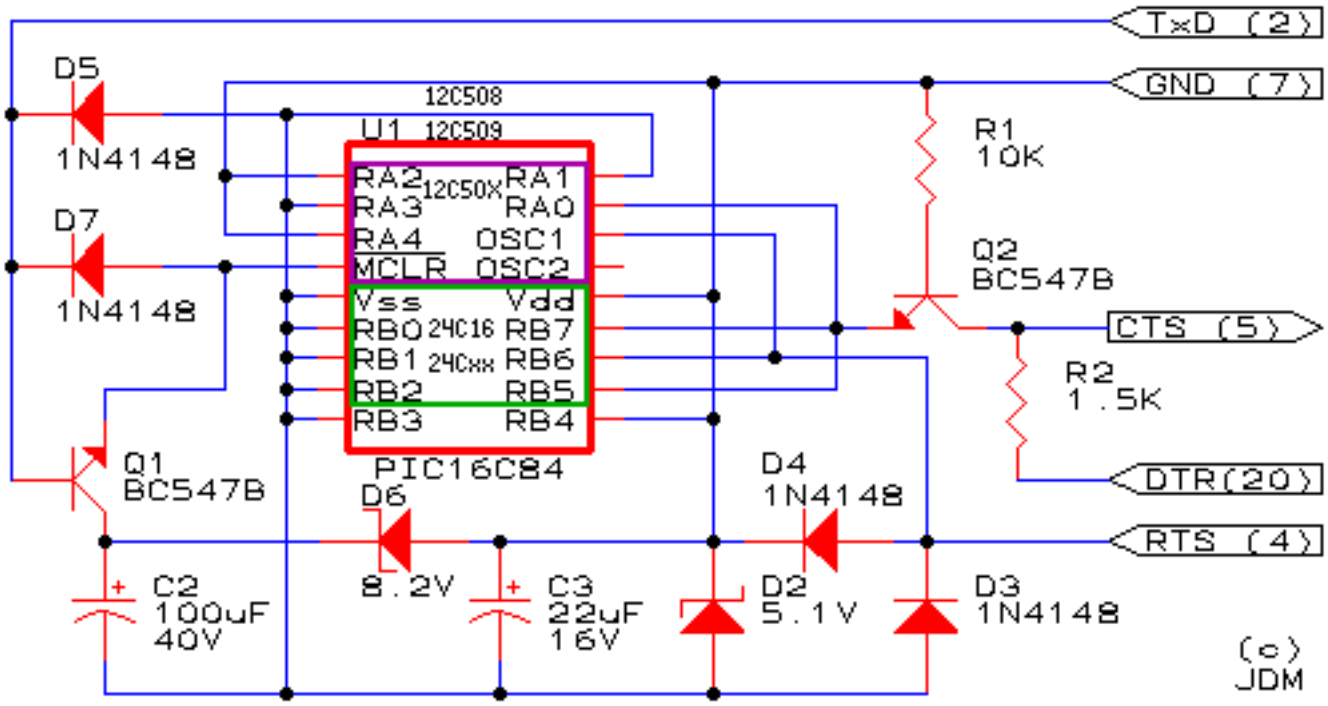
PIC-Programmer 2 for PIC16C84 etc.

This Programmer is powered by the RS-232 and it works with RS-232 levels at only < ±8.6V. It programs PIC12C5XX, 12C67X, 24CXX, 16C55X, 16C61, 16C62X, 16C71, 16C71X, 16C8X, 16F8X and ISO-CARD's with ASF. Other serial programmable chips by adapter. **..**

Photo



The high Vpp is obtained by using negative voltage to drive the chip. The voltage is stabilized with zener diodes. They do not need voltage drop as if a voltage regulator, or has much offset current. This makes it possible to use extra low input voltage. Transistor driver guarantee output level > ±3V.

