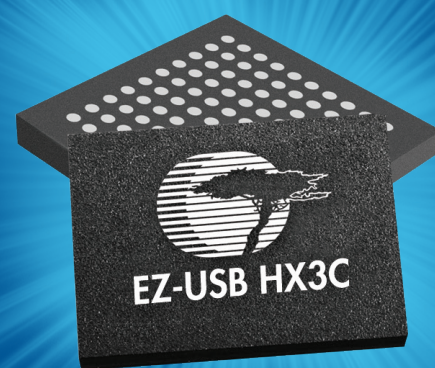


CYPRESS

EZ-USB® HX3C: USB 3.0 TYPE-C HUB WITH POWER DELIVERY

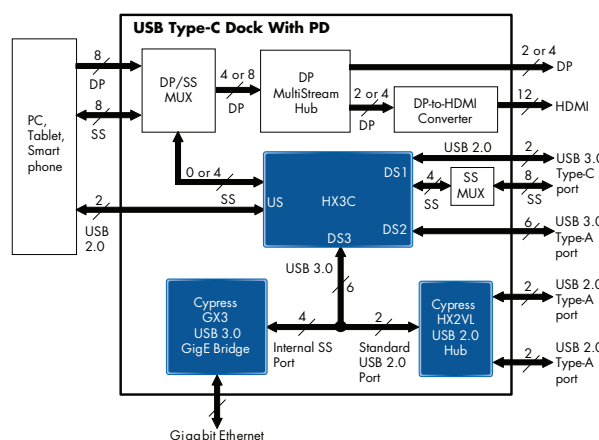


PRODUCT OVERVIEW

INTRODUCTION

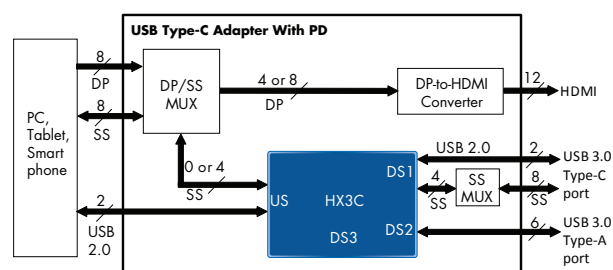
EZ-USB® HX3C is Cypress's USB 3.0 hub, integrating a 4-port USB Hub controller, a USB Billboard Controller, two ARM® Cortex®-M0 CPUs, 64KB flash, two Type-C™ transceivers, Type-C termination resistors, ADCs for overvoltage and overcurrent detection and ± 15 -kV ESD protection. HX3C combines the functions of four chips (USB Hub, USB Billboard, and two USB PD controllers) into one, reducing BOM cost and solution footprint vs. discrete solutions. HX3C's configurable SuperSpeed and USB 2.0 PHY improves signal quality, giving board designers more flexibility and making USB-IF compliance easier. HX3C supports USB Power Delivery on its upstream and downstream Type-C ports, and BC v1.2 and Apple charging standard on its two Type-A downstream ports, providing a total solution for USB battery charging hubs. HX3C is ideally suited for:

USB TYPE-C™ DOCKS AND MONITORS



- USB Type-C Docks or Monitors power a connected notebook PC via USB HX3C's upstream port
- HX3C supports all USB PD profiles and dynamically changes power allocation
- Together with EZ-USB GX3 and HX2VL, HX3C provides a complete, one-cable USB Dock or Monitor solution.

USB TYPE-C ADAPTERS



- USB Type-C Adapters provide power pass-through from HX3C's downstream port to its upstream port
- HX3C supports all USB PD profiles and dynamically changes power allocation

FEATURES

USB 3.0 HUB:

- One upstream, USB Type-C
- One downstream, USB Type-C
- Two downstream, USB Type-A

USB POWER DELIVERY:

- DRP on upstream port
- DFP on downstream port
- Supports all USB PD profiles

BATTERY CHARGING SUPPORT :

- USB Battery Charging v1.2
- Apple Charging (1A, 2.1A)

GHOST CHARGE™:

- Charging downstream devices without needing an upstream connection

INTEGRATION:

- Two ARM Cortex M0 CPUs
- 64KB flash, 8KB RAM
- USB Billboard controller
- Two Type-C PHYs
- R_p/R_d resistors
- ESD protection

