

Philips launches industry's first low power I²C General-Purpose I/Os featuring both interrupt output and rese

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New devices offer reduced power consumption for mobile devices, advanced control of the I²C-bus for high-reliability applications

Royal [Philips](#) Electronics today introduced a new series of I²C-bus controlled push-pull General-Purpose Input/Outputs (GPIOs). The new devices offer reduced power consumption to extend the battery life of mobile devices. As an industry first, the new GPIOs feature both an interrupt output and reset input. This enables the I²C-bus to be quickly reset, which is especially important for high-reliability applications such as servers where a hang up of the I²C-bus could cause failure of the system.

In applications such as mobile phones and PDAs, there is often a need for a greater number of GPIOs than that already integrated into the processor. Removing the internal pull-up resistor in existing Philips' GPIOs allows designers to add additional GPIOs into battery powered systems while minimizing the current consumption, thus sustaining battery life. Additionally, some of these new devices have both an interrupt output pin and hardware reset input pin. This provides server manufacturers such as IBM with an easy solution to recover the I²C-bus without the need to cycle power, enabling positive control of the bus and negating the need to restart the server when errors occur. The external reset pin offers the software programmers an easy way to simplify the programming sequence by simply resetting all registers.

"Philips' new PCA9538/9539 I/O expanders integrate push pull outputs, interrupt and hardware reset - all the functions we need for reliable server operation - into a single package," said Bob Christopher, senior engineer, advanced server technology development, IBM Corporation. "This enables us to reduce real estate and lower our component count. The parts maintain a software interface consistent with that of PCA9554/9555 so that, aside from an address change, existing code need not change."

"With this new family of low power I²C GPIOs, Philips is expanding its innovative I2C solution offerings to system manufacturers, enabling unprecedented design flexibility in bit width and feature set," said Pierre-Yves Lesaichere, general manager, Interface Products business line at Philips Semiconductors. "As a result, the new devices are ideal not only for server applications but a broad range of portable applications such as mobile phones and PDAs where power consumption and battery life are key concerns."

The new 4-, 8- and 16-bit devices have similar footprints to Philips' existing widely used I²C GPIOs, enabling easy migration for applications where totem pole outputs are required but without internal pull up resistors.

The PCA9534 and PCA9535, both with interrupt outputs, are designed for mobile applications where low power consumption is required. The PCA9536 is an inexpensive 4-bit GPIO, the only new device that includes internal pull up resistors, in a very small 8-pin package. The PCA9537, PCA9538 and PCA9539 are 4-, 8- and 16-bit GPIOs respectively, and feature both an interrupt output and reset input.

Availability

Products in the PCA953x GPIO family are offered in SO, TSSOP and

HVQFN packages. The 8-bit PCA9534 and PCA9538 are available in 16-pin SO, TSSOP and HVQFN. The 16-bit PCA9535 and PCA9539 are available in 24-pin SO, TSSOP and HVQFN in quantities of 10K. The 4-bit PCA9536 and PCA9537 are available in 8-pin and 10-pin 3 mm x 3 mm TSSOP (MSOP) respectively in quantities of 10K. All devices are available in volume except the PCA9536 and PCA9537, which are currently sampling and will be available in volume by the end of 2004.

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