

USB338x Series Highlights

- **USB 3.0 Client Interface**
 - USB 3.0 Specification
 - 1 upstream port
 - Supports SuperSpeed, Hi-Speed, Full-Speed modes
 - Four Descriptor-based DMA channels for automatic data transfers
 - Supports USB Duet® Technology
 - USB Auto-Enumeration Technology
 - Support for Bulk, Isochronous, and Interrupt Endpoints
 - USB Power Management
 - USB 3.0 link power management states: U0, U1, U2, U3
 - USB 2.0 link power management states: L0, L1, L2
- **PCI Express Interface**
 - PCI Express Gen 2 (5Gbps)
 - Electrical Compliance to PCI Express Base Specification r2.0
 - Integrated root complex
 - Integrated switch (USB3382 only)
 - Low latency
 - PCI Express Power Management
 - All link power management states: L0, L0s, L1, L2, L2/L3 Ready, and L3
 - Device states: D0 and D3(hot & cold)
 - Vaux, Wake#, Beacon support
 - 256 byte maximum payload size
 - ExpressCard 2.0 compliance
- **General**
 - Four GPIO pins for maximum design flexibility
 - Low power 90nm technology
 - Industrial Temp support
 - Lead-free package

Application:

USB 3.0 Multi-function Printer (MFP)

PLX Products:

USB338x Series – PCI Express to USB 3.0 Peripheral Controllers

Key Benefit:

Ultra Fast Printing and Scanning

The demand on higher printing speed, finer resolution and more functionality has improved for multi-function printers (MFP) being since they were introduced in the early 1990s. However, the connectivity to computers has stayed at either the slower USB 2.0 (480Mbps) or the more recent 1Gbps Ethernet, both of which are not able to keep up with the needs of the growing job requirements.

With 50 page per minute (ppm) color printing speed and 1800dpi x 600dpi resolution, a computer has to transfer uncompressed printing data at 2Gbps to keep up with one of today's fastest color MFP's. That is more than 4X of what USB 2.0 can deliver and more than 2X of today's fastest connection for printers.

USB 3.0: The Solution for the Next Five to Ten Years

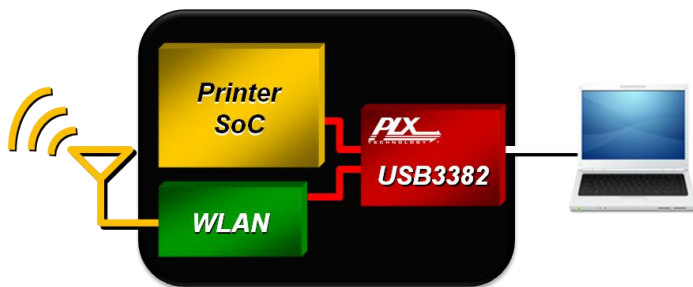
The new 5Gbps bandwidth offered by USB 3.0 SuperSpeed is more than 10X of USB 2.0 Hi-Speed. At 5Gbps of transfer speed, an MFP will have plenty room to improve printing speed as well as the speed for other functions such as document scanning. All of these high speed functions can work simultaneously with the new bi-directional communication of USB 3.0. The USB 3.0 standard has also added better power management which can be controlled by either the host or the peripherals on the bus. This will allow the MFP to enter different low power states depending on the idle time or bus conditions.



USB338x: Easiest Way to Upgrade to SuperSpeed USB 3.0

The PLX USB338x controller family provides a matching bandwidth at 5Gbp/s between the PCI Express Gen 2 bus and the USB 3.0 SuperSpeed bus. The controllers can easily add a USB 3.0 client port to an existing PCI Express system, as well as convert existing PCI Express functions (endpoints) to a USB 3.0 product. The USB3380 can be easily added to any PCI Express system as a simple PCIe endpoint to provide a SuperSpeed USB 3.0 peripheral port. The USB3382 provides one additional PCI Express port for more connection flexibility. The internal high performance switch of the USB3382 can configure the two PCI Express ports into one x1 upstream plus one x1 downstream; one x2 upstream; two x1 downstream; or one x2 downstream port. This flexibility allows different system configurations to achieve the maximum performance of the product.

In a MFP design with no available PCI Express port, the USB3382 can be used without a need of a PCI Express switch by configuring one of its two PCI Express ports to be an upstream port connected to the root complex, and the other port to be downstream port connected to the other PCI Express endpoint - such as a wireless LAN (WLAN) adapter as shown in the following diagram.



As the successor of the gold standard NET2280 (PCI to USB 2.0 peripheral controller), the USB338x can be used with existing NET228x software with no or minimal change. Driver stacks for the NET228x are already available in common printer OS's such as Linux and VxWorks. Therefore adding USB 3.0 support in an existing driver stack is as easy as adding the hardware by simply plugging the USB338x into the system.

Development Tools & Custom Solutions

PLX offers a comprehensive development & support package for the USB338x series including:

Rapid Development Kit (USB3382RDK)

- USB3382 evaluation board with PCI Express configuration modules
- Pre-built firmware application with sources for product demo and evaluation
- Reference design schematics for reduced time-to-market
- Product documentation & application notes

Evaluation Kit (USB3380EVK)

- USB3380 evaluation board
- Pre-built firmware application with sources for product demo and evaluation
- Reference design schematics for reduced time-to-market
- Product documentation & application notes

Additional PLX Advantages

- Superior USB expertise since 1996
- Abundant Software Selection
- Schematic and Layout Design Reviews
- Signal integrity testing
- Regional support teams for fast time-to-market

Available on PLX Website:

Product Brief, Databook, Design-in Guidelines, Schematics, OrCAD symbols, Application Notes and more

- USB3382 www.plxtech.com/3382
- USB3380 www.plxtech.com/3380