Features: Utilities now work on Dos, Windows 3.1, Windows 95, Windows 98 and are expected to work on all other operating systems. All software does modemcheck to ensure that modems flash are not programmed by programmer, e.g. if you forgot to swap cable between programmer and modem. It is now possible to program more chips at same time using more of the communication port's while multitasking under Windows. The software automatic optimize delay for cable length and works with modem cables up to 100m. It use the RS232 controler chip only, and does not invoke use of other timers. Also short programming pulses are now hardware controled. Laptops only tested with PIC16C8x and 24Cxx.

The Programmer supports ICSP, In-Circuit Serial Programming.

D5 and D7 may be replaced by a BC557B. Emitter to MCLR and Collector to Vss.

EEPROM adapter for this programmer. (Supports Automatic Switch Function and LC types.)
PCB for this programmer.
Detailed Funtional Describtion.

Download PIP02 beta driver, JDM84V33.ZIP (5K).
Works with windows too.

Download PIC16C84 utilities, PGM84V34.ZIP (38K).
Download PIC16C84 utilities, PGM84V35.ZIP (38K). (Beta version)
New PIC12C508 algorithme, P50XV21.ZIP (32K).
New PIC12C508 algorithme, P50XV22.ZIP (32K).
The utilities is inclusive source. If problems, then use slow version.
Updated 16 dec. 1999.

Most easy PIC-Programmer ever.
Most easy PIC-Programmer ever, w. 220V lamp edition.
Ultra lowcost for PIC16C84 only.
Simple programmer for PIC16C84 and 24Cxx only.

Applications:
How to use the programmer with In Circuit Serial Programming.
Connection to ISO-CARD with Automatic EEPROM Switch.

Which programmer to choose?

Problems?
You may need a diode in RS232 ground, but 24Cxx programming does not work when connecting a diode. Mail if diode is needed. I am not sure if it is computers that need the diode.
Schematic.

Always use last version of software. PGM84V29 has been improved to work better with laptops, and P50X has been updated to use a better algorithme. PGM84V32 and P50XV19 work better - and problems has been solved. P50XV20 is much slower, old versions was too fast.
New in PGM84V34: Small bug, according to Sebastian Edman and Malte Kiesel is corrected.
Also changed to be able to be compiled with free pascal. (Still able to be compiled with Borland Pascal).
Last update: 16. dec 1999.

In case you develope your own routines, and do support my programmers, you do need to check voltage during read, and also programming voltages, since it depends on delays too. Test with more cable lengths are needed and must not result in programming / reading problems. Very slow interrupts, as e.g.

exists in multitasking environments, must not make the voltages drop. An easy multitask test is to program more chips at same time using multiple ports.

Notice: If delays are too short, will PIC12C50X hang and need to be unpluged (Power removed) - and inserted again. Then it works. Use slower version (new versions or PROG50XS.BAT). If 3FFF at read, also use the slower versions. (READ50XS.BAT). Else does it hang, and reads blank.

> **Free routines:** You may use my routines for the PIC-programmer in your own software, but only if your software is free- or if it is shareware. If any changes in my programming routines, it should be described with the documentation of your software package.

You may comment troubles in my guestbook, or just write how you solve it.
I have added a parameter table at http://www.jdm.homepage.dk/param.htm

References:

- PIX Programmer.
- PIP-02 software.
- Original PICBLASTER / Erik Herman.
- COMPIC-1 serial PIC and I2C serial EEPROMs programmer, designed by ORMIX Ltd.
- ICPROG Windows software, version 0.9b02, beta. May not work. But works.

Links:

- Microchip Net resources by Alexey Vladimirov.
- David Tait, PICLINKS.
- Malte Kiesel, additional info and software for the PP2.
- Poul Scrivens, stripboard schematics.
- Jacob Blichfeldt, smartcard programming.
- Jesper Hansens homepage, Nascom 2 emulator, etc. AVR, hardware etc.
- How to make PIC's with high clockspeed.

How to make a processor with the delay between instructions less than a half nano second in standard 1u CMOS. (GHz instruction frequence.)

