KryoFlux
Stream File Documentation

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Revision 1.0- 29/10/2011

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Purpose

This document provides a description of the ***Stream Files*** used by the ***DTC*** (Disk Tool Console) program connected to a ***KryoFlux Device***. A *Stream File* is either produced by the *DTC* program used in **read (imaging)** mode or consumed by the *DTC* program used in **write (backup)** mode. The document also provides assistance on ***Decoding*** or ***Encoding*** *Stream Files*. It is based on my interpretation of the KryoFlux documentations published by ***Software Preservation Society*** and ***KryoFlux Product & Services Limited*** (see references) but it also includes information based on experimentations and programing (using sources from SPS). Note that some sections of this text are taken, almost directly, from the original SPS referenced documents.

I want to thanks **István Fabián** from SPS who has provided to me with a lot of detail information on how KryoFlux device operates and on the code to decode a Stream File.

> *Note: Regular user of the KryoFlux device should not be concerned by the information presented here which is mainly of interest to programmers that want to write tools around the Stream Files.*

The data in the *Stream File* is binary and therefore cannot be displayed or edited with a text editor. It is important to note that *Stream File* content has not been conceived per se as a file format, because it is actually an exact copy of the byte ***Stream Protocol*** used between the *KryoFlux* device and the host system when communicating over an USB link.

The byte *Stream Protocol* is **optimized** for a communication budget and a CPU budget. The KryoFlux SoC has dedicated sampling, communication etc. hardware, but each must be served via interrupts for asynchronous and efficient operation. Therefore the firmware has various asynchronous sub-systems communicating with the hardware, with very specific requirements, constraints and CPU budget. If the firmware fails to serve these, the system will become unusable. You have to realize that a single track can have about 500,000 flux reversals per second for a High Density disks that is streamed to the host computer via a limited bandwidth USB link.

Therefore the *Stream File/Protocol* is defined for *transfer and processing* ***efficiency*** and some complexity arises from this during decoding or encoding.

Note that Stream files are hardware specific (to the KryoFlux device) and therefore are not intended for long term preservation. Therefore it is recommended to use the **draft** format for long term storage of disk data.

> *WARNING: The* ***Stream*** *file format is* ***not finalized*** *and will be changed as needed. We therefore recommend you use the* ***Draft*** *file format. The version described here is Version 2.0 of DTC (currently in beta test) that comes with a slightly enhanced stream protocol that transfers additional data (hardware clock, time stamp, etc.).*

Imaging Floppy Disks with the KryoFlux device

In order to capture everything on a floppy disk, we need to sample all the flux reversals between two ***Index Signals***. The KryoFlux device will start sampling data before the first *Index Signal*, and after the last *Index Signal*. This is important to ensure everything from a disk is captured. Outside an *Index Signal* data cannot be meaningfully decoded.

For various reasons, especially for games, multiple revolutions of data should be captured in a constant stream. This means a stream file may contains more than two *Index Signals*. For SPS purposes, the minimum requirement is five. Having multiple revolutions is generally helpful for analysis.

KryoFlux Clocks & Counters

The KryoFlux Device is operating from a ***Master Clock*** (**mck**). From this master clock two other clocks (obviously synchronous) are derived:

- The ***Sample Clock*** (**sck**) used by the ***Sample Counter*** to sample Flux reversals
- The ***Index Clock*** (**ick**) used by the ***Index Counter*** to sample Index Signals

The clock frequencies are required to convert the *flux reversal timings* and *index timings* values to *absolute timing values* are specified by the KryoFlux hardware, and can be queried using a device command. If the KryoFlux hardware changes at some point in the future, these frequencies may change. The values given here are the default values you should use for the current hardware (unless specific HW info has been passed).

All timings here are represented as (64-bit) floating point values.

