Product Brief
July 2008
Revision 1.1

WPCN383U
Legacy-Reduced SuperI/O with Fast Infrared Port, Two Serial Ports, Parallel Port and GPIOs for Portable Applications

General Description

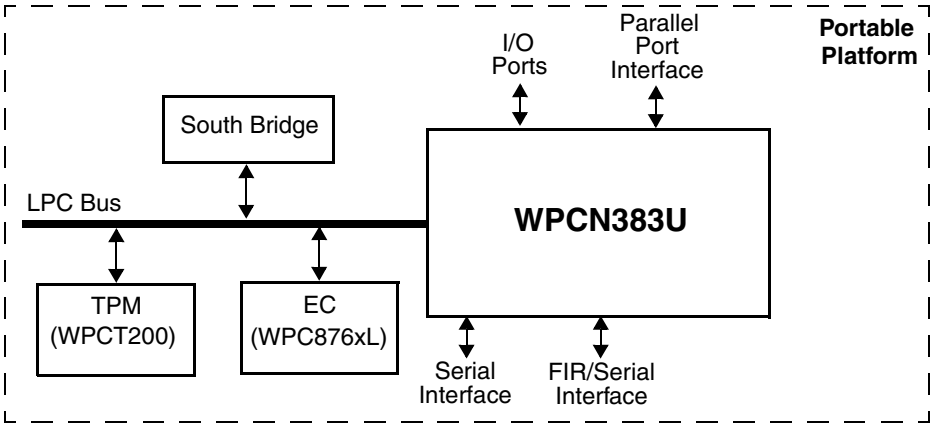
The WPCN383U, a member of the Nuvoton LPC SuperI/O family, is targeted for a wide range of portable applications. The WPCN383U is PC2001 and ACPI compliant, and features a Fast Infrared port (FIR, IrDA 1.1 compliant), two Serial Ports, Parallel Port and General-Purpose Input/Output (GPIO) support for a total of 21 ports.

The WPCN383U is the best solution for the de-facto standard set of SuperI/O functions in today's mainstream notebook systems.

Outstanding Features

- Pin and software compatible with the Nuvoton 87383
- Fast Infrared Port (FIR)
- Two Serial Ports
- 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
- IEEE 1284 Parallel Port
- 21 GPIO ports, including 14 with IRQ assertion capability
- Two testability modes (XOR Tree and TRI-STATE® device pins).
- 5V tolerant and back-drive protected pins (except LPC bus pins)
- 64-pin TQFP package

