

1.1 Command FIS

A Command FIS is a Host to Device FIS Type (27h) with the C bit set to one. There are three Command Structure mappings into a Command FIS in the serial transport.

- a) 48-bit Command Transport mapping
- b) 28-bit Command Transport mapping
- c) Non-data Command Transport mapping

(I am not sure the third one is needed)

1.1.1 Command FIS - 48-bit Command Transport Mapping

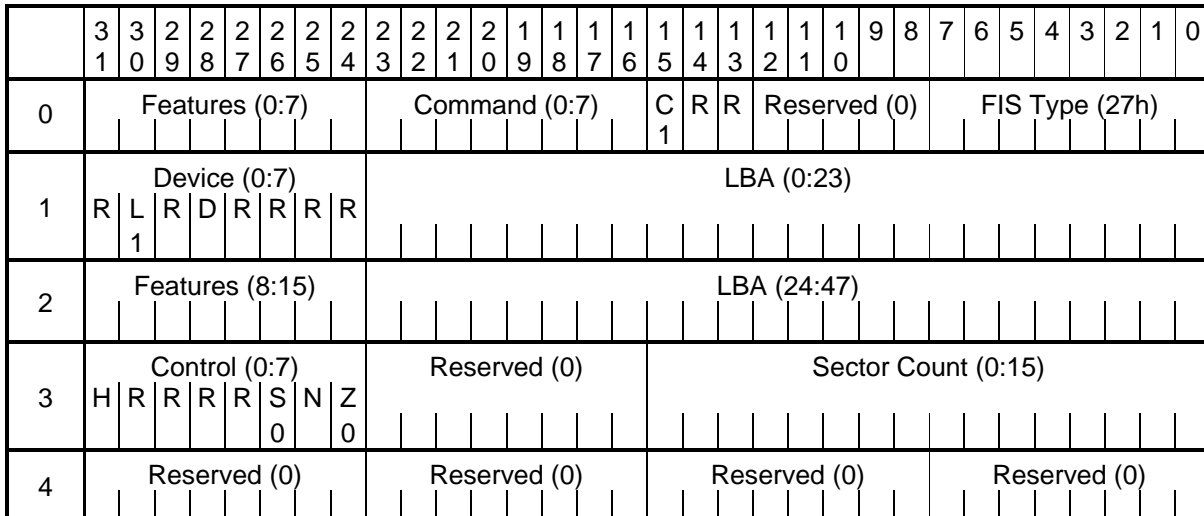


Figure 1 - Command FIS - 48-bit Command Transport FIS layout

Field Definitions

FIS Type - Set to a value of 27h.

C - This bit shall be set to one to indicate that this FIS is a Command. (See x.x.x for a Control FIS description when C bit is cleared to zero).

Command - word 5 bits 0:7 of the command structure.

LBA - 48-bit value found in the command structure words 2, 3, and 4.

R - Reserved.

Control – Contains bits which are individually assigned to specific functions as defined below. In ATA-7, these bits were mapped to the Device Control Register of the Shadow Command Block for parallel ATA Emulation.

Z – Fixed, This bit shall be cleared to zero

N – Variable, this bit was mapped as the nIEN bit in ATA-7 parallel emulation. This bit is not used in the Serial Transport, and may be transmitted with a zero or a one value. It is recommended that it be cleared to zero.

S – Fixed, this bit shall be cleared to zero. This bit was mapped as the SRST bit in ATA-7 parallel emulation. (See x.x.x for SRST description of the Control FIS when C bit is cleared to zero).

H - Variable, this bit was mapped as the HOB bit in ATA-7 parallel emulation. This bit is not used in the Serial Transport, and may be transmitted with a zero or a one value. It is recommended that it be cleared to zero.

Device – Contains bits which are individually assigned to specific functions as defined below. In ATA-7, these bits were mapped to the Device Register of the Shadow Command Block for parallel ATA Emulation.

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Serial Transport FIS Mapping

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L – Fixed for all commands in the 48-bit feature set. This bit shall be set to one. This bit was mapped as the LBA bit in ATA-7.

D – Variable, this bit was mapped as the DEV bit in ATA-7 parallel emulation. This bit is not used in the Serial Transport, and may be transmitted with a zero or a one value. It is recommended that it be cleared to zero.

Features (0:7) - Contains word 0 bits 0:7 of the command structure (see x.x.x). In ATA-7 parallel emulation, this field was mapped to the Current Value in the Features Register.

