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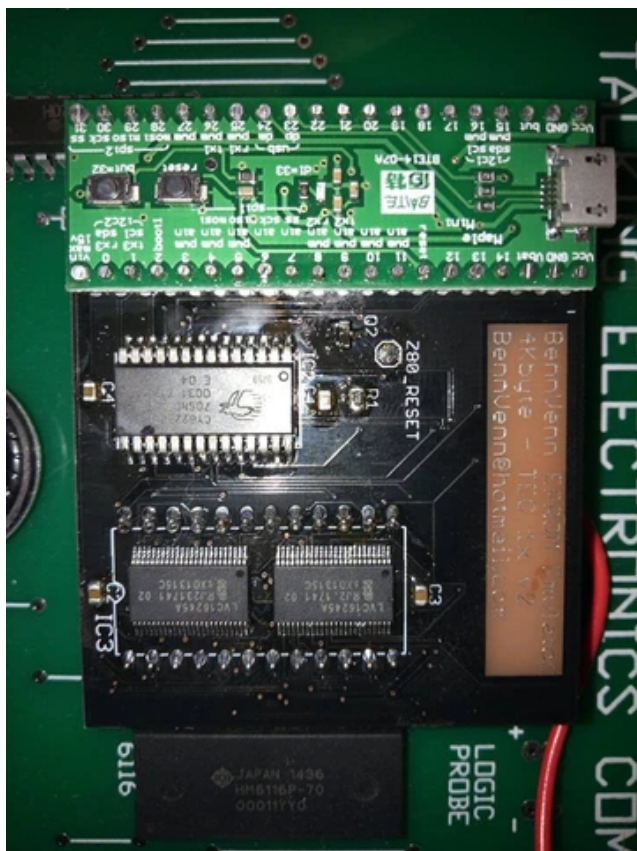
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TEC TALK

A page centred around the Talking Electronics Computer, an Australian designed Z80 based learning computer from the 80's.

My Eprom Emulator:



The files are [here](#):

Inside you will find the *Unsigned* driver which needs to be installed. If you're on win10 you're in for a frustrating 10minutes! A snappy google will show you how to do it. Note: The procedure changes with most major updates so look for a recent guide. This will probably have to be done after every major update as windows will kick out any unsigned drivers.

Included in the RAR archive are:

Z80Upload - This is the tool to send a .bin file to the Emulator. Eg. Z80Upload Foo.bin This will automatically hold your Z80 in a reset state, upload the file then release for the TEC to boot the new binary file. There's no offsets implemented so the file will write to the RAM on the emulator from \$0000.

Speech.ASM - A bit of assembly to make the TEC Speech module talk.

Make.Bat - a small batch file to Assemble Speech.ASM then send it to the Z80.

TASM - Google this, its not mine but is what I like to use.

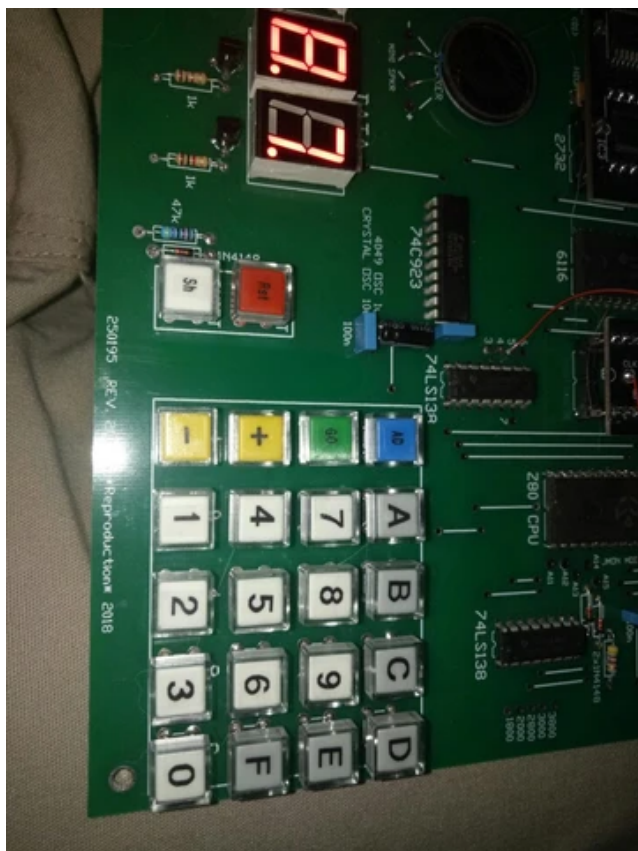
The other files: Python back end for the Z80Upload program, some TASM files.

