

---

# Page Program Addressing For MLC NAND Application Note

---

Version 0.2, Nov-2009

**Samsung Electronics**

Copyright © 2009 Samsung Electronics Co.,LTD.



**Copyright © 2009 Samsung Electronics Co, Ltd. All Rights Reserved.**

Though every care has been taken to ensure the accuracy of this document, Samsung Electronics Co, Ltd. cannot accept responsibility for any errors or omissions or for any loss occurred to any person, whether legal or natural, from acting, or refraining from action, as a result of the information contained herein. Information in this document is subject to change at any time without obligation to notify any person of such changes.

Samsung Electronics Co, Ltd. may have patents or patent pending applications, trademarks copyrights or other intellectual property rights covering subject matter in this document. The furnishing of this document does not give the recipient or reader any license to these patents, trademarks copyrights or other intellectual property rights.

No part of this document may be communicated, distributed, reproduced or transmitted in any form or by any means, electronic or mechanical or otherwise, for any purpose, without the prior written permission of Samsung Electronics Co, Ltd.

The document is subject to revision without further notice.

All brand names and product names mentioned in this document are trademarks or registered trademarks of their respective owners.

## **Contact Information**

Application Engineering Group  
Memory Division, Semiconductor Business  
Samsung Electronics Co., Ltd  
Address : San #16, Banwol-Ri, Taeon-Eup,  
Hwasung-City,  
Gyeonggi-Do, Korea, 445-701



## **Purpose**

This application note will show addressing to program for MLC NAND Flash.

This is helpful for mobile system software engineers.

## **References**

SAMSUNG NAND Flash Datasheet.



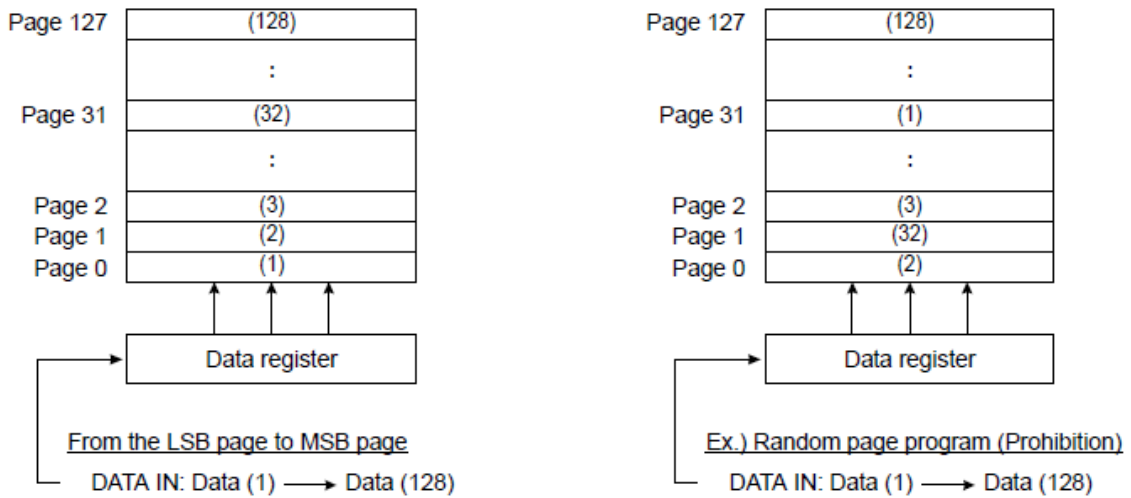
## Table Of Contents

1. Addressing for Program Operation.....	5
2. Example.....	6

# 1. Addressing for Program Operation

Within a block, the pages must be programmed consecutively from the LSB (least significant bit) page of the block to MSB (most significant bit) pages of the block. Random page address programming is prohibited. In this case, the definition of LSB page is the LSB among the pages to be programmed. Therefore, LSB doesn't need to be page 0.

Table 1.1 Page Program Operation example.



If MLC NAND flash were programmed in random page addressing, it will occur to lots of fail bit.

## 2. Example

NAND flash must be programmed to sequential (incremental) page addressing within a block.

### 2.1 Acceptable case



### 2.2 Prohibition case

