



USB MultiSwitch™ Hub

Industry's first device combining a Hi-Speed USB hub and switching functionality in a single solution

Highlights

- Unique Dual-Host Hub Architecture
- USB Peripheral Sharing
- High Throughput
- Minimum Host Software Overhead
- Small Footprint
- Ease of Integration

Key Benefits

Equipped with two upstream and four downstream ports, SMSC's USB MultiSwitch™ Hub (USB2524) enables easy sharing of peripherals by electronically switching them between two USB hosts. Two discrete hub devices and expensive analog switches that were previously required are no longer needed to share Hi-Speed USB peripherals. The USB MultiSwitch provides a cost-effective, single-chip solution enabling this powerful function to be implemented in the most cost-sensitive consumer applications. Requiring no more than standard USB Hub-Class support in host software, the USB MultiSwitch appears as a four-port USB hub to either USB host system and supports standard USB topology. The USB MultiSwitch is targeted for applications such as printers, desktop PC drive-bays, LCD displays and mobile PC accessories. The USB MultiSwitch is also well suited for embedded applications that require dual-role USB host and device functionality.

Device Sharing and Switching

- Per-port switching provides high degree of device sharing flexibility
- Multiple switching options ease system design
- Programmable auto-switch mode enables unique applications

High Throughput

- SMSC MultiTRAK™ technology provides a dedicated-transaction translator for Full-Speed/Low-Speed devices that are attached at every downstream port
- Maximum, Full-Speed USB data rate at 12 Mbps per port even under full load
- 960 Mbps maximum aggregate data rate when both USB Hi-Speed hosts are active

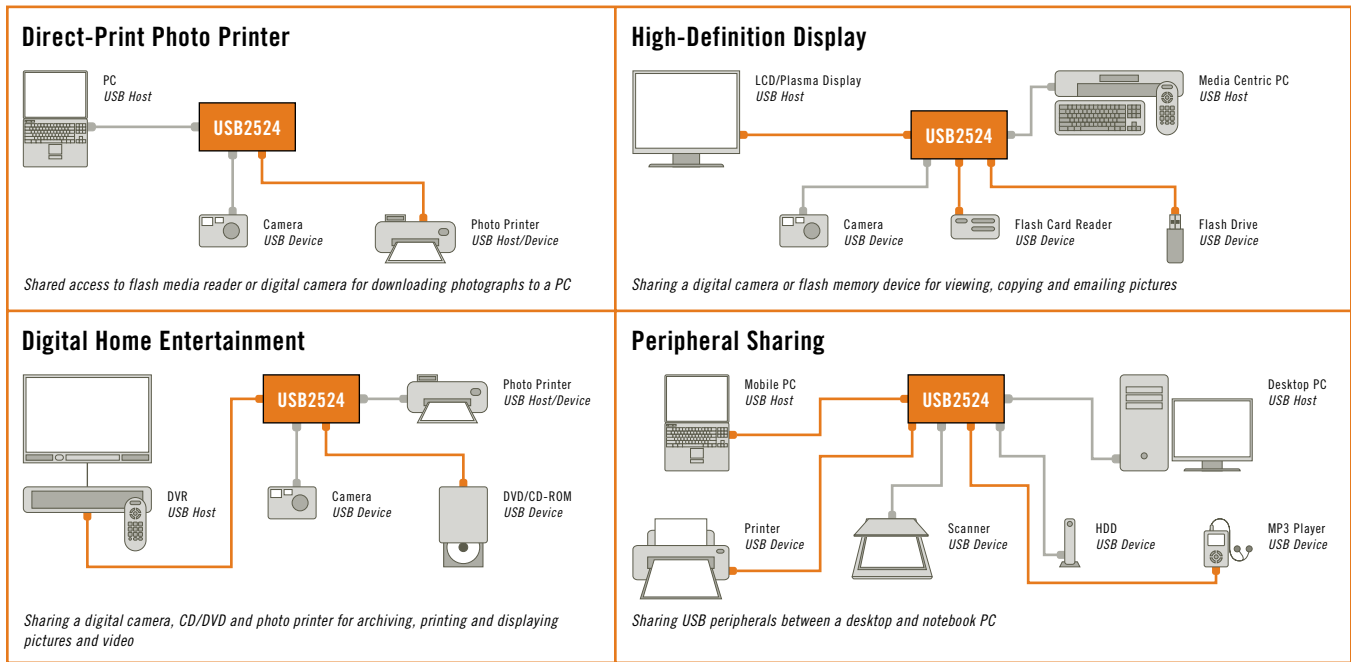
Minimum Host Software Overhead

- Appears as a standard USB2.0 hub controller on either host system
- Requires no more than standard USB Hub-Class driver support
- Standard USB connect and disconnect behavior as device is switched from one host to the other

Ease Of Integration

- Small 8x8 mm QFN package occupies minimum PCB space
- Flexible configuration options ease embedded system design
- USB-IF certified silicon building block ensures full USB compliance on integrated system

USB MultiSwitch™ Hub Typical Applications



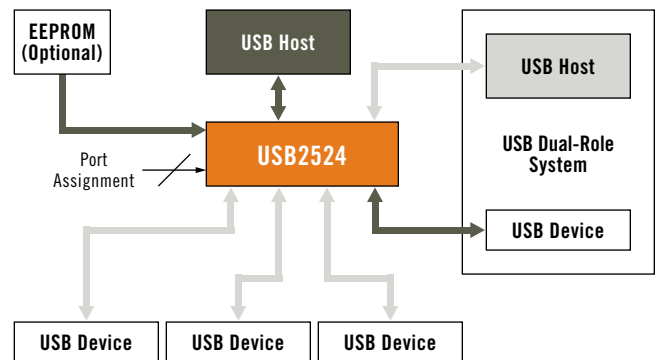
Target Applications

- Desktop PC drive-bays
- Mobile PC docking stations and port replicators
- All-in-one and photo printers
- LCD monitors
- KVM switches
- USB device sharing peripherals
- Set-top boxes
- DVD/HDD recorders and players
- Any USB dual-role host and device system
- General embedded applications

Specification

- USB2.0 Specification compliant
- Two upstream ports for host connectivity
- Four downstream ports for device connectivity
- One embedded and two peripheral switching modes
- LED outputs indicate switch activity and device speed
- Configuration options — Built-in default or via external I²C EEPROM or SMBus
- On-chip 1.8V linear voltage regulator
- Integrated USB termination & pull-up/pull-down resistors
- Internal short-circuit protection on USB differential signal pins
- 3.3V IO with 5V input tolerance
- Small footprint 56-pin QFN package

Block Diagram



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