General Purpose USB2.0-to-ATAPI Bridge Controller with Embedded PHY

FEATURES

- Fully compatible with USB specification 2.0
  - Support full-speed (12M bits/sec) or high-speed (480M bits/sec) devices with multiple configurations and multiple interfaces Support all USB standard commands, including suspend and resume detection logic
  - Support USB 2.0 TEST mode features
- Supports 5 endpoints
  - All endpoints share one on-chip 4K bytes SRAM buffer and the size of each endpoint is configurable
  - Default control endpoints (EP0) with up to 64-byte buffer on either TX or RX direction
  - An interrupt OUT endpoint (EP1) and an interrupt IN endpoint (EP2)
  - A bulk OUT endpoint (EP3) and a bulk IN endpoint (EP4): up to 512 bytes data payload for full/high speed bulk endpoint
  - Unused endpoint can be disabled
- Embedded USB 2.0 transceiver
  - Integrated bit stuffing/unstuffing and stuff error detection
  - NRZI (Non-Return-to-Zero Inverted) encoding/decoding
- USB Mass Storage Class Bulk-Only Specification Compliant (Version 1.0)
- Support Bus Powered and Self Powered modes
- Support multiple LUNs
- Automatic detection of Master or Slave ATAPI devices
- Support true ATAPI compatible interface
  - Complies with ATAPI-7 Specification (PIO mode 0,3,4, Multiword DMA mode 0~2, UDMA mode 0~6)
  - 8-bit/16-bit Standard PIO mode interface
  - 16-bit Multiword DMA mode and UDMA mode interface (Ultra 133)
- ATAPI bus can be shared with other devices
- Embedded 8-bit microprocessor with on-chip 8K x 14 program ROM and optional external 16K x 14 program ROM/Flash memory
- Flexible 32-bit I/O interfaces providing maximum versatility with ROM mask changeable firmware

- Firmware to support ATAPI CD-ROM/CD-RW/DVD-ROM/DVD-RW is provided
- 12MHz external clock input to provide better EMI
- Low power with operation voltage 3.3V with 5V tolerance I/O pads
- Available in 64-pin LQFP (10mm x 10mm) production package and 128-pin QFP (14mm x 20mm) development package

GENERAL DESCRIPTION

The CS8818 is a single chip USB (Universal Serial Bus) 2.0 Mass storage class peripheral controller intended for use with standard ATAPI devices. The device consists of a USB 2.0 PHY and SIE, FIFO buffers, embedded microprocessor with expanded external program ROM/Flash memory, and ATAPI compatible interface.

The CS8818 uses 12MHz crystal to reduce the EMI issue. With flexible 32-bit I/O interface, the CS8818 can be programmed to fit different situations in the USB 2.0 high speed mass storage class applications such as CD-ROM, CD-RW, DVD-R and DVD-RW, etc.

BLOCK DIAGRAM