Possible Extension for i2c_flash

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To accept requests from multiple user threads

Since this driver is implemented specific to this assignment and for this EEPRPOM, there are some changes need to be done for it to work for multiple threads. Following are the anticipated changes to the code :

- Any execution block which needs to be thread safe, should have its own copy of the global data or access global variable with mutex. i2c_flash has declared global variable *I2cFlashWorkQueuePrivateType* related to workque implementation. This asks for inclusion of mutex to protect this structure.
- To store the read/write requests from multiple users, driver should additionally store the pointers of the temporary allocated memory blocks. This calls for the making *char* I2cFlashWorkQueueBufferPtr* of *I2cFlashWorkQueuePrivateType* to be array of pointers instead of just a pointer. Additionally requires *write index, read, operation type(read / write / erase)* and *size arrays* inside *I2cFlashWorkQueuePrivateType* to implement ring buffer implementation.
- Whenever read/write function is called by a thread, it first results in the allocation of requested memory and submit the request to *I2cFlashWorkQueuePrivate* (by adding entry to the ring buffer) and if *I2cFlashReadOrWrite = NONE,* submits the work to the queue. Similarly ioctl erase function also adds to the *I2cFlashWorkQueuePrivate.*
- When the workqueue functions is called by the kernel, it will start carry out the the pending operations in the circular buffer till the buffer before becomes empty. Then sets the state to *I2cFlashReadOrWrite = NONE.*

To support a different EEPROM connected to the I2C bus

Assuming that driver needs to support one device, the changes are very simple.

- Change the macro in *i2c_flash.c* with different chip address and number of pages in it i.e *#define CHIP_ADDRESS 0x54* and *#define PAGECOUNT 512*
- It may be required to change the type of *static unsigned short I2cFlashEepromPtr* to a higher a longer type depending on the number of pages in the EEPROM. Corresponding usage of this variable in the code may also require some minor changes.