ONFI Technical Errata

Errata ID	**002**
Affected Spec Ver.	**ONFI 3.0, 3.1, 3.2**
Corrected Spec Ver.	

Submission info

Name	Company	Date
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This erratum clarifies the discovery process with four channel packages.

This erratum also clarifies “if supported” for DQS high during Set Feature command when performing data interface transition.

This erratum also clarifies and fixes some minor errors in ODT Configure Definition section.

Description of the specification change

Modify Section 3.5.1 as shown below:

3.5.1 Discovery without CE_n pin reduction

There may be multiple ~~up to eight~~ chip enable (CE_n) signals on a package, one for each separately addressable target. To determine the targets that are connected, the procedure outlined in this section shall be followed for each distinct CE_n signal. CE_n signals shall be used sequentially on the device; CE0_n is always connected and CE_n signals shall be connected in a numerically increasing order. The host shall attempt to enumerate targets connected to all host CE_n signals.

The discovery process for a package that supports independent dual data buses includes additional steps to determine which data bus the target is connected to. The LGA, 100-ball BGA, and 152-ball BGA packages with 8-bit data access are the packages within ONFI that have a dual data bus option. The BGA-316 and BGA-272 packages with 8-bit data access are the packages within ONFI that have a quad data bus option.

Modify Section 3.5.1.2 as shown below:

3.5.1.2 Dual/Quad Data Bus Discovery

The CE_n to test is first pulled low by the host to enable the target if connected, while all other CE_n signals are pulled high. The host shall then issue the Reset (FFh) command to the target. Following the reset, the host should then issue a Read ID command with address 20h to the target. If the ONFI signature is returned by the Read ID command, then the corresponding target is connected.

If the ONFI signature is not returned (or any step in the process encountered an error/timeout), then the second 8-bit data bus should be probed. The host shall issue the Reset (FFh) command to the target using the second 8-bit data bus. Following the reset, the host should then issue a Read ID command with address 20h to the target on the second 8-bit data bus. If the ONFI signature is returned by the Read ID command, then the corresponding target is connected and is using the second 8-bit data bus. After discovering that the target is using the second 8-bit data bus, all subsequent commands to that target shall use the second 8-bit data bus including Read Parameter Page. If the ONFI signature is not returned for the second 8-bit data bus, the discovery process described for the second 8-bit data bus should be repeated for the third and fourth 8-bit data busses.

Modify Section 4.5 as shown below:

4.5 Data Interface / Timing Mode Transitions

To change the data interface to NV-DDR or NV-DDR2, or to change any timing mode, the Set Features command is used with the Timing Mode feature. The Set Features command (EFh), Feature Address, and the four parameters are entered using the previously selected timing mode in the previously selected data interface. When issuing the Set Features command, the host shall drive the DQS signal high (if supported by the interface the Set Features command is issued) during the entirety of the command (including parameter entry). After the fourth parameter, P4, is entered until the tITC time has passed the host shall not issue any commands to the device. After issuing the Set Features command and prior to transitioning CE_n high, the host shall hold signals in an Idle cycle state and DQS shall be set to one. In addition, when utilizing the NV-DDR interface the CLK rate shall only be changed when CE_n is high.

Description of the specification change

Modify Section 5.25 as shown below:

5.25 ODT Configure Definition

If ODT Configure is used to specify the Rtt settings for any LUN, then it shall be used to specify the Rtt settings for LUNs on all Volumes. In this case, ODT Configure shall be issued to at least one LUN on each Volume. When an ODT Configure command is issued to at least one LUN on ~~for~~ a Volume, the Volume shall begin using the ODT Configuration Matrix for all LUNs on that Volume. The default value for the ODT Matrix is 0000h, i.e., termination is disabled.

When issuing ODT Configure in the NV-DDR2 data interface, each data byte is transmitted twice. The device shall only latch one copy of each data byte. This command shall not be issued when using the NV-DDR data interface. See section **Error! Reference source not found.**.

When this command is issued and the NV-DDR2 data interface is enabled, then the updated termination settings take effect immediately. The host should take care when modifying these settings ~~while Enhanced is enabled~~ to avoid any signal integrity issues. If issues occur, then it is recommended to transition to the SDR data interface, make the appropriate updates to the termination settings, and then transition back to the NV-DDR2 data interface.

Disposition log

8/6/2013	Erratum captured.
8/7/2013	Minor edits
9/18/2013	Minor edits

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