

AHCI 1.3

Errata 007 Draft



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Please send comments to James Boyd
james.a.boyd@intel.com

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1 Correction of State Machine Variables

1.1 Description of Technical Issue

Section 5.3.1 defines pPioESTs, pPioErr, pPioLbit, and pDmaXferCnt as single variables, but they should be listed as arrays with an index of 16 (required when the HBA is performing FIS Based Port Multiplier actions).

1.2 Description of Correction to Specification

Update section 5.3.1 as indicated in red

5.3.1 Variables

- pUpdateSig** This variable is set whenever the HBA needs to update the PxsIG register due to a hard or software reset. It is cleared when the D2H Register FIS which updates the signature is received. On power-up or reset of the HBA port, pUpdateSig is set to '1'.
- pBsy[16]** The pBsy array contains the value of the BSY bit in the Shadow Status register for each device. On power-up or reset of the HBA port, the pBsy array is cleared to 0h. In the case where FIS-based switching is not enabled (PxFBS.EN = '0'), only pBsy[0] is valid and is directly reflected in PxTFD.STS.BSY.
- pDevIssue** This variable is set to the device to issue the next command to. On power-up or reset of the HBA port, pDevIssue is cleared to 0h.
- pDrq[16]** The pDrq array contains the value of the DRQ bit in the Shadow Status register for each device. On power-up or reset of the HBA port, the pDrq array is cleared to 0h. In the case where FIS-based switching is not enabled (PxFBS.EN = '0'), only pBsy[0] is valid and is directly reflected in PxTFD.STS.DRQ.
- pPmpCur** The value of the Port Multiplier Port (PMP) field in the last FIS received. On power-up or reset of the HBA port, pPmpCur is set to 0h.
- plssueSlot[16]** The plssueSlot variable contains the command slot location of the last command issued to each of the devices. On power-up or reset of the HBA port, all plssueSlot variables are set to 32. When FIS-based switching is not enabled, only the first value in the array is used.
- pDataSlot[16]** Each pDataSlot element contains the command slot location of the command to transfer data for the corresponding device. On power-up or reset of the HBA port, all pDataSlot variables are cleared to 0h. When FIS-based switching is not enabled, only the first value in the array is used.
- pPMP** The pPMP variable contains the value in the PMP field of the command table of the last command FIS transferred to the device. On power-up or reset of the HBA port, pPMP is cleared to 0h.
- pXferAtapi** The pXferAtapi variable is set to '1' when a command is issued that had the A bit set for a particular transfer. The pXferAtapi variable is cleared to '0' when a Data FIS is transferred to the device that contains the ATAPI command from the command list. On power-up or reset of the HBA port, pXferAtapi is cleared to '0'.
- pPioXfer[16]** The pPioXfer[x] variable is set to '1' when a PIO Setup FIS is received with a PMP value of x. This variable is used after a data transfer occurs in order to update the Status register appropriately. When FIS-based switching is not enabled, only the first value in the array is used.
- pPioESTs[16]** The pPioESTs variable is set to the E_Status field of the PIO Setup FIS to be stored until the data for the DRQ block is transferred. On power-up or reset of the HBA port, **all pPioESTs variables are cleared to '0'. When FIS-based switching is not enabled, only the first value in the array is used.**

- pPioErr[16]** The pPioErr variable is set to the Error field of the PIO Setup FIS to be stored until the data for the DRQ block is transferred. On power-up or reset of the HBA port, all pPioErr variables are cleared to '0'. When FIS-based switching is not enabled, only the first value in the array is used.
- pPiolbit[16]** The pPiolbit variable is set to the I bit of the PIO Setup FIS to be stored until the data for the DRQ block is transferred. On power-up or reset of the HBA port, all pPiolbit variables are cleared to '0'. When FIS-based switching is not enabled, only the first value in the array is used.
- pDmaXferCnt[16]** The pDmaXferCnt variable is set to the DMA transfer count for a particular DMA transfer. The DMA transfer may consist of multiple Data FISes. The pDmaXferCnt variable is decremented by the size of a Data FIS on each successful reception of a Data FIS. On power-up or reset of the HBA port, pDmaXferCnt is cleared to 0h. An pDmaXferCnt = 0h signals that there was no DMA Setup FIS or PIO Setup FIS corresponding to the data transfer and that the transfer lengths should be constructed based on the PRD table entries only. When FIS-based switching is not enabled, only the first value in the array is used.
- pCmdToIssue** This variable is set whenever the currently fetched command still needs to be transmitted to the device. It is used by the state machine to ensure the command is actually transmitted to the device, especially after a command transmission failure. On power-up or reset of the HBA port, pCmdToIssue is cleared to 0h.
- pPrdIntr[16]** This pPrdIntr[x] variable is set whenever the HBA completes a PRD in either the data transmission or data reception states for the device with a PMP value of x. It is used to generate a PRD interrupt at the end of a successful data FIS. On power-up or reset of the HBA port, all pPrdIntr variables are cleared to 0h. When FIS-based switching is not enabled, only the first value in the array is used.
- pSActive** This variable is set to the value of the SActive field in a received Set Device Bits FIS. On power-up or reset of the HBA port, pSActive is cleared to 0h.
- pSlotLoc** This variable is used to track the command slot location the HBA will issue a command from next if one is available in that slot for issue. On power-up or reset of the HBA port, pSlotLoc is cleared to 0h.