System Block Diagram

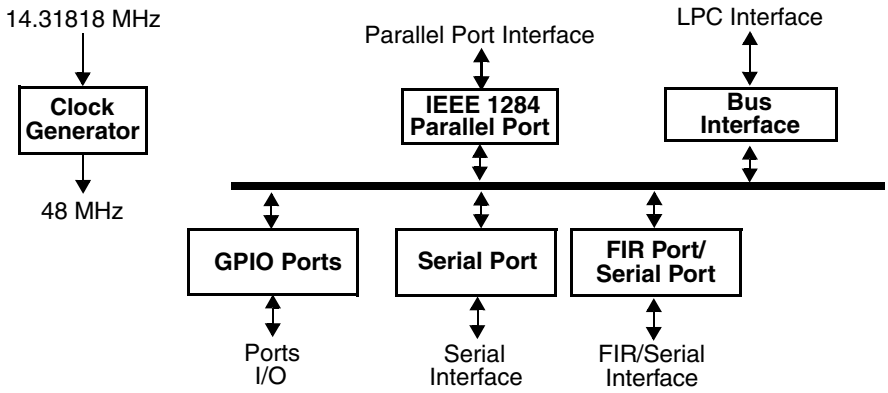


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Features

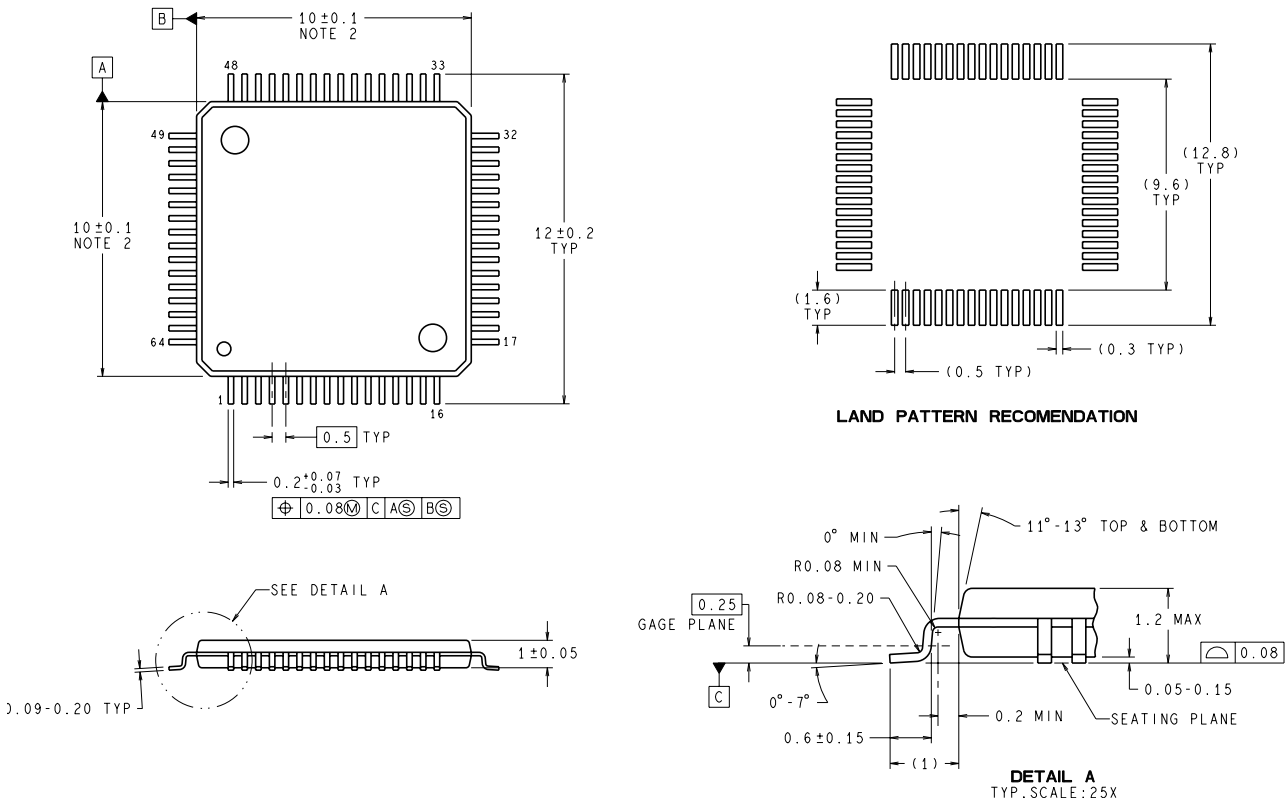
- Fast Infrared Port (FIR)
  - — Software compatible with the 16550A and the 16450
  - — Shadow register support for write-only bit monitoring
  - — FIR IrDA 1.1 compliant
  - — HP-SIR
  - — ASK-IR option of SHARP-IR
  - — DASK-IR option of SHARP-IR
  - — Consumer Remote Control supports RC-5, RC-6, NEC, RCA and RECS 80
  - — DMA support: one or two channels
- Two Serial Ports (SP1 and SP2)
  - — SP2 can be used only when FIR is not needed
  - — Software compatible with the 16550A and the 16450
  - — Shadow register support for write-only bit monitoring
  - — UART data rates up to 1.5 Mbaud
- IEEE 1284-Compliant Parallel Port
  - — ECP, with Level 2 (14 mA sink and source output buffers)
  - — Software or hardware control
  - — Enhanced Parallel Port (EPP) compatible with EPP 1.7 and EPP 1.9
  - — Supports EPP as mode 4 of the Extended Control Register (ECR)
  - — Selection of internal pull-up or pull-down resistor for Paper End (PE) pin
  - — Supports a demand DMA mode mechanism and a DMA fairness mechanism for improved bus utilization
  - — Protection circuit that prevents damage to the parallel port when a printer connected to it is powered up or is operated at high voltages (in both cases, even if the WPCN383U is in power-down state)
- 21 General-Purpose I/O (GPIO) Ports
  - — Supports IRQ assertion
  - — 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
- LPC System Interface
  - — 8-bit I/O cycles
  - — $\overline{\text{LPCPD}}$ and $\overline{\text{CLKRUN}}$ support
  - — Implements PCI mobile design guide recommendation (*PCI Mobile Design Guide 1.1, Dec. 18, 1998)*
- PC2001 and ACPI 3.0 Compliant
  - — PnP Configuration Register structure
  - — Flexible resource allocation for all logical devices
    - ❑ Relocatable base address
    - ❑ 15 IRQ routing options
    - ❑ Optional 8-bit DMA channels (where applicable) selected from four possible DMA channels
- Clock Sources
  - — 14.318 MHz or 48 MHz clock input
  - — LPC clock, 0 or 30 MHz to 33 MHz
- Strap Configuration
  - — Base Address (BADDR) strap to determine the base address of the Index-Data register pair
  - — Strap Inputs to select testability mode
- 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
- Testability
  - — XOR Tree
  - — TRI-STATE device pins

Internal Block Diagram



Physical Dimensions

All dimensions are in millimeters



64-Pin Thin Quad Flatpack (TQFP)
Order Number WPCN383U_0MG
(Replace "_" with chip revision: A, B, and so on)

Important Notice

Nuvoton products are not designed, intended, authorized or warranted for use as components in systems or equipment intended for surgical implantation, atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, or for other applications intended to support or sustain life. Furthermore, Nuvoton products are not intended for applications wherein failure of Nuvoton products could result or lead to a situation wherein personal injury, death or severe property or environmental damage could occur.

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