Z80: Use RESET, NMI and CLOCK to bootload a romless system (RAM only).
Did you know that your PIC's is sensitive to lights?

Guestbook.

I am sorry, but it I have stoped to answer e-mails.

Compatibility with 16F627: Connect RB4 to ground.

Systems Without Memory | Running unknown look-up's | Z80 Bootload
Most PICs | Easy 16C84 | Extra lowcost | Simple+ | EEprom | ISP | ISO
PQ-Programmer | Refresh it | DRAM | CPU | Hardware Simulator | Old files

---

Newpic3 arrives.

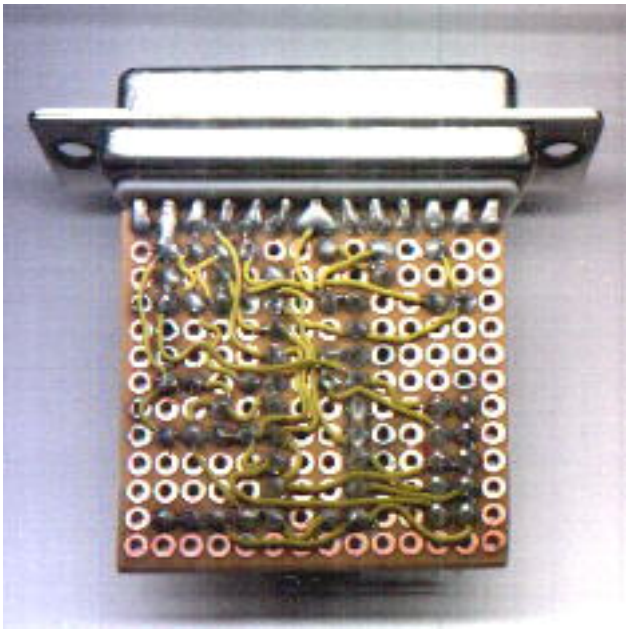
You are visitor no.  since 3 February 2000. Last updated 3 February 2000. Translate

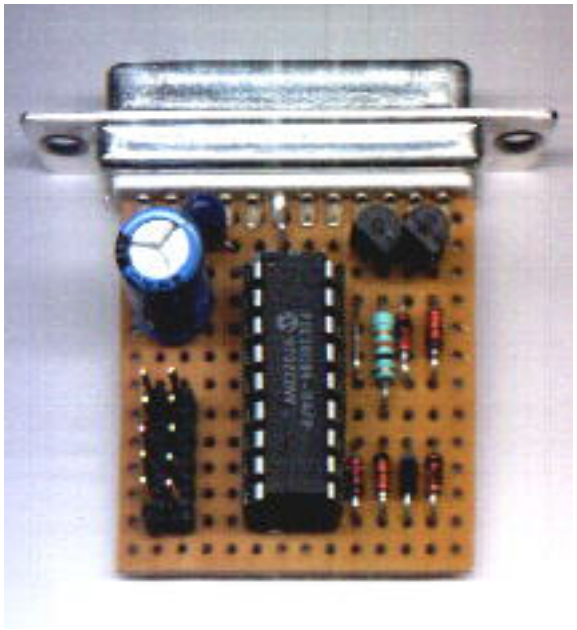
PIC-Programmer 2 for PIC16C84 etc.

This Programmer is powered by the RS-232 and it works with RS-232 levels at only < ±8.6V. It programs PIC12C5XX, 12C67X, 24CXX, 16C55X, 16C61, 16C62X, 16C71, 16C71X, 16C8X, 16F8X and ISO-CARD's with ASF. Other serial programmable chips by adapter. **..**

Schematic

How to connect the wires.





The high Vpp is obtained by using negative voltage to drive the chip. The voltage is stabilized with zener diodes. They do not need voltage drop as if a voltage regulator, or has much offset current. This makes it possible to use extra low input voltage. Transistor driver guarantee output level > ±3V.

