



Combi USB-PS/2 Keyboard Hub

Reference Design
CY4620

PRODUCT OVERVIEW

Download complete reference design at www.cypress.com/usb

Cypress offers a complete design that integrates a combination USB-PS/2 Keyboard with a 4 port USB hub into a single chip, creating a cost effective and space saving solution. This Reference Design is a completely functional product that complies with applicable USB and Microsoft specifications.

This low cost solution utilizes a Y-cable with USB and PS/2 connectors, and automatically detects the interface to use for the keyboard. The design implements four bus powered downstream ports for the hub functionality and a large 16 x 8 scan matrix for Multimedia, Internet, and Power Management Key functions. Up to 21 x 8 scan matrices can be accommodated. The EPROM based microcontroller allows easy firmware modification. Customize the design for a particular scan matrix without having to wait for a new ROM mask. Store Vendor and Product ID's without an external EEPROM. Since the design automatically detects the keyboard interface the same design can be used to develop a USB only Keyboard Hub, substituting a USB cable for the USB-PS/2 Y-cable. Cypress provides faster time-to-market and the lowest overall system cost with the Combi Keyboard Hub Reference Design.

FEATURES

- USB 1.1 Specification Compliant
- Fully integrated keyboard and hub functionality on a single 56-pin SSOP chip
- Combination USB or PS/2 keyboard
- Auto detection of USB or PS/2 keyboard interface
- Full-speed 8-bit USB Optimized Microcontroller
- Up to 4 downstream ports supported
- 3 LED's (Num lock, Caps lock, Scroll lock)
- 16 x 8 scan matrix provided and scan matrices up to 21 x 8 supported
- Passes USBCheck 3.2 Chapter 9, Chapter 11, and Hidview tests
- 8K Bytes of internal EPROM provided
- Individual port power switching and over current detection provided
- 6 MHz external clock

BENEFITS

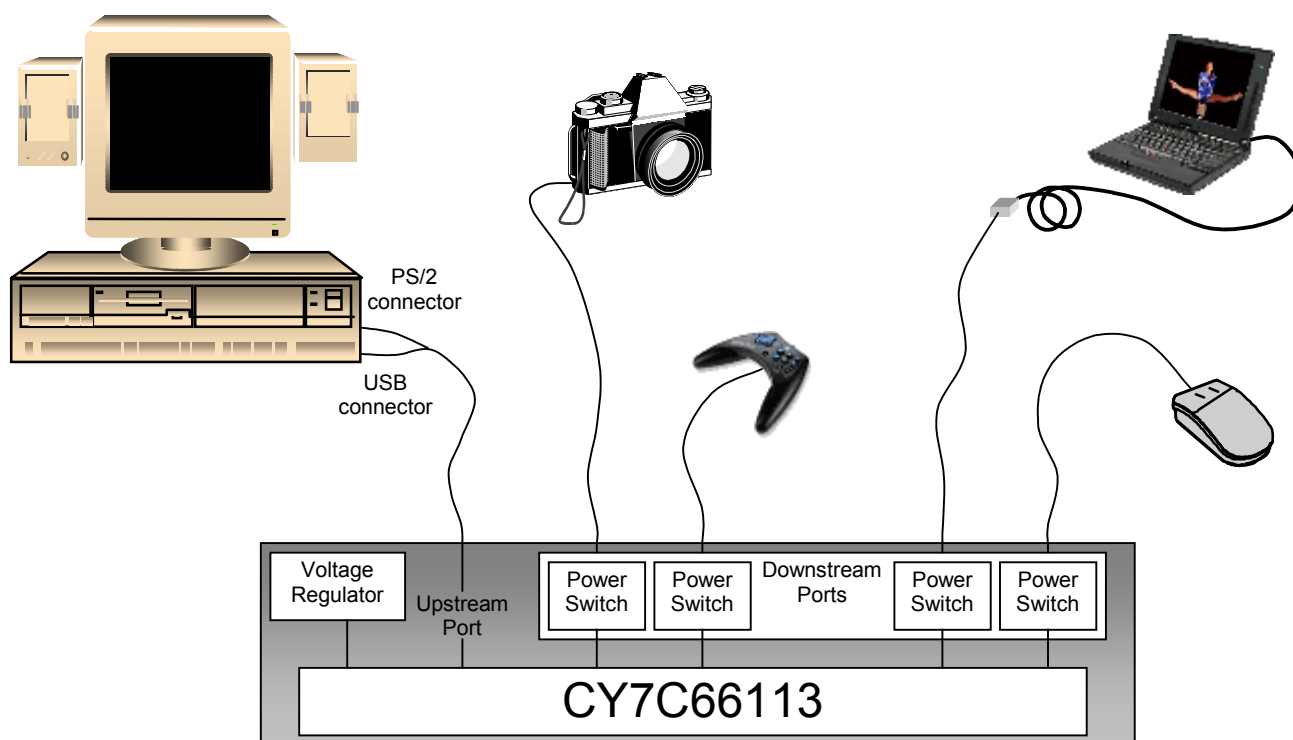
- Both hardware and firmware are compatible with industry standards
- Saves board space and reduces cost
- Flexibility and compatibility with multiple systems
- No configuration required by user
- Well suited for compound devices such as the keyboard hub function
- Up to 4 peripheral USB devices can be conveniently attached to keyboard
- Supports standard keyboard functionality
- Readily customizable for unique key configurations
- Compatible with industry standards
- Lowers system cost by eliminating external EEPROM for storing Vendor and Product ID's
- Provides an easy way to customize firmware code and store different scan matrices
- One downstream device will not shut down other downstream devices
- Reduces EMI (Electro Magnetic Interference) emission

Includes Multimedia key support:

- | | | | |
|--------------|-------------|--------------|---------------|
| ▪ Power Off | ▪ Home | ▪ Play/Pause | ▪ Volume Up |
| ▪ Sleep | ▪ e-mail | ▪ Stop | ▪ Volume Down |
| ▪ Wakeup | ▪ Search | ▪ Next | ▪ Mute |
| ▪ Calculator | ▪ Favorites | ▪ Previous | |

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SYSTEM DIAGRAM



REFERENCE DESIGN KIT (CY4620)

The Combi Keyboard Hub Reference Design Kit is a complete resource for developers to utilize and customize in the development of their own product with the Cypress CY7C66113 chip.

Each kit includes:

- Combi Keyboard with integrated 4-Port Hub
- Design Notes
- CD-ROM containing:
 - Source Code
 - Schematics
 - Orcad Source File
 - Bill of Materials
 - CY7C66113 Datasheet



ORDER INFORMATION

Note: Modifications to the firmware will require the appropriate Development Kit and Programmer.

REFERENCE DESIGN KIT	DEVELOPMENT KIT	PROGRAMMER HARDWARE
CY4620	CY3654 – Platform Board CY3654-PO3 – Personality Board	Cy3649-xxxV – Programmer Cy3083-SS56 – Adapter Base Cy3083-05 – Matrix Card

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