I recommend Geany as an IDE. Great formatting for assembly, and you can integrate TASM and Z80Upload into it easily.

Hope this gets you started!

TEC Firmware!

I've made a little change to fix the keypad layout. Feels more intuitive. Monitor 2 ROM is [here](#):



The changes to the code are:

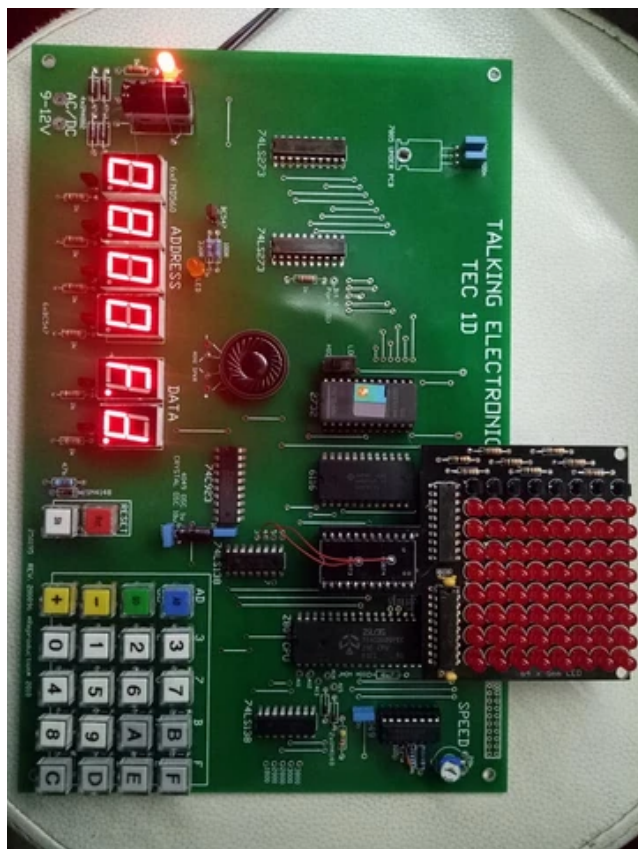
Redirecting the NMI address (0066h) to 'KeyRemap' (06E0h - Empty area at the end of the ROM). It is important to pad the ROM with data to keep all the addresses in their correct location.

```
NMI:    JP KeyRemap
        NOP
        NOP
        NOP
        NOP

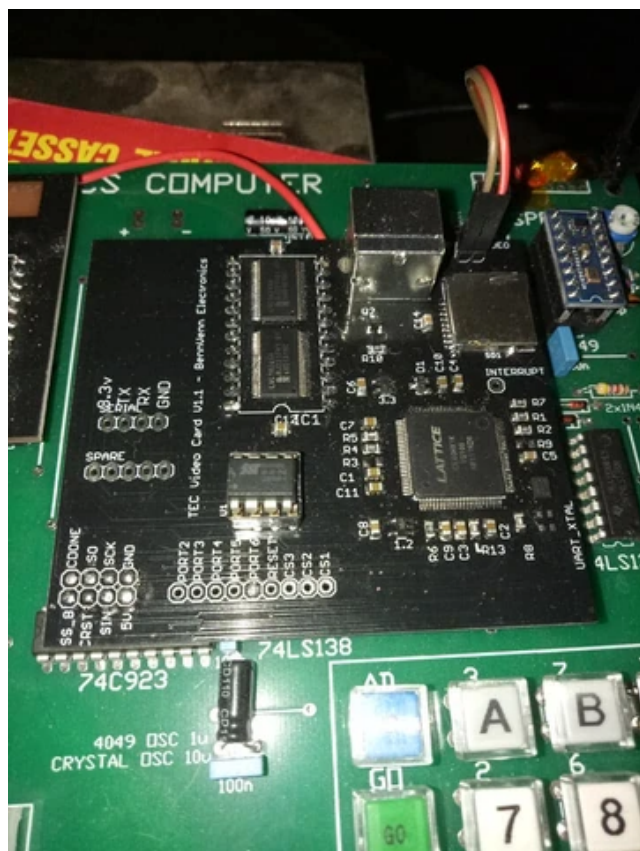
        .org 06F0h
KeyRemap:
        IN A, (00H)
        AND 1FH
        push HL
        ld H, 07
        ld L, A
        ld a, (HL)
        pop HL
        LD I, A
        RET
        .org 0700h
MAPremap:
        .DB 01, 04, 07, 0Ah, 02, 05, 08, 0bh, 03, 06, 09, 0ch, 00, 0fh, 0eh, 0dh ; 0 to F
        .DB 11h, 10h, 12h, 13h, 14h, 15h, 16h, 17h, 18h, 19h, 1Ah, 1Bh, 1Ch, 1Dh, 1Eh, 1Fh
```