Features: Utilities now work on Dos, Windows 3.1, Windows 95, Windows 98 and are expected to work on all other operating systems. All software does modemcheck to ensure that modems flash are not programmed by programmer, e.g. if you forgot to swap cable between programmer and modem. It is now possible to program more chips at same time using more of the communication port's while multitasking under Windows. The software automatic optimize delay for cable length and works with modem cables up to 100m. It use the RS232 controler chip only, and does not invoke use of other timers. Also short programming pulses are now hardware controled. Laptops only tested with PIC16C8x and 24Cxx.

The Programmer supports ICSP, In-Circuit Serial Programming.

D5 and D7 may be replaced by a BC557B. Emitter to MCLR and Collector to Vss.

EEPROM adapter for this programmer. (Supports Automatic Switch Function and LC types.)

Schematic for the programmer.
PCB for this programmer.
Detailed Funtional Describtion.

Download PIP02 beta driver, JDM84V33.ZIP (5K).
Works with windows too.

Download PIC16C84 utilities, PGM84V34.ZIP (38K).
Download PIC16C84 utilities, PGM84V35.ZIP (38K). (Beta version)
New PIC12C508 algorithme, P50XV21.ZIP (32K).
New PIC12C508 algorithme, P50XV22.ZIP (32K).
The utilities is inclusive source. If problems, then use slow version.
Updated 16 dec. 1999.

Most easy PIC-Programmer ever.
Most easy PIC-Programmer ever, w. 220V lamp edition.
Ultra lowcost for PIC16C84 only.
Simple programmer for PIC16C84 and 24Cxx only.

Applications:
How to use the programmer with In Circuit Serial Programming.
Connection to ISO-CARD with Automatic EEPROM Switch.

Which programmer to choose?

Problems?
You may need a diode in RS232 ground, but 24Cxx programming does not work when connecting a diode. Mail if diode is needed. I am not sure if it is computers that need the diode.
Schematic.

Always use last version of software. PGM84V29 has been improved to work better with laptops, and P50X has been updated to use a better algorithme. PGM84V32 and P50XV19 work better - and problems has been solved. P50XV20 is much slower, old versions was too fast.
New in PGM84V34: Small bug, according to Sebastian Edman and Malte Kiesel is corrected.
Also changed to be able to be compiled with free pascal. (Still able to be compiled with Borland Pascal).
Last update: 16. dec 1999.

In case you develope your own routines, and do support my programmers, you do need to check voltage during read, and also programming voltages, since it depends on delays too. Test with more cable lengths are needed and must not result in programming / reading problems. Very slow interrupts, as e.g.

exists in multitasking environments, must not make the voltages drop. An easy multitask test is to program more chips at same time using multiple ports.

Notice: If delays are too short, will PIC12C50X hang and need to be unpluged (Power removed) - and inserted again. Then it works. Use slower version (new versions or PROG50XS.BAT). If 3FFF at read, also use the slower versions. (READ50XS.BAT). Else does it hang, and reads blank.

You may comment troubles in my guestbook, or just write how you solve it.
I have added a parameter table at http://www.jdm.homepage.dk/param.htm

References:

- Jesper Hansens homepage, Nascom 2 emulator, etc. AVR, hardware etc.
- PIX Programmer.
- PIP-02 software.
- Original PICBLASTER / Erik Herman.
- COMPIC-1 serial PIC and I2C serial EEPROMs programmer, designed by ORMIX Ltd.
- ICPROG Windows software, version 0.9b02, beta. May not work. But works.

Links:

- Microchip Net resources by Alexey Vladimirov.
- David Tait, PICLINKS.
- Malte Kiesel, additional info and software for the PP2.
- Poul Scrivens, stripboard schematics.
- Jacob Blichfeldt, smartcard programming.
- How to make PIC's with high clockspeed.
- Jesper Hansens homepage, Nascom 2 emulator, etc. AVR, hardware etc.
- Small PIC12C508, full-costum.

How to make a processor with the delay between instructions less than a half nano second in standard 1u CMOS. (GHz instruction frequence.)

