

NXP octal SMBus registered interface PCA9557

Convenient parallel I/O expansion or collection via the I²C/SMBus

This flexible device offloads the I/O controller in a range of system-management applications. It uses the I²C/SMBus for I/O expansion or collection, supports unique resets, enables chipset-to-peripheral interfaces, and can be used to send alert signals to LEDs.

Features

- ▶ Supports SMBus or I²C-bus I/O expansion and collection
- ▶ Supports simple BIOS implementation via four registers
- ▶ Input port enables light load readback
- ▶ Active-high polarity inversion port inverts inputs
- ▶ Configuration port sets I/O as inputs or outputs
- ▶ Output port allows readback for debug
- ▶ I/O open-drain output for interrupt generation
- ▶ Active-low reset and power-recycle defaults all I/O to inputs
- ▶ Three address pins enable up to eight devices (64 I/O)
- ▶ Glitch-free operation on power-up and power-down
- ▶ 2.3- to 5.5-V operation to 400 kHz
- ▶ 16-pin plastic SO, TSSOP, and HVQFN packages

Applications

- ▶ Mobile system management
- ▶ Desktop workstation or server system management
- ▶ Alert-on-Lan (AoL) applications
- ▶ BIOS signalling with FlexATX EasyPC diagnostic code

The PCA9557 has its own reset pins, so its I/O can be reset without taxing the I/O controller's GPIO. This is especially useful when only a subset of the system I/O need to be reset.

The V_{DD} can be supplied independently from the I/O controller's power, so it can operate even when the I/O controller is off. To capture and submit any pre-system power-alert signals, it's recommended that a collector and an indicator be kept active while the I/O controller is off.

The PCA9557's indicator interrupts are typically configured as open drain, so they can be wire-OR'd with other indicator interrupts. The I/O pin can also be set as an open-drain output, to support an interrupt.

To facilitate BIOS implementation, the PCA9557 has four SMBus registers.



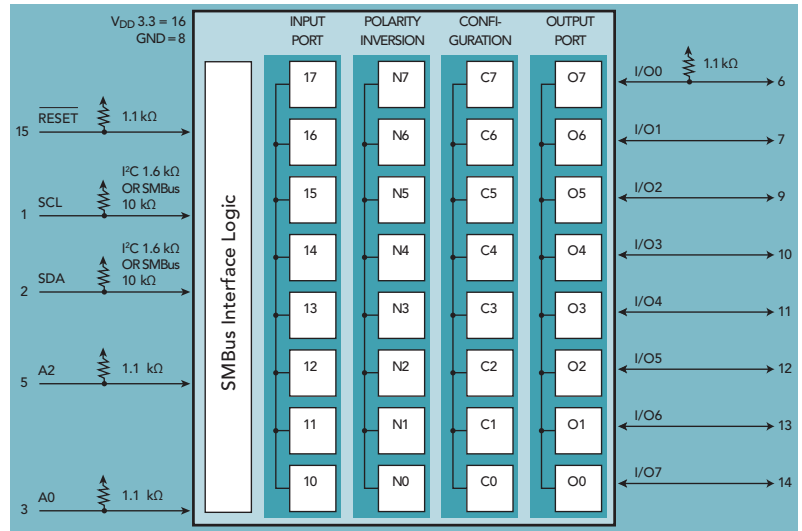
In system-management configurations that use the popular application "Alert-on-Lan" or AoL, the PCA9557 can provide motherboard alert signals via the I²C/SMBus and thereby save the I/O controller from using its limited GPIO for I/O-intensive system-management functions. The PCA9557 can be used to collect a range of motherboard signals, including chassis intruder, CPU missing, voltage regulator module power good, and SMBus environmental IC alert. It can also drive a range of signals, including reset button switch and power button switch.

The simple, two-wire I²C/SMBus structure enables a minimal pin-count interface between the motherboard and various peripherals, such as a PCI card or a laptop docking station. The PCA9557 can also be used to support AoL applications by configuring its parallel interface to supply alert signals to the system's LEDs.

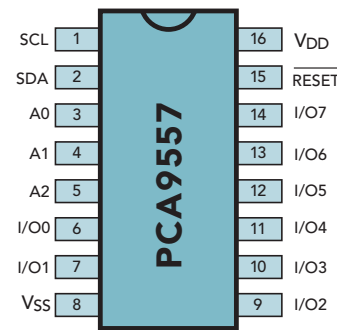
Similarly, in applications that use FlexATX Easy PC diagnostic code, the PCA9557 can be used with LEDs to signal BIOS power-up with lights instead of beeps.

Selection guide

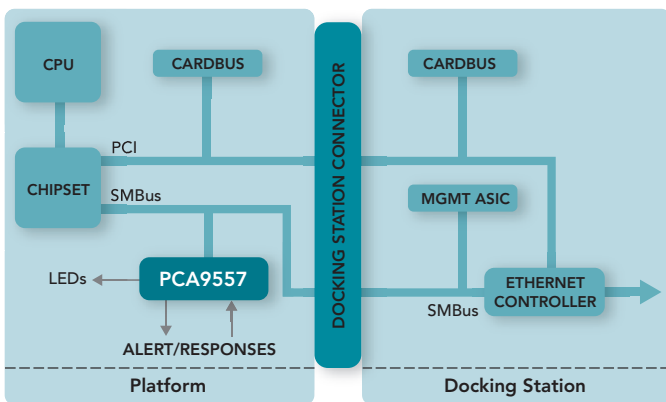
	SO	TSSOP	HVQFN
Tube	PCA9557D	PCA9557PW	-
T & R	PCA9557D-T	PCA9557PW-T	PCA9557BS-T



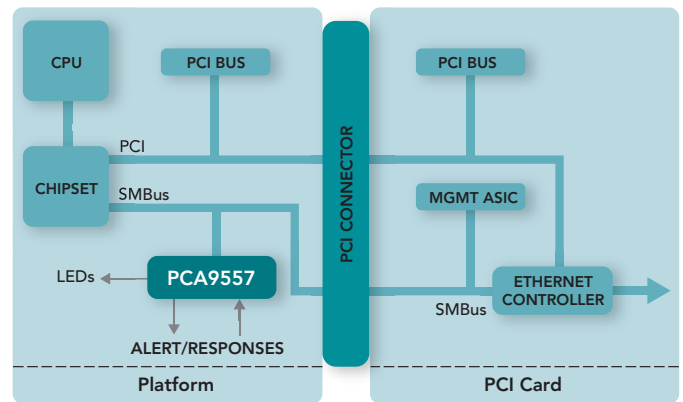
PCA9557 block diagram



Pinout diagram



Sample application for mobile system management



Sample application for desktop workstation or server system management

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