Abbreviation	Name	Clock Value
mck	Master Clock	((18432000 * 73) / 14) / 2
sck	Sample Clock	mck / 2
ick	Index Clock	mck / 16

Sample Counter

The ***Sample Counter*** is used to measure the elapsed time between two flux reversals, or between a Flux reversal and an Index Signal. This counter has a width of 16 bits and possible overflows are recorded. This counter is reset after each Flux reversal recording.

Index Counter

The ***Index Counter*** is a "free running" counter (not reset). The value of this counter is recorded each time an Index Signal is detected.

Data Format

Data in a *Stream File* is byte-aligned for processing efficiency. This means that no information is encoded at the bit level and therefore there is no need to break a byte down into bits in order to be interpreted further.

Data stored in 16 or 32 bits words uses the little-endian bytes ordering (the least significant byte first, and the most significant byte last). This does not apply to **Flux Blocks** that use a specific encoding.

Description of Stream Files

The data in a *Stream File* is organized in ***Blocks*** that have a variable length ranging from one to many bytes. The first byte of a stream file *Block* is called the ***Block Header***. It specifies how to interpret the *Block*. A stream file contains two types of *Blocks*:

- The ***ISB*** (In Stream Buffer) blocks that are used to communicate the timing value of the sampled flux reversals.
- The ***OOB*** (Out Of stream Buffer) blocks that are used to help in the interpretation-verification of the *Stream File* as well as to transmit other information like Index Signals timing, or KryoFlux hardware information.

For explanation about the ISB / OOB terminology please refer to KryoFlux Device Behavior

The only useful information stored in a Stream File is:

- Timing of **Flux Reversals**: All data flux reversals detected by the KryoFlux device are stored in *ISB* Blocks.
- Timing of **Index Signals**: All index signals detected by the KryoFlux device are transmitted in special OOB blocks: the *Index* Blocks. The provided Index information allows to compute the precise ***Index Time*** (time between to index signals) as well as to find the ***Index Position*** in reference to the data flux reversals.

Block Header

The interpretation of the information contained in a ***Block*** of data depends on the ***Block Header***. This header can take the following values:

Header	Name	Length	Description
0x00-0x07	Flux2	2	Flux block: New flux reversal coded on two bytes
0x08	Nop1	1	NOP block: Continue decoding at current position + 1
0x09	Nop2	2	NOP block: Continue decoding at current position + 2
0x0A	Nop3	3	NOP block: Continue decoding at current position + 3
0x0B	Ovl16	1	Flux block: Next flux reversal to be increased by 0x10000.
0x0C	Flux3	3	Flux block: New flux reversal coded on three bytes
0x0D	OOB	variable	First byte of an Out Of stream Buffer block
0x0E-0xFF	Flux1	1	Flux block: New flux reversal coded on one byte

ISB (In Stream Buffer) Blocks

An ***ISB Block*** can either be a ***Flux Blocks*** or a ***NOP Block***. Another way to look at it: an *ISB Block* is any types of block that is **not** an ***OOB Blocks***.

Flux blocks

A **Flux Block** is used to store in a stream file the ***Sample Counter*** value, corresponding to the number of ***Sample Clock Cycles*** (sck) between two flux reversals. A *Flux Block* has a *Block Header* in one of these two ranges: **0x00-0x07** or **0x0E-0xFF**.

Remember that to get absolute timing values from the sampled values you need to divide these numbers by the sample clock:

```
AbsoluteFluxTiming = FluxValue / sck;
```

Flux1 block

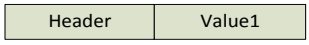
This block allows storing the timing of a sampled flux reversal coded on only **one** byte. The *Block Header* has a value in the range **0x0E-0xFF**.

In this case the value of the sampled flux reversal is directly equal to the value of the *Block Header*. In practice you will find that most of the flux reversal values fall into this range (0x0E-0x0FF) and therefore this contribute to a very efficient coding of the stream file.

```
FluxValue = Header;
```

Flux2 block

This block allows storing the timing of a sampled flux reversal coded on **two** bytes. The *Block Header* has a value in the range **0x00-0x07**.