Funny - the chip could hang, and only be activated by power off (and on again), and not by any reset, or watchdog, even that it have not latched up total. (It does not short power total, by that case). Sometimes it works to reconnect - as takeing away power, and add.
Z80: Use RESET, NMI and CLOCK to bootload a romless system (RAM only).
Did you know that your PIC's is sensitive to lights?

Guestbook.

I am sorry, but it I have stoped to answer e-mails.

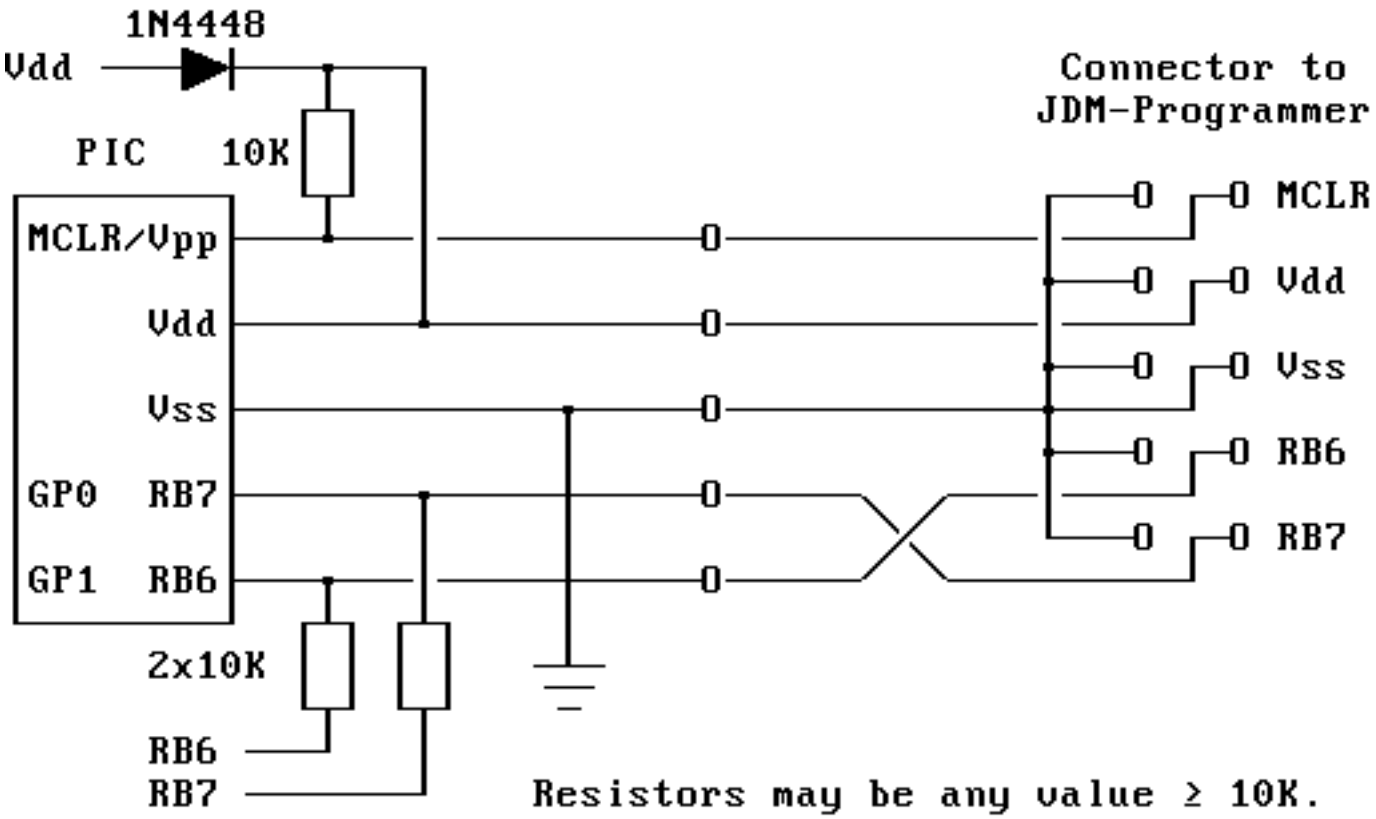
Compatibility with 16F627: Connect RB4 to ground.

