

USB264X/2660 Family

USB 2.0 Hub and Flash Media Card Reader Combo Family

Ultra High Speed, Cost-Effective USB 2.0 Hub Controller and Flash Media Card Reader Combo Family for Port Expansion in Printer, PC, Consumer and Embedded SoC Applications

Summary

Microchip's USB264X/2660 family combines an ultra-fast interface between a USB host and today's most popular Flash media cards with a versatile, cost-effective and power-efficient 2-port high speed USB 2.0 hub controller. USB264x/2660 is designed for applications that demand low power, small footprint and reduced BOM costs, without compromising performance or features.

Offering a high level of USB 2.0 compliance and interoperability, the USB264X/2660 family allows system designers the flexibility of independent access to a wide selection of Flash media readers and also provides additional downstream USB access ports.

Each device in the USB264X/2660 family consists of USB 2.0 device transceivers with 2-port hub functionality, a fast 8051 microprocessor and Memory Stick® (MS), xD-Picture Card™* (xD) and Secure Digital (SD) controllers in a single, fully-integrated chip. The USB2660 has an additional SD/SDIO port. This family of devices offers USB expansion ports as well as a Flash card media reader/writer capable of ultra high-performance operation. Average sustained transfer rates exceeding 35 MB/s are possible if the media and host can support those rates**.

Target Applications

- Printers
- Desktop and mobile PCs
- Consumer audio/visual (A/V)
- Digital TVs
- Monitors
- Media players/viewers
- Gaming consoles
- Digital photo frames
- Set top Boxes



Highlights

- Ultra-fast Flash media reader/writer with two exposed downstream ports for external peripheral expansion
- Optimizes footprint with an approximate 40% board space reduction compared to prior discrete devices
- Reduces power consumption by approximately 30% versus alternative discrete solutions
- Supports MultiMediaCard™ (MMC)/SD, MS/MS-Pro™/MS-Pro-HG and xD cards, among others
- USB2660 supports additional MMC/SD Card or SDIO port
- Internal code configurable using an external I²C™ EEPROM; support for external code using an SPI Flash EEPROM
- Configurable software architecture supports customization for customer-specific applications and field upgradeable firmware
- Ability to place the device away from the main board to deliver USB connectivity where it is needed within the system
- 7 × 7 mm, 48-pin QFN package (USB264X family) and 9 × 9 mm, 64-pin QFN package (USB2660); both RoHS-compliant
- Industrial temperature range (–40° to +85°C) options available

* xD licensing information is available on our website: www.microchip.com

** Results are based on actual measurements on evaluation platforms developed by Microchip, and are meant only as a general guideline, not as a guarantee. Actual customer results may vary based on a number of factors, including board layout and measurement technique.



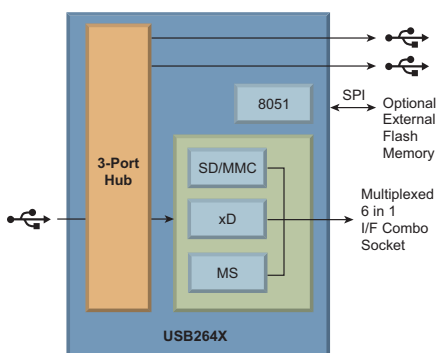
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Features	Benefits
Hub and Card Reader Combo	Cost-effective, small-footprint solution integrates two functions into a single chip
External and Internal ROM	Flexible programming for software architecture and enhanced overall system performance
PortMAP	Flexible port mapping and port disable sequence supports multiple platform designs with minimal effort
PortSWAP	Programmable USB differential-pair pin locations ease PCB design by aligning USB signal traces directly to connectors
PHYBOOST	Programmable USB transceiver drive-strength for recovering signal integrity due to compromised system environment

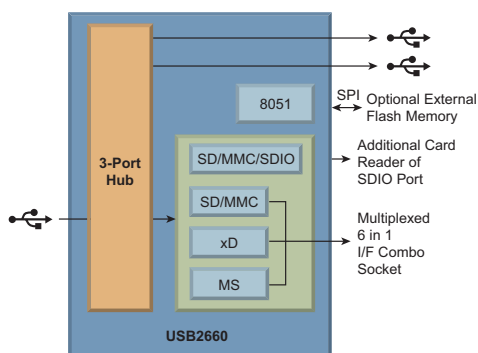
USB264X/2660 Family Application Scenarios

- Provides a combination of multiple media card readers and USB expansion ports on a PC printer or embedded system.
- Allows Flash media cards and USB pen drives to function as portable media storage devices if user desires to play/display content on A/V appliances (e.g. TV, DTV, DVD, PVR, audio and video players, etc.).
- Enables user to print pictures to a photo printer or kiosk from a camera memory card or USB pen drive.
- Offers additional USB ports to system designers when the single host port is utilized for card reader functionality.
- Provides access to additional USB and card reader ports on a monitor.
- Provides flexible memory expansion for Embedded systems.
- Second SDIO port can be used to host wireless functions such as Wi-Fi®, GPS, Bluetooth®, among others (USB2660 only).

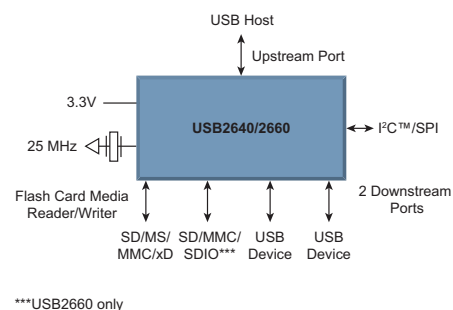
USB264X Block Diagram



USB2660 Block Diagram



Application Block Diagram



Which USB264X/2660 Family Member is Right For Your Design?

Part Number	Number of SD/MMC Cards	Number of SD/MMC/SDIO Ports	xD	MS Family	Internal Program Memory	Industrial Temp. Range (-40 to 85°C)
USB2640	1	1	✓	✓	✓	–
USB2640i	1	1	✓	✓	✓	✓
USB2641	1	1	–	✓	✓	–
USB2641i	1	1	–	✓	✓	✓
USB2660	2	2	✓	✓	✓	–
USB2660i	2	2	✓	✓	✓	✓



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