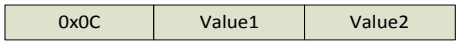


In this case the value of the sampled flux reversal is computed as follow:

```
FluxValue = (Header << 8) + Value1;
```

Flux3 block

This block allows storing the timing of a sampled flux reversal coded on **three** bytes. The *Block Header* has a value equal to **0x0C**.

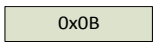


In this case the value of the sampled flux reversal is computed as follow:

```
FluxValue = (Value1 << 8) + Value2;
```

Ovl16 block

This block indicates that the next *Flux Block* has a value superior to the max value of a 16 bits number (0xFFFF). The *Block Header* has a value equal to 0x0B.



In this case the **next** *Flux Block* value is incremented by 0x10000.

```
FluxValue = 0x10000 + NextFluxValue;
```

This block is inserted whenever the ***Sample Counter*** overflows. There is no limit on the number of Ovl16 blocks present in a stream, and so the maximum value for a flux reversal is virtually unlimited, although the decoder in the KryoFlux host software uses a 32 bits value. Flux reversal values that do not fit into 16-bits are quite unusual, but have been found in games that attempt to fool the AGC (Automatic Gain Control) of the drive electronics.

Flux Data Encoding

A Flux2 block could be used to encode data in the range 0x0000-0x07FF. But in practice it is more efficient to use a Flux1 block (only one byte) for encoding data in the range **0x000E-0x00FF**. Therefore the Flux2 is only used to encode data in the range 0x0000-0x000D or data in the range 0x0100-0x07FF. For similar reasons (best efficiency) a Flux3 block is only used for encoding data in the range 0x0800-0xFFFF.

If the flux reversal value to transmit is bigger than 0xFFFF then one or several ovl16 block(s) is (are) used to add 0x10000 to the next flux reversal value.

NOP Blocks

A NOP (No-operation) Block is used to skip one or several byte(s) in the stream buffer. This makes it possible for the firmware to create data in its ring buffer without the need to break up a single code sequence when the filling of the ring buffer wraps. A NOP block starts with a ***Block Header*** in the ranges **0x08-0x0A**.

NOP1 block

NOP1 block is used to skip one byte in the buffer. The ***Block Header*** is equal to **0x08**.

0x08

Just skip this byte during decoding.

NOP2 block

NOP2 block is used to skip two bytes in the buffer. The ***Block Header*** is equal to **0x09**.

0x09	0xXX

Just skip these two bytes during decoding.

NOP3 block

NOP3 block is used to skip three bytes in the buffer. The ***Block Header*** is equal to **0x0A**.

0x0A	0xXX	0xYY

Just skip these three bytes during decoding.

OOB (Out Of stream Buffer) Blocks

An ***OOB Block*** is either used to help in the interpretation/verification of the stream file or it contains specific information (index signal, KryoFlux HW). Note that OOB blocks are sent completely **asynchronously** of the ***ISB*** blocks (please refer to KryoFlux Device Behavior).

An ***OOB Block*** is composed of an ***OOB Header Block*** (always four bytes) followed by an *optional* ***OOB Data Block***. The *OOB Block Header* contains three fields:

- The first field (one byte) contains the ***Block Header*** and is always equal to **0x0D**.
- The second field (one byte) describes the ***Type*** of the OOB (see below).
- The third field (2 bytes) indicates the ***Size*** of the optional ***OOB Data Block***.

0x0D	Type	Size	OOB Data Block

The next optional ***OOB Data Block*** contains information specific to each Type of OOB Block.

The following table lists the different types of ***OOB Block***

Type	Name	Meaning
0x00	Invalid	Invalid OOB
0x01	StreamInfo	Stream Information (multiple per track)
0x02	Index	Index signal data
0x03	StreamEnd	No more flux to transfer (one per track)
0x04	KFInfo	HW Information from KryoFlux device
0x0D	EOF	End of file (no more data to process)

Invalid block

It is not clear when this OOB Block is used but it clearly indicates a problem ☹.

