# I/O Expanders

Microchip Technology Inc. announced today its expansion into the low-end or &quotthin client&quot Controller Area Network (CAN) applications market with its family of Input/Output Expanders supporting the CAN protocol. With the increase in network subsystems being networked together for size, cost and reliability issues, there is a need for devices that do not require full support by a Higher Layer Protocol (HLP), as, for example, is the case with small remotely located smart sensors or actuators. Microchip is currently the only semiconductor manufacturer to offer a small-packaged, full-featured, cost-effective alternative to microcontroller-based solutions with its family of MCP250XX I/O Expanders.

Designed to enable system designers to implement simpler CAN nodes without microcontrollers, the MCP25050 and MCP25055 Mixed-Signal I/O Expanders and the MCP25020 and MCP25025 Digital CAN I/O Expanders are an alternative to microcontroller-based &quotthin client&quot solutions that help save overall system costs and board space.

**Implementing CAN Nodes without an MCU**

These small 14-pin package devices have full CAN 2.0B Active capability, enabling transmits and receives of both standard and extended frames at up to 1 Mbps. Functionality includes eight input/output pins that can be user-configured as inputs or outputs. Analog input capability exists on selected versions with up to four 10-bit analog-to-digital converters. The devices can be configured to automatically transmit CAN messages on changes of either analog or digital inputs. On the output side, the CAN messages can be received to change pin states or PWM output frequencies. All of this user-configurable functionality in a small package is designed to enable cost-effective &quotthin client&quot CAN implementations.

**A One-Wire CAN Communication Option**

The MCP25025 and MCP25055 feature connected RxCAN and TxCAN pins for one-wire communication, providing a simple way to connect a small number of nodes together in applications that do not require the utilization of industry standard CAN transceivers. For these types of applications a complete CAN node can then be implemented using only a single Microchip CAN I/O Expander.

The MCP250XX devices can be placed in systems and then configured using Microchip's In Circuit Serial Programming&#153 (ICSP&#153) technology. This offers tremendous flexibility, reduces development time and manufacturing cycles and improves time to market. ICSP enables system calibration during manufacturing and the addition of unique identification codes to the system and calibration of system in the field. Once a node using one of Microchip's CAN I/O Expanders is configured and running on a CAN bus, it can be reconfigured through CAN bus messages if the system deems it necessary. This functionality can be used to enhance overall system flexibility.

Microchip's new I/O expanders are ideal for applications in the automotive (remote sensors, actuators, switches, motorcycle subsystems), industrial (remote sensors, security, remote lighting, switches, elevator systems), medical equipment/systems and robotics markets.

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