Systems Without Memory | Running unknown look-up's | Z80 Bootload
Most PICs | Easy 16C84 | Extra lowcost | Simple+ | EEprom | ISP | ISO
PQ-Programmer | Refresh it | DRAM | CPU | Hardware Simulator | Old files

---

Newpic3 arrives.
 Last updated 3 February 2000. Translate

In Circuit Serial Programming.



Ext. Power Supply should not be added. Programming power is applied by the PIC-Programmer.

E-Mail address: ***Guestbook***.

Systems Without Memory

And how to make it more efficient than most Memory Systems

Fourteen years ago, there was no need for memory at all. Small Z80 systems used an EPROM to store data and the Z80 registers as memory. External SRAM was expensive, and there was no need for it at small computer systems. Instead was stack calculated by hand. It worked as a high-level code interpreted by a return.

```
        ORG     0h

LOOP:   LD      SP,M1   ; Setup stack
        RET             ; Run at the stack

PROC1:  POP     HL      ; Get parameters
        POP     BC      ; for procedure
        ...
        RET             ; Next procedure

PROC5:  CP      A,20h   ; Check if a space
        RET     Z       ; Continue on stack if space
        LD      SP,M2   ; Else setup new stack
        RET             ; And run at the new stack

M1:     DW      proc1,v1,v2,proc1,v1,v3,proc5,...,loop
M2:     DW      proc1,v1,v8,...
```

A sort of high-level code was written in the stack. And the code only contained subroutines and pop's to get the parameters. Beginning was done by return.

The stack calculated by hand was an efficient way to make high-efficient programming and it was more effiecient than using call's, load and push, etc as in typical systems with memory.

Later

E-Mail address: ***Guestbook***.

More Simple than Sinclair

Running unknown look-up's with Z80.

This page shows how it is possible to connect a SRAM and an EPROM in series for a Z80 processor system. It is intended for easy CRT systems. Contens of memory is unknown, and the code executes unknown look-up's in the EPROM.

To run code in EPROM will RAM need to contain a pattern with RAM[adress] = 7..0(adress).

The EPROM is stored with typical 0FFh in bank 0, or RST 38h. It means that the processor begins to execute a RST 38h. The typical value at 0038h is RST 38h too, and a 0039 pattern is now stored into memory due to the recursive process.

```
ORG 0h                  ; Rom bank 0, unused typical 0FFh
        NOP
        JR      0FF88h  ; Jump to entering code.
ORG 38h
        RST     38h
ORG 39h
        EX      (SP),HL
ORG 400h                ; Rom bank 1, other adr. free.
        LD      (HL),L
ORG 439h
        DEC     HL
ORG 839h                ; Rom bank 2, other adr. free
        RST     0h
ORG 0FF88h              ; Rom bank 63.
        ; Code here to initialize RAM, and begin execution of
        ; EPROM code.
```