0x0D	0x00	0x00

An Invalid block contains the following fields:

- Type = 0x00
- Size = 0x00?

StreamInfo block

A StreamInfo block provides information on the progress of the data transfer. It is sent whenever the communication and the KryoFlux CPU budget allows it, naturally the ordering of the StreamInfo blocks is guaranteed. It is possible to have several StreamInfo blocks at once. It is used primarily to check that no bytes have been lost during transmission but it can also be used to compute the transfer speed of the USB link between the host and the KryoFlux device.

0x0D	0x01	0x08	Stream Position	Transfer Time

A StreamInfo block contains the following fields:

- *Type* = 0x01
- *Size* = 0x08
- *Stream Position* (4 bytes) indicates the position (in number of bytes) of the OOB Block Header in the stream buffer.
- *Transfer Time* (4 bytes) gives the elapsed time (in milliseconds) since the last StreamInfo block. It is therefore possible to calculate the transfer speed between the host and the board as well as the transfer's jitter.

Index block

This block is used to provide timing information about a detected index.

0x0D	0x02	0x0C	Stream Position	Sample Counter	Index Counter

An Index block contains the following fields:

- *Type* = 0x02
- *Size* = 0x0C (12 decimal)
- *Stream Position* field (4 bytes) indicates the position (in number of bytes) in the stream buffer of the **next** flux reversal just after the index was detected.
- *Sample Counter* (4 bytes) gives the value of the ***Sample Counter*** when the index was detected. This is used to get accurate timing of the index in respect with the **previous** flux reversal. The timing is given in number of ***Sample Clock*** (**sck**). Note that it is possible that one or several sample counter overflows happening before the index is detected.
- *Index Counter* stores the value of the ***Index Counter*** when the index is detected. The value is given in number of ***Index Clock*** (**ick**). To get absolute timing values from the index counter values you need to divide these numbers by the index clock (ick)

For more information on index timing interpretation see Index Timing Consideration and Analysis of Index Information.

StreamEnd block

A StreamEnd block indicates that all the Flux blocks have been transmitted. It also provides a result code that indicates if the streaming was done correctly.

0x0D	0x03	0x08	Stream Position	Result Code

A StreamEnd block contains the following fields:

- *Type* = 0x03
- *Size* = 0x08
- *Stream Position* field (4 bytes) indicates the position (in number of bytes) of the OOB Block Header in the stream file.
- *Result Code* (4 bytes) returns a value as defined below. A value of 0 indicates that the streaming was successful any other value indicates various problems.

Result Code:

Value	Name	Meaning
0×00	Ok	Transfer success (does not imply data is good, just that streaming was successful)
0×01	Buffer	Buffering problem - data transfer delivery to host could not keep up with disk read
0×02	No Index	No index signal detected

KFInfo block

A KFInfo block is used to transmit information from the KryoFlux device to the host.

0x0D	0x04	Size	Info Data (ASCII)

A KFInfo block contains the following fields:

- *Type* = 0x04
- *Size* = number of bytes of the KFInfo data block
- *Info Data* – an ASCII String of information

More details about Hardware Information transmitted can be found in KryoFlux Hardware Information

EOF block

An EOF block is used to indicate the end of the stream file. No processing needs to be done beyond this block.