FIRMWARE UPGRADE OVER USB

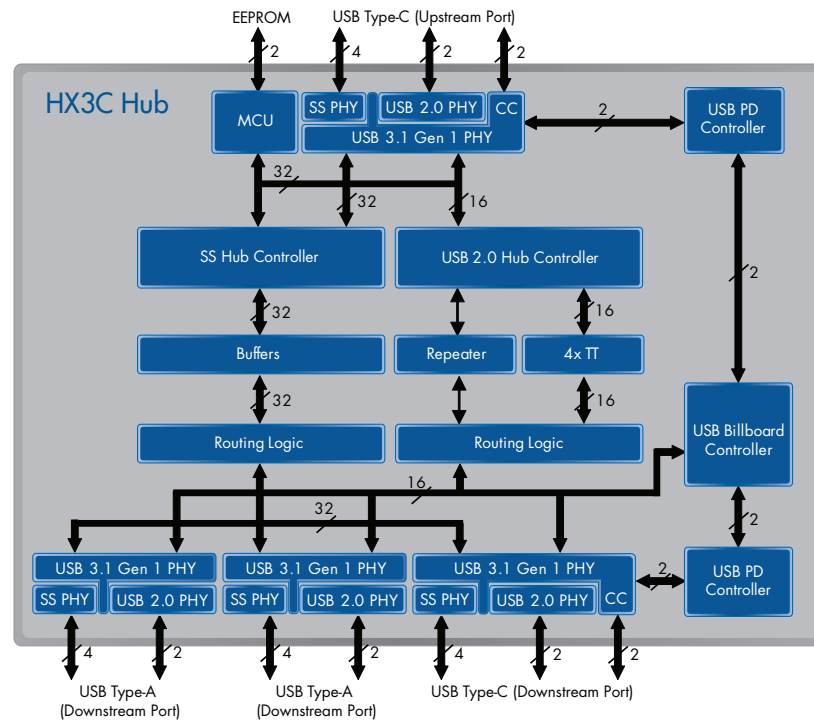
PACKAGE:

- 121-BGA (10 x 10 mm; 0.8 mm pitch)

APPLICATIONS

- Notebook docks and adapters
- Monitors and TVs
- USB hard drives
- USB power banks
- Set-top boxes and game consoles
- Smartphone and tablet accessories

HX3C: 4 CHIPS INTO 1

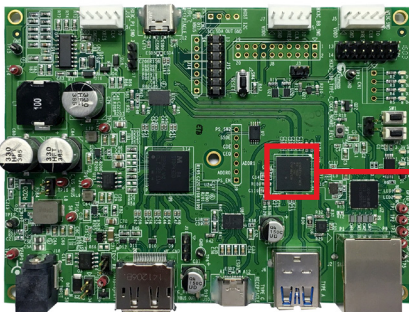


EZ-USB HX3C Block Diagram

EZ-USB HX3C PORTFOLIO

HX3C Part Number	Upstream PD Port	Downstream PD Port	BC v1.2	Apple Charging	No. I ² C I/F	USB Billboard	Port Power	Temperature	Package	Application
CYUSB3333-BZXC	DRP	DRP	Yes	Yes	2	Yes	Individual	0°C to 70°C	121-BGA	Adapter
CYUSB3333-BZXI	DRP	DRP	Yes	Yes	2	Yes	Individual	-40°C to 85°C	121-BGA	Adapter
CYUSB3343-BZXC	DRP	DFP	Yes	Yes	2	Yes	Individual	0°C to 70°C	121-BGA	Dock, Monitor
CYUSB3343-BZXI	DRP	DFP	Yes	Yes	2	Yes	Individual	-40°C to 85°C	121-BGA	Dock, Monitor

USB-C DOCK REFERENCE DESIGN



HX3C

- One-cable dock for USB-C enabled notebook PCs
- Combines USB 3.0 data, DisplayPort video output and up to 65W power on a USB Type-C upstream port
- Supports One DisplayPort output, one USB Type-C port, one USB Type-A port, and a Gigabit Ethernet port
- Complete schematics and design files are available at www.cypress.com/hx3ckit

GETTING STARTED

For more information, please contact hx3c@cypress.com or visit www.cypress.com/hx3c

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