ONFI Technical Errata

Errata ID	**020**
Affected Spec Ver.	**ONFI 3.0, 3.1, 3.2, 4.0**
Corrected Spec Ver.	

Submission info

Name	Company	Date
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This errata clarifies that if Volume Select command is issued during a data input operation, upon returning to the Volume in data input operation, the host shall wait tCCS and then issue a Change Row Address command prior to resuming data input.

Description of the specification change

Modify Section 3.2 “Volume Addressing”, 3.2.3 “Multiple Volume Operations Restrictions” shown below:

For a LUN level command (e.g. Read, Program), the host may select a different Volume during a data input or data output operation and then resume the data transfer operation at a later time for a LUN level command. When re-selecting a Volume and associated LUN to complete the data input or data output operation, the following actions are required:

- Data input: The host shall wait tCCS and then issue a Change Row Address command prior to resuming data input. If Change Row Address is not supported, then all data shall be transferred before selecting a new Volume.
- Data output: The host shall issue a Change Read Column Enhanced or Random Data Out command prior to resuming data output. If neither of these commands is supported, then all data shall be transferred before selecting a new Volume.

For a Target level command (e.g. Get Features, Set Features), the host shall complete all data input or data output operations associated with that command prior to selecting a new Volume.

A Volume Select command shall not be issued during the following atomic portions of the Read, Program, Erase, and Copyback operations:

- Read (including Copyback Read) o <CMD: 00h> <ADDR: Column & Row> <CMD: 30h>
  - o <CMD: 00h> <ADDR: Column & Row> <CMD: 31h>
  - o <CMD: 00h> <ADDR: Column & Row> <CMD: 32h>
  - o <CMD: 00h> <ADDR: Column & Row> <CMD: 35h>

- Program (including Copyback Program) **NOTE:** The Volume Select command may be issued prior to the 10h, 11h, or 15h command if the next command to this Volume is Change Row Address. After Volume Select command is issued to resume data input, the host shall wait tCCS before issuing Change Row Address command.
  - o <CMD: 80h> <ADDR: Column & Row> <DIN: Data Input> <CMD: 10h>
  - o <CMD: 80h> <ADDR: Column & Row> <DIN: Data Input> <CMD: 11h>
  - o <CMD: 80h> <ADDR: Column & Row> <DIN: Data Input> <CMD: 15h>
  - o <CMD: 81h> <ADDR: Column & Row> <DIN: Data Input> <CMD: 10h>
  - o <CMD: 81h> <ADDR: Column & Row> <DIN: Data Input> <CMD: 11h>
  - o <CMD: 81h> <ADDR: Column & Row> <DIN: Data Input> <CMD: 15h>
  - o <CMD: 85h> <ADDR: Column & Row> <DIN: Data Input> <CMD: 10h>
  - o <CMD: 85h> <ADDR: Column & Row> <DIN: Data Input> <CMD: 11h>
  - o <CMD: 85h> <ADDR: Column & Row> <DIN: Data Input> <CMD: 15h>

- Erase o <CMD: 60h> <ADDR: Row> <CMD: D0h>
  - o <CMD: 60h> <ADDR: Row> <CMD: D1h>
  - o <CMD: 60h> <ADDR: Row> <CMD: 60h> <ADDR: Row> <CMD: D1h>

Description of the specification change

Modify Section 5.24 Figure 110 "Volume Select timing diagram" Note 1, shown below:

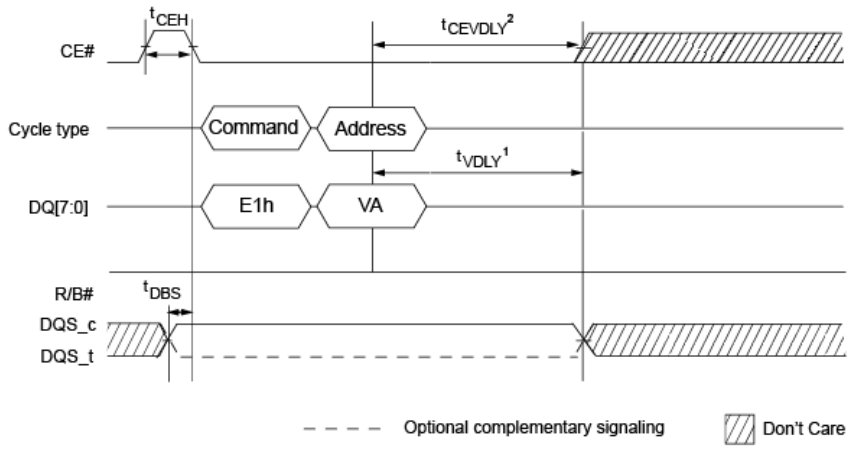

Figure 110 Volume Select timing diagram

Notes:

1. The host shall not issue new commands to any LUN on any Volume until after tVDLY. This delay is required to ensure the appropriate Volume is selected for the next command issued. During a data input operation, Volume Select command may be issued prior to the 10h, 11h, or 15h command if the next command to the Volume in data input mode is Change Row Address. In this case, the host shall wait tCCS before issuing the Change Row Address command.

2. The host shall not bring CE_n high on any Volume until after tCEVDLY. This delay is required to ensure the appropriate Volume is selected based on the previously issued Volume Select command.

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Disposition log

10/5/2016	Erratum captured.

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