0x0D	0x0D	0x0D0D

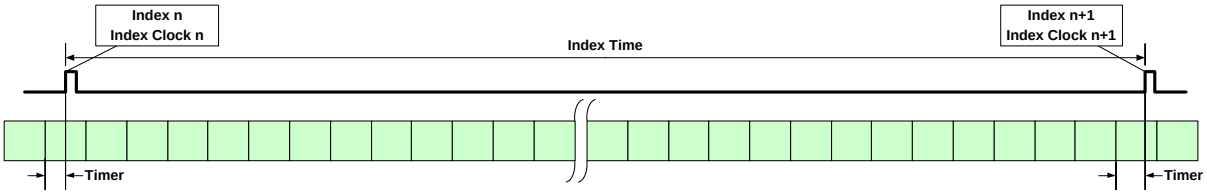
An EOF block contains the following fields:

- *Type* = 0x0D
- *Size* = 0x0D0D (not meaningful)

Index Timing Consideration

Flux Reversal timing values recorded in a *Stream File* only makes sense when the ***Index Signals*** positions are known. Once all of the data in the stream file has been processed, several computations are required on the index data in order to determine:

- ***Index Position***: the exact position where an *Index Signal* occurred in reference to the Flux Reversals. It can be determined during decoding by storing the position of all the flux reversals and the position where each index signal occurs.
- ***Index Time***: This is the time taken for one complete revolution of the disk. It is equal to the number of index clock cycles since the last index occurred. It can also be calculated by summing all the flux reversal values that we recorded since the previous index, adding the ***Sample Counter*** value at which the index was detected (see *Sample Counter* field in Index Block) and subtracting the ***Sample Counter*** value of the previous index. The computation details are explained in Analysis of Index Information.



The ***Index Time*** is important to get the actual RPM. For a perfectly aligned 300 RPM drive the time measured would be 200ms (300 Revolutions Per Minute = 5 revolutions per second, 1/5 second is 200 milliseconds). We cannot assume that this is the case (we know from experience that it very often isn't), and so the current RPM is continuously monitored for each revolution sampled. Note that up until the first index, a reliable Index Time cannot be generated as it will always be a partial revolution.

The ***Index Position*** is also important, as it is the only marker on a disk that can be used to perfectly align data when writing, or deciding on the exact position of data when reading.

RPM Interpolation

To increase reliability, the decoding software can perform RPM interpolation when converting timing to absolute values. If the RPM of one index is significantly different from the following index, it may be that the disk drive doing the reading is unreliable, and the drive speed from index to index is not constant. But even if RPM is very stable, it may have been set incorrectly, like say 301 RPM instead of 300 RPM. This would affect all flux reversals across the track. Since there are hundreds of thousands of samples, the differences will add up eventually. We can moderate this affect by converting each flux value using an interpolated RPM value. Various interpolation algorithms are possible to do this. For example the time measured for the flux reversals can be corrected using the speed of the drive used for reading (e.g. 301 RPM), and the speed of the drive of the intended target platform (i.e. 300 RPM) with the following formula:

```
CorrectedValue = OriginalValue * TargetRPM/ActualRPM;
```

Decoding Stream Files

Decoding of a KryoFlux stream file should be performed in two passes:

- The first pass is used to actually parse the Stream File in order to retrieve and store all the important information (flux/index timing and positioning).
- The second pass is used to analyze the data retrieved in order to compute the exact positioning of the Index Signals relative to flux reversals as well as the index times.

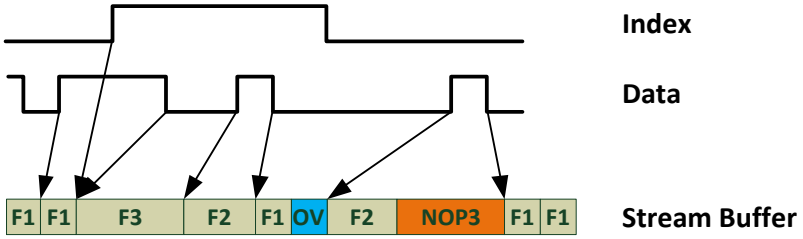
It is also recommended to check if KryoFlux hardware information about SCK and ICK has been passed. If this is the case these values should be used rather than default values.

KryoFlux Device Behaviour

In order to correctly process the data stored in a Stream File it is useful to have a basic understanding of the way the KryoFlux Device operates.

