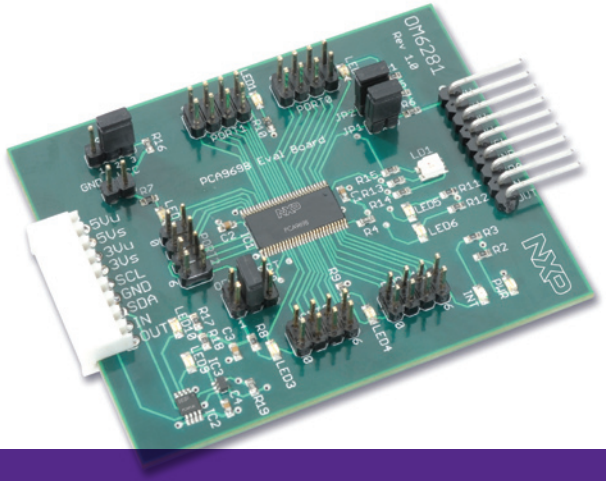


NXP PCA9698 daughter card OM6281

Easily test and demonstrate the PCA9698 40-bit GPIO

This add-on to NXP's I2C 2005-1 demo board makes it easy to test and design with the PCA9698, a Fast-mode Plus (Fm+) GPIO device, that provides 40-bit I/O expansion with outputs capable of sourcing 10 mA and sinking 25 mA with a total package load of 1 A.

Key features

- Easy-to-use daughter card with comprehensive evaluation software
- Demonstrates a wide range of functions
- 1-MHz Fast-mode Plus I²C-bus serial interface with 30-mA drive
- Complies with I²C-bus Fast-mode (400 kHz) and Standard-mode (100 kHz)
- 2.3- to 5.5-V operation with 5.5-V-tolerant I/O
- 40 configurable I/O pins that default to inputs at power-up
- Designed for live insertion in PICMG applications
- Onboard PCA9530 LED dimmer/blinker for LED applications
- Low standby current
- Temperature range: -40 to +85 °C

Applications

- Servers, RAID systems, industrial control, medical equipment, PLCs, cell phones, gaming machines, instrumentation and test measurement, and more

The PCA9698 uses the industry-standard I²C/SMBus port to communicate with the host demonstration board. The card can be connected in series with other I²C-bus daughter cards, via a standard 9-pin connector, to create a complete evaluation system.

Evaluation software, which runs on a standard Windows PC platform, lets the user explore a wide range of options. The output ports can be programmed to be totem-pole or open-drain, and logic states can change at either the Acknowledge command (bank change) or the Stop command (global change). Each input port can be masked to prevent it from generating interrupts when its state changes, and the logic state of I/O data can be inverted when read by the system master.

For LED applications, the daughter card is equipped with headers that access the demonstration board's GPIO bits and LEDs, along with a PCA9530 LED dimmer/blinker. Using the OE pin and a few simple commands, it's easy to generate blinking patterns or dim all the LEDs.

NXP founded by Philips

Extensive programmability

The daughter card's wide array of I/O commands and programmable pins makes development more flexible and increases design options.

The output pins can be programmed to totem-pole (10-mA source, 25-mA sink) or open-drain (25-mA sink) with a controlled edge-rate output structure. Totem-pole is the power-up default.

The Output Enable pin (OE) three-states any I/O selected as an output and can be used as an input signal to blink or dim LEDs.

The open-drain interrupt output pin (INT) can be used to monitor the inputs pins and is asserted each time a change occurs in one or several unmasked input ports. Polarity can be programmed to active high via the I²C-bus. The interrupt status can be monitored via the onboard LED. For input pins that don't require an interrupt when their states change, there is programmable interrupt mask control.

The Address Select pin makes it possible to daisy-chain two PCA9698 devices together for evaluation.

When multiple PCA9698 devices are on the same bus, the GPIO All Call command simultaneously programs multiple devices with the same parameters, even if they have different I²C-bus addresses. This optimizes code programming when multiple devices need to be programmed with the same instruction (e.g. an LED test where all outputs need to be turned on or off at the same time).

The active-low reset input pin (RESET) sets the device to its power-up default state.

Demonstration platforms

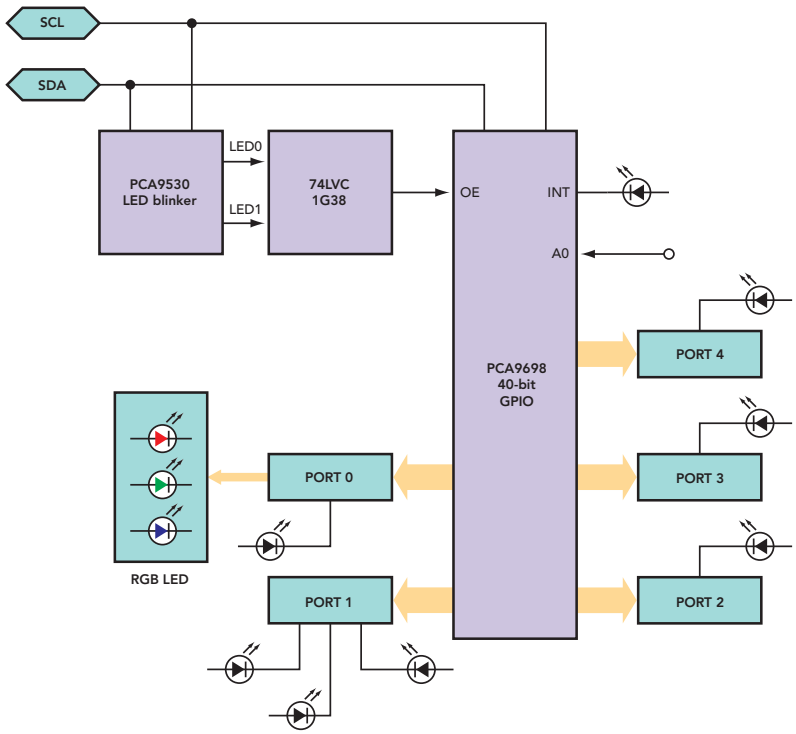
The OM6281 daughter card can be used with the Windows based OM6275 I2C 2005-1 demo board, the micro-controller based OM6299 industrial reference design, or stand alone in the user's application.

Additional information

To order the daughter card or demonstration platforms, visit www.digikey.com.

For downloadable support tools, visit www.nxp.com/i2clogic

For questions, email i2c.support@nxp.com.



Block diagram of PCA9698 daughter card

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