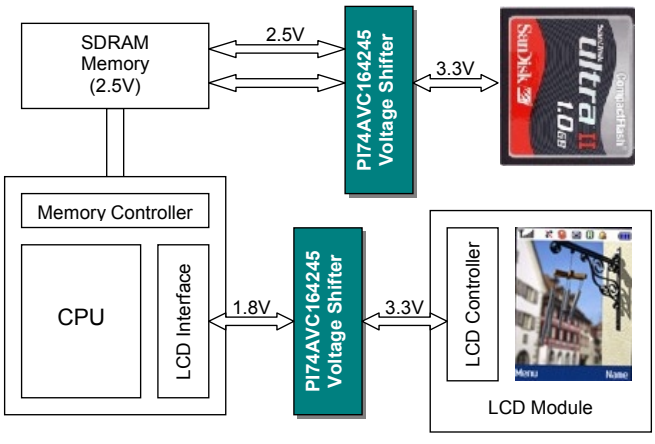
Application: LCD Module for Portable Electronics
Pericom Device: PI74AVC164245 – Voltage Translation

Overview

Today when consumer buying any type of portable electronic devices, they want to find out how often they need to recharge the battery and how long is the usage time per each charge. Portable device with short battery life and usage time is defeat the purpose. Therefore extend usage time is the major challenge for any portable devices. Designers are now increasing the capacity of the batteries and reducing the voltage and power consumption of the components to improve the usage time/battery life. However not all the components are easy to change to lower power and reduce the size, like the LCD display. Consumers like to have more enjoyable visibility with bigger picture, more color, and higher resolution. The size of LCD displays in Video Camcorder, Cellular Phone, PDA, MP3 player, Digital Camera and notebook PC are getting bigger. The PDA LCD size increased 40% to 3.5 inches; notebook PC increased 13% to 17 inches; cellular phones and digital cameras increased more than 60% to 2 inches and 2.5 inches, respectively. The existing LCD controller and LCD panels in the market still operate at 3.3V, but other components like CPU, memory and microcontroller I/O voltages are moved to 2.5V or even 1.8V.

To solve the mismatch voltage between the CPU, memory and LCD module, you need level-shifting devices.



Block Diagram for PDA

Pericom Solution

The PI74AVC164245 voltage translation IC enables proper interface between CPU, memory and LCD module interface used in today's PDA, and cellular phone devices. PI74AVC164245 is a bi-directional level shifting IC to translate from 1.8V to 3.3V. The diagram shows how the translation device has been integrated into the PDA. The data from Compact-Flash converted from 3.3V to 2.5V for SDRAM interface. The address bus from the SDRAM Memory is converted from 2.5V to 3.3V to provide correct voltages for the Compact-Flash interface cards. The data signals from CPU are converted from 1.8V to 3.3V to provide correct voltage for LCD module for proper display. These signals may need to be translated via the PI74AVC164245 or they are directly interfaced to the microprocessor as shown in the application.

2.5" LCD Digital Camera

3.5" LCD
MP3/Video Player

2" LCD Cellular Phone

3.5" LCD PDA

17" LCD Notebook

Key Features & Specifications

- Operating Voltage: 1.2V - 2.5V to 3.3V
- 16-bit Bi-d-Directional transceiver
- No power sequencing required
- Drive Capability:
  - 16 mA @ 2.5
- Three State Outputs / Isolation Capability
- **PI74AVC164245A for Highest Performance**
  - Level Shifting: 1.8V – 2.5V to 3.3V
  - Propagation Delay: < 3 ns
- **PI74AVC164245LA for Highest Performance**
  - Level Shifting: 1.2V – 2.5V to 3.3V
  - Propagation Delay: < 3.5 ns
- Industrial Temperature Range: -40C to +85C
- Standard 48-pin package TSSOP, TVSOP, SSOP

Key Benefits

- Enables easy voltage translation between 3.3V LCD module and microprocessor memory bus at 1.8V.
- Small Packages (TSSOP 12.1 mm by 6.1 mm)
- Extends the life of high value customer legacy ASIC's

Contact Information

Please contact your local Sales Representative or franchised distributor. Contact list provided on the web:
www.pericom.com/contact

Applications Support: http://www.pericom.com/support

Additional Information

- www.pericom.com/translators