Thank you for your interest in my hobby project "Run-DMD". I hope you enjoy it as much as I did building it.

Run-DMD is a dot matrix display (DMD) control board with support for a 128x32 pixel (LED or plasma) pinball DMD or 2 linked 64x32 pixel HUB08 DMDs. Run-DMD will display the current time mixed with random animations from a Secure Digital (SD) memory card.
Please note that I take no responsibility for any legal consequences that may occur from using Run-DMD with copyright protected (or in any other way illegal) data.

Please follow the below instructions carefully to ensure correct functionality and avoid damage to the components!

Use normal safety precautions as you would when handling any sensitive electronics. (http://www.circuitrework.com/guides/2-1.shtml)

If you have any questions please contact me at info@run-dmd.se

Thanks again for your support!

Best Regards,
Torbjorn QL Nilsson

Making the connections using HUB08 DMD modules:

(The Run-DMD board you received might look slightly different than pictured below, but functionality, compatibility and performance are identical!)
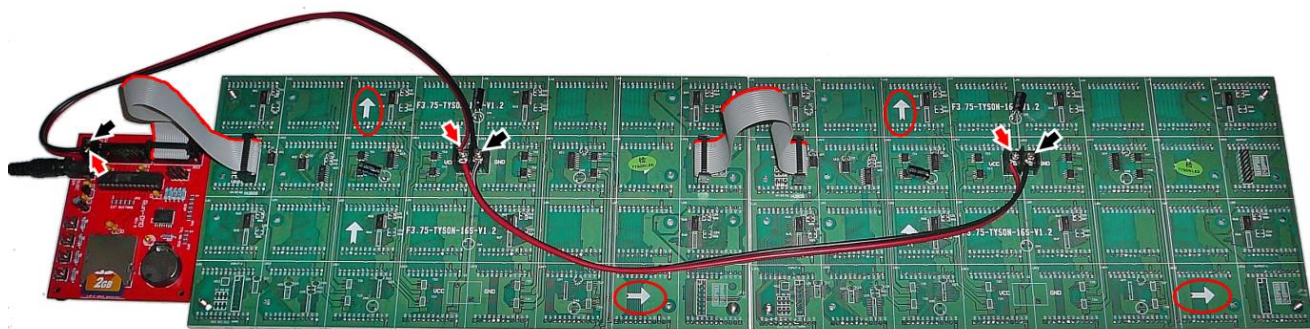
1. Install the included CR2032 battery in the holder on the Run-DMD.
   (During startup the Run-DMD will indicate if this battery needs replacing.
   The first power up after installing/replacing the battery Run-DMD will still indicate "Replace battery" to alert you that the clock settings have been lost and needs to be corrected.)

2. Make sure that the SD card is securely inserted into the holder on the Run-DMD.

3. Connect the DMD power cables.
   Fasten one red/black cable between the Run-DMD ("5VDC DMD PWR") and the first DMD module. Red lead from "+" to "VCC", black lead from "-" to GND.
   Connect the second power cable between the DMD modules, VCC to VCC (red) and GND to GND (black).

4. Connect the data signal cables.
   Insert one end of the first cable in the Run-DMD "HUB08 DMD" connector, the other end to the first DMD module "INPUT" connector.
   The second data cable should be connected from the "OUTPUT" of the first DMD module to the "INPUT" on the second DMD module.

   Important:
   a) Make sure that both DMD modules are lined up so that the horizontal arrows on the back of them are pointing *AWAY* from the Run-DMD.
   Make sure the data cables are installed with the red edge turned UPWARDS according to be vertical arrows on the back of the DMD modules.

5. Verify that both power cables and data cables are correctly and securely installed and fastened.

6. Connect a power supply (5V/8A/DC/center pin +) to the Run-DMD and a 220-240V outlet.

7. Make sure that the indicator LED on the power supply lights up.
   If not, disconnect the power supply immediately and check the connections.

