NET 2280

Features

▪ Overview
- PCI v3.0 - 33 MHz, 32-Bit Bus
- Hi-Speed USB 2.0 Peripheral Port
- USB Duet Technology, add Hi-Speed USB 2.0 Peripheral Port to Mobile PCs & UMPCs
- Integrated 8051 CPU @ 60 MHz
- 8K of Random Access Memory
- Descriptor based DMA Controllers (4) for automatic data transfers
- Low Power 0.25μ process ideal for USB Bus Powered Operation
- Lead Free Packaging
- 8x8mm 121 Ball FBGA Package

▪ Conventional PCI Interface
- PCI v3.0 - 33 MHz, 32-Bit Bus
- 3.3V interface with 5V tolerance for compatibility with both 3.3 and 5V PCI systems
- Plug into existing PCI based systems to instantly add a High Speed USB 2.0 Peripheral port
- Straightforward PC Card to ExpressCard™ Conversions
- Mastering PCI Interface
- Optional PCI Arbiter included

▪ Hi-Speed USB 2.0 Interface
- Hi-Speed USB 2.0 Peripheral Port
- Hi-Speed USB with Sustained Bandwidth of up to 40MBytes/sec (at 480 Mbps bursts)
- Backwards compatible to Full Speed USB connections
- USB Auto-Enumeration Technology
- Support for Bulk, Isochronous, and Interrupt Endpoints
- Integrated PHY

PCI to USB 2.0 Hi-Speed Peripheral Controller

Adding Hi-Speed USB 2.0 to Embedded PCI Designs

The NET 2280 PCI to Hi-Speed USB 2.0 Peripheral Controller is designed for easy integration with existing PCI-based systems and silicon. While there are many PCI-based USB Hosts on the market, the NET 2280 is one of the only PCI-based USB Peripheral Controllers available. With the NET 2280, adding a Hi-Speed USB Peripheral port is just a matter of connecting the same PCI signals together.

The NET 2280 Reference Design Kit is a PCI adapter that can fit into any standard PCI slot (3.3 or 5 Volts). This means that any system with a PCI bus can instantly add a USB 2.0 Peripheral Port in minutes. Since the NET 2280 is supported by several operating systems, additional software modification can be minimized.

Tuned for Performance

The NET 2280 is designed for high performance transfers, with its USB port able to match the bandwidth of most PCI chips.

Four mastering, descriptor based DMA controllers, along with the NET 2280's true FIFO structure, allow it to sustain transfers of up to 40MBytes/sec. Even at these speeds with the full PCI bus running, the low power consumption of the NET 2280 makes it ideal for use in USB bus-powered devices.
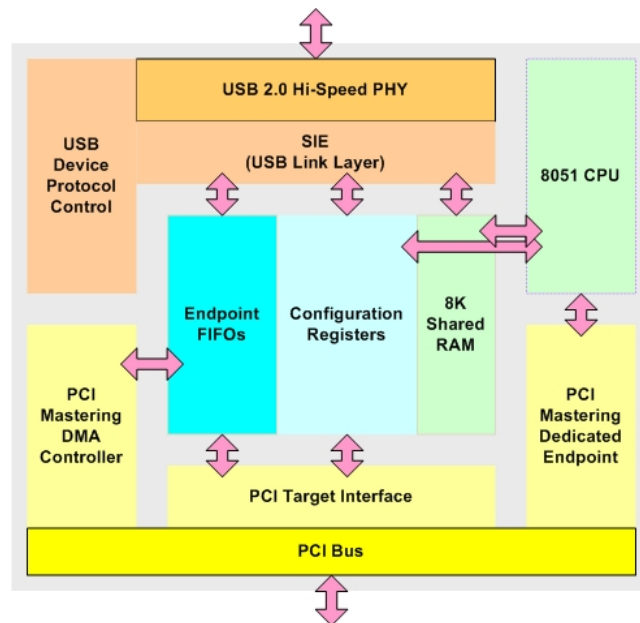

Figure 1: NET 2280 Block Diagram

Design Applications

USB Duet Technology

USB is ubiquitous today. This technology is most popular in consumer devices and gadgets, such as digital cameras, flash drives, mobile phones, and printers. USB Duet Technology from PLX adds a USB client port (like on digital cameras) to a mobile PC system and enables the port to have multiple functions such as sharing files and peripherals. Its familiar usage models (e.g. mass storage) and plug-and-play capabilities allow instant usability.

The NET 2280 can be easily designed into the existing PCI bus of all PCs. With its super low standby power (sub-micro watts) and tiny FPBGA package (8x8mm), the NET 2280 is ideal for any mobile platform. The NET 2280 the Gold standard in the USB industry!

USB Duet Technology – USB Duet HD

USB Duet HD is a Mass Storage application using USB Duet Technology. USB Duet HD allows for easy PC-to-PC file sharing and PC migration through a USB connection. The PC running USB Duet HD will look just like a USB Mass Storage device (e.g. USB flash drive) to the Host PC. PLX provides software to implement USB Duet HD on your PC design.

Add Hi-Speed USB 2.0 to a Printer

Another application for the NET 2280 is to add Hi-Speed USB 2.0 functionality to any PCI-based printer. The standard PCI interface of the NET 2280 connects gluelessly to a printer's PCI bus backplane. Standard PCI registers allow the printer's CPU to easily configure and send data to and from the NET 2280.

The NET 2280 features six programmable USB endpoints for any combination of Interrupt, Isochronous, and Bulk data transfers. This allows printer applications to transfer different data (such as diagnostic or critical print data) through different endpoints to improve quality of service and ease of design.

PLX provides device firmware to configure the NET 2280 to resemble a standard USB Printer Class device. With the USB Printer Class firmware, these devices can be recognized by PCs without any additional host-side drivers.

In these applications, the integrated CPU is usually not needed.

The NET 2280 Reference Design Kit

The NET 2280 Reference Design Kit (NET2280EVB-LF) is a PCI Adapter that easily plugs into any standard PCI slot (3.3V or 5V).

Both USB Host and Peripheral side software is included with the NET2280EVB-LF+CD. The Host side software consists of generic USB client drivers and several test and development applications. The Peripheral side firmware is used to configure the NET 2280 to resemble a standard USB class device (like a printer or mass storage device) for which no USB Host driver will need to be written.

For custom, vendor-specific applications, the Firmware API is provided to abstract USB operation to standardized function calls. While this software is available for various operating systems, it is written in standard C with portability in mind. An included porting guide aids USB developers through the entire porting process.

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Product Ordering Information

Part Number	Description
NET2280REV1A-LF	PCI to USB 2.0 Hi-Speed Peripheral Controller – 14x14mm 120-Pin TQFP Package
NET2280REV1A-BC F	PCI to USB 2.0 Hi-Speed Peripheral Controller – 8x8mm 121-Ball FBGA Package
NET2280EVB-LF	NET 2280 Reference Design Kit
NET2280EVB-LF+CD	NET 2280 Reference Design Kit with Software CD

Please contact your local PLX sales representative for ordering information.