LaserCon "Merlin-Dx"
Installation Instructions
Design and Control Firmware Version 1.x - by Shaun D. Wood

The Merlin board is a multi-game replacement ROM board for Cinematronics' Dragon's Lair or Space Ace arcade machines (1983-'84 versions only). It provides multiple versions of Dragon's Lair, Space Ace, and (optionally) Dragon's Lair 2 to be played in your one game cabinet. This "Dx" version is specially programmed to control The Dexter laserdisc-replacement player, which is a solid-state video player. You must have a Dexter to use Merlin-Dx. If your arcade machine is using a laserdisc and laserdisc player, then you will need a different version of Merlin. Please email me for more information.

Installed ROM sets:
           Dragon's Lair – F2 (original factory game)
           Dragon's Lair Enhancement 2.1
           Dragon's Lair - Prototype game
           Space Ace – A3 (original factory game)
           Space Ace Enhancement 1.0

Optional ROM set:
           Dragon's Lair II Enhancement - Time Warp

Parts List: Merlin board, Dip-Switch sheets and these instructions.

Before you begin your Dexter installation, please watch Dexter's "How To" videos at this site...
https://www.daphne-emu.com:9443/phpBB3/viewtopic.php?f=28&t=3031

Part 1: Install and Configure your Dexter:

1. Mount Dexter inside your cabinet.

   Only attach the power, audio and video cables at this time.

   Do not attach the ribbon cable.
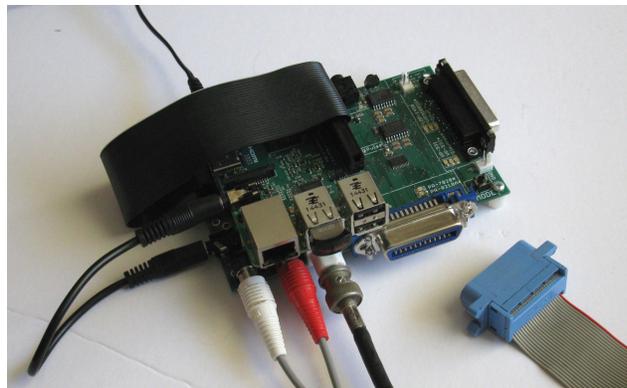
Download and un-zip the "Dexter Manager" software to your PC.
http://www.laserdisc-replacement.com/download/DexterManagerBase.zip

Open the folder " DexterManagerBase"
Double click and run the file "DexterManager.exe"
Click "Update all" to update the manager software to it's latest version. If you
don't see an "Update all" button, then you are up to date.

When finished updating, the software will restart. If Windows Firewall asks
permission to access the internet, click "Allow Access".

Exit/Close Dexter Manager.

2. Download and un-zip the "Merlin Menu disc" to your PC.
http://www.wood1st.com/LaserCon/Dx/merlin-disc-v1.zip

Remove the USB drive from your Dexter
and plug it into your PC.
Copy the file "merlin-v1.ldimg"
to the folder "disc" on the USB drive.

3. Re-Start Dexter Manager (DexterManager.exe) with the USB drive still in the
computer. You should now see all of discs you purchased with your Dexter,
along with "Merlin Menu" listed in the main window of the Dexter manager
software. You should also see a button in the upper right corner.
Click "Update all" to update the Dexter firmware on your USB drive.
Bullet the Merlin menu and then click "Save Changes" and exit Dexter Manager.

Down near the clock on your Windows PC, find and click the "Safely Remove
Hardware and Eject Media" icon.

4. Remove the USB drive from your PC and place it back in Dexter.

With the game control ribbon cable disconnected, power up your machine.
Dexter will begin the process of updating it's firmware and image files. This
process will take approximately 20 minutes. Do not power down until all screen
activity has stopped, and the screen has remained black for over a minute.

Power off the machine once the updating has finished.

(If you are unfamiliar with un-zipping and moving files within Windows,
  please email me for assistance.)

Part 2: Install Merlin and Configure your game board:

1. Remove the main board from the game cabinet.
   Disconnect the 40-pin ribbon cable and remove the four nuts holding the original ROM board in place.
   Reverse the process to install the new Merlin board.
   Do not re-install the board yet.
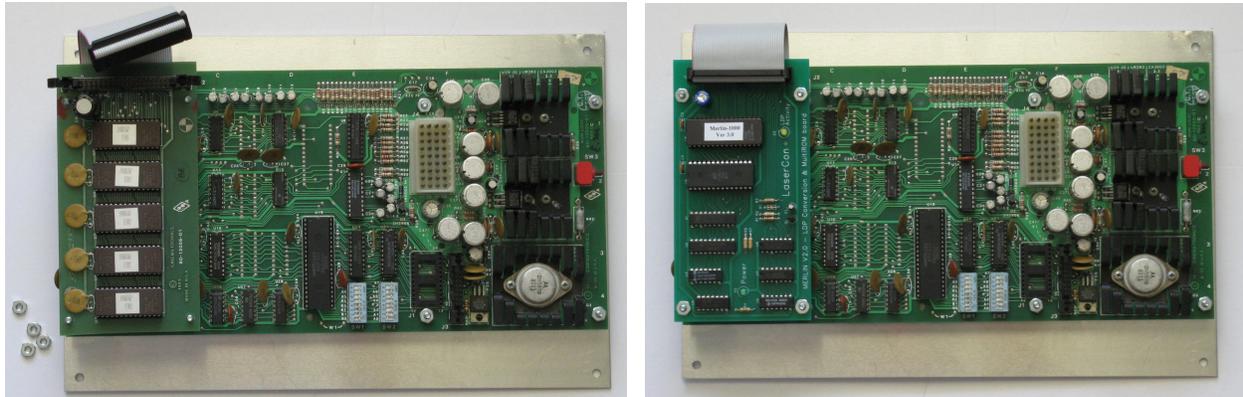
2. Use the included "switch settings" sheets to set your board's dip-switches.
   The original switch settings from the manuals are no longer valid when using the Merlin board. Keep the new dip-switch charts within the machine.

   *Note: The circuit board is printed with A0-A7 and B0-B7.
         The switch banks are printed with 1-8.
         Ignore the incorrect #s printed on the switch banks.

3. Install the player control ribbon cable.
               Please take notice of the orientation in the photo.
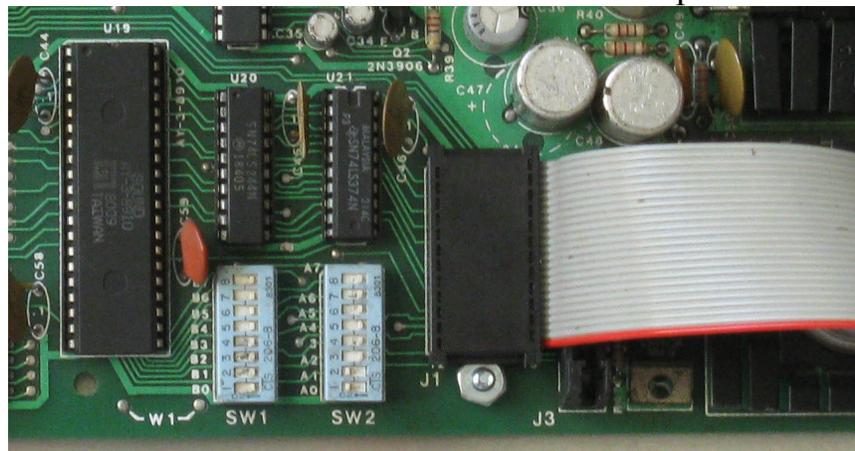
   Re-install the main board back into the cabinet.

4. Connect the player control ribbon cable to Dexter.
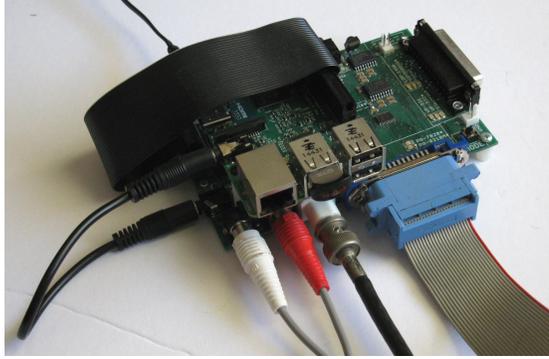
Operation:
Upon power up, you will hear a beep, and Merlin will begin a quick diagnostics.
Your main board type / player-mode will be momentarily displayed in
Player one's score area... '1' for LD-V1000 mode, '7' for PR-7820 mode.

If any Dexter/Merlin communication problems are found, an error code will be
displayed, otherwise the default game will scroll through the Player two score area.
A second beep will be heard, and the results of the board's clock test will be
displayed. Finally, the third "chime" will be heard, and the game will begin.

You may change the game by holding LEFT + SWORD/FIRE for 4 seconds.
This only works *while the attract is playing*, not during game play, nor during
"deposit coins" type screens. The game will stop, and the game selection menu will
come on. Move the joystick to select the desired game. Press Sword/Fire to start
the game.

Error Codes:
E1 - Command/Ready remains HIGH
E2 - status stays LOW
E3 - status stays LOW after a HIGH
       E1-E3: Check ribbon cable for proper connection (part 2, steps 3-4)
E4 - LD I/O error (U20, U21)
       E4: Main control board is defective
E5 - Dexter version error
       E5: Use Dexter Manager to update firmware (part 1, steps 3-4)
E6 - No Merlin menu disc
       E6: Download and install Merlin menu disc (part 1, steps 2-4)
E7 - No game discs loaded in Dexter
E8 - No usable game discs loaded in Dexter
    Contact http://laserdisc-replacement.com/ to obtain DL and SA laserdisc images.

If you have any problems, questions, or comments, contact me at
shaun@wood1st.com