8. Verify that the LED on the Run-DMD flashes correctly:
   a) Does not light up at all: No power? Incorrect connections? Damage to component C5 on the Run-DMD?
   b) Flashes rapidly: SD card missing? Corrupt data on the SD card?
   c) Flashes steady once per second: Run-DMD is working OK! ☺

9. Verify that the video displayed on the DMD is correct. If not:
   a) Does the Run-DMD LED flash once per second?
   b) Are the power connections to the DMD modules correct?
   c) Are the data cable connections the DMD modules correct?
   d) Is the correct DMD module type selected? (See configuration instructions)
   e) Check the "DMD_COLOR" jumper settings (if equipped)

10. Build a nice mounting frame and hang it on the wall!
    Note that the Run-DMD and DMD modules have exposed sensitive electronic circuitry, make sure that the circuitry never gets in contact with metal or other conducting materials!

Please note that the power supply unit might get hot and therefore requires proper ventilation!

If connecting an extension cord between the Run-DMD board and the power supply, make sure it is rated to handle 8A (40W) of power.

If only a standard pinball LED DMD is connected to the Run-DMD, a 5V 3A power supply might be sufficient.
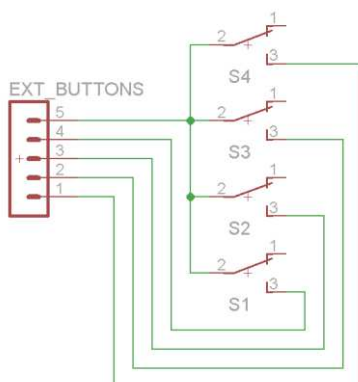
Configuring Run-DMD

Run-DMD have 4 buttons used for configurations BTN1, BTN2, BTN3 and BTN4 (or S1, S2, S3, S4 with the same functionality).
All configuration settings (except current time) are stored in the SD card, therefore if the SD card is upgraded or replaced the settings might need to be adjusted.

External buttons can be wired to the "EXT BUTTONS" connector:

On your Run-DMD board there may be a set of 4 jumpers marked "DMD COLOR".
These jumpers should normally never be moved, but can used to adjust the Run-DMD to work with green HUB08 DMDs.Your board may also have "ICSP", "TTL RS-232" or "I/O" connections, these are not in use.

Set type of DMD connected to Run-DMD
(Run-DMD can control various types of pinball and HUB08 display modules, but due to the lack of a true HUB08 signal "standard" it can not be guaranteed that all HUB08:s will work with Run-DMD.)
Make sure your DMD is correctly powered and firmly connected to the "PINBALL DMD" or "HUB08 DMD" connector on the Run-DMD.

1. Disconnect the power to the Run-DMD board and wait at least 15 seconds.

2. Keep button BTN3 (S3) pressed while reconnecting the power.
   The LED on Run-DMD will now be constantly lit, exception for very short interruptions about every 4 seconds.
   Run-DMD will now cycle through all different DMD display types, displaying a "test image" for about 4 seconds for each type of DMD. The whole cycle will take about 30 seconds before it starts over.

3. Press button BTN4 (S4) while the displayed "test image" is correct.
   The display setting is now saved and the Run-DMD starts up with the new DMD setting.
   If the wrong DMD type was selected or the type of DMD connected to Run-DMD has been changed, just repeat the procedure.

Please note that if you have a LED pinball DMD (or newer type of Plasma) connected to the Run-DMD, both the "Pinball LED" and "Pinball Plasma" setting will work. In this case choose the "Pinball LED" for higher image quality.

Set current time (BTN1)
Verify that the CR2032 is healthy and correctly inserted onto the Run-DMD.
While Run-DMD is running press button BTN1 (S1).
Follow the instructions on the DMD and set current time.

Time display brightness (BTN2)
While Run-DMD is running press button BTN2 (S2).
Follow the instructions on the DMD and set the brightness of the clock digits.
At the lowest setting the clock will the hidden.

Show time with seconds (BTN3)
While Run-DMD is running press button BTN3 (S3)
The setting to show or hide seconds on the time display will be toggled.

DMD brightness (BTN4)
While Run-DMD is running press button BTN4 (S4)
The DMD overall brightness setting will be toggled.