When imaging signals from a floppy drive reading a floppy disk there are to main processes running independently in the KryoFlux device:

- The first process is referred as the **sampling process**. As the name indicates it is responsible of capturing the data from the floppy drive and storing this information in a buffer called the ***stream buffer***. Therefore this buffer only contains the Flux blocks (including Ovl16 blocks) and eventually some NOP blocks (considered as data without value).



  In this hypothetical example (not strictly realistic) we can see that each flux reversal value is stored by the KryoFlux device in the ***stream buffer*** as a Flux1 or Flux2 or Flux3 blocks (see Flux Data Encoding). This value corresponds to the value of the Sample Counter at the time of the flux reversal and once recorded the counter is **reset**. Whenever the Sample Counter overflows an Ovl16 block is stored in the stream buffer. The firmware can also add NOP blocks in the stream buffer when necessary (see NOP blocks). When an index signal is detected the information is **not** placed in the stream buffer but the **position** of the **next** flux reversal in the stream buffer is recorded as well as the value of the Sample Counter (time from previous flux reversal) and the Index Counter.
- The second process is referred as the **transfer process**. It is responsible of transferring the data from the KryoFlux device to the host over the USB link. The first priority of the transfer process this transmit the data stored in the stream buffer. But, whenever the communication and the KryoFlux CPU budget allow it, this process also transmits "extra information": the ***OOB*** Blocks. They are used either to transfer index information or to help in the transfer decoding. These blocks are not part of the *Stream Buffer* and are "inserted on the fly", by the transfer process, between the ISB blocks at unpredictable times. This implies that the information in the OOB Blocks is completely asynchronous from the information in the ISB Block. For example it is possible to transmit information about an Index that refer to a flux reversal net yet transmitted.

The sampling can be stopped after a certain amount of index signals automatically or programmatically via a command; DTC may use both. Right now streaming is requested to stop after a specified number of indices, but if DTC detects certain errors it may send a stop command anyway, that would stop the streaming as soon as possible, i.e. at some random location on the track. Even if sampling is to be stopped at an index signal, since it is independent of streaming, it may or may not stop immediately, it all depends on luck.

The transfer process always sends back all the data that was sampled before signaling the transfer finished to the host. In other words; there may be another one or more samples after the last index signal (if index stop mode used) or there may not be.

KryoFlux Hardware Information

Starting with version 2.0 of the firmware the KryoFlux device transmits information in a KFInfo block. Most of the data transmitted are informative about the version of firmware, hardware etc. Among the information transmitted two strings are particularly important: the sample clock (**sck**) and the index clock (**ick**). Whenever available you should use these values instead of the default values specified in KryoFlux Clocks & Counters section.

Here is an example of the information transmitted:

```
host_date=2011.03.21
host_time=17:20:17
name=KryoFlux DiskSystem
version=2.00
date=Mar 19 2011
time=14:35:18
hwid=1
hwrv=1
sck=24027428.5714285
ick=3003428.5714285625
```

Parsing the Stream File

It is recommended to store the meaningful information in arrays of structures (Flux, Index, and Info) that can be queried by the target application. The arrays should be allocated from the memory pool and released at the end of the program. The memory management of the different arrays is not described here.

Parsing is driven by the ***Block Header*** that defines the nature and length of the Blocks.

All the blocks are decoded in a loop that will scan the complete *Stream File* until an EOF block is found. Each *Block* is processed in three steps:

- We first compute the length of the *Block* based on the header type (this information is used to move the pointer to the next block):
  - For Flux1, Nop1, and Ovl16 blocks the length is one
  - For Flux2, Nop2 the length is two
  - For Flux3, Nop3 the length is three
  - For OOB Block the length is equal to the length of the OOB Header Block (4 bytes) plus the length of the OOB Data Block given in the ***Size*** field (see OOB Blocks). The only exception is the EOF block where the size is not meaningful.
- In the second step we compute the actual value of the flux reversal when the current block is of type Flux1, or Flux2, or Flux3, or Ovl16.

