EM3255

Embedded USB2.0 Flash Controller

The EM3255 is a USB Flash controller focusing on embedded/industrial application (eUSB) usage. It combines high compatibility and performance to support single-channel SLC and MLC NAND Flash memory in a single chip. The EM3255 complies with USB2.0 power specifications for bus-powered devices.

The EM3255 controller delivers an extremely reliable, high data transfer rate through the BCH ECC engine to reduce read/write disturbance errors. Combining a 5-3.3V regulator and power-on-rest feature, the EM3255 maximize efficiency and reduces overall BOM costs. The EM3255 is available in 48-pin LQFP packages.

Applications

- USB Flash Drive
- Embedded USB Flash Drive (eUSB)
- Embedded/Industrial Application
  - Telecommunication
  - Set-top-box
  - IPC/SBC
  - Multifunction Printer
  - DRAM caching

Key Features

- Complete USB2.0 compliance
- Complies with USB Mass Storage Class specification version 1.0
- Bulk only transport protocol
- Supports single channels for Flash memory
- 12MHz crystal driver circuit
- 1.8 volts low power core operation
- Operates on a single power supply (Vdd = 5.0V or 3.3V)
- Support 3.3V VCCQ SLC and MLC NAND Flash and up to 4 Flash components
- Field firmware update capability
- Firmware customization capability for specific application requirement

Reliability

- Industrial approved FTL to protect data in an ungraceful power lost event.
- DataRefresh and EarlyRetirement features to prevent data corruption due to uncorrectable ECC
- Proprietary algorithm for read/retry to retrieve correct data due to platform instability
- Global Wear Leveling to ensure all NAND flash blocks are evenly written to extend the device life.
- HealthMonitoring vendor commands to allow monitoring the health status
- Extended overprovisioning capability enables longer life expectancy
- Software "Write Protection" feature enables data write protect at any instant.