Features (8:15) - Contains word 0 bits 8:15 of the command structure (see x.x.x). In ATA-7 parallel emulation, this field was mapped to the Previous Value in the Features Register.

Sector Count - word 1 bits 0:15 of the command structure.

Sector Count (0:7) - Contains word 1 bits 0:7 of the command structure (see x.x.x). In ATA-7 parallel emulation, this field was mapped to the Current Value in the sector Count Register.

Sector Count (8:15) - Contains word 1 bits 8:15 of the command structure (see x.x.x). In ATA-7 parallel emulation, this field was mapped to the Previous Value in the Sector Count Register.

1.1.2 Command FIS - 28-bit Command Transport Mapping

	3	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	9	8	7	6	5	4	3	2	1	0
0	Features (0:7)							Command (0:7)							C	R	R	Reserved (0)							FIS Type (27h)						
1	R	L	R	D	LBA (24-27)				LBA (0:23)																						
2	Reserved (Note 4)							Reserved (Note 3)							Reserved (Note 2)							Reserved (Note 1)									
3	H	R	R	R	R	S	N	Z	Reserved (0)							Reserved (Note 5)							Sector Count (0:7)								
4	Reserved (0)							Reserved (0)							Reserved (0)							Reserved (0)									

Figure 2 - Command FIS - 28-bit Command Transport FIS layout

Field Definitions

FIS Type - Set to a value of 27h.

C - This bit shall be set to one to indicate that this FIS is a Command. (See x.x.x for a Control FIS description when C bit is cleared to zero).

Command - word 5 bits 0:7 of the command structure.

LBA (0:23) - 16-bit value found in the command structure word 4 bits 0:15 and word 3 bits 0:7.

In ATA-7 parallel emulation, these bits were mapped to LBA Low, LBA Mid, and LBA High Registers of the Shadow Command block.

LBA (24:27) – 4 bit value found in command structure word 3 bits 8:11.

In ATA-7 parallel emulation, these bits were mapped to the Device Register bits 0:3 of the Shadow Command block.

R - Reserved.

Control – Contains bits which are individually assigned to specific functions as defined below. In ATA-7, these bits were mapped to the Device Control Register of the Shadow Command Block for parallel ATA Emulation.

Z – Fixed, This bit shall be cleared to zero

N – Variable, this bit was mapped as the nLEN bit in ATA-7 parallel emulation. This bit is not used in the Serial Transport, and may be transmitted with a zero or a one value. It is recommended that it be cleared to zero.

S – Fixed, this bit shall be cleared to zero. This bit was mapped as the SRST bit in ATA-7 parallel emulation. (See x.x.x for SRST description of the Control FIS when C bit is cleared to zero).

H - Variable, this bit was mapped as the HOB bit in ATA-7 parallel emulation. This bit is not used in the Serial Transport, and may be transmitted with a zero or a one value. It is recommended that it be cleared to zero.

Device – Contains bits which are individually assigned to specific functions as defined below. In ATA-7, these bits were mapped to the Device Register of the Shadow Command Block for parallel ATA Emulation.

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Serial Transport FIS Mapping

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D – Variable, this bit was mapped as the DEV bit in ATA-7 parallel emulation.
This bit is not used in the Serial Transport, and may be transmitted with a zero or a one value. It is recommended that it be cleared to zero.

L – Fixed for all commands in the 28-bit feature set. This bit shall be set to one.
This bit was mapped as the LBA bit in ATA-7.

Features (0:7) - Contains word 0 bits 0:7 of the command structure (see x.x.x).

In ATA-7 parallel emulation, this field was mapped to the Current Value in the Features Register.

Sector Count - Contains word 1 bits 0:7 of the command structure (see x.x.x)

In ATA-7 parallel emulation, this field was mapped to the Current Value in the Sector Count Register.

Notes 1-5: This field is not used in the 28-bit command transport mapping in the Serial Transport. Due to prior implementations of ATA and parallel ATA emulation, this field may contain indeterminate values. It is recommended that it be cleared to zero.

Note 1: In ATA-7, this field was mapped to the LBA Low Previous Value of the Shadow Command Block.

Note 2: In ATA-7, this field was mapped to the LBA Mid Previous Value of the Shadow Command Block.

Note 3: In ATA-7, this field was mapped to the LBA High Previous Value of the Shadow Command Block.

Note 4: In ATA-7, this field was mapped to the Features Previous Value of the Shadow Command Block.

Note 5: In ATA-7, this field was mapped to the Sector Count Previous Value of the Shadow Command Block.