

MEMORY

Overview

This section describes the different memories in the LGT8FX8P series. The LGT8XM architecture has two main memory spaces, Data Memory and the Program Memory space. *The LGT8FX8P contains internal FLASH that is designed to emulate EEPROM data storage. The LGT8FX8P also includes a special memory space for storing system configuration information and the chip's global device number (GUID).*

LGT8FX8P series includes three different models: LGT8F88P/168P/328P. The three models in the series are fully compatible. The differences are the sizes of the FLASH and SRAM memory available. The following table describes the LGT8FX8P memory configuration options by model:

| DEVICE | FLASH | SRAM | EEPROM | INTERRUPTS |
|-----------|-------|------|---|---------------|
| LGT8F88P | 8KB | 1KB | 2KB | 1 inst. words |
| LGT8F168P | 16KB | 1KB | 4KB | 2 inst. words |
| LGT8F328P | 32KB | 2KB | Can be configured as 0K/1K/2K/4K/8K (shared with FLASH) | 2 inst. words |

*The **emulated E2PROM** memory space of the LGT8F328P does not have a separate storage location separate from FLASH. **The storage space for emulating the E2PROM is shared with the program FLASH.** The user can select the appropriate partition configuration according to their application requirements.*

Due to the unique implementation of the emulated E2PROM interface, the system requires twice the program FLASH space to simulate an E2PROM memory space. With the LGT8F328P, for example, if the user configures a 1KB E2PROM, 2KB bytes of FLASH memory will be reserved, leaving 30KB for program memory space.

LGT8F328P program FLASH and E2PROM shared configuration table:

| DEVICE | FLASH | E2PROM |
|-----------|-------|--------|
| LGT8F328P | 32KB | 0KB |
| | 30KB | 1KB |
| | 28KB | 2KB |
| | 24KB | 4KB |
| | 16KB | 8KB |

FLASH

The LGT8FX8P series of microcontrollers each include 8K/16K/32K bytes of on-chip programmable FLASH memory. *The **FLASH memory is designed for at least 100,000 erase cycles.*** The LGT8FX8P integrates a FLASH interface controller that includes the in system programming (ISP) feature. For specific implementation details, please refer to the description of the FLASH interface controller section of this chapter.

Program space can also be accessed (read) directly via LPM instructions. This feature enables application-dependent constant lookup tables. At the same time, ***the FLASH program space is also mapped into the system data storage space.*** The user can also use LD/LDD/LDS for accessing the FLASH space. ***The program space is mapped to the address range directly following the data memory space (0x4000).*** This is illustrated on the next page.