Supports acoustic and haptic feedback control

At CES 2018, Cypress has introduced the Truetouch CYAT817 family. The AEC-Q100-qualified chips feature CAN and LVDS connectivity.

The CYAT817 supports two standard host interfaces such as I ^{2}C and SPI as host interfaces, along with a CAN interface for either higher system integration or to implement redundancy for safety relevant applications per ISO 26262 (Photo: Cypress)

"Car makers' requirements for the infotainment user interface are significantly different from those of consumer electronics touchscreens, but up until now, touchscreen solutions have been developed primarily for the consumer market and only qualified later to meet automotive requirements," said Dr. Jing Mu, Senior Director of Automotive HMI marketing at Cypress. "Cypress designed the Truetouch CYAT817 family from the start with a focus on providing automotive-grade quality and enabling the ultimate user experience for in-vehicle applications. This integrated solution demonstrates our market leadership with best-in-class response times, unmatched features in a single device and lower system costs compared to multi-chip implementations."

Cypress designed the touchscreen controller family specifically to meet rigorous automotive quality standards. The family offers an advanced hover capability that can detect a finger up to 35 mm above the screen and a force touch capability that provides accurate measurement of the pressure applied by multiple independent fingers. The family's integrated acoustic and haptic feedback control provides faster response times for a better user experience compared to systems where the processing of a touch and pressure applied are not measured on-chip. The chips come in 128-pin or 100-pin TQFP packages. Samples are already available; volume product is planned for the second quarter of 2018.

The touchscreen controller implements its Hover and Force Touch features while meeting automotive electromagnetic interference (EMI) and electromagnetic compatibility (EMC) requirements. With a power-efficient 32-bit Cortex-M processor and optimized analog front-end, each controller can replace the mechanical on/off button of an infotainment system with a capacitive touch sensor, enabling sleek, modern interior designs. The products deliver faster response times by integrating decision and control processing on-chip for acoustic and haptic feedback so that systems are no longer required to transmit data on a touch input via CAN (Controller Area Network) or LVDS (Low-Voltage Differential Signaling) backchannels for distributed implementations to be processed in the head-unit.

The control chips protects against hacking with a cryptographic engine that securely encrypts communication with the head-unit, preventing unauthorized access of touch data containing sensitive user information that could allow reverse engineering of PINs or passwords. The products meet the EMC requirements for chip-level emissions (IEC 61967), conducted (IEC 62132), and radiated (ISO 11452) immunity, as well as for system-level (CISPR 25) specifications. They use automatic frequency hopping to prevent false touches caused by EMI from other electronic systems, and it uses TX frequency spreading to reduce electromagnetic emissions by up to 30 percent.

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