PRODUCT BRIEF

EZ-USB™ HX2G3

USB 2.0 Hi-Speed Hub Controller Family
Configurable USB hub solutions for Consumer, Docking, and Automotive applications

EZ-USB™ HX2G3 is a USB 2.0 hub controller family designed for scalable deployment across Consumer, Docking, and Automotive applications. It integrates a USB 2.0 hub with programmable USB PHYs, an Arm® Cortex®-M0+ CPU subsystem, and flexible configuration options.
The device supports USB 2.0 Hi-Speed (480 Mbps), Full-Speed (12 Mbps), and Low-Speed (1.5 Mbps) operation, and can operate as a standalone hub or with firmware/configuration loaded from external memory or an I2C master.
HX2G3 enables system designers to implement flexible USB hub architectures with reduced BOM, optimized power management, and configurable feature sets.

Key features

- **USB 2.0 hub controller**
  - Supports Hi-Speed (480 Mbps), full-speed (12 Mbps) and low-speed (1.5 Mbps) data rates
- **Multiple port configuration options:**
  - 1 US port and 4 DS ports (1:4)
  - 1 US port and 2 DS ports (1:2)
  - 2 US ports and 4 DS ports (2:4) (Dock only)
  - 3 US ports and 3 DS ports (3:3) (Dock only)
  - 1 US external port and 3 DS ports (2 external + 1 internal FS-dedicated port) (Automotive only)
- **Integrated Arm® Cortex®-M0+ CPU**
  - 32 KB RAM, 32 KB ROM
- **Embedded eFuse to support trimming, VID/PID, and PHY configuration**
- **Optional configurable full-speed device function support:**
  - Optional CDC/billboard device class support
  - Firmware download and configuration of EZ-USB™ HX2G3 through USB (CDC interface) to the I2C EE PROM/SPI flash connected to EZ-USB™ HX2G3 (SPI support in Consumer/Dock variants)
  - Configuration and firmware download of EZ-USB™ HX2G3 through I2C from an external I2C master
  - In-System Programming (ISP) through I2C from an external I2C master (Automotive only)
- **Individual and ganged port power control**
- **Dedicated Transaction Translators (Multi-TT) (Automotive); configurable TT options in other variants**
- **Supports Hub Cascade mode (Consumer/Dock):**
  - Configurable option to output the reference clock for the cascaded hubs to share the source clock and save crystal cost
- **Feature support for USB PD:**
  - Configurable & integrated Billboard device class support with controllability from an external I2C master
  - Configurable Hub container ID/UUID support over EZ-USB™ HX2G3 I2C slave interface
  - Dynamic upstream port selection control through GPIO or I2C slave (Dock only)
- **Extensive configuration support with EZ-USB™ HX2G3 configuration utility:**
  - Vendor ID(VID)/Product ID (PID), manufacturer and product string descriptors
  - Number of active ports
  - Number of upstream and downstream ports (Dock only)
  - Number of non-removable devices
  - Ganged or individual power switch enables for DS ports
  - Polarity selection for power enable outputs and overcurrent inputs
  - USB 2.0 PHY parameters
  - Swap DP/DM signals for flexible PCB routing
- **Custom configuration modes supported with I2C EEPROM or external I2C master**
- **Available in multiple packages:**
  - 36-LGA and 40-QFN for consumer/industrial applications
  - 40-QFN and 48-QFN for dock applications
  - 40-pin QFN (6 × 6 × 0.5 mm) for automotive applications

PRODUCT BRIEF

Applications

- Consumer and Industrial USB systems
- USB Type-C docking stations and monitors
- Automotive connectivity systems
- IoT and edge devices

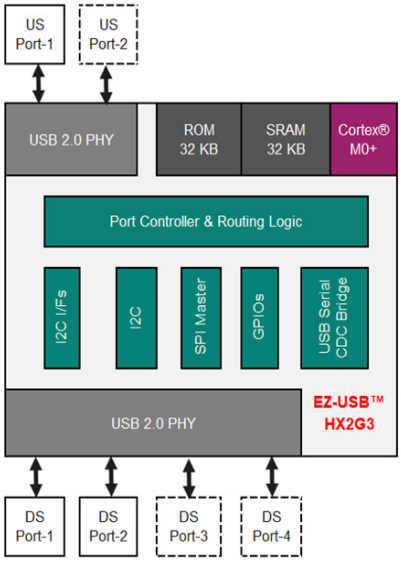
Development ecosystem

- EZ-USB™ HX2G3 configuration utility for device customization
- Firmware download via USB (CDC) or I2C
- Support for EEPROM/SPI-based configuration storage
- SWD interface for debugging and development

Key benefits

- Single platform across multiple markets
- Reduced system cost and complexity
- Flexible design implementation
- Optimized USB performance
- Seamless integration with USB Type-C and PD systems

Block diagram



Ordering information

Sales Product Name	US:DS port configs supported	Temp Support	LDO	Package	Application
CYUSB2332-40LDXS(T)	1:2	-40°C to 105°C	Yes	40 QFN, 6x6 mm, 0.5 mm pitch, Wettable Flanks	Automotive
CYUSB2343-40LTXI(T)	(1:4) or (2:4) or (3:3)	-40°C to 85°C	No	40 QFN, 5x5 mm, 0.4 mm pitch	Docking
CYUSB2344-48BFXI(T)	(1:4) or (2:4) or (3:3)	-40°C to 85°C	No	48 LGA, 6x6 mm, 0.4 mm pitch	
CYUSB2352-40LTXI(T)	1:2	-40°C to 85°C	No	40 QFN, 5x5 mm, 0.4 mm pitch	Consumer/Industrial
CYUSB2354-40LTXI(T)	1:4	-40°C to 85°C	No	40 QFN, 5x5 mm, 0.4 mm pitch	
CYUSB2364-36BFXI(T)	1:4	-40°C to 85°C	No	36 LGA, 6x6 mm, 0.5 mm pitch	

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