The code is just a lookup table to convert the Key data to a new value. Feel free to change the data at offset 0700h to whatever key organisation you like!

Snake! - 8x8 led matrix and ~4mhz xtal required.



My TEC Video Card:





A work in progress. The latest FPGA configuration file is [HERE](#)

The address and port breakdown is as follows:

Base Address of Expansion socket = 0x1000

Mode Register = Port3

Scroll Register = Port4

When in Mode0: - Video RAM Access

Scroll Register = xPssssss

x=dont care

P=Page

s=Scroll Offset

32x32 Character visible screen area located at 0x1000-0x13FF

32x32 Character off screen area located at 0x1400-17FF

1 Page = 32x64 Characters.

When in Mode1: - Character RAM Access

2kbytes Character RAM are mapped to 0x1000-0x17FF

Charaters are drawn as:

0bxxxxxxx ;Byte 0

0bxxxxxxx ;Byte 1

0bxxxxxxx ;Byte 2

0bxxxxxxx ;Byte 3

0bxxxxxxx ;Byte 4

0bxxxxxxx ;Byte 5

0bxxxxxxx ;Byte 6

0bxxxxxxx ;Byte 7

When in Mode2: - Sprite Attribute Access

5 Sprites available

0x1000 - Sprite1 X location

0x1001 - Sprite1 Y location

0x1002 - Sprite2 X location

0x1003 - Sprite2 Y location

Down to.....

0x1010 - Sprite9 X location
 0x1011 - Sprite9 Y location
 0x1012 - Sprite10 X location
 0x1013 - Sprite10 Y location

0x1014 - Sprite1 Tile Pointer
 0x1015 - Sprite2 Tile Pointer
 Down to.....
 0x101D - Sprite10 Tile Pointer

When in Mode3: - Sprite RAM Access
 0x1000 - 0x1007 Sprite1 Character Data (Tiles)
 Down to.....
 0x13F0 - 0x13FF Sprite 128 Character Data

Each sprite can use any one of 128 sprite tiles. This is handy for turning them off (selecting a blank tile) or animation (changing the tile without re-writing new tile data) as well as multiplexing tiles to draw more than 10 sprites on screen at once.

Sprites not valid in location 0,0

When power is first applied, ChrRAM is pre-loaded with the default DOS ASCII character set and Vram loaded with a messages on page 0.

Peripherals : Port5=Peripheral Select, Port6=Data

Interrupt Generator

SD Port:

- Peripheral address 0 - Write
- B0=SPI speed (0=100khz,1=12.5mhz).
- B1=SD_CS (1=selected).
- B2=50hz Int Enable (1=Enable)
- Read -
- B0 = SPI Busy (1=ready for new xfer)
- B1 = Card Inserted (1=Card inserted)
- Peripheral address 1
- SPI Data In or Out. Auto Xfer on writing to Peripheral Port2

Serial Port:

PS2 Port:

Speech Board:



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WHO WE ARE

Located in regional New South Wales, Australia, BennVenn is a small team dedicated to delivering innovative modding hardware at a very reasonable price.

From the early days of cart flashers and save backup devices, we've listened to what enthusiasts and modders want and try our hardest to make it happen.

We've since brought exceptional quality backlight solutions to your GameBoy and GameBoy Color, setting the bar higher with every iteration making installation easier and all up price lower.

We've released our EICheapo brand of flash carts to compete with the popular Everdrive and have successfully reduced their prices almost by half.

This year will be our most ambitious yet with the upcoming release of Backlit LCD's for the GameGear, Lynx and NeoGeoPocketColor. Old products have been overhauled and re-releases are in development including TV-out for Gameboy, Gameboy Color and Gameboy Advance, new DMG LCD kits, Updated flash carts as well as a few collaborations with some big names in the community.

We couldn't have done any of this without the continued support and encouragement from the modding community. A big thank you to everyone who has helped out in the past to make us who we are today!

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