ONLINE STORE

www.cypress.com/go/buyonline

CYPRESS DEVELOPER COMMUNITY™

www.cypress.com/go/community

FOR MORE INFORMATION ON AUTOMOTIVE SOLUTIONS:

www.cypress.com/go/automotive

REGISTER FOR HANDS-ON WORKSHOPS AT:

www.cypress.com/go/training

CYPRESS EDUCATION— UNIVERSITY ALLIANCE

www.cypress.com/go/university

ONLINE TECHNICAL SUPPORT

www.cypress.com/go/support

CYPROS® CERTIFIED CONSULTANTS

www.cypress.com/go/cypros

ABOUT CYPRESS

Cypress is the leader in advanced embedded system solutions for the world's most-innovative automotive, industrial, home automation and appliances, consumer electronics and medical products. Cypress' programmable and general-purpose microcontrollers, analog ICs, wireless and USB-based connectivity solutions and reliable, high-performance memories help engineers design differentiated products and get them to market first. To learn more, go to www.cypress.com.