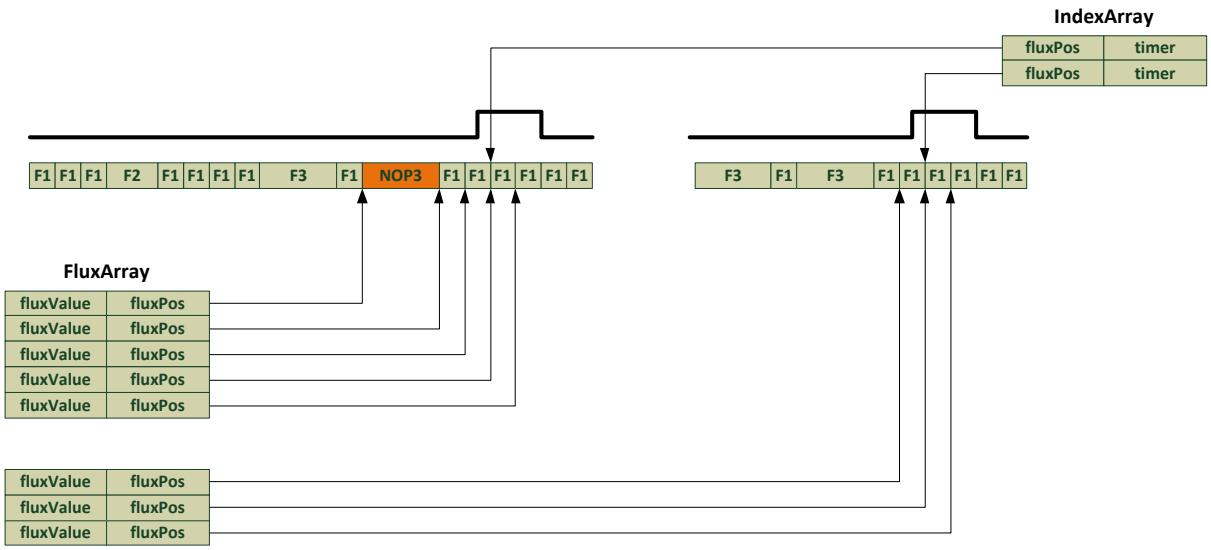
- The final step is to actually process the block:
  - If the data block is of type Flux1, Flux2, or Flux3 we create a new entry in the Flux array and we store the ***Flux Value*** and ***Stream Position***.
  - If the block is a StreamInfo block we use the ***Stream Position*** information to check that no bytes were lost during transmission. We can also use the ***Transfer Time*** for statistical analysis of the transfer speed.
  - If the block is an Index block. We create a new entry in the Index array and we store the ***Stream Position***, the ***Sample Counter*** and ***Index Clock*** values.
  - If the block is a KFInfo block we copy the information into the Info String.
  - If the block is a StreamEnd block we use the ***Stream Position*** information to check that no bytes were lost during transmission and we look at the ***Result Code*** to check if errors where found during processing.
  - If the block is an EOF block we stop the parsing of the file.

When parsing of the stream file is finished we have all the data information in the three arrays (Flux, Index, and KFInfo) but we still need to analyze the Index information as explained in the next section.

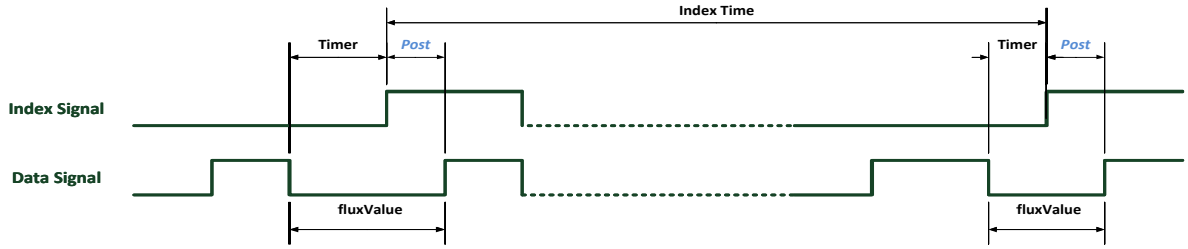
Analysis of Index Information

It is extremely important to be able to position the different ***Index Signals*** in respect with the flux reversals (and vice versa) and it is also important to measure the exact elapsed time between two Index Signals.

