PC87381
Legacy-Reduced SuperI/O with Fast Infrared Port, Serial Port and GPIOs
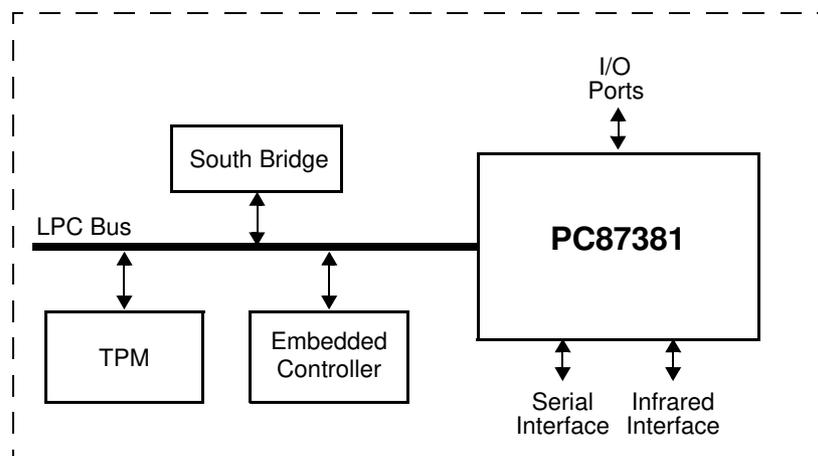
General Description

The PC87381, a member of the Winbond LPC SuperI/O family, is targeted for legacy-reduced ultra-light portable applications. The PC87381 is PC2001 and ACPI compliant, and features a Fast Infrared port (FIR, IrDA 1.1 compliant), Serial Port and General-Purpose Input/Output (GPIO) support for a total of 11 ports.

The PC87381 minimizes the number of legacy devices on the motherboard, thus taking another step towards a legacy-free PC.

Outstanding Features

■ LPC bus interface, based on Intel's *LPC Interface Specification* Revision 1.1, August 2002 (supports $\overline{\text{CLKRUN}}$ and $\overline{\text{LPCPD}}$ signals)

■ PC2001 and ACPI Revision 3.0 compliant

■ Fast Infrared port

■ Serial IRQ support

■ Protection features, including GPIO lock and pin configuration lock

■ 11 GPIO ports, including six with "assert IRQ" capability

■ Two testability modes (XOR Tree and TRI-STATE® pins)

■ 5V tolerant and back-drive protected pins (except LPC bus pins)
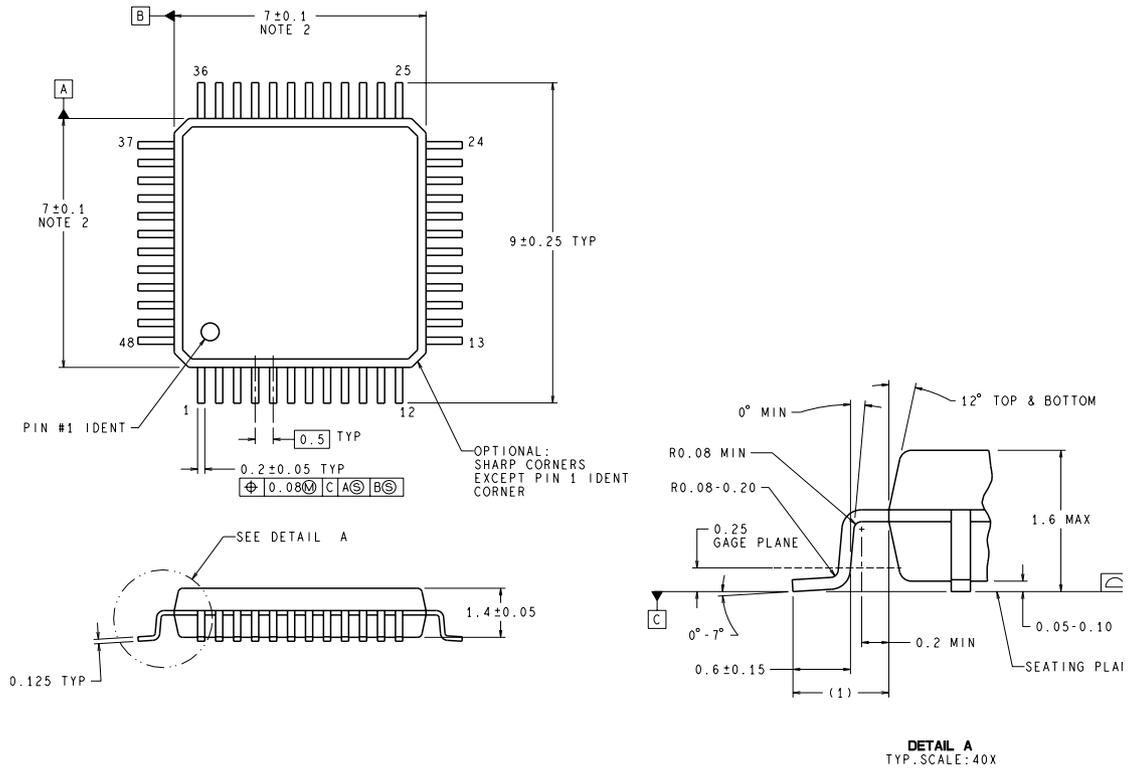
■ 48-pin LQFP package

System Block Diagram

www.winbond.com

Features

- LPC System Interface
  - 8-bit I/O cycles
  - Up to four 8-bit DMA channels
  - $\overline{\text{LPCPD}}$ and $\overline{\text{CLKRUN}}$ support
  - Implements PCI mobile design guide recommendation (*PCI Mobile Design Guide 1.1, Dec. 18, 1998)*
- PC2001 and ACPI Compliant
  - PnP Configuration Register structure
  - Flexible resource allocation for all logical devices
    - ❑ Relocatable base address
    - ❑ 15 IRQ routing options
    - ❑ Two optional 8-bit DMA channels (where applicable) selected from four possible DMA channels
  - Supports ACPI Specification Revision 3.0 September 2, 2004
- Clock Sources
  - 14.318 MHz or 48 MHz clock input
  - LPC clock, up to 33 MHz
- Power Supply
  - 3.3V supply operation
  - All pins are 5V tolerant, except LPC bus pins
  - All pins are back-drive protected, except LPC bus pins
- Fast Infrared Port (FIR)
  - Software compatible with the 16550A and the 16450
  - Shadow register support for write-only bit monitoring
  - FIR IrDA 1.1 compliant
  - HP-SIR
  - ASK-IR option of SHARP-IR
  - DASK-IR option of SHARP-IR
  - Consumer Remote Control supports RC-5, RC-6, NEC, RCA and RECS 80
  - DMA support: 1 or 2 channels

- Serial Port (SP1)
  - Software compatible with the 16550A and the 16450
  - Shadow register support for write-only bit monitoring
  - UART data rates up to 1.5 Mbaud
- 11 General-Purpose I/O (GPIO) Ports
  - Six support assert IRQ
  - Programmable drive type for each output pin (open-drain, push-pull or output disable)
  - Programmable option for internal pull-up resistor on each input pin
  - Output lock option
  - Input debounce mechanism
- Strap Configuration
  - Base Address (BADDR) strap to determine the base address of the Index-Data register pair
  - Strap Inputs to select testability mode
- Testability
  - XOR Tree
  - TRI-STATE device pins

Physical Dimensions

All dimensions are in millimeters

DETAIL A
TYP.SCALE:40X

48-Pin Low Profile Plastic Quad Flatpack (LQFP)
Order Number 87381D1/S9

Important Notice

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