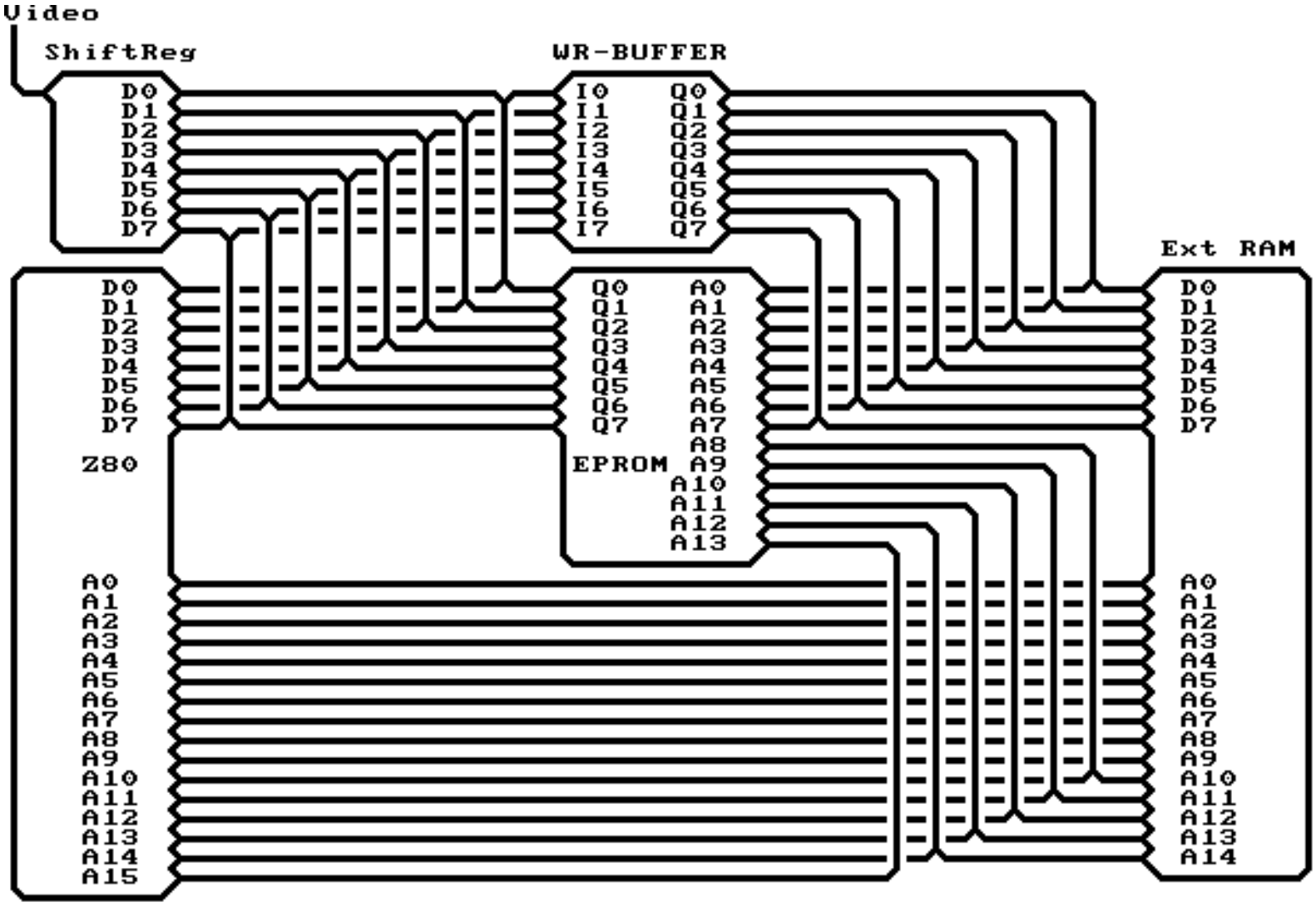
The process continues until RAM is filled with 0039 downto address 0038h. At this address is stored a EX (SP),HL in EPROM, and this instruction loads HL with 0039, and store a random instruction at 0038h. This is look'ed up and replaced by a RST 38h too. Again is RST 38h executing until next time 0038h is reach, and EX (SP),HL executed again.

This time is 0039h stored into 0038h, and instructions at 0h and 39h in EPROM is executing. These are NOP and the EX (SP),HL. These two instructions continues until next EPROM bank is reached.

The next rom bank, located at 4xxh, contain a DEC HL, and LD (HL),L instructions at 400h and 439h. Now is memory from 0039 and down initialized with RAM[adr]:=7..0(adr). Addresses at high memory is initialized too.

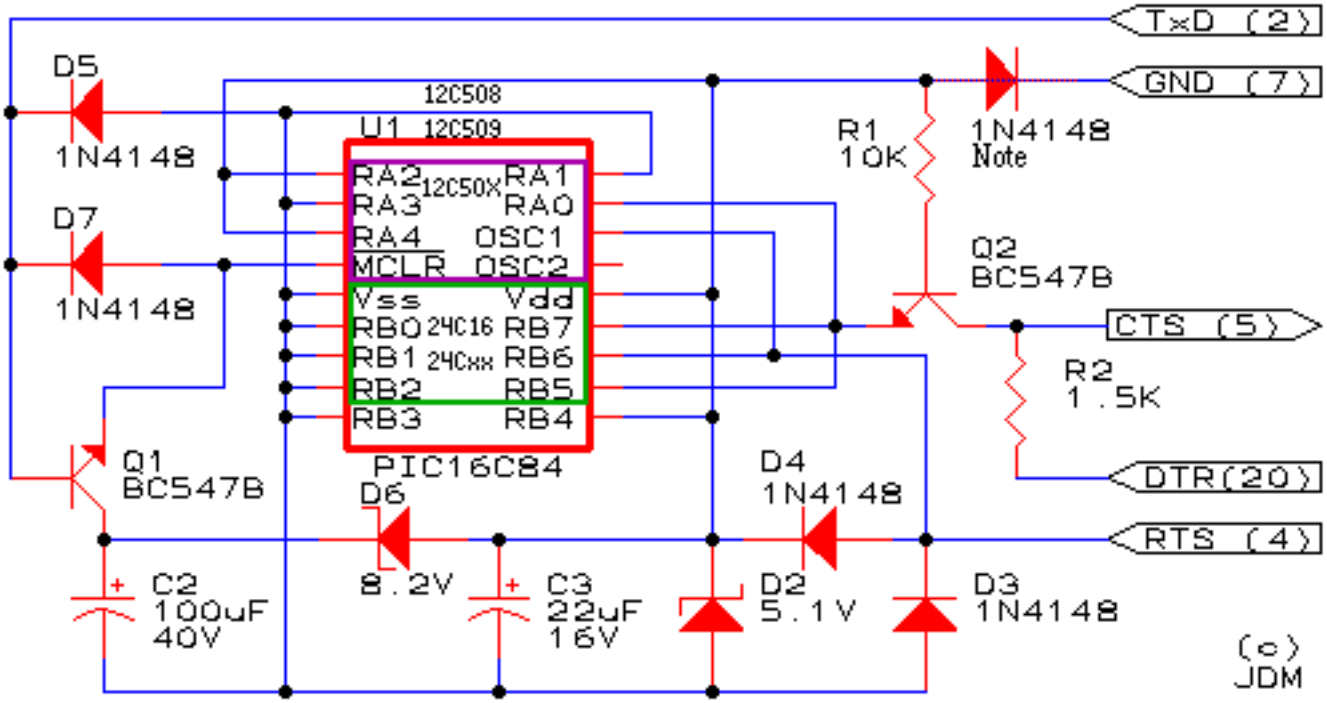
This continues until next rom bank (1024 instructions). Next bank is entered in 839h and this address contains a RST 0h. After RST 0h will processor execute instructions at 0h. It begins with a NOP and then a JR to 0FF88h where code is to initialize memory.

The RAM is now initialized, and execution of EPROM is ready to begin.



Processor System Without Memory.

E-Mail address: ***Guestbook***.


TxD (2)
GND (7)
D5
1N4148
12C508
U1 12C509
RA2 RA1
RA3 RA0
RA4 OSC1
MCLR OSC2
Vss Vdd
RB0 RB7
RB1 RB6
RB2 RB5
RB3 RB4
12C50X
24C16
24Cxx
PIC16C84
R1
10K
1N4148
Note
D7
1N4148
Q2
BC547B
CTS (5)
R2
1.5K
Q1
BC547B
D4
1N4148
DTR(20)
D6
8.2V
RTS (4)
C2
100uF
40V
C3
22uF
16V
D2
5.1V
D3
1N4148
(c)
JDM