For that matter we need to perform some analysis on the stored data. The following pictures shows an example of a buffer containing Flux and NOP blocks as stored in the KryoFlux stream buffer (we could also have found some Ovl16 blocks). As we have seen for each flux reversal we store the **value** as well as the **stream position** and for each Index Signal we store the **Sample Counter** and **Index Clock** values as well as the **stream position** of the next flux reversal when the index was detected as shown in the next picture.



If we look more precisely to the timing information close to two adjacent *Index Signals* we have something like this:



For each Index Signal

- The ***Stream Position*** points to the position of the **next** flux reversal in the stream buffer.
- The ***Sample Counter*** value indicates how far from the beginning of the **previous** flux reversal the index is detected.

So if we want to compute the ***Index Time*** we have to sum all the flux reversals values between the two Index Signals then subtract the ***Time*** value of the first index signal and add the ***Time*** value of the second index signal. Note that all these timing are given in number of sample clocks.

Another alternative to compute the ***Index Time*** is to take the *Index Clock* value of the second index and subtract the *Index Clock* value of the first index. This gives the number of **index clock** between the two index signals.

There are several marginal conditions for the Index signals that you should consider.

Sample Counter Overflows before Index

Some complexity arises if what was written last in the stream buffer is overflow. The stream and index decoder should take care of these cases; the stream decoder has to find the "real" stream position while decoding the data and the index decoder uses has to find the correct index referenced. This is somewhat tricky as at this point flux reversals are already decoded so they only ever are represented by one value, so the index decoder checks the range of stream positions elapsed between two cells.

Index pointing after last flux

The KryoFlux firmware always point to the next position to be written by the sampler. The stream decoder should add an extra empty flux at the end of the stream but this flux is not made part of the decoded stream at this point since we don't know if it happened or not, without decoding the index data. If the index analyzer detects that the index was pointing to a non-existent flux it has to “activate” the empty flux added above.

Index detected before any flux

There is another edge case when an index signal is detected but there is no previous flux reversal.

Encoding Stream Files

Not yet implemented in current release version.

Terminology

- Flux Reversal: A flux reversal or flux transition under the floppy drive head. This is referred as a cell in the original SPS documentation.
- ISB Blocks: Any Blocks that are not OSB blocks (i.e. with a Block Header different from **0x0D**). ***In Stream Buffer*** blocks contain flux reversal information placed in the stream buffer by the KryoFlux sampling process. This is referred as stream data in the original SPS documentation
- OOB Blocks: Informational Blocks used to transmit Index information or to help in decoding stream file. OOB Blocks have a Block Header equal to 0x0D. ***Out Of stream Buffer*** blocks contain extra information (not in the stream buffer) transferred to the host by the KryoFlux transfer process. This is referred as Out Of Band in original SPS documentation
- Stream Position: Position in the original KryoFlux stream buffer (i.e. without the insertion of the OOB blocks)

References

- SPS KryoFlux Project Presentation
- SPS Stream Protocol

Document History

- V1.0 – 29/10/2011 – Added Index analysis marginal cases, KryoFlux HW information (firmware 2.0). Lots of minor fixes and terminology cleaning
- V0.3 – 10/08/2011 – Added Decoding Stream Files section with several graphics. Fixed terminology to be more consistent with SPS terminology. Update based on feedback from **István Fabián**.
- V0.2 – 08/08/2011 – Fixed errors, added information
- V0.1 – 24/07/2011 – Initial draft