

## **How to install and use the Adacom D-ATV firm-and software**

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The system can be assembled in different ways:

The Base-band unit has 4 inputs:

Input TS1 (next to the 60 MHz Xtal) is a FIFO input.

Input TS2 (opposite to TS 1) is also a FIFO input.

Input TS3 (next to input TS2) is not a FIFO input and is mainly used for a D-ATV Encoder

Input TS4 (next to input TS1) is not a FIFO input and is mainly used for a D-ATV Encoder

On input TS1 or TS2 you can connect e.g. a DCF77 module. The puls output signal can, by means of a pull-up resistor of 4k7, be connected to Sc0 = pin 2 of JP6 = the OPTIONAL connector. For more information on the connectors see [DATV\\_BB\\_V35e\\_PCB.pdf](#) (82 KB).

The supply voltage is between 10 and 24 Volts via a plug at the Base-band print. The middle pin = +. The total consumption is about 640 ma (the TX uses 280 ma). Three **GREEN** LED's show the status of the three power supplies 3.3v, 5v and 2.5v (see above PCB.pdf File). Two other LED's mounted near the 27Mhz Xtal are used as follows, the **RED** led when on indicates firmware download to encoder and when off the system has started and running. The **YELLOW** led indicates that firmware in the FPGA is correctly loaded and started.

The Encoder has a Composite and a SVHS input plug. Switching between those two inputs goes via the software.

Next to the video-input plug is the left audio input plug. This board has two LED's, the **green** for the 3.3v rail and the **red** for the 1.8v rail.

The Encoder has a build-in time-base corrector and has been recently activated (July 2002).

All adjustments and controls of the packet are done via the firm-and software and an On-line Menu.

To install the firm-and software the following files have to stay in one directory

Fw16.exe

Mpeg2.binb

mpeg2.mhx

fwtool.exe

The files Mpeg2.bin, mpeg2.mhx and fwtool.exe are updated from time to time and contain the latest firm-and software.

You can download them at <http://www.sr-systems.de>.

The other yellow files are supplied together with the Adacom boards are;

Chipdef.ini

Cygwin1.dll

Download.bat (like e.g.: Fwtool -d /dev/com2 -c sample.txt -W)

M\_flash.385

m2bs.exe

mpeg2enc.exe

sample.txt - This one you make your self. Thomas M. Sailer HB9JNX made this one, therefore a complete copy in English called D-ATV Transmitter Configuration File can be Download at [dvbsconfig.pdf](#) (148 KB).

You will find also a lot of information in this file [sample.txt](#).

Testpicture.mpg or testpicture.m2v. This has to be a data-stream type and can be made with the program TMPGEnc.exe from version 12h onwards. I will give more details further on this page.

### **Installing the Firmware**

1.Power off

2.Set the jumper of JP7 at programming position. This is the position closest to the rs-232 plug .The next position is unused and the position Run is the one next to the power plug.

3.Power on

4.Activate Fw16.exe.Select in the pop-up window-MB90F583B-speed 4 MHz-com 2 (if your rs-232 is connected to COM 2)

5.Search the file mpeg2.mhx

6.Click on AUTO. After a while you will get a little pop-up window saying All OK. Click on OK.

7.Power off

8.Place the jumper back to the Run position.( I use here a switch since it is difficult to change the jumper position after the TX has been mounted on the board)

9.Power on

The firmware is now installed.

**To install the software start fwtool.exe via the download.bat:**

1.A DOS window opens now and you can watch the software installation. If you made a typing-or instruction error in your sample.txt you will get a message that fwtool cannot parse the file and on which line the error occurs.

2.If you see OK, close the window.

3.Power off

4.power on

Your software has been installed now.

**Some more information to help you making your adjustments:**

Choosing SR 6000 will give you a datastream of 12 Mbytes. Some thousands bits will be used for external FEC\*188/204 and the chosen internal FEC e.g. 5/6.

Tele-text uses maximal  $8*188*8*25=300$  Kbytes. The Tele-text Encoder is however a "best effort" type and will put less bits in the datastream if there is temporarily less space available. Also the test picture will put only bits in the datastream in case so called empty packets would be transmitted.

**Note:** The test picture does not comply 100 % with the DVB-s standard and could cause problems with some receivers. The test picture will be transmitted at the channel next to the normal picture channel.

The **Online Menu** has been automatically installed during the firmware installation. To use it you have to use a Terminal Program like e.g. HyperTerminal that can be downloaded at Microsoft.

1. Open Hypertrm/ Pop up window – cancel

2. File/Properties

3. Connect/COM2 (if on COM2 or other)

4. Configure 19200

8

NONE

None

5. Then OK and OK
6. After typing H you will see the following;

### **Menu**

f - Set Frequency  
F - Toggle FEC mode  
I - Toggle Inversion  
l - Print Log  
P - Parameters  
c - Display Counter  
S - Status  
C - Capture Status  
D - DCF77 Status  
A - ADC Status  
L - Enable/Disable Logging to Console  
n - Active Network Connections  
m - Toggle Modulation  
p - PLL lock detect status  
X - Flash  
y - Init Encoders from FLASH config  
T - Toggle Table Sending  
s - Test Encoder SIO  
M - Max Periodic Latency

F and f are the most interesting ones for the moment. Typing F you can change the FEC in steps from 1/2 to 7/8.  
Typing 1291f will change the TX frequency to 1291 MHz.

### **Making a testpicture with TMPGEnc.exe**

You can download this program at <http://www.tmpgenc.com>

1. Make a 704x576 .bmp file with e.g. Paint Shop Pro or Irfanview

2. Open TMPGEnc.exe and use the following adjustments:

Setting -----video -stream type MPEG-2 video

-size 704x576

-Aspect ratio 4:3 display

-Frame rate 25 fps

-Rate control mode Constant bitrate (CBR)

-bitrate 1150 kbit/sec

- Vbv buffersize (0 automatic)
- Profile and level Main Profile & Mainlevel ([MP@ML](#))
- video format PAL
- Encode mode interlace
- YUV format 4.2.0
- DC coefficient precision 8 bits
- Motion search precision normal
- Advanced -Video source type interlace
- Field order Top field first (field A)
- Source aspect ratio 4:3 625 line PAL
- Video arrange method, Full screen (keep aspect ratio)

Further nothing marked

GOP Structure -1-5-2-0

Quantize matrix -default

Fill in the video source and the Output file name.

Start

The testpicture appears now at the chosen directory (same directory as the one where you have your Adacom files)

Good luck and a lot of pleasure

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If you have any question about working with- or installing the firm- and software, maybe I can help you via [ea5fin@skynet.be](mailto:ea5fin@skynet.be)