Block Erasing, Reading, and Writing to the Super Sequencer EEPROM

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INTRODUCTION

This application note describes how to block erase, write to, and read from a single page (32 bytes) of EEPROM space for the Super Sequencer® family of devices: the ADM1062, ADM1063, ADM1064, ADM1065, ADM1066, ADM1067, ADM1068, ADM1069, ADM1166, ADM1168, and ADM1169. For the purpose of this application note, the EEPROM range to be erased, written to, and read from is 0xF800 to 0xF81F.

BLOCK ERASING THE 0xF800 TO 0xF81F EEPROM SPACE

Follow these steps to block erase from the EEPROM space.

1. Write 0x05 to Register 0x90. This write enables the EEPROM block erase.
2. Follow this routine, which lists all of the SMBus transactions:

   - Send slave address with write bit
   - Receive acknowledge
   - Send EEPROM upper address (0xF8)
   - Receive acknowledge
   - Send EEPROM lower address (0x00)
   - Receive acknowledge
   - Send stop condition
   - Send slave address with write bit
   - Receive acknowledge
   - Send command code for a page erase (0xFE)
   - Receive acknowledge
   - Send stop condition

3. Repeat the routine in Step 2 for each page of EEPROM to be erased. However, increment the lower address (send EEPROM lower address) by 32 bytes, for example, 0x20, 0x40, 0x60, 0x80, 0xA0, 0xC0, and 0xE0.
4. Write 0x01 to Register 0x90. This write disables the EEPROM block erase.

BLOCK WRITING TO THE 0xF800 TO 0xF81F EEPROM SPACE

Follow these steps to block write to the EEPROM space.

1. Follow this routine, which lists all of the SMBus transactions:

   - Send slave address with write bit
   - Receive acknowledge
   - Send EEPROM upper address (0xF8)
   - Receive acknowledge
   - Send EEPROM lower address (0x00)
   - Receive acknowledge
   - Send stop condition
   - Send slave address with write bit
   - Receive acknowledge
   - Send command for block write (0xFC)
   - Receive acknowledge
   - Send number of bytes to write (0x20)
   - Receive acknowledge
   - Send 32 bytes of data
   - Receive acknowledge from device after every byte
   - Send stop condition

2. Repeat the routine in Step 1 for each page of the EEPROM to be written to. However, increment the lower address (send EEPROM lower address) by 32 bytes, for example, 0x20, 0x40, 0x60, 0x80, 0xA0, 0xC0, and 0xE0.

BLOCK READING FROM THE 0xF800 TO 0xF81F EEPROM SPACE

Follow these steps to block read from the EEPROM space.

1. Write 0x01 to Register 0x90. This write enables a configuration register continuous update.
2. Follow this routine, which lists all of the SMBus transactions:

    -   Send slave address with write bit
    -   Receive acknowledge
    -   Send EEPROM upper address (0xF8)
    -   Receive acknowledge
    -   Send EEPROM lower address (0x00)
    -   Receive acknowledge
    -   Send stop condition
    -   Send slave address with write bit
    -   Receive acknowledge
    -   Send command for block read (0xFD)
    -   Receive acknowledge
    -   Send slave address with read bit
    -   Receive acknowledge
    -   Receive number of data bytes to read (0x20)
    -   Send master acknowledge
    -   Receive 32 bytes of data
    -   Send master acknowledge after every byte received
    -   Send stop condition

3. Repeat the routine in Step 2 for each page of the EEPROM to be read from. However, increment the lower address (send EEPROM lower address) by 32 bytes, for example, 0x20, 0x40, 0x60, 0x80, 0xA0, 0xC0, and 0xE0.

ADM1166/ADM1168/ADM1169 CONSIDERATIONS

Before reading from, writing to, or attempting to erase any EEPROM address in the 0xF800 to 0xF9FF range, the black box function must be disabled. To disable the black box function, write 0x01 to the BBCTRL register at 0x9C. When access to the EEPROM is no longer required, write the BBCTRL register value back to 0x00 to reenable the black box function.

If the memory region 0xF980 to 0xF9FF was erased to clear any existing black box fault records, the next free location that the black box writes to must also be reset by writing 0x01 to the BBSEARCH register at 0xD9.

REVISION HISTORY

10/14—Rev. 0 to Rev. A

3/09—Revision 0: Initial Version

ANALOG DEVICES

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