Adding Sync to your MB Sequencer

I (dcer10) am new to electronics myself and I found it difficult to get sync working on my sequencer, so to avoid anyone else having this problem again here is the correct way to add sync to the sequencer. I must also state that I came across this information with the help of seppoman, stryd_one, TK, and Bill. I can not claim ownership of the solution!

I may be spelling it out too much for advanced users, but for newbies like my sometimes it is confusing to know what goes where, especially for a part of the MBHP which is not really clearly documented elsewhere. It does seem that there are inconsistancies in the naming on the boards sometimes, and some people will not know the naming conventions ie where RC0 is on the pic, it is easy to miss!

Firstly, you will obviously need a DIN5 panel mount jack from your local electronics shop, a SYNC cable to test with, and some device that will accept sync. Some which come to mind are the Roland TB-303, TR-909, TR-808, TR-606, the Korg KMS-30 and im sure many others. The sync lead is not a midi lead as midi only uses 3 pins and sync uses 4 pins. To be safe make up a cable which has all 5 pins connected 1:1, or test your existing cables for end to end connection on each pin or at least the required pins with your multimeter.

Bill provided this image showing what a properly connected DIN sync cable looks like.

http://jambonbill.free.fr/midibox-kb/Sync24/syncable.gif

For the purposes of using it with the sequencer only the clock and screen are used, start and continue is not implemented.

Once you have the panel mount jack in place you will want to solder the clock pin on the jack to the core module on pin J6:RC which if you are not good with interpreting schematics is top pin on J6. When I say top I mean that if the end of the board with small dot on one end of the pic it is there, and this is the “top” of the core. This pin is also refered to as RC0, and in the setup asm file is called LATC 0. Sorry to say all that, its just that I couldnt find any documentation that told me which pin it was, and different people would say use RC0, or LATC 0 etc and it made no sense, it is J6 rc, the top pin.

The screen pin on the sync then is connected to the ground pin on J6 on the core which is the bottom pin of J6. If in doubt just check with your multimeter which one goes to earth at any other point on the core board and that is the earth pin, the one which won't connect to earth anywhere else is the clock pin.

I hope over simplifying it hasnt confused anyone more!! It is really a simple thing.

The following is taken from the standard setup_mbseq_v2 file:

```
;; define the pin which should be used as external 24ppqn clock output here
;; DEFAULT_EXT_CLK_LAT can be LATC (Pin 0, 1, 2, 4, 5) or LATD (Pin 4)
;; Note that this should be an exclusive pin. E.g., if an AOUT module is
;; be connected, LATC.5 and LATD.4 are already allocated. If an AIN module
;; is connected, LATC.0, .1 and .2 are already allocated
;; if a second LCD is connected, LATC.4 is already allocated
;; The external pin is disabled with DEFAULT_EXT_CLK_LAT == 0
```

```
#define DEFAULT_EXT_CLK_LAT LATC
#define DEFAULT_EXT_CLK_PIN 0
```

The bottom line defines the pin used for the clock out, and can be canged should you need to, but take the considerations into account mentioned. In this V2 file there is also this option:

```
;; the external clock can be divided, the setting can also be changed in the
BPM menu
;; 0: 96 ppqn (won't work, clock permanently 1)
;; 1: 48 ppqn
;; 2: 32 ppqn
;; 3: 24 ppqn (standard)
;; 4: 24 ppqn / 2
;; 5: 24 ppqn / 3
;; etc...
#define DEFAULT_EXT_CLK_DIVIDER 3
```

where you can change the parts per quarter note ppqn setting. I think that this is related to the various formats of sync that exist out there ie Korg and Roland units use a different sync method. I think that the standard one is the setting used by Roland. Im not 100% about this part, and in the V3 of the sequencer it looks like this particular setting is omitted.

Usage:

On my TR-909 you turn it on, I always put it into pattern mode, then pattern write, then hold shift and press tempo mode twice which will activate the sync in, then you need to press stop/cont as the sequencer wont send this message for you, then press play on the seq and it should be working!

Thats already too much to say about such a simple thing, so there you go. I hope it helps other people out there keep using their old Roland and Korg gear with their Midibox Sequencers.

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