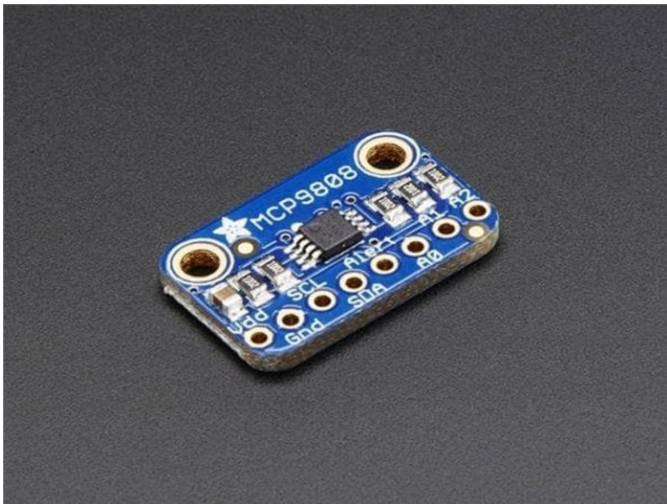


I2C, SPI Buses Get Update After 35 Years

Written by Marco Attard
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It is a fact older technologies are either forgotten or remain in use by industry. Two examples are the I2C (Inter Integrated Circuits) and SPI (Serial Peripheral Interface) communication buses, which only now are receiving an update in the shape of the I3C protocol.



I2C was created in 1982, while the older SPI was born in 1979. The two buses drive short-range communications between circuits and microcontrollers, and remain the key interfaces for sensor-related communication in smart devices, wearables and computers. But such buses cannot handle the requirements of today's bandwidth-hungry sensors, bringing about the need for an update. Enter I3C, a bus combining I2C and SPI created by body in charge of interface specifications for mobile and mobile-influenced interfaces, the MIPI Alliance.

The I3C specification is implemented on a standard CMOS I/O using 2 wires. It achieves clock rates of up to 12.5MHz, with options for higher performance, high-data rate modes, and uses a "fraction" of the power while providing more bandwidth compared to I2C. As such it should be suitable for any low-to-medium bandwidth devices, such as accelerometers, touchscreens, time-of-flight cameras, sonic/ultrasonic sensors, transducers and actuators, and can also interface sensors used in NFC, haptics feedback and IR/UV sensing.

"The unified approach of MIPI I3C provides many strategic advantages for developers," the alliance says. "For example, with MIPI I3C, most types of I2C devices can coexist with I3C devices on the same bus, enabling vendors to migrate current I2C designs to the new standard. Likewise, newly designed MIPI I3C devices can work on existing legacy I2C buses."

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