X3T10/94-156

To: ATA Membership
From: Joseph Chen, Cirrus Logic
Date: 7-20-94
Re: Proposed Changes For the ATA-2 Rev. 2D

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1. CORR Bit Definition:

Consider to change this bit to vendor specific. The content of this bit is not consistent from vendor to vendor due to the (OTF) On-The-Fly ECC correction implementation. Host transfer is not able to synchronize with the disk ECC corrections. Because of OTF ECC correction, the CORR bit implementation becomes vendor specific. The original CORR definition can only apply to older devices.

2. DWF Bit Definition:

Consider to change this bit to vendor specific. Drive Write Fault status was a hardwire signal from the ST-506/412 devices. Embedded drives employ internal retries instead of showing the actual write fault signals to the interface. The reporting of write fault is vendor specific and should be stated as vendor specific. (The old ST-506/412 devices indicate write fault condition to the interface to request host computer to retry if desired)

3. DSC Bit Definition:

Consider to change this bit to vendor specific. Unlike older devices which need 65 ms to seek, new devices have average seek time at 10 ms level, and in some cases, faster than rotational latency. This status was defined for ST-506/412 seek complete signal from the drive, in the embedded devices, there is no hardware signal any more and most vendor just emulating it. The implementation of this DSC bit becomes vendor specific.

4. INTRQ Note:

Request to retain the original note in the INTRQ descriptions.

During PIO data transfer, the INTRQ signal is usually asserted at the beginning of each data block, with an exception that in the first data block of an auto write command, the INTRQ is not asserted. Auto write commands consists of Write Sectors with Retry, Write Sectors Without Retry, Format Track, and Write Buffer commands.

In PIO data transfer , INTRQ is used to inform host computer the device is ready to transfer the data block. In addition, INTRQ is also used to inform the completion of a command execution, such as write or seek commands.

The INTRQ is negated under the following conditions:

1. Reset conditions.
2. Any primary status read (not applied to the secondary status read).
3. Optionally, at the end of a block transfer.

The original note paragraph is to provide this option so that the device can negate INTRQ at the end of data block. It is clear that after data block been transferred, the interrupt to inform host the last data is available is not necessary.

If target device requires a status read in order to release the next block, it can implement status read detection logic. Target device continuing asserting INTRQ at the end of data block is